National Immunization Survey-Teen

A User's Guide for the 2022 Public-Use Data File

Centers for Disease Control and Prevention

National Center for Immunization and Respiratory Diseases

Presented by:

NORC at the University of Chicago

December 2023

Acknowledgments

The development and production of the NIS-Teen public-use data files is a team effort that has included contributions from many individuals (listed in alphabetical order) in two organizations:

National Center for Immunization and Respiratory Diseases, CDC – Laurie D. Elam-Evans, Sean Hu, Cassandra Pingali, and James A. Singleton.

NORC at the University of Chicago – Rachel Francis, Benjamin Skalland, Kirk Wolter, and Maggie Yarbrough.

Table of Contents

Appendices

List of Tables and Figures

Convention for Bolding Text

The Data User's Guide uses **bold** font to highlight substantive changes in the methodology or study design from the previous year's Guide.

This page intentionally blank.

1. Introduction

In 1992, the Childhood Immunization Initiative (CII) (CDC 1994) was established to 1) improve the delivery of vaccines to children; 2) reduce the cost of childhood vaccines; 3) enhance awareness, partnerships, and community participation; 4) improve vaccinations and their use; and 5) monitor vaccination coverage and occurrences of disease. The Healthy People 2020 objectives later established a target for adolescents aged 13–15 years of 80% coverage with ≥1 Tdap, ≥1 MenACWY, and ≥3 HPV doses in females and males, and 90% coverage for ≥2 varicella vaccine doses. The Healthy People 2030 objectives for vaccination coverage aim to increase the proportion of adolescents aged 13–15 years who have received the recommended number of doses of HPV vaccine (≥2 or ≥3 doses) among females and males combined to 80% by 2030. To fulfill the CII mandate of monitoring vaccination coverage and marking progress toward achieving those objectives, the National Immunization Survey (NIS) Family of Surveys with an adolescent component called the NIS-Teen was implemented by the National Center for Immunization and Respiratory Diseases (NCIRD) and the National Center for Health Statistics (NCHS) of the Centers for Disease Control and Prevention (CDC) in 2006 (http://www.cdc.gov/vaccines/imz-managers/nis/about.html).

The target population for the NIS-Teen is non-institutionalized adolescents aged 13–17 years living in United States households at the time of the interview. The official coverage estimates reported from the NIS-Teen are proportions of adolescents up-to-date with respect to the recommended numbers of doses of all routinely recommended vaccines for adolescents and selected catch-up vaccines (Wodi et al. 2022). These vaccines and their recommended numbers of doses are:

- Tetanus, diphtheria, and acellular pertussis vaccine (Tdap) – 1 dose;
- Quadrivalent meningococcal vaccine (MenACWY) – 2 doses;

- Human papillomavirus vaccine (HPV) – 2 or 3 doses, depending on age at first dose[1];
- Measles, mumps, and rubella vaccine (MMR) – 2 doses;
- Hepatitis B vaccine (Hep B) – 3 doses;
- Varicella zoster (chicken pox) vaccine – 2 doses among adolescents with no varicella disease history;
- Hepatitis A vaccine (Hep A) – 2 doses; and
- Seasonal influenza vaccine – 1 dose annually.

The NIS-Teen is conducted as an add-on to the National Immunization Survey - Child (NIS-Child), which seeks to estimate vaccination coverage rates among children aged 19–35 months. The NIS-Child uses a random digit dialing (RDD) telephone survey[2] to identify households containing children aged 19–35 months and interviews the adult who is most knowledgeable about the child's vaccinations. If an eligible household is identified and the NIS-Child interview is completed, the household is then screened for the presence of 13–17 year-old adolescents. Households that do not contain a 19–35 month old child are not administered the NIS-Child interview but are immediately screened for the presence of a 13–17 year-old adolescent. If a household containing one or more adolescents aged 13–17 years is identified, a 13–17 year-old adolescent is randomly chosen, and the adult who is most knowledgeable about the teen's vaccinations is interviewed. With consent of the teen's parent or guardian, the NIS-Teen also contacts (by mail) the teen's vaccination provider(s) to request information on vaccinations from the teen's medical records. NIS-Teen sampling, data collection, and weighting operations are conducted by NORC at the University of Chicago.

[1] The 2-dose HPV vaccination schedule was approved in October 2016 for adolescents who received their first dose before age 15 (Meites, Kempe, and Markowitz, 2016). Therefore, changes in vaccination due to the new recommendation would be reflected in the 2022 NIS-Teen data for adolescents receiving HPV vaccinations after that time (see Walker et al., 2018).

[2] The NIS-Child used a landline-only sampling frame during 1995–2010, a dual-frame design in 2011–2017 which included both landline and cell-phone sampling frames, and a single-frame cell-phone sample since 2018.

Samples of telephone numbers are drawn independently, for each calendar quarter, within selected geographical areas. For the 2022 NIS-Teen, there are 58 geographic strata for which vaccination coverage levels can be estimated, including 5 local areas; the remaining 52 are either an entire state, the District of Columbia, a U.S. territory (Guam or Puerto Rico), or a "rest of state" area. This design makes it possible to produce annual estimates of vaccination coverage levels within each of the 58 estimation areas with a specified degree of precision (a coefficient of variation of approximately 6.5%). Further, by using the same data collection methodology and survey instruments in all estimation areas and across years, the NIS-Teen produces comparable vaccination coverage levels among estimation areas and over time.

When the NIS-Teen was first conducted in Quarter 4 of 2006 and Quarter 4 of 2007, the survey was designed to produce estimates at the national level only. Starting in 2008, the NIS-Teen was expanded to produce estimates in 56 areas, including the 50 states, District of Columbia, and 5 local areas that receive federal Section 317 immunization grants (Bexar County, TX; City of Chicago, IL; City of Houston, TX; New York City, NY; Philadelphia County, PA). These areas are called *estimation areas*. **In 2022, the NIS-Teen included Guam and Puerto Rico as additional estimation areas.** As noted throughout this report, some procedures differed for territories when compared to the rest of the United States, including the creation of separate survey weight variables for analyses that are to include territories.

Data for Guam are not included in the 2022 public-use data file to protect respondent confidentiality, as the sampling fractions were large in this small-population area. Interested researchers can access data for Guam by submitting a proposal and working through the Research Data Center. The link and guidelines for developing a proposal are located at https://www.cdc.gov/rdc.

For the 2022 NIS-Teen, household interviews began on January 6, 2022 and ended on January 30, 2023. Provider data collection extended from February 2022 through March 2023. A total sample, including the territory samples, of approximately 14.2 million telephone numbers yielded household interviews for 44,270 teens, 16,954 of whom had adequate provider data (provider-reported

vaccination data adequate to determine whether the teen was up-to-date with respect to the recommended vaccination schedule). The 2022 NIS-Teen public-use data file (which includes data from Puerto Rico but does not include data for Guam) contains data for 43,738 teens with completed household interviews, and more extensive data (e.g., provider-reported vaccination histories and facility data) for 16,714 teens with adequate provider data (including 129 unvaccinated teens). Data were collected Guam in 2022, although adolescents in this area are not included on the public-use data file in order to protect their confidentiality.

NIS-Teen vaccination coverage estimates are based on provider-reported vaccination histories from adolescents with adequate provider data (APD). In 2014, the household questionnaire was shortened to reduce the length of the household interview, decrease respondent burden, and potentially improve survey response rates. Questions that were previously used to define APD were no longer available, thus necessitating a modification to the APD definition used by the NIS-Teen (for more details, see CDC, 2015a; CDC, 2015b). NIS-Teen estimates for 2022 will be directly comparable to NIS-Teen estimates published since 2014, but not to estimates published prior to 2014.

The weights included in this public-use data file allow data analysts to conduct several different types of analysis, depending on interests and aims. One can choose to analyze all teens with completed household interviews or only the subset of teens for whom the provider-reported data are adequate. CDC publishes estimates of vaccination coverage based on provider-reported vaccination histories using the subset of teens for whom the provider-reported data are adequate. Parental reported vaccination status is subject to recall error (Dorell et al. 2011, Ojha et al. 2013). Also, one can choose to include or exclude teens who reside in territories in the analysis. Previous NIS-Teen public-use files have provided analysts with these capabilities as well. Section 6 of this user's guide provides information about the creation of the weight variables included in the 2022 NIS-Teen public-use data file, and Section 8 provides guidance for their use.

Vaccination coverage estimates for 2022 are available on the *TeenVaxView* website, https://www.cdc.gov/vaccines/imz-managers/coverage/teenvaxview/index.html.

The accompanying codebook (NCIRD, 2023) documents the contents of the 2022 NIS-Teen public-use data file, and Section 7 of this user's guide describes these contents in detail. For reference, Appendix D (Alphabetical Listing of Variables in the NIS-Teen Public-Use Data Files) provides a full list of variables in the 2022 and previous public-use data files. NIS-Teen data and documentation for 2015 to the present are available at: https://www.cdc.gov/vaccines/imz-managers/nis/datasets-teen.html.

Additional information on the NIS-Teen is available at: http://www.cdc.gov/vaccines/imz-managers/nis/about.html.

For additional information on the NIS-Teen public-use data file, please contact the NCIRD Information Dissemination Staff:

Information Dissemination Staff, NCIRD
1600 Clifton Road
Atlanta, GA 30333
E-mail: cdcinfo@cdc.gov
Internet: https://www.cdc.gov/vaccines/imz-managers/nis/index.html

2. Sample Design

The NIS-Teen uses two phases of data collection to obtain vaccination information for a large national probability sample of teens: (1) a RDD telephone survey designed to identify households with adolescents aged 13–17 years, followed by (2) the Provider Record Check, a mailed survey to teens' vaccination providers. This section summarizes these two phases of data collection. Descriptions of the history and general design of the NIS family of surveys are given by Ezzati-Rice et al. (1995), Zell et al. (2000), Smith et al. (2001a, 2005), Jain et al. (2009), and Wolter et al. (2017a).

2.1. The NIS-Teen RDD Telephone Survey

The NIS-Teen RDD telephone survey phase uses independent, quarterly samples of telephone numbers. Sampling frames were provided by Marketing Systems Group (MSG). Cellular phone numbers were sampled within estimation areas in each quarter of 2022. Table E.1 (in Appendix E) lists the estimation areas for the 2022 NIS-Teen by state or territory and shows the estimated number of teens living in each state or territory and estimation area in 2022.

Because the NIS-Teen is an add-on survey to the NIS-Child, the NIS-Teen uses the same sampling frame and sampling methodology as the NIS-Child. In 2022, this was a single-frame cellular phone sampling design, with telephone numbers sampled only from a sampling frame of cellular phone numbers. Prior to 2011, the NIS-Teen was based on a landline telephone sample. A cellular phone sample was added to the survey in 2011 in order to address the rapid rise of cellular phone-only households. As cellular phone penetration has increased, fewer and fewer households, especially households with children, have relied only on a landline telephone. Because the proportion of households with children that are reachable only by landline telephone is now very small – only 0.3% in 2022 (Blumberg and Luke 2023) – the landline sample was dropped beginning in 2018, and the NIS-Teen now uses only a cellular phone sample. A discussion of this change and its impact is given by Nguyen et al. (2019).

The target sample size of completed telephone interviews in each estimation area is designed to achieve an approximately equal coefficient of variation of 6.5% for an estimator of vaccination coverage derived from provider-reported vaccination histories, given a true coverage parameter of 50%. Cellular phone sample sizes were chosen to meet the target coefficient of variation of 6.5%.

Since 2019, the NIS sample design has included a modification to increase the efficiency of data collection. Immunization Information Systems (IIS) are state or local confidential, computerized, population-based data systems that collect and consolidate vaccination doses administered by participating vaccination providers to persons residing in a given geopolitical area. In participating geographic estimation areas, a two-phase RDD sample of cellular phone numbers is selected, with the second-phase sample stratified by the status of the telephone number in the corresponding IIS:

- Stratum 1: Phone number associated with a 19-35 month old child in the IIS
- Stratum 2: Phone number associated with a 13-17 year old adolescent in the IIS (but not with a 19-35 month old child in the IIS)
- Stratum 3: Phone number associated with a 6-18 month or 3-12 year old child in the IIS (but not with a 19-35 month old child or 13-17 year old adolescent in the IIS)
- Stratum 4: Phone number not associated with a 6 month to 17 year old child in the IIS

In the second phase of sampling, phone numbers falling into Strata 1, 2, and 3 were oversampled. The method was designed to maximize the effective sample sizes for the NIS family of surveys, given a fixed

cost for data collection, within each of the participating geographic estimation areas. **For the 2022 sample, 30 areas participated in this two-phase sampling process to increase efficiency of sampling.**[3]

In 2022, including the U.S. territory samples, 38.3% of teens with a completed household interview were determined to have adequate provider data. Excluding territories, this proportion was 38.8%. The percentage of teens with adequate provider data in 2022 varies among the non-territory estimation areas (from 32.4% in TX-City of Houston to 48.7% in Vermont); among the U.S. territories, the percentages were 45.1% in Guam and 27.8% in Puerto Rico (see Appendix E). The phrase "adequate provider data" means that sufficient vaccination history information was obtained from the provider(s) to determine whether the teen is up-to-date with respect to the recommended vaccination schedule. In 2014, the definition of adequate provider data was expanded to include all adolescents with provider-reported vaccination data (CDC, 2015a; CDC, 2015b). In 2021, the NIS-Teen began collecting data on COVID-19 vaccination, and the definition of adequate provider data was further revised to exclude adolescents for whom only COVID-19 vaccinations were reported; this change was made to maintain consistency in the definition between 2021 and prior years. Unvaccinated teens are also considered to have adequate provider data. These are teens for whom either (1) the respondent reported during the household interview that the teen had received no vaccinations and has no providers, or (2) the respondent reported during the household interview that the adolescent had received no vaccinations but has one or more providers, and those providers all reported administering no vaccinations. The number of unvaccinated teens in the sample is small (**130 in 2022**, including the U.S. territory samples).

The design and implementation of the NIS-Teen cellular phone sample involve three procedures. First, statistical models predict the number of sample cellular phone numbers needed in each estimation area to

[3] The participating geographic areas in 2022 were Alaska, Arkansas, Connecticut, Florida, Georgia, Idaho, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Mississippi, Missouri, Nebraska, Nevada, New Mexico, New York – City of New York, North Carolina, North Dakota, Ohio, Oklahoma, Rhode Island, South Dakota, Tennessee, Utah, Vermont, Washington, Wyoming, and Puerto Rico. Not all of these areas utilized the IIS-NIS integration design in every quarter of 2022; Georgia used the integration design only in quarter 4.

meet the target precision requirements, and, from among the entire NIS-Child sample of telephone numbers, this number of telephone numbers are "flagged" to be part of the NIS-Teen sample. Second, the sample for an estimation area is divided into random sub-samples called replicates. By releasing replicates as needed, it is possible to spread the interviews for each sampling area evenly across the entire calendar quarter. Third, an automated procedure eliminates numbers on the NIS do-not-call list from the sample before the interviewers dial them.

In 2014 and 2015, an automated process was implemented to remove cellular phone numbers flagged as having no recent activity and that were therefore very likely to be non-working cellular phone numbers. In 2016, a different automated process found to be more efficient in removing non-working cellular phone numbers was used. Following a July 2016 Federal Communications Commission (FCC) declaratory ruling (FCC 16-72, CG Docket No. 02-278) stating that the federal government and contractors working on behalf of the federal government are not subject to the restrictions on cellular phone dialing in the Telephone Consumer Protection Act of 1991 (TCPA, 47 U.S.C. 227), the NIS transitioned from manual dialing of cellular phones to auto-dialing cellular phones in November 2016. After this transition, the automated process to remove non-working cellular phone numbers was no longer cost effective, and beginning in 2017 this process was no longer used in the cellular phone sample.

2.2. The NIS-Teen Provider Record Check

At the end of the household interview, consent to contact the teen's vaccination provider(s) is requested from the parent/guardian. When oral consent is obtained, each provider is mailed an immunization history questionnaire (IHQ). This mail survey portion of the NIS-Teen is the Provider Record Check.

The instructions ask vaccination providers to mail or fax the immunization history questionnaire back upon completion. Two weeks after the initial mailing, a telephone call is made to providers who have still not responded, to remind and encourage them to complete the form and either mail or fax the information back. In some instances, provider-reported vaccination histories are completed over the telephone. The

data from the questionnaires are edited, entered, cleaned, and merged with the household information from the RDD survey to produce a teen-level record.

2.3. Summary of Data Collection

Table 1 presents selected operational results of NIS-Teen data collection for calendar year 2022 for the NIS-Teen sample. To facilitate comparisons with prior NIS-Teen surveys, the numbers, which are presented in Table 1 and discussed in this section, exclude the U.S. territory samples. **Adolescents aged 13–17 years during 2022 data collection were born between January 2004 and January 2010.**

The total cellular phone RDD sample (in replicates that were released for use) consisted of 14,181,051 telephone numbers. Of these, 21,183 were eliminated before release to the telephone centers as numbers on the NIS do-not-call list, and the remaining 14,159,868 were sent to the telephone centers to be dialed. A total of 966,705 active personal cellular phone numbers (APCNs) were identified as shown in Row F. Among the identified APCNs, 756,978 (78.3%) were successfully screened. Of these, 61,397 (8.1%) were deemed eligible for the NIS-Teen interview. Respondents were eligible if the cellular phone belonged to an adult living in a household with at least one age-eligible teen. Among the identified eligible households, 41,234 (67.2%) completed the household interview.

A standard approach for measuring response rates in telephone surveys has been defined by the Council of American Survey Research Organizations (CASRO 1982). The CASRO response rate is equivalent to "RR3" of AAPOR Standard Definitions (AAPOR 2016). **In 2022, the CASRO response rate (Row J) was 23.0%. The NIS-Teen CASRO response rate equals the product of the resolution rate (43.7%, Row E), the screening completion rate (78.3%, Row G), and the interview completion rate among eligible households (67.2%, Row I).** The resolution rate is the percentage of the total telephone numbers selected that are classifiable as non-working, non-residential, or residential. The screening completion rate is the percentage of known households that are successfully screened for the presence of age-eligible

teens. The interview completion rate is the percentage of households with one or more age-eligible teens that complete the household interview.

Row K of Table 1 shows that household interviews were completed for 41,325 age-eligible teens[4]. Rows L through O give results for the Provider Record Check phase. Specifically, Row L gives the rate of obtaining oral consent from household respondents to contact their teen's vaccination providers – 49.2% in 2022. The number of immunization history questionnaires mailed to vaccination providers exceeds the number of completed interviews for teens with consent because some teens have more than one vaccination provider. **Of the questionnaires mailed to providers of teens, 29,354 (88.5%, Row N) were returned. Among the teens with completed household interviews, 16,043 (38.8%, Row O) had adequate vaccination histories based on provider reporting (17,899) or were determined to be unvaccinated (126). The other 61.2% of teens lacked adequate provider data for a variety of reasons, such as the parent or guardian did not give consent to contact the teen's provider(s), the provider(s) did not respond, or the provider(s) responded but did not report any vaccinations for the teen despite the parent or guardian indicating that the teen has received vaccinations.**

In 2022, data from the Health Insurance Module (HIM) were collected (see Section 3.1). **Among the 41,325 teens with completed household interviews, 21,427 (51.8%, Row P) completed the HIM.**

For each estimation area and each state or territory, Table E.1 (see Appendix E) shows the number of teens with completed household interviews and the number of teens with adequate provider data.

[4] This figure may differ from that in Row I because some completed interviews were removed when edits to the teen's date of birth rendered the teen ineligible. Differences may also occur because Row I excludes teens initially sampled in the U.S. territories, while row K excludes teens currently living in the U.S. territories. Thus, Row I reflects the removal of teens not sampled but currently living in U.S. territories, and the addition of teens sampled but not currently living in U.S. territories.

Table 1: Selected Operational Results (Excluding U.S. Territories), National Immunization Survey – Teen, 2022

Row	Key Indicator	Cellular Phone Sample		Formula
		Number	Percent	
	Household Phase			
A	Total Selected Telephone Numbers in Released Replicates	14,181,051	--	--
B	Phone Numbers Resolved before Computer-Assisted Telephone Interviewing	21,183	0.1%	B/A
C	Total Phone Numbers Released to Telephone Centers	14,159,868	--	A-B
D	Advance Letters Mailed	0	0.0%	D/C
E	Resolved Phone Numbers[1] – *Resolution Rate*	6,203,007	43.7%	E/A
F	Households Identified – *APCN Rate*[2]	966,705	15.6%	F/E
G	Households Successfully Screened[3] – *Screener Completion Rate*	756,978	78.3%	G/F
H	Eligible Households – *Eligibility Rate*[4]	61,397	8.1%	H/G
I	Households with Completed Household Interviews – *Interview Completion Rate*	41,234	67.2%	I/H
J	CASRO[5] Response Rate[6]	--	23.0%	--
K	Age-Eligible Teens with Completed Household Interviews[7]	41,325	--	--
	Provider Phase			
L	Teens with Consent to Contact Vaccination Providers	20,334	49.2%	L/K
M	Immunization History Questionnaires Mailed to Providers	33,176	--	--
N	Immunization History Questionnaires Returned from Providers	29,354	88.5%	N/M
O	Teens with Adequate Provider Data	16,043 (includes 126 unvaccinated teens)	38.8%	O/K
	Modules			
P	Age-Eligible Teens with Completed Household Interview and Completed Health Insurance Module	21,427	51.8%	P/K

[1] A phone number is resolved if it was determined to be either a non-working number or a working residential number. This row includes phone numbers resolved before computer-assisted telephone interviewing (CATI) (Row B). The numbers resolved before CATI interviewing are those on the NIS do-not-call list.
[2] Active personal cellular phone number (APCN) rate.
[3] The household screener screens for non-minor-only cellular phone households with age-eligible children.
[4] Of the screened households, the proportion that were non-minor-only cellular phone households with age-eligible children.
[5] CASRO, Council of American Survey Research Organizations.
[6] The response rate is the number of households with a completed household interview divided by the estimated number of eligible households in the sample. The number of eligible households was estimated using the CASRO assumptions; these assumptions are that the rate of households among the unresolved telephone numbers is the same as the observed rate of households among the resolved telephone numbers, and the rate of eligible households among unscreened households is the same as the observed rate of eligible households among screened households. Under these assumptions, the CASRO response rate is equal to the product of the resolution rate, the screener completion rate, and the interview completion rate.
[7] Rows K-P reflect the removal of teens with an ineligible best date of birth, the removal of teens who were not sampled but reported living in a U.S. territory, and the addition of teens sampled in a U.S. territory who reported living in the non-territory United States.

2.4. Informed Consent, Security, and Confidentiality of Information

The introduction to the telephone survey and oral consent assure the respondent of the confidentiality of his/her responses and the voluntary nature of the survey. Informed consent is obtained from the person in the household most knowledgeable about the eligible teen's vaccination history (generally the parent or guardian of the teen). Informed consent to contact the teen's vaccination provider(s) is obtained at the end of the interview.

Information in the NIS-Teen is collected and processed under high security. To ensure privacy of the respondents and confidentiality of sensitive information, standards have been established for release of data from this survey. All CDC staff and contractor staff involved with the NIS-Teen sign confidentiality agreements and follow instructions to prevent disclosure.

All information in the NIS-Teen is collected under strict confidentiality and can be used only for research [Section 308(d) of the Public Health Service Act, 42 U.S. Code 242m(d), the Privacy Act of 1974 (5 U.S. Code 552a)]. Prior to public release, the contents of the public-use data file go through extensive review by the NCIRD Disclosure Review Board to protect participant privacy as well as data confidentiality.

3. Content of NIS-Teen Questionnaires

This section describes the questionnaires used in the 2022 NIS-Teen telephone interview of households and in the NIS-Teen Provider Record Check.

3.1. Content of the Household Questionnaire

The computer-assisted telephone interview (CATI) questionnaire used in the RDD phase of NIS-Teen data collection consists of two parts: a screener to identify households with adolescents aged 13—17 years and an interview portion. The questionnaire is modeled on the Immunization Supplement to the National Health Interview Survey (NHIS) (NCHS 1999). The NIS-Teen CATI questionnaire has been translated into Spanish, and LanguageLine Solutions® (formerly part of AT&T) is used for real-time translation into many other languages (Wall et al. 1995). Table 2 summarizes the content of each section of the NIS-Teen household interview. The CATI questionnaire is available at http://www.cdc.gov/vaccines/imz-managers/nis/datasets-teen.html.

In the first section, the household is initially screened to ensure that the cellular phone is used by an adult (i.e., to ensure it is not a minor-only cellular phone), and then screened for the presence of children aged 19-35 months. If the household contains such a child, the NIS-Child interview is conducted before the household is screened for the NIS-Teen survey; if the household does not contain such a child, the household immediately proceeds to the NIS-Teen screener.

In the next section with the NIS-Teen screener, the purpose of the survey is explained to the respondent, and the ages of all the children in the household are obtained. If the household contains one or more adolescents aged 13—17 years, a 13—17 year-old adolescent is randomly chosen to be the subject of the interview, this teen's date of birth is collected, and the respondent is asked whether he/she is the most knowledgeable person for this teen's vaccination history. If the respondent indicates that another person in the household is more knowledgeable, the interviewer asks to speak to him/her at that time. If that

person is unavailable to be interviewed, the name of the most knowledgeable person is recorded, and a callback is scheduled for a later date.

Table 2: Content of the Household Interview, National Immunization Survey – Teen, 2022

Questionnaire Section	Content of Section
Section S	Screening questions to determine NIS-Child eligibility
NIS-Teen Screener	Screening questions to roster children and to determine NIS-Teen eligibility
Section B	Ever vaccinated and flu, Td/Tdap, meningococcal, and HPV vaccination questions
Section C	Teen and household health questions, demographic and socioeconomic questions
Section D	Provider information and request for consent to contact the teen's vaccination provider(s)
Section E	Health Insurance Module (HIM)

The standard NIS-Teen questionnaire formerly included Section A following the NIS-Teen Screener, which asked about vaccinations recorded on a paper "shot card" sometimes given to families to track vaccination dates and dosages. After asking whether the respondent has a shot card of the teen's vaccination history, he/she was asked whether the shot card was easily accessible. If so, the interview proceeded with Section A (which asked respondents with shot cards about the shots on the card), followed by Section C; if not, it proceeded with Section B followed by Section C. Beginning in Q1/2014, Section A was eliminated from the regular household questionnaire and all respondents were administered Section B. Section B was also shortened. The remaining Section B questions are a limited set of questions regarding flu, Td/Tdap, meningococcal, and HPV vaccinations; questions about measles, varicella, hepatitis A, and hepatitis B vaccines were removed. In 2015 and 2016, Section A was reinstated for Guam respondents, but was discontinued for all respondents beginning in 2017.

Section C collects information about the health of the selected teen, including recent doctor visits and history of chicken pox disease, asthma, and other health conditions. Section C also obtains information that includes the relationship of respondent to the teen, race and Hispanic origin of the teen, household

income, educational attainment of the mother, and other information on the socioeconomic characteristics of the household and the teen.

In the Provider Section (Section D) of the NIS-Teen household interview, identifying information (such as name, address, and telephone number) for the teen's vaccination provider(s) is requested, as well as the full names of the teen and the respondent, so that NIS-Teen personnel can contact the provider(s) and identify the teen whose vaccination information the NIS-Teen is requesting. After this information is obtained, consent to contact the teen's vaccination provider(s) is requested. When oral consent and sufficient identifying information are obtained, the immunization history questionnaire is mailed to the teen's vaccination provider(s).

A Health Insurance Module (HIM) (Section E) is administered upon completion of the Provider Section to collect data regarding the types of medical insurance coverage the teen has had since age 11 years. If a respondent provided consent to contact medical providers and completed the Provider Section, he/she flowed directly into the HIM. If, however, consent or any other critical provider question was refused, the call was terminated and the respondent was called back later to attempt to complete the Provider Section and obtain consent. Only upon callback on which consent was granted or a second refusal given within the Provider Section was the respondent asked the HIM.

3.2. Content of the Immunization History Questionnaire (IHQ)

The IHQ mailed to the vaccination providers is designed to be simple and brief, to minimize provider burden and encourage survey participation. The structure and content of this form were initially derived from the National Immunization Provider Record Check Study (NHIS/NIPRCS), which collected and reconciled vaccination data from the providers of respondents to the Immunization Supplement to the National Health Interview Survey (Bartlett et al., 2001). The IHQ consists of two double-sided pages. Page 1 includes space for the label that gives the teen's name, date of birth, and sex. The remainder of page 1 contains questions about the facility and vaccination provider. Page 2 gives instructions for filling

out the shot grid, which appears on page 3. Page 4 thanks the vaccination provider for providing the information, and lists websites and telephone numbers that can be used to obtain more information about the NIS-Teen and the National Center for Immunization and Respiratory Diseases. The IHQ is available at http://www.cdc.gov/vaccines/imz-managers/nis/datasets-teen.html.

4. Data Preparation and Processing Procedures

The household and provider data collection in the NIS-Teen incorporate extensive data preparation and processing procedures. During the household interview, the CATI system supports reconciliation of critical errors as interviewers enter the data. After completion of interviewing for a quarter, post-CATI editing and data cleaning produce a final interview data file. The editing of the provider data begins with a manual review of returned immunization history questionnaires, data entry of the questionnaires, and cleaning of the provider data file. After the provider data are merged with the household interview data and responses from multiple providers for a teen are consolidated into a single vaccination history, the editing continues. A quality assurance check is performed based on the name, sex, and date of birth of the teen to ensure that the provider completed the questionnaire for the correct teen and to confirm age-eligibility (age 13—17 years at time of interview). Editing of the provider-reported vaccination dates then attempts to resolve specific types of discrepancies in the provider data. The end product is an analytic file containing household and provider data for use in estimating vaccination coverage.

4.1. Data Preparation

The editing and cleaning of NIS-Teen data involve several steps. First, the CATI system enables interviewers to reconcile potential errors while the respondent is on the telephone. Further cleaning and editing take place in a post-CATI clean-up stage, involving an extensive review of data values, cross tabulations, and the coding of verbatim responses for race and ethnicity. The next step involves the creation of numerous composite variables. Provider data are cleaned in a separate step. After these steps have been completed, imputations are performed for item non-response on selected variables, and weights are calculated. The procedures and rules of the National Health Interview Survey serve as the standard in all stages of data editing and cleaning (http://www.cdc.gov/nchs/nhis.htm).

4.1.1. Editing in the CATI System

The CATI software checks consistency across data elements and does not allow interviewers to enter invalid values. Catching potential errors early increases the efficiency of post-survey data cleaning and processing.

To prevent an overly complicated CATI system, out-of-range and inconsistent responses produce a warning screen, allowing the interviewer to correct errors in real time. This allows the interviewer to reconcile errors while the respondent is on the telephone. CATI warning screens focus on items critical to the survey, such as those that determine a teen's eligibility (e.g., date of birth).

A CATI system cannot simultaneously incorporate every possible type of error check and maximize system performance. To reconcile this trade-off, post-CATI edits are used to resolve problems that do not require access to the respondent, as well as unanticipated logic problems that appear in the data.

4.1.2. Post-CATI Edits

The post-CATI editing process produces final, cleaned data files for each quarter. The steps in this process, implemented after all data collection activities for a quarter are completed, are described below.

Initial Post-CATI Edits and File Creation

After completion of interviewing each quarter, the raw data are extracted from the CATI data system and used to create two files: the sample file and the interview data file. The sample file contains one record for each sampled telephone number and summary information for telephone numbers and households. The interview data file contains one record for each eligible sampled teen and all data the household reported for the teen.

Following creation of these two files, a preliminary analysis of each file identifies out-of-range values and extraneous codes. The first check verifies the eligibility status of teens, based on date of birth and date of

interview. Once the required corrections are verified, invalid values are replaced with either an appropriate data value or a missing value code.

Frequency Review

After the pre-programmed edits are run, frequency distributions of all variables in each file are produced and reviewed. Each variable's range of values is examined for any invalid values or unusual distributions. If blank values exist for a variable, they are checked to see whether they are allowable and whether they occur in excessive numbers. Any problems are investigated and corrected as appropriate.

File Crosschecks

Crosscheck programs ensure that cases exist across files in a consistent manner. Specifically, checks ensure that each case in the interview data file is also present in the sample file and that each case in the sample file was released to the telephone centers. Checks also ensure that no duplicate households exist in the sample file and no duplicate teens exist in the interview data file.

When all checks have been performed, the final quarterly interview data file is created. Programmers and statisticians then create composite variables constructed from basic variables for each teen. Sampling weights (described in Section 6 of this Guide) are added to each record.

4.1.3. Editing of Provider Data

Six to eight weeks after the close of household data collection for a quarter, the majority of the immunization history questionnaires have been collected from providers. The data from the hard-copy questionnaires are entered and independently re-entered to provide 100% verification. The provider data file is cleaned, in a similar fashion to the household data file, for out-of-range values and consistency. A computer program back-codes all "other shot" verbatim responses into the proper vaccine category (e.g., Recombivax counts as Hep B). These translations come from a file that contains all such verbatim responses ever encountered in the NIS-Teen. Also, the provider data file is checked for duplicate records,

and exact duplicates are removed. If the provider data contain a date of birth, sex, or name for the teen that differs from the household interview for that teen, the questionnaire is re-examined to determine whether it may have been filled out for the incorrect teen. Provider data that appear to have been filled out for the wrong teen are removed from the provider database. When a teen has data from multiple providers, decision rules are applied to produce the most complete picture of the teen's vaccination history.

Once these data have been cleaned, they are combined with the household data file. Information from up to eight providers can be added to a teen's record. If more than one provider reported vaccination data for the teen, the data from the multiple provider reports are combined into a single history for the teen, called the "synthesized provider-reported vaccination history." The determination of whether the teen is up-to-date for recommended vaccines and vaccine series is based on the teen's synthesized provider-reported vaccination history.

Many variables in the household data file are checked against or verified with the provider data file. For example, a teen's date of birth as recorded by the provider is checked against the date of birth as given by the household, to verify that the provider was reporting for that specific teen and to form a "best" date of birth for the teen.

4.2. Limitations of Data Editing Procedures

Although data editing procedures were used for the NIS-Teen, the data user should be aware that some inconsistent data might remain in the public-use data file. The variables that indicate whether a teen is up-to-date on each vaccine or series (on which the estimates of vaccination coverage are based) are derived from provider-reported data, and the NIS-Teen does not re-contact households or providers to attempt to reconcile potential discrepancies in provider-reported vaccination dates or to resolve date-of-birth reporting errors. However, the provider-reported data are manually reviewed and edited to correct specific reporting errors. Some adolescents considered to have adequate provider data may have incomplete

vaccination histories. These incomplete histories arise from three primary sources: 1) the household does not identify all vaccination providers, 2) some but not all providers respond with vaccination data, and 3) providers respond with vaccination data but fail to list all the vaccinations in the teen's medical record. Even with these limitations, the NIS-Teen overall is a rich source of data for assessment of up-to-date status and age-appropriate vaccination. Also, NIS-Teen is the only source to provide comparable provider-reported vaccination data across states and local areas in the United States.

4.3. Variable-Naming Conventions

The names of variables follow a systematic pattern as much as possible. The codebook for the public-use data file groups the variables into ten broad categories according to the source of the data (household or provider) and the content of the variable (NCIRD, 2023). See Section 7 of this report for detailed information on the contents of the public-use data file.

4.4. Missing Value Codes

Missing value codes for each variable can be found in the codebook (NCIRD, 2023). For household variables, the missing value codes usually are 77 for DON'T KNOW and 99 for REFUSED. Some household variables may also contain blanks, if the question was not asked. The variables developed from the immunization history questionnaire generally do not have specific missing value codes.

4.5. Imputation for Item Non-Response

The NIS-Teen uses imputation primarily to replace missing values in the socioeconomic and demographic variables used in weighting. Missing values of these variables are imputed for all teens with a completed household interview – i.e., all teens appearing on the public-use data file. Missing values of health insurance variables are also imputed for teens with adequate provider data. A sequential hot-deck method is used to assign imputed values (Ford 1983). Class variables are used to separate respondents into cells. Donors and recipients must agree on the categories of the class variables, which include the estimation area. Within the categories of the class variables, respondents are sorted by variables related to the

variable to be imputed. The last case with an observed value is used as the donor for up to four recipients. The variable labels in the codebook (NCIRD, 2023) identify variables that contain imputed values. These variables include the sex, Hispanic origin, race, and health insurance status of the teen; the education level, age group, marital status, and mobility status of the mother; and the income-to-poverty ratio of the household. Codebooks from 2015 to present are available at: https://www.cdc.gov/vaccines/imz-managers/nis/datasets-teen.html.

4.6. Vaccine-Specific Recoding of Verbatim Responses

On the IHQ, providers can list vaccinations in the "other" section of the IHQ shot grid. After data collection, these vaccinations are reclassified into the listed categories, if possible, using a vaccination recoding table. This table is reviewed by NCIRD personnel to ensure the vaccinations are recoded into the appropriate category or categories (for combination vaccinations).

4.7. Subsets of the NIS-Teen Data

The NIS-Teen public-use data file contains data for all adolescents aged 13–17 years who have a completed household interview. An interview is considered complete if the respondent completed Section C of the questionnaire. As explained in Section 6 of this guide, each teen with a completed household interview is assigned a weight (**RDDWT_C** for the United States, excluding territories; **RDDWT_C_TERR** for the United States, including territories) for use in estimation.

The NIS-Teen uses the synthesized provider-reported vaccination histories to form the estimates of vaccination coverage because the provider data are considered more accurate than household-reported data. Thus, the most important sub-set of the data consists of teens with adequate provider data. For these teens, one or more providers returned the immunization history questionnaire that included vaccination data. Unvaccinated teens are also considered to have adequate provider data. As discussed in Section 7 below, the **PDAT2** variable identifies the teens with adequate provider data (**PDAT2**=1). These teens have a separate weight (**PROVWT_C** for the United States, excluding territories; **PROVWT_C_TERR**

for the United States, including territories), which should be used to form estimates of vaccination coverage (see Section 6).

4.8. Confidentiality and Disclosure Avoidance

To prevent identification of participants in the NIS-Teen and the resulting disclosure of information, certain items from the questionnaires are not included in the public-use data file. In addition, some of the released variables either are top- or bottom-coded, or have their categories collapsed. Variable labels indicate which variables have been collapsed or recoded. These decisions are reviewed by the NCHS Disclosure Review Board to ensure the public-use data files meet acceptable levels of disclosure risk.

5. Quality Control and Quality Assurance Procedures

A major contributor to NIS-Teen data quality is its sample management system, which in 2022 managed over 220 estimation area by quarter samples and used a number of performance measures to track their progress toward completion. Important aspects of the quality assurance program for the RDD component of the NIS-Teen included on-line interviewer monitoring; on-line provider look-ups in a database system integrated with the CATI system, including names, addresses, and telephone numbers of vaccination providers; and automated range-edits and consistency checks. These and other quality assurance procedures contributed to a reduction in total data collection cost by minimizing interviewer labor and overall burden to respondents. Khare et al. (2000), Khare et al. (2001), and the *National Immunization Survey: Guide to Quality Control Procedures* (CDC 2002) address quality assurance procedures.

The Provider Record Check component used quality control measures at four junctions: prior to mailing packets to providers; during the telephone prompting effort; during the editing of returned questionnaires; and during and after their data entry. The final quality assurance activities were implemented during post-processing of the returned questionnaires or vaccination records. All returned questionnaires were examined to identify and correct any obvious errors prior to data entry and then key-entered with 100% verification. The keying error rate is estimated, by way of a second verification process, to be less than 1%.

6. Sampling Weights

The two phases (RDD-phase and provider-phase) of data collection result in a separate sampling weight for each teen that has data at that phase. The RDD-phase sampling weights permit analyses of data from teens with completed household interviews. Each teen with adequate provider data (the subset of teens with completed household interviews on which official estimates of vaccination coverage are based) has a provider-phase sampling weight. In 2022, the RDD-phase sampling weight variable for producing estimates for teens with completed household interviews in the United States excluding territories is called **RDDWT_C**, and the RDD-phase weight variable for producing estimates for the United States including territories is called **RDDWT_C_TERR**. The provider-phase sampling weight variable for producing estimates for teens with adequate provider data in the United States excluding territories is called **PROVWT_C**, and the provider-phase weight variable for producing estimates for the United States including territories is called **PROVWT_C_TERR**. See Section 8 of this user's guide for more information about the weights included in the data file and the proper way to use them.

A sampling weight may be interpreted as the approximate number of teens in the target population that a teen in the sample represents. Thus, for example, the sum of the sampling weights of teens that are up-to-date (on a particular vaccine or series of vaccines) yields an estimate of the total number of teens in the target population who are up-to-date. Dividing this sum by the total of the sampling weights for all teens gives an estimate of the corresponding vaccination coverage rate.

This section describes how these weights are developed and adjusted so as to achieve an accurate representation of the target population. The base weights reflect each telephone number's probability of being selected into the sample; the adjustments take into account non-resolution of residential/non-residential/non-working status of a telephone number, non-response to the screener, subsampling of one eligible teen in the household, non-response to the household interview, number of telephone lines in the

household, raking for differential coverage rates, non-response by providers, and a final raking adjustment.

6.1. Base Sampling Weight

In each quarterly NIS-Teen sample, each teen with a completed household interview receives a base sampling weight. The base sampling weight is equal to the inverse of the probability the phone number was sampled from the sampling frame for the quarter and estimation area.

6.2. Adjustments for Non-Resolution of Telephone Numbers and Screener Non-Response

Non-response occurs in population-based surveys when respondents cannot be reached during the survey period, are not available at the time of the interview, or refuse to participate. Thus, the sum of the base sampling weights of teens with completed household interviews will underestimate the size of the target population in the estimation area, because not all sampled households respond to all stages of data collection up to the household interview. As a result, the base sampling weights must be adjusted so they can accurately reflect the number of teens in the target population that each sampled teen with a completed household interview represents.

Some sampled households with age-eligible teens fail to complete the household interview because of unit non-response: for some telephone numbers, it is never determined whether or not the number is a working residential number despite multiple call attempts; for some households it is never determined whether or not the household contains age-eligible teens; and some households with age-eligible teens do not complete the household interview. To compensate for these types of unit non-response, the sampling weights of teens with a completed household interview are adjusted to account for the estimated number of age-eligible teens in households whose telephone numbers are never resolved; the estimated number of age-eligible teens in households that fail to complete the screening interview; and the estimated number of age-eligible teens in households that fail to complete the household interview because of unit non-

response. Each of these adjustments is carried out within each estimation area by forming weighting cells based on the Metropolitan Statistical Area (MSA) status of the wire center associated with the cellular phone number (MSA/non-MSA). Each of the non-response adjustments for territories was done at the estimation area level. That is, no weighting cells were formed for territories. Each cell in each stage of adjustment is ensured to have sufficient resolved/responding cases (usually 20) at that stage of adjustment. The cells with a deficient number of responding cases are collapsed into neighboring cells, i.e., both MSA categories are collapsed if either of the cells have a deficient number of responding cases. Once the adjustment cells are formed, the weights of the unresolved/non-responding records from the previous adjustment step are distributed to the weights of the resolved/responding records within each cell.

6.3. Adjustment for Subsampling of One Teen per Household

In households with more than one teen, only one teen is selected randomly per household for the NIS-Teen interview. The non-response adjusted age screener weight is adjusted to account for the teens that are not selected. Each household's age screener weight is adjusted by multiplying it by the total number of eligible teens reported in the household (up to a maximum of 3).

6.4. Adjustment for Interview Non-Response

Some households that are determined to be eligible fail to complete the household interview for the selected teen. To compensate for this third type of unit non-response, the sampling weights of teens with a completed household interview are adjusted to account for teens who live in households that failed to complete the household interview. Similar to the first two types of unit non-response, the adjustment is carried out within estimation areas by forming weighting cells based on MSA status. For territories, the interview non-response adjustment was done at the estimation area level, i.e., no weighting cells were formed for the territory interview non-response adjustment. Each weighting cell for the interview non-response adjustment must have sufficient responding cases (usually 15); cells with a deficient number of

responding cases are collapsed with neighboring cells, i.e., both MSA categories are collapsed if either of the cells have a deficient number of responding cases. Once the adjustment cells are formed, the weights of the non-responding records from the previous adjustment step are distributed to the weights of the responding records within each cell.

6.5. Adjustment for Multiple Cellular Phones and Deriving Annual Weights

Once the non-response-adjusted interview weights for teens are computed, these weights are adjusted for additional cellular phones in the household. Because households with multiple cellular phones have a greater chance of being sampled, each teen's household interview weight is adjusted by dividing it by the total number of cellular phones used by parents or guardians (up to a maximum of 3).

Up to the previous step, the sampling weights are adjusted separately for each quarter, and the weights in each quarter pertain to the target population. However, annual vaccination coverage estimates are obtained from data for four consecutive quarters, so the weights in each quarterly file are adjusted when the data from the four quarters are combined. The adjustment factor is proportional to the number of households with completed household interviews in each quarter and estimation area.

6.6. Post-Stratification

Survey weights must be adjusted to provide weights for the full target population of teens aged 13—17 years. Weights are first adjusted to population control totals by telephone status. Teens in dual landline and cellular phone households are adjusted to the population estimate of teens living in dual user households within each estimation area, and teens in cellular phone-only households within each estimation area are weighted to represent teens in cellular phone-only households. Teens in landline-only and phoneless households, which are excluded from the sample, are accounted for in the raking step described below.

The control totals used for the 2022 NIS-Teen are derived from a combination of 2021 census population estimates and the combined 2019, 2020, and 2021 one-year American Community Survey (ACS) data for the United States and Puerto Rico, with adjustments for mortality, foreign immigration, and migration between states to produce population totals as of July 1, 2022. For Guam, the control totals are derived from the 2010 Census data. The proportion of teens by detailed telephone status (landline-only, landline and cellular phone dual-user, cellular phone-only, phoneless) within each estimation area in the United States were derived using a similar small area modeling approach as described in Blumberg et al. (2011). These modeled telephone status estimates are applied to the control total for the total number of teens age 13—17 years in the estimation area to estimate the number of teens age 13—17 years by telephone status within the estimation area.

To reduce sampling variability and improve the precision of estimation, extreme weights are trimmed within an estimation area. RDD sampling weight values exceeding the median weight plus three times the interquartile range of the weights within an estimation area are truncated to that threshold. This weight trimming prevents teens with unusually large weights from having an unusually large impact on vaccination coverage estimates.

The final step in adjusting the RDD sampling weights is a raking adjustment (Deming 1943) of the trimmed, telephone status adjusted weights. The raking procedure uses estimation area-level control totals for maternal education categories, teen's race/ethnicity, age group of the teen, sex of the teen, and telephone status. Raking makes it possible to incorporate additional variables into the weighting and to use more detailed categories for those variables. Briefly, raking takes each variable in turn and applies a proportional adjustment to the current weights of the teens who belong to the same category of the variable. After a number of iterations over all the variables, the raked weights have totals that match all the desired control totals. At this point, as before, the weights that exceed the median weight plus three times the interquartile range of the weights within an estimation area are truncated to that threshold. The

raking step is applied again after the truncation of the weights and the weights are rechecked for extreme weights and truncated as before. The process is iterated up to five times.

The sampling weights after all the foregoing adjustments constitute the "RDD sampling weights" (**RDDWT_C** for the United States excluding territories; **RDDWT_C_TERR** for the United States including territories).

6.7. Adjustment for Provider Non-Response

Among the 41,325 teens with a completed household interview (excluding territories), 16,043 (38.8%) had adequate provider data. To maintain consistency with the adequate provider data definition used in previous years prior to the introduction of COVID-19 vaccines, adolescents were not considered as having adequate provider data if the only vaccinations reported were COVID-19 vaccinations. The definition of teens with adequate provider data includes unvaccinated teens. These are teens for whom the respondent reported during the household interview that the teen had received no vaccinations and has no providers, or for whom one or more providers were reported but those providers reported administering no vaccinations. **Among the 16,043 teens with adequate provider data, 126 were unvaccinated teens.** Failure to obtain adequate provider data for the remaining 25,282 teens (61.2%) was attributable to:

- parent or guardian not giving consent to contact the teen's vaccination provider(s) (50.6%);
- consent to contact vaccination providers obtained but no providers returned the immunization history questionnaire (5.3%); and
- one or more providers returned the immunization history questionnaire, but no providers reported any non-COVID-19 vaccination data, despite the parent or guardian indicating that the teen has received vaccinations (4.0%).

The 25,282 teens for whom a household interview was completed but adequate provider data were not obtained are classified as "partial non-responders" because they have only a partial response to the NIS-Teen as a whole.

Empirical results for the NIS-Child suggest that children with adequate provider data have characteristics believed to be associated with a greater likelihood of being up-to-date, compared with children who had missing provider data. Specifically, children with adequate provider data are more likely to live in households that have higher total family income, have a white mother, and live outside a principal city of an MSA. Also, a child with missing provider data is less likely to live in the state where the mother lived when the child was born. These factors indicate a potential lack of continuity of health care, and are associated with lower vaccination rates (Coronado et al. 2000). An adjustment is made to the RDD sampling weights of the NIS-Child to account for these differences; otherwise, estimated vaccination coverage rates may be biased. A similar adjustment is also made to the RDD sampling weights of the NIS-Teen.

To reduce potential bias in estimators of vaccination coverage attributable to partial non-response, a weighting-class adjustment is used in each estimation area (Brick and Kalton, 1996). This adjustment involves three steps. In the first step, sampled teens are classified according to the quintile of their estimated probabilities of having adequate provider data. In the statistical literature these probabilities are called response propensities (Rosenbaum and Rubin 1983, 1984; Rosenbaum 1987). Teens that have similar response propensities will also be similar with respect to variables that are strongly associated with the probability of having adequate provider data. In this important respect, teens in each class are comparable. Because of this comparability, any sub-sample of teens in a class may represent all teens in the class. Therefore, the weighting-class adjustment uses the teens with adequate provider data to represent all teens in the class.

In the second step of this weighting-class adjustment, within each class an adjustment factor redistributes the RDD sample weights of the teens with missing provider data to the weights of the teens that have adequate provider data. These adjusted sampling weights of teens with adequate provider data are initial non-response-adjusted provider-phase weights.

Within an estimation area, the sums of non-response adjusted weights of teens with adequate provider data for the various levels of important socio-demographic variables (such as race/ethnicity) may not be equal to corresponding population totals. To reduce bias attributable to these differences, raking was used in the third step to adjust the non-response adjusted weights to match estimation area control totals. Control totals for these variables were estimated using the weighted totals from the sample of teens with completed household interviews. Smith et al. (2001b, 2005) describe the development of this approach in more detail. These raked weights of teens with adequate provider data are called "final provider-phase weights" (**PROVWT_C** for the United States excluding territories and **PROVWT_C_TERR** for the United States including territories). Because of the comparability of teens within each weighting class, any estimate that uses data only from the teens with adequate provider data, along with their provider-phase sampling weights, will have less bias attributable to differences between teens with adequate provider data and teens with missing provider data.

Appendix B summarizes the distribution of the sampling weights in each estimation area.

7. Contents of the Public-Use Data File

The NIS-Teen public-use data file contains a record for each eligible teen for whom Section C of the household interview was completed, along with household-reported vaccination information and demographic information about the teen and the teen's mother. For teens with immunization history questionnaires containing vaccination data returned by one or more providers, the file also contains provider characteristic variables, as well as variables based on the teen's synthesized provider-reported vaccination history: the age of the teen at each vaccination, the number of each type of vaccination received, and indicators of whether the teen is up-to-date with respect to various recommended vaccines and vaccine series.

The public-use data file consists of ten sections, the contents of which are described below in detail. For additional information, users are encouraged to consult the codebook (NCIRD, 2023). The codebook is divided into the ten sections described below and contains variable names, labels, and response frequencies (for categorical variables). The codebook also indicates the questionnaire item or items that serve as the ultimate source for each variable and, for selected variables, gives additional information about the variable in the "Notes" field. Codebooks and Household Interview Questionnaires from 2015 to present are located at: https://www.cdc.gov/vaccines/imz-managers/nis/datasets-teen.html.

Before describing the sections of the public-use data file below, we first summarize the differences between the 2021 and 2022 NIS-Teen public-use data files:

- **A new 2022 estimation area variable (ESTIAPT22) has been added and the 2021 estimation area variable (ESTIAPT21) has been dropped (see Table 5). Although data were collected for Guam in 2022, teens in this area are not included on the public-use data file in order to protect confidentiality.**
- **The following new up-to-date indicators have been added to the file:**
    - **P_UTDCOV1: Up-to-date indicator for 1+ COVID-19 vaccination.**

- **P_UTDCOV_FULL: Up-to-date indicator for fully vaccinated with 2+ COVID-19 doses or 1+ Johnson & Johnson/Janssen COVID-19 doses.**
- **P_UTDCOV_BOOST: Up-to-date indicator for fully vaccinated and boosted with 2+ COVID-19 doses or 1+ Johnson & Johnson/Janssen COVID-19 doses, followed by 1+ dose of any type.**
- **P_UTDMENB_S: Up-to-date indicator for 2+ MenB shots with age and interval restrictions and strict treatment of meningococcal shots of unknown type.**
- **P_UTDMENB_L: Up-to-date indicator for 2+ MenB shots with age and interval restrictions and lenient treatment of meningococcal shots of unknown type.**
- **P_U131132: Up-to-date indicator for 1+ Tdap since age 10, 1+ MenACWY, and up-to-date for HPV (2+ or 3+ doses depending on schedule, with age and interval restrictions), all before age 13 years.**

7.1. Section 1: ID, Weight, and Flag Variables

SEQNUMT is the unique teen identifier. (Because only one teen is selected per household, **SEQNUMT** is also a unique household identifier.) **PDAT2** indicates which teens are considered to have adequate provider data. As described in Section 6 of this report, **RDDWT_C/RDDWT_C_TERR** and **PROVWT_C/PROVWT_C_TERR** are the final household- and provider-phase weights, respectively. **PROVWT_C/PROVWT_C_TERR** should be used when analyzing the provider-reported data, i.e., the variables in Sections 7, 8, and 9 of the public-use data file.

7.2. Section 2: Household-Reported Vaccination and Health Information

As of 2017, all respondents are administered Section B of the household questionnaire, where they are asked whether they recall the teen getting flu, Td/Tdap, meningococcal, and HPV vaccinations, and for the number of meningococcal and HPV vaccinations.

Respondents are then administered Section C of the household interview, wherein information about the health of the selected teen and the teen's family, as well as demographic information about the teen and the teen's mother, is collected.

Section 2 of the public-use data file contains vaccination information collected in Section B, and the health information collected in Section C of the household questionnaire. **IMM_ANY** indicates whether the respondent reported that the teen has had a vaccination of any type. For each type of vaccine asked about in Section B (excluding seasonal influenza), a set of variables stores the information collected about that vaccine type; additional variables store the responses to the health questions in Section C.

The household-reported vaccination and health variables are described in more detail below. Household Interview Questionnaires from 2015 to present are located at: https://www.cdc.gov/vaccines/imz-managers/nis/datasets-teen.html.

7.2.1. Household-Reported Tetanus Vaccine Variables

Section B respondents that said the teen has received a vaccination of any type (IMM_ANY=1) are asked whether they recall the teen getting any Tetanus booster vaccinations. Variable **TET_ANY** indicates whether any Tetanus booster vaccinations were reported for the teen. All respondents reporting that the teen has not received any Tetanus booster vaccinations are then asked the reason the teen didn't receive Tetanus booster vaccinations. Variables **TET_REAS_1-TET_REAS_5, TET_REAS_7**, and **TET_REAS_10-TET_REAS_27** store the answers to this choose-all-that-apply question and reflect the coding of open-ended responses into the reason categories existing on the questionnaire as well as into newly-created reason categories.

7.2.2. Household-Reported Meningococcal Vaccine Variables

Section B respondents who said the teen has received a vaccination of any type (IMM_ANY=1) are asked whether they recall the teen getting any meningococcal vaccinations, and if so, they are asked for the number of meningococcal vaccinations they recall. Variable **MEN_ANY** indicates whether any

meningococcal vaccinations were reported for the teen. Variable **MEN_NUM_TOT** stores the total number of meningococcal vaccinations reported by the respondent. All respondents reporting that the teen has not received any meningococcal vaccinations, are then asked the reason the teen didn't receive meningococcal vaccinations. Variables **MEN_REAS_1-MEN_REAS_7** and **MEN_REAS_10-MEN_REAS_26** store the answers to this choose-all-that-apply question and reflect the coding of open-ended responses into the reason categories existing on the questionnaire as well as into newly-created reason categories.

7.2.3. Household-Reported Human Papillomavirus (HPV) Vaccine Variables

Section B respondents that said the teen has received a vaccination of any type (IMM_ANY=1) are asked whether they recall the teen getting any HPV vaccinations, and if so, they are asked for the number of HPV vaccinations they recall. Variable **HPVI_ANY** indicates whether any HPV vaccinations were reported for the teen. Variable **HPVI_NUM_TOT** stores the total number of HPV vaccinations reported by the respondent.

All respondents reporting that the teen has received a vaccination of any type (IMM_ANY=1), regardless of whether they reported the teen has received an HPV vaccination, are asked whether a doctor or other health care professional has ever recommended that the teen receive HPV vaccinations (**HPVI_RECOM**), and if so, the respondent is asked at what age the doctor recommended the teen should start receiving HPV shots (variable not included on the public-use file).

All respondents reporting that the teen received fewer than the recommended number of HPV vaccinations (two if the teen is under 15 years of age, three if the teen is 15 years or older) are asked how likely it is that the teen will receive HPV vaccinations in the next twelve months (**HPVI_INTENTR**). Those responding "Not too likely", "Not likely at all", or “Not Sure/Don’t Know” are asked the reason the teen won't receive HPV vaccinations in the next twelve months. Variables **HPVI_REAS_1-HPVI_REAS_3, HPVI_REAS_5-HPVI_REAS_6**, and **HPVI_REAS_9-HPVI_REAS_32** store the

answers to this choose-all-that-apply question and reflect the coding of open-ended responses into the reason categories existing on the questionnaire as well as into newly-created reason categories.

7.2.4. Household-Reported Health Variables

All respondents are asked whether the selected teen has ever had the chicken pox (**CPOX_HAD**) and, if so, they are asked the age of the teen in years at the time when the teen had the chicken pox (**CPOX_AGE**). Those unable to give an exact age are asked to report an age range (**CPOX_AGER**).

All respondents are then asked the age of the teen at the time of his or her last check-up (**CKUP_AGE**). If the teen's age at the last check-up was 13 years or more, the respondent is asked whether the teen had an 11-12 year old well-child exam (**CKUP_11_12**); if the respondent is unable or unwilling to answer this question he or she is asked whether or not the teen's last check-up was more than, exactly, or less than [age of teen - 12] years ago (**CKUP_LAST**).

All respondents are asked the number of times the teen has seen a health care professional in the last 12 months (**VISITS**); whether the teen has been told by a health professional that he or she has asthma (**ASTHMA**); whether the teen has ever been told by a health professional that he or she has a lung condition other than asthma, a heart condition, diabetes, a kidney condition, sickle cell anemia or other anemia, or a weakened immune system caused by a chronic illness or by medicines taken for a chronic illness (**RISK_EVER**); whether the teen currently has any of these conditions (**RISK_NOW**); and whether any other members of the teen's household currently have any of these conditions (**RISK_HH**). Finally, the respondent is asked the number of times in the past 12 months the teen has missed school due to illness or injury (**NOSCHOOLR**).

7.3. Section 3: Demographic, Socio-Economic, and Other Household/Teen Information

Section 3 of the NIS-Teen public-use data file consists of information collected during the household screening interview and the demographic information collected in Section C of the household main

interview. To protect confidentiality, many of these variables have been collapsed, top-coded, or bottom-coded from the original, fully-detailed versions; the variable labels (see the public-use date file codebook) indicate which variables have been collapsed or recoded. Codebooks and Household Interview Questionnaires from 2015 to present are located at: https://www.cdc.gov/vaccines/imz-managers/nis/datasets-teen.html.

AGE is the age of the selected teen in years based on the teen's best date of birth and the screener completion date, and **SEX** gives the sex of the selected teen, with missing values imputed. The language in which the interview was conducted is stored in variable **LANGUAGE**, and **C5R** gives the relationship of the respondent to the selected teen.

C1R and **CHILDNM** give the number of people and children, respectively, in the household.

The teen's Hispanic origin indicator, race with three categories, and race/ethnicity with four categories are presented in variables **I_HISP_K, RACE_K**, and **RACEETHK**, respectively; for each of these variables, missing values have been imputed. **EDUC_TR** gives the teen's grade in school at the time of the interview.

The age, education level, and marital status of the mother of the selected teen are stored in variables **AGEGRP_M_I**, **EDUC1**, and **MARITAL2** (married vs. not married), with missing values imputed.

The categorized total combined income for the teen's family is given by **INCQ298A**; **INCPOV1** gives the family's poverty status (at or above poverty, income > $75,000; at or above poverty, income <= $75,000; below poverty; unknown), and **INCPORAR** gives the ratio of the family's income to the poverty level. **INCPORAR_I** gives the same ratio after missing values of family income have been imputed. Household tenure is given by **RENT_OWN**.

The number of landline telephone numbers in the household, the number of working cellular phones household members have available for personal use, and the number of these cellular phones that are

usually used by parents or guardians are given by **NUM_PHONE, NUM_CELLS_HH**, and **NUM_CELLS_PARENTS**, respectively.

Variable **CEN_REG** gives the census region of the respondent's current residence, and **MOBIL_I** indicates whether the mother's current state of residence is the same as her state of residence at the time of the teen's birth.

7.4. Section 4: Geographic Variables

Variables **ESTIAPT22** and **STATE** give the 2022 estimation area and state of residence, respectively, for each teen. **EST_GRANT** indicates which of the 50 states, District of Columbia, and 5 local areas that receive federal Section 317 immunization grants (Bexar County, TX; City of Chicago, IL; City of Houston, TX; New York City, NY; Philadelphia County, PA) the teen resides in.

7.5. Section 5: Number of Providers Identified and Consent Variables

Variable **D7** indicates whether the respondent gave consent to contact the teen's providers. If **D7**=1, then consent was granted; if **D7**=2 then consent was explicitly denied; and if **D7** is missing, consent was not granted because the respondent broke off the interview before being explicitly asked for consent.

Variable **D6R** gives the number of providers identified by the respondent. Note that sometimes respondents report erroneous provider counts and sometimes report the same provider more than one time, and **D6R** does not reflect the cleaning or de-duplication of the initially-reported provider count. Variable **NUM_PROVR** gives the number of providers identified for teens with consent to contact the providers and reflects the cleaning and de-duplication of the initially-reported provider count. For teens without consent, **NUM_PROVR** is set to 0.

7.6. Section 6: Number of Responding Providers Variables

Variable **N_PRVR** indicates the number of providers returning IHQs with vaccination information for the teen. That is, **N_PRVR** is the number of IHQs that were returned for the teen that contain information on the IHQ shot grid.

7.7. Section 7: Characteristics of Providers Variables

This section summarizes the information collected in IHQ questions 4, 5b, 6, and 7 across the teen's providers who returned IHQs.

WELLCHILD indicates whether the teen had an 11-12 year old well child exam or check-up based on responses to IHQ question 4. If any of the teen's providers that returned IHQs reported that the teen had a well child exam, then **WELLCHILD**=1. If all of the teen's providers that returned IHQs reported that the teen did not have a well child exam, then **WELLCHILD**=2. If none of the teen's providers that returned IHQs reported that the teen had a well child exam, but at least one provider left the question blank or selected "Don't Know", or if no IHQs were returned for the teen, then **WELLCHILD**=3 (unknown).

FACILITY indicates the facility type of the teen's vaccination providers based on responses to IHQ question 5b. If all of the teen's providers who returned IHQs containing vaccination (i.e. shot grid) data (see Section 6 variable **N_PRVR**) reported their facility type to be:

- a public health department-operated clinic, community health center, rural health clinic, migrant health center, Indian Health Service-operated center, tribal health facility, or urban Indian health care facility, then **FACILITY**=1 (all public facilities);
- a hospital-based clinic, then **FACILITY**=2 (all hospital facilities);
- a private practice, then **FACILITY**=3 (all private facilities);
- a military health care facility, WIC clinic, school-based health center, pharmacy, or other type of facility, then **FACILITY**=4 (all military/WIC/school/pharmacy or other facilities).

If the responses of providers that returned IHQs containing shot grid data fell into more than one of the above bulleted categories, **FACILITY**=5 (mixed); otherwise, if at least one of the teen's providers returned an IHQ containing shot grid data, **FACILITY**=6 (unknown). If none of the teen's providers returned an IHQ containing shot grid data, **FACILITY** is set to missing.

The Vaccines For Children (VFC) program is a federally-funded program that provides vaccines at no cost to children who might not otherwise be vaccinated because of inability to pay (http://www.cdc.gov/vaccines/programs/vfc/index.html). CDC buys vaccines at a discount and distributes them to awardees—i.e., state health departments and certain local and territorial public health agencies—which in turn distribute them at no charge to those private physicians' offices and public health clinics registered as VFC providers. **VFC_ORDER**, based on responses to IHQ question 6, indicates whether the teen's vaccination providers order vaccines from a state or local health department to administer to children. If all of the teen's providers that returned IHQs containing shot grid data (see Section 6 variable **N_PRVR**) reported that they order vaccines from a state or local health department to administer to children, then **VFC_ORDER**=1 (all providers); if at least one of the teen's providers that returned an IHQ containing shot grid data reported that the practice orders vaccines from a state or local health department to administer to children and the teen's other providers that returned IHQs containing shot grid data reported either that they did not order such vaccines or that they did not know whether or not they did, then **VFC_ORDER**=2 (some but possibly or definitely not all providers); if all of the teen's providers that returned IHQs containing shot grid data reported that they do not order vaccines from a state or local health department to administer to children, then **VFC_ORDER**=3 (no providers); if none of the conditions for **VFC_ORDER**=1, 2, or 3 was met but at least one of the teen's providers returned an IHQ containing shot grid data, **VFC_ORDER**=4 (unknown). If none of the teen's providers returned an IHQ containing shot grid data, **VFC_ORDER** is set to missing. Note that having a provider that orders VFC vaccine does not imply that the child is VFC-entitled; providers enrolled in the VFC program could also vaccinate children who are not VFC-entitled.

REGISTRY is based on responses to IHQ question 7 and indicates whether the teen's vaccination providers reported the teen's vaccinations to a community or state immunization registry (also known as an Immunization Information System, or IIS). If all of the teen's providers that returned IHQs containing shot grid data (see Section 6 variable **N_PRVR**) indicated that they reported to a registry, then **REGISTRY**=1 (all providers); if at least one of the teen's providers that returned an IHQ containing shot grid data indicated that the practice reported to a registry and the teen's other providers that returned IHQs containing shot grid data indicated that they did not report to a registry, that they did not know whether or not they reported to a registry, or that the question is not applicable, then **REGISTRY**=2 (some but possibly or definitely not all providers); if all of the teen's providers that returned IHQs containing shot grid data indicated that they did not report to a registry or that the question is not applicable, then **REGISTRY**=3 (no providers); if none of the conditions for **REGISTRY**=1, 2, or 3 was met but at least one of the teen's providers returned an IHQ containing shot grid data, **REGISTRY**=4 (unknown). If none of the teen's providers returned an IHQ containing shot grid data, **REGISTRY** is set to missing.

7.8. Section 8: Provider-Reported Up-To-Date Vaccination Variables

This section contains vaccination count and up-to-date variables based on the teen's synthesized provider-reported vaccination history. To facilitate data processing and to accommodate the large and continually growing number of vaccination types covered by the NIS-Teen, the provider-reported vaccination data are organized around the concept of vaccine categories and vaccine types within vaccine category. The vaccine categories correspond to the sections of the IHQ shot grid, and the vaccine types correspond to the type boxes on the IHQ shot grid. For each vaccine category, an "unknown" vaccine type is created for vaccinations that are reported without a type box being checked. Table 3 shows the vaccine categories and types for the 2022 NIS-Teen public-use data file.

For each vaccine category (except for COVID-19, see below), Section 8 of the public-use data file contains a variable named **P_NUM*YYY*** – where "YYY" is the vaccine category abbreviation given in Table 3 – that stores the number of vaccinations in that vaccine category in the teen's synthesized

provider-reported vaccination history. For each vaccine category and type combination, Section 8 also contains a variable named **P_NUM*YYY_TT*** – where "YYY" is the vaccine category abbreviation and "TT" is the vaccine type code given in Table 3 – that stores the number of vaccinations in that vaccine category of that vaccine type in the teen's synthesized provider-reported vaccination history.

For each **P_NUM*YYY*** and **P_NUM*YYY_TT*** variable described above, there are corresponding variables of the form **P_N13*YYY*** and **P_N13*YYY_TT*** that count only vaccinations that the teen received prior to age 13 years.

This section of the public-use data file also contains up-to-date indicators for a variety of recommended vaccines and vaccine series. These variables' names begin with "**P_UTD**"; the variable labels indicate what is needed to be considered up-to-date for each variable, and the "Notes" field in the codebook shows the vaccine type codes (see Table 3) being included when determining whether the teen is up-to-date. For each "**P_UTD**" variable there is a corresponding variable whose name begins with "**P_U13**" that indicates whether the teen was up-to-date for the particular vaccine or vaccine series by age 13 years.

Note that it is possible that the administration of the NIS-Teen interview itself prompts some respondents to vaccinate their teens following the interview; to ensure that the vaccination rate estimates aren't artificially boosted because of this, the "**P_NUM**", "**P_N13**", "**P_UTD**", and "**P_U13**" variables in this section of the public-use data file count only vaccinations received before the date the household interview was completed.

Provider-reported COVID-19 vaccination data have been collected in the NIS-Teen since 2021, but detailed information about the number, type(s), and age(s) of COVID-19 doses are not included on the NIS-Teen public-use data file to protect respondent confidentiality. However, beginning in 2022, the following three up-to-date indicators are included on the file: P_UTDCOV1 identifies teens who have received at least 1 dose of COVID-19 vaccination, P_UTDCOV_FULL identifies teens who are considered "fully vaccinated" with 2+ doses (or 1+ dose of Johnson & Johnson/Janssen), and

P_UTDCOV_BOOST identifies teens who are "fully vaccinated" and have also received at least one booster dose.

This section also contains some additional UTD variables specific to human papillomavirus (HPV) vaccines. **P_UTDHPV11**, **P_UTDHPV12**, and **P_UTDHPV13** are conditional up-to-date indicators showing whether a teen has received exactly 1, exactly 2, or 3 or more HPV vaccinations, given that the teen has received at least one. Teens that have received no HPV vaccinations will have missing values for these variables. **P_UTDHPV3C** is the conditional HPV vaccination series completion indicator for the 3-dose series. It indicates, among teens that have received at least one HPV vaccination, whether the teen completed the series of three doses. This variable is limited to teens with at least one HPV vaccination where the interview completion date follows the date of the first HPV vaccination by at least 6 months, as 6 months is the minimum amount of time required to complete the 3-dose HPV vaccine series. **P_UTDHPV_15** indicates teens that either have received 3 or more HPV doses or have received 2 or more HPV doses with the 1st dose before age 15 years. **P_UTDHPV_15INT** indicates teens that either have received 3 or more HPV doses or have received 2 or more HPV doses with the 1st dose before age 15 years and at least 5 months minus 4 days between the 1st and 2nd doses. **P_UTDHPV3C_15INT** is the conditional HPV vaccination series completion indicator for either the 3-dose or 2-dose series. This variable uses the same criteria as P_UTDHPV_15INT but is limited to teens with at least one HPV vaccination and 6 months between the first HPV dose date and the household interview date.

Finally, this section includes two UTD variables specific to Meningococcal Serogroup B (MenB), both of which identify teens who have received at least 2 doses of MenB at age 10 or later with the appropriate interval between doses dependent on brand (4 weeks apart for Bexeros, or 6 months apart for Trumenba). The two variables differ in the treatment of Meningococcal doses of unknown type: **P_UTDMENB_S** uses a strict definition of UTD status which excludes all doses of unknown type, while **P_UTDMENB_L** uses a lenient definition of UTD status in which doses of unknown type are assumed to be the type most likely to result in the teen meeting the UTD criteria.

Table 3: Vaccine Categories and Vaccine Types, National Immunization Survey - Teen, 2022

Vaccine Category Abbreviation[1]	Vaccine Category Description	Vaccine Type Code	Vaccine Type Description
TDP	Td/Tdap-containing, given after age 6 years	11	Td
TDP	Td/Tdap-containing, given after age 6 years	14	Tdap
TDP	Td/Tdap-containing, given after age 6 years	15	Td/Tdap-containing, unknown type
HEPB	Hepatitis B-containing	61	0.5 ml Recombivax
HEPB	Hepatitis B-containing	62	1.0 ml Recombivax
HEPB	Hepatitis B-containing	63	Engerix
HEPB	Hepatitis B-containing	64	Hepatitis B-only, unknown type
HEPB	Hepatitis B-containing	43	HepB-Hib
HEPB	Hepatitis B-containing	HB	Hepatitis B-containing, unknown type
FLU	Seasonal influenza-containing	FZ	Fluzone
FLU	Seasonal influenza-containing	FV	Fluvirin
FLU	Seasonal influenza-containing	FN	Injected influenza, other/unknown type
FLU	Seasonal influenza-containing	FM	Flumist
FLU	Seasonal influenza-containing	FL	Influenza-containing, unknown type
MCV	Measles-containing	30	MMR-only
MCV	Measles-containing	31	Measles-only
MCV	Measles-containing	32	Measles-Mumps (through backcoding)
MCV	Measles-containing	33	Measles-Rubella (through backcoding)
MCV	Measles-containing	VM	MMR-Varicella
MCV	Measles-containing	MM	Measles-containing, unknown type
VAR	Varicella-containing	VO	Varicella-only
VAR	Varicella-containing	VM	MMR-Varicella
VAR	Varicella-containing	VA	Varicella-containing, unknown type
HEPA	Hepatitis A-containing	HO	HepA-only (Havrix or Vaqta)
HEPA	Hepatitis A-containing	HA	HepA-containing, unknown type
MEN	Meningococcal serogroup ACWY	80	MenACWY (Menactra or Menveo)
MEN	Meningococcal serogroup ACWY	81	MPSV4 (Menomune)
MEN	Meningococcal serogroup ACWY	82	Meningococcal serogroup ACWY, unknown type
MENB	Meningococcal serogroup B	BT	MenB-FHbp
MENB	Meningococcal serogroup B	BB	MenB-4C
MENB	Meningococcal serogroup B	BU	Meningococcal serogroup B, unknown type
MENU	Meningococcal, unknown serogroup	-	-
HPV	Human Papillomavirus	CV	Cervarix (2vHPV)
HPV	Human Papillomavirus	4V	Gardasil 4 (4vHPV)
HPV	Human Papillomavirus	9V	Gardasil 9 (9vHPV)
HPV	Human Papillomavirus	UV	Gardasil, unknown valency
HPV	Human Papillomavirus	HP	HPV, unknown type
COV	COVID-19	CP	Pfizer-BioNTech
COV	COVID-19	CM	Moderna

Vaccine Category Abbreviation[1]	Vaccine Category Description	Vaccine Type Code	Vaccine Type Description
COV	COVID-19	CJ	Johnson & Johnson/Janssen
COV	COVID-19	CN	Novavax
COV	COVID-19	CX	COVID-19, unknown type

[1] If another vaccine type is reported that is not on this list, it is either coded with the appropriate shot category with "unknown type" code (if it belongs in one of the existing NIS-Teen shot categories), or in an "Other" shot category (if it does not belong to an existing NIS-Teen shot category). Shots in the "Other" shot category are not included in the synthesized vaccination history variables, while shots coded to the shot category-specific "unknown type" codes are included except where variables are restricted to specific subtypes (as described in the variable labels/notes).

7.9. Section 9: Provider-Reported Age-At-Vaccination Variables

This section contains variables storing the teen's age in years, months, and days at each vaccination in the synthesized provider-reported vaccination history, along with the vaccine types of those vaccinations.

For each vaccine category, variables ***YYY*_AGE1 - *YYY*_AGE9** store the age in years of the teen when the vaccination was administered for up to nine vaccinations in the teen's synthesized provider-reported vaccination history, where "**YYY**" is the vaccine category abbreviation given in Table 3. Variables ***YYY*_MAGE1 - *YYY*_MAGE9** store the age in months of the teen when each vaccination was administered. Variables ***YYY*_DAGE1 - *YYY*_DAGE9** store the age in days of the teen when each vaccination was administered. For vaccine categories that contain multiple vaccine types, variables **X*YYY*TY1 - X*YYY*TY9** give the corresponding vaccine type code (see Table 3).

Unlike the vaccination count and up-to-date variables in Section 8 of the public-use data file, the variables in Section 9 include vaccinations given both before and after the household interview was completed. If desired, users can limit the Section 9 variables to only those before the household interview date by examining the corresponding Section 8 "**P_NUM**" variable and limiting the analysis of the Section 9 variables to only the first *n* variables, where *n* is equal to the number of vaccinations in the vaccine category before the household interview date as indicated by the corresponding "**P_NUM**" variable.

Users of the NIS-Teen public-use data file should be aware that the age-at-vaccination variables included in Section 9 may contain a small number of vaccination ages that are implausible according to the recommended immunization schedules (http://www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html). Such ages may arise if a medical provider inadvertently records an erroneous vaccination date or if a vaccination date is incorrectly transcribed onto an IHQ. The quality control procedures of the NIS-Teen address implausible ages to every extent possible. Suspicious dates are manually reviewed and corrected if there is evidence either from the household interview or from another provider that the date is incorrect. In rare cases, however, when there is no further information with which to correct the reported vaccination date, the vaccination is treated as having actually occurred and the implausible age at vaccination persists on the data file. The data user should consider these issues in deciding how to analyze the NIS-Teen data.

7.10. Section 10: Health Insurance Module Variables

The Health Insurance Module (HIM) (Section E) gathers information on the health insurance coverage of the selected teen. Prior to 2016, seven variables containing HIM data were included in the NIS-Teen public-use data file:

- TIS_INS_1: “Is the teen covered by health insurance provided through employer or union?”;
- TIS_INS_2: “Is the teen covered by any MEDICAID plan?”;
- TIS_INS_3: “Is the teen covered by CHIP?”;
- TIS_INS_3A: “Is the teen covered by any MEDICAID plan or CHIP?”;
- TIS_INS_4_5: “Is the teen covered by Indian Health Service, Military Health Care, TRICARE, CHAMPUS, or CHAMP-VA?”;
- TIS_INS_6: “Is the teen covered by any other health insurance or health care plan?”; and
- TIS_INS_11: “Since age 11, was there any time when the teen was not covered by health insurance?”

In 2016, these variables were replaced by two health insurance variables, INS_STAT_I and INS_BREAK_I, which summarize the teen's health insurance status and history across all of the insurance questions listed above, while also incorporating the imputation of missing values and coding of open-ended responses. In 2017, INS_STAT_I was replaced with INS_STAT2_I, which provides a different categorization of teens with both private and non-private, non-Medicaid insurance.

INS_STAT2_I identifies the teen's current health insurance coverage status. If the teen has a form of private health insurance and is not covered by any other type of health insurance, he/she is classified as (1) Private only. If the teen is on any form of Medicaid, alone or in addition to other forms of insurance, he/she is classified as (2) Any Medicaid. If the teen is not covered by Medicaid but is covered by some other type of health insurance (including, but not limited to, CHIP, Indian Health Service, Military Health Care, TRICARE, CHAMPUS, or CHAMP-VA), either alone or in combination with private insurance, he/she is classified as (3) Other. If the teen is not covered by any kind of health insurance, he/she is classified as (4) Uninsured.

INS_BREAK_I describes the teen's coverage history since age 11 and indicates whether there have been any breaks in coverage during this period. A teen may be (1) currently insured but uninsured at some point since age 11, (2) currently insured and never uninsured since age 11, (3) currently uninsured but insured at some point since age 11, or (4) currently uninsured and never insured since age 11.

Both variables are available only for teens with adequate provider data. **Beginning in 2022, these variables are available for teens from all estimation areas, whereas prior to 2022, they were not available from teens residing in U.S. territories.**

8. Analytic and Reporting Guidelines

Data from the NIS-Teen public-use data file can be used to produce national, state, and estimation-area estimates of vaccination coverage rates using the **PROVWT_C** weight (**PROVWT_C_TERR** if territories are to be included).

Information in the data file can also be used to calculate standard errors of the estimated vaccination coverage rates that reflect the complex sample design of the NIS-Teen. The file includes estimation area and state identifiers (**ESTIAPT22** and **STATE**) as well as a stratum identifier, **STRATUM**. The sample is stratified by the 58 geographic estimation areas.

Demographic and socioeconomic variables in the file can be used to obtain national vaccination coverage rates for sub-groups of the population. Data users should, however, be aware that estimates for such sub-groups at the state or estimation area level will generally have large standard errors because of small sample sizes. The CDC standard for precision of sub-group estimates is that relative standard error (the ratio of the standard error to the estimate) should be less than 0.3, and each analytic cell should contain at least 30 respondents.

8.1. Use of NIS Sampling Weights

The 2022 NIS-Teen public-use data file contains two teen-level sets of weights. The **RDDWT_C** variable gives the household-phase weight for all teens in the United States excluding territories (**RDDWT_C_TERR** if territories are to be included). These weights should be used to form estimates from teens with completed household interviews. The weights reflect the stratified sample design and also have been adjusted for unit non-response, for the selection of one teen per household, for the number of telephone lines in the household, for calibration to population control totals, and for the exclusion of non-telephone and landline-only teens. The weight variables **PROVWT_C**/**PROVWT_C_TERR** apply to teens with adequate provider data. These weights should be used to form estimates of vaccination coverage using variables from Sections 7, 8, and 9 of the public-use data file (see Section 7 of this user's

guide). Table 4 presents a summary of the appropriate weights and stratum variables to use for various types of analyses.

Table 4: Summary of Weights and Stratum Variables, National Immunization Survey - Teen, 2022

Weight Variable	Population*	Sample Frame	Strata	Stratum Variable
RDDWT_C	United States excluding territories	Single Frame Cellular Phone	Estimation Area	STRATUM
RDDWT_C_TERR	United States including territories	Single Frame Cellular Phone	Estimation Area	STRATUM
PROVWT_C	United States excluding territories, teens with adequate provider data	Single Frame Cellular Phone	Estimation Area	STRATUM
PROVWT_C_TERR	United States including territories, teens with adequate provider data	Single Frame Cellular Phone	Estimation Area	STRATUM

* Each weight will contain a missing value for all records that are not included in the population covered by the weight.

The NIS-Teen public-use data file does not contain any provider-level weights. The NIS-Teen does not sample providers directly; rather, they are included in the survey through the teens they vaccinate. A user of the file should not attempt provider-level analyses (e.g., estimate the percentage of providers in the United States that are private providers), because the NIS-Teen sample was not designed for that purpose.

8.2. Estimation and Analysis

8.2.1. Estimating Vaccination Coverage Rates

Vaccination coverage rates are ratio estimators, as described in the statistical literature on methods for complex sample surveys. Because of the adjustment to the sampling weights for provider-phase non-response, statistical analyses require only data from teens with adequate provider data (**PDAT2** = 1), along with their final provider sampling weights (**PROVWT_C**/**PROVWT_C_TERR**). To summarize the statistical methodology by which vaccination coverage rates and their standard errors are obtained from these data, let Y_{hi} be an indicator, for the *i*th teen with adequate provider data in the *h*th stratum of

the NIS-Teen sampling design, equal to 1 if the teen is up-to-date according to the provider data and 0 otherwise. Also, let W_{hi} denote the value of **PROVWT_C**/**PROVWT_C_TERR** for this teen. Then, letting $\hat{Y}_h = \sum_{i=1}^{n_h} W_{hi} Y_{hi}$ and $\hat{T}_h = \sum_{i=1}^{n_h} W_{hi}$, the national estimator of the vaccination coverage rate may be expressed as

$$\hat{\theta} = \frac{\sum_{h=1}^{L} \hat{Y}_h}{\sum_{h=1}^{L} \hat{T}_h}$$

where L denotes the number of strata, and n_h denotes the number of sampled teens with adequate provider data in the hth stratum.

Letting L instead denote the number of strata in a state, the above formula can also be used to calculate vaccination coverage rates for states (regardless of whether the state contains only one or more than one stratum).

8.2.2. Estimating Standard Errors of Vaccination Coverage Rates

The Taylor series method can be used to estimate the sampling variance of vaccination coverage rates for the U.S., the states, and estimation areas. Letting $Z_{hi} = \frac{W_{hi}(Y_{hi} - \hat{\theta})}{\sum_{h=1}^{L} \hat{T}_h}$ and $\bar{Z}_h = \frac{\sum_{i=1}^{n_h} Z_{hi}}{n_h}$ yields an estimator of the variance of the estimated vaccination coverage rate, $\hat{\theta}$, equal to

$$v(\hat{\theta}) = \sum_{h=1}^{L} \frac{n_h}{n_h - 1} \sum_{i=1}^{n_h} (Z_{hi} - \bar{Z}_h)^2 .$$

The standard error is the square root of the variance. The estimation of standard errors for estimates of vaccination coverage rates in the NIS-Teen can be implemented in specialized statistical software such as SUDAAN (Research Triangle Institute 2008), SAS (SAS Institute Inc. 2009), R (Lumley 2010), and Stata

(Stata Corporation 2009). Appendix C gives several examples of the use of SAS, R, and SUDAAN to estimate vaccination coverage rates and their standard errors for estimation areas and states. For all procedures, the option of with-replacement sampling of primary sampling units within stratum is used, because the sampling fractions for households within an estimation area are all quite small. For all estimates, the variable **STRATUM** is used as the stratum variable and the household/teen identifier (**SEQNUMT**) is used as the primary sampling unit identifier. The data file should be sorted first on **STRATUM** and then on **SEQNUMT** within **STRATUM** before running the programs for SUDAAN and SAS.

8.3. Combining Multiple Years of NIS-Teen Data

8.3.1. Estimation of Multi-Year Means

With release of the 2022 NIS-Teen public-use data file, fourteen years of public-use NIS-Teen data are now available. The precision of estimates of vaccination coverage for sub-domains (e.g., by race/ethnicity of teen) within estimation areas or states can be improved by combining multiple years of NIS-Teen data. Data users should, however, be aware that estimates from combined years of NIS-Teen data represent an average over multiple years. Although combining multiple years of NIS-Teen data will yield a larger sample size for estimation areas and states, the composition of the population in a geographic area may change over time, making interpretation of the results difficult. Furthermore, if vaccination administration schedules or vaccination coverage changes over time, the estimate of vaccination coverage for the combined time period applies to a hypothetical population that existed at the middle of the time period, making interpretation of the results even more difficult. Given the use of independent RDD samples in the NIS-Teen, it is also possible that a teen could appear in more than one public-use data file. Finally, given the change to the definition of adequate provider data in 2014 and its effect on NIS-Teen vaccination coverage rate estimates as described in the introduction, users should exercise caution when interpreting results from a combination of years prior to 2014 with years 2014 and later.

To estimate a multi-year mean for a given NIS-Teen variable, the weights in each participating file (RDD-phase weights **RDDWT** in 2008-2011, **RDDWT_D** in 2012-2017, and **RDDWT_C** in 2018-2022; and provider-phase weights **PROVWT** in 2008-2011, **PROVWT_D** in 2012-2017, and **PROVWT_C** in 2018-2022) should be divided by the number of years being combined. For example, if data for 2017-2022 for teens with adequate provider data are to be combined, then the weights in the six files – **PROVWT_D** in 2017 and **PROVWT_C** in 2018-2022 – should be divided by 6 to obtain revised weights, which should be saved as a new variable, say **NEWWT**. It is necessary to use **NEWWT** in the analysis to obtain correct weighted estimates for teens aged 13—17 years. Furthermore, the teen ID numbers (**SEQNUMT**) in the files are unique only within a year, not across years. It is important for the user to create revised, unique ID numbers when combining data from multiple years.

The following SAS code can be used:

YRSEQT = 1 * (**YEAR** || **SEQNUMT**);

YEAR is the 4-digit year variable for the NIS-Teen data year (e.g., 2022).

To produce valid estimates of sampling variability and valid confidence intervals for multi-year coverage rates and other multi-year means, it is necessary to use specialized software such as SAS, SUDAAN, R, or Stata.

There is an important complication for variance estimation when combining multiple years, because some estimation areas are removed and other new areas are added each year (see Section 2 above for more information about rotating estimation areas). The variance strata for 2011-2022 are defined by the variables **STRATUM_D** (for 2011) and **STRATUM** (for 2012-2022), with **STRATUM_D** and **STRATUM** being a combination of the estimation area variable for that year and the sampling frame (landline or cellular phone). The estimation area variables **ESTIAPT11-ESTIAPT22** define mutually exclusive and exhaustive geographic areas. However, they are not exactly the same areas. For example,

Dallas County, TX, was a separate estimation area in 2011, 2016, and 2019 but not in 2012-2015, 2018, and 2020-2022. Tarrant County, TX, was a separate estimation area in 2018, but not in 2011-2017 and 2019-2022. Other areas, such as New York City, NY and Rest of New York, are estimation areas in all years.

To make inferences concerning multi-year means, the user must take two actions. First, he/she must define and save a new stratum variable with a common name for all years included in the analysis. Second, he/she must define a common set of estimation domains that can be supported by each of the files included in the multi-year analysis. To take these actions, the user should follow the following seven-step procedure (or its equivalent):

i. Compute and save the new, common variance-stratum variable for each year participating in the analysis. The variable should be defined by the equation

   STRATUMV = **STRATUM_D**, for teens in the 2011 public-use data file

   = **STRATUM**, for teens in the 2012-2022 public-use data files

ii. Compute and save the new, common weight variable, **NEWWT**, as instructed above for each year participating in the analysis.

iii. Compute and save the new, unique teen identification numbers, **YRSEQT**, as instructed above for each year participating in the analysis.

iv. Compute and save a variable defining the common estimation domains to be studied for each year participating in the analysis. For example, one could use the CDIAP (Common Denominator Estimation Area) variable set forth in Table 5 or states as geographic domains.

v. Merge the multiple files into one consolidated file in a format compatible with the specialized software to be used.

vi. Sort the consolidated file by **YEAR**, **STRATUMV**, and **YRSEQT**.

vii. Run the specialized software on the consolidated file, computing estimates, variance estimates, and confidence intervals. For SUDAAN users, sampling levels or stages may be specified by the statement

NEST YEAR STRATUMV YRSEQT / PSULEV = 3;

the specification of weights by

WEIGHT NEWWT;

and the specification of estimation domains, for example, by the two statements

CLASS YEAR CDIAP STATE;
TABLES CDIAP;

or

CLASS YEAR CDIAP STATE;
TABLES STATE;

8.3.2. Estimation of Multi-Year Contrasts

Considerations similar to those for multi-year means arise in the estimation of contrasts between NIS-Teen years. For example, a typical contrast of interest would be the difference between the vaccination coverage parameters in 2021 and in 2022. As when combining multiple years of NIS-Teen data to estimate multi-year means, users should exercise caution when combining multiple years of data to estimate multi-year contrasts. The composition of the population in a geographic area may change over time, and it is possible that a teen could appear in more than one public-use data file. Furthermore, given the change in the definition of adequate provider data in 2014, users should be aware that NIS-Teen vaccination coverage estimates from 2014 and later, which use the revised definition, are not directly comparable to those from NIS-Teen 2013 and prior, which used the previous adequate provider data definition.

To make inferences concerning a multi-year contrast, the user will need to work with the original weights reported on the files and store them in a common variable. One must not divide the original weights by

the number of years included in the contrast. For the example, one may define the new, common weight variable as

NEWWT2 = **PROVWT**, if the teen is in the 2011 public-use data file

= **PROVWT_D**, if the teen is in the 2012-2017 public-use data files

= **PROVWT_C**, if the teen is in the 2018-2022 public-use data files.

The user should follow the seven-step procedure set forth in the section on multi-year means, using **NEWWT2** in lieu of **NEWWT**. In SUDAAN, the user should also specify the contrast of interest through use of a CONTRAST statement or an appropriate regression model. For example, to compare the Td/Tdap-containing vaccine up-to-date estimate from 2021 to the 2022 estimate, SUDAAN users can use the following WEIGHT, VAR, and CONTRAST statements:

```
WEIGHT NEWWT2;
VAR P_UTDTD;
CONTRAST YEAR = (-1 1);
```

Table 5: Cross-Walk Between Annual Estimation Areas, ESTIAPT08-ESTIAPT22, and Common Denominator Estimation Area (CDIAP), National Immunization Survey - Teen, 2022*

CDIAP	Area Name	ESTIAPT08 (2008)	ESTIAPT09 (2009)	ESTIAPT10 (2010)	ESTIAPT11 (2011)	ESTIAPT12 (2012)	ESTIAPT13 (2013)	ESTIAPT14 (2014)	ESTIAPT15 (2015)
20	Alabama	20	20	20	20	20	20	20	20
74	Alaska	74	74	74	74	74	74	74	74
66	Arizona	66	66	66	66	66	66	66	66
46	Arkansas	46	46	46	46	46	46	46	46
	California								
68	CA-Los Angeles County	68	69	68	68	68	68	68	68
68	CA-Rest of State	68	68	68	68	68	68	68	68
60	Colorado	60	60	60	60	60	60	60	60
1	Connecticut	1	1	1	1	1	1	1	1
13	Delaware	13	13	13	13	13	13	13	13
12	District of Columbia	12	12	12	12	12	12	12	12
22	Florida	22	22	22	22	22	22	22	22
25	Georgia	25	25	25	25	25	25	25	25
72	Hawaii	72	72	72	72	72	72	72	72
75	Idaho	75	75	75	75	75	75	75	75
	Illinois								
35	IL-City of Chicago	35	35	35	35	35	35	35	35
34	IL-Rest of State	34	34	34	34	34	34	34	34
	Indiana								
36	IN-Lake County	36	96	36	36	36	36	36	36
36	IN-Marion County	36	37	36	36	36	36	36	36
36	IN-Rest of State	36	36	36	36	36	36	36	36
56	Iowa	56	56	56	56	56	56	56	56
57	Kansas	57	57	57	57	57	57	57	57
27	Kentucky	27	27	27	27	27	27	27	27
47	Louisiana	47	47	47	47	47	47	47	47
4	Maine	4	4	4	4	4	4	4	4
14	Maryland	14	14	14	14	14	14	14	14
2	Massachusetts	2	2	2	2	2	2	2	2
38	Michigan	38	38	38	38	38	38	38	38
40	Minnesota	40	40	40	40	40	40	40	40
28	Mississippi	28	28	28	28	28	28	28	28
58	Missouri	58	58	58	58	58	58	58	58
61	Montana	61	61	61	61	61	61	61	61
59	Nebraska	59	59	59	59	59	59	59	59
73	Nevada	73	73	73	73	73	73	73	73
5	New Hampshire	5	5	5	5	5	5	5	5
8	New Jersey	8	8	8	8	8	8	8	8

CDIAP	Area Name	ESTIAPT08 (2008)	ESTIAPT09 (2009)	ESTIAPT10 (2010)	ESTIAPT11 (2011)	ESTIAPT12 (2012)	ESTIAPT13 (2013)	ESTIAPT14 (2014)	ESTIAPT15 (2015)
49	New Mexico	49	49	49	49	49	49	49	49
	New York								
11	NY-City of New York	11	11	11	11	11	11	11	11
10	NY-Rest of State	10	10	10	10	10	10	10	10
29	North Carolina	29	29	29	29	29	29	29	29
62	North Dakota	62	62	62	62	62	62	62	62
41	Ohio	41	41	41	41	41	41	41	41
50	Oklahoma	50	50	50	50	50	50	50	50
76	Oregon	76	76	76	76	76	76	76	76
	Pennsylvania								
17	PA-Philadelphia County	17	17	17	17	17	17	17	17
16	PA-Rest of State	16	16	16	16	16	16	16	16
6	Rhode Island	6	6	6	6	6	6	6	6
30	South Carolina	30	30	30	30	30	30	30	30
63	South Dakota	63	63	63	63	63	63	63	63
31	Tennessee	31	31	31	31	31	31	31	31
	Texas								
55	TX-Bexar County	55	55	55	55	55	55	55	55
54	TX-City of Houston	54	54	54	54	54	54	54	54
51	TX-Dallas County	51	52	52	52	51	51	51	51
51	TX-El Paso County	51	53	53	53	51	51	53	53
51	TX-Hidalgo County	51	51	51	51	51	51	51	107
51	TX-Travis County	51	51	51	51	51	51	51	51
51	TX-Tarrant County	51	51	51	51	51	51	51	51
51	TX-Rest of State	51	51	51	51	51	51	51	51
64	Utah	64	64	64	64	64	64	64	64
7	Vermont	7	7	7	7	7	7	7	7
18	Virginia	18	18	18	18	18	18	18	18
77	Washington	77	77	77	77	77	77	77	77
19	West Virginia	19	19	19	19	19	19	19	19
44	Wisconsin	44	44	44	44	44	44	44	44
65	Wyoming	65	65	65	65	65	65	65	65
-	Puerto Rico	-	-	-	-	-	-	106	106

Table 5 (continued): Cross-Walk Between ESTIAPT08-ESTIAPT22 and Common Denominator Estimation Area (CDIAP), National Immunization Survey - Teen, 2022

CDIAP	Area Name	ESTIAPT16 (2016)	ESTIAPT17 (2017)	ESTIAPT18 (2018)	ESTIAPT19 (2019)	ESTIAPT20 (2020)	ESTIAPT21 (2021)	ESTIAPT22 (2022)
20	Alabama	20	20	20	20	20	20	20
74	Alaska	74	74	74	74	74	74	74
66	Arizona	66	66	66	66	66	66	66
46	Arkansas	46	46	46	46	46	46	46
	California							
68	CA-Los Angeles County	68	68	68	68	68	68	68
68	CA-Rest of State	68	68	68	68	68	68	68
60	Colorado	60	60	60	60	60	60	60
1	Connecticut	1	1	1	1	1	1	1
13	Delaware	13	13	13	13	13	13	13
12	District of Columbia	12	12	12	12	12	12	12
22	Florida	22	22	22	22	22	22	22
25	Georgia	25	25	25	25	25	25	25
72	Hawaii	72	72	72	72	72	72	72
75	Idaho	75	75	75	75	75	75	75
	Illinois							
35	IL-City of Chicago	35	35	35	35	35	35	35
34	IL-Rest of State	34	34	34	34	34	34	34
	Indiana							
36	IN-Lake County	36	36	36	36	36	36	36
36	IN-Marion County	36	36	36	36	36	36	36
36	IN-Rest of State	36	36	36	36	36	36	36
56	Iowa	56	56	56	56	56	56	56
57	Kansas	57	57	57	57	57	57	57
27	Kentucky	27	27	27	27	27	27	27
47	Louisiana	47	47	47	47	47	47	47
4	Maine	4	4	4	4	4	4	4
14	Maryland	14	14	14	14	14	14	14
2	Massachusetts	2	2	2	2	2	2	2
38	Michigan	38	38	38	38	38	38	38
40	Minnesota	40	40	40	40	40	40	40
28	Mississippi	28	28	28	28	28	28	28
58	Missouri	58	58	58	58	58	58	58
61	Montana	61	61	61	61	61	61	61
59	Nebraska	59	59	59	59	59	59	59
73	Nevada	73	73	73	73	73	73	73
5	New Hampshire	5	5	5	5	5	5	5
8	New Jersey	8	8	8	8	8	8	8

CDIAP	Area Name	ESTIAPT16 (2016)	ESTIAPT17 (2017)	ESTIAPT18 (2018)	ESTIAPT19 (2019)	ESTIAPT20 (2020)	ESTIAPT21 (2021)	ESTIAPT22 (2022)
49	New Mexico	49	49	49	49	59	59	59
	New York							
11	NY-City of New York	11	11	11	11	11	11	11
10	NY-Rest of State	10	10	10	10	10	10	10
29	North Carolina	29	29	29	29	39	39	39
62	North Dakota	62	62	62	62	62	62	62
41	Ohio	41	41	41	41	41	41	41
50	Oklahoma	50	50	50	50	50	50	50
76	Oregon	76	76	76	76	76	76	76
	Pennsylvania							
17	PA-Philadelphia County	17	17	17	17	17	17	17
16	PA-Rest of State	16	16	16	16	16	16	16
6	Rhode Island	6	6	6	6	6	6	6
30	South Carolina	30	30	30	30	30	30	30
63	South Dakota	63	63	63	63	63	63	63
31	Tennessee	31	31	31	31	31	31	31
	Texas							
55	TX-Bexar County	55	55	55	55	55	55	55
54	TX-City of Houston	54	54	54	54	54	54	54
51	TX-Dallas County	52	52	51	52	51	51	51
51	TX-El Paso County	53	53	51	53	51	51	51
51	TX-Hidalgo County	51	51	107	51	51	51	51
51	TX-Travis County	51	108	51	51	51	51	51
51	TX-Tarrant County	51	51	109	51	51	51	51
51	TX-Rest of State	51	51	51	51	51	51	51
64	Utah	64	64	64	64	64	64	64
7	Vermont	7	7	7	7	7	7	7
18	Virginia	18	18	18	18	18	18	18
77	Washington	77	77	77	77	77	77	77
19	West Virginia	19	19	19	19	19	19	19
44	Wisconsin	44	44	44	44	44	44	44
65	Wyoming	65	65	65	65	65	65	65
-	Puerto Rico	106	-	-	106	106	106	106

*This table can be used to derive a Common Denominator Estimation Area (CDIAP) variable for use in multi-year NIS-Teen analyses. This is necessary because certain areas may be included as separate estimation areas in one year but subsumed within other estimation areas in another year. The CDIAP variable can be derived for each year by mapping the codes in the year-specific estimation area variable column (e.g., ESTIAP08 for the 2008 NIS-Teen) to the corresponding codes in the CDIAP column.

9. Summary Tables

Appendix E contains seven tables. Appendix Table E.1 lists the 58 estimation areas for the 2022 NIS-Teen by state. At the national level and for each state and estimation area, it provides the estimated population total of teens aged 13—17 years in 2022 and (from 2022 NIS-Teen data collection) the number of teens with completed household interviews and number of teens with adequate provider data.

Appendix Tables E.2 through E.5 summarize pairs of variables: age of teen by maternal education (Appendix Table E.2), age of teen by family poverty status (Appendix Table E.3), race/ethnicity of teen by family poverty status (Appendix Table E.4), age of teen by race/ethnicity of teen (Appendix Table E.5), and age of teen by sex of teen (Appendix Table E.6). Each of these tables gives the unweighted and weighted counts of teens for whom the household interview was completed and the unweighted and weighted counts of teens with adequate provider data.

Appendix Table E.7 presents estimates of vaccination coverage and 95% confidence intervals obtained from SAS. The data user should obtain the same estimates from the 2022 NIS-Teen public-use data file.

Appendix F shows the vaccine type codes used in the 2022 NIS-Teen public-use data file.

Appendix G contains four tables and time-series charts**.** Table G.1 and Figure G.1 show key components of the NIS-Teen landline sample response rates and the landline sample CASRO response rates by year of the survey. Table G.2 and Figure G.2 show key components of the NIS-Teen cellular phone sample response rates and the cellular phone sample CASRO response rates. Table G.3 and Figure G.3 show the CASRO response rates for the combined landline and cellular phone samples. Table G.4 and Figure G.4 show vaccination coverage rate estimates since 2006.

Appendix H presents key response rate components and the CASRO response rate by estimation area in the 2022 NIS-Teen.

10. Assessment of Total Survey Error in the NIS-Teen

Assessing the validity of the NIS-Teen estimates of vaccination coverage is a critical and ongoing aspect of the NIS surveillance program. CDC frequently conducts evaluation studies and controlled experiments to understand the causes and impacts of sampling and nonsampling errors on the estimates and enable formulation of methodological refinements that have the demonstrated capacity to improve data quality. As landline phone use decreased and cellular phone use increased dramatically over the past decade, and the NIS-Teen transitioned first from a single-frame landline RDD sampling design to a dual-frame landline and cellular phone RDD design and then to a single-frame cellular phone RDD design, CDC has monitored the NIS-Teen estimates utilizing a Total Survey Error (TSE) approach.

TSE is the sum of the errors that arise at every step of a survey, including both sampling error and nonsampling errors such as sampling-frame coverage, nonresponse, and measurement errors (Mulry and Spencer, 1991). Pooling information from multiple evaluations of their precision and accuracy, we have conducted TSE analyses for the 2009-2013 NIS-Child and NIS-Teen data (Molinari et al. 2011; NORC 2011; Pineau et al. 2012; Pineau et al. 2013; Skalland et al. 2016; Wolter et al. 2017b) and for the 2018-2021 NIS-Child and NIS-Teen data (see the Data User's Guides for the 2018-2021 NIS-Child and NIS-Teen public use data files). Data User's Guides from 2015 to present are located at: https://www.cdc.gov/vaccines/imz-managers/nis/datasets-teen.html.

An assessment based on 2022 NIS-Teen data was conducted in 2023 (CDC, 2023), with results summarized in this report. The full report is available at: www.cdc.gov/vaccines/imz-managers/coverage/teenvaxview/downloads/error-profile-2022-nis-teen.pdf.

10.1 Comparisons of NIS-Teen Data to External Sources

Comparison of Demographic Distributions. Demographic distributions (age, sex, race/ethnicity, mother's education, and mother's age) among adolescents with adequate provider data were compared to benchmark values for adolescents aged 13—17 years derived from the U.S. Census Bureau's Population

Estimates Program (PEP) and American Community Survey (ACS) data. ACS data are located at: https://www.census.gov/programs-surveys/acs. **When using design weights that have not been calibrated to external population totals, demographic distributions as estimated by the survey are generally close to the benchmark distributions. Before calibration, the NIS-Teen somewhat over-represented non-Hispanic White-only adolescents, under-represented Hispanic adolescents, and over-represented adolescents whose mothers are college graduates. When using final weights that have been calibrated to external population totals, the differences between survey estimates and population values narrowed, but the 2022 NIS-Teen still over-represented adolescents whose mothers are college graduates (59.1% in survey, 37.4% in population) and under-represented adolescents whose mothers have some college but not a four-year degree (23.3% in survey, 30.3% in population).**

Comparison to IISAR Vaccination Coverage Rates. Next, NIS-Teen vaccination coverage rate estimates were compared to vaccination coverage rates reported in the Immunization Information Systems Annual Report (IISAR). Sponsored and conducted by NCIRD, the IISAR is an annual assessment of immunization information systems (IIS)[5] activity among the 64 immunization program awardees, which include the 50 states, 6 cities (Chicago, District of Columbia, Houston, New York City, Philadelphia, and San Antonio), and 8 U.S. territories. To evaluate each awardee's performance, the immunization program manager in the awardee area is asked to complete a self-administered, web-based questionnaire asking for demographic and immunization information, public and private provider site participation levels, and information about achievement of IIS functional standards. NCIRD provides competitive supplemental funds to awardees that met high data timeliness and participation (child and adolescent) in the IIS. During the period 2013-2017, six awardees were recognized as IIS *sentinel sites*, including Michigan, Minnesota, North Dakota, New York City, Oregon, and Wisconsin. Because of increased timeliness and higher child

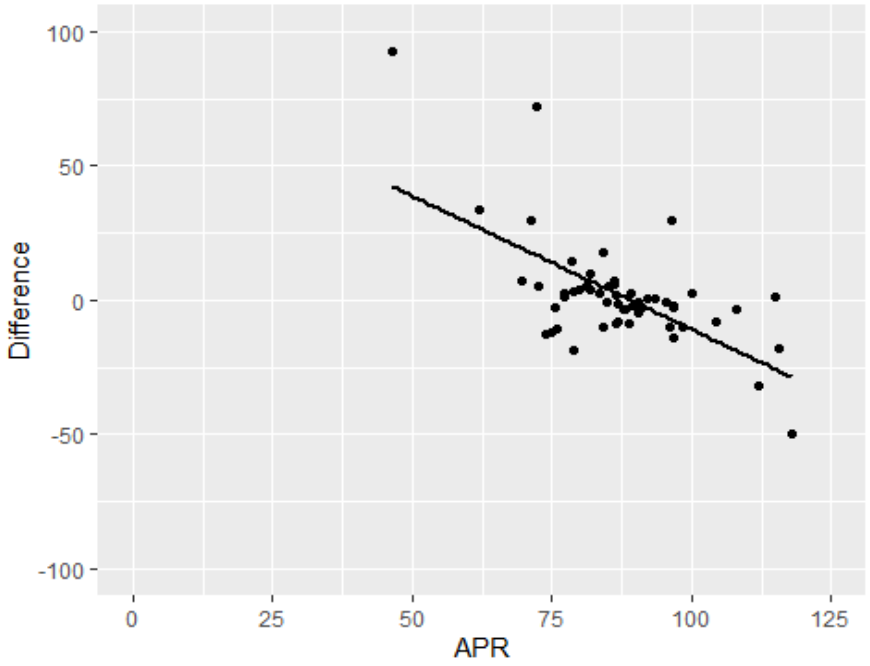
[5] State IIS are computer databases that aspire to contain information about all of the doses of all vaccines administered to all children resident within the state. State IIS vary in their completeness of both children included and the doses they received.

and adolescent saturation levels in the IIS, vaccination coverage rates reported in IISAR by sentinel sites are thought to be relatively more accurate than vaccination rates reported by non-sentinel sites. Information about the IISAR can be found at: https://www.cdc.gov/vaccines/programs/iis/annual-report-iisar/index.html.

Vaccination coverage rate estimates from the 2021 NIS-Teen were compared to those from the 2021 IISAR. The 2021 IISAR was the most recent available, and so the 2021 comparison served as the most current information available about the relative accuracy of the 2022 NIS-Teen. NIS-Teen vaccination coverage rate estimates were found to be generally higher than IISAR vaccination coverage rates, but for five of the six sentinel sites reasonably good agreement was observed between NIS-Teen and IISAR rates. (For the sixth sentinel site, the IISAR estimate was over 100 percent and therefore a clear over-estimate.) Further, the adolescent participation rate – the proportion of adolescents in the IIS jurisdiction with two or more vaccine doses in the IIS database[6] – was determined to be a reasonable indicator of the quality of the corresponding IIS database, as the IIS vaccination coverage rate was found to increase as the adolescent participation rate increased. It was also observed (Figure 1) that the difference between NIS-Teen and IISAR vaccination coverage rates declines as the adolescent participation rate increases (i.e., as the quality of the IIS increases). These findings are consistent with the view that IIS vaccination coverage rates converge towards NIS-Teen vaccination coverage rates as the quality of the IIS increases.

[6] When setting the denominator for the participation rate calculation, some IIS use an external estimate of the number of adolescents living in the jurisdiction rather than a count of adolescents in the IIS itself; this results in some IIS reporting a participation rate of over 100 percent.

Figure 1: Scatter Plot of Percentage Point Difference between 2021 NIS-Teen and IISAR Vaccination Coverage Rates for One or More Doses of Tdap vs. IIS Adolescent Participation Rate (APR) with Regression Line: 56 Estimation Areas



Note for Figure 1: A positive difference indicates the NIS-Teen vaccination coverage rate estimate was higher than the corresponding IISAR estimate, and a negative difference indicates the NIS-Teen vaccination coverage rate estimate was lower than the corresponding IISAR estimate.

Comparison of Health Insurance Distributions. NIS-Teen health insurance distributions were compared to similar distributions produced by the Current Population Survey (CPS) (https://www.census.gov/programs-surveys/cps.html), the National Health Interview Survey (NHIS) (https://www.cdc.gov/nchs/nhis/index.htm), and the American Community Survey (ACS) (https://www.census.gov/programs-surveys/acs). All of these surveys use somewhat different definitions of insurance status and report for different age ranges of adolescents. **Nevertheless, we found the NIS-Teen distributions to be broadly similar to those from the CPS, NHIS, and ACS, but with some differences. NIS-Teen estimates of percent of adolescents with any public insurance (41.0% in 2021, 44.1% in 2022) were higher than most of the corresponding benchmark estimates (41.4% (NHIS), 34.8% (CPS), and 38.8% (ACS) in 2021; 36.5% (CPS) in 2022), and the NIS-Teen estimates of uninsured adolescents (3.0% in 2021, 3.4% in 2022) were lower than the estimates from the benchmark surveys (4.8% (NHIS), 6.7% (CPS), and 5.8% (ACS) in 2021; 5.5% (CPS) in 2022).**

Comparison to State Immunization Surveys. **A comparison was undertaken of NIS-Teen vaccination coverage rate estimates to estimates from immunization surveys in two states: the 2017 and 2018 Georgia Adolescent Immunization Survey (GIS) (Machado, 2017; Machado, 2018) and the 2011-2016 Kansas Behavioral Risk Factor Surveillance Survey (Kansas BRFSS) (Gillespie, 2018). GIS and NIS-Teen, and Kansas BRFSS and NIS-Teen, displayed reasonably similar vaccination coverage rates for 1+ Tdap and 1+ MenACWY. For males and females both separately and combined, NIS-Teen vaccination coverage rates for up-to-date (UTD) HPV[7] were substantially and statistically significantly higher than the corresponding rates from GIS and Kansas BRFSS. In the case of GIS, this finding is likely due to differences between the GIS and NIS-Teen in adolescent age at HPV assessment, and in the case of Kansas BRFSS, to incomplete reporting by the parental respondents and inclusion of younger children for estimates in the Kansas BRFSS.**

10.2 Assessment of Total Survey Error for NIS-Teen Vaccination Coverage Estimates

Next, an assessment of all sources of error in the 2022 NIS-Teen was conducted, including sample-frame coverage error, nonresponse error, and measurement error; the component errors were then combined to assess total survey error. The change in total survey error between the 2021 NIS-Teen and 2022 NIS-Teen was also estimated.

Coverage Error. The NIS-Teen cellular phone RDD sampling frame fails to cover the landline-only and phoneless populations; vaccination coverage rates in the former were estimated using data collected in the 2017 NIS-Teen and vaccination coverage rates in the latter were estimated using data collected in the 2012 NHIS Provider Record Check**.** The vaccination coverage rates in the landline-only population tended to be less than the vaccination coverage rates in the population covered by the cellular phone

[7] Throughout this section, UTD HPV is defined as receiving at least three doses of HPV vaccine, or at least two doses if the first dose was before age 15 and at least 5 months minus 4 days elapsed between the first and second doses.

sampling-frame, and the results were somewhat mixed with regard to the phoneless population. **Because the sampling-frame uncovered population is so small relative to the covered population, however, mean sampling-frame coverage error was estimated to be 0.1 percentage points or less for 1+ Tdap, 1+ MenACWY, and UTD HPV.**

Nonresponse Error. **Nonresponse error in the 2022 NIS-Teen was assessed through comparison of the 2022 NIS-Teen to the cellular phone domain within the 2021 NHIS.** NHIS does not offer direct estimates of vaccination coverage rates. Instead, a model-based technique was used to impute NHIS vaccination status, and then the resulting NHIS vaccination coverage rates (treated as vaccination coverage rates void of nonresponse error) were compared to NIS-Teen vaccination coverage rates, with the difference treated as nonresponse error in the NIS-Teen. **Despite nonresponse in the 2022 NIS-Teen, including household nonresponse, non-consent to contact vaccination providers, and provider nonresponse, mean nonresponse error in vaccination rates was estimated to be modest and not statistically significant at the 0.05 level when using either design weights or final weights that account for the survey's nonresponse adjustment.**

Measurement Error. A form of measurement error called "provider under-reporting" was assessed. Sometimes called "under-ascertainment," provider under-reporting error arises when an adolescent with adequate provider data is truly vaccinated but is reported as unvaccinated for one or more recommended doses in the adolescent's provider-reported vaccination history. Under-reporting error can occur if the household respondent fails to nominate all of the adolescent's vaccination providers, if one or more of the adolescent's nominated vaccination providers fails to report a vaccination history for the adolescent, or if one or more of the adolescent's nominated providers reports a vaccination history but fails to report all of the vaccinations the adolescent has received. **Underreporting error was estimated using data from projects sponsored by CDC in which the 2017 NIS-Teen sample of adolescents in 19 jurisdictions and the 2019 NIS-Teen sample of adolescents in six jurisdictions were matched to the state or local IIS for the jurisdiction.** In this work, the standard of truth for a given adolescent is taken to be the

synthesis of the NIS-Teen and IIS vaccination histories. In prior studies conducted in 2012, 2013, 2018, 2019, 2020, and 2021 using similar methods, measurement error was found to be the largest component of error in the NIS-Teen vaccination coverage rate estimates for most vaccines. **Similar conclusions were reached for the 2022 NIS-Teen, where it was estimated that measurement error decreased observed vaccination coverage rates by about 2 to 5 percentage points.**

Total Survey Error. Finally, all of the component errors were combined to assess the distribution of total error in the NIS-Teen vaccination coverage rates, using a Monte Carlo technique. The mean of the distribution is an estimate of the total error, and the 2.5 and 97.5 percentiles of the distribution form a 95% credible interval for the total error. The estimated component errors and total survey errors are presented in Table 6. **For the ≥1 Tdap vaccination coverage rate, the mean of the TSE distribution was found to be -5.0 percentage points with a 95% credible interval of (-6.8, -2.6) percentage points. That is, the NIS-Teen ≥1 Tdap vaccination coverage rate was on average about 5.0 percentage points too low. For the ≥1 MenACWY vaccination coverage rate, the mean of the TSE distribution was found to be -4.4 percentage points with a 95% credible interval of (-6.3, -2.1) percentage points. For UTD HPV, the mean of the TSE distribution was found to be -3.9 (-6.7, 0.8) percentage points overall, -4.2 (-8.5, 0.4) percentage points for females, and -3.5 (-7.5, 0.7) percentage points for males. Under-ascertainment of the provider-reported vaccination history is the largest source of error for all vaccines.**

Change in Total Survey Error. **Change in TSE between the 2021 and 2022 NIS-Teen was measured using the bridging cohort method introduced by NCIRD (Yankey, Hill, Elam-Evans, et al. 2015).** Each survey year includes adolescents born within 24 quarterly birth cohorts. Every pair of adjacent survey years spans 28 quarterly birth cohorts, of which 20 are in common and 8 are not in common. **The set of quarterly birth cohorts in common comprise the *bridging cohort*, and for 2021 and 2022, the bridging cohort extends from adolescents born in January 2004 through adolescents born in December 2008.**

Table 6: Mean and 95% Credible Interval for the Estimated Total Survey Error (TSE) Distribution and Component Error Distributions for National Vaccination Coverage Rate Estimates, National Immunization Survey - Teen, 2022

Vaccine or Series	Component	Mean TSE (percentage points)	95% Credible Interval (percentage points)
1+ Tdap	TSE (final weighted)	-5.0	(-6.8, -2.6)**
	TSE (design weighted)	-4.2	(-5.9, -1.8)**
	Noncoverage error	0.1	(-0.1, 0.6)
	Nonresponse error	0.4	(-1.6, 3.0)
	Measurement error	-4.7	(-5.6, -3.6)**
	Sampling error	0.0	(-1.1, 1.4)
1+ MenACWY	TSE (final weighted)	-4.4	(-6.3, -2.1)**
	TSE (design weighted)	-3.7	(-5.6, -1.4)**
	Noncoverage error	0.1	(-0.1, 0.6)
	Nonresponse error	0.3	(-1.8, 2.8)
	Measurement error	-4.1	(-5.1, -3.0)**
	Sampling error	0.0	(-1.2, 1.3)
UTD HPV*	TSE (final weighted)	-3.9	(-6.7, -0.8)**
	TSE (design weighted)	-3.2	(-6.1, -0.2)**
	Noncoverage error	0.2	(-0.1, 0.4)
	Nonresponse error	-0.9	(-4.1, 2.4)
	Measurement error	-2.5	(-3.8, -1.0)**
	Sampling error	0.0	(-1.4, 1.5)
UTD HPV* among females	TSE (final weighted)	-4.2	(-8.5, 0.4)
	TSE (design weighted)	-3.2	(-7.4, 1.4)
	Noncoverage error	0.1	(-0.1, 0.4)
	Nonresponse error	-1.0	(-5.7, 3.9)
	Measurement error	-2.3	(-4.2, -0.3)**
	Sampling error	0.0	(-2.0, 2.0)
UTD HPV* among males	TSE (final weighted)	-3.5	(-7.5, 0.7)
	TSE (design weighted)	-3.0	(-7.0, 1.2)
	Noncoverage error	0.2	(-0.1, 0.4)
	Nonresponse error	-0.6	(-5.2, 4.1)
	Measurement error	-2.6	(-4.6, -0.6)**
	Sampling error	0.0	(-2.0, 2.1)

* ≥3 doses, or ≥2 doses if 1st dose before age 15 and at least 5 months – 4 days between 1st and 2nd doses.

** 95% credible interval does not include zero.

Consider a vaccination coverage rate estimated from the bridging cohort as of a given adolescent age, such as 13 years. Two estimates are possible, one using the sample of adolescents in the bridging cohort within the 2021 NIS-Teen sample and the second using the corresponding sample of adolescents within the 2022 NIS-Teen sample. Ideally, the two estimators should exhibit the same statistical expectation (i.e., average value in hypothetical repeated sampling). A large difference between the two estimates may signal a change in the statistical expectation from one survey year to the next, which could result from a change in the distribution of sampling-frame coverage error, nonresponse error, or measurement error. Differences may also result simply from the effects of random sampling error.

For 1+ Tdap by age 13 years, 1+ MenACWY by age 13 years, and UTD HPV by age 13 years, the differences between the 2021 and 2022 national-level vaccination coverage rate estimates for the bridging cohort were small, and no differences were found to be statistically significant at the 0.05 level. The difference between the 2022 estimate and the 2021 estimate for the bridging cohort was -0.8 percentage points for 1+ Tdap, 0.4 percentage points for 1+ MenACWY, 0.1 percentage points for UTD HPV overall, 0.4 percentage points for UTD HPV among females, and 0.5 percentage points for UTD HPV among males. Overall, the results suggest there is little statistical evidence of a change in total survey error between 2021 and 2022. The full assessment of change in total survey error is available at: www.cdc.gov/vaccines/imz-managers/coverage/teenvaxview/downloads/error-profile-2022-nis-teen.pdf.

11. Limitations

The findings in this report are subject to at least four limitations. First, because NIS-Teen is a telephone survey, results are weighted to be representative of all adolescents aged 13—17 years. Although statistical adjustments were made to account for non-response and households without cellular phones, some bias might remain. Second, underestimates of vaccination coverage might have resulted from the exclusive use of provider-reported vaccination histories because completeness of these records is unknown. Third, although national estimates of vaccination coverage are precise, estimates for state and local areas should be interpreted with caution because their sample sizes are smaller and their confidence intervals generally are wider than those for national estimates. Finally, analysis of trends across data years that span from 2010 and earlier to 2011-2017 and from 2011-2017 to 2018-2022 are subject to potential bias that may remain after weighting adjustments because of the switch from landline to dual landline and cellular phone frames in 2011, and from dual landline and cellular phone frames to a single cellular phone frame in 2018 (Nguyen et al. 2019). In addition, analysis of trends across data years that span from 2011 to 2017 are subject to potential bias that may remain after weighting adjustments because of the expansions and reductions of the share of the total sample that came from the cellular phone frame across these years and because of the change in the definition of adequate provider data in 2014.

12. Citations for NIS-Teen Data

In publications please acknowledge the original data source. The citation for the 2022 NIS-Teen public-use data file is:

U.S. Department of Health and Human Services (DHHS). National Center for Immunization and Respiratory Diseases. The 2022 National Immunization Survey - Teen, Atlanta, GA: Centers for Disease Control and Prevention, 2023.

Information about the NIS-Teen is located at http://www.cdc.gov/vaccines/imz-managers/nis/about.html.

The NIS-Teen public-use data file is located at http://www.cdc.gov/vaccines/imz-managers/nis/datasets-teen.html.

Please place the acronym "NIS-Teen" in the titles, keywords, or abstracts of journal articles and other publications in order to facilitate retrieval of such materials in bibliographic searches.

The following publications use past and current NIS-Teen data:

2022

Abouelella, D. K., Canick, J. E., Barnes, J. M., Rohde, R. L., Watts, T. L., Adjei Boakye, E., & Osazuwa-Peters, N. (2022). Human papillomavirus vaccine uptake among teens before and during the COVID-19 pandemic in the United States. *Human Vaccines & Immunotherapeutics*, *18(7)*, doi: 10.1080/21645515.2022.2148825

Agana-Norman, D. F., Berenson, A. B., & Chang, M. (2022). Impact assessment of a provider-targeted national vaccine messaging campaign on human papillomavirus vaccination rates among US adolescent males. *Preventive Medicine*, *164*, 107228.

Chido-Amajuoyi, O. G., Talluri, R., Jackson, I., Shete, S. S., Domgue, J. F., & Shete, S. (2022). The influence of parent–child gender on intentions to refuse HPV vaccination due to safety concerns/side effects, National Immunization Survey–Teen, 2010–2019. *Human Vaccines & Immunotherapeutics*, *18*(5), 2086762.

Chido-Amajuoyi, O., Talluri, R., Jackson, I., Shete, S., Domgue, J. F., & Shete, S. (2022). HPV non-vaccination due to safety concerns/side effects: Variations in vaccination intentions by Parent-Child Gender, National Immunization Survey-Teen, 2010-2019. *Cancer Research*, *82*(12_Supplement), 2209-2209.

Choi, Y., Bhatti, A., Liu, Z., Ruch, A., Skolnik, A., Carias, C., Goveia, M. G., & Simon, J. K. (2022). Association Between State Hepatitis A Vaccination Requirements and Hepatitis A Vaccination Rates. *Journal of the Pediatric Infectious Diseases Society*, *11*(6), 295-299.

Choi, S. S., & Choi, B. (2022). Comparison of Social Inequality in Human Papillomavirus (HPV) Vaccination among Teenagers with Parental Reports and Healthcare Providers' Records in the 2019 National Immunization Survey-Teen. *Vaccines*, *10*(2), 178.

Cortright, L., Buckman, C., Tumin, D., Syed, S., & Beeninga, F. T. (2022). Influence of measles-mumps-rubella vaccine series initiation and completion on influenza vaccination among adolescents. *International Journal of Pediatrics and Adolescent Medicine, 9*, 11-15.

Ejezie, C. L., Osaghae, I., Ayieko, S., & Cuccaro, P. (2022). Adherence to the recommended HPV vaccine dosing schedule among adolescents aged 13 to 17 years: findings from the national immunization survey-teen, 2019–2020. *Vaccines*, *10*(4), 577.

Elam-Evans, L. D., Valier, M. R., Fredua, B., Zell, E., Murthy, B. P., Sterrett, N., ... & Marin, M. (2022). Celebrating 25 years of varicella vaccination coverage for children and adolescents in the United States: a success story. *The Journal of Infectious Diseases*, *226*(Supplement_4), S416-S424.

Gambrell, A., Sundaram, M., & Bednarczyk, R. A. (2022). Estimating the number of US children susceptible to measles resulting from COVID-19-related vaccination coverage declines. *Vaccine*, *40*(32), 4574-4579.

Hartman, K. C., Ancha, S., & McLaughlin, M. J. (2022). Human papillomavirus vaccination rates in adolescents with cerebral palsy compared to the general population. *Journal of Pediatric Rehabilitation Medicine*, (Preprint), 1-8.

Lu, P. J., Yankey, D., Fredua, B., Hung, M. C., Sterrett, N., Markowitz, L. E., & Elam–Evans, L. D. (2022). Human papillomavirus vaccination trends among adolescents: 2015 to 2020. *Pediatrics*, *150*(1), e2022056597.

Luna, M., & Upadhyay, S. (2022, June). Trends in the Utilization of Human Papillomavirus Vaccines and the Incidence of Malignant Cervical Cancer in Women and Teenagers: A Secondary Analysis. *Healthcare*, *10(7)*, 1211.

Nasserie, T., & Bendavid, E. (2022). Systematic identification and replication of factors associated with human papillomavirus vaccine initiation among adolescents in the United States using an environment-wide association study approach. *Sexually Transmitted Infections*, *98*(3), 203-209.

Pruitt, S. L., Tiro, J. A., Kepka, D., & Henry, K. (2022). Missed Vaccination Opportunities Among US Adolescents by Area Characteristics. *American Journal of Preventive Medicine*, *62*(4), 538-547.

Rositch, A. F., Liu, T., Chao, C., Moran, M., & Beavis, A. L. (2022). Levels of parental human papillomavirus vaccine hesitancy and their reasons for not intending to vaccinate: insights from the 2019 National Immunization Survey-Teen. *Journal of Adolescent Health*, *71*(1), 39-46.

Sundaram, M. E., & Bednarczyk, R. A. (2022). Toward a Deeper Understanding of the Spectrum of Parental Human Papillomavirus Vaccine Hesitancy. *Journal of Adolescent Health*, *71*(1), 4-5.

Torres, A. R., Johnson, N. P., Ellingson, M. K., Hansen, C. E., Oliveira, C. R., Niccolai, L. M., & Sheth, S. S. (2022). State laws permitting adolescent consent to human papillomavirus vaccination and rates of immunization. *JAMA pediatrics*, *176*(2), 203-205.

Tran, N., Cortright, L., Buckman, C., Tumin, D., & Syed, S. (2022). Association between asthma and influenza vaccine uptake among US adolescents: a retrospective survey study. *Journal of Asthma*, *59*(6), 1256-1262.

2021

Caldwell, A. C., Madden, C. A., Thompson, D. M., Garbe, M. C., Roberts, J. R., Jacobson, R. M., & Darden, P. M. (2021). The impact of provider recommendation on human papillomavirus vaccine and other adolescent vaccines. *Human vaccines & immunotherapeutics*, *17*(4), 1059-1067.

Carrera, M., Lawler, E. C., & White, C. (2021). Population mortality and laws encouraging influenza vaccination for hospital workers. *Annals of Internal Medicine*, *174*(4), 444-452.

Chido-Amajuoyi OG, Talluri R, Shete SS, Shete S. Safety Concerns or Adverse Effects as the Main Reason for Human Papillomavirus Vaccine Refusal: National Immunization Survey–Teen, 2008 to 2019. *JAMA Pediatr.* 2021;175(10):1074–1076. doi:10.1001/jamapediatrics.2021.1585

Churchill, B. F. (2021). How important is the structure of school vaccine requirement opt-out provisions? Evidence from Washington, DC's HPV vaccine requirement. *Journal of Health Economics*, *78*, 102480.

Churchill, B. F. (2021). Insurance Coverage, Provider Contact, and Take-Up of the HPV Vaccine. *American Journal of Health Economics*, *7*(2), 222-247.

Daniels, V., Prabhu, V. S., Palmer, C., Samant, S., Kothari, S., Roberts, C., & Elbasha, E. (2021). Public health impact and cost-effectiveness of catch-up 9-valent HPV vaccination of individuals through age 45 years in the United States. *Human vaccines & immunotherapeutics*, *17*(7), 1943-1951.

Gogineni, V. (2021). Exposure to Health Care Economics and Policy in Medical School Curricula as an Avenue to Improve Patient Advocacy. *Academic Medicine*, *96*(1), 12-13.

Hansen, C. E., & Niccolai, L. M. (2021). Factors Associated With Receipt of Meningococcal B Vaccine Among United States Adolescents, National Immunization Survey-Teen, 2017–2018. *Journal of Adolescent Health*, *69*(5), 769-773.

Kong, W. Y., Bustamante, G., Pallotto, I. K., Margolis, M. A., Carlson, R., McRee, A. L., & Gilkey, M. B. (2021). Disparities in healthcare providers' recommendation of HPV vaccination for US adolescents: A systematic review. *Cancer Epidemiology and Prevention Biomarkers*, *30*(11), 1981-1992.

La, E. M., Garbinsky, D., Hunter, S., Poston, S., Novy, P., & Ghaswalla, P. (2021). Meningococcal B vaccination coverage among older adolescents in the United States. *Vaccine*, *39*(19), 2660-2667.

La, E. M., Garbinsky, D., Hunter, S., Poston, S., Novy, P., & Ghaswalla, P. (2021). National and State-Level Composite Completion of Recommended Vaccines Among Adolescents in the United States, 2015–2018. *Journal of Adolescent Health*, *69*(5), 762-768.

Lu, P. J., Yankey, D., Fredua, B., Hung, M. C., Walker, T. Y., Markowitz, L. E., & Elam-Evans, L. D. (2021). National and State-Specific Estimates of Settings of Receiving Human Papillomavirus Vaccination Among Adolescents in the United States. *Journal of Adolescent Health*, *69*(4), 597-603.

Nasserie, T., & Bendavid, E. (2021). Systematic identification and replication of factors associated with human papillomavirus vaccine initiation among adolescents in the United States using an environment-wide association study approach. *Sexually transmitted infections*

Nguyen, K. H., Santibanez, T. A., Stokley, S., Lindley, M. C., Fisher, A., Kim, D., ... & Singleton, J. (2021). Parental vaccine hesitancy and its association with adolescent HPV vaccination. *Vaccine*, *39*(17), 2416.

Pingali, C., Yankey, D., Elam-Evans, L. D., Markowitz, L. E., Williams, C. L., Fredua, B., McNamara, L. A., Stokley, S., & Singleton, J. A. (2021). National, regional, state, and selected local area vaccination coverage among adolescents aged 13–17 years—United States, 2020. *Morbidity and Mortality Weekly Report*, *70*(35), 1183.

Oh, N. L., Biddell, C. B., Rhodes, B. E., & Brewer, N. T. (2021). Provider communication and HPV vaccine uptake: a meta-analysis and systematic review. *Preventive Medicine*, *148*, 106554.

Reiter, P. L., Pennell, M. L., Martinez, G. A., & Katz, M. L. (2021). Provider recommendation for HPV vaccination across Hispanic/Latinx subgroups in the United States. *Human Vaccines & Immunotherapeutics*, *17*(4), 1083-1088.

Sonawane, K., Zhu, Y., Lin, Y. Y., Damgacioglu, H., Lin, Y., Montealegre, J. R., & Deshmukh, A. A. (2021). HPV vaccine recommendations and parental intent. *Pediatrics*, *147*(3): e2020026286. 10.1542/peds.2020-026286

Sonawane, K., Lin, Y. Y., Damgacioglu, H., Zhu, Y., Fernandez, M. E., Montealegre, J. R., ... & Deshmukh, A. A. (2021). Trends in human papillomavirus vaccine safety concerns and adverse event reporting in the United States. *JAMA network open*, *4*(9), e2124502-e2124502.

Tran, N., Cortright, L., Buckman, C., Tumin, D., & Syed, S. (2021). Association between asthma and influenza vaccine uptake among US adolescents: a retrospective survey study. *Journal of Asthma*, 1-7.

Vasudevan, L., Ostermann, J., Wang, Y., Harrison, S. E., Yelverton, V., McDonald, J. A., ... & Walter, E. B. (2021). Predictors of HPV vaccination in the southern US: A survey of caregivers from 13 states. *Vaccine*, *39*(51), 7485-7493.

Wood, M. L., Hoke, A. M., Schaefer, E. W., & Sekhar, D. L. (2021). The association between state-based provisional attendance periods and adolescent middle school-entry vaccination coverage. *Preventive Medicine*, *153*, 106733.

Zhang, Y., Fakhry, C., & D'Souza, G. (2021). Projected association of human papillomavirus vaccination with oropharynx cancer incidence in the US, 2020-2045. *JAMA oncology*, *7*(10), e212907-e212907.

Weatherer, A. C., Pritzl, S. L., Kerch, S., Li, Z., & LoConte, N. K. (2021). Current Trends in HPV Vaccine Uptake: Wisconsin and United States, 2016-2019. *WMJ: official publication of the State Medical Society of Wisconsin*, *120*(1), 62-65.

2020

Beeninga FT, Cortright L, Buckman C, Tumin D, Syed S. Influence of measles-mumps-rubella vaccine series initiation and completion on influenza vaccination among adolescents. International Journal of Pediatrics and Adolescent Medicine. 2020. doi: https://doi.org/10.1016/j.ijpam.2020.12.001

Burger EA, Smith MA, Killen J, Sy S, Simms KT, Canfell K, Kim JJ. Projected time to elimination of cervical cancer in the USA: a comparative modelling study. The Lancet Public Health. 2020;5(4):e213-e222.

Caldwell AC, Madden CA, Thompson DM, Garbe MC, Roberts JR, Jacobson RM, Darden PM. The impact of provider recommendation on human papillomavirus vaccine and other adolescent vaccines. Human vaccines & immunotherapeutics. 2020;17:4:1059-1067.

Conrey R, Valencia V, Cioletti A, Williams-Brown MY. Regional variation in human papillomavirus vaccination uptake and completion among adolescents 13-17 in the state of Texas. Vaccine. 2020;38(25):4119-4124. doi:10.1016/j.vaccine.2020.03.059

Elam-Evans LD, Yankey D, Singleton JA, Sterrett N, Markowitz LE, Williams CL, Fredua B, McNamara L, Stokley S. National, Regional, State, and Selected Local Area Vaccination Coverage Among Adolescents Aged 13–17 Years — United States, 2019. MMWR Morb Mortal Wkly Rep 2020;69(33):1109-1116.

Hoff BM, Livingston MD 3rd, Thompson EL. The association between state Medicaid expansion and human papillomavirus vaccination. Vaccine. 2020;38(38):5963-5965. doi:10.1016/j.vaccine.2020.07.024

Khan N, Tomar SL. The incidence of oropharyngeal cancer and rate of human papillomavirus vaccination coverage in Florida, 2011 through 2015. J Am Dent Assoc. 2020;151(1):51-58. doi:10.1016/j.adaj.2019.08.022

Ko JS, Goldbeck CS, Baughan EB, Klausner JD. Association Between Human Papillomavirus Vaccination School-Entry Requirements and Vaccination Initiation [published online ahead of print, 2020 Jun 29]. JAMA Pediatr. 2020;e201852. doi:10.1001/jamapediatrics.2020.1852

Newcomer SR, Caringi J, Jones B, Coyle E, Schehl T, Daley MF. A Mixed-Methods Analysis of Barriers to and Facilitators of Human Papillomavirus Vaccination Among Adolescents in Montana. Public Health Reports. 2020;135(6):842-850.

Reiter PL, Pennell ML, Martinez GA, Perkins RB, Katz ML. HPV vaccine coverage across Hispanic/Latinx subgroups in the United States. Cancer Causes Control. 2020;31(10):905-914. doi:10.1007/s10552-020-01331-y

Sonawane K, Zhu Y, Montealegre JR, et al. Parental intent to initiate and complete the human papillomavirus vaccine series in the USA: a nationwide, cross-sectional survey. Lancet Public Health. 2020;5(9):e484-e492. doi:10.1016/S2468-2667(20)30139-0

Thompson EL, Livingston MD 3rd, Daley EM, Saslow D, Zimet GD. Rhode Island Human Papillomavirus Vaccine School Entry Requirement Using Provider-Verified Report. Am J Prev Med. 2020;59(2):274-277. doi:10.1016/j.amepre.2020.02.022

Walker TY, Elam-Evans LD, Williams CL, Fredua B, Yankey D, Markowitz LE, Stokley S. Trends in human papillomavirus (HPV) vaccination initiation among adolescents aged 13–17 by metropolitan statistical area (MSA) status, National Immunization Survey–Teen, 2013–2017. Human vaccines & immunotherapeutics. 2020;16(3):554-561.

Yankey D, Elam-Evans LD, Bish CL, Stokley SK. Human Papillomavirus Vaccination Estimates Among Adolescents in the Mississippi Delta Region: National Immunization Survey-Teen, 2015-2017. Prev Chronic Dis. 2020;17:E31. Published 2020 Apr 16. doi:10.5888/pcd17.190234

Yoo W, Koskan A, Scotch M, Pottinger H, Huh WK, Helitzer D. Patterns and Disparities in Human Papillomavirus (HPV) Vaccine Uptake for Young Female Adolescents among U.S. States: NIS-Teen (2008-2016). Cancer Epidemiol Biomarkers Prev. 2020;29(7):1458-1467. doi:10.1158/1055-9965.EPI-19-1103

2019

Bednarczyk RA, Ellingson MK, Omer SB. Human Papillomavirus Vaccination Before 13 and 15 Years of Age: Analysis of National Immunization Survey Teen Data. JID 2019 Sept; 220:730–4.

Cheng WY, Chang R, Novy P, O'Connor C, Duh MS, Hogea CS. Determinants of Meningococcal ACWY vaccination in adolescents in the US: completion and compliance with the CDC recommendations. Hum Vaccin Immunother. 2020;16(1):176-188. doi:10.1080/21645515.2019.1632679

Franco M, Mazzucca S, Padek M, Brownson RC. Going beyond the individual: how state-level characteristics relate to HPV vaccine rates in the United States. BMC public health. 2019 Dec;19(1):246.

Hirth JM, Fuchs EL, Chang M, Fernandez ME, Berenson AB. Variations in reason for intention not to vaccinate across time, region, and by race/ethnicity, NIS-Teen (2008–2016). Vaccine. 2019 Jan 21;37(4):595-601.

Lu PJ, Yankey D, Fredua B, O'Halloran AS, Williams C, Markowitz LE, Elam-Evans LD. Association of Provider Recommendation and Human Papillomavirus Vaccination Initiation among Male Adolescents Aged 13-17 Years—United States. The Journal of pediatrics Volume 206, March 2019, Pages 33-41.e1.

Niccolai LM, Yakely AE, Hansen CE. Up-to-date coverage with meningococcal vaccine among adolescents age 17 years: Patterns and correlates in the United States, 2017. Vaccine. 2019;37(40):5934-5938. doi:10.1016/j.vaccine.2019.08.015

Sriram S, Ranganathan R. Why human papilloma virus vaccination coverage is low among adolescents in the US? A study of barriers for vaccination uptake. J Family Med Prim Care. 2019;8(3):866-870. doi:10.4103/jfmpc.jfmpc_107_19

Suryadevara M, Bonville CA, Cibula DA, Domachowske JB, Suryadevara AC. Associations between population based voting trends during the 2016 US presidential election and adolescent vaccination rates. Vaccine. 2019 Jan 26.

Swiecki-Sikora AL, Henry KA, Kepka D. HPV Vaccination Coverage Among US Teens Across the Rural-Urban Continuum. The Journal of Rural Health. 2019 Jan 31.

Walker TY; Elam-Evans LD; Yankey D; Markowitz LE; Williams CL; Fredua B; Singleton JA; Stokley S. National, Regional, State, and Selected Local Area Vaccination Coverage Among Adolescents Aged 13–17 Years — United States, 2018. MMWR Morb Mortal Wkly Rep 2019;68(33):718-723.

Walker TY, Elam-Evans LD, Williams CL, Fredua B, Yankey D, Markowitz LE, Stokley S. Trends in Human Papillomavirus (HPV) Vaccination Initiation among Adolescents Aged 13-17 by Metropolitan Statistical Area (MSA) Status, National Immunization Survey – Teen, 2013 – 2017. Hum Vaccin Immunother 2019;Epub ahead of publication DOI: 10.1080/21645515.2019.1671765

Williams CL, Walker TY, Elam-Evans LD, Yankey D, Fredua B, Saraiya M, Stokley S. Factors associated with not receiving HPV vaccine among adolescents by metropolitan statistical area status,

United States, National Immunization Survey–Teen, 2016–2017Hum Vaccin Immunother 2019; Epub ahead of publication DOI:10.1080/21645515.2019.1670036

2018

Beavis A, Krakow M, Levinson K, Rositch AF. "Reasons for Lack of HPV Vaccine Initiation in NIS-Teen Over Time: Shifting the Focus From Gender and Sexuality to Necessity and Safety." Journal of Adolescent Health 63.5 (2018): 652-656.

Fedewa SA, Preiss AJ, Fisher-Borne M, Goding Sauer A, Jemal A, Saslow D. Reaching 80% human papillomavirus vaccination prevalence by 2026: How many adolescents need to be vaccinated and what are their characteristics?. Cancer. 2018 Dec 15;124(24):4720-30.

Hanson KE, Koch B, Bonner K, McRee AL, Basta NE. National trends in parental human papillomavirus vaccination intentions and reasons for hesitancy, 2010–2015. Clinical Infectious Diseases. 2018 Mar 27;67(7):1018-26.

Healy J, Rodriguez-Lainz A, Elam-Evans L, Hill HA, Reagan-Steiner S, Yankey D (2018). Vaccination coverage among foreign-born and U.S.-born adolescents in the United States: Successes and gaps – National Immunization Survey-Teen, 2012–2014. Vaccine 2018; 36(13):1743-1750.

Landis K, Bednarczyk RA, Gaydos LM. Correlates of HPV vaccine initiation and provider recommendation among male adolescents, 2014 NIS-Teen. Vaccine. 2018 Jun 7;36(24):3498-504.

Leung J, Reagan-Steiner S, Lopez A, Jeyarajah J, Marin M. Varicella Vaccination Among US Adolescents: Coverage and Missed Opportunities, 2007-2014. Journal of Public Health Management Practice 2018; [Epub ahead of print].

Lu PJ, Yankey D, Jeyarajah J, O'Halloran A, Fredua B, Elam-Evans LD, Reagan-Steiner S. Association of Health Insurance Status and Vaccination Coverage among Adolescents 13-17 Years of Age. Journal of Pediatrics 2018; 195:256-262.e1.

Nelson NP, Yankey D, Singleton JA, Elam-Evans LD. Hepatitis A vaccination coverage among adolescents (13-17 years) in the United States, 2008-2016.Vaccine 2018; 36(12):1650-1659.

Odoh C, Sanderson M, Williams EA, Hull PC. Operationalizing outcome measures of human papillomavirus vaccination among adolescents. Public Health 2018; 159:129-132.

Roberts MC, Murphy T, Moss JL, Wheldon CW, Psek W. A qualitative comparative analysis of combined state health policies related to human papillomavirus vaccine uptake in the United States. American Journal of Public Health 2018; 108(4):493-499.

Thompson EL, Livingston MD, Daley EM, Zimet GD. Human Papillomavirus Vaccine Initiation for Adolescents Following Rhode Island's School-Entry Requirement, 2010-2016. American Journal of Public Health 2018. e1-e3. doi: 10.2105/AJPH.2018.304552. [Epub ahead of print].

Walker TY, Elam-Evans LD., Singleton JA., Yankey, D, Markowitz LE, Fredua B, et al. National, Regional, State, and Selected Local Area Vaccination Coverage Among Adolescents Aged 13–17 Years — United States, 2017. MMWR 2018 Aug 24; 67:909-917.

Webb NS, Dowd-Arrow B, Taylor MG, Burdette AM. Racial/Ethnic Disparities in Influenza Vaccination Coverage Among US Adolescents, 2010-2016. Public Health Reports. 2018 Nov;133(6):667-76.

2017

Adjei BE, Tobo BB, Osazuwa PN, Mohammed KA, Geneus CJ, Schootman M. A Comparison of Parent- and Provider-Reported Human Papillomavirus Vaccination of Adolescents. American Journal of Preventive Medicine 2017; 52(6):742-752.

Bednarczyk RA, Orenstein WA, Omer SB. Impact of Gender-Specific Human Papillomavirus Vaccine Recommendations on Uptake of Other Adolescent Vaccines: Analysis of the NIS-Teen (2008-2012). J Public Health Manag Pract. 2017;23(2):122-125. doi:10.1097/PHH.0000000000000335

Bodson J, Ding Q, Warner EL, Hawkins AJ, Henry KA, Kepka D. Sub-Regional Assessment of HPV Vaccination Among Female Adolescents in the Intermountain West and Implications for Intervention Opportunities. Maternal and Child Health Journal 2017; 21(7):1500-1511.

Burdette AM, Webb NS, Hill TD, Jokinen-Gordon H. Race-specific trends in HPV vaccinations and provider recommendations: persistent disparities or social progress? Public Health 2017; 142:167-176.

Cheruvu VK, Bhatta MP, Drinkard LN. Factors associated with parental reasons for "no-intent" to vaccinate female adolescents with human papillomavirus vaccine: National Immunization Survey - Teen 2008-2012. BMC Pediatrics 2017; 17(1):52.

Henry KA, Swiecki-Sikoria AL, Stroup AM, Warner EL, Kepka D. Area-based socioeconomic factors and Human Papillomavirus (HPV) vaccination among teen boys in the United States. BMC Public Health 2017 Jul 14;18(1):19.

Johnson KL, Lin MY, Cabral H, Kazis LE, Katz IT. Variation in human papillomavirus vaccine uptake and acceptability between female and male adolescents and their caregivers. J Community Health 2017;42:522–532.

Klosky JL, Hudson MM, Chen Y, Connelly JA, Wasilewski-Masker K, Sun CL, et al. Human papillomavirus vaccination rates in young cancer survivors. Journal of Clinical Oncology 2017; 35(31): 3582-3590.

Krakow M, Beavis A, Cosides O, Rositch AF. Characteristics of adolescents lacking provider-recommended human papillomavirus vaccination. Journal of Adolescent Health 2017; 60:619-622.

Lu PJ, Yankey D, Jeyarajah J, O'Halloran A, Meyer SA, Elam-Evans LD, Reagan-Steiner S. Impact of Provider Recommendation on Tdap Vaccination of Adolescents Aged 13–17 Years. American Journal of Preventive Medicine 2017 Sept; 53(3):373-384.

Mohammed KA, Vivian E, Loux TM, Arnold LD. Factors associated with parents' intent to vaccinate adolescents for human papillomavirus: findings from the 2014 National Immunization Survey–Teen. Prev Chronic Dis 2017;14:160314. DOI: https://doi.org/10.5888/pcd14.160314.

Pierre-Victor D, Trepka MJ, Page TF, Li T, Stephens DP, Madhivanan P. Impact of Louisiana's HPV vaccine awareness policy on HPV vaccination among 13- to 17-year-old females. Health Education & Behavior 2017; 44(4): 548–558.

Pierre-Victor D, Page TF, Trepka MJ, Stephens DP, Li T, Madhivanan P. Impact of Virginia's school-entry vaccine mandate on human papillomavirus vaccination among 13–17-year-old Females. JOURNAL OF WOMEN'S HEALTH 2017; 26(3): 266-275.

Rahman M, Hirth JM, Berenson AB. Adherence to ACIP recommendation for human papillomavirus vaccine among US adolescent girls. J Community Health 2017;42:385–389.

Thompson EL, Rosen BL, Vamos CA, Kadono M, Daley EM. Human papillomavirus vaccination: what are the reasons for nonvaccination among US adolescents? Journal of Adolescent Health 2017;61:288-293.

Waldrop AR, Moss JL, Liu B, Zhu L. Ranking states on coverage of cancer-preventing vaccines among adolescents: The influence of imprecision. Public Health Reports 2017; 132(6):627-636.

Walker TY, Elam-Evans LD, Singleton JA, Yankey D, Markowitz LE, Fredua B, Williams CL, Meyer SA, Stokley S. National, regional, state, and selected local area vaccination coverage among adolescents aged 13-17 years – United States, 2016. MMWR. 2017 Aug 25;66(33):874-82. DOI: http://dx.doi.org/10.15585/mmwr.mm6633a2.

Warner EL, Ding Q, Pappas LM, Henry K, Kepka D. White, affluent, educated parents are least likely to choose HPV vaccination for their children: A cross-sectional study of the National Immunization Study – teen. BMC Pediatrics 2017; 17(1),200.

2016

Beachler DC, Gonzales FA, Kobrin SC, Kreimer AR. HPV vaccination initiation after the routine-recommended ages of 11-12 in the United States. Papillomavirus Res. 2016;2:11-16. doi:10.1016/j.pvr.2015.12.001

Bednarczyk RA, Orenstein WA, Omer SB. Estimating the Number of Measles-Susceptible Children and Adolescents in the United States Using Data From the National Immunization Survey-Teen (NIS-Teen). Am J Epidemiol. 2016;184(2):148-156. doi:10.1093/aje/kwv320

Cardemil CV, Cullen KA, Harris L, Greby SM, Santibanez TA. Factors Associated With Provider Reporting of Child and Adolescent Vaccination History to Immunization Information Systems: Results From the National Immunization Survey, 2006-2012. J Public Health Manag Pract. 2016;22(3):245-254. doi:10.1097/PHH.0000000000000278

Choi Y, Eworuke E, Segal R. What explains the different rates of human papillomavirus vaccination among adolescent males and females in the United States?. Papillomavirus Res. 2016;2:46-51. doi:10.1016/j.pvr.2016.02.001

Cloessner EA, Stokley S, Yankey D, Markowitz LE. Timing of HPV vaccine intervals among United States teens with consideration to the current ACIP schedule and the WHO 2-dose schedule. Hum Vaccin Immunother. 2016;12(6):1375-1380. doi:10.1080/21645515.2015.1110659

Gilkey MB, Reiter PL, Magnus BE, McRee AL, Dempsey AF, Brewer NT. Validation of the Vaccination Confidence Scale: A Brief Measure to Identify Parents at Risk for Refusing Adolescent Vaccines. Acad Pediatr. 2016;16(1):42-49. doi:10.1016/j.acap.2015.06.007

Henry KA, Stroup AM, Warner EL, Kepka D. Geographic Factors and Human Papillomavirus (HPV) Vaccination Initiation among Adolescent Girls in the United States. Cancer Epidemiol Biomarkers Prev. 2016;25(2):309-317. doi:10.1158/1055-9965.EPI-15-0658

Hirth J, Kuo YF, Laz TH, et al. Concordance of adolescent human papillomavirus vaccination parental report with provider report in the National Immunization Survey-Teen (2008-2013). Vaccine. 2016;34(37):4415-4421. doi:10.1016/j.vaccine.2016.07.014

Jeyarajah J, Elam-Evans LD, Stokley S, Smith PJ, Singleton JA. Human Papillomavirus Vaccination Coverage Among Girls Before 13 Years: A Birth Year Cohort Analysis of the National Immunization Survey-Teen, 2008-2013. Clin Pediatr (Phila). 2016;55(10):904-914. doi:10.1177/0009922815616245

Kepka D, Ding Q, Hawkins AJ, Warner EL, Boucher KM. Factors associated with early adoption of the HPV vaccine in US male adolescents include Hispanic ethnicity and receipt of other vaccines. Prev Med Rep. 2016;4:98-102. Published 2016 May 25. doi:10.1016/j.pmedr.2016.05.014

Lai D, Ding Q, Bodson J, Warner EL, Kepka D. Factors Associated with Increased HPV Vaccine Use in Rural-Frontier U.S. States. Public Health Nurs. 2016;33(4):283-294. doi:10.1111/phn.12223

Lindley MC, Jeyarajah J, Yankey D, Curtis CR, Markowitz LE, Stokley S. Comparing human papillomavirus vaccine knowledge and intentions among parents of boys and girls. Hum Vaccin Immunother. 2016;12(6):1519-1527. doi:10.1080/21645515.2016.1157673

Mohammed KA, Geneus CJ, Osazuwa-Peters N, Adjei Boakye E, Tobo BB, Burroughs TE. Disparities in Provider Recommendation of Human Papillomavirus Vaccination for U.S. Adolescents. J Adolesc Health. 2016;59(5):592-598. doi:10.1016/j.jadohealth.2016.06.005

Moss JL, Gilkey MB, Rimer BK, Brewer NT. Disparities in collaborative patient-provider communication about human papillomavirus (HPV) vaccination. Hum Vaccin Immunother. 2016;12(6):1476-1483. doi:10.1080/21645515.2015.1128601

Moss JL, Reiter PL, Brewer NT. Concomitant Adolescent Vaccination in the U.S., 2007-2012. Am J Prev Med. 2016;51(5):693-705. doi:10.1016/j.amepre.2016.05.013

Moss JL, Reiter PL, Rimer BK, Brewer NT. Collaborative patient-provider communication and uptake of adolescent vaccines. Soc Sci Med. 2016;159:100-107. doi:10.1016/j.socscimed.2016.04.030

Moss JL, Reiter PL, Rimer BK, Ribisl KM, Brewer NT. Summer Peaks in Uptake of Human Papillomavirus and Other Adolescent Vaccines in the United States. Cancer Epidemiol Biomarkers Prev. 2016;25(2):274-281. doi:10.1158/1055-9965.EPI-15-0574

Moss JL, Reiter PL, Truong YK, Rimer BK, Brewer NT. School Entry Requirements and Coverage of Nontargeted Adolescent Vaccines. Pediatrics. 2016;138(6):e20161414. doi:10.1542/peds.2016-1414

Perkins RB, Lin M, Wallington SF, Hanchate AD. Impact of school-entry and education mandates by states on HPV vaccination coverage: Analysis of the 2009-2013 National Immunization Survey-Teen. Hum Vaccin Immunother. 2016;12(6):1615-1622. doi:10.1080/21645515.2016.1150394

Reagan-Steiner S, Yankey D, Jeyarajah J, et al. National, Regional, State, and Selected Local Area Vaccination Coverage Among Adolescents Aged 13-17 Years - United States, 2015. MMWR Morb Mortal Wkly Rep. 2016;65(33):850-858. Published 2016 Aug 26. doi:10.15585/mmwr.mm6533a4

Setse RW, Siberry GK, Moss WJ, et al. Meningococcal Conjugate and Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccination Among HIV-infected Youth. Pediatr Infect Dis J. 2016;35(5):e152-e157. doi:10.1097/INF.0000000000001078

Smith PJ, Stokley S, Bednarczyk RA, Orenstein WA, Omer SB. HPV vaccination coverage of teen girls: the influence of health care providers. Vaccine. 2016;34(13):1604-1610. doi:10.1016/j.vaccine.2016.01.061

Trogdon JG, Shafer PR, Shah PD, Calo WA. Are state laws granting pharmacists authority to vaccinate associated with HPV vaccination rates among adolescents?. Vaccine. 2016;34(38):4514-4519. doi:10.1016/j.vaccine.2016.07.056

2015

Jacobson RM, Rogacki B, Thompson DM, Roberts JR, Margolis B, Darden PM. Vaccination Rates among Adolescents in Minnesota as Compared with the United States: Not "Above Average". Minn Med. 2015;98(11-12):38-43.

Kepka D, Ding Q, Warner EL, Spigarelli MG, Mooney K. High school females and those with other vaccinations most likely to complete the Human Papillomavirus vaccine. Prev Med Rep. 2015;2:79-83. Published 2015 Jan 6. doi:10.1016/j.pmedr.2014.12.008

Lu PJ, Yankey D, Jeyarajah J, et al. Hepatitis B vaccination among adolescents 13-17 years, United States, 2006-2012. Vaccine. 2015;33(15):1855-1864. doi:10.1016/j.vaccine.2015.02.021

Lu PJ, Yankey D, Jeyarajah J, et al. HPV Vaccination Coverage of Male Adolescents in the United States. Pediatrics. 2015;136(5):839-849. doi:10.1542/peds.2015-1631

Perkins RB, Lin M, Silliman RA, Clark JA, Hanchate A. Why are U.S. girls getting meningococcal but not human papilloma virus vaccines? Comparison of factors associated with human papilloma virus and meningococcal vaccination among adolescent girls 2008 to 2012. Womens Health Issues. 2015;25(2):97-104. doi:10.1016/j.whi.2014.12.005

Rahman M, Laz TH, McGrath CJ, Berenson AB. Provider recommendation mediates the relationship between parental human papillomavirus (HPV) vaccine awareness and HPV vaccine initiation and completion among 13- to 17-year-old U.S. adolescent children. Clin Pediatr (Phila). 2015;54(4):371-375. doi:10.1177/0009922814551135

Rahman M, McGrath CJ, Hirth JM, Berenson AB. Age at HPV vaccine initiation and completion among US adolescent girls: trend from 2008 to 2012. Vaccine. 2015;33(5):585-587. doi:10.1016/j.vaccine.2014.12.021

Reagan-Steiner S, Yankey D, Jeyarajah J, et al. National, Regional, State, and Selected Local Area Vaccination Coverage Among Adolescents Aged 13-17 Years--United States, 2014. MMWR Morb Mortal Wkly Rep. 2015;64(29):784-792. doi:10.15585/mmwr.mm6429a3

Roberts JR, Naifeh M, Jacobson RM, et al. Adolescent Vaccination Performance in South Carolina Compared to the United States. J S C Med Assoc. 2015;111(4):117-121.

Smith PJ, Marcuse EK, Seward JF, Zhao Z, Orenstein WA. Children and Adolescents Unvaccinated Against Measles: Geographic Clustering, Parents' Beliefs, and Missed Opportunities. Public Health Rep. 2015;130(5):485-504. doi:10.1177/003335491513000512

2014

Attanasio L, McAlpine D. Accuracy of parental reports of children's HPV vaccine status: implications for estimates of disparities, 2009-2010. Public Health Rep. 2014;129(3):237-244. doi:10.1177/003335491412900305

Bednarczyk RA, Curran EA, Orenstein WA, Omer SB. Health disparities in human papillomavirus vaccine coverage: trends analysis from the National Immunization Survey-Teen, 2008-2011. Clin Infect Dis. 2014;58(2):238-241. doi:10.1093/cid/cit707

Burdette AM, Gordon-Jokinen H, Hill TD. Social determinants of HPV vaccination delay rationales: Evidence from the 2011 National Immunization Survey-Teen. Prev Med Rep. 2014;1:21-26. Published 2014 Oct 2. doi:10.1016/j.pmedr.2014.09.003

Curtis CR, Dorell C, Yankey D, et al. National human papillomavirus vaccination coverage among adolescents aged 13-17 years-National Immunization Survey--teen, United States, 2011. MMWR Suppl. 2014;63(2):61-70.

Dorell C, Yankey D, Jeyarajah J, et al. Delay and refusal of human papillomavirus vaccine for girls, national immunization survey-teen, 2010. Clin Pediatr (Phila). 2014;53(3):261-269. doi:10.1177/0009922813520070

Elam-Evans LD, Yankey D, Jeyarajah J, et al. National, regional, state, and selected local area vaccination coverage among adolescents aged 13-17 years--United States, 2013. MMWR Morb Mortal Wkly Rep. 2014;63(29):625-633.

Gilkey MB, Magnus BE, Reiter PL, McRee AL, Dempsey AF, Brewer NT. The Vaccination Confidence Scale: a brief measure of parents' vaccination beliefs. Vaccine. 2014;32(47):6259-6265. doi:10.1016/j.vaccine.2014.09.007

Johnson NB, Hayes LD, Brown K, Hoo EC, Ethier KA; Centers for Disease Control and Prevention (CDC). CDC National Health Report: leading causes of morbidity and mortality and associated behavioral risk and protective factors--United States, 2005-2013. MMWR Suppl. 2014;63(4):3-27.

Myers J. Kentucky's improvement in administering Tdap for adolescents: The National Immunization Survey-Teen 2008-2012. Ky Nurse. 2014;62(4):8.

Naifeh MM, Roberts JR, Margolis B, et al. Adolescent vaccination in Oklahoma: a work in progress. J Okla State Med Assoc. 2014;107(9-10):510-516.

Rahman M, McGrath CJ, Berenson AB. Geographic variation in human papillomavirus vaccination uptake among 13-17 year old adolescent girls in the United States. Vaccine. 2014;32(21):2394-2398. doi:10.1016/j.vaccine.2014.02.097

Reiter PL, Brewer NT, Gilkey MB, Katz ML, Paskett ED, Smith JS. Early adoption of the human papillomavirus vaccine among Hispanic adolescent males in the United States. Cancer. 2014;120(20):3200-3207. doi:10.1002/cncr.28871

Reiter PL, Gupta K, Brewer NT, et al. Provider-verified HPV vaccine coverage among a national sample of Hispanic adolescent females. Cancer Epidemiol Biomarkers Prev. 2014;23(5):742-754. doi:10.1158/1055-9965.EPI-13-0979

Stokley S, Jeyarajah J, Yankey D, et al. Human papillomavirus vaccination coverage among adolescents, 2007-2013, and postlicensure vaccine safety monitoring, 2006-2014--United States. MMWR Morb Mortal Wkly Rep. 2014;63(29):620-624.

2013

Centers for Disease Control and Prevention (CDC). Human papillomavirus vaccination coverage among adolescent girls, 2007-2012, and postlicensure vaccine safety monitoring, 2006-2013 - United States. MMWR Morb Mortal Wkly Rep. 2013;62(29):591-595.

Centers for Disease Control and Prevention (CDC). National and state vaccination coverage among adolescents aged 13-17 years--United States, 2012. MMWR Morb Mortal Wkly Rep. 2013;62(34):685-693.

Darden PM, Thompson DM, Roberts JR, et al. Reasons for not vaccinating adolescents: National Immunization Survey of Teens, 2008-2010. Pediatrics. 2013;131(4):645-651. doi:10.1542/peds.2012-2384

Dorell C, Yankey D, Kennedy A, Stokley S. Factors that influence parental vaccination decisions for adolescents, 13 to 17 years old: National Immunization Survey-Teen, 2010. Clin Pediatr (Phila). 2013;52(2):162-170. doi:10.1177/0009922812468208

Kawai K, O'Brien MA, Conway JH, Marshall GS, Kuter BJ. Factors associated with receipt of two doses of varicella vaccine among adolescents in the United States. Pediatr Infect Dis J. 2013;32(5):538-542. doi:10.1097/INF.0b013e31827f4c3c

Ojha RP, Tota JE, Offutt-Powell TN, Klosky JL, Ashokkumar R, Gurney JG. The accuracy of human papillomavirus vaccination status based on adult proxy recall or household immunization records for adolescent females in the United States: results from the National Immunization Survey-Teen. Ann Epidemiol. 2013;23(5):281-285. doi:10.1016/j.annepidem.2013.02.002

Polonijo AN, Carpiano RM. Social inequalities in adolescent human papillomavirus (HPV) vaccination: a test of fundamental cause theory. Soc Sci Med. 2013;82:115-125. doi:10.1016/j.socscimed.2012.12.020

Reiter PL, Gilkey MB, Brewer NT. HPV vaccination among adolescent males: results from the National Immunization Survey-Teen. Vaccine. 2013;31(26):2816-2821. doi:10.1016/j.vaccine.2013.04.010

Reiter PL, Katz ML, Paskett ED. Correlates of HPV vaccination among adolescent females from Appalachia and reasons why their parents do not intend to vaccinate. Vaccine. 2013;31(31):3121-3125. doi:10.1016/j.vaccine.2013.04.068

Ylitalo KR, Lee H, Mehta NK. Health care provider recommendation, human papillomavirus vaccination, and race/ethnicity in the US National Immunization Survey. Am J Public Health. 2013;103(1):164-169. doi:10.2105/AJPH.2011.300600

2012

Bugenske E, Stokley S, Kennedy A, Dorell C. Middle school vaccination requirements and adolescent vaccination coverage. Pediatrics. 2012;129(6):1056-1063. doi:10.1542/peds.2011-2641

Centers for Disease Control and Prevention (CDC). National and state vaccination coverage among adolescents aged 13-17 years--United States, 2011 [published correction appears in MMWR Morb Mortal Wkly Rep. 2012 Oct 19;61(41):844]. MMWR Morb Mortal Wkly Rep. 2012;61(34):671-677.

Dorell CG, Stokley S, Yankey D, Markowitz LE. Compliance with recommended dosing intervals for HPV vaccination among females, 13-17 years, National Immunization Survey-Teen, 2008-2009. Vaccine. 2012;30(3):503-505. doi:10.1016/j.vaccine.2011.11.042

Dorell CG, Yankey D, Byrd KK, Murphy TV. Hepatitis a vaccination coverage among adolescents in the United States. Pediatrics. 2012;129(2):213-221. doi:10.1542/peds.2011-2197

Gowda C, Dempsey AF. Medicaid reimbursement and the uptake of adolescent vaccines. Vaccine. 2012;30(9):1682-1689. doi:10.1016/j.vaccine.2011.12.097

Lu PJ, Dorell C, Yankey D, Santibanez TA, Singleton JA. A comparison of parent and provider reported influenza vaccination status of adolescents. Vaccine. 2012;30(22):3278-3285. doi:10.1016/j.vaccine.2012.03.015

Reiter PL, Katz ML, Paskett ED. HPV vaccination among adolescent females from Appalachia: implications for cervical cancer disparities. Cancer Epidemiol Biomarkers Prev. 2012;21(12):2220-2230. doi:10.1158/1055-9965.EPI-12-0850

2011

Centers for Disease Control and Prevention (CDC). National and state vaccination coverage among adolescents aged 13 through 17 years--United States, 2010. MMWR Morb Mortal Wkly Rep. 2011;60(33):1117-1123.

Dorell CG, Jain N, Yankey D. Validity of parent-reported vaccination status for adolescents aged 13-17 years: National Immunization Survey-Teen, 2008. Public Health Rep. 2011;126 Suppl 2(Suppl 2):60-69. doi:10.1177/00333549111260S208

Dorell CG, Yankey D, Santibanez TA, Markowitz LE. Human papillomavirus vaccination series initiation and completion, 2008-2009 [published correction appears in Pediatrics. 2012 Jul;130(1):166-8. Dosage error in article text]. Pediatrics. 2011;128(5):830-839. doi:10.1542/peds.2011-0950

Dorell C, Yankey D, Strasser S. Parent-reported reasons for nonreceipt of recommended adolescent vaccinations, national immunization survey: teen, 2009. Clin Pediatr (Phila). 2011;50(12):1116-1124. doi:10.1177/0009922811415104

Lindley MC, Smith PJ, Rodewald LE. Vaccination coverage among U.S. adolescents aged 13-17 years eligible for the Vaccines for Children program, 2009. Public Health Rep. 2011;126 Suppl 2(Suppl 2):124-134. doi:10.1177/00333549111260S214

Niccolai LM, Mehta NR, Hadler JL. Racial/Ethnic and poverty disparities in human papillomavirus vaccination completion. Am J Prev Med. 2011;41(4):428-433. doi:10.1016/j.amepre.2011.06.032

Stokley S, Cohn A, Dorell C, et al. Adolescent vaccination-coverage levels in the United States: 2006-2009. Pediatrics. 2011;128(6):1078-1086. doi:10.1542/peds.2011-1048

Stokley S, Cohn A, Jain N, McCauley MM. Compliance with recommendations and opportunities for vaccination at ages 11 to 12 years: evaluation of the 2009 national immunization survey-teen. Arch Pediatr Adolesc Med. 2011;165(9):813-818. doi:10.1001/archpediatrics.2011.138

2010

Centers for Disease Control and Prevention (CDC). National, state, and local area vaccination coverage among adolescents aged 13-17 years --- United States, 2009. MMWR Morb Mortal Wkly Rep. 2010;59(32):1018-1023.

Jain N, Stokley S, Cohn A. Receipt of tetanus-containing vaccinations among adolescents aged 13 to 17 years in the United States: National Immunization Survey-Teen 2007. Clin Ther. 2010;32(8):1468-1478. doi:10.1016/j.clinthera.2010.07.016

Lu PJ, Jain N, Cohn AC. Meningococcal conjugate vaccination among adolescents aged 13-17 years, United States, 2007. Vaccine. 2010;28(11):2350-2355. doi:10.1016/j.vaccine.2009.12.032

2009

Centers for Disease Control and Prevention (CDC). National, state, and local area vaccination coverage among adolescents aged 13-17 years--United States, 2008. MMWR Morb Mortal Wkly Rep. 2009;58(36):997-1001.

Jain N, Hennessey K. Hepatitis B vaccination coverage among U.S. adolescents, National Immunization Survey-Teen, 2006. J Adolesc Health. 2009;44(6):561-567. doi:10.1016/j.jadohealth.2008.10.143

Smith PJ, Lindley MC, Shefer A, Rodewald LE. Underinsurance and adolescent immunization delivery in the United States. Pediatrics. 2009;124 Suppl 5:S515-S521. doi:10.1542/peds.2009-1542K

2008

Centers for Disease Control and Prevention (CDC). Vaccination coverage among adolescents aged 13-17 years - United States, 2007 [published correction appears in MMWR Morb Mortal Wkly Rep. 2009 Jan 16;58(1):10]. MMWR Morb Mortal Wkly Rep. 2008;57(40):1100-1103.

2007

Centers for Disease Control and Prevention (CDC). National vaccination coverage among adolescents aged 13-17 years--United States, 2006. MMWR Morb Mortal Wkly Rep. 2007;56(34):885-888.

13. References

American Association for Public Opinion Research (2016). *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys*. 9th edition. https://aapor.org/wp-content/uploads/2022/11/Standard-Definitions20169theditionfinal.pdf

Bartlett, D. L., Ezzati-Rice, T. M., Stokley, S., & Zhao, Z. (2001). Comparison of NIS and NHIS/NIPRCS vaccination coverage estimates. National Immunization Survey. National Health Interview Survey/National Immunization Provider Record Check Study. *American Journal of Preventive Medicine, 20*(4 Suppl), 25–27. https://doi.org/10.1016/s0749-3797(01)00284-7

Blumberg, S. J. and Luke, J. V. (2023). Wireless substitution: Early release of estimates from the National Health Interview Survey, July-December 2022. National Center for Health Statistics. https://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless202305.pdf

Blumberg, S. J., Luke, J. V., Ganesh, N., Davern, M. E., Boudreaux, M. H., and Soderberg, K. (2011). Wireless substitution: State-level estimates from the National Health Interview Survey, January 2007–June 2011. National Center for Health Statistics. http://www.cdc.gov/nchs/data/nhsr/nhsr039.pdf

Brick, J. M. and Kalton, G. (1996). Handling missing data in survey research. *Statistical Methods in Medical Research, 5*(3):215–238. https://doi.org/10.1177/096228029600500302

Centers for Disease Control and Prevention (CDC) (1994). Reported vaccine-preventable diseases - United States, 1993, and the childhood immunization initiative. *MMWR, 43*(4):57-60. https://www.cdc.gov/mmwr/preview/mmwrhtml/00023738.htm

Centers for Disease Control and Prevention (CDC) (2002). *National Immunization Survey: Guide to Quality Control Procedures.* http://www.cdc.gov/nchs/data/nis/qcman.pdf

Centers for Disease Control and Prevention (CDC) (2015a). *National Immunization Survey-Teen: A User's Guide for the 2014 Public-Use Data File.* https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NIS/NISTEENPUF14_DUG.pdf

Centers for Disease Control and Prevention (CDC) (2015b). *NIS-Teen: Revised Definition of Adequate Provider Data (APD).* https://www.cdc.gov/vaccines/imz-managers/coverage/nis/teen/apd-report.html

Centers for Disease Control and Prevention (CDC) (2023). Error profile for the 2022 NIS-Teen: National Immunization Survey. Atlanta, GA: US Department of Health and Human Services, CDC; 2023. https://www.cdc.gov/vaccines/imz-managers/coverage/teenvaxview/downloads/error-profile-2022-nis-teen.pdf

Coronado, V. G., Maes, E. F., Rodewald, L. E., Chu, S., Battaglia, M. P., Hoaglin, D. C., Merced, N. L., Yusuf, H., Cordero, J. F., and Orenstein, W. A. (2000). Risk factors for underimmunization among 19-35 month-old children in the United States: National Immunization Survey, July 1996-June 1998. Unpublished manuscript, Centers for Disease Control and Prevention, Atlanta.

Council of American Survey Research Organizations (CASRO) (1982). On the Definition of Response Rates: A Special Report of the CASRO Task Force on Completion Rates. Council of American Survey Research Organizations.

Deming, W. E. (1943). *Statistical Adjustment of Data*. New York: Wiley.

Dorell, C., Jain, N., and Yankey, D. (2011). Validity of parent-reported vaccination status for adolescents aged 13-17 years: National Immunization Survey-Teen, 2008. *Public Health Reports, 126*(Suppl 2), 60-69. https://doi.org/10.1177/00333549111260S208

Ezzati-Rice, T. M., Zell, E. R., Battaglia, M. P., Ching, P. L. Y. H., and Wright, R. A. (1995). The design of the National Immunization Survey. *1995 Proceedings of the Section on Survey Research Methods,* Alexandria, VA: American Statistical Association, 668-672. https://www.cdc.gov/nchs/data/nis/sample_design/ezzati1995.pdf

Ford, B. L. (1983). An overview of hot-deck procedures, in: *Incomplete data in sample surveys*, Madow W. G., Olkin I., Rubin D. B. (Eds.), Academic Press, New York, pp. 185-207.

Gillespie, K. (2018). Adolescent vaccination coverage in Kansas, an analysis of BRFSS Surveys 2011-2016. Kansas Department of Health and Environment, Topeka, KS. https://www.kdheks.gov/immunize/download/BRFSS_Adolescent_Coverage_2016.pdf

Jain, N., Singleton, J., Montgomery, M., and Skalland, B. (2009). Determining accurate vaccination coverage rates for adolescents: The National Immunization Survey-Teen 2006. *Public Health Reports, 124*(5): 642-651. https://doi.org/10.1177/003335490912400506

Khare, M., Battaglia, M. P., Huggins, V. J., Stokley, S., Hoaglin, D. C., Wright, R. A., and Rodén, A. S. (2000). Accuracy of vaccination dates reported by immunization providers in the National Immunization Survey. *2000 Proceedings of the Section on Survey Research Methods*. Alexandria, VA: American Statistical Association, 665-670. https://www.cdc.gov/nchs/data/nis/data_collection/khare2000.pdf

Khare, M., Battaglia, M. P., Stokley, S., Wright, R. A., and Huggins, V. J. (2001). Quality of immunization histories reported in the National Immunization Survey. *Proceedings of the International Conference on Quality in Official Statistics* (CD-ROM). Stockholm: Statistics Sweden.

Lumley, T. (2010). Survey Analysis in R. http://r-survey.r-forge.r-project.org/survey/index.html

Machado, F. R. (2017). Georgia Adolescent Immunization Study 2017, edited by Tuttle, J., Drenzek, C., and Lovett, S. Georgia Department of Public Health, Immunization Program / Acute Disease Epidemiology Section, Atlanta, GA. Available at: https://dph.georgia.gov/sites/dph.georgia.gov/files/Adolescent%20Immunization%20Study%202017%20Final%20Report_Georgia.pdf

Machado, F. R. (2018). Georgia Adolescent Immunization Study 2018, edited by Tuttle, J., Drenzek, C., and Lovett, S. Georgia Department of Public Health, Immunization Program / Acute Disease Epidemiology Section, Atlanta, GA. https://dph.georgia.gov/sites/dph.georgia.gov/files/Immunizations/2018%20GAIS%20final_web.pdf

Meites, E., Kempe, A., and Markowitz, L. E. (2016). Use of a 2-dose schedule for human papillomavirus vaccination — Updated recommendations of the Advisory Committee on Immunization Practices. *MMWR,* 65(49), 1405-1408. https://doi.org/10.15585/mmwr.mm6549a5

Molinari, N., Wolter, K., Skalland, B., Montgomery, R., Khare, M., Smith, P., and Singleton, J. (2011). Quanitfying bias in a health survey: Modeling total survey error in the National Immunization Survey. *Statistics in Medicine, 30*, 505-515. https://doi.org/10.1002/sim.3911

Mulry, M. H. and Spencer, B. C. (1991). Total error in PES estimates of population. *Journal of the American Statistical Association, 86*(416), 839-863. https://doi.org/10.1080/01621459.1991.10475122

National Center for Health Statistics (NCHS) (1999). National Health Interview Survey: Research for the 1995-2004 redesign. *Vital and Health Statistics, Series 2, Data Evaluation and Methods Research* (126), 1-119. https://www.cdc.gov/nchs/data/series/sr_02/sr02_126.pdf

National Center for Immunization and Respiratory Diseases (NCIRD) (2023). *National Immunization Survey - Teen 2022 Public-Use Data File: Documentation, Codebook and Frequencies*. Atlanta, GA. Available at: https://www.cdc.gov/vaccines/imz-managers/nis/datasets-teen.html

Nguyen, K. H., Singleton, J., Elam-Evans, L. D., Hill, H. A., Walker, T., Yankey, D., et al. (2019). Impact of a methodological change from a dual-frame landline and cell-phone sample design to a single-frame cell-phone sample design on vaccination coverage estimates among adolescents 13-17 years, National Immunization Survey-Teen, 2016-2017. Centers for Disease Control and Prevention. Available at: https://www.cdc.gov/vaccines/imz-managers/coverage/teenvaxview/pubs-presentations/dual-to-single-frame-teen.html

NORC at the University of Chicago (NORC) (2011). *Modeling Total Survey Error in the 2009 and 2010 NIS: Young Children and Teens.* Report submitted to the Centers for Disease Control and Prevention. Chicago, IL: NORC.

Ojha, R. P., Tota, J. E., Offut-Powell, T. N., Kloskey, J. L., Ashokkumar, R., and Gurney, J. G. (2013). The accuracy of human papillomavirus vaccination status based on adult proxy recall or household immunization records for adolescent females in the United States: results from the National Immunization Survey-Teen. *Annals of Epidemiology, 23*(5), 281-285.

Pineau, V., Wolter, K., Skalland, B., Zeng, W., Zhao, Z., and Khare, M. (2012). *Modeling Total Survey Error in the 2010 National Immunization Survey (NIS): Pre-School Children and Teens.* Presented at the 2012 American Statistical Association (ASA) Joint Statistical Meetings, San Diego, CA.

Pineau, V., Wolter, K., Skalland, B., Zeng, W., Black, C., Dorell, C., Khare, M., and Yankey, D. (2013). *Modeling Total Surey Error in the 2011 National Immunization Survey (NIS): Pre-School Children and Teens.* Presented at the 2013 American Statistical Association (ASA) Joint Statistical Meetings, Montreal, Canada. https://www.cdc.gov/vaccines/imz-managers/coverage/downloads/total-survey-error.pdf

Research Triangle Institute (2008). *SUDAAN Language Manual, Release 9.0*. Research Triangle Park, NC: Research Triangle Institute.

Rosenbaum, P.R. (1987). Model-based direct adjustment. *Journal of the American Statistical Association*, *82*, 387-394. https://doi.org/10.1080/01621459.1987.10478441

Rosenbaum, P.R. and Rubin, D.B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, *70*(1), 41-55. https://doi.org/10.1093/biomet/70.1.41

Rosenbaum, P.R. and Rubin, D.B. (1984). Reducing bias in observational studies using subclassification on the propensity score. *Journal of the American Statistical Association*, *79*(387), 516-534. https://doi.org/10.1080/01621459.1984.10478078

SAS Institute Inc. (2009). *SAS/STAT 9.2 User's Guide, Second Edition*. Cary, NC: SAS Institute Inc. https://support.sas.com/documentation/cdl/en/statug/63033/HTML/default/viewer.htm

Skalland, B., Wolter, K., Ma, Q., Pineau, V., Singleton, J., Yankey, D., and Smith, P. (2016). A total survey error framework and assessment for the 2013 National Immunization Survey. Presented at the International Total Survey Error Workshop, Sydney, Australia, October, 2016.

Smith, P. J., Battaglia, M. P., Huggins, V. J., Hoaglin, D. C., Rodén, A. S., Khare, M., Ezzati-Rice, T. M., and Wright, R. A. (2001a). Overview of the sampling design and statistical methods used in the National Immunization Survey. *American Journal of Preventive Medicine, 20*(4 Suppl), 17-24. https://doi.org/10.1016/s0749-3797(01)00285-9

Smith, P. J., Rao, J. N. K., Battaglia, M. P., Ezzati-Rice, T. M., Daniels, D., and Khare, M. (2001b). Compensating for provider non-response using response propensities to form adjustment cells: The National Immunization Survey. *Vital and Health Statistics, Series 2, Data Evaluation and Methods Research,* 133, 1-17.

Smith, P. J., Hoaglin, D. C., Battaglia, M. P., Khare, M., and Barker, L. E. (2005). *Statistical Methodology of the National Immunization Survey: 1994-2002*. *Vital and Health Statistics, Series 2, Data Evaluation and Methods Research* (138), 1-64. https://www.cdc.gov/nchs/data/series/sr_02/sr02_138.pdf

StataCorp (2009). *Stata Statistical Software: Release 9*. College Station, TX: StataCorp LP.

Walker, T. Y., Elam-Evans, L. D., Singleton, J. A., Yankey, D., Markowitz, L. E., Fredua, B., et al. (2018). National, regional, state, and selected local area vaccination coverage among adolescents aged 13–17 years — United States, 2017. *MMWR, 67*(33), 909-917. https://doi.org/10.15585/mmwr.mm6733a1

Wall, T. P., Kochanek, K. M., Fitti, J. E., and Zell, E. R. (1995). The use of real time translation services in RDD telephone surveys. Presented at the 1995 Conference of the American Association for Public Opinion Research, Fort Lauderdale, FL.

Wodi, A. P., Murthy, N., Bernstein, H., McNally, V., Cineas, S., and Ault, K. (2022). Advisory committee on immunization practices recommended immunization schedule for children and adolescents aged 18 years or younger – United States, 2022. *MMWR*, 71(7):234-237. http://dx.doi.org/10.15585/mmwr.mm7107a2

Wolter, K., Smith, P., Khare, M., Welch, B., Copeland, K., Pineau, V., and Davis, N. (2017a). Statistical methodology of the National Immunization Survey, 2005-2014. *Vital Health Statistics, Series 1, Programs and Collection Procedures,* (61), 1-107.

Wolter, K., Pineau, V., Skalland, B., Zeng, W., Singleton, J., Khare, M., Zhao, Z., Yankey, D., and Smith, P. (2017b). Total survey error assessment for socio-demographic subgroups in the 2012 U.S. National Immunization Survey. In Biemer, P., De Leeuw, E., Edwards, B., Kreuter, F., Lyberg, L., Tucker, C., and West, B. (Eds.) *Total Survey Error in Practice*, John Wiley & Sons, Inc., Hoboken, NJ, USA.

Yankey D., Hill H. A., Elam-Evans L. D., et al. (2015). Estimating change in telephone survey bias in an era of declining response rates and transition to wireless telephones—evidence from the National Immunization Survey (NIS), 1995–2013. Presented at the 2015 American Association for Public Opinion Research (AAPOR) 70th Annual Conference, Hollywood, FL; May 14–17, 2015.

Zell, E. R., Ezzati-Rice, T. M., Battaglia, M. P., and Wright, R. A. (2000). National Immunization Survey: The methodology of a vaccination surveillance system. *Public Health Reports, 115*(1), 65-77. https://doi.org/10.1093/phr/115.1.65

Appendix A: Glossary of Abbreviations and Terms

1:3:2:1	The series of 1 or more Td/Tdap vaccinations, 3 or more Hep B vaccinations (or 2 or more Hep B 1.0 ml Recombivax vaccinations), 2 or more MMR vaccinations, and 1 or more VAR vaccinations (or a history of chicken pox disease)
1:3:2:1:2	The series of 1 or more Td/Tdap vaccinations, 3 or more Hep B vaccinations (or 2 or more Hep B 1.0 ml Recombivax vaccinations), 2 or more MMR vaccinations, 1 or more MEN vaccinations, and 2 or more VAR vaccinations (or a history of chicken pox disease)
1:1:3	The series of 1 or more Tdap vaccinations at or after age 10 years, 1 or more MenACWY vaccinations and 3 or more HPV vaccinations prior to age 13 years.
AAPOR	American Association for Public Opinion Research
ACS	American Community Survey
APCN	Active Personal Cellular Phone Number
CASRO	Council of American Survey Research Organizations
CATI	Computer-assisted telephone interviewing
CDC	Centers for Disease Control and Prevention
CII	Childhood Immunization Initiative
CPS	Current Population Survey
DHHS	U.S. Department of Health and Human Services
DOB	Date of birth
FLU	Seasonal influenza vaccine
H1N1	Monovalent 2009 H1N1 Influenza Vaccine
Hep A	Hepatitis A vaccine
Hep B	Hepatitis B vaccine
HIM	Health insurance module
HPV	Human papillomavirus
IAP	Immunization Action Plan
IHQ	Immunization history questionnaire
MCV	Measles-containing vaccine
MenACWY	Quadrivalent meningococcal conjugate vaccine
MenB	Serogroup B meningococcal vaccine

MPSV4	Quadrivalent meningococcal polysaccharide vaccine
MEN	Meningococcal vaccine
MMR	Measles, mumps, and rubella vaccine
MSA	Metropolitan Statistical Area
NCHS	National Center for Health Statistics
NCIRD	National Center for Immunization and Respiratory Diseases
NIPRCS	National Immunization Provider Record Check Study
NIS	National Immunization Survey
NIS-Child	National Immunization Survey - Child
NIS-Teen	National Immunization Survey - Teen
NHIS	National Health Interview Survey
NIP	National Immunization Program
PRC	Provider Record Check
PUF	Public-use data file
PUMS	Public-Use Microdata Sample
RDD	Random digit dialing
SC	Shot card
Td	Tetanus and diphtheria toxoids adsorbed
Tdap	Tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine, adsorbed
UTD	Up-to-date
WRN	Working Residential Number
VFC	Vaccines for Children program
VAR	Varicella vaccine

Appendix B: Summary Statistics for Sampling Weights by Estimation Area

Table B.1: Distribution of Sampling Weights* for Teens with Completed Household Interviews, National Immunization Survey - Teen, 2022

State/Estimation Area	n	Sum§	Minimum	Maximum	Mean	Coefficient of Variation
U.S. National†	41,325	21,831,327.31	1.77	9,181.37	528.28	145.55
Alabama	756	333,290.99	61.92	1,264.55	440.86	61.96
Alaska	550	48,430.99	11.33	262.76	88.06	67.81
Arizona	798	491,381.61	9.75	2,068.31	615.77	71.55
Arkansas	785	208,990.00	51.31	821.69	266.23	68.61
California	982	2,599,903.88	14.16	9,181.37	2,647.56	78.97
Colorado	770	374,085.89	6.44	1,382.78	485.83	64.13
Connecticut	654	224,624.03	11.11	1,131.60	343.46	79.53
Delaware	665	60,306.55	25.25	282.66	90.69	62.61
District of Columbia	653	28,640.84	4.59	132.80	43.86	84.33
Florida	912	1,285,015.07	13.59	5,598.45	1,409.01	98.13
Georgia	839	767,112.10	5.21	3,074.87	914.32	83.09
Hawaii	647	81,267.05	14.79	373.27	125.61	55.73
Idaho	542	145,072.96	11.71	812.33	267.66	68.19
Illinois	1,710	838,318.23	18.85	2,235.11	490.24	94.64
IL-City of Chicago	713	151,184.73	18.85	751.14	212.04	81.36
IL-Rest of State	997	687,133.49	22.11	2,235.11	689.20	72.99
Indiana	690	469,278.13	21.72	1,996.37	680.11	59.82
Iowa	458	218,107.96	20.29	1,398.94	476.22	65.48
Kansas	759	208,564.16	19.57	883.09	274.79	70.48
Kentucky	688	298,538.63	53.41	1,388.13	433.92	66.25
Louisiana	898	314,593.07	25.63	1,202.72	350.33	77.33
Maine	612	77,277.00	11.07	353.42	126.27	57.73
Maryland	864	398,807.86	10.67	2,006.41	461.58	120.92
Massachusetts	698	408,246.40	7.22	1,973.54	584.88	77.64
Michigan	621	641,303.97	12.53	3,244.45	1,032.70	70.88
Minnesota	799	389,121.75	12.92	1,498.51	487.01	64.86
Mississippi	706	210,561.99	25.21	988.37	298.25	68.66
Missouri	735	411,320.33	15.96	1,862.97	559.62	68.71
Montana	685	69,922.49	20.73	298.80	102.08	57.90
Nebraska	571	140,984.19	21.82	731.18	246.91	62.61
Nevada	794	208,790.14	9.92	814.45	262.96	73.75
New Hampshire	566	79,580.55	20.38	414.08	140.60	61.02
New Jersey	880	601,028.99	12.91	2,119.82	682.99	73.22
New Mexico	633	144,285.11	6.13	682.46	227.94	64.22
New York	1,466	1,165,589.62	8.61	2,500.57	795.08	66.16
NY-City of New York	632	466,032.98	11.74	2,330.84	737.39	70.09
NY-Rest of State	834	699,556.64	8.61	2,500.57	838.80	63.08
North Carolina	878	695,008.56	11.03	2,773.26	791.58	75.47
North Dakota	635	50,949.96	8.67	272.02	80.24	77.72
Ohio	650	769,147.94	12.85	4,155.80	1,183.30	77.43
Oklahoma	655	283,129.97	34.52	1,374.19	432.26	65.90
Oregon	659	258,747.55	13.21	1,173.95	392.64	64.93
Pennsylvania	2,017	796,452.87	19.47	1,851.39	394.87	92.72
PA-Philadelphia County	676	93,026.65	24.94	411.65	137.61	68.20
PA-Rest of State	1,341	703,426.22	19.47	1,851.39	524.55	73.09
Rhode Island	662	62,449.32	13.10	340.54	94.33	80.01

State/Estimation Area	n	Sum[§]	Minimum	Maximum	Mean	Coefficient of Variation
South Carolina	765	339,529.63	31.33	1,363.94	443.83	66.00
South Dakota	585	63,083.25	13.89	316.53	107.83	68.27
Tennessee	587	458,785.56	4.24	2,409.72	781.58	75.35
Texas	2,335	2,215,046.86	15.19	7,216.01	948.63	150.83
TX-Bexar County	669	151,603.08	32.18	612.52	226.61	67.75
TX-City of Houston	484	142,756.24	28.38	881.98	294.95	69.40
TX-Rest of State	1,182	1,920,687.54	15.19	7,216.01	1,624.95	108.13
Utah	578	286,417.30	1.77	1,639.48	495.53	73.10
Vermont	597	36,405.23	4.69	189.94	60.98	67.54
Virginia	1,694	554,432.90	9.01	1,123.31	327.29	78.41
Washington	688	485,710.00	10.29	2,513.93	705.97	82.60
West Virginia	579	107,579.56	11.45	547.91	185.80	54.99
Wisconsin	662	385,385.56	56.26	1,606.89	582.15	57.67
Wyoming	713	40,722.78	6.79	185.43	57.11	70.93
Guam	532	14,540.00	4.01	91.58	27.33	81.45
Puerto Rico	2,413	180,796.28	6.49	250.77	74.93	89.48

*Distribution of RDDWT_C_TERR.

† Excludes U.S. territories.

§ The sum of the weights is an estimate of the total number of adolescents age 13-17 in the population.

Table B.2: Distribution of Sampling Weights* for Teens with Adequate Provider Data, National Immunization Survey - Teen, 2022

State/Estimation Area	n	Sum§	Minimum	Maximum	Mean	Coefficient of Variation
U.S. National†	16,043	21,831,327.31	5.31	30,574.82	1,360.80	159.99
Alabama	269	333,290.99	94.26	3,566.73	1,239.00	66.34
Alaska	240	48,430.99	18.42	629.22	201.80	75.26
Arizona	273	491,381.61	59.85	6,329.38	1,799.93	73.74
Arkansas	332	208,990.00	75.87	2,008.01	629.49	71.58
California	321	2,599,903.88	42.00	30,574.82	8,099.39	83.74
Colorado	342	374,085.89	23.62	3,233.48	1,093.82	57.42
Connecticut	258	224,624.03	97.65	2,872.00	870.64	77.18
Delaware	250	60,306.55	57.74	769.15	241.23	68.61
District of Columbia	237	28,640.84	15.00	472.76	120.85	89.52
Florida	307	1,285,015.07	43.88	17,135.51	4,185.72	95.97
Georgia	333	767,112.10	34.21	8,104.75	2,303.64	85.04
Hawaii	237	81,267.05	59.97	968.05	342.90	55.98
Idaho	251	145,072.96	41.13	1,879.70	577.98	79.29
Illinois	630	838,318.23	60.79	6,407.06	1,330.66	99.42
IL-City of Chicago	256	151,184.73	72.66	2,193.56	590.57	88.77
IL-Rest of State	374	687,133.49	60.79	6,407.06	1,837.26	79.44
Indiana	258	469,278.13	125.66	5,294.78	1,818.91	64.73
Iowa	207	218,107.96	40.26	3,426.64	1,053.66	67.63
Kansas	310	208,564.16	81.53	2,218.43	672.79	72.38
Kentucky	276	298,538.63	119.61	3,383.81	1,081.66	66.55
Louisiana	330	314,593.07	55.19	3,323.17	953.31	84.51
Maine	268	77,277.00	22.30	862.27	288.35	62.25
Maryland	346	398,807.86	27.07	5,372.93	1,152.62	116.11
Massachusetts	268	408,246.40	65.08	5,066.72	1,523.31	77.03
Michigan	257	641,303.97	26.83	8,523.51	2,495.35	81.34
Minnesota	331	389,121.75	43.46	3,774.22	1,175.59	68.96
Mississippi	232	210,561.99	80.04	3,036.59	907.59	81.92
Missouri	284	411,320.33	86.55	4,651.74	1,448.31	71.77
Montana	297	69,922.49	49.76	711.82	235.43	67.93
Nebraska	247	140,984.19	41.71	1,892.95	570.79	65.83
Nevada	259	208,790.14	75.03	2,576.28	806.14	67.22
New Hampshire	225	79,580.55	69.83	1,107.90	353.69	57.31
New Jersey	289	601,028.99	50.10	7,410.06	2,079.69	85.52
New Mexico	276	144,285.11	25.10	1,646.42	522.77	69.13
New York	536	1,165,589.62	17.27	6,917.49	2,174.61	70.44
NY-City of New York	222	466,032.98	33.16	6,859.26	2,099.25	73.90
NY-Rest of State	314	699,556.64	17.27	6,917.49	2,227.89	68.14
North Carolina	361	695,008.56	48.70	6,830.49	1,925.23	87.79
North Dakota	280	50,949.96	17.63	622.35	181.96	80.25
Ohio	269	769,147.94	45.32	9,861.28	2,859.29	87.08
Oklahoma	249	283,129.97	197.86	3,325.55	1,137.07	72.42
Oregon	263	258,747.55	48.98	3,192.79	983.83	62.95
Pennsylvania	752	796,452.87	51.58	4,914.40	1,059.11	99.18
PA-Philadelphia County	267	93,026.65	51.58	1,159.54	348.41	75.89
PA-Rest of State	485	703,426.22	65.01	4,914.40	1,450.36	76.82
Rhode Island	285	62,449.32	17.84	772.55	219.12	76.25
South Carolina	269	339,529.63	49.45	4,489.44	1,262.19	75.29
South Dakota	252	63,083.25	26.86	810.49	250.33	73.20
Tennessee	244	458,785.56	5.72	6,370.51	1,880.27	85.17
Texas	794	2,215,046.86	37.86	21,002.03	2,789.73	153.35
TX-Bexar County	253	151,603.08	50.82	1,950.91	599.22	91.49

State/Estimation Area	n	Sum[§]	Minimum	Maximum	Mean	Coefficient of Variation
TX-City of Houston	157	142,756.24	93.79	3,200.30	909.28	87.54
TX-Rest of State	384	1,920,687.54	37.86	21,002.03	5,001.79	105.63
Utah	271	286,417.30	5.31	3,418.94	1,056.89	75.61
Vermont	291	36,405.23	7.58	422.46	125.10	71.45
Virginia	595	554,432.90	26.73	3,281.10	931.82	83.37
Washington	280	485,710.00	27.40	6,450.74	1,734.68	83.35
West Virginia	244	107,579.56	101.80	1,334.39	440.90	58.63
Wisconsin	274	385,385.56	196.04	4,398.82	1,406.52	67.74
Wyoming	294	40,722.78	16.15	480.63	138.51	81.73
Guam	240	14,540.00	7.32	202.23	60.58	83.86
Puerto Rico	671	180,796.28	17.85	857.13	269.44	92.72

* Distribution of PROVWT_C_TERR.

† Excludes U.S. territories.

§ The sum of the weights is an estimate of the total number of adolescents age 13-17 in the population.

Appendix C: Programs for Estimation: Examples of the Use of SUDAAN, SAS, and R to Estimate Vaccination Coverage Rates and Their Standard Errors, and Example of the Production of a Cross-Tabulation and Chart

I. SUDAAN

```
*******************************************************************************;
title1 'SUD_IAP.SAS';
*******************************************************************************
THIS PROGRAM WILL PRODUCE ESTIMATION AREA ESTIMATES AND STANDARD ERRORS
FOR 1+ TD/TDAP VACCINATIONS (P_UTDTD) USING SAS CALLABLE SUDAAN.
SUDAAN NOTES:
1. ALL VARIABLES USED MUST BE NUMERIC.
2. VARIABLES IN THE SUBGROUP STATEMENT MUST HAVE VALUES 1,2,..K
WHERE K IS THE NUMBER OF LEVELS FOR EACH VARIABLE.
3. DATA MUST BE SORTED ACCORDING TO THE SAMPLE DESIGN VARIABLES
(STRATUM AND PRIMARY SAMPLING UNIT), SPECIFIED IN THE
NEST STATEMENT.
*******************************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nisteenpuf22'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nisteenpuf22'; *--- IF DATASET WAS CREATED WITH FORMATS STORED ---*;

*--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
*--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;
%let in_file=dd.nisteenpuf22; *--- NAME OF SAS DATASET ---*;
%let estiap=estiapt22; * --- ESTIMATION AREA VARIABLE TO USE ---*;
%let wt=provwt_c; * --- WEIGHT TO USE (PROVWT_C is the single-frame cellular phone weight
excluding territories. Use PROVWT_C_TERR to include territories) ---*;
%let strat=stratum; * --- STRATUM VARIABLE TO USE FOR VARIANCE ESTIMATION (Use
STRATUM for all estimates.) ---*;

proc format;
/*
THE FOLLOWING FORMAT WILL BE USED FOR P_UTDTD.
ORIGINAL VALUES OF P_UTDTD ARE 1,0.
MUST BE CONVERTED TO 1,2 IN SUDAAN.
*/
value p_utdtdf
1='1+ Td/Tdap Up-to-Date'
2='Not 1+ Td/Tdap Up-to-Date';

/*
THE FOLLOWING FORMAT WILL BE USED FOR THE ESTIMATION AREA.
*/
value estiapf
. = "Missing"
0 = "US Total"
1 = "CT"
2 = "MA"
4 = "ME"
5 = "NH"
6 = "RI"
7 = "VT"
```

```
8 = "NJ"
10 = "NY-Rest of State"
11 = "NY-City of New York"
12 = "DC"
13 = "DE"
14 = "MD"
16 = "PA-Rest of State"
17 = "PA-Philadelphia County"
18 = "VA"
19 = "WV"
20 = "AL"
22 = "FL"
25 = "GA"
27 = "KY"
28 = "MS"
29 = "NC"
30 = "SC"
31 = "TN"
34 = "IL-Rest of State"
35 = "IL-City of Chicago"
36 = "IN"
38 = "MI"
40 = "MN"
41 = "OH"
44 = "WI"
46 = "AR"
47 = "LA"
49 = "NM"
50 = "OK"
51 = "TX-Rest of State"
54 = "TX-City of Houston"
55 = "TX-Bexar County"
56 = "IA"
57 = "KS"
58 = "MO"
59 = "NE"
60 = "CO"
61 = "MT"
62 = "ND"
63 = "SD"
64 = "UT"
65 = "WY"
66 = "AZ"
68 = "CA"
72 = "HI"
73 = "NV"
74 = "AK"
75 = "ID"
76 = "OR"
77 = "WA"
106 = "Puerto Rico"
;
run;
```

```
data sud_file;
set &in_file. (keep= SEQNUMT P_UTDTD &estiap. &wt. &strat.);
if P_UTDTD=0 then P_UTDTD=2; *--- CONVERT P_UTDTD=0 TO P_UTDTD=2 ---*;
NSEQNUMT=1*SEQNUMT; *---CONVERT TEEN ID SEQNUMT FROM CHARACTER TO
NUMERIC ---*;
run;

*=== SORT BY NEST VARIABLES: ESTIAP (STRATUM) NSEQNUMT (PRIMARY SAMPLING
UNIT) ===*;
proc sort data=sud_file;
by &strat. nseqnumt;
run;

proc crosstab data=sud_file filetype=sas design=wr;
weight &wt.;
nest &strat. nseqnumt;
subgroup &estiap. P_UTDTD ;
levels 106 2 ;
tables &estiap. * P_UTDTD ;
print nsum wsum rowper serow/style=nchs ;
rtitle "1+ Td/Tdap Estimates by Estimation Area";
rformat &estiap. estiapf.;
rformat P_UTDTD p_utdtdf.;
output rowper serow/filename=sud_est filetype=sas;
run;

proc print data=sud_est(where=(P_UTDTD=1 and rowper ne .)) noobs label;
format &estiap. estiapf.;
var &estiap. rowper serow ;
label
rowper='Percent 1+ Td/Tdap Up-to-Date'
serow='Standard Error'
;
title "1+ TD/TDAP ESTIMATES BY ESTIMATION AREA";
run;


**********;
title1 'SUDSTATE.SAS';
*********************************************************************
THIS PROGRAM WILL PRODUCE STATE ESTIMATES AND STANDARD ERRORS
FOR 1+ Td/Tdap VACCINATIONS (P_UTDTD) USING SAS CALLABLE SUDAAN.
NOTE : THE STATE VARIABLE IS BASED ON STATE FIPS CODES. THERE ARE
NO STATES WITH FIPS CODES 3,7,14,43,52,57-71,73-78.
SUDAAN NOTES:
1. ALL VARIABLES USED MUST BE NUMERIC.
2. VARIABLES IN THE SUBGROUP STATEMENT MUST HAVE VALUES 1,2,..K
WHERE K IS THE NUMBER OF LEVELS FOR EACH VARIABLE.
3. DATA MUST BE SORTED ACCORDING TO THE SAMPLE DESIGN VARIABLES
(STRATUM AND PRIMARY SAMPLING UNIT), SPECIFIED IN THE
NEST STATEMENT.
*********************************************************************;
```

```
options ps=78 ls=90 obs= max;

libname dd 'c:\nisteenpuf22'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nisteenpuf22'; *--- IF DATASET WAS CREATED WITH FORMATS STORED ---*;

*--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
*--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;
%let in_file=dd.nisteenpuf22; *--- NAME OF SAS DATASET ---*;
%let estiap=estiapt22; * --- ESTIMATION AREA VARIABLE TO USE ---*;
%let wt=provwt_c; * --- WEIGHT TO USE (PROVWT_C is the single-frame cellular phone weight
excluding territories. Use PROVWT_C_TERR to include territories) ---*;
%let strat=stratum; * --- STRATUM VARIABLE TO USE FOR VARIANCE ESTIMATION (Use
STRATUM for all estimates) ---*;

proc format;
/*
THE FOLLOWING FORMAT WILL BE USED FOR P_UTDTD.
ORIGINAL VALUES OF P_UTDTD ARE 1,0.
MUST BE CONVERTED TO 1,2 IN SUDAAN.
*/
value putmmrf
1='1+ Td/Tdap Up-to-Date'
2='Not 1+ Td/Tdap Up-to-Date'
;

/*
THE FOLLOWING FORMAT WILL BE USED FOR STATE.
*/
value statef
0 ='U.S. Total'
1 ='Alabama '
2 ='Alaska '
4 ='Arizona '
5 ='Arkansas '
6 ='California '
8 ='Colorado '
9 ='Connecticut '
10 ='Delaware '
11 ='District of Columbia'
12 ='Florida '
13 ='Georgia '
15 ='Hawaii '
16 ='Idaho '
17 ='Illinois '
18 ='Indiana '
19 ='Iowa '
20 ='Kansas '
21 ='Kentucky '
22 ='Louisiana '
23 ='Maine '
24 ='Maryland '
25 ='Massachusetts '
26 ='Michigan '
```

```
27 ='Minnesota '
28 ='Mississippi '
29 ='Missouri '
30 ='Montana '
31 ='Nebraska '
32 ='Nevada '
33 ='New Hampshire '
34 ='New Jersey '
35 ='New Mexico '
36 ='New York '
37 ='North Carolina '
38 ='North Dakota '
39 ='Ohio '
40 ='Oklahoma '
41 ='Oregon '
42 ='Pennsylvania '
44 ='Rhode Island '
45 ='South Carolina '
46 ='South Dakota '
47 ='Tennessee '
48 ='Texas '
49 ='Utah '
50 ='Vermont '
51 ='Virginia '
53 ='Washington '
54 ='West Virginia '
55 ='Wisconsin '
56 ='Wyoming '
72 ='Puerto Rico '
;
run;

data sud_file;
set &in_file. (keep= SEQNUMT P_UTDTD &estiap. STATE &wt. &strat.);
if P_UTDTD=0 then P_UTDTD=2; *** CONVERT P_UTDTD=0 TO P_UTDTD=2 ***;
NSEQNUMT=1*SEQNUMT; *** CONVERT TEEN ID SEQNUMT FROM CHARACTER TO
NUMERIC ***;
run;

*=== SORT BY NEST VARIABLES: ESTIAP (STRATUM) NSEQNUMT (PRIMARY SAMPLING
UNIT) ===*;
proc sort data=sud_file;
by &strat. nseqnumt;
run;

proc crosstab data=sud_file filetype=sas design=wr;
weight &wt.;
nest &strat. nseqnumt;
subgroup state P_UTDTD ;
levels 72 2 ;
tables state * P_UTDTD ;
print nsum wsum rowper serow/style=nchs ;
rtitle "1+ Td/Tdap ESTIMATES BY STATE";
```

```
rformat state statef.;
rformat P_UTDTD p_utdtdf.;
output rowper serow / filename=sud_est2 filetype=sas;
run;

*** EXCLUDE 3,7,14,43,52,57-71,73-78  THERE ARE NO STATES WITH THESE FIPS CODES ***
;
proc print data=sud_est2(where=(P_UTDTD=1 and rowper ne . and state notin (3,7,14,43,52) and
not(57<=STATE<=71) and not(73<=state<=78))) label noobs;
format state statef.;
var state rowper serow ;
label
rowper='Percent 1+ Td/Tdap Up-to-Date'
serow='Standard Error'
;
title "1+ TD/TDAP ESTIMATES BY STATE";
run;


**********;
title1 'PROG_3.SAS';
*********************************************************************
THIS PROGRAM WILL PRODUCE A TABLE OF HOUSEHOLD REPORT OF
THE TEEN HAVING ASTHMA BY STATE FOR ALL HOUSEHOLD COMPLETES USING
RDDWT_C.
THE PROGRAM USES SAS CALLABLE SUDAAN.
SUDAAN NOTES:
1. ALL VARIABLES USED MUST BE NUMERIC.
2. VARIABLES IN THE SUBGROUP STATEMENT MUST HAVE VALUES 1,2,..K
WHERE K IS THE NUMBER OF LEVELS FOR EACH VARIABLE.
3. DATA MUST BE SORTED ACCORDING TO THE SAMPLE DESIGN VARIABLES
(STRATUM AND PRIMARY SAMPLING UNIT), SPECIFIED IN THE
NEST STATEMENT.
*********************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nisteenpuf22'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nisteenpuf22'; *--- IF DATASET WAS CREATED WITH FORMATS STORED ---*;

*--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
*--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;
%let in_file=dd.nisteenpuf22; *--- NAME OF SAS DATASET ---*;
%let estiap=estiapt22; * --- ESTIMATION VARIABLE TO USE ---*;
%let wt=rddwt_c; * --- WEIGHT TO USE (RDDWT_C is the single-frame cellular phone weight
excluding territories. Use RDDWT_C_TERR to include territories) ---*;
%let strat=stratum; * --- STRATUM VARIABLE TO USE FOR VARIANCE ESTIMATION (Use
STRATUM for all estimation) ---*;

proc format;
/*
THE FOLLOWING FORMAT WILL BE USED FOR ASTHMA.
*/
value asthmaf
```

```
1='Yes'
2='No'
;
/*
THE FOLLOWING FORMAT WILL BE USED FOR STATE.
*/
value statef
0 ='U.S. Total '
1 ='Alabama '
2 ='Alaska '
4 ='Arizona '
5 ='Arkansas '
6 ='California '
8 ='Colorado '
9 ='Connecticut '
10 ='Delaware '
11 ='District of Columbia'
12 ='Florida '
13 ='Georgia '
15 ='Hawaii '
16 ='Idaho '
17 ='Illinois '
18 ='Indiana '
19 ='Iowa '
20 ='Kansas '
21 ='Kentucky '
22 ='Louisiana '
23 ='Maine '
24 ='Maryland '
25 ='Massachusetts '
26 ='Michigan '
27 ='Minnesota '
28 ='Mississippi '
29 ='Missouri '
30 ='Montana '
31 ='Nebraska '
32 ='Nevada '
33 ='New Hampshire '
34 ='New Jersey '
35 ='New Mexico '
36 ='New York '
37 ='North Carolina '
38 ='North Dakota '
39 ='Ohio '
40 ='Oklahoma '
41 ='Oregon '
42 ='Pennsylvania '
44 ='Rhode Island '
45 ='South Carolina '
46 ='South Dakota '
47 ='Tennessee '
48 ='Texas '
49 ='Utah '
```

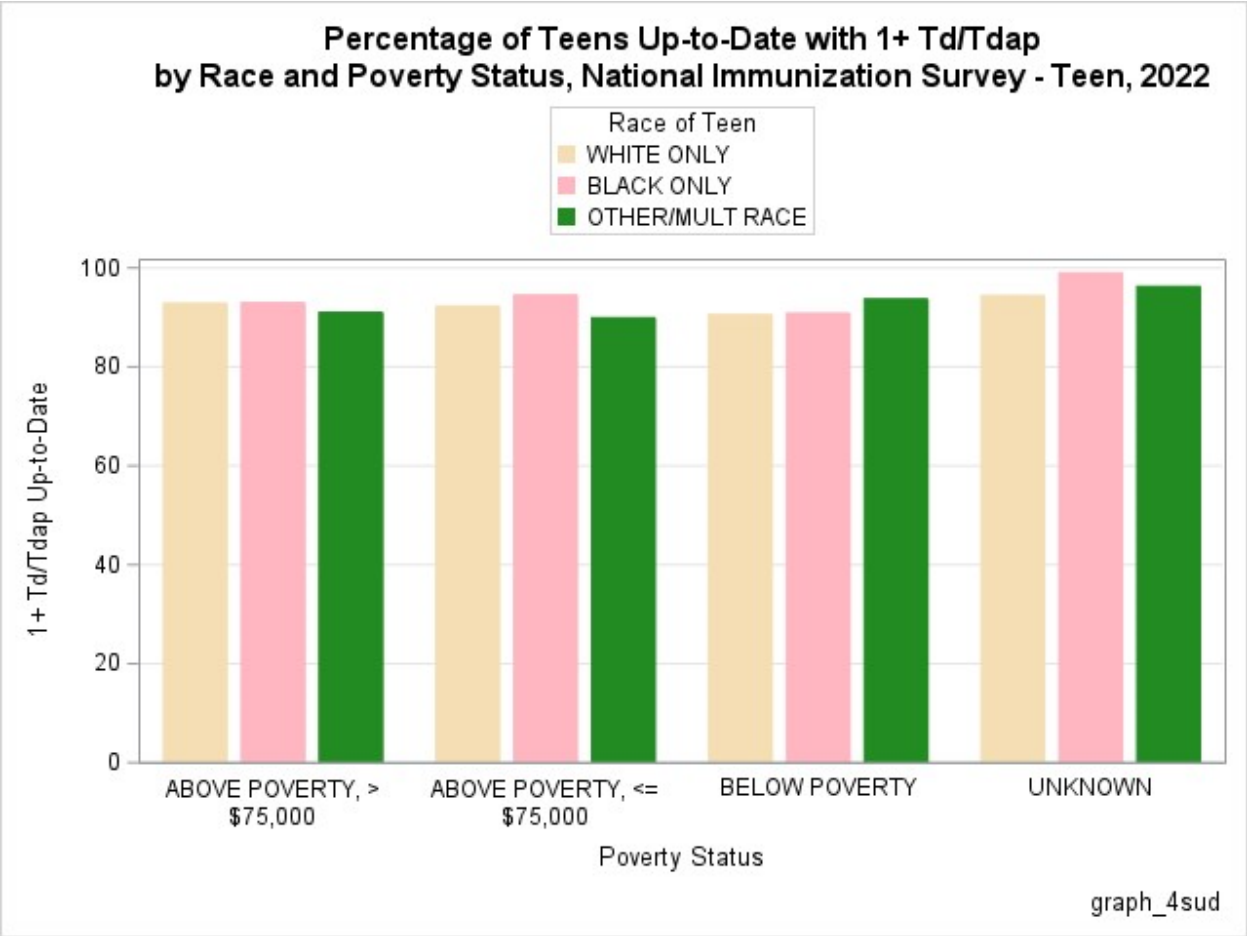
```
50 ='Vermont '
51 ='Virginia '
53 ='Washington '
54 ='West Virginia '
55 ='Wisconsin '
56 ='Wyoming '
72 ='Puerto Rico '
;
run;

data sud_file;
set &in_file. (keep= SEQNUMT &estiap. STATE ASTHMA &wt. &strat.);
where ASTHMA in (1,2); *** KEEP ONLY CASES WITH NON-MISSING VALUES FOR ASTHMA
***;
NSEQNUMT=1*SEQNUMT; *** CONVERT TEEN ID SEQNUMT FROM CHARACTER TO
NUMERIC ***;
run;

*=== SORT BY NEST VARIABLES: ESTIAP (STRATUM) NSEQNUMT (PRIMARY SAMPLING
UNIT) ===*;
proc sort data=sud_file;
by &strat. NSEQNUMT;
run;

proc crosstab data=sud_file filetype=sas design=wr;
weight &wt.;
nest &strat. NSEQNUMT;
subgroup STATE ASTHMA ;
levels 72 2 ;
tables STATE * ASTHMA ;
print nsum wsum rowper serow/style=nchs ;
rtitle "ASTHMA ESTIMATES BY STATE";
rtitle "WEIGHT = &WT.";
rformat STATE statef.;
rformat ASTHMA asthmaf.;
output rowper serow / filename=sud_est3 filetype=sas;
run;

*** EXCLUDE 3,7,14,43,52,57-71,73-78 THERE ARE NO STATES WITH THESE FIPS CODES *** ;
proc print data=sud_est3(where=(ASTHMA=1 and rowper ne . and STATE notin (3,7,14,43,52) and
not(57<=STATE <=71) and not(73<=state<=78))) label noobs;
format STATE statef.;
var STATE rowper serow ;
label
rowper='Percent ASTHMA = Yes'
serow='Standard Error'
;
title "HH REPORT OF TEEN HAVING ASTHMA BY STATE";
run;


**********;
title1 'PROG_4.SAS';
```

```
*************************************************************************
TABLE OF P_UTDTD BY INCPOV1 BY RACE_K. SAVE % UTD
ESTIMATES (NOT S.E.'S) FOR USE IN THE PROGRAM CHART_4.
THIS PROGRAM WILL PRODUCE ESTIMATES USING SAS CALLABLE SUDAAN.
SUDAAN NOTES:
1. ALL VARIABLES USED MUST BE NUMERIC.
2. VARIABLES IN THE SUBGROUP STATEMENT MUST HAVE VALUES 1,2,..K
WHERE K IS THE NUMBER OF LEVELS FOR EACH VARIABLE.
3. DATA MUST BE SORTED ACCORDING TO THE SAMPLE DESIGN VARIABLES
(STRATUM AND PRIMARY SAMPLING UNIT), SPECIFIED IN THE
NEST STATEMENT.
*************************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nisteenpuf22'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nisteenpuf22'; *--- IF DATASET WAS CREATED WITH FORMATS STORED ---*;

*--- SPECIFY THE PATH FOR WHERE YOU WANT THE CHART OUTPUT TO GO ---*;
libname out 'c:\nisteenpuf22';

%let in_file=dd.nisteenpuf22; *--- NAME OF SAS DATASET ---*;
%let estiap=estiapt22; * --- ESTIMATION VARIABLE TO USE ---*;
%let wt=provwt_c; * --- WEIGHT TO USE (PROVWT_C is the single-frame cellular phone weight
excluding territories. Use PROVWT_C_TERR to include territories) ---*;
%let qtr_lab=Q1/2022 - Q4/2022; *--- NIS-TEEN 4 QUARTER PERIOD ---*;
%let strat=stratum; * --- STRATUM VARIABLE TO USE FOR VARIANCE ESTIMATION (Use
STRATUM for all estimation) ---*;

proc format;
/*
THE FOLLOWING FORMAT WILL BE USED FOR P_UTDTD.
ORIGINAL VALUES OF P_UTDTD ARE 1,0.
MUST BE CONVERTED TO 1,2 IN SUDAAN.
*/
value p_utdtdf
1='1+ Td/Tdap Up-to-Date'
2='Not 1+ Td/Tdap Up-to-Date'
;
/*
THE FOLLOWING FORMAT WILL BE USED FOR RACE_K.
*/
VALUE RACE_KF
1 = "WHITE ONLY"
2 = "BLACK ONLY"
3 = "OTHER AND MULTIPLE RACE"
;
/*
THE FOLLOWING FORMAT WILL BE USED FOR INCPOV1.
*/
VALUE INCPVR2F
1 = "ABOVE POVERTY, > $75,000"
2 = "ABOVE POVERTY, <= $75,000"
3 = "BELOW POVERTY"
```

```
4 = "UNKNOWN"
;
run;

data sud_file;
set &in_file. (keep= SEQNUMT P_UTDTD &estiap. RACE_K INCPOV1 PDAT2 &wt. &strat.);
NSEQNUMT=1*SEQNUMT; *** CONVERT TEEN ID SEQNUMT FROM CHARACTER TO
NUMERIC ***;
if P_UTDTD=0 then P_UTDTD=2; *** CONVERT P_UTDTD=0 TO P_UTDTD=2 ***;
run;

*=== SORT BY NEST VARIABLES: ESTIAP (STRATUM) NSEQNUMT (PRIMARY SAMPLING
UNIT) ===*;
proc sort data=sud_file;
by &strat. NSEQNUMT;
run;

proc freq data=sud_file;
where PDAT2=1;
tables P_UTDTD INCPOV1 RACE_K;
title "Table 4A. &qtr_lab.: Unweighted Frequencies";
run;

proc crosstab data=sud_file filetype=sas design=wr;
weight &wt.;
nest &strat. NSEQNUMT;
subgroup INCPOV1 RACE_K P_UTDTD;
levels 4 3 2 ;
tables (INCPOV1 * RACE_K * P_UTDTD) ;
print nsum wsum rowper="1+ Td/Tdap Up-to-Date (ROWPER)"
serow="Standard Error (SEROW)" /style=nchs ;
rtitle "Table 4B. &qtr_lab., Percent 1+ Td/Tdap Up-to-Date and Estimated Standard Errors";
rtitle "WEIGHT = &WT.";
rformat P_UTDTD p_utdtdf.;
rformat INCPOV1 incpvr2f.;
rformat RACE_K race_kf.;
output rowper serow / filename=sud_est4 filetype=sas;
run;

data out.sud_est4;
set sud_est4 (where=(P_UTDTD=1 and INCPOV1 > 0 and RACE_K > 0));
keep INCPOV1 RACE_K rowper serow;
label     rowper='1+ Td/Tdap Up-to-Date'
          serow='Standard Error';
format    rowper 5.2
          serow 5.2;
run;

proc print data=out.sud_est4 label;
format RACE_K race_kf.;
format INCPOV1 incpvr2f.;
title "Table 4B. &qtr_lab.: 1+ TD/TDAP ESTIMATES BY INCPOV1 BY RACE_K";
run;
```

```
**********************;
title1 'SAS_GRAPH_4.SAS';
*************************************************************************
THIS PROGRAM BUILDS OFF OF THE PROGRAM SAS_PROG_4. IT PRODUCES A CHART OF
P_UTDTD BY INCPOV1 BY RACE_K. IT CREATES A BAR CHART IN SAS GRAPH FOR
THE 4X3 = 12 CELLS. THE OUTPUT OF THE FOLLOWING EXAMPLE IS ATTACHED AT THE
END.
*************************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nisteenpuf22'; *--- SPECIFY PATH TO SAS DATASET ---*;

%let out='c:\nisteenpuf22'; *--- SPECIFY THE PATH FOR WHERE YOU WANT THE CHART
OUTPUT TO GO ---*;

%let in_file=dd.sud_est4; *--- NAME OF SAS DATASET OUTPUT FROM PROG_4 ---*;
%let qtr_lab=Q1/2022 - Q4/2022; *--- NIS-TEEN 4 QUARTER PERIOD ---*;

proc format;
value incpvr2f
1 = "ABOVE POVERTY, > $75,000"
2 = "ABOVE POVERTY, <= $75,000"
3 = "BELOW POVERTY"
4 = "UNKNOWN"
;
value race_kf
1 = "WHITE ONLY"
2 = "BLACK ONLY"
3 = "OTHER/MULT RACE"
;
run;

data sud_est4;
set &in_file.;
format rowper 3.
RACE_K race_kf.
INCPOV1 incpvr2f.
;
label
RACE_K = 'Race of Teen'
INCPOV1 = 'Poverty Status'
;
filename odsout &out.;
ods listing close;
/* SET THE GRAPHICS ENVIRONMENT */
goptions reset=global gunit=pct border
ftext=swissb htitle=4 htext=1.5
device=gif
;
ods html body='graph_4_sud.html' path=odsout;
run;
```

```
title1 h=12pt "Percentage of Teens Up-to-Date with 1+ Td/Tdap";
title2 h=12pt "by Race and Poverty Status, National Immunization Survey - Teen, 2022";
footnote j=r 'graph_4sud';

proc sgplot data=sud_est4;
styleattrs datacolors=(wheat lightpink forestgreen) datacontrastcolors=(wheat lightpink forestgreen)
datalinepatterns=(solid);
vbar INCPOV1 / response=rowper group=RACE_K groupdisplay=cluster stat=mean barwidth=0.8;
xaxis display=(noticks);
yaxis grid;
keylegend / across=1 position=top;
run;

ods html close;
ods listing;
```



II. SAS

```
**********************;
title1 'SAS_IAP.SAS';
*************************************************************************
THIS PROGRAM WILL PRODUCE ESTIMATION AREA ESTIMATES AND STANDARD ERRORS
FOR 1+ TD/TDAP VACCINATIONS (P_UTDTD) USING SAS.
*************************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nisteenpuf22'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nisteenpuf22'; *--- IF DATASET WAS CREATED WITH FORMATS STORED ---*;

*--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
*--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;
%let in_file=dd.nisteenpuf22; *--- NAME OF SAS DATASET ---*;
%let estiap=estiapt22; * --- ESTIMATION AREA VARIABLE TO USE ---*;
%let wt=provwt_c; * --- WEIGHT TO USE (PROVWT_C is the single-frame cellular phone weight
excluding territories. Use PROVWT_C_TERR to include territories) ---*;
%let strat=stratum; * --- STRATUM VARIABLE TO USE FOR VARIANCE ESTIMATION (Use
STRATUM for all estimation) ---*;

proc format;
value p_utdtdf
0='Not 1+ Td/Tdap Up-To-Date'
1='1+ Td/Tdap Up-To-Date';

value estiapf
. = "Missing"
0 = "US Total"
1 = "CT"
2 = "MA"
4 = "ME"
5 = "NH"
6 = "RI"
7 = "VT"
8 = "NJ"
10 = "NY-Rest of State"
11 = "NY-City of New York"
12 = "DC"
13 = "DE"
14 = "MD"
16 = "PA-Rest of State"
17 = "PA-Philadelphia County"
18 = "VA"
19 = "WV"
20 = "AL"
22 = "FL"
25 = "GA"
27 = "KY"
28 = "MS"
```

```
29 = "NC"
30 = "SC"
31 = "TN"
34 = "IL-Rest of State"
35 = "IL-City of Chicago"
36 = "IN"
38 = "MI"
40 = "MN"
41 = "OH"
44 = "WI"
46 = "AR"
47 = "LA"
49 = "NM"
50 = "OK"
51 = "TX-Rest of State"
54 = "TX-City of Houston"
55 = "TX-Bexar County"
56 = "IA"
57 = "KS"
58 = "MO"
59 = "NE"
60 = "CO"
61 = "MT"
62 = "ND"
63 = "SD"
64 = "UT"
65 = "WY"
66 = "AZ"
68 = "CA"
72 = "HI"
73 = "NV"
74 = "AK"
75 = "ID"
76 = "OR"
77 = "WA"
106 = "Puerto Rico"
;
run;

data sas_file;
set &in_file. (keep= SEQNUMT P_UTDTD &estiap. &wt. &strat.);
run;

proc sort data = sas_file;
by &estiap.;
run;

title1 '1+ Td/Tdap Estimates by Estimation Area';
ods output Statistics=sas_est;
proc surveymeans data = sas_file nobs sum mean stderr;
stratum &strat.;
cluster SEQNUMT;
weight &wt.;
```

```
class P_UTDTD;
var P_UTDTD;
by &estiap.;
format P_UTDTD p_utdtdf.;
format &estiap. estiapf.;
run;

data sas_est;
set sas_est;
mean = mean*100; *CONVERT TO PERCENT ESTIMATES;
stderr = stderr*100;
run;

proc print data=sas_est(where=(varlevel='1+ Td/Tdap Up-To-Date')) noobs
label;
format &estiap. estiapf.;
format mean stderr 5.2;
var &estiap. mean stderr;
label
mean='Percent 1+ Td/Tdap Up-to-Date'
stderr='Standard Error';
title "1+ TD/TDAP ESTIMATES BY ESTIMATION AREA";
run;


**********;
title1 'SASSTATE.SAS';
*********************************************************************
THIS PROGRAM WILL PRODUCE STATE ESTIMATES AND STANDARD ERRORS
FOR 1+ TD/TDAP VACCINATIONS (P_UTDTD) USING SAS.
NOTE : THE STATE VARIABLE IS BASED ON STATE FIPS CODES. THERE ARE
NO STATES WITH FIPS CODES 3,7,14,43,52,57-71,73-78.
*********************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nisteenpuf22'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nisteenpuf22'; *--- IF DATASET WAS CREATED WITH FORMATS STORED ---*;
*--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
*--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;

%let in_file=dd.nisteenpuf22; *--- NAME OF SAS DATASET ---*;
%let estiap=estiapt22; * --- ESTIMATION AREA VARIABLE TO USE ---*;
%let wt=provwt_c; * --- WEIGHT TO USE (PROVWT_C is the single-frame cellular phone weight
excluding territories. Use PROVWT_C_TERR to include territories) ---*;
%let strat=stratum; * --- STRATUM VARIABLE TO USE FOR VARIANCE ESTIMATION (Use
STRATUM for all estimation) ---*;

proc format;
value p_utdtdf
0='Not 1+ Td/Tdap Up-To-Date'
1='1+ Td/Tdap Up-To-Date';

value statef
```

```
. ="Missing"
0 ='U.S. Total '
1 ='Alabama '
2 ='Alaska '
4 ='Arizona '
5 ='Arkansas '
6 ='California '
8 ='Colorado '
9 ='Connecticut '
10 ='Delaware '
11 ='District of Columbia'
12 ='Florida '
13 ='Georgia '
15 ='Hawaii '
16 ='Idaho '
17 ='Illinois '
18 ='Indiana '
19 ='Iowa '
20 ='Kansas '
21 ='Kentucky '
22 ='Louisiana '
23 ='Maine '
24 ='Maryland '
25 ='Massachusetts '
26 ='Michigan '
27 ='Minnesota '
28 ='Mississippi '
29 ='Missouri '
30 ='Montana '
31 ='Nebraska '
32 ='Nevada '
33 ='New Hampshire '
34 ='New Jersey '
35 ='New Mexico '
36 ='New York '
37 ='North Carolina '
38 ='North Dakota '
39 ='Ohio '
40 ='Oklahoma '
41 ='Oregon '
42 ='Pennsylvania '
44 ='Rhode Island '
45 ='South Carolina '
46 ='South Dakota '
47 ='Tennessee '
48 ='Texas '
49 ='Utah '
50 ='Vermont '
51 ='Virginia '
53 ='Washington '
54 ='West Virginia '
55 ='Wisconsin '
56 ='Wyoming '
```

```
72 ='Puerto Rico '
;
run;

data sas_file;
set &in_file. (keep= SEQNUMT P_UTDTD &estiap. STATE &wt. &strat.);
run;

proc sort data = sas_file;
by state;
run;

title1 '1+ Td/Tdap ESTIMATES BY STATE';
ods output Statistics=sas_est2;
proc surveymeans data = sas_file nobs sum mean stderr;
stratum &strat.;
cluster SEQNUMT;
weight &wt.;
class P_UTDTD;
var P_UTDTD;
by STATE;
format P_UTDTD p_utdtdf.;
format STATE statef.;
run;

data sas_est2;
set sas_est2;
mean = mean*100; *CONVERT TO PERCENT ESTIMATES;
stderr = stderr*100;
run;

proc print data=sas_est2(where=(varlevel='1+ Td/Tdap Up-To-Date')) noobs
label;
format STATE statef.;
format mean stderr 5.2;
var STATE mean stderr;
label
mean='Percent 1+ Td/Tdap Up-to-Date'
stderr='Standard Error';
title "1+ TD/TDAP ESTIMATES BY STATE";
run;


**********;
title1 'SAS_PROG_3.SAS';
*************************************************************************
THIS PROGRAM WILL PRODUCE A TABLE OF HOUSEHOLD REPORT OF
THE TEEN HAVING ASTHMA BY STATE FOR ALL HOUSEHOLD
COMPLETES USING RDDWT. THE PROGRAM USES SAS.
*************************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nisteenpuf22'; *--- SPECIFY PATH TO SAS DATASET ---*;
```

```
libname library 'c:\nisteenpuf22'; *--- IF DATASET WAS CREATED WITH FORMATS STORED ---*;
*--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
*--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;

%let in_file=dd.nisteenpuf22; *--- NAME OF SAS DATASET ---*;
%let estiap=estiapt22; * --- ESTIMATION VARIABLE TO USE ---*;
%let wt=rddwt_c; * --- WEIGHT TO USE (RDDWT_C is the single-frame cellular phone weight
excluding territories. Use RDDWT_C_TERR to include territories) ---*;
%let strat=stratum; * --- STRATUM VARIABLE TO USE FOR VARIANCE ESTIMATION (Use
STRATUM for all estimation) ---*;

proc format;
value asthmaf
1='Yes'
2='No'
;
value statef
0 ='U.S. Total '
1 ='Alabama '
2 ='Alaska '
4 ='Arizona '
5 ='Arkansas '
6 ='California '
8 ='Colorado '
9 ='Connecticut '
10 ='Delaware '
11 ='District of Columbia'
12 ='Florida '
13 ='Georgia '
15 ='Hawaii '
16 ='Idaho '
17 ='Illinois '
18 ='Indiana '
19 ='Iowa '
20 ='Kansas '
21 ='Kentucky '
22 ='Louisiana '
23 ='Maine '
24 ='Maryland '
25 ='Massachusetts '
26 ='Michigan '
27 ='Minnesota '
28 ='Mississippi '
29 ='Missouri '
30 ='Montana '
31 ='Nebraska '
32 ='Nevada '
33 ='New Hampshire '
34 ='New Jersey '
35 ='New Mexico '
36 ='New York '
37 ='North Carolina '
38 ='North Dakota '
```

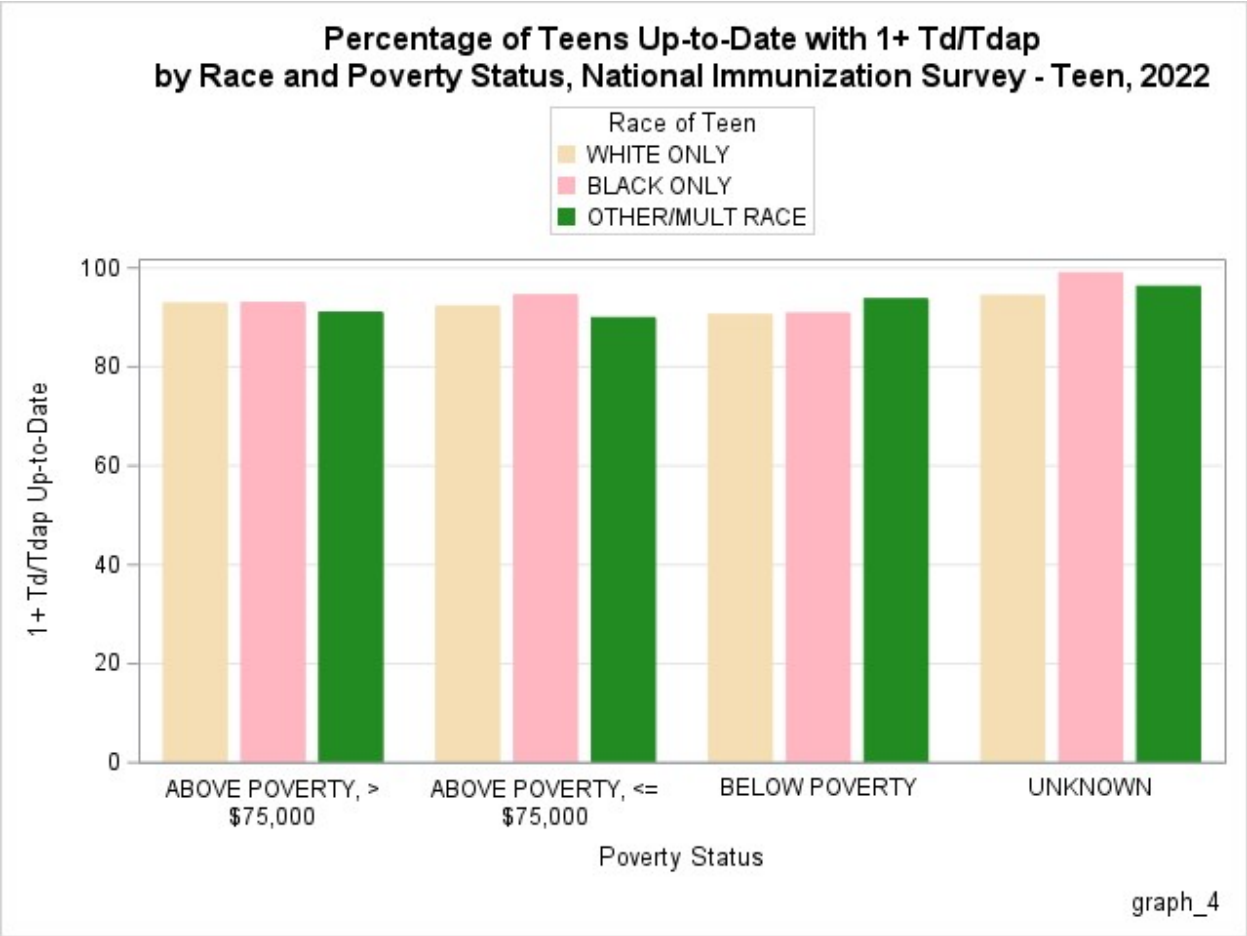
```
39 ='Ohio '
40 ='Oklahoma '
41 ='Oregon '
42 ='Pennsylvania '
44 ='Rhode Island '
45 ='South Carolina '
46 ='South Dakota '
47 ='Tennessee '
48 ='Texas '
49 ='Utah '
50 ='Vermont '
51 ='Virginia '
53 ='Washington '
54 ='West Virginia '
55 ='Wisconsin '
56 ='Wyoming '
72 ='Puerto Rico '
;
run;

data sas_file;
set &in_file. (keep= SEQNUMT &estiap. STATE ASTHMA &wt. &strat.);
where ASTHMA in (1,2); *** KEEP ONLY CASES WITH NON-MISSING VALUES FOR ASTHMA
***;
run;

proc sort data = sas_file;
by state;
run;

title1 'ASTHMA ESTIMATES BY STATE';
ods output Statistics=sas_est3;
proc surveymeans data = sas_file nobs sum mean stderr;
stratum &strat.;
cluster SEQNUMT;
weight &wt.;
class ASTHMA;
var ASTHMA;
by STATE;
format ASTHMA asthmaf.;
format state statef.;
run;

data sas_est3;
set sas_est3;
mean = mean*100; *CONVERT TO PERCENT ESTIMATES;
stderr = stderr*100;
run;

proc print data=sas_est3(where=(varlevel='Yes')) noobs label;
format STATE statef.;
format mean stderr 5.2;
var STATE mean stderr;
```

```
label
mean='Percent ASTHMA = Yes'
stderr='Standard Error';
title "HH REPORT OF TEEN HAVING ASTHMA BY STATE";
run;


**********;
title1 'SAS_PROG_4.SAS';
*************************************************************************
TABLE OF P_UTDTD BY INCPOV1 BY RACE_K. SAVE % UTD
ESTIMATES (NOT S.E.'S) FOR USE IN THE PROGRAM SAS_GRAPH_4.
THIS PROGRAM WILL PRODUCE ESTIMATES USING SAS.
*************************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nisteenpuf22'; *--- SPECIFY PATH TO SAS DATASET ---*;
libname library 'c:\nisteenpuf22'; *--- IF DATASET WAS CREATED WITH FORMATS STORED ---*;
*--- PERMANENTLY SPECIFY PATH TO LIBRARY ---*;
*--- OTHERWISE COMMENT THIS STATEMENT OUT ---*;

libname out 'c:\nisteenpuf22'; *--- SPECIFY THE PATH FOR WHERE YOU WANT THE CHART
OUTPUT TO GO ---*;

%let in_file=dd.nisteenpuf22; *--- NAME OF SAS DATASET ---*;
%let estiap=estiapt22; * --- ESTIMATION VARIABLE TO USE ---*;
%let wt=provwt_c; * --- WEIGHT TO USE (PROVWT_C is the single-frame cellular phone weight
excluding territories. Use PROVWT_C_TERR to include territories) ---*;
%let strat=stratum; * --- STRATUM VARIABLE TO USE FOR VARIANCE ESTIMATION (Use
STRATUM for all estimation) ---*;
%let qtr_lab=Q1/2022 - Q4/2022; *--- NIS-TEEN 4 QUARTER PERIOD ---*;

proc format;
value p_utdtdf
0='Not 1+ Td/Tdap Up-To-Date'
1='1+ Td/Tdap Up-To-Date'
;
value race_kf
1 = "WHITE ONLY"
2 = "BLACK ONLY"
3 = "OTHER AND MULTIPLE RACE"
;
value incpvr2f
1 = "ABOVE POVERTY, > $75,000"
2 = "ABOVE POVERTY, <= $75,000"
3 = "BELOW POVERTY"
4 = "UNKNOWN"
;
run;

data sas_file;
set &in_file. (keep= SEQNUMT P_UTDTD &estiap. RACE_K INCPOV1 &wt. &strat. PDAT2);
run;
```

```
proc sort data = sas_file;
by incpov1 race_k;
run;

proc freq;
where PDAT2=1;
tables P_UTDTD INCPOV1 RACE_K;
title1 "Table 4A. &qtr_lab.: Unweighted Frequencies";
run;

proc surveymeans data = sas_file nobs sum mean stderr;
ods output Domain=sas_est4;
stratum &strat.;
cluster SEQNUMT;
weight &wt.;
class P_UTDTD;
var P_UTDTD;
domain INCPOV1*RACE_K;
format P_UTDTD p_utdtdf.;
run;

data sas_est4;
set sas_est4 (rename=(INCPOV1=INCPOV1_char RACE_K=RACE_K_char));

*CONVERT TO PERCENT ESTIMATES;
mean = mean*100;
stderr = stderr*100;

*CONVERT BACK TO NUMERIC;
INCPOV1=1*INCPOV1_char;
RACE_K=1*RACE_K_char;
run;

proc print data=sas_est4(where=(varlevel='1+ Td/Tdap Up-To-Date')) noobs
label;
format INCPOV1 incpvr2f.;
format RACE_K race_kf.;
format mean stderr 5.2;
var INCPOV1 RACE_K mean stderr;
label
mean='1+ Td/Tdap Up-To-Date'
stderr='Standard Error';
title1 "Table 4B. &qtr_lab.: 1+ TD/TDAP ESTIMATES BY INCPOV1 BY RACE_K";
run;

data out.sas_est4;
set sas_est4(where=(varlevel='1+ Td/Tdap Up-To-Date'));
keep INCPOV1 RACE_K mean;
label mean='1+ Td/Tdap Up-to-Date';
format mean 5.2;
run;
```

```
**********************;
title1 'SAS_GRAPH_4.SAS';
*************************************************************************
THIS PROGRAM BUILDS OFF OF THE PROGRAM SAS_PROG_4. IT PRODUCES A CHART OF
P_UTDTD BY INCPOV1 BY RACE_K. IT CREATES A BAR CHART IN SAS GRAPH FOR
THE 4X3 = 12 CELLS. THE OUTPUT OF THE FOLLOWING EXAMPLE IS ATTACHED AT THE
END.
*************************************************************************;
options ps=78 ls=90 obs= max;

libname dd 'c:\nisteenpuf22'; *--- SPECIFY PATH TO SAS DATASET ---*;

%let out='c:\nisteenpuf22'; *--- SPECIFY THE PATH FOR WHERE YOU WANT THE CHART
OUTPUT TO GO ---*;

%let in_file=dd.sas_est4; *--- NAME OF SAS DATASET OUTPUT FROM PROG_4 ---*;
%let qtr_lab=Q1/2022 - Q4/2022; *--- NIS-TEEN 4 QUARTER PERIOD ---*;

proc format;
value incpvr2f
1 = "ABOVE POVERTY, > $75,000"
2 = "ABOVE POVERTY, <= $75,000"
3 = "BELOW POVERTY"
4 = "UNKNOWN"
;
value race_kf
1 = "WHITE ONLY"
2 = "BLACK ONLY"
3 = "OTHER/MULT RACE"
;
run;

data sas_est4;
set &in_file.;
format mean 3.
RACE_K race_kf.
INCPOV1 incpvr2f.
;
label
RACE_K = 'Race of Teen'
INCPOV1 = 'Poverty Status'
;
filename odsout &out.;
ods listing close;
/* SET THE GRAPHICS ENVIRONMENT */
goptions reset=global gunit=pct border
ftext=swissb htitle=4 htext=1.5
device=gif
;
ods html body='graph_4.html' path=odsout;
run;
```

```
title1 h=12pt "Percentage of Teens Up-to-Date with 1+ Td/Tdap";
title2 h=12pt "by Race and Poverty Status, National Immunization Survey - Teen, 2022";
footnote j=r 'graph_4';

proc sgplot data=sas_est4;
styleattrs datacolors=(wheat lightpink forestgreen) datacontrastcolors=(wheat lightpink forestgreen)
datalinepatterns=(solid);
vbar INCPOV1 / response=mean group=RACE_K groupdisplay=cluster stat=mean barwidth=0.8;
xaxis display=(noticks);
yaxis grid;
keylegend / across=1 position=top;
run;

ods html close;
ods listing;
```


Percentage of Teens Up-to-Date with 1+ Td/Tdap
by Race and Poverty Status, National Immunization Survey - Teen, 2022
Race of Teen
WHITE ONLY
BLACK ONLY
OTHER/MULT RACE
1+ Td/Tdap Up-to-Date
100
80
60
40
20
0
ABOVE POVERTY, > $75,000
ABOVE POVERTY, <= $75,000
BELOW POVERTY
UNKNOWN
Poverty Status
graph_4

III. ‘R’

```
######################
title <- "R_IAP.R"
#########################################################################
#THIS PROGRAM WILL PRODUCE ESTIMATION AREA ESTIMATES AND STANDARD ERRORS
#FOR 1+ TD/TDAP VACCINATIONS (P_UTDTD) USING R.
#
#R NOTES:
#1. R IS CASE SENSITIVE.
#2. A FILE PATH IS SEPARATED BY SLASH(/)
#########################################################################
library(survey) #TO USE svydesign(), svymean(), and svyby()
library(Hmisc) #TO USE prn()

dd <- "c:/nisteenpuf22" #"path-to-dataset"

#--- NAME OF R DATASET ---#
in.file <- paste(dd,"/NISTEENPUF22.RData",sep="")
#---READ R DATASET---#
load(in.file)
#---FORMAT---#
UTDTDlevels=c(0,1)
UTDTDlabels=c("NOT 1+ TD/TDAP UTD", "1+ TD/TDAP UTD")
ESTIAPlevels=c(0, 1, 2, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 22, 25, 27, 28, 29, 30, 31, 34, 35, 36, 38, 40, 41, 44,
46, 47, 49, 50, 51, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 68, 72, 73, 74, 75, 76, 77, 106)
ESTIAPlabels=c("US Total", "CT", "MA", "ME", "NH", "RI", "VT", "NJ", "NY-Rest of State", "NY-City of New York", "DC",
"DE", "MD", "PA-Rest of State", "PA-Philadelphia County", "VA", "WV", "AL", "FL", "GA", "KY", "MS", "NC", "SC", "TN",
"IL-Rest of State", "IL-City of Chicago", "IN", "MI", "MN", "OH", "WI", "AR", "LA", "NM", "OK", "TX-Rest of State",  "TX-
City of Houston", "TX-Bexar County", "IA", "KS", "MO", "NE", "CO", "MT", "ND", "SD", "UT", "WY", "AZ", "CA", "HI",
"NV", "AK", "ID", "OR", "WA", "Puerto Rico")

#---PROVWT_C WILL BE USED AS A WEIGHT (PROVWT_C IS THE SINGLE-FRAME CELLULAR PHONE WEIGHT
EXCLUDING TERRITORIES; USE PROVWT_C_TERR TO INCLUDE TERRITORIES) ---#
#---STRATUM WILL BE USED AS A STRATUM VARIABLE FOR VARIANCE ESTIMATION (USE STRATUM FOR
ALL ESTIMATION ---#
R_FILE <- subset(NISTEENPUF22, select=c(SEQNUMT, P_UTDTD, ESTIAPT22, PROVWT_C, STRATUM))
names(R_FILE) <- c("SEQNUMT", "P_UTDTD", "ESTIAP", "WT", "STRATUM")
R_FILE <- na.omit(R_FILE)
#---ASSIGN LABELS---#
R_FILE$P_UTDTD <- factor(R_FILE$P_UTDTD, levels=UTDTDlevels, labels=UTDTDlabels)
R_FILE$ESTIAP <- factor(R_FILE$ESTIAP, levels=ESTIAPlevels, labels=ESTIAPlabels)

#---SPECIFY A SAMPLING DESIGN---#
svydsg <- svydesign(id=~SEQNUMT, strata=~STRATUM, weights=~WT, data=R_FILE)

#---U.S. TOTAL ESTIMATES AND STANDARD ERRORS---#
r_nation <- svymean(~P_UTDTD, svydsg)
PERCENT_UTD <- round(r_nation*100,2) #CONVERT INTO PERCENT ESTIMATES(MEAN)
SE_UTD <- round(SE(r_nation)*100,2) #CONVERT INTO PERCENT ESTIMATES(SE)
r_nation_est <- cbind(PERCENT_UTD, SE_UTD)
title <- "PERCENT 1+ TD/TDAP ESTIMATES AT A NATIONWIDE LEVEL"
prn(r_nation_est, title)

#---ESTIMATION AREA ESTIMATES AND STANDARD ERRORS---#
r_est <- svyby(~P_UTDTD, ~ESTIAP, svydsg, svymean)
r_est[,-c(1)] <- round(r_est[,-c(1)]*100,2) #CONVERT INTO PERCENT ESTIMATES
r_est <- subset(r_est, select=c(1,3,5))


#SELECT ESTIMATES FOR UP-TO-DATE CASES
names(r_est) <- c("ESTIMATION AREA", "PERCENT 1+ TD/TDAP UTD", "STANDARD ERROR UTD")
title <- "PERCENT 1+ TD/TDAP ESTIMATES BY ESTIMATION AREA"
```

```
prn(r_est, title)


#####################
title <- "R_STATE.R"
#############################################################################
#THIS PROGRAM WILL PRODUCE STATE ESTIMATES AND STANDARD ERRORS
#FOR 1+ TD/TDAP VACCINATIONS (P_UTDTD) USING R.
#
#NOTE : THE STATE VARIABLE IS BASED ON STATE FIPS CODES. THERE ARE
#NO STATES WITH FIPS CODES 3,7,14,43,52,57-71,73-78.
#
#R NOTES:
#1. R IS CASE SENSITIVE.
#2. A FILE PATH IS SEPERATED BY SLASH(/)
#############################################################################
library(survey) #TO USE svydesign(), svymean(), and svyby()
library(Hmisc) #TO USE prn()

dd <- "c:/nisteenpuf22" #"path-to-data"

#--- NAME OF R DATASET ---#
in.file <- paste(dd,"/NISTEENPUF22.RData",sep="")
#---READ R DATASET---#
load(in.file)
#---FORMAT---#
UTDTDlevels=c(0,1)
UTDTDlabels=c("NOT 1+ TD/TDAP UTD", "1+ TD/TDAP UTD")
STATElevels=c(1, 2, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17,
18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35,
36, 37, 38, 39, 40, 41, 42, 44, 45, 46, 47, 48, 49, 50, 51, 53,
54, 55, 56,72)
STATElabels=c(
"ALABAMA",
"ALASKA",
"ARIZONA",
"ARKANSAS",
"CALIFORNIA",
"COLORADO",
"CONNECTICUT",
"DELAWARE",
"DISTRICT OF COLUMBIA",
"FLORIDA",
"GEORGIA",
"HAWAII",
"IDAHO",
"ILLINOIS",
"INDIANA",
"IOWA",
"KANSAS",
"KENTUCKY",
"LOUISIANA",
"MAINE",
"MARYLAND",
"MASSACHUSETTS",
"MICHIGAN",
"MINNESOTA",
"MISSISSIPPI",
"MISSOURI",
"MONTANA",
"NEBRASKA",
"NEVADA",
"NEW HAMPSHIRE",
"NEW JERSEY",
"NEW MEXICO",
```

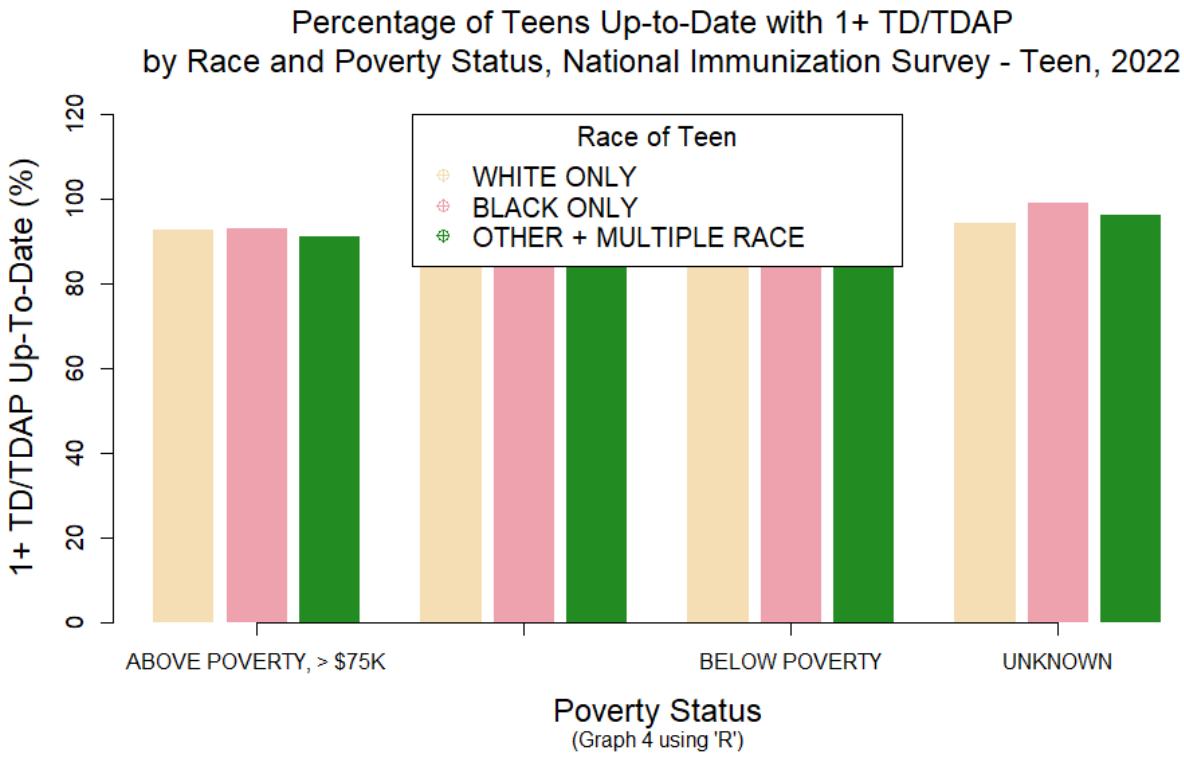
```
"NEW YORK",
"NORTH CAROLINA",
"NORTH DAKOTA",
"OHIO",
"OKLAHOMA",
"OREGON",
"PENNSYLVANIA",
"RHODE ISLAND",
"SOUTH CAROLINA",
"SOUTH DAKOTA",
"TENNESSEE",
"TEXAS",
"UTAH",
"VERMONT",
"VIRGINIA",
"WASHINGTON",
"WEST VIRGINIA",
"WISCONSIN",
"WYOMING",
"PUERTO RICO"
)
#--- PROVWT_C WILL BE USED AS A WEIGHT (PROVWT_C IS THE SINGLE-FRAME CELLULAR PHONE WEIGHT
EXCLUDING TERRITORIES; USE PROVWT_C_TERR TO INCLUDE TERRITORIES) ---#
#---STRATUM WILL BE USED AS A STRATUM VARIABLE FOR VARIANCE ESTIMATION (USE STRATUM FOR
ALL ESTIMATION ---#
R_FILE <- subset(NISTEENPUF22, select=c(SEQNUMT, P_UTDTD, ESTIAPT22, STATE, PROVWT_C, STRATUM))
names(R_FILE) <- c("SEQNUMT", "P_UTDTD", "ESTIAP", "STATE", "WT", "STRATUM")
R_FILE <- na.omit(R_FILE)
#---ASSIGN LABELS---#
R_FILE$P_UTDTD <- factor(R_FILE$P_UTDTD, levels=UTDTDlevels, labels=UTDTDlabels)
R_FILE$STATE <- factor(R_FILE$STATE, levels=STATElevels,
labels=STATElabels)
#---SPECIFY A SAMPLING DESIGN---#
svydsg <- svydesign(id=~SEQNUMT, strata=~STRATUM, weights=~WT, data=R_FILE)
#---STATE ESTIMATES AND STANDARD ERRORS---#
r_est2 <- svyby(~P_UTDTD, ~STATE, svydsg, svymean)
r_est2[,-c(1)] <- round(r_est2[,-c(1)]*100,2) #CONVERT INTO PERCENT ESTIMATES
r_est2 <- subset(r_est2, select=c(1,3,5)) #SELECT ESTIMATES FOR UP-TO-DATE CASES
names(r_est2) <- c("STATE", "PERCENT 1+ TD/TDAP UTD", "STANDARD ERROR UTD")
prn(r_est2, '1+ TD/TDAP ESTIMATES BY STATE')


#####################
title <- "R_PROG_3.R"
#########################################################################
#THIS PROGRAM WILL PRODUCE A TABLE OF TEEN HAVING ASTHMA BY STATE FOR
#ALL HOUSEHOLD COMPLETES USING RDDWT_C. THE PROGRAM USES R.
#
#R NOTES:
#1. R IS CASE SENSITIVE.
#2. A FILE PATH IS SEPERATED BY SLASH(/)
#########################################################################
library(survey) #TO USE svydesign(), svymean(), and svyby()
library(Hmisc) #TO USE prn()
library(prettyR) #TO USE freq()

dd <- "c:/nisteenpuf22" #"path-to-dataset"

#--- NAME OF R DATASET ---#
in.file <- paste(dd,"/NISTEENPUF22.RData",sep="")
#---READ R DATASET---#
load(in.file)
#---FORMAT---#
ASTHMAlevels=c(1,2,77,99)
ASTHMAlabels=c("YES", "NO", "DON'T KNOW", "REFUSED")
```

```
STATElevels=c(1, 2, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17,
18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35,
36, 37, 38, 39, 40, 41, 42, 44, 45, 46, 47, 48, 49, 50, 51, 53,
54, 55, 56,72)
STATElabels=c(
"ALABAMA",
"ALASKA",
"ARIZONA",
"ARKANSAS",
"CALIFORNIA",
"COLORADO",
"CONNECTICUT",
"DELAWARE",
"DISTRICT OF COLUMBIA",
"FLORIDA",
"GEORGIA",
"HAWAII",
"IDAHO",
"ILLINOIS",
"INDIANA",
"IOWA",
"KANSAS",
"KENTUCKY",
"LOUISIANA",
"MAINE",
"MARYLAND",
"MASSACHUSETTS",
"MICHIGAN",
"MINNESOTA",
"MISSISSIPPI",
"MISSOURI",
"MONTANA",
"NEBRASKA",
"NEVADA",
"NEW HAMPSHIRE",
"NEW JERSEY",
"NEW MEXICO",
"NEW YORK",
"NORTH CAROLINA",
"NORTH DAKOTA",
"OHIO",
"OKLAHOMA",
"OREGON",
"PENNSYLVANIA",
"RHODE ISLAND",
"SOUTH CAROLINA",
"SOUTH DAKOTA",
"TENNESSEE",
"TEXAS",
"UTAH",
"VERMONT",
"VIRGINIA",
"WASHINGTON",
"WEST VIRGINIA",
"WISCONSIN",
"WYOMING",
"PUERTO RICO"
)
#--- RDDWT_C WILL BE USED AS A WEIGHT (RDDWT_C IS THE SINGLE-FRAME CELLULAR PHONE WEIGHT
EXCLUDING TERRITORIES; USE RDDWT_C_TERR TO INCLUDE TERRITORIES) ---#
#---STRATUM WILL BE USED AS A STRATUM VARIABLE FOR VARIANCE ESTIMATION (USE STRATUM FOR
ALL ESTIMATION ---#
R_FILE <- subset(NISTEENPUF22, select=c(SEQNUMT, ESTIAPT22, STATE, ASTHMA, RDDWT_C, STRATUM))
names(R_FILE) <- c("SEQNUMT", "ESTIAP", "STATE", "ASTHMA", "WT", "STRATUM")
```

```
#LIMIT FILE TO CASES WITH NON-MISSING VALUES OF ASTHMA
R_FILE <- subset(R_FILE, ASTHMA %in% c(1,2))

#---ASSIGN LABELS---#
R_FILE$ASTHMA <- factor(R_FILE$ASTHMA, levels=ASTHMAlevels, labels=ASTHMAlabels)
R_FILE$STATE <- factor(R_FILE$STATE, levels=STATElevels, labels=STATElabels)
R_FILE <- na.omit(R_FILE)
summary(R_FILE$ASTHMA)

#---SPECIFY A SAMPLING DESIGN---#
svydsg <- svydesign(id=~SEQNUMT, strata=~STRATUM, weights=~WT, data=R_FILE)

#---U.S. TOTAL ESTIMATES AND STANDARD ERRORS---#
r_nation <- svymean(~ASTHMA, svydsg)
PERCENT_UTD <- round(r_nation*100,2) #CONVERT INTO PERCENT ESTIMATES(MEAN)
SE_UTD <- round(SE(r_nation)*100,2) #CONVERT INTO PERCENT ESTIMATES(SE)
r_nation_est3 <- cbind(PERCENT_UTD, SE_UTD)
prn(r_nation_est3, "PERCENT ASTHMA = YES ESTIMATES AT A NATIONWIDE LEVEL\n")

#---ASTHMA = YES ESTIMATES BY STATE---#
r_est3 <- svyby(~ASTHMA, ~STATE, svydsg, svymean)
r_est3[,-c(1)] <- round(r_est3[,-c(1)]*100,2) #CONVERT INTO PERCENT ESTIMATES
r_est3 <- subset(r_est3, select=c(1,2,6)) #SELECT ESTIMATES FOR ASTHMA=YES
names(r_est3) <- c("STATE", "PERCENT ASTHMA=YES", "STANDARD ERROR ASTHMA=Y")
prn(r_est3, 'PERCENT ASTHMA ESTIMATES BY STATE')


######################
title <- "PROG_4.R"
################################################################################
#TABLE OF P_UTDTD BY INCPOV1 BY RACE_K. SAVE % UTD
#ESTIMATES (NOT S.E.'S) FOR USE IN THE PROGRAM GRAPH_4.
#
#THIS PROGRAM WILL PRODUCE ESTIMATES USING R.
#
#R NOTES:
#1. R IS CASE SENSITIVE.
#2. A FILE PATH IS SEPERATED BY SLASH(/)
################################################################################
library(survey) #TO USE svydesign(), svymean(), and svyby()
library(Hmisc) #TO USE prn()

dd <- "c:/nisteenpuf22" #"path-to-dataset"

out <-"c:/nisteenpuf22" #"path where output will go"

#--- NAME OF R DATASET ---#
in.file <- paste(dd,"/NISTEENPUF22.RData",sep="")
#---READ R DATASET---#
load(in.file)
#---FORMAT---#
UTDTDlevels=c(0,1)
UTDTDlabels=c("NOT 1+ TD/TDAP UTD", "1+ TD/TDAP UTD")
RACE_PUFlevels=c(1,2,3)
RACE_PUFlabels=c("WHITE ONLY", "BLACK ONLY", "OTHER + MULTIPLE RACE")
INCPOVlevels=c(1,2,3,4)
INCPOVlabels=c("ABOVE POVERTY, > $75K", "ABOVE POVERTY, <= $75K", "BELOW POVERTY", "UNKNOWN")
#--- PROVWT_C WILL BE USED AS A WEIGHT (PROVWT_C IS THE SINGLE-FRAME CELLULAR PHONE WEIGHT
EXCLUDING TERRITORIES; USE PROVWT_C_TERR TO INCLUDE TERRITORIES) ---#
#---STRATUM WILL BE USED AS A STRATUM VARIABLE FOR VARIANCE ESTIMATION (USE STRATUM FOR
ALL ESTIMATION ---#
R_FILE <- subset(NISTEENPUF22, select=c(SEQNUMT, P_UTDTD, ESTIAPT22, RACE_K, INCPOV1, PROVWT_C,
STRATUM, PDAT2))
names(R_FILE) <- c("SEQNUMT", "P_UTDTD", "ESTIAP", "RACE_K", "INCPOV1", "WT", "STRATUM", "PDAT2")
#---ASSIGN LABELS---#
```

```
R_FILE$P_UTDTD <- factor(R_FILE$P_UTDTD, levels=UTDTDlevels, labels=UTDTDlabels, exclude=NULL)
R_FILE$RACE_K <- factor(R_FILE$RACE_K, levels=RACE_PUFlevels, labels=RACE_PUFlabels, exclude=NULL)
R_FILE$INCPOV1 <- factor(R_FILE$INCPOV1, levels=INCPOVlevels,labels=INCPOVlabels, exclude=NULL)
#---UNWEIGHTED FREQUENCIES---#
unwt_freq <- function(UNWT.VAR){#FUNCTION TO PRINT UNWEIGHTED FREQUENCIES
unwt.tab <- wtd.table(UNWT.VAR, weights= NULL, type='table')
unwtd.freq <- data.frame(cbind(
unwt.tab, round(unwt.tab/sum(unwt.tab)*100,2),
cumsum(unwt.tab), cumsum(round(unwt.tab/sum(unwt.tab)*100,2))))
names(unwtd.freq) <- c("Frequency", "Percent", "Cumulative Frequency", "Cumulative Percent")
unwtd.title <- paste('Table 4A. Q1/2022 - Q4/2022', 'UNWEIGHTED FREQUENCIES', label(UNWT.VAR), sep="\n")
label(unwtd.freq) <- unwtd.title
print(unwtd.freq)
}
unwt_freq(R_FILE$P_UTDTD[R_FILE$PDAT2 == 1])
unwt_freq(R_FILE$INCPOV1[R_FILE$PDAT2 == 1])
unwt_freq(R_FILE$RACE_K[R_FILE$PDAT2 == 1])
R_FILE <- na.omit(R_FILE)
#---SPECIFY A SAMPLING DESIGN---#
svydsg <- svydesign(id=~SEQNUMT, strata=~STRATUM, weights=~WT, data=R_FILE)
#---PERCENT 1+ TD/TDAP UP-TO-DATE AND ESTIMATED STANDARD ERRORS---#
r_est4 <- svyby(~P_UTDTD, ~RACE_K+INCPOV1, svydsg, svymean)
r_est4[,-c(1,2)] <- round(r_est4[,-c(1,2)]*100,2) #CONVERT INTO PERCENT ESTIMATES
r_est4 <- subset(r_est4, select=c(1,2,4,6)) #SELECT ESTIMATES FOR UP-TO-DATE CASES
names(r_est4) <- c("RACE", "INCOME", "PERCENT_UTD", "STANDARD_ERROR_UTD")
title <- "Table 4B. Q1/2022 - Q4/2022, 1+ TD/TDAP ESTIMATES BY INCPOV1 BY RACE_K"
prn(r_est4, title)
#---SAVE PERCENT UP-TO-DATE ESTIMATES FOR USE IN THE PROGRAM GRAPH_4---#
r_est4 <- subset(r_est4, select=c(RACE, INCOME, PERCENT_UTD))
save(r_est4, file=paste(out, "/r_est4_20", sep=""))


######################
title <- "GRAPH_4.R"
#############################################################################
#THIS PROGRAM BUILDS OFF OF THE PROGRAM PROG_4. IT PRODUCES A CHART OF
#P_UTDTD BY INCPOV1 BY RACE_K. IT CREATES A BAR GRAPH IN R
#FOR THE 4X3 = 12 CELLS.
#R NOTES:
#1. R IS CASE SENSITIVE.
#2. A FILE PATH IS SEPERATED BY SLASH(/)
#############################################################################
library(survey) #TO USE svydesign(), svymean(), and svyby()
library(Hmisc) #TO USE prn()

dd <- "c:/nisteenpuf22" #---SPECIFY PATH TO R DATASET THAT WAS THE OUTPUT OF R_PROG_4---#

out <- "c:/nisteenpuf22" #---SPECIFY THE PATH FOR WHERE YOU WANT THE CHART OUTPUT TO GO---#

#---NAME OF R DATASET OUTPUT FROM R_PROG_4---#
in.file <- paste(dd,"/r_est4_20",sep="")
#---READ R DATASET---#
load(in.file)
#---BARCHART---#
#NOTE:R DOES NOT SUPPORT CREATING A HTML FILE CONTAINING A BARCHART#
#CREATE A DATA MATRIX FOR DRAWING A BARCHART#
utdmmr <- matrix(r_est4$PERCENT_UTD, nrow=3, ncol=4, byrow=F, dimnames=list(levels(r_est4$RACE),
levels(r_est4$INCOME)))
#CREATE GRAPH_4.GIF#
barplot(utdmmr, beside=TRUE, space=c(0.2,1),
      col = c("wheat", "lightpink2", "forestgreen"),
      axis.lty = 1,
      sub="(Graph 4 using 'R')", cex.sub=1, ylim=c(0,120),
      xlab="Poverty Status",
      ylab="1+ TD/TDAP Up-To-Date (%)", cex=1.1, cex.names=1, cex.lab=1.5, border=NA)
```

```
legend("top", rownames(utdmmr), col=c("wheat", "lightpink2",
                                      "forestgreen"), title="Race of Teen", pch=10, cex=1.25)
title1 <- "Percentage of Teens Up-to-Date with 1+ TD/TDAP \n"
title2 <- "by Race and Poverty Status, National Immunization Survey - Teen, 2022\n"
mtext(paste(title1,title2), cex=1.5)
```


Percentage of Teens Up-to-Date with 1+ TD/TDAP
by Race and Poverty Status, National Immunization Survey - Teen, 2022
1+ TD/TDAP Up-To-Date (%)
0
20
40
60
80
100
120
Race of Teen
WHITE ONLY
BLACK ONLY
OTHER + MULTIPLE RACE
ABOVE POVERTY, > $75K
BELOW POVERTY
UNKNOWN
Poverty Status
(Graph 4 using 'R')

Appendix D: Alphabetical Listing of Variables in the NIS-Teen Public-Use Data Files

Table D.1 Alphabetical Listing of Variables in the Public-Use Data Files, National Immunization Survey - Teen, 2008-2022

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
AGE	AGE IN YEARS OF SELECTED TEEN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
AGEGRP_M_I	MOTHER'S AGE CATEGORIES: IMPUTED (RECODE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
ASTHMA	HAS TEEN BEEN TOLD BY DOCTOR OR OTHER HEALTH PROFESSIONAL THAT HE/SHE HAS ASTHMA?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
C1R	NUMBER OF PEOPLE IN HOUSEHOLD (RECODE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
C5R	RELATIONSHIP OF RESPONDENT TO TEEN (RECODE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
CEN_REG	CENSUS REGION BASED ON TRUE STATE OF RESIDENCE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
CHILDNM	NUMBER OF CHILDREN UNDER 18 YEARS OF AGE IN HH (RECODE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
CKUP_11_12	DID TEEN HAVE AN 11-12 YEAR OLD WELL-CHILD EXAM OR CHECK-UP?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
CKUP_AGE	AGE IN YEARS AT LAST CHECK-UP	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
CKUP_LAST	WAS TEEN'S LAST CHECK-UP MORE OR LESS THAN (AGE - 12) YEARS AGO?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
CPOX_AGE	AGE IN YEARS WHEN HAD CHICKEN POX DISEASE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
CPOX_AGER	AGE RANGE WHEN HAD CHICKEN POX DISEASE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
CPOX_HAD	TEEN EVER HAD CHICKEN POX DISEASE?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
D6R	NUMBER OF PROVIDERS IDENTIFIED BY RESPONDENT (NOT DE-DUPLICATED) (RECODE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
D7	CONSENT TO OBTAIN VACCINATION RECORDS FROM PROVIDERS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
EDUC_TR	TEEN'S CURRENT GRADE IN SCHOOL (RECODE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
EDUC1	EDUCATION LEVEL OF MOTHER WITH 4 CATEGORIES: IMPUTED (RECODE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
EST_GRANT	AREA OF RESIDENCE PER THE 56 CORE NIS GRANTEE AREAS					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Added in 2012 to facilitate production of estimates for the 56 core areas.
ESTIAPT08	ESTIMATION AREA OF RESIDENCE	Y															Replaced by ESTIAPT09 in 2009.
ESTIAPT09	ESTIMATION AREA OF RESIDENCE		Y														Replaced ESTIAPT08 in 2009 because estimation areas were modified. Replaced by ESTIAPT10 in 2010.
ESTIAPT10	ESTIMATION AREA OF RESIDENCE			Y													Replaced ESTIAPT09 in 2010 because estimation areas were modified. Replaced by ESTIAPT11 in 2011.
ESTIAPT11	ESTIMATION AREA OF RESIDENCE				Y												Replaced ESTIAPT10 in 2011 because estimation areas were modified. Replaced by ESTIAPT12 in 2012.
ESTIAPT12	ESTIMATION AREA OF RESIDENCE					Y											Replaced ESTIAPT11 in 2012 because estimation areas were modified. Replaced by ESTIAPT13 in 2013.
ESTIAPT13	ESTIMATION AREA OF RESIDENCE						Y										Replaced ESTIAPT12 in 2013 because estimation areas were modified. Replaced by ESTIAPT14 in 2014.
ESTIAPT14	ESTIMATION AREA OF RESIDENCE							Y									Replaced ESTIAPT13 in 2014 because estimation areas were modified. Replaced by ESTIAPT15 in 2015.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
ESTIAPT15	ESTIMATION AREA OF RESIDENCE								Y								Replaced ESTIAPT14 in 2015 because estimation areas were modified. Replaced by ESTIAPT16 in 2016.
ESTIAPT16	ESTIMATION AREA OF RESIDENCE									Y							Replaced ESTIAPT15 in 2016 because estimation areas were modified. Replaced by ESTIAPT17 in 2017.
ESTIAPT17	ESTIMATION AREA OF RESIDENCE										Y						Replaced ESTIAPT16 in 2017 because estimation areas were modified. Replaced by ESTIAPT18 in 2018.
ESTIAPT18	ESTIMATION AREA OF RESIDENCE											Y					Replaced ESTIAPT17 in 2018 because estimation areas were modified. Replaced by ESTIAPT19 in 2019.
ESTIAPT19	ESTIMATION AREA OF RESIDENCE												Y				Replaced ESTIAPT18 in 2019 because estimation areas were modified. Replaced by ESTIAPT20 in 2020.
ESTIAPT20	ESTIMATION AREA OF RESIDENCE													Y			Replaced ESTIAPT19 in 2020 because estimation areas were modified. Replaced by ESTIAPT21 in 2021.
ESTIAPT21	**ESTIMATION AREA OF RESIDENCE**														**Y**		**Replaced ESTIAPT20 in 2021 because estimation areas were modified. Replaced by ESTIAPT22 in 2022.**
ESTIAPT22	**ESTIMATION AREA OF RESIDENCE**															**Y**	**Replaced ESTIAPT21 in 2022 because estimation areas were modified.**
FACILITY	FACILITY TYPES FOR TEEN'S PROVIDERS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
FLU_AGE	AGE OF TEEN IN YEARS AT HH-REPORTED INFLUENZA VACCINATION RECEIVED MOST RECENTLY	Y															Dropped in 2009 due to midYear questionnaire changes.
FLU_AGE1	AGE IN YEARS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
FLU_AGE2	AGE IN YEARS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_AGE3	AGE IN YEARS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_AGE4	AGE IN YEARS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_AGE5	AGE IN YEARS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_AGE6	AGE IN YEARS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_AGE7	AGE IN YEARS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_AGE8	AGE IN YEARS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_AGE9	AGE IN YEARS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_ANY_REC	HH-REPORT: HAS TEEN RECEIVED ANY INFLUENZA VACCINATIONS IN PAST 12 MONTHS? (RECALL)	Y															Dropped in 2009 due to midYear questionnaire changes.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
FLU_ANY_SC	HH-REPORT: HAS TEEN RECEIVED ANY INFLUENZA VACCINATIONS IN PAST 12 MONTHS? (SHOTCARD)	Y															Dropped in 2009 due to midYear questionnaire changes.
FLU_DAGE1	AGE IN DAYS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #1				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_DAGE2	AGE IN DAYS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #2				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_DAGE3	AGE IN DAYS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #3				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_DAGE4	AGE IN DAYS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #4				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_DAGE5	AGE IN DAYS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #5				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_DAGE6	AGE IN DAYS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #6				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_DAGE7	AGE IN DAYS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #7				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
FLU_DAGE8	AGE IN DAYS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #8				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_DAGE9	AGE IN DAYS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #9				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MAGE1	AGE IN MONTHS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #1				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MAGE2	AGE IN MONTHS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #2				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MAGE3	AGE IN MONTHS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #3				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MAGE4	AGE IN MONTHS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #4				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MAGE5	AGE IN MONTHS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #5				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MAGE6	AGE IN MONTHS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #6				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MAGE7	AGE IN MONTHS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #7				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
FLU_MAGE8	AGE IN MONTHS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #8				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MAGE9	AGE IN MONTHS OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #9				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MONTH	MONTH OF HH-REPORTED INFLUENZA VACCINATION RECEIVED MOST RECENTLY	Y															Dropped in 2009 due to midYear questionnaire changes.
FLU_MONTH1	MONTH OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MONTH2	MONTH OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MONTH3	MONTH OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MONTH4	MONTH OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MONTH5	MONTH OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MONTH6	MONTH OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
FLU_MONTH7	MONTH OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MONTH8	MONTH OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_MONTH9	MONTH OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_PLACE	KIND OF PLACE TEEN RECEIVED MOST RECENT FLU SHOT OR SPRAY	Y															Dropped in 2009 due to midYear questionnaire changes.
FLU_TYPE	TYPE OF HH-REPORTED INFLUENZA VACCINATION RECEIVED MOST RECENTLY	Y															Dropped in 2009 due to midYear questionnaire changes.
FLU_YEAR	YEAR OF HH-REPORTED INFLUENZA VACCINATION RECEIVED MOST RECENTLY	Y															Dropped in 2009 due to midYear questionnaire changes.
FLU_YEAR1	YEAR OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_YEAR2	YEAR OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_YEAR3	YEAR OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
FLU_YEAR4	YEAR OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_YEAR5	YEAR OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_YEAR6	YEAR OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_YEAR7	YEAR OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_YEAR8	YEAR OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
FLU_YEAR9	YEAR OF PROV-REPORTED SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
H1N_AGE1	AGE IN YEARS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #1			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_AGE2	AGE IN YEARS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #2			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_AGE3	AGE IN YEARS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #3			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
H1N_AGE4	AGE IN YEARS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #4			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_AGE5	AGE IN YEARS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #5			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_AGE6	AGE IN YEARS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #6			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_AGE7	AGE IN YEARS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #7			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_AGE8	AGE IN YEARS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #8			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_AGE9	AGE IN YEARS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #9			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_DAGE1	AGE IN DAYS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #1				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_DAGE2	AGE IN DAYS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #2				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_DAGE3	AGE IN DAYS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #3				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
H1N_DAGE4	AGE IN DAYS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #4				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_DAGE5	AGE IN DAYS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #5				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_DAGE6	AGE IN DAYS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #6				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_DAGE7	AGE IN DAYS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #7				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_DAGE8	AGE IN DAYS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #8				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_DAGE9	AGE IN DAYS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #9				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_MAGE1	AGE IN MONTHS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #1				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_MAGE2	AGE IN MONTHS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #2				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_MAGE3	AGE IN MONTHS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #3				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
H1N_MAGE4	AGE IN MONTHS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #4				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_MAGE5	AGE IN MONTHS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #5				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_MAGE6	AGE IN MONTHS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #6				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_MAGE7	AGE IN MONTHS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #7				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_MAGE8	AGE IN MONTHS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #8				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_MAGE9	AGE IN MONTHS OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #9				Y	Y											Age-in-days and age-in-months variables were added to the PUF in 2011. H1N1 influenza was removed from the IHQ and the PUF in 2013.
H1N_MONTH1	MONTH OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #1			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_MONTH2	MONTH OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #2			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_MONTH3	MONTH OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #3			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
H1N_MONTH4	MONTH OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #4			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_MONTH5	MONTH OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #5			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_MONTH6	MONTH OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #6			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_MONTH7	MONTH OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #7			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_MONTH8	MONTH OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #8			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_MONTH9	MONTH OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #9			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_YEAR1	YEAR OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #1			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_YEAR2	YEAR OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #2			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_YEAR3	YEAR OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #3			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
H1N_YEAR4	YEAR OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #4			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_YEAR5	YEAR OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #5			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_YEAR6	YEAR OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #6			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_YEAR7	YEAR OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #7			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_YEAR8	YEAR OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #8			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
H1N_YEAR9	YEAR OF PROV-REPORTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #9			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
HEPA_AGE_SC1	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS A SHOT #1 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPA_AGE_SC2	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS A SHOT #2 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPA_AGE_SC3	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS A SHOT #3 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HEPA_AGE_SC4	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS A SHOT #4 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPA_AGE_SC5	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS A SHOT #5 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPA_AGE_SC6	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS A SHOT #6 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPA_AGE_SC7	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS A SHOT #7 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPA_AGE_SC8	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS A SHOT #8 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPA_AGE1	AGE IN YEARS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_AGE2	AGE IN YEARS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_AGE3	AGE IN YEARS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_AGE4	AGE IN YEARS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_AGE5	AGE IN YEARS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_AGE6	AGE IN YEARS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_AGE7	AGE IN YEARS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_AGE8	AGE IN YEARS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HEPA_AGE9	AGE IN YEARS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_ANY_REC	HH-REPORT: HAS TEEN EVER RECEIVED ANY HEPATITIS A SHOTS? (RECALL)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPA_ANY_SC	HH-REPORT: HAS TEEN EVER RECEIVED ANY HEPATITIS A SHOTS? (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPA_DAGE1	AGE IN DAYS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #1				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_DAGE2	AGE IN DAYS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #2				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_DAGE3	AGE IN DAYS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #3				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_DAGE4	AGE IN DAYS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #4				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_DAGE5	AGE IN DAYS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #5				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_DAGE6	AGE IN DAYS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #6				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HEPA_DAGE7	AGE IN DAYS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #7				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_DAGE8	AGE IN DAYS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #8				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_DAGE9	AGE IN DAYS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #9				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_MAGE1	AGE IN MONTHS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #1				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_MAGE2	AGE IN MONTHS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #2				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_MAGE3	AGE IN MONTHS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #3				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_MAGE4	AGE IN MONTHS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #4				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_MAGE5	AGE IN MONTHS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #5				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_MAGE6	AGE IN MONTHS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #6				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HEPA_MAGE7	AGE IN MONTHS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #7				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_MAGE8	AGE IN MONTHS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #8				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_MAGE9	AGE IN MONTHS OF PROV-REPORTED HEPATITIS A-CONTAINING SHOT #9				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPA_NUM_REC	NUMBER OF HH-REPORTED HEPATITIS A SHOTS RECEIVED (RECALL)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPA_NUM_SC	NUMBER OF HH-REPORTED HEPATITIS A SHOTS RECEIVED (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPA_NUM_TOT	NUMBER OF HH-REPORTED HEPATITIS A SHOTS RECEIVED (TOTAL)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPA_RECOM	HAD OR HAS DOCTOR OR OTHER HEALTH CARE PROFESSIONAL EVER RECOMMENDED HEPATITIS A SHOTS?	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPB_AGE_SC1	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS B SHOT #1 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPB_AGE_SC2	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS B SHOT #2 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPB_AGE_SC3	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS B SHOT #3 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HEPB_AGE_SC4	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS B SHOT #4 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPB_AGE_SC5	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS B SHOT #5 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPB_AGE_SC6	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS B SHOT #6 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPB_AGE_SC7	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS B SHOT #7 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPB_AGE_SC8	AGE OF TEEN IN YEARS AT HH-REPORTED HEPATITIS B SHOT #8 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPB_AGE1	AGE IN YEARS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_AGE2	AGE IN YEARS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_AGE3	AGE IN YEARS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_AGE4	AGE IN YEARS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_AGE5	AGE IN YEARS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_AGE6	AGE IN YEARS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_AGE7	AGE IN YEARS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_AGE8	AGE IN YEARS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HEPB_AGE9	AGE IN YEARS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_ANY_REC	HH-REPORT: HAS TEEN EVER RECEIVED ANY HEPATITIS B SHOTS? (RECALL)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPB_ANY_SC	HH-REPORT: HAS TEEN EVER RECEIVED ANY HEPATITIS B SHOTS? (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPB_DAGE1	AGE IN DAYS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #1				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_DAGE2	AGE IN DAYS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #2				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_DAGE3	AGE IN DAYS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #3				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_DAGE4	AGE IN DAYS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #4				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_DAGE5	AGE IN DAYS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #5				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_DAGE6	AGE IN DAYS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #6				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HEPB_DAGE7	AGE IN DAYS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #7				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_DAGE8	AGE IN DAYS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #8				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_DAGE9	AGE IN DAYS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #9				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_MAGE1	AGE IN MONTHS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #1				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_MAGE2	AGE IN MONTHS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #2				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_MAGE3	AGE IN MONTHS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #3				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_MAGE4	AGE IN MONTHS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #4				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_MAGE5	AGE IN MONTHS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #5				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_MAGE6	AGE IN MONTHS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #6				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HEPB_MAGE7	AGE IN MONTHS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #7				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_MAGE8	AGE IN MONTHS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #8				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_MAGE9	AGE IN MONTHS OF PROV-REPORTED HEPATITIS B-CONTAINING SHOT #9				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
HEPB_NUM_REC	NUMBER OF HH-REPORTED HEPATITIS B SHOTS RECEIVED (RECALL)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPB_NUM_SC	NUMBER OF HH-REPORTED HEPATITIS B SHOTS RECEIVED (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPB_NUM_TOT	NUMBER OF HH-REPORTED HEPATITIS B SHOTS RECEIVED (TOTAL)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HEPB_SCH	DID TEEN RECEIVE HEPATITIS B SHOTS BECAUSE OF SCHOOL REQUIREMENT?	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HH_FLU	HH REPORT OF NUMBER OF SEASONAL INFLUENZA-CONTAINING VACCINATIONS RECEIVED IN THE 12 MONTHS PRIOR TO INTERVIEW			Y													Added in 2010 to replace previous influenza variables dropped in 2009. Dropped in 2011 due to midYear questionnaire changes.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HH_H1N	HH REPORT OF NUMBER OF MONOVALENT 2009 H1N1 INFLUENZA VACCINATIONS RECEIVED IN THE TWELVE MONTHS PRIOR TO INTERVIEW			Y													H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Dropped in 2011 due to midYear questionnaire changes.
HPV_AGE1	AGE IN YEARS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPV_AGE2	AGE IN YEARS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPV_AGE3	AGE IN YEARS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPV_AGE4	AGE IN YEARS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPV_AGE5	AGE IN YEARS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPV_AGE6	AGE IN YEARS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPV_AGE7	AGE IN YEARS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPV_AGE8	AGE IN YEARS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPV_AGE9	AGE IN YEARS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HPV_DAGE1	AGE IN DAYS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #1				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_DAGE2	AGE IN DAYS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #2				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_DAGE3	AGE IN DAYS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #3				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_DAGE4	AGE IN DAYS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #4				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_DAGE5	AGE IN DAYS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #5				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_DAGE6	AGE IN DAYS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #6				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_DAGE7	AGE IN DAYS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #7				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_DAGE8	AGE IN DAYS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #8				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_DAGE9	AGE IN DAYS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #9				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_MAGE1	AGE IN MONTHS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #1				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HPV_MAGE2	AGE IN MONTHS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #2				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_MAGE3	AGE IN MONTHS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #3				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_MAGE4	AGE IN MONTHS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #4				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_MAGE5	AGE IN MONTHS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #5				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_MAGE6	AGE IN MONTHS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #6				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_MAGE7	AGE IN MONTHS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #7				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_MAGE8	AGE IN MONTHS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #8				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPV_MAGE9	AGE IN MONTHS OF PROV-REPORTED HUMAN PAPILLOMAVIRUS SHOT #9				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
HPVI_AGE_SC1	AGE OF TEEN IN YEARS AT HH-REPORTED HUMAN PAPILLOMAVIRUS SHOT #1 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HPVI_AGE_SC2	AGE OF TEEN IN YEARS AT HH-REPORTED HUMAN PAPILLOMAVIRUS SHOT #2 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HPVI_AGE_SC3	AGE OF TEEN IN YEARS AT HH-REPORTED HUMAN PAPILLOMAVIRUS SHOT #3 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HPVI_AGE_SC4	AGE OF TEEN IN YEARS AT HH-REPORTED HUMAN PAPILLOMAVIRUS SHOT #4 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HPVI_AGE_SC5	AGE OF TEEN IN YEARS AT HH-REPORTED HUMAN PAPILLOMAVIRUS SHOT #5 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HPVI_AGE_SC6	AGE OF TEEN IN YEARS AT HH-REPORTED HUMAN PAPILLOMAVIRUS SHOT #6 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HPVI_AGE_SC7	AGE OF TEEN IN YEARS AT HH-REPORTED HUMAN PAPILLOMAVIRUS SHOT #7 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HPVI_AGE_SC8	AGE OF TEEN IN YEARS AT HH-REPORTED HUMAN PAPILLOMAVIRUS SHOT #8 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HPVI_ANY	HH-REPORT: HAS TEEN EVER RECEIVED ANY HUMAN PAPILLOMAVIRUS SHOTS?								Y	Y	Y	Y	Y	Y	Y	Y	Replaced HPVI_ANY_REC in 2015.
HPVI_ANY_REC	HH-REPORT: HAS TEEN EVER RECEIVED ANY HUMAN PAPILLOMAVIRUS SHOTS? (RECALL)	Y	Y	Y	Y	Y	Y	Y									Replaced by HPVI_ANY in 2015.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HPVI_ANY_SC	HH-REPORT: HAS TEEN EVER RECEIVED ANY HUMAN PAPILLOMAVIRUS SHOTS? (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HPVI_HEARD	HAVE YOU EVER HEARD OF HUMAN PAPILLOMAVIRUS?	Y	Y	Y	Y												Dropped in 2012 due to questionnaire changes.
HPVI_INTENTR	HOW LIKELY IS IT TEEN WILL RECEIVE HPV SHOTS IN NEXT 12 MONTHS?			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Added to the PUF in 2010.
HPVI_KNOW	HAVE YOU EVER HEARD OF THE CERVICAL CANCER VACCINE, HPV SHOT, OR GARDASIL?	Y	Y	Y	Y												Dropped in 2012 due to questionnaire changes.
HPVI_NUM_REC	NUMBER OF HH-REPORTED HUMAN PAPILLOMAVIRUS SHOTS RECEIVED (RECALL)	Y	Y	Y	Y	Y	Y	Y									Replaced by HPVI_NUM_TOT in 2015.
HPVI_NUM_SC	NUMBER OF HH-REPORTED HUMAN PAPILLOMAVIRUS SHOTS RECEIVED (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
HPVI_NUM_TOT	NUMBER OF HH-REPORTED HUMAN PAPILLOMAVIRUS SHOTS RECEIVED (TOTAL)	Y	Y	Y	Y	Y	Y	-	Y	Y	Y	Y	Y	Y	Y	Y	Dropped in 2014 due to shortened questionnaire; added back in 2015.
HPVI_REAS_1	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: NOT RECOMMENDED	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_10	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: COSTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HPVI_REAS_11	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: SAFETY CONCERN/SIDE EFFECTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_12	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: EFFECTIVENESS CONCERN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_13	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: TEEN FEARFUL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_14	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: TEEN SHOULD MAKE DECISION	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_15	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: COLLEGE SHOT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_16	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: DON'T BELIEVE IN IMMUNIZATIONS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HPVI_REAS_17	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: FAMILY/PARENTAL DECISION	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_18	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: HANDICAPPED/SPECIAL NEEDS/ILLNESS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_19	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: RELIGION/ORTHODOX	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_2	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: NOT NEEDED OR NOT NECESSARY	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_20	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: TIME	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_21	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: MORE INFO/NEW VACCINE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HPVI_REAS_22	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: ALREADY UP-TO-DATE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_23	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: NOT AVAILABLE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_24	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: NOT A SCHOOL REQUIREMENT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_25	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: INCREASED SEXUAL ACTIVITY CONCERN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_26	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: NO OB/GYN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_27	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: ALREADY SEXUALLY ACTIVE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HPVI_REAS_28	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: NO DOCTOR OR DOCTOR'S VISIT NOT SCHEDULED	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_29	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: TEEN IS MALE			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Additional reason flag added in 2010.
HPVI_REAS_3	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: LACK OF KNOWLEDGE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_30	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: INTEND TO COMPLETE BUT HAVE NOT YET/ALREADY PLANNED									Y	Y	Y	Y	Y	Y	Y	Additional reason flag added in 2016.
HPVI_REAS_31	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: DIFFICULTY MAKING OR GETTING TO APPOINTMENT/TRANSPORTATION PROBLEMS									Y	Y	Y	Y	Y	Y	Y	Additional reason flag added in 2016.
HPVI_REAS_32	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: COVID-19 PANDEMIC													Y	Y	Y	Additional reason flag added in 2020.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
HPVI_REAS_5	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: NOT SEXUALLY ACTIVE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_6	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: NOT APPROPRIATE AGE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_REAS_9	MAIN REASON TEEN WILL NOT RECEIVE HUMAN PAPILLOMAVIRUS SHOTS IN THE NEXT 12 MONTHS: OTHER REASON	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HPVI_RECOM	HAD OR HAS DOCTOR OR OTHER HEALTH CARE PROFESSIONAL EVER RECOMMENDED THAT TEEN RECEIVE HPV SHOTS?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
I_HISP_K	IS TEEN HISPANIC OR LATINO?: IMPUTED	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
IMM_ANY	HH-REPORT: HAS TEEN EVER RECEIVED ANY VACCINATIONS?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
INCPORAR	INCOME TO POVERTY RATIO (RECODE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
INCPORAR_I	INCOME TO POVERTY RATIO: IMPUTED (RECODE)									Y	Y	Y	Y	Y	Y	Y	Imputed version of INCPORAR added in 2016.
INCPOV1	POVERTY STATUS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
INCQ298A	FAMILY INCOME CATEGORIES (RECODE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
INS_BREAK_I	CONTINUITY OF INSURANCE COVERAGE SINCE AGE 11: IMPUTED									Y	Y	Y	Y	Y	Y	Y	Replaced TIS_INS_1-TIS_INS_11 starting in 2016.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
INS_STAT_I	INSURANCE STATUS (ANY PRIVATE/ANY MEDICAID/OTHER INSURANCE/UNINSURED): IMPUTED									Y							Replaced TIS_INS_1-TIS_INS_11 starting in 2016. Replaced by INS_STAT2_I in 2017.
INS_STAT2_I	INSURANCE STATUS (PRIVATE ONLY/ANY MEDICAID/OTHER INSURANCE/UNINSURED): IMPUTED										Y	Y	Y	Y	Y	Y	Replaced INS_STAT_I starting in 2017.
LANGUAGE	LANGUAGE IN WHICH INTERVIEW WAS CONDUCTED	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MARITAL	MARITAL STATUS OF MOTHER: IMPUTED (COLLAPSED)	Y															Replaced by MARITAL2 starting in 2009.
MARITAL2	MARITAL STATUS OF MOTHER: IMPUTED (RECODE)		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Replaced MARITAL starting in 2009.
MCV_AGE_SC1	AGE OF TEEN IN YEARS AT HH-REPORTED MEASLES OR MMR SHOT #1 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MCV_AGE_SC2	AGE OF TEEN IN YEARS AT HH-REPORTED MEASLES OR MMR SHOT #2 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MCV_AGE_SC3	AGE OF TEEN IN YEARS AT HH-REPORTED MEASLES OR MMR SHOT #3 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MCV_AGE_SC4	AGE OF TEEN IN YEARS AT HH-REPORTED MEASLES OR MMR SHOT #4 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MCV_AGE_SC5	AGE OF TEEN IN YEARS AT HH-REPORTED MEASLES OR MMR SHOT #5 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MCV_AGE_SC6	AGE OF TEEN IN YEARS AT HH-REPORTED MEASLES OR MMR SHOT #6 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MCV_AGE_SC7	AGE OF TEEN IN YEARS AT HH-REPORTED MEASLES OR MMR SHOT #7 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MCV_AGE_SC8	AGE OF TEEN IN YEARS AT HH-REPORTED MEASLES OR MMR SHOT #8 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MCV_AGE1	AGE IN YEARS OF PROV-REPORTED MEASLES-CONTAINING SHOT #1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_AGE2	AGE IN YEARS OF PROV-REPORTED MEASLES-CONTAINING SHOT #2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_AGE3	AGE IN YEARS OF PROV-REPORTED MEASLES-CONTAINING SHOT #3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_AGE4	AGE IN YEARS OF PROV-REPORTED MEASLES-CONTAINING SHOT #4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_AGE5	AGE IN YEARS OF PROV-REPORTED MEASLES-CONTAINING SHOT #5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_AGE6	AGE IN YEARS OF PROV-REPORTED MEASLES-CONTAINING SHOT #6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_AGE7	AGE IN YEARS OF PROV-REPORTED MEASLES-CONTAINING SHOT #7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_AGE8	AGE IN YEARS OF PROV-REPORTED MEASLES-CONTAINING SHOT #8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_AGE9	AGE IN YEARS OF PROV-REPORTED MEASLES-CONTAINING SHOT #9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_ANY_REC	HH-REPORT: HAS TEEN EVER RECEIVED ANY MMR/MEASLES SHOTS? (RECALL)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MCV_ANY_SC	HH-REPORT: HAS TEEN EVER RECEIVED ANY MMR/MEASLES SHOTS? (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MCV_DAGE1	AGE IN DAYS OF PROV-REPORTED MEASLES-CONTAINING SHOT #1				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_DAGE2	AGE IN DAYS OF PROV-REPORTED MEASLES-CONTAINING SHOT #2				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_DAGE3	AGE IN DAYS OF PROV-REPORTED MEASLES-CONTAINING SHOT #3				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_DAGE4	AGE IN DAYS OF PROV-REPORTED MEASLES-CONTAINING SHOT #4				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_DAGE5	AGE IN DAYS OF PROV-REPORTED MEASLES-CONTAINING SHOT #5				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_DAGE6	AGE IN DAYS OF PROV-REPORTED MEASLES-CONTAINING SHOT #6				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_DAGE7	AGE IN DAYS OF PROV-REPORTED MEASLES-CONTAINING SHOT #7				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_DAGE8	AGE IN DAYS OF PROV-REPORTED MEASLES-CONTAINING SHOT #8				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_DAGE9	AGE IN DAYS OF PROV-REPORTED MEASLES-CONTAINING SHOT #9				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MCV_MAGE1	AGE IN MONTHS OF PROV-REPORTED MEASLES-CONTAINING SHOT #1				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_MAGE2	AGE IN MONTHS OF PROV-REPORTED MEASLES-CONTAINING SHOT #2				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_MAGE3	AGE IN MONTHS OF PROV-REPORTED MEASLES-CONTAINING SHOT #3				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_MAGE4	AGE IN MONTHS OF PROV-REPORTED MEASLES-CONTAINING SHOT #4				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_MAGE5	AGE IN MONTHS OF PROV-REPORTED MEASLES-CONTAINING SHOT #5				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_MAGE6	AGE IN MONTHS OF PROV-REPORTED MEASLES-CONTAINING SHOT #6				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_MAGE7	AGE IN MONTHS OF PROV-REPORTED MEASLES-CONTAINING SHOT #7				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_MAGE8	AGE IN MONTHS OF PROV-REPORTED MEASLES-CONTAINING SHOT #8				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
MCV_MAGE9	AGE IN MONTHS OF PROV-REPORTED MEASLES-CONTAINING SHOT #9				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MCV_NUM_REC	NUMBER OF HH-REPORTED MMR/MEASLES SHOTS RECEIVED (RECALL)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MCV_NUM_SC	NUMBER OF HH-REPORTED MMR/MEASLES SHOTS RECEIVED (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MCV_NUM_TOT	NUMBER OF HH-REPORTED MMR/MEASLES SHOTS RECEIVED (TOTAL)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MEN_AGE_SC1	AGE OF TEEN IN YEARS AT HH-REPORTED MENINGOCOCCAL SHOT #1 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MEN_AGE_SC2	AGE OF TEEN IN YEARS AT HH-REPORTED MENINGOCOCCAL SHOT #2 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MEN_AGE_SC3	AGE OF TEEN IN YEARS AT HH-REPORTED MENINGOCOCCAL SHOT #3 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MEN_AGE_SC4	AGE OF TEEN IN YEARS AT HH-REPORTED MENINGOCOCCAL SHOT #4 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MEN_AGE_SC5	AGE OF TEEN IN YEARS AT HH-REPORTED MENINGOCOCCAL SHOT #5 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MEN_AGE_SC6	AGE OF TEEN IN YEARS AT HH-REPORTED MENINGOCOCCAL SHOT #6 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MEN_AGE_SC7	AGE OF TEEN IN YEARS AT HH-REPORTED MENINGOCOCCAL SHOT #7 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MEN_AGE_SC8	AGE OF TEEN IN YEARS AT HH-REPORTED MENINGOCOCCAL SHOT #8 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MEN_AGE1	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_AGE2	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_AGE3	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_AGE4	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_AGE5	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_AGE6	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_AGE7	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_AGE8	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_AGE9	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MEN_ANY	HH-REPORT: HAS TEEN EVER RECEIVED ANY MENINGITIS SHOTS?								Y	Y	Y	Y	Y	Y	Y	Y	Replaced MEN_ANY_REC in 2015.
MEN_ANY_REC	HH-REPORT: HAS TEEN EVER RECEIVED ANY MENINGITIS SHOTS? (RECALL)	Y	Y	Y	Y	Y	Y	Y									Replaced by MEN_ANY in 2015.
MEN_ANY_SC	HH-REPORT: HAS TEEN EVER RECEIVED ANY MENINGITIS SHOTS? (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MEN_DAGE1	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #1				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_DAGE2	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #2				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_DAGE3	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #3				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_DAGE4	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #4				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_DAGE5	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #5				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_DAGE6	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #6				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MEN_DAGE7	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #7				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_DAGE8	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #8				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_DAGE9	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #9				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_MAGE1	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #1				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_MAGE2	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #2				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_MAGE3	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #3				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_MAGE4	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #4				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_MAGE5	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #5				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_MAGE6	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #6				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MEN_MAGE7	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #7				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_MAGE8	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #8				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_MAGE9	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP ACWY SHOT #9				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
MEN_NUM_REC	NUMBER OF HH-REPORTED MENINGITIS SHOTS RECEIVED (RECALL)	Y	Y	Y	Y	Y	Y	Y									Replaced with MEN_NUM_TOT in 2015.
MEN_NUM_SC	NUMBER OF HH-REPORTED MENINGITIS SHOTS RECEIVED (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MEN_NUM_TOT	NUMBER OF HH-REPORTED MENINGITIS SHOTS RECEIVED (TOTAL)	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Dropped in 2014 due to shortened questionnaire; added back in 2015.
MEN_REAS_1	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: NOT RECOMMENDED	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_10	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: COSTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_11	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: SAFETY CONCERN/SIDE EFFECTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_12	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: EFFECTIVENESS CONCERN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MEN_REAS_13	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: TEEN FEARFUL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_14	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: TEEN SHOULD MAKE DECISION	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_15	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: COLLEGE SHOT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_16	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: DON'T BELIEVE IN VACCINATIONS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_17	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: FAMILY/PARENTAL DECISION	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_18	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: HANDICAPPED/SPECIAL NEEDS/ILLNESS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_19	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: RELIGION/ORTHODOX	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_2	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: LACK OF KNOWLEDGE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_20	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: TIME	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_21	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: MORE INFO/NEW VACCINE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MEN_REAS_22	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: ALREADY UP-TO-DATE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_23	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: NO DOCTOR OR DOCTOR'S VISIT NOT SCHEDULED	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_24	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: INTEND TO COMPLETE BUT HAVE NOT YET/ALREADY PLANNED									Y	Y	Y	Y	Y	Y	Y	Additional reason flag added in 2016.
MEN_REAS_25	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: DIFFICULTY MAKING OR GETTING TO APPOINTMENT/TRANSPORTATION PROBLEMS									Y	Y	Y	Y	Y	Y	Y	Additional reason flag added in 2016.
MEN_REAS_26	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: COVID-19 PANDEMIC													Y	Y	Y	Additional reason flag added in 2020.
MEN_REAS_3	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: NOT NEEDED OR NOT NECESSARY	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_4	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: NOT SCHOOL REQUIREMENT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_5	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: NOT AVAILABLE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_REAS_6	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: NOT APPROPRIATE AGE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MEN_REAS_7	MAIN REASON TEEN DID NOT RECEIVE MENINGITIS SHOTS: OTHER REASON	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MEN_RECOM	HAD OR HAS DOCTOR OR OTHER HEALTH CARE PROFESSIONAL EVER RECOMMENDED THAT TEEN RECEIVE MENINGITIS SHOTS?	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
MENB_AGE1	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #1									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_AGE2	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #2									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_AGE3	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #3									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_AGE4	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #4									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_AGE5	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #5									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_AGE6	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #6									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_AGE7	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #7									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_AGE8	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #8									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MENB_AGE9	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #9									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_DAGE1	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #1									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_DAGE2	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #2									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_DAGE3	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #3									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_DAGE4	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #4									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_DAGE5	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #5									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_DAGE6	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #6									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_DAGE7	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #7									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_DAGE8	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #8									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_DAGE9	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #9									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_MAGE1	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #1									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MENB_MAGE2	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #2									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_MAGE3	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #3									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_MAGE4	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #4									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_MAGE5	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #5									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_MAGE6	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #6									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_MAGE7	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #7									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_MAGE8	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #8									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENB_MAGE9	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL SEROGROUP B SHOT #9									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
MENU_AGE1	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #1									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_AGE2	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #2									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MENU_AGE3	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #3									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_AGE4	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #4									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_AGE5	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #5									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_AGE6	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #6									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_AGE7	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #7									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_AGE8	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #8									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_AGE9	AGE IN YEARS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #9									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_DAGE1	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #1									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_DAGE2	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #2									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MENU_DAGE3	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #3									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_DAGE4	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #4									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_DAGE5	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #5									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_DAGE6	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #6									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_DAGE7	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #7									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_DAGE8	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #8									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_DAGE9	AGE IN DAYS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #9									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_MAGE1	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #1									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_MAGE2	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #2									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
MENU_MAGE3	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #3									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_MAGE4	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #4									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_MAGE5	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #5									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_MAGE6	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #6									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_MAGE7	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #7									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_MAGE8	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #8									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MENU_MAGE9	AGE IN MONTHS OF PROV-REPORTED MENINGOCOCCAL-UNKNOWN SEROGROUP SHOT #9									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
MOBIL_I	GEOGRAPHIC MOBILITY STATUS: STATE OF RESIDENCE AT BIRTH VERSUS CURRENT STATE: IMPUTED	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
N_PRVR	NUMBER OF IHQS WITH VACCINATION INFORMATION FOR THE TEEN (RECODE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
NOSCHOOLR	DURING PAST 12 MONTHS, ABOUT HOW MANY DAYS DID TEEN MISS SCHOOL BECAUSE OF ILLNESS OR INJURY? (RECODE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
NUM_CELLS_HH	NUMBER OF WORKING CELL PHONES HOUSEHOLD MEMBERS HAVE AVAILABLE FOR PERSONAL USE		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Question added to household questionnaire in 2009.
NUM_CELLS_PARENTS	NUMBER OF WORKING CELL PHONES USUALLY USED BY PARENTS OR GUARDIANS		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Question added to household questionnaire in 2009.
NUM_PHONE	NUMBER OF RESIDENTIAL LANDLINE TELEPHONE NUMBERS IN HOUSEHOLD		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Question added to household questionnaire in 2009.
NUM_PROVR	NUMBER OF VALID, UNIQUE PROVIDERS IDENTIFIED BY RESPONDENT (FOR TEENS WITH CONSENT) (RECODE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_N13FLU	NUMBER OF SEASONAL INFLUENZA VACCINATIONS IN THE PAST THREE YEARS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_N13FLU_FL	NUMBER OF SEASONAL INFLUENZA VACCINATIONS OF UNKNOWN TYPE IN PAST THREE YEARS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13FLU_FM	NUMBER OF SEASONAL FLUMIST VACCINATIONS IN PAST THREE YEARS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13FLU_FN	NUMBER OF INJECTED SEASONAL INFLUENZA SHOTS OF OTHER/UNKNOWN TYPE IN PAST THREE YEARS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13FLU_FV	NUMBER OF SEASONAL FLUVIRIN SHOTS IN PAST THREE YEARS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_N13FLU_FZ	NUMBER OF SEASONAL FLUZONE SHOTS IN PAST THREE YEARS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13H1N	NUMBER OF MONOVALENT 2009 H1N1 INFLUENZA VACCINATIONS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING VACCINATIONS AFTER THE HOUSEHOLD INTERVIEW DATE AND EXCLUDING VACCINATIONS GIVEN PRIOR TO 10/5/2009.			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
P_N13H1N_1L	NUMBER OF MONOVALENT 2009 H1N1 INFLUENZA VACCINATIONS OF UNKNOWN TYPE BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING VACCINATIONS AFTER THE HOUSEHOLD INTERVIEW DATE AND EXCLUDING VACCINATIONS GIVEN PRIOR TO 10/5/2009.			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_N13H1N_1M	NUMBER OF INHALED NASAL MONOVALENT 2009 H1N1 INFLUENZA SPRAY VACCINATIONS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING VACCINATIONS AFTER THE HOUSEHOLD INTERVIEW DATE AND EXCLUDING VACCINATIONS GIVEN PRIOR TO 10/5/2009.			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
P_N13H1N_1N	NUMBER OF INJECTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATIONS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING VACCINATIONS AFTER THE HOUSEHOLD INTERVIEW DATE AND EXCLUDING VACCINATIONS GIVEN PRIOR TO 10/5/2009.			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
P_N13HEPA	NUMBER OF HEPATITIS A-CONTAINING SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13HEPA_HA	NUMBER OF HEPATITIS A-CONTAINING SHOTS OF UNKNOWN TYPE BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_N13HEPA_HO	NUMBER OF HEPATITIS A-ONLY SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13HEPB	NUMBER OF HEPATITIS B-CONTAINING SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13HEPB_43	NUMBER OF HEPB/HIB COMBO SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13HEPB_61	NUMBER OF HEPATITIS B 0.5 ML RECOMBIVAX SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13HEPB_62	NUMBER OF HEPATITIS B 1.0 ML RECOMBIVAX SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_N13HEPB_63	NUMBER OF HEPATITIS B ENGERIX SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13HEPB_64	NUMBER OF HEPATITIS B-ONLY SHOTS OF UNKNOWN TYPE BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13HEPB_HB	NUMBER OF HEPATITIS B-CONTAINING SHOTS OF UNKNOWN TYPE BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13HPV	NUMBER OF HUMAN PAPILLOMAVIRUS SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_N13HPV_4V	NUMBER OF HPV-GARDASIL (4vHPV) SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.								Y	Y	Y	Y	Y	Y	Y	Y	Renamed from P_N13HPV_ GD in 2015.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_N13HPV_9V	NUMBER OF HPV-GARDASIL 9 (9vHPV) SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.								Y	Y	Y	Y	Y	Y	Y	Y	HPV Gardasil 9-valent shot type added to the IHQ shotgrid in 2015.
P_N13HPV_CV	NUMBER OF HPV-CERVARIX SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	HPV shot type variables added to the PUF in 2012.
P_N13HPV_GD	NUMBER OF HPV-GARDASIL SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING VACCINATIONS AFTER THE HOUSEHOLD INTERVIEW DATE.					Y	Y	Y									HPV shot type variables added to the PUF in 2012. Replaced with P_N13HPV_4V in 2015.
P_N13HPV_HP	NUMBER OF HPV SHOTS OF UNKNOWN TYPE BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	HPV shot type variables added to the PUF in 2012.
P_N13HPV_UV	NUMBER OF HPV-GARDASIL, UNKNOWN VALENCY SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.								Y	Y	Y	Y	Y	Y	Y	Y	Added in 2015 to account for reported HPV Gardasil shots with unknown valence.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_N13MCV	NUMBER OF MEASLES-CONTAINING SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13MCV_30	NUMBER OF MMR-ONLY SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13MCV_31	NUMBER OF MEASLES-ONLY SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13MCV_32	NUMBER OF MEASLES-MUMPS SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13MCV_33	NUMBER OF MEASLES-RUBELLA SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_N13MCV_MM	NUMBER OF MEASLES-CONTAINING SHOTS OF UNKNOWN TYPE BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13MCV_VM	NUMBER OF MMR/VARICELLA SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13MEN	NUMBER OF MENINGOCOCCAL SEROGROUP ACWY-CONTAINING SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_N13MEN_80	NUMBER OF MENINGOCOCCAL MCV4 SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_N13MEN_81	NUMBER OF MENINGOCOCCAL MPSV4 SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_N13MEN_82	NUMBER OF MENINGOCOCCAL SEROGROUP ACWY SHOTS OF UNKNOWN TYPE BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_N13MENB	NUMBER OF MENINGOCOCCAL SEROGROUP B SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
P_N13MENB_BB	NUMBER OF MENINGOCOCCAL MENB-4C SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
P_N13MENB_BT	NUMBER OF MENINGOCOCCAL MENB-FHPB SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_N13MENB_BU	NUMBER OF MENINGOCOCCAL SEROGROUP B SHOTS OF UNKNOWN TYPE BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
P_N13MENU	NUMBER OF MENINGOCOCCAL-UNKNOWN SEROGROUP SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
P_N13MMR	NUMBER OF MMR-CONTAINING SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13PPS	NUMBER OF PNEUMOCOCCAL POLYSACCHARIDE SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y				Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_N13TDAP_POST10	NUMBER OF TDAP SHOTS SINCE AGE 10 YEARS AND BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_N13TDAP_POST7	NUMBER OF TDAP SHOTS SINCE AGE 7 YEARS AND BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2010.
P_N13TDP	NUMBER OF TD/TDAP-CONTAINING SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_N13TDP_11	NUMBER OF TD-ONLY SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_N13TDP_14	NUMBER OF TDAP-ONLY SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_N13TDP_15	NUMBER OF TD/TDAP-CONTAINING SHOTS OF UNKNOWN TYPE BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_N13TDP_POST10	NUMBER OF TD/TDAP-CONTAINING SHOTS SINCE AGE 10 YEARS AND BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_N13VRC	NUMBER OF VARICELLA-CONTAINING SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13VRC_POST1	NUMBER OF VARICELLA-CONTAINING SHOTS AT 12+ MONTHS OF AGE AND BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13VRC_VA	NUMBER OF VARICELLA-CONTAINING SHOTS OF UNKNOWN TYPE BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_N13VRC_VM	NUMBER OF MMR/VARICELLA SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_N13VRC_VO	NUMBER OF VARICELLA-ONLY SHOTS BY AGE 13 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMFLU	NUMBER OF SEASONAL INFLUENZA VACCINATIONS IN THE PAST THREE YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMFLU_FL	NUMBER OF SEASONAL INFLUENZA VACCINATIONS OF UNKNOWN TYPE IN PAST THREE YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMFLU_FM	NUMBER OF SEASONAL FLUMIST VACCINATIONS IN PAST THREE YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_NUMFLU_FN	NUMBER OF INJECTED SEASONAL INFLUENZA SHOTS OF OTHER/UNKNOWN TYPE IN PAST THREE YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMFLU_FV	NUMBER OF SEASONAL FLUVIRIN SHOTS IN PAST THREE YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMFLU_FZ	NUMBER OF SEASONAL FLUZONE SHOTS IN PAST THREE YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMH1N	NUMBER OF MONOVALENT 2009 H1N1 INFLUENZA VACCINATIONS DETERMINED FROM PROVIDER INFO, EXCLUDING VACCINATIONS AFTER THE HOUSEHOLD INTERVIEW DATE AND EXCLUDING VACCINATIONS GIVEN PRIOR TO 10/5/2009.			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_NUMH1N_1L	NUMBER OF MONOVALENT 2009 H1N1 INFLUENZA VACCINATIONS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING VACCINATIONS AFTER THE HOUSEHOLD INTERVIEW DATE AND EXCLUDING VACCINATIONS GIVEN PRIOR TO 10/5/2009.			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
P_NUMH1N_1M	NUMBER OF INHALED NASAL MONOVALENT 2009 H1N1 INFLUENZA SPRAY VACCINATIONS DETERMINED FROM PROVIDER INFO, EXCLUDING VACCINATIONS AFTER THE HOUSEHOLD INTERVIEW DATE AND EXCLUDING VACCINATIONS GIVEN PRIOR TO 10/5/2009.			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
P_NUMH1N_1N	NUMBER OF INJECTED MONOVALENT 2009 H1N1 INFLUENZA VACCINATIONS DETERMINED FROM PROVIDER INFO, EXCLUDING VACCINATIONS AFTER THE HOUSEHOLD INTERVIEW DATE AND EXCLUDING VACCINATIONS GIVEN PRIOR TO 10/5/2009.			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_NUMHEPA	NUMBER OF HEPATITIS A-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMHEPA_HA	NUMBER OF HEPATITIS A-CONTAINING SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMHEPA_HO	NUMBER OF HEPATITIS A-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMHEPB	NUMBER OF HEPATITIS B-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMHEPB_43	NUMBER OF HEPB/HIB COMBO SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_NUMHEPB_61	NUMBER OF HEPATITIS B 0.5 ML RECOMBIVAX SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMHEPB_62	NUMBER OF HEPATITIS B 1.0 ML RECOMBIVAX SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMHEPB_63	NUMBER OF HEPATITIS B ENGERIX SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMHEPB_64	NUMBER OF HEPATITIS B-ONLY SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMHEPB_HB	NUMBER OF HEPATITIS B-CONTAINING SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_NUMHPV	NUMBER OF HUMAN PAPILLOMAVIRUS SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_NUMHPV_4V	NUMBER OF HPV-GARDASIL (4vHPV) SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.								Y	Y	Y	Y	Y	Y	Y	Y	Renamed from P_NUMHPV_GD in 2015.
P_NUMHPV_9V	NUMBER OF HPV-GARDASIL 9 (9vHPV) SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.								Y	Y	Y	Y	Y	Y	Y	Y	HPV Gardasil 9-valent shot type added to the IHQ shotgrid in 2015.
P_NUMHPV_CV	NUMBER OF HPV-CERVARIX SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	HPV shot type variables added to the PUF in 2012.
P_NUMHPV_GD	NUMBER OF HPV-GARDASIL SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING VACCINATIONS AFTER THE HOUSEHOLD INTERVIEW DATE.					Y	Y	Y									HPV shot type variables added to the PUF in 2012. Replaced with P_N13HPV_4V in 2015.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_NUMHPV_HP	NUMBER OF HPV SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	HPV shot type variables added to the PUF in 2012.
P_NUMHPV_UV	NUMBER OF HPV-GARDASIL, UNKNOWN VALENCY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.								Y	Y	Y	Y	Y	Y	Y	Y	Added in 2015 to account for reported HPV Gardasil shots with unknown valence.
P_NUMMCV	NUMBER OF MEASLES-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMMCV_30	NUMBER OF MMR-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMMCV_31	NUMBER OF MEASLES-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_NUMMCV_32	NUMBER OF MEASLES-MUMPS SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMMCV_33	NUMBER OF MEASLES-RUBELLA SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMMCV_MM	NUMBER OF MEASLES-CONTAINING SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMMCV_VM	NUMBER OF MMR/VARICELLA SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMMEN	NUMBER OF MENINGOCOCCAL SEROGROUP ACWY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_NUMMEN_80	NUMBER OF MENINGOCOCCAL MCV4 SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_NUMMEN_81	NUMBER OF MENINGOCOCCAL MPSV4 SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_NUMMEN_82	NUMBER OF MENINGOCOCCAL SEROGROUP ACWY SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_NUMMENB	NUMBER OF MENINGOCOCCAL SEROGROUP B SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
P_NUMMENB_BB	NUMBER OF MENINGOCOCCAL MENB-4C SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_NUMMENB_BT	NUMBER OF MENINGOCOCCAL MENB-FHPB SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
P_NUMMENB_BU	NUMBER OF MENINGOCOCCAL SEROGROUP B SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
P_NUMMENU	NUMBER OF MENINGOCOCCAL-UNKNOWN SEROGROUP SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.									Y	Y	Y	Y	Y	Y	Y	Meningococcal - unknown serogroup added to the IHQ shotgrid starting in 2016.
P_NUMMMR	NUMBER OF MMR-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMPPS	NUMBER OF PNEUMOCOCCAL POLYSACCHARIDE SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y				Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_NUMTDAP_POST10	NUMBER OF TDAP SHOTS SINCE AGE 10 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_NUMTDAP_POST7	NUMBER OF TDAP SHOTS SINCE AGE 7 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2010.
P_NUMTDP	NUMBER OF TD/TDAP-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_NUMTDP_11	NUMBER OF TD-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_NUMTDP_14	NUMBER OF TDAP-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_NUMTDP_15	NUMBER OF TD/TDAP-CONTAINING SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_NUMTDP_POST10	NUMBER OF TD/TDAP-CONTAINING SHOTS SINCE AGE 10 YEARS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_NUMVRC	NUMBER OF VARICELLA-CONTAINING SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMVRC_POST1	NUMBER OF VARICELLA-CONTAINING SHOTS AT 12+ MONTHS OF AGE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMVRC_VA	NUMBER OF VARICELLA-CONTAINING SHOTS OF UNKNOWN TYPE DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_NUMVRC_VM	NUMBER OF MMR/VARICELLA SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_NUMVRC_VO	NUMBER OF VARICELLA-ONLY SHOTS DETERMINED FROM PROVIDER INFO, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_U13113	UP-TO-DATE FLAG (PROV INFO): 1:1:3 SERIES BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.								Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2015.
P_U131132	**UP-TO-DATE FLAG (PROV INFO): 1+ TDAP SINCE AGE 10, 1+ MENACWY, AND UTD FOR HPV, ALL BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.**															**Y**	**Up-to-date variable added to the PUF in 2022.**
P_U131321	UP-TO-DATE FLAG (PROV INFO): 1:3:2:1 SERIES BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_U1313212	UP-TO-DATE FLAG (PROV INFO): 1:3:2:1:2 SERIES BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_U13FLU0607	UP-TO-DATE FLAG (PROV INFO): 1+ INFLUENZA VACCINATION BETWEEN SEPT 1, 2006 AND JAN 31, 2007, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y															Dropped in 2009 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_U13FLU0708	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2007 AND JAN 31, 2008, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y														Dropped in 2010 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_U13FLU0809	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2008 AND JAN 31, 2009, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y													Dropped in 2011 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_U13FLU0910	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2009 AND JAN 31, 2010, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.		Y	Y	Y												Added in 2009 and dropped in 2012 to reflect provider-reported flu vaccinations from previous 3 flu seasons.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_U13FLU1011	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2010 AND JAN 31, 2011, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.			Y	Y	Y											Added in 2010 and dropped in 2013 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_U13FLU1112	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2011 AND JAN 31, 2012, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.				Y	Y	Y										Added in 2011 and dropped in 2014 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_U13FLU1213	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2012 AND JAN 31, 2013, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.					Y	Y	Y									Added in 2012 and dropped in 2015 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_U13FLU1314	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2013 AND JAN 31, 2014, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.						Y	Y	Y								Added in 2013 and dropped in 2016 to reflect provider-reported flu vaccinations from previous 3 flu seasons.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_U13FLU1415	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2014 AND JAN 31, 2015, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.							Y	Y	Y							Added in 2014 and dropped in 2017 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_U13FLU1516	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2015 AND JAN 31, 2016, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.								Y	Y	Y						Added in 2015 and dropped in 2018 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_U13FLU1617	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2016 AND JAN 31, 2017, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.									Y	Y						Added in 2016 to reflect provider-reported flu vaccinations from previous 3 flu seasons. Dropped in 2018 due to a provider reporting issue.
P_U13FLU1718	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2017 AND JAN 31, 2018, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.										Y		Y				Added in 2017 and dropped in 2020 to reflect provider-reported flu vaccinations from previous 3 flu seasons. Not available in 2018 due to a provider reporting issue.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_U13FLU1819	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2018 AND JAN 31, 2019, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.												Y	Y			Added in 2019 and dropped in 2021 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_U13FLU1920	**UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2019 AND JAN 31, 2020, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.**												**Y**	**Y**	**Y**		**Added in 2019 and dropped in 2022 to reflect provider-reported flu vaccinations from previous 3 flu seasons.**
P_U13FLU2021	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2020 AND JAN 31, 2021, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.													Y	Y	Y	Added in 2020 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_U13FLU2122	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2021 AND JAN 31, 2022, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.														Y	Y	Added in 2021 to reflect provider-reported flu vaccinations from previous 3 flu seasons.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_U13FLU2223	**UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2022 AND JAN 31, 2023, BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.**															**Y**	**Added in 2022 to reflect provider-reported flu vaccinations from previous 3 flu seasons.**
P_U13H1N_1	UP-TO-DATE FLAG (PROV INFO): 1+ MONOVALENT 2009 H1N1 FLU VACCINATION BEFORE AGE 13 YEARS, EXCLUDING VACCINATIONS AFTER THE HOUSEHOLD INTERVIEW DATE AND EXCLUDING VACCINATIONS GIVEN PRIOR TO 10/5/2009.			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
P_U13H1N_2	UP-TO-DATE FLAG (PROV INFO): 2+ MONOVALENT 2009 H1N1 FLU VACCINATIONS BEFORE AGE 13 YEARS, EXCLUDING VACCINATIONS AFTER THE HOUSEHOLD INTERVIEW DATE AND EXCLUDING VACCINATIONS GIVEN PRIOR TO 10/5/2009.			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
P_U13HEPA	UP-TO-DATE FLAG (PROV INFO): 2+ HEPATITIS A-CONTAINING SHOTS BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_U13HEPB	UP-TO-DATE FLAG (PROV INFO): 2+ HEPB 1.0 ML RECOMBIVAX SHOTS BEFORE AGE 13 YEARS, OR 3+ ANY COMBINATION OF HEPATITIS B-CONTAINING SHOTS BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_U13HPV	UP-TO-DATE FLAG (PROV INFO): 1+ HUMAN PAPILLOMAVIRUS SHOT BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_U13HPV3	UP-TO-DATE FLAG (PROV INFO): 3+ HUMAN PAPILLOMAVIRUS SHOTS BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to PUF in 2010.
P_U13MCV	UP-TO-DATE FLAG (PROV INFO): 2+ MEASLES-CONTAINING SHOTS BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_U13MEN	UP-TO-DATE FLAG (PROV INFO): 1+ MENINGOCOCCAL SEROGROUP ACWY SHOT BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_U13MMR	UP-TO-DATE FLAG (PROV INFO): 2+ MMR-CONTAINING SHOTS BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_U13PPS	UP-TO-DATE FLAG (PROV INFO): 1+ PNEUMOCOCCAL POLYSACCHARIDE SHOT BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y				Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
P_U13TD	UP-TO-DATE FLAG (PROV INFO): 1+ TD/TDAP-CONTAINING SHOT BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_U13TDAP	UP-TO-DATE FLAG (PROV INFO): 1+ TDAP-ONLY SHOT SINCE AGE 10 YEARS AND BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_U13TDAP7	UP-TO-DATE FLAG (PROV INFO): 1+ TDAP-ONLY SHOT SINCE AGE 7 YEARS AND BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to PUF in 2010.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_U13VRC	UP-TO-DATE FLAG (PROV INFO): 1+ VARICELLA-CONTAINING SHOT AT 12+ MONTHS OF AGE AND BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_U13VRC2	UP-TO-DATE FLAG (PROV INFO): 2+ VARICELLA-CONTAINING SHOTS AT 12+ MONTHS OF AGE AND BEFORE AGE 13 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_UTD1321	UP-TO-DATE FLAG (PROV INFO): 1:3:2:1 SERIES, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_UTD13212	UP-TO-DATE FLAG (PROV INFO): 1:3:2:1:2 SERIES, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_UTDCOV_BOOST	**UP-TO-DATE FLAG (PROV INFO): FULLY VACCINATED AND BOOSTED WITH 2+ COVID-19 SHOTS, OR 1+ J&J/JANSSEN SHOT, PLUS 1+ ADDITIONAL COVID-19 SHOT OF ANY TYPE, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.**															**Y**	**Up-to-date variable added to PUF in 2022.**

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_UTDCOV_FULL	**UP-TO-DATE FLAG (PROV INFO): FULLY VACCINATED WITH 2+ COVID-19 SHOTS, OR 1+ J&J/JANSSEN SHOT, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.**															**Y**	**Up-to-date variable added to PUF in 2022.**
P_UTDCOV1	**UP-TO-DATE FLAG (PROV INFO): 1+ COVID-19 VACCINATION, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.**															**Y**	**Up-to-date variable added to PUF in 2022.**
P_UTDFLU0607	UP-TO-DATE FLAG (PROV INFO): 1+ INFLUENZA VACCINATION BETWEEN SEPT 1, 2006 AND JAN 31, 2007, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y															Dropped in 2009 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_UTDFLU0708	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2007 AND JAN 31, 2008, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y														Dropped in 2010 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_UTDFLU0809	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2008 AND JAN 31, 2009, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y													Dropped in 2011 to reflect provider-reported flu vaccinations from previous 3 flu seasons.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_UTDFLU0910	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2009 AND JAN 31, 2010, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.		Y	Y	Y												Added in 2009 and dropped in 2012 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_UTDFLU1011	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2010 AND JAN 31, 2011, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.			Y	Y	Y											Added in 2010 and dropped in 2013 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_UTDFLU1112	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2011 AND JAN 31, 2012, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.				Y	Y	Y										Added in 2011 and dropped in 2014 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_UTDFLU1213	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2012 AND JAN 31, 2013, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.					Y	Y	Y									Added in 2012 and dropped in 2015 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_UTDFLU1314	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2013 AND JAN 31, 2014, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.						Y	Y	Y								Added in 2013 and dropped in 2016 to reflect provider-reported flu vaccinations from previous 3 flu seasons.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_UTDFLU1415	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2014 AND JAN 31, 2015, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.							Y	Y	Y							Added in 2014 and dropped in 2017 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_UTDFLU1516	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2015 AND JAN 31, 2016, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.								Y	Y	Y						Added in 2015 and dropped in 2018 to reflect provider-reported flu vaccinations from previous 3 flu seasons.
P_UTDFLU1617	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2016 AND JAN 31, 2017, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.									Y	Y						Added in 2016 to reflect provider-reported flu vaccinations from previous 3 flu seasons. Dropped in 2018 due to a provider reporting issue.
P_UTDFLU1718	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2017 AND JAN 31, 2018, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.										Y		Y				Added in 2017 and dropped in 2020 to reflect provider-reported flu vaccinations from previous 3 flu seasons. Not available in 2018 due to a provider reporting issue.
P_UTDFLU1819	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2018 AND JAN 31, 2019, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.												Y	Y			Added in 2019 and dropped in 2021 to reflect provider-reported flu vaccinations from previous 3 flu seasons.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_UTDFLU1920	**UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2019 AND JAN 31, 2020, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.**												**Y**	**Y**	**Y**		**Added in 2019 and dropped in 2022 to reflect provider-reported flu vaccinations from previous 3 flu seasons.**
P_UTDFLU2021	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2020 AND JAN 31, 2021, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.													Y	Y	Y	Added in 2020 to reflect provider-reported flu vaccinations from the previous 3 flu seasons.
P_UTDFLU2122	UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2021 AND JAN 31, 2022, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.														Y	Y	Added in 2021 to reflect provider-reported flu vaccinations from the previous 3 flu seasons.
P_UTDFLU2223	**UP-TO-DATE FLAG (PROV INFO): 1+ SEASONAL INFLUENZA VACCINATION BETWEEN SEPT 1, 2022 AND JAN 31, 2023, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.**															**Y**	**Added in 2022 to reflect provider-reported flu vaccinations from the previous 3 flu seasons.**

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_UTDH1N_1	UP-TO-DATE FLAG (PROV INFO): 1+ MONOVALENT 2009 H1N1 FLU VACCINATION, EXCLUDING VACCINATIONS AFTER THE HOUSEHOLD INTERVIEW DATE AND EXCLUDING VACCINATIONS GIVEN PRIOR TO 10/5/2009.			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
P_UTDH1N_2	UP-TO-DATE FLAG (PROV INFO): 2+ MONOVALENT 2009 H1N1 FLU VACCINATIONS, EXCLUDING VACCINATIONS AFTER THE HOUSEHOLD INTERVIEW DATE AND EXCLUDING VACCINATIONS GIVEN PRIOR TO 10/5/2009.			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
P_UTDHEPA	UP-TO-DATE FLAG (PROV INFO): 2+ HEPATITIS A-CONTAINING SHOTS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_UTDHEPA1	UP-TO-DATE FLAG (PROV INFO): 1+ HEPATITIS A-CONTAINING SHOT, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Up-to-date variable added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_UTDHEPB	UP-TO-DATE FLAG (PROV INFO): 2+ HEPB 1.0 ML RECOMBIVAX SHOTS, OR 3+ ANY COMBINATION OF HEPATITIS B-CONTAINING SHOTS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_UTDHPV	UP-TO-DATE FLAG (PROV INFO): 1+ HUMAN PAPILLOMAVIRUS SHOT, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_UTDHPV_15	UP-TO-DATE FLAG (PROV INFO): 3+ HUMAN PAPILLOMAVIRUS SHOTS, OR 2+ HUMAN PAPILLOMAVIRUS SHOTS WITH FIRST SHOT RECEIVED BEFORE AGE 15, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.									Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2016.
P_UTDHPV_15INT	UP-TO-DATE FLAG (PROV INFO): 3+ HUMAN PAPILLOMAVIRUS SHOTS, OR 2+ HUMAN PAPILLOMAVIRUS SHOTS WITH FIRST SHOT RECEIVED BEFORE AGE 15 AND INTERVAL BETWEEN 1ST AND 2ND SHOTS AT LEAST 5 MONTHS-4 DAYS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.									Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2016.
P_UTDHPV_9V	UP-TO-DATE FLAG (PROV INFO): 1+ HUMAN PAPILLOMAVIRUS SHOT OF TYPE GARDASIL 9 (9vHPV), EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.								Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2015.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_UTDHPV11	UP-TO-DATE FLAG (PROV INFO): 1 HUMAN PAPILLOMAVIRUS SHOT GIVEN 1+ SHOT, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2011.
P_UTDHPV12	UP-TO-DATE FLAG (PROV INFO): 2 HUMAN PAPILLOMAVIRUS SHOTS GIVEN 1+ SHOT, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2011.
P_UTDHPV13	UP-TO-DATE FLAG (PROV INFO): 3+ HUMAN PAPILLOMAVIRUS SHOTS GIVEN 1+ SHOT, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2011.
P_UTDHPV2	UP-TO-DATE FLAG (PROV INFO): 2+ HUMAN PAPILLOMAVIRUS SHOTS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2011.
P_UTDHPV2_9V	UP-TO-DATE FLAG (PROV INFO): 2+ HUMAN PAPILLOMAVIRUS SHOTS OF TYPE GARDASIL 9 (9vHPV), EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.								Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2015.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_UTDHPV3	UP-TO-DATE FLAG (PROV INFO): 3+ HUMAN PAPILLOMAVIRUS SHOTS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2010.
P_UTDHPV3_9V	UP-TO-DATE FLAG (PROV INFO): 3+ HUMAN PAPILLOMAVIRUS SHOTS OF TYPE GARDASIL 9 (9vHPV), EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.								Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2015.
P_UTDHPV3C	UP-TO-DATE FLAG (PROV INFO): HPV CONDITIONAL COMPLETION RATE, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2011.
P_UTDHPV3C_15INT	UP-TO-DATE FLAG (PROV INFO): HPV CONDITIONAL COMPLETION RATE, INCLUDING COMPLETION VIA 3-SHOT OR 2-SHOT SERIES, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.									Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2016.
P_UTDHPV3C_9V	UP-TO-DATE FLAG (PROV INFO): HPV CONDITIONAL COMPLETION RATE, COUNTING ONLY SHOTS OF TYPE GARDASIL 9 (9vHPV), EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.								Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2015.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_UTDMCV	UP-TO-DATE FLAG (PROV INFO): 2+ MEASLES-CONTAINING SHOTS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_UTDMEN	UP-TO-DATE FLAG (PROV INFO): 1+ MENINGOCOCCAL SEROGROUP ACWY SHOT, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_UTDMENACWY	UP-TO-DATE FLAG (PROV INFO): 1+ MENINGOCOCCAL SEROGROUP ACWY-CONJUGATE SHOT OR MENINGOCOCCAL SEROGROUP ACWY-UNKNOWN TYPE SHOT, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2011.
P_UTDMENB_L	**UP-TO-DATE FLAG (PROV INFO): 2+ MENINGOCOCCAL SEROGROUP B SHOTS WITH AGE AND INTERVAL RESTRICTIONS, LENIENT TREATMENT OF MENINGOCOCCAL SHOTS OF UNKNOWN TYPE, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.**															**Y**	**Up-to-date variable added to the PUF in 2022.**

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_UTDMENB_S	**UP-TO-DATE FLAG (PROV INFO): 2+ MENINGOCOCCAL SEROGROUP B SHOTS WITH AGE AND INTERVAL RESTRICTIONS, STRICT TREATMENT OF MENINGOCOCCAL SHOTS OF UNKNOWN TYPE, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.**															**Y**	**Up-to-date variable added to the PUF in 2022.**
P_UTDMMR	UP-TO-DATE FLAG (PROV INFO): 2+ MMR-CONTAINING SHOTS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_UTDPPS	UP-TO-DATE FLAG (PROV INFO): 1+ PNEUMOCOCCAL POLYSACCHARIDE SHOT, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y				Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
P_UTDTD	UP-TO-DATE FLAG (PROV INFO): 1+ TD/TDAP-CONTAINING SHOT, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_UTDTD_POST10	UP-TO-DATE FLAG (PROV INFO): 1+ TD-ONLY SHOT SINCE AGE 10 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2011.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_UTDTDAP	UP-TO-DATE FLAG (PROV INFO): 1+ TDAP-ONLY SHOT SINCE AGE 10 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
P_UTDTDAP7	UP-TO-DATE FLAG (PROV INFO): 1+ TDAP-ONLY SHOT SINCE AGE 7 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2010.
P_UTDTDP_POST10	UP-TO-DATE FLAG (PROV INFO): 1+ TD/TDAP-CONTAINING SHOT SINCE AGE 10 YEARS, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Up-to-date variable added to the PUF in 2011.
P_UTDVRC	UP-TO-DATE FLAG (PROV INFO): 1+ VARICELLA-CONTAINING SHOT AT 12+ MONTHS OF AGE, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_UTDVRC_NOHIST4	UP-TO-DATE FLAG (PROV INFO): 1+ VARICELLA-CONTAINING SHOT AT 4+ YEARS OF AGE, NO HISTORY OF CHICKEN POX DISEASE, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Up-to-date variable added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
P_UTDVRC2	UP-TO-DATE FLAG (PROV INFO): 2+ VARICELLA-CONTAINING SHOTS AT 12+ MONTHS OF AGE, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
P_UTDVRC2_NOHIST4	UP-TO-DATE FLAG (PROV INFO): 2+ VARICELLA-CONTAINING SHOTS AT 4+ YEARS OF AGE, NO HISTORY OF CHICKEN POX DISEASE, EXCLUDING ANY VACCINATIONS AFTER THE RDD INTERVIEW DATE.				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Up-to-date variable added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
PDAT	ADEQUATE PROVIDER DATA FLAG	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to change in adequate provider data definition.
PDAT2	ADEQUATE PROVIDER DATA FLAG							Y	Y	Y	Y	Y	Y	Y	Y	Y	Added in 2014 due to change in adequate provider data definition.
PPS_AGE1	AGE IN YEARS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y				Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_AGE2	AGE IN YEARS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y				Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_AGE3	AGE IN YEARS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y				Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_AGE4	AGE IN YEARS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y				Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
PPS_AGE5	AGE IN YEARS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y				Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_AGE6	AGE IN YEARS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y				Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_AGE7	AGE IN YEARS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y				Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_AGE8	AGE IN YEARS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y				Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_AGE9	AGE IN YEARS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y				Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_DAGE1	AGE IN DAYS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #1				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_DAGE2	AGE IN DAYS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #2				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_DAGE3	AGE IN DAYS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #3				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
PPS_DAGE4	AGE IN DAYS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #4				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_DAGE5	AGE IN DAYS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #5				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_DAGE6	AGE IN DAYS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #6				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_DAGE7	AGE IN DAYS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #7				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_DAGE8	AGE IN DAYS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #8				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_DAGE9	AGE IN DAYS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #9				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
PPS_MAGE1	AGE IN MONTHS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #1				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_MAGE2	AGE IN MONTHS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #2				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_MAGE3	AGE IN MONTHS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #3				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_MAGE4	AGE IN MONTHS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #4				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_MAGE5	AGE IN MONTHS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #5				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_MAGE6	AGE IN MONTHS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #6				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
PPS_MAGE7	AGE IN MONTHS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #7				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_MAGE8	AGE IN MONTHS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #8				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PPS_MAGE9	AGE IN MONTHS OF PROV-REPORTED PNEUMOCOCCAL POLYSACCHARIDE SHOT #9				Y	Y	Y	Y	Y	Y	Y		Y				Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019. Dropped in 2020 due to shot category being removed from the NIS-Teen IHQ.
PROVWT	FINAL PROVIDER-PHASE WEIGHT (EXCLUDING U.S. VIRGIN ISLANDS)	Y	Y	Y													Replaced by PROVWT_LL in 2011 due to addition of dual-frame weights.
PROVWT_C	FINAL SINGLE-FRAME CELL-PHONE PROVIDER-PHASE WEIGHT (EXCLUDES TERRITORIES)											Y	Y	Y	Y	Y	Replaced PROVWT_D in 2018 due to removal of the landline sample.
PROVWT_C_TERR	FINAL SINGLE-FRAME CELL-PHONE PROVIDER-PHASE WEIGHT (INCLUDING TERRITORIES)												Y	Y	Y	Y	Added in 2019 to replace PROVWT_D_TERR due to removal of the landline sample.
PROVWT_D	FINAL DUAL-FRAME PROVIDER-PHASE WEIGHT (EXCLUDES TERRITORIES)				Y	Y	Y	Y	Y	Y	Y						Added in 2011 as dual-frame weight. Replaced by PROVWT_C in 2018 due to removal of the landline sample.
PROVWT_D_TERR	FINAL PROVIDER-PHASE WEIGHT (INCLUDING TERRITORIES)							Y	Y	Y							Replaced PROVWTVIGU_D in 2014 due to addition of Puerto Rico sample. Dropped in 2017 as no data from U.S. territories were included on the PUF.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
PROVWT_LL	FINAL LANDLINE PROVIDER-PHASE WEIGHT (EXCLUDING U.S. VIRGIN ISLANDS)				Y												Replaced PROVWT in 2011 to distinguish from new dual-frame weight PROVWT_D. Removed in 2012.
PROVWTVI	FINAL PROVIDER-PHASE WEIGHT (INCLUDING U.S. VIRGIN ISLANDS)		Y	Y													Added in 2009 to include U.S. Virgin Island sample. Replaced by PROVWTVI_LL in 2011 due to addition of dual-frame weights.
PROVWTVI_D	FINAL PROVIDER-PHASE WEIGHT (INCLUDING U.S. VIRGIN ISLANDS)					Y											Replaced PROVWTVI_LL in 2012. Replaced with PROVWTVIGU_D in 2013 due to the addition of Guam sample.
PROVWTVI_LL	FINAL LANDLINE PROVIDER-PHASE WEIGHT (INCLUDING U.S. VIRGIN ISLANDS)				Y												Replaced PROVWTVI in 2011. Replaced with dual-frame weight PROVWTVI_D in 2012.
PROVWTVIGU_D	FINAL PROVIDER-PHASE WEIGHT (INCLUDING U.S. VIRGIN ISLANDS AND GUAM)						Y										Replaced PROVWTVI_D in 2013 due to the addition of Guam sample. Replaced with PROVWT_D_TERR in 2014 due to addition of Puerto Rico sample.
RACE_K	RACE OF TEEN WITH MULTIRACE CATEGORY: IMPUTED (RECODE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
RACEETHK	RACE/ETHNICITY OF TEEN WITH MULTIRACE CATEGORY: IMPUTED (RECODE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
RDDWT	FINAL HOUSEHOLD-PHASE WEIGHT (EXCLUDING U.S. VIRGIN ISLANDS)	Y	Y	Y													Replaced by RDDWT_LL in 2011 due to addition of dual-frame weights.
RDDWT_C	FINAL SINGLE-FRAME CELL-PHONE RDD-PHASE WEIGHT (EXCLUDES TERRITORIES)											Y	Y	Y	Y	Y	Replaced RDDWT_D in 2018 due to removal of the landline sample.
RDDWT_C_TERR	FINAL SINGLE-FRAME CELL-PHONE RDD-PHASE WEIGHT (INCLUDING TERRITORIES)												Y	Y	Y	Y	Added in 2019 to replace RDDWT_D_TERR due to removal of the landline sample.
RDDWT_D	FINAL DUAL-FRAME RDD-PHASE WEIGHT (EXCLUDES TERRITORIES)				Y	Y	Y	Y	Y	Y	Y						Added in 2011 as dual-frame weight. Replaced by RDDWT_C in 2018 due to removal of the landline sample.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
RDDWT_D_TERR	FINAL RDD-PHASE WEIGHT (INCLUDING TERRITORIES)							Y	Y	Y							Replaced RDDWTVIGU_D in 2014 due to addition of Puerto Rico sample. Dropped in 2017 as no data from U.S. territories were included on the PUF.
RDDWT_LL	FINAL LANDLINE HOUSEHOLD-PHASE WEIGHT (EXCLUDING U.S. VIRGIN ISLANDS)				Y												Replaced RDDWT in 2011 to distinguish from new dual-frame weight RDDWT_D. Removed in 2012.
RDDWTVI	FINAL HOUSEHOLD-PHASE WEIGHT (INCLUDING U.S. VIRGIN ISLANDS)		Y	Y													Added in 2009 to include U.S. Virgin Island sample. Replaced by RDDWTVI_LL in 2011 due to addition of dual-frame weights.
RDDWTVI_D	FINAL HOUSEHOLD-PHASE WEIGHT (INCLUDING U.S. VIRGIN ISLANDS)					Y											Replaced RDDWTVI_LL in 2012. Replaced with RDDWTVIGU_D in 2013 due to the addition of Guam sample.
RDDWTVI_LL	FINAL LANDLINE HOUSEHOLD-PHASE WEIGHT (INCLUDING U.S. VIRGIN ISLANDS)				Y												Replaced RDDWTVI in 2011. Replaced with dual-frame weight RDDWTVI_D in 2012.
RDDWTVIGU_D	FINAL HOUSEHOLD-PHASE WEIGHT (INCLUDING U.S. VIRGIN ISLANDS AND GUAM)						Y										Replaced RDDWTVI_D in 2013 due to the addition of Guam sample. Replaced with RDDWT_D_TERR in 2014 due to addition of Puerto Rico sample.
REGISTRY	DID TEEN'S PROVIDERS REPORT TEEN'S IMMUNIZATIONS TO IMMUNIZATION REGISTRY?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
RENT_OWN	IS HOME OWNED/BEING BOUGHT, RENTED, OR OCCUPIED BY SOME OTHER ARRANGEMENT?		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Question added to the questionnaire starting in late 2008, and introduced in the PUF in 2009.
RISK_EVER	HAS DOCTOR, NURSE, OR OTHER HEALTH CARE PROFESSIONAL EVER SAID THAT TEEN HAS HAD ANY OF THE FOLLOWING HEALTH CONDITIONS?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
RISK_HH	DO ANY OTHER MEMBERS OF TEEN'S HOUSEHOLD HAVE ANY OF THE FOLLOWING HEALTH CONDITIONS?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
RISK_NOW	DOES TEEN STILL HAVE ANY OF THESE CONDITIONS?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
SEQNUMT	UNIQUE TEEN IDENTIFIER	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
SEX	SEX OF TEEN: IMPUTED	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
SHOTCARD_ALL	HH-REPORT: DOES SHOT RECORD INCLUDE ALL VACCINATIONS?	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
STATE	TRUE STATE OF RESIDENCE (STATE FIPS CODE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
STRATUM	STRATUM VARIABLE FOR VARIANCE ESTIMATION					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Replaced STRATUM_D in 2012. Equal to sample frame by estimation area.
STRATUM_D	STRATUM VARIABLE FOR DUAL-FRAME VARIANCE ESTIMATION				Y												Added in 2011. Equal to sample frame by estimation area. Replaced by STRATUM in 2012.
TDP_AGE1	AGE IN YEARS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TDP_AGE2	AGE IN YEARS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TDP_AGE3	AGE IN YEARS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TDP_AGE4	AGE IN YEARS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TDP_AGE5	AGE IN YEARS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TDP_AGE6	AGE IN YEARS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
TDP_AGE7	AGE IN YEARS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TDP_AGE8	AGE IN YEARS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TDP_AGE9	AGE IN YEARS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TDP_DAGE1	AGE IN DAYS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #1				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_DAGE2	AGE IN DAYS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #2				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_DAGE3	AGE IN DAYS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #3				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_DAGE4	AGE IN DAYS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #4				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_DAGE5	AGE IN DAYS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #5				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_DAGE6	AGE IN DAYS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #6				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_DAGE7	AGE IN DAYS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #7				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_DAGE8	AGE IN DAYS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #8				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_DAGE9	AGE IN DAYS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #9				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_MAGE1	AGE IN MONTHS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #1				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_MAGE2	AGE IN MONTHS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #2				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
TDP_MAGE3	AGE IN MONTHS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #3				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_MAGE4	AGE IN MONTHS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #4				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_MAGE5	AGE IN MONTHS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #5				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_MAGE6	AGE IN MONTHS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #6				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_MAGE7	AGE IN MONTHS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #7				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_MAGE8	AGE IN MONTHS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #8				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TDP_MAGE9	AGE IN MONTHS OF PROV-REPORTED TD/TDAP-CONTAINING SHOT #9				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011.
TEL_SAMPFRAME	SAMPLE FRAME INDICATOR (LANDLINE OR CELL-PHONE)				Y												Added in 2011. Dropped in 2012 due to use of only dual-frame weights.
TET_AGE_SC1	AGE OF TEEN IN YEARS AT HH-REPORTED TETANUS BOOSTER SHOT #1 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_AGE_SC2	AGE OF TEEN IN YEARS AT HH-REPORTED TETANUS BOOSTER SHOT #2 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_AGE_SC3	AGE OF TEEN IN YEARS AT HH-REPORTED TETANUS BOOSTER SHOT #3 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
TET_AGE_SC4	AGE OF TEEN IN YEARS AT HH-REPORTED TETANUS BOOSTER SHOT #4 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_AGE_SC5	AGE OF TEEN IN YEARS AT HH-REPORTED TETANUS BOOSTER SHOT #5 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_AGE_SC6	AGE OF TEEN IN YEARS AT HH-REPORTED TETANUS BOOSTER SHOT #6 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_AGE_SC7	AGE OF TEEN IN YEARS AT HH-REPORTED TETANUS BOOSTER SHOT #7 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_AGE_SC8	AGE OF TEEN IN YEARS AT HH-REPORTED TETANUS BOOSTER SHOT #8 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_ANY	HH-REPORT: HAS TEEN EVER RECEIVED ANY TETANUS BOOSTER SHOTS?								Y	Y	Y	Y	Y	Y	Y	Y	Replaced TET_ANY_REC in 2015.
TET_ANY_REC	HH-REPORT: HAS TEEN EVER RECEIVED ANY TETANUS BOOSTER SHOTS? (RECALL)	Y	Y	Y	Y	Y	Y	Y									Replaced by TET_ANY in 2015.
TET_ANY_SC	HH-REPORT: HAS TEEN EVER RECEIVED ANY TETANUS BOOSTER SHOTS? (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_LAST_AGE	AGE IN YEARS AT LAST TETANUS BOOSTER SHOT (RECALL)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_LAST_TYPE	TYPE OF LAST TETANUS BOOSTER SHOT (RECALL)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_NUM_SC	NUMBER OF HH-REPORTED TETANUS BOOSTER SHOTS RECEIVED (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
TET_PLACE_1	KIND OF PLACE TEEN RECEIVED TETANUS BOOSTER SHOT AFTER AGE 7 YEARS: DOCTOR'S OFFICE	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_PLACE_10	KIND OF PLACE TEEN RECEIVED TETANUS BOOSTER SHOT AFTER AGE 7 YEARS: HOSPITAL-BASED CLINIC					Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_PLACE_11	KIND OF PLACE TEEN RECEIVED TETANUS BOOSTER SHOT AFTER AGE 7 YEARS: WHILE HOSPITALIZED					Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_PLACE_12	KIND OF PLACE TEEN RECEIVED TETANUS BOOSTER SHOT AFTER AGE 7 YEARS: ELEMENTARY/MIDDLE/HIGH SCHOOL					Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_PLACE_2	KIND OF PLACE TEEN RECEIVED TETANUS BOOSTER SHOT AFTER AGE 7 YEARS: EMERGENCY ROOM	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_PLACE_3	KIND OF PLACE TEEN RECEIVED TETANUS BOOSTER SHOT AFTER AGE 7 YEARS: HEALTH DEPARTMENT	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_PLACE_4	KIND OF PLACE TEEN RECEIVED TETANUS BOOSTER SHOT AFTER AGE 7 YEARS: CLINIC OR HEALTH CENTER	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_PLACE_5	KIND OF PLACE TEEN RECEIVED TETANUS BOOSTER SHOT AFTER AGE 7 YEARS: HOSPITAL	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
TET_PLACE_6	KIND OF PLACE TEEN RECEIVED TETANUS BOOSTER SHOT AFTER AGE 7 YEARS: OTHER MEDICALLY-RELATED PLACE	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_PLACE_7	KIND OF PLACE TEEN RECEIVED TETANUS BOOSTER SHOT AFTER AGE 7 YEARS: PHARMACY OR DRUG STORE	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_PLACE_8	KIND OF PLACE TEEN RECEIVED TETANUS BOOSTER SHOT AFTER AGE 7 YEARS: WORKPLACE	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_PLACE_9	KIND OF PLACE TEEN RECEIVED TETANUS BOOSTER SHOT AFTER AGE 7 YEARS: OTHER NON-MEDICALLY-RELATED PLACE	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_REAS_1	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: NOT RECOMMENDED	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_10	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: COSTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_11	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: SAFETY CONCERN/SIDE EFFECTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_12	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: EFFECTIVENESS CONCERN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_13	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: TEEN FEARFUL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
TET_REAS_14	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: TEEN SHOULD MAKE DECISION	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_15	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: COLLEGE SHOT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_16	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: DON'T BELIEVE IN VACCINATIONS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_17	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: FAMILY/PARENTAL DECISION	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_18	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: HANDICAPPED/SPECIAL NEEDS/ILLNESS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_19	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: RELIGION/ORTHODOX	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_2	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: LACK OF KNOWLEDGE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_20	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: TIME	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_21	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: MORE INFO/NEW VACCINE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_22	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: ALREADY UP-TO-DATE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
TET_REAS_23	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: NOT AVAILABLE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_24	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: NOT A SCHOOL REQUIREMENT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_25	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: INTEND TO COMPLETE BUT HAVE NOT YET/ALREADY PLANNED									Y	Y	Y	Y	Y	Y	Y	Additional reason flag added in 2016.
TET_REAS_26	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: DIFFICULTY MAKING OR GETTING TO APPOINTMENT/TRANSPORTATION PROBLEMS									Y	Y	Y	Y	Y	Y	Y	Additional reason flag added in 2016.
TET_REAS_27	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: COVID-19 PANDEMIC													Y	Y	Y	Additional reason flag added in 2020.
TET_REAS_3	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: NOT NEEDED OR NOT NECESSARY	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_4	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: NO DOCTOR OR DOCTOR'S VISIT NOT SCHEDULED	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_5	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: NOT APPROPRIATE AGE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TET_REAS_7	MAIN REASON TEEN DID NOT RECEIVE TETANUS BOOSTER SHOTS: OTHER REASON	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
TET_RECOM	HAD OR HAS DOCTOR OR OTHER HEALTH CARE PROFESSIONAL EVER RECOMMENDED THAT TEEN RECEIVE TETANUS BOOSTER SHOTS?	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_TYPE1	TYPE OF HH-REPORTED TETANUS BOOSTER SHOT #1	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_TYPE2	TYPE OF HH-REPORTED TETANUS BOOSTER SHOT #2	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_TYPE3	TYPE OF HH-REPORTED TETANUS BOOSTER SHOT #3	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_TYPE4	TYPE OF HH-REPORTED TETANUS BOOSTER SHOT #4	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_TYPE5	TYPE OF HH-REPORTED TETANUS BOOSTER SHOT #5	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_TYPE6	TYPE OF HH-REPORTED TETANUS BOOSTER SHOT #6	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_TYPE7	TYPE OF HH-REPORTED TETANUS BOOSTER SHOT #7	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TET_TYPE8	TYPE OF HH-REPORTED TETANUS BOOSTER SHOT #8	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
TIS_INS_1	IS TEEN COVERED BY HEALTH INSURANCE PROVIDED THROUGH EMPLOYER OR UNION?	Y	Y	Y	Y	Y	Y	Y	Y								Replaced with INS_STAT_I and INS_BREAK_I in 2016.
TIS_INS_11	SINCE AGE 11, ANY TIME WHEN TEEN WAS NOT COVERED BY ANY HEALTH INSURANCE?	Y	Y	Y	Y	Y	Y	Y	Y								Replaced with INS_STAT_I and INS_BREAK_I in 2016.
TIS_INS_2	IS TEEN COVERED BY ANY MEDICAID PLAN?	Y	Y	Y	Y	Y	Y	Y	Y								Replaced with INS_STAT_I and INS_BREAK_I in 2016.
TIS_INS_3	IS TEEN COVERED BY CHIP?	Y	Y	Y	Y	Y	Y	Y	Y								Replaced with INS_STAT_I and INS_BREAK_I in 2016.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
TIS_INS_3A	IS TEEN COVERED BY ANY MEDICAID PLAN OR CHIP?	Y	Y	Y	Y	Y	Y	Y	Y								Replaced with INS_STAT_I and INS_BREAK_I in 2016.
TIS_INS_4	IS TEEN COVERED BY INDIAN HEALTH SERVICE?	Y															Replaced by TIS_INS_4_5 starting 2009.
TIS_INS_4_5	IS TEEN COVERED BY INDIAN HEALTH SERVICE, MILITARY HEALTH CARE, TRICARE, CHAMPUS, OR CHAMP-VA?		Y	Y	Y	Y	Y	Y	Y								Replaced TIS_INS_4 and TIS_INS_5 starting 2009. Replaced with INS_STAT_I and INS_BREAK_I in 2016.
TIS_INS_5	IS TEEN COVERED BY MILITARY HEALTH CARE, TRICARE, CHAMPUS, OR CHAMP-VA?	Y															Replaced by TIS_INS_4_5 starting 2009.
TIS_INS_6	IS TEEN COVERED BY ANY OTHER HEALTH INSURANCE OR HEALTH CARE PLAN?	Y	Y	Y	Y	Y	Y	Y	Y								Replaced with INS_STAT_I and INS_BREAK_I in 2016.
VFC_I	DERIVED: IS TEEN VFC ELIGIBLE?		Y	Y	Y												Added in 2009 to aid analysis. Dropped starting in 2012 due to a change in the IHQ.
VFC_ORDER	DO TEEN'S PROVIDERS ORDER VACCINES FROM STATE/LOCAL HEALTH DEPT?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
VISITS	IN PAST 12 MONTHS NUMBER OF TIMES TEEN HAS SEEN A DOCTOR OR OTHER HEALTH CARE PROFESSIONAL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
VRC_AGE_SC1	AGE OF TEEN IN YEARS AT HH-REPORTED VARICELLA SHOT #1 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
VRC_AGE_SC2	AGE OF TEEN IN YEARS AT HH-REPORTED VARICELLA SHOT #2 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
VRC_AGE_SC3	AGE OF TEEN IN YEARS AT HH-REPORTED VARICELLA SHOT #3 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
VRC_AGE_SC4	AGE OF TEEN IN YEARS AT HH-REPORTED VARICELLA SHOT #4 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
VRC_AGE_SC5	AGE OF TEEN IN YEARS AT HH-REPORTED VARICELLA SHOT #5 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
VRC_AGE_SC6	AGE OF TEEN IN YEARS AT HH-REPORTED VARICELLA SHOT #6 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
VRC_AGE_SC7	AGE OF TEEN IN YEARS AT HH-REPORTED VARICELLA SHOT #7 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
VRC_AGE_SC8	AGE OF TEEN IN YEARS AT HH-REPORTED VARICELLA SHOT #8 (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
VRC_AGE1	AGE IN YEARS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_AGE2	AGE IN YEARS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_AGE3	AGE IN YEARS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_AGE4	AGE IN YEARS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_AGE5	AGE IN YEARS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_AGE6	AGE IN YEARS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_AGE7	AGE IN YEARS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_AGE8	AGE IN YEARS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
VRC_AGE9	AGE IN YEARS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_ANY_REC	HH-REPORT: HAS TEEN EVER RECEIVED ANY VARICELLA SHOTS? (RECALL)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
VRC_ANY_SC	HH-REPORT: HAS TEEN EVER RECEIVED ANY VARICELLA SHOTS? (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
VRC_DAGE1	AGE IN DAYS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #1				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_DAGE2	AGE IN DAYS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #2				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_DAGE3	AGE IN DAYS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #3				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_DAGE4	AGE IN DAYS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #4				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_DAGE5	AGE IN DAYS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #5				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_DAGE6	AGE IN DAYS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #6				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
VRC_DAGE7	AGE IN DAYS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #7				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_DAGE8	AGE IN DAYS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #8				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_DAGE9	AGE IN DAYS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #9				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_HIST	HISTORY OF CHICKEN POX REPORTED BY THE HOUSEHOLD OR BY ANY PROVIDER	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_MAGE1	AGE IN MONTHS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #1				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_MAGE2	AGE IN MONTHS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #2				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_MAGE3	AGE IN MONTHS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #3				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_MAGE4	AGE IN MONTHS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #4				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_MAGE5	AGE IN MONTHS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #5				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
VRC_MAGE6	AGE IN MONTHS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #6				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_MAGE7	AGE IN MONTHS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #7				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_MAGE8	AGE IN MONTHS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #8				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_MAGE9	AGE IN MONTHS OF PROV-REPORTED VARICELLA-CONTAINING SHOT #9				Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Age-in-days and age-in-months variables were added to the PUF in 2011. Dropped in 2018 due to a provider reporting issue. Added back in 2019.
VRC_NUM_REC	NUMBER OF HH-REPORTED VARICELLA SHOTS RECEIVED (RECALL)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
VRC_NUM_SC	NUMBER OF HH-REPORTED VARICELLA SHOTS RECEIVED (SHOTCARD)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
VRC_NUM_TOT	NUMBER OF HH-REPORTED VARICELLA SHOTS RECEIVED (TOTAL)	Y	Y	Y	Y	Y	Y										Dropped in 2014 due to shortened questionnaire.
WELLCHILD	DID TEEN RECEIVE AN 11-12 YEAR OLD WELL CHILD EXAM OR CHECK-UP?											Y	Y	Y	Y	Y	Added in 2018.
XFLUTY1	SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #1 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XFLUTY2	SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #2 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
XFLUTY3	SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #3 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XFLUTY4	SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #4 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XFLUTY5	SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #5 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XFLUTY6	SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #6 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XFLUTY7	SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #7 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XFLUTY8	SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #8 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XFLUTY9	SEASONAL INFLUENZA VACCINATION IN PAST THREE YEARS #9 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XH1NTY1	MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #1 TYPE CODE			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
XH1NTY2	MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #2 TYPE CODE			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
XH1NTY3	MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #3 TYPE CODE			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
XH1NTY4	MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #4 TYPE CODE			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
XH1NTY5	MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #5 TYPE CODE			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
XH1NTY6	MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #6 TYPE CODE			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
XH1NTY7	MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #7 TYPE CODE			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
XH1NTY8	MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #8 TYPE CODE			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
XH1NTY9	MONOVALENT 2009 H1N1 INFLUENZA VACCINATION #9 TYPE CODE			Y	Y	Y											H1N1 influenza added to the IHQ shotgrid starting in late 2009, and introduced in the PUF in 2010. Removed from the IHQ and the PUF in 2013.
XHEPATY1	HEPATITIS A-CONTAINING VACCINATION #1 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHEPATY2	HEPATITIS A-CONTAINING VACCINATION #2 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHEPATY3	HEPATITIS A-CONTAINING VACCINATION #3 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
XHEPATY4	HEPATITIS A-CONTAINING VACCINATION #4 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHEPATY5	HEPATITIS A-CONTAINING VACCINATION #5 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHEPATY6	HEPATITIS A-CONTAINING VACCINATION #6 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHEPATY7	HEPATITIS A-CONTAINING VACCINATION #7 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHEPATY8	HEPATITIS A-CONTAINING VACCINATION #8 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHEPATY9	HEPATITIS A-CONTAINING VACCINATION #9 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHEPBTY1	HEPATITIS B-CONTAINING VACCINATION #1 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHEPBTY2	HEPATITIS B-CONTAINING VACCINATION #2 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHEPBTY3	HEPATITIS B-CONTAINING VACCINATION #3 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHEPBTY4	HEPATITIS B-CONTAINING VACCINATION #4 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHEPBTY5	HEPATITIS B-CONTAINING VACCINATION #5 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
XHEPBTY6	HEPATITIS B-CONTAINING VACCINATION #6 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHEPBTY7	HEPATITIS B-CONTAINING VACCINATION #7 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHEPBTY8	HEPATITIS B-CONTAINING VACCINATION #8 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHEPBTY9	HEPATITIS B-CONTAINING VACCINATION #9 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XHPVTY1	HUMAN PAPILLOMAVIRUS VACCINATION #1 TYPE CODE					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	HPV shot type variables added to the PUF in 2012.
XHPVTY2	HUMAN PAPILLOMAVIRUS VACCINATION #2 TYPE CODE					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	HPV shot type variables added to the PUF in 2012.
XHPVTY3	HUMAN PAPILLOMAVIRUS VACCINATION #3 TYPE CODE					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	HPV shot type variables added to the PUF in 2012.
XHPVTY4	HUMAN PAPILLOMAVIRUS VACCINATION #4 TYPE CODE					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	HPV shot type variables added to the PUF in 2012.
XHPVTY5	HUMAN PAPILLOMAVIRUS VACCINATION #5 TYPE CODE					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	HPV shot type variables added to the PUF in 2012.
XHPVTY6	HUMAN PAPILLOMAVIRUS VACCINATION #6 TYPE CODE					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	HPV shot type variables added to the PUF in 2012.
XHPVTY7	HUMAN PAPILLOMAVIRUS VACCINATION #7 TYPE CODE					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	HPV shot type variables added to the PUF in 2012.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
XHPVTY8	HUMAN PAPILLOMAVIRUS VACCINATION #8 TYPE CODE					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	HPV shot type variables added to the PUF in 2012.
XHPVTY9	HUMAN PAPILLOMAVIRUS VACCINATION #9 TYPE CODE					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	HPV shot type variables added to the PUF in 2012.
XMCVTY1	MEASLES-CONTAINING VACCINATION #1 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XMCVTY2	MEASLES-CONTAINING VACCINATION #2 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XMCVTY3	MEASLES-CONTAINING VACCINATION #3 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XMCVTY4	MEASLES-CONTAINING VACCINATION #4 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XMCVTY5	MEASLES-CONTAINING VACCINATION #5 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XMCVTY6	MEASLES-CONTAINING VACCINATION #6 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XMCVTY7	MEASLES-CONTAINING VACCINATION #7 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XMCVTY8	MEASLES-CONTAINING VACCINATION #8 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XMCVTY9	MEASLES-CONTAINING VACCINATION #9 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XMENBTY1	MENINGOCOCCAL SEROGROUP B VACCINATION #1 TYPE CODE									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
XMENBTY2	MENINGOCOCCAL SEROGROUP B VACCINATION #2 TYPE CODE									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
XMENBTY3	MENINGOCOCCAL SEROGROUP B VACCINATION #3 TYPE CODE									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
XMENBTY4	MENINGOCOCCAL SEROGROUP B VACCINATION #4 TYPE CODE									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
XMENBTY5	MENINGOCOCCAL SEROGROUP B VACCINATION #5 TYPE CODE									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
XMENBTY6	MENINGOCOCCAL SEROGROUP B VACCINATION #6 TYPE CODE									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
XMENBTY7	MENINGOCOCCAL SEROGROUP B VACCINATION #7 TYPE CODE									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
XMENBTY8	MENINGOCOCCAL SEROGROUP B VACCINATION #8 TYPE CODE									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
XMENBTY9	MENINGOCOCCAL SEROGROUP B VACCINATION #9 TYPE CODE									Y	Y	Y	Y	Y	Y	Y	Meningococcal Serogroup B added to the IHQ shotgrid starting in 2016.
XMENTY1	MENINGOCOCCAL SEROGROUP ACWY VACCINATION #1 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XMENTY2	MENINGOCOCCAL SEROGROUP ACWY VACCINATION #2 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XMENTY3	MENINGOCOCCAL SEROGROUP ACWY VACCINATION #3 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XMENTY4	MENINGOCOCCAL SEROGROUP ACWY VACCINATION #4 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
XMENTY5	MENINGOCOCCAL SEROGROUP ACWY VACCINATION #5 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XMENTY6	MENINGOCOCCAL SEROGROUP ACWY VACCINATION #6 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XMENTY7	MENINGOCOCCAL SEROGROUP ACWY VACCINATION #7 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XMENTY8	MENINGOCOCCAL SEROGROUP ACWY VACCINATION #8 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XMENTY9	MENINGOCOCCAL SEROGROUP ACWY VACCINATION #9 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XTDPTY1	TD/TDAP-CONTAINING VACCINATION #1 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XTDPTY2	TD/TDAP-CONTAINING VACCINATION #2 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XTDPTY3	TD/TDAP-CONTAINING VACCINATION #3 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XTDPTY4	TD/TDAP-CONTAINING VACCINATION #4 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XTDPTY5	TD/TDAP-CONTAINING VACCINATION #5 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XTDPTY6	TD/TDAP-CONTAINING VACCINATION #6 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XTDPTY7	TD/TDAP-CONTAINING VACCINATION #7 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XTDPTY8	TD/TDAP-CONTAINING VACCINATION #8 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Variable Name	Variable Label	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Notes
XTDPTY9	TD/TDAP-CONTAINING VACCINATION #9 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
XVRCTY1	VARICELLA-CONTAINING VACCINATION #1 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XVRCTY2	VARICELLA-CONTAINING VACCINATION #2 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XVRCTY3	VARICELLA-CONTAINING VACCINATION #3 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XVRCTY4	VARICELLA-CONTAINING VACCINATION #4 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XVRCTY5	VARICELLA-CONTAINING VACCINATION #5 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XVRCTY6	VARICELLA-CONTAINING VACCINATION #6 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XVRCTY7	VARICELLA-CONTAINING VACCINATION #7 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XVRCTY8	VARICELLA-CONTAINING VACCINATION #8 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
XVRCTY9	VARICELLA-CONTAINING VACCINATION #9 TYPE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Dropped in 2018 due to a provider reporting issue. Added back in 2019.
YEAR	SAMPLING YEAR	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Appendix E: Summary Tables

Table E.1: Estimated Population Totals and Sample Sizes of Teens Aged 13-17 Years by State and Estimation Area, National Immunization Survey - Teen, 2022

State/Estimation Area	Estimation Area Number (ESTIAPT22)	Estimated Population Total of Teens	Number of Teens with Complete Household Interviews	Number of Teens with Adequate Provider Data	Percent of Teens with Adequate Provider Data
U.S. National*		21,831,327	41,325	16,043	38.8
Alabama	20	333,291	756	269	35.6
Alaska	74	48,431	550	240	43.6
Arizona	66	491,382	798	273	34.2
Arkansas	46	208,990	785	332	42.3
California	68	2,599,904	982	321	32.7
Colorado	60	374,086	770	342	44.4
Connecticut	1	224,624	654	258	39.4
Delaware	13	60,307	665	250	37.6
District of Columbia	12	28,641	653	237	36.3
Florida	22	1,285,015	912	307	33.7
Georgia	25	767,112	839	333	39.7
Hawaii	72	81,267	647	237	36.6
Idaho	75	145,073	542	251	46.3
Illinois		838,318	1,710	630	36.8
IL-City of Chicago	35	151,185	713	256	35.9
IL-Rest of State	34	687,133	997	374	37.5
Indiana	36	469,278	690	258	37.4
Iowa	56	218,108	458	207	45.2
Kansas	57	208,564	759	310	40.8
Kentucky	27	298,539	688	276	40.1
Louisiana	47	314,593	898	330	36.7
Maine	4	77,277	612	268	43.8
Maryland	14	398,808	864	346	40.0
Massachusetts	2	408,246	698	268	38.4
Michigan	38	641,304	621	257	41.4
Minnesota	40	389,122	799	331	41.4
Mississippi	28	210,562	706	232	32.9
Missouri	58	411,320	735	284	38.6
Montana	61	69,922	685	297	43.4
Nebraska	59	140,984	571	247	43.3
Nevada	73	208,790	794	259	32.6
New Hampshire	5	79,581	566	225	39.8
New Jersey	8	601,029	880	289	32.8
New Mexico	49	144,285	633	276	43.6
New York		1,165,590	1,466	536	36.6
NY-City of New York	11	466,033	632	222	35.1
NY-Rest of State	10	699,557	834	314	37.6
North Carolina	29	695,009	878	361	41.1
North Dakota	62	50,950	635	280	44.1
Ohio	41	769,148	650	269	41.4
Oklahoma	50	283,130	655	249	38.0
Oregon	76	248,839	659	263	39.9
Pennsylvania		796,453	2,017	752	37.3
PA-Philadelphia County	17	93,027	676	267	39.5
PA-Rest of State	16	703,426	1,341	485	36.2

State/Estimation Area	Estimation Area Number (ESTIAPT22)	Estimated Population Total of Teens	Number of Teens with Complete Household Interviews	Number of Teens with Adequate Provider Data	Percent of Teens with Adequate Provider Data
Rhode Island	6	62,449	662	285	43.1
South Carolina	30	339,530	765	269	35.2
South Dakota	63	63,083	585	252	43.1
Tennessee	31	458,786	587	244	41.6
Texas		2,215,047	2,335	794	34.0
TX-Bexar County	55	151,603	669	253	37.8
TX-City of Houston	54	142,756	484	157	32.4
TX-Rest of State	51	1,920,688	1,182	384	32.5
Utah	64	286,417	578	271	46.9
Vermont	7	36,405	597	291	48.7
Virginia	18	554,433	1,694	595	35.1
Washington	77	485,710	688	280	40.7
West Virginia	19	107,580	579	244	42.1
Wisconsin	44	385,386	662	274	41.4
Wyoming	65	40,723	713	294	41.2
Puerto Rico	106	180,796	2,413	671	27.8

* Excludes U.S. territories.

Table E.2: Estimated Population Totals and Sample Sizes by Age of Teen by Maternal Education, National Immunization Survey - Teen, 2022

Age of Teen in Years	Maternal Education	TEENS WITH COMPLETED HOUSEHOLD INTERVIEWS* Unweighted Completes	TEENS WITH COMPLETED HOUSEHOLD INTERVIEWS* Weighted Completes†	TEENS WITH ADEQUATE PROVIDER DATA* Unweighted Completes	TEENS WITH ADEQUATE PROVIDER DATA* Weighted Completes§
13	<12 Years	479	539,877	192	568,867
13	12 Years	1,265	930,185	461	928,510
13	>12, Non College Graduate	1,988	984,413	803	1,045,212
13	College Grad	4,102	1,880,154	1,742	1,977,397
14	<12 Years	531	518,520	196	474,252
14	12 Years	1,405	906,495	503	836,496
14	>12, Non College Graduate	2,136	1,066,123	847	1,013,764
14	College Grad	4,306	1,921,538	1,853	1,902,807
15	<12 Years	489	496,770	205	507,509
15	12 Years	1,400	922,398	470	981,855
15	>12, Non College Graduate	2,110	911,632	826	1,029,115
15	College Grad	4,308	1,907,203	1,718	1,889,950
16	<12 Years	462	543,874	165	517,943
16	12 Years	1,346	860,152	487	958,813
16	>12, Non College Graduate	2,156	1,090,029	796	1,018,303
16	College Grad	4,457	1,958,471	1,760	1,996,292
17	<12 Years	465	534,324	169	446,610
17	12 Years	1,343	844,738	456	876,480
17	>12, Non College Graduate	2,142	988,678	762	970,051
17	College Grad	4,435	2,025,753	1,632	1,891,102
Total		41,325	21,831,327	16,043	21,831,327

* Excludes U.S. territories.

† Weighted by single-frame cellular phone weight RDDWT_C.

§ Weighted by single-frame cellular phone weight PROVWT_C.

Table E.3: Estimated Population Totals and Sample Sizes by Age of Teen by Poverty Status, National Immunization Survey - Teen, 2022

Age of Teen in Years	Poverty Status	TEENS WITH COMPLETED HOUSEHOLD INTERVIEWS* Unweighted Completes	TEENS WITH COMPLETED HOUSEHOLD INTERVIEWS* Weighted Completes†	TEENS WITH ADEQUATE PROVIDER DATA* Unweighted Completes	TEENS WITH ADEQUATE PROVIDER DATA* Weighted Completes§
13	Above poverty, > $75K	4,401	2,096,670	1,874	2,250,801
13	Above poverty, <= $75K	2,060	1,240,725	827	1,260,543
13	Below poverty	930	742,212	402	757,695
13	Unknown	443	255,023	95	250,947
14	Above poverty, > $75K	4,637	2,138,909	1,927	1,987,213
14	Above poverty, <= $75K	2,300	1,312,189	965	1,339,093
14	Below poverty	936	661,907	414	670,004
14	Unknown	505	299,671	93	231,010
15	Above poverty, > $75K	4,592	2,006,159	1,825	2,113,161
15	Above poverty, <= $75K	2,279	1,256,961	937	1,375,040
15	Below poverty	899	686,903	375	721,302
15	Unknown	537	287,979	82	198,925
16	Above poverty, > $75K	4,748	2,100,501	1,875	2,199,754
16	Above poverty, <= $75K	2,287	1,334,085	901	1,364,054
16	Below poverty	844	717,749	351	738,057
16	Unknown	542	300,191	81	189,487
17	Above poverty, > $75K	4,899	2,201,114	1,822	2,116,440
17	Above poverty, <= $75K	2,122	1,225,696	772	1,226,865
17	Below poverty	818	675,752	341	664,585
17	Unknown	546	290,930	84	176,353
Total		41,325	21,831,327	16,043	21,831,327

* Excludes U.S. territories.

† Weighted by single-frame cellular phone weight RDDWT_C.

§ Weighted by single-frame cellular phone weight PROVWT_C.

Table E.4: Estimated Population Totals and Sample Sizes by Race/Ethnicity by Poverty Status, National Immunization Survey - Teen, 2022

Race/Ethnicity of Teen†	Poverty Status	TEENS WITH COMPLETED HOUSEHOLD INTERVIEWS* Unweighted Completes	TEENS WITH COMPLETED HOUSEHOLD INTERVIEWS* Weighted Completes§	TEENS WITH ADEQUATE PROVIDER DATA* Unweighted Completes	TEENS WITH ADEQUATE PROVIDER DATA* Weighted Completes¶
Hispanic	Above poverty, > $75K	2,754	1,841,360	1,060	1,859,212
Hispanic	Above poverty, <= $75K	2,330	1,931,484	883	1,895,690
Hispanic	Below poverty	1,449	1,475,922	615	1,487,077
Hispanic	Unknown	495	372,661	101	342,183
Non-Hispanic White Only	Above poverty, > $75K	15,891	6,418,622	6,581	6,530,348
Non-Hispanic White Only	Above poverty, <= $75K	5,753	2,710,664	2,357	2,715,919
Non-Hispanic White Only	Below poverty	1,519	898,817	667	904,567
Non-Hispanic White Only	Unknown	1,391	627,586	226	441,961
Non-Hispanic Black Only	Above poverty, > $75K	1,695	978,268	563	903,154
Non-Hispanic Black Only	Above poverty, <= $75K	1,574	1,077,519	581	1,190,480
Non-Hispanic Black Only	Below poverty	837	711,540	347	758,056
Non-Hispanic Black Only	Unknown	308	219,160	42	124,067
Non-Hispanic Other & Multiple Race	Above poverty, > $75K	2,937	1,305,104	1,119	1,374,654
Non-Hispanic Other & Multiple Race	Above poverty, <= $75K	1,391	649,990	581	763,505
Non-Hispanic Other & Multiple Race	Below poverty	622	398,244	254	401,943
Non-Hispanic Other & Multiple Race	Unknown	379	214,389	66	138,510
Total		41,325	21,831,327	16,043	21,831,327

* Excludes U.S. territories.

† Race/ethnicity is respondent-reported and the categories presented here are mutually exclusive.

§ Weighted by single-frame cellular phone weight RDDWT_C.

¶ Weighted by single-frame cellular phone weight PROVWT_C.

Table E.5: Estimated Population Totals and Sample Sizes by Age of Teen by Race/Ethnicity, National Immunization Survey - Teen, 2022

Age of Teen in Years	Race/Ethnicity of Teen[†]	TEENS WITH COMPLETED HOUSEHOLD INTERVIEWS* Unweighted Completes	TEENS WITH COMPLETED HOUSEHOLD INTERVIEWS* Weighted Completes[§]	TEENS WITH ADEQUATE PROVIDER DATA* Unweighted Completes	TEENS WITH ADEQUATE PROVIDER DATA* Weighted Completes[¶]
13	Hispanic	1,375	1,138,038	556	1,257,157
13	Non-Hispanic White Only	4,607	2,065,504	1,944	2,109,589
13	Non-Hispanic Black Only	857	608,815	305	607,084
13	Non-Hispanic Other & Multiple Races	995	522,273	393	546,156
14	Hispanic	1,452	1,102,099	549	982,865
14	Non-Hispanic White Only	4,942	2,216,724	2,069	2,151,359
14	Non-Hispanic Black Only	859	572,091	325	530,075
14	Non-Hispanic Other & Multiple Races	1,125	521,762	456	563,020
15	Hispanic	1,431	1,129,942	565	1,287,691
15	Non-Hispanic White Only	4,858	2,011,335	1,946	2,044,163
15	Non-Hispanic Black Only	920	600,582	320	626,747
15	Non-Hispanic Other & Multiple Races	1,098	496,144	388	449,827
16	Hispanic	1,401	1,143,740	511	1,127,445
16	Non-Hispanic White Only	5,130	2,198,192	2,000	2,223,734
16	Non-Hispanic Black Only	856	587,415	283	577,256
16	Non-Hispanic Other & Multiple Races	1,034	523,179	414	562,916
17	Hispanic	1,369	1,107,608	478	929,004
17	Non-Hispanic White Only	5,017	2,163,933	1,872	2,063,950
17	Non-Hispanic Black Only	922	617,584	300	634,596
17	Non-Hispanic Other & Multiple Races	1,077	504,368	369	556,693
Total		41,325	21,831,327	16,043	21,831,327

* Excludes U.S. territories.

[†] Race/ethnicity is respondent-reported and the categories presented here are mutually exclusive.

[§] Weighted by single-frame cellular phone weight RDDWT_C.

[¶] Weighted by single-frame cellular phone weight PROVWT_C.

Table E.6: Estimated Population Totals and Sample Sizes by Age and Sex of Teen, National Immunization Survey - Teen, 2022

Age of Teen in Years	Sex	TEENS WITH COMPLETED HOUSEHOLD INTERVIEWS* Unweighted Completes	TEENS WITH COMPLETED HOUSEHOLD INTERVIEWS* Weighted Completes†	TEENS WITH ADEQUATE PROVIDER DATA* Unweighted Completes	TEENS WITH ADEQUATE PROVIDER DATA* Weighted Completes§
13	Male	4,097	2,204,540	1,673	2,239,897
13	Female	3,737	2,130,090	1,525	2,280,089
14	Male	4,338	2,245,854	1,763	2,118,225
14	Female	4,040	2,166,821	1,636	2,109,094
15	Male	4,366	2,158,441	1,736	2,270,131
15	Female	3,941	2,079,561	1,483	2,138,297
16	Male	4,300	2,305,131	1,672	2,365,824
16	Female	4,121	2,147,396	1,536	2,125,528
17	Male	4,294	2,261,539	1,576	2,181,429
17	Female	4,091	2,131,953	1,443	2,002,814
Total		41,325	21,831,327	16,043	21,831,327

* Excludes U.S. territories.

† Weighted by single-frame cellular phone weight RDDWT_C.

§ Weighted by single-frame cellular phone weight PROVWT_C.

Table E.7: Estimated Vaccination Coverage*†, With Selected Vaccines Among Adolescents Aged 13-17 Years§, by State and Selected Area -- National Immunization Survey - Teen, United States, 2022

	BOTH SEXES ≥ 1 Td or Tdap¶	BOTH SEXES ≥ 1 Tdap**	BOTH SEXES ≥ 1 MenACWY††	FEMALE ≥1 dose HPV§§	FEMALE ≥ 3 doses HPV, or ≥ 2 doses HPV with age and interval restriction***	MALE ≥1 dose HPV§§	MALE ≥ 3 doses HPV, or ≥ 2 doses HPV with age and interval restriction***	BOTH SEXES ≥1 dose HPV§§	BOTH SEXES ≥ 3 doses HPV, or ≥ 2 doses HPV with age and interval restriction***
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
US National†††	91.7(±0.9)	89.9(±1.0)	88.6(±1.0)	77.8(±1.9)	64.6(±2.1)	74.4(±1.8)	60.6(±2.0)	76.0(±1.3)	62.6(±1.4)
Alabama	94.2(±3.1)	93.4(±3.4)	84.4(±4.8)	77.2(±8.0)	59.8(±9.5)	76.4(±8.4)	58.7(±10.1)	76.8(±5.8)	59.2(±6.9)
Alaska	85.0(±5.8)	83.0(±6.1)	81.3(±6.0)	78.3(±10.0)	61.9(±11.8)	74.2(±8.8)	54.1(±10.3)	76.1(±6.6)	57.8(±7.8)
Arizona	86.6(±5.3)	85.2(±5.4)	86.7(±5.0)	74.0(±9.4)	59.2(±10.5)	78.8(±7.5)	64.8(±9.4)	76.5(±6.0)	62.1(±7.1)
Arkansas	94.4(±2.7)	93.6(±2.8)	95.4(±2.4)	78.8(±7.5)	56.9(±9.6)	70.8(±8.1)	54.5(±9.1)	74.7(±5.5)	55.7(±6.6)
California	88.1(±4.7)	82.7(±5.9)	81.5(±5.8)	70.1(±9.9)	60.8(±10.3)	74.1(±8.4)	60.4(±9.5)	72.2(±6.5)	60.6(±7.0)
Colorado	92.8(±3.1)	92.4(±3.1)	83.6(±4.4)	81.1(±7.2)	69.4(±8.4)	78.3(±6.8)	62.3(±8.0)	79.7(±4.9)	65.7(±5.8)
Connecticut	93.5(±3.8)	92.7(±3.9)	92.4(±4.4)	83.3(±7.8)	74.3(±9.1)	76.8(±9.4)	69.5(±9.9)	80.0(±6.2)	71.9(±6.7)
Delaware	89.1(±5.2)	88.2(±5.3)	89.3(±5.3)	82.6(±8.2)	67.5(±10.4)	85.8(±7.5)	68.8(±10.1)	84.2(±5.6)	68.2(±7.2)
Dist. of Columbia	91.3(±4.3)	89.7(±4.6)	92.9(±3.6)	88.0(±6.8)	75.1(±10.9)	85.1(±8.6)	80.6(±9.5)	86.5(±5.5)	77.8(±7.2)
Florida	97.2(±1.8)	96.0(±2.2)	86.9(±5.2)	77.3(±8.8)	64.4(±10.3)	73.9(±9.5)	53.5(±10.9)	75.6(±6.5)	58.9(±7.6)
Georgia	92.2(±4.1)	91.1(±4.2)	93.0(±3.8)	76.8(±8.5)	65.9(±9.4)	65.1(±9.4)	57.2(±9.6)	70.8(±6.4)	61.5(±6.7)
Hawaii	92.3(±3.7)	90.6(±4.0)	88.9(±4.6)	88.6(±6.6)	79.4(±8.5)	84.2(±7.7)	69.3(±9.3)	86.4(±5.1)	74.2(±6.4)
Idaho	90.7(±4.7)	89.9(±4.8)	90.5(±4.8)	84.9(±7.4)	75.0(±9.0)	77.0(±8.6)	59.2(±10.7)	80.8(±5.7)	66.9(±7.1)
Illinois	94.6(±2.6)	93.6(±2.7)	93.9(±2.6)	81.5(±6.2)	67.1(±7.4)	79.1(±6.4)	64.3(±7.4)	80.3(±4.5)	65.7(±5.3)
IL-City of Chicago	92.1(±4.1)	90.5(±4.4)	89.1(±5.3)	81.2(±10.1)	69.6(±11.5)	84.7(±8.3)	68.9(±10.7)	83.0(±6.5)	69.2(±7.8)
IL-Rest of State	95.1(±3.0)	94.3(±3.2)	94.9(±3.0)	81.6(±7.3)	66.6(±8.6)	77.9(±7.6)	63.3(±8.8)	79.7(±5.3)	64.9(±6.2)
Indiana	95.3(±2.8)	94.2(±3.2)	92.8(±3.7)	77.5(±9.3)	63.5(±10.5)	73.6(±9.1)	55.8(±9.8)	75.5(±6.5)	59.6(±7.2)
Iowa	97.3(±3.3)	97.3(±3.3)	97.9(±2.2)	88.6(±7.6)	74.4(±11.2)	87.2(±7.3)	75.4(±9.1)	87.9(±5.3)	74.9(±7.2)
Kansas	89.5(±4.6)	89.2(±4.6)	85.9(±5.1)	73.5(±9.1)	61.9(±9.9)	73.4(±8.1)	59.5(±9.0)	73.4(±6.1)	60.7(±6.7)
Kentucky	88.7(±5.1)	86.4(±5.5)	90.4(±4.8)	70.6(±9.5)	57.5(±9.9)	62.3(±9.8)	52.6(±10.2)	66.4(±6.8)	55.0(±7.1)
Louisiana	94.3(±3.3)	94.1(±3.3)	90.4(±4.3)	81.6(±7.8)	69.3(±9.3)	78.2(±7.8)	65.5(±9.0)	79.8(±5.5)	67.3(±6.5)
Maine	97.1(±1.9)	94.4(±3.3)	96.3(±2.4)	81.3(±8.6)	65.6(±9.8)	74.6(±8.1)	66.8(±8.7)	77.9(±5.9)	66.2(±6.5)
Maryland	89.0(±5.6)	89.0(±5.6)	92.4(±4.6)	85.5(±8.5)	78.6(±9.3)	82.5(±8.6)	65.7(±10.8)	84.0(±6.1)	72.0(±7.3)
Massachusetts	94.5(±3.4)	94.1(±3.5)	93.9(±3.9)	86.7(±7.9)	76.3(±9.7)	84.5(±7.5)	77.8(±8.3)	85.6(±5.5)	77.1(±6.4)
Michigan	94.4(±3.4)	92.7(±3.7)	91.2(±4.7)	82.5(±8.1)	72.6(±9.3)	70.5(±10.2)	52.4(±11.2)	76.3(±6.6)	62.2(±7.7)
Minnesota	94.2(±3.0)	93.8(±3.0)	94.6(±2.9)	85.8(±6.3)	65.6(±9.2)	88.0(±5.2)	71.5(±8.2)	86.9(±4.1)	68.6(±6.2)

	BOTH SEXES ≥ 1 Td or Tdap¶	BOTH SEXES ≥ 1 Tdap**	BOTH SEXES ≥ 1 MenACWY††	FEMALE ≥1 dose HPV§§	FEMALE ≥ 3 doses HPV, or ≥ 2 doses HPV with age and interval restriction***	MALE ≥1 dose HPV§§	MALE ≥ 3 doses HPV, or ≥ 2 doses HPV with age and interval restriction***	BOTH SEXES ≥1 dose HPV§§	BOTH SEXES ≥ 3 doses HPV, or ≥ 2 doses HPV with age and interval restriction***
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Mississippi	87.4(±5.6)	87.0(±5.6)	55.5(±8.3)	60.6(±11.5)	37.0(±11.3)	61.4(±10.9)	39.8(±11.8)	61.0(±7.9)	38.5(±8.2)
Missouri	91.9(±3.6)	90.0(±4.0)	90.1(±4.5)	80.3(±7.4)	63.8(±9.4)	68.0(±9.8)	55.9(±10.4)	74.0(±6.3)	59.8(±7.1)
Montana	90.5(±4.2)	89.6(±4.3)	81.6(±5.4)	80.0(±8.0)	59.5(±10.0)	83.4(±6.7)	61.0(±9.1)	81.8(±5.2)	60.3(±6.8)
Nebraska	91.5(±4.1)	90.1(±4.3)	88.3(±4.9)	76.2(±9.1)	56.5(±10.2)	85.7(±7.7)	73.9(±9.1)	81.1(±6.0)	65.4(±7.1)
Nevada	90.3(±4.2)	89.2(±4.4)	85.9(±5.1)	78.2(±8.9)	63.8(±10.4)	72.0(±8.6)	55.4(±9.8)	75.0(±6.2)	59.5(±7.2)
New Hampshire	93.4(±3.6)	92.8(±3.8)	90.5(±4.6)	85.8(±7.8)	76.6(±9.1)	85.7(±7.3)	75.9(±8.8)	85.7(±5.3)	76.2(±6.3)
New Jersey	89.6(±4.4)	86.0(±5.2)	91.0(±4.1)	73.4(±9.5)	61.3(±10.4)	77.5(±8.4)	66.0(±9.6)	75.5(±6.3)	63.7(±7.1)
New Mexico	87.2(±5.2)	84.1(±5.7)	84.4(±5.5)	83.3(±7.8)	63.8(±10.0)	75.7(±9.0)	57.8(±10.4)	79.4(±6.0)	60.8(±7.2)
New York	92.0(±2.8)	90.4(±3.0)	96.5(±1.8)	81.6(±5.6)	69.0(±6.7)	82.0(±5.6)	72.3(±6.4)	81.8(±3.9)	70.7(±4.6)
NY-City of New York	93.1(±4.0)	91.7(±4.4)	95.7(±3.4)	82.7(±8.3)	67.3(±10.6)	85.9(±7.6)	79.0(±8.6)	84.3(±5.6)	73.3(±6.9)
NY-Rest of State	91.3(±3.7)	89.5(±4.1)	97.1(±1.9)	80.9(±7.4)	70.2(±8.6)	79.3(±7.7)	67.8(±8.8)	80.1(±5.3)	69.0(±6.2)
North Carolina	93.8(±3.4)	91.2(±4.0)	92.8(±3.8)	70.9(±9.3)	53.5(±9.9)	75.3(±8.4)	56.0(±9.5)	73.1(±6.3)	54.8(±6.9)
North Dakota	94.3(±3.5)	93.8(±3.6)	96.0(±2.9)	81.3(±8.7)	74.4(±9.6)	84.5(±7.9)	74.4(±9.0)	82.9(±5.9)	74.4(±6.6)
Ohio	92.1(±4.5)	91.7(±4.5)	92.1(±4.6)	81.9(±9.4)	65.1(±11.3)	71.9(±10.2)	60.5(±10.7)	76.8(±7.0)	62.7(±7.8)
Oklahoma	91.6(±3.5)	89.6(±4.2)	82.2(±5.7)	70.4(±10.3)	46.5(±11.5)	67.9(±9.6)	45.8(±10.2)	69.1(±7.0)	46.2(±7.6)
Oregon	91.9(±3.6)	90.7(±3.8)	80.3(±5.8)	82.2(±8.3)	67.0(±10.1)	79.4(±7.8)	64.2(±9.3)	80.7(±5.7)	65.6(±6.8)
Pennsylvania	94.1(±2.6)	93.9(±2.6)	94.5(±2.3)	76.1(±6.7)	67.2(±7.1)	76.7(±6.2)	66.3(±6.7)	76.4(±4.6)	66.7(±4.8)
PA-Philadelphia	94.3(±3.6)	93.2(±3.9)	93.1(±4.1)	90.3(±7.6)	77.2(±10.2)	91.8(±5.9)	72.9(±9.2)	91.1(±4.8)	75.0(±6.8)
PA-Rest of State	94.0(±2.9)	94.0(±2.9)	94.7(±2.5)	74.2(±7.5)	65.9(±7.9)	74.7(±7.0)	65.4(±7.4)	74.5(±5.1)	65.6(±5.4)
Rhode Island	96.4(±2.6)	95.1(±2.9)	96.2(±2.7)	93.3(±4.2)	85.2(±7.9)	95.8(±4.2)	85.2(±7.7)	94.6(±3.0)	85.2(±5.5)
South Carolina	93.8(±3.9)	93.6(±3.9)	85.3(±5.4)	75.5(±9.9)	64.7(±10.5)	64.5(±10.1)	44.3(±10.0)	69.9(±7.2)	54.4(±7.5)
South Dakota	93.5(±3.7)	93.5(±3.7)	93.0(±3.8)	74.9(±10.0)	64.3(±10.9)	82.8(±7.3)	72.1(±9.0)	79.0(±6.2)	68.3(±7.1)
Tennessee	92.2(±4.1)	90.6(±4.8)	82.9(±5.9)	74.4(±9.9)	65.9(±10.9)	73.9(±9.4)	62.9(±10.5)	74.1(±6.8)	64.4(±7.6)
Texas	86.3(±4.3)	85.0(±4.5)	86.5(±4.3)	77.8(±8.2)	63.5(±9.2)	63.0(±8.4)	53.7(±8.5)	70.3(±5.9)	58.5(±6.3)
TX-Bexar County	88.2(±5.4)	88.1(±5.4)	91.2(±4.6)	85.9(±7.5)	71.6(±10.6)	66.0(±11.2)	55.6(±11.5)	75.9(±7.1)	63.6(±8.0)
TX-City of Houston	89.1(±6.3)	89.1(±6.3)	87.4(±6.5)	82.2(±10.4)	57.8(±14.3)	79.8(±11.4)	68.9(±14.0)	81.0(±7.7)	63.2(±10.2)
TX-Rest of State	86.0(±5.0)	84.5(±5.2)	86.0(±4.9)	76.8(±9.4)	63.3(±10.6)	61.6(±9.5)	52.5(±9.7)	69.0(±6.8)	57.8(±7.2)
Utah	94.0(±4.1)	93.5(±4.2)	91.5(±4.5)	75.2(±9.7)	62.5(±10.3)	71.0(±9.8)	48.3(±10.4)	73.0(±6.9)	55.2(±7.5)
Vermont	95.1(±3.0)	92.1(±4.0)	91.2(±4.0)	89.4(±6.6)	73.7(±9.1)	86.6(±6.3)	70.3(±9.0)	88.0(±4.6)	71.9(±6.4)
Virginia	91.9(±3.0)	89.7(±3.4)	85.0(±3.9)	80.4(±6.0)	64.4(±7.4)	74.7(±6.8)	61.0(±7.2)	77.5(±4.6)	62.7(±5.2)

	BOTH SEXES ≥ 1 Td or Tdap¶	BOTH SEXES ≥ 1 Tdap**	BOTH SEXES ≥ 1 MenACWY††	FEMALE ≥1 dose HPV§§	FEMALE ≥ 3 doses HPV, or ≥ 2 doses HPV with age and interval restriction***	MALE ≥1 dose HPV§§	MALE ≥ 3 doses HPV, or ≥ 2 doses HPV with age and interval restriction***	BOTH SEXES ≥1 dose HPV§§	BOTH SEXES ≥ 3 doses HPV, or ≥ 2 doses HPV with age and interval restriction***
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Washington	96.3(±2.4)	94.9(±2.8)	90.1(±4.1)	88.3(±6.3)	71.0(±10.3)	82.7(±7.4)	71.1(±8.8)	85.4(±4.9)	71.1(±6.7)
West Virginia	93.1(±3.3)	92.7(±3.4)	94.2(±3.2)	71.9(±9.5)	62.4(±10.3)	68.0(±9.5)	41.2(±9.6)	69.9(±6.7)	51.5(±7.3)
Wisconsin	92.8(±4.0)	90.2(±4.3)	90.3(±4.4)	77.9(±9.0)	67.6(±9.8)	82.9(±7.8)	70.4(±9.4)	80.5(±6.0)	69.0(±6.8)
Wyoming	90.4(±4.3)	89.1(±4.5)	73.2(±6.7)	66.9(±10.5)	52.4(±11.0)	64.1(±9.8)	46.2(±9.8)	65.5(±7.2)	49.2(±7.4)
Guam	76.7(±7.2)	72.6(±7.6)	65.2(±8.2)	63.5(±12.4)	42.7(±11.6)	75.1(±9.3)	46.2(±11.1)	69.8(±7.8)	44.6(±8.1)
Puerto Rico	89.9(±2.9)	85.5(±3.5)	89.8(±2.9)	86.4(±5.0)	68.9(±6.8)	90.2(±3.6)	71.6(±6.2)	88.4(±3.1)	70.3(±4.6)

* Estimate presented as point estimate (%) ± 95% confidence interval (CI). Estimate=NA (Not Available) if the unweighted sample size for the denominator was <30 or (95% CI half width)/Estimate > 0.6.

† Estimates with 95% CI half-widths >10 may not be reliable.

§ Adolescents in the 2022 NIS-Teen were born between January 2004 and January 2010. Vaccination coverage estimates include only adolescents who had adequate provider-reported immunization records.

¶ ≥1 dose of tetanus toxoid-diphtheria vaccine (Td) or tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) at or after age ten years.

** ≥1 dose of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) at or after age ten years.

†† ≥1 dose of quadrivalent meningococcal conjugate vaccine or meningococcal-unknown type vaccine.

§§ ≥1 dose of human papillomavirus vaccine, either 9-valent (9vHPV), quadrivalent (4vHPV), or bivalent (2vHPV).

*** ≥3 doses of human papillomavirus vaccine, or ≥ 2 doses with the first dose before age 15 and at least 5 months minus 4 days between the first and second dose.

††† Excludes U.S. territories.

Appendix F: Vaccine Type Codes

Table F.1: Vaccine Type Codes, National Immunization Survey - Teen, 2022

Vaccine Code	Description
11	Td
14	Tdap
15	Td/Tdap-containing, unknown subtype
30	MMR-only
31	Measles-only
32	Measles-Mumps
33	Measles-Rubella
43	HepB-Hib
4V	Human Papillomavirus, Gardasil (quadrivalent)
61	0.5 ml Recombivax
62	1.0 ml Recombivax
63	Engerix
64	Hepatitis B-only, unknown subtype checked
80	MenACWY (Menactra, Menveo)
81	MPSV4 (Menomune)
82	Meningococcal serogroup ACWY, unknown subtype
9V	Human Papillomavirus, Gardasil (9-valent)
BB	MenB-4C
BT	MenB-FHbp
BU	Meningococcal serogroup B, unknown subtype
CJ	Johnson & Johnson/Janssen
CM	Moderna
CN	Novavax
CP	Pfizer-BioNTech
CX	COVID-19, unknown subtype
CV	Human Papillomavirus, Cervarix (bivalent)
FL	Seasonal Flu-containing, unknown subtype
FM	Seasonal Flumist
FN	Injected Seasonal Flu, other/unknown subtype
FV	Seasonal Fluvirin
FZ	Seasonal Fluzone
HA	Hepatitis A-containing, unknown subtype
HB	Hepatitis B-containing, unknown subtype
HO	Hepatitis A-only (Havrix or Vaqta)

Vaccine Code	Description
HP	Human Papillomavirus, unknown subtype
MM	Measles-containing, unknown subtype
VA	Varicella-containing, unknown subtype
VM	MMR-Varicella
VO	Varicella-only
UV	Human Papillomavirus, Gardasil (unknown valency)

Appendix G: Trends in the NIS-Teen Response Rates and Vaccination Coverage Rates, 2006-2022

Table G.1: Key Indicators* from Landline Sample Household and Provider Data Collection by Survey Year, National Immunization Survey - Teen, 2006-2017†

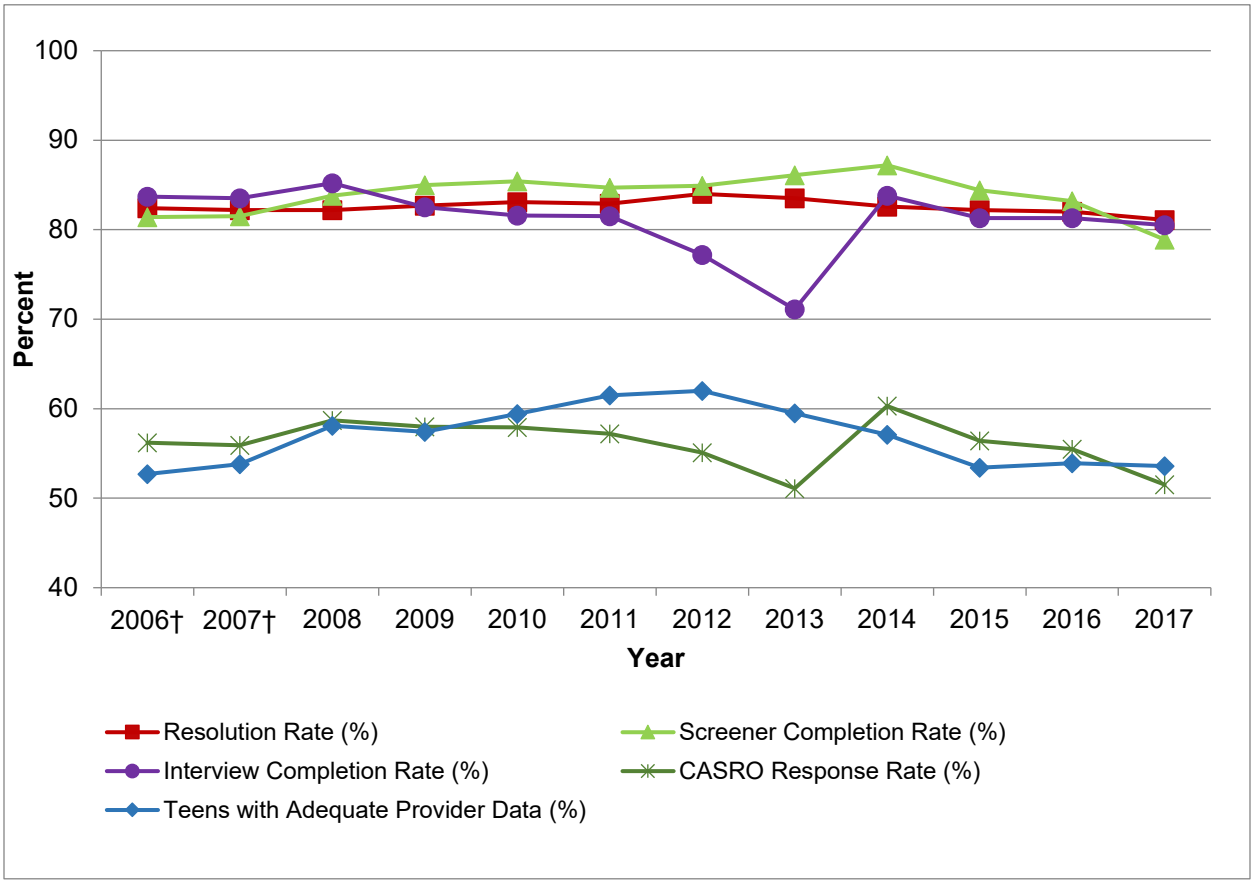
Survey Year	Resolution Rate (%)	Screener Completion Rate (%)	Interview Completion Rate (%)	CASRO Response Rate (%)	Teens with Adequate Provider Data (%)
2006§	82.4	81.4	83.7	56.2	52.7
2007§	82.2	81.5	83.5	55.9	53.8
2008	82.2	83.8	85.2	58.7	58.1
2009	82.7	85.0	82.5	58.0	57.4
2010	83.1	85.4	81.6	57.9	59.4
2011	82.9	84.7	81.5	57.2	61.5
2012	84.0	84.9	77.2	55.1	62.0
2013	83.5	86.1	71.1	51.1	59.5
2014	82.6	87.2	83.8	60.3	57.1
2015	82.2	84.4	81.3	56.4	53.4
2016	82.0	83.2	81.3	55.5	53.9
2017	81.1	78.9	80.5	51.5	53.6

* For the definitions of the key indicators see Table 1 of NIS-Teen Data User's Guides for the survey year of interest.

† Excludes U.S. territories. The landline sample was removed from the NIS sample design beginning in 2018.

§ In 2006 and 2007, NIS-Teen was conducted only in Quarter 4.

Figure G.1: Trends in Landline Sample Key Indicators from Household and Provider Data Collection by Survey Year, National Immunization Survey - Teen, 2006-2017*



* Excludes U.S. territories. The landline sample was removed from the NIS sample design beginning in 2018.

† In 2006 and 2007, NIS-Teen was conducted only in Quarter 4.

Figure G.1 presents a graphical representation of the data contained in Table G.1. It shows how selected key indicators from landline sample household and provider data collection performed throughout the years, from 2006 to 2017. Note that these data apply to the landline sample only, which was removed from the NIS sample design beginning in 2018.

Table G.2: Key Indicators* from Cellular Phone Sample Household and Provider Data Collection by Survey Year, National Immunization Survey - Teen, 2011-2022†

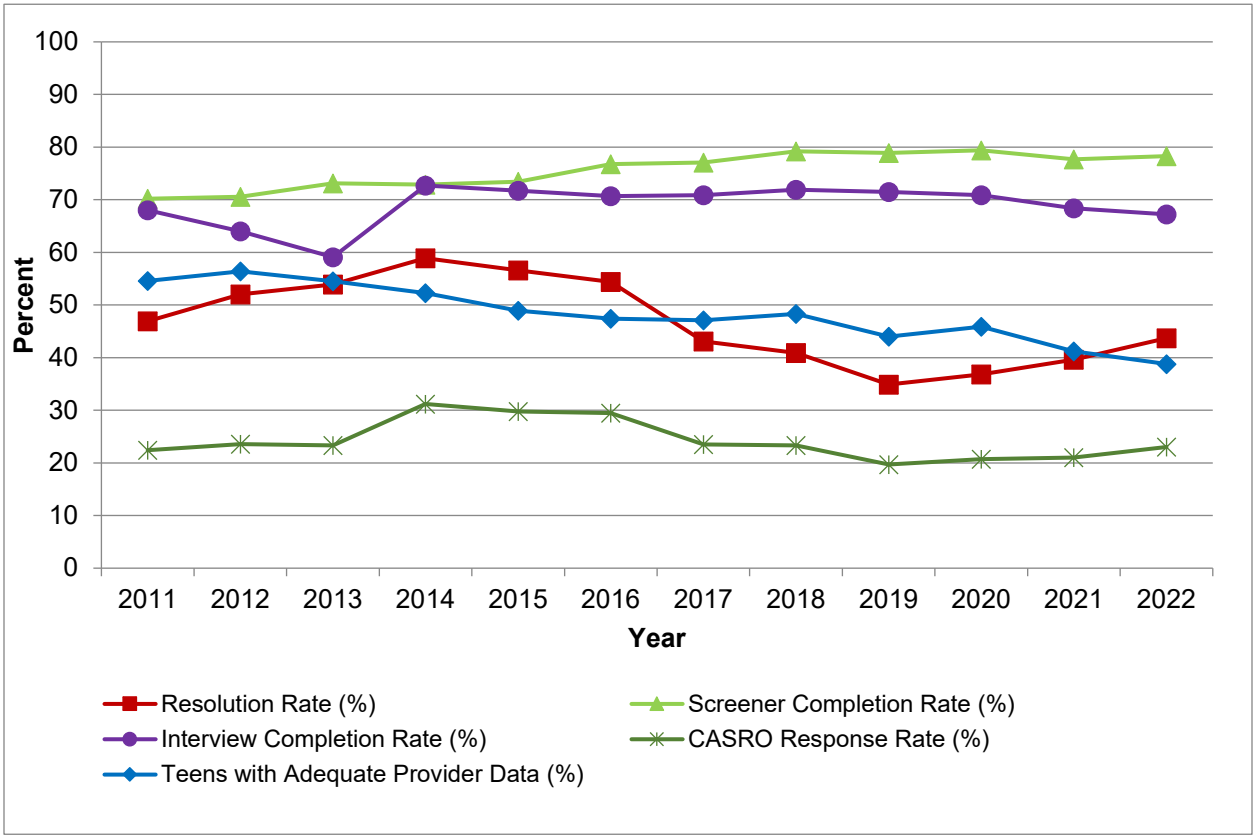
Survey Year§	Resolution Rate (%)	Screener Completion Rate (%)	Interview Completion Rate (%)	CASRO Response Rate (%)	Teens with Adequate Provider Data (%)
2011	46.9	70.2	68.0	22.4	54.6
2012	52.0	70.6	64.0	23.6	56.4
2013	53.9	73.1	59.1	23.3	54.5
2014	58.9	72.9	72.7	31.2	52.3
2015	56.6	73.4	71.7	29.8	48.9
2016	54.4	76.8	70.7	29.5	47.4
2017	43.1	77.1	70.9	23.5	47.1
2018	40.9	79.2	71.9	23.3	48.3
2019	34.9	78.9	71.5	19.7	44.0
2020	36.8	79.4	70.9	20.7	45.9
2021	39.6	77.7	68.4	21.0	41.2
2022	43.7	78.3	67.2	23.0	38.8

* For the definitions of the key indicators see Table 1 of NIS-Teen Data User's Guides for the survey year of interest.

† Excludes U.S. territories.

§ Cellular phone sample was added to the NIS-Teen in 2011.

Figure G.2: Trends in Cellular Phone Sample Key Indicators from Household and Provider Data Collection by Survey Year, National Immunization Survey - Teen, 2011-2022*



* Excludes U.S. territories.

Figure G.2 presents a graphical representation of the data contained in Table G.2. It shows how selected key indicators from cellular phone sample household and provider data collection performed from 2011 to present. Note that these data apply to the cellular phone sample only. Cellular phone sample was added to the NIS in 2011.

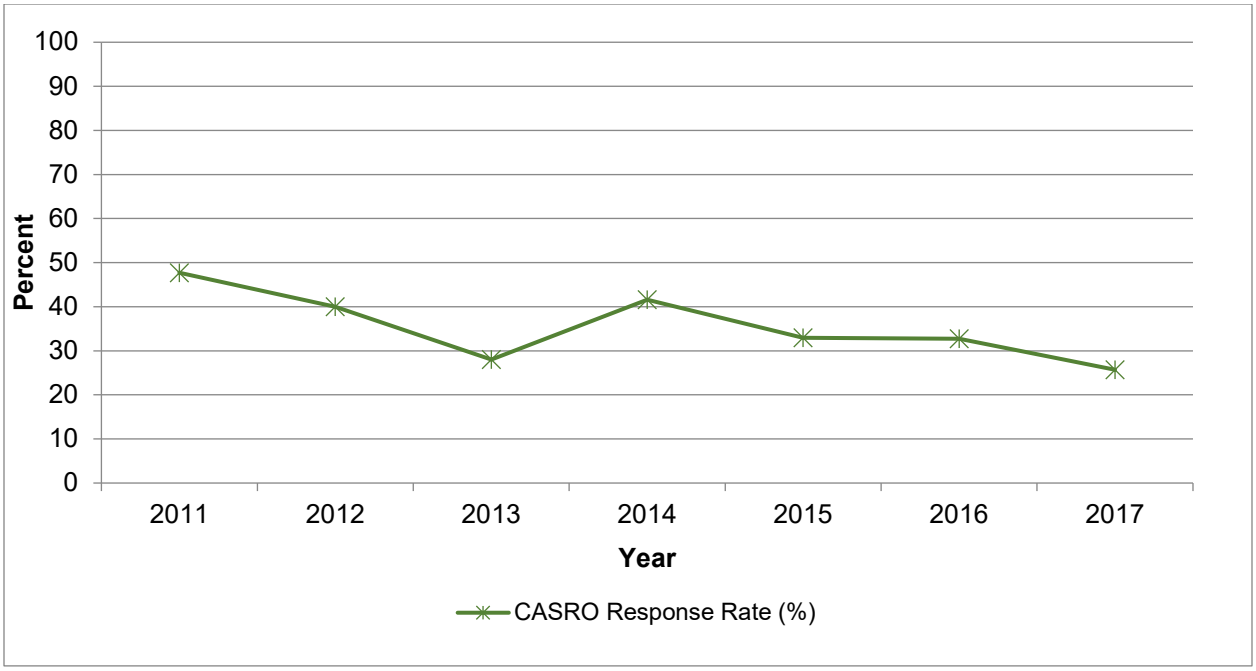
Table G.3: CASRO Response Rate for the Combined Landline and Cellular Phone Samples by Survey Year, National Immunization Survey - Teen, 2011-2017*

Survey Year†	CASRO Response Rate (%)
2011	47.7
2012	40.0
2013	28.0
2014	41.6
2015	32.9
2016	32.7
2017	25.7

* Excludes U.S. territories.

† Cellular phone sample was added to the NIS-Teen in 2011. The NIS-Teen transitioned from a dual-frame landline and cellular phone RDD sample design to a single-frame cellular phone RDD sample design beginning in 2018.

Figure G.3: Trend in CASRO Response Rate for the Combined Landline and Cellular Phone Samples by Survey Year, National Immunization Survey - Teen, 2011-2017*



* Excludes U.S. territories. The landline sample was removed from the NIS sample design beginning in 2018.

The response rate is the number of households with a completed household interview divided by the estimated number of eligible households in the sample. Within each sample type (landline or cellular phone), the number of eligible households was estimated using the CASRO assumptions; these assumptions are that the rate of households among the unresolved telephone numbers is the same as the observed rate of households among the resolved telephone numbers, and the rate of eligible households among unscreened households is the same as the observed rate of eligible households among screened

households. Under these assumptions, within each sample type the CASRO response rate is equal to the product of the resolution rate, the screener completion rate, and the interview completion rate. For the combined samples, we have defined the CASRO response rate as the total number of households with a completed interview divided by the estimated total number of eligible households across both sample types, where the estimated total number of eligible households is equal to the sum of the estimated number of eligible households in the landline sample (using CASRO assumptions) and the estimated number of eligible households in the cellular phone sample (using CASRO assumptions). Table G.3 presents the CASRO response rate calculated in this way for the combined landline and cellular phone samples, by survey year, and Figure G.3 presents a graphical representation. Because the CASRO response rate is lower for the cellular phone sample than for the landline sample, the CASRO response rate for the combined landline and cellular phone samples was lower in years with a larger cellular phone sample and higher in years with a smaller cellular phone sample.

Table G.4: Vaccine-Specific Coverage Levels among Teens Age 13-17 Years in the United States by Survey Year, National Immunization Survey - Teen, 2006-2022*

Survey Year	≥ 1 Td or Tdap[†]	≥ 1 Tdap Since Age 10[§]	≥ 1 MenACWY[¶]	FEMALE HPV UTD**	MALE HPV UTD**	≥2 MMR[§§]	≥ 3 HepB[¶¶]	VARICELLA History of Varicella Disease***	VARICELLA ≥ 2 Doses Varicella Vaccine if Had No History of Varicella Disease
2006[†††]	60.1	10.8	11.7	-	-	86.9	81.3	69.9	-
2007[†††]	72.3	30.4	32.4	-	-	88.9	87.6	65.8	18.8
2008	72.2	40.8	41.8	17.9	-	89.3	87.9	59.8	34.1
2009	76.2	55.6	53.6	26.7	-	89.1	89.9	52.7	48.6
2010	81.2	68.7	62.6	31.9	-	90.4	91.6	44.7	58.1
2011[§§§]	85.3	78.2	70.5	34.8	1.3	91.1	92.3	36.6	68.3
2012	88.5	84.6	74.0	33.4	6.8	91.4	92.8	30.6	74.9
2013	89.1	86.0	77.8	37.6	13.9	91.8	93.2	25.4	78.5
2014[¶¶¶]	89.8	87.6	79.3	39.7	21.6	90.7	91.4	21.0	81.0
2015	89.6	86.4	81.3	41.9	28.1	90.7	91.1	17.8	86.1
2016	90.6	88.0	82.2	43.0	31.5	90.9	91.4	15.2	85.6
2017	90.7	88.7	85.1	53.1	44.3	92.1	91.9	13.2	88.6
2018[****]	91.2	88.9	86.6	53.7	48.7	-	-	-	-
2019	91.9	90.2	88.9	56.8	51.8	91.9	91.6	9.1	90.6
2020	92.0	90.1	89.3	61.4	56.0	92.4	92.6	8.4	91.9
2021	92.2	89.6	89.0	63.8	59.8	92.2	92.3	7.3	91.5
2022	91.7	89.9	88.6	64.6	60.6	91.2	91.2	7.0	90.8

* Excludes U.S. territories.

[†] ≥1 dose of tetanus toxoid-diphtheria vaccine (Td) or tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) at or after age ten years.

[§] ≥1 tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) since at or after age ten years.

[¶] ≥1 quadrivalent meningococcal conjugate vaccine or meningococcal -unknown type vaccine.

** Prior to 2017, ≥3 doses were required to be considered UTD. Beginning in 2017, adolescents are considered UTD if they have ≥3 doses, or 2 doses when the first HPV vaccine dose was initiated at age <15 years and there was at least 5 months minus 4 days between the first and second dose. This update to the HPV recommendation occurred in December 2016. Doses may be 9-valent (9vHPV), quadrivalent (4vHPV) or bivalent (2vHPV).

[§§] ≥ 2 doses of measles-mumps-rubella vaccine.

[¶¶] ≥3 doses of hepatitis B vaccine.

*** By parent/guardian report or provider records.

[†††] In 2006 and 2007, NIS-Teen was conducted only in Quarter 4.

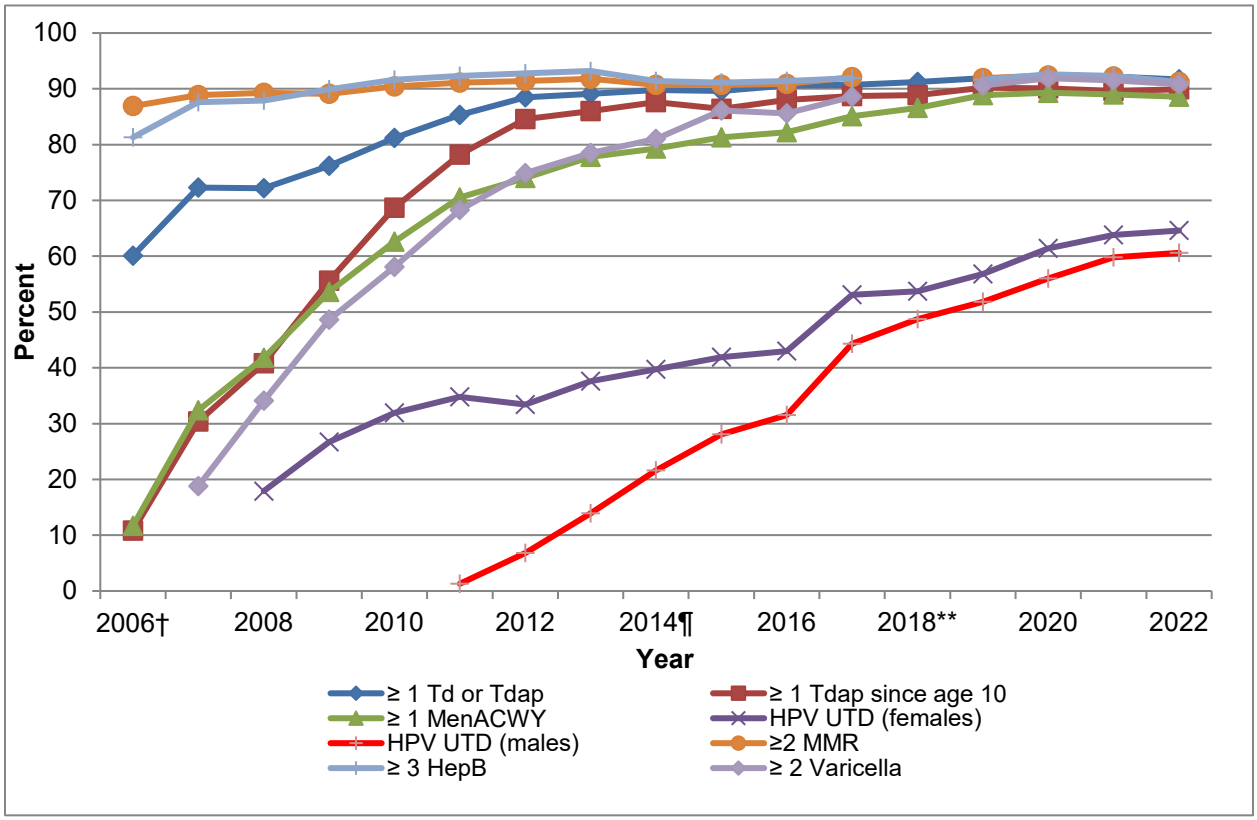
[§§§] Prior to 2011, estimates are single-frame, landline-sample estimates. From 2011-2017, estimates are dual-frame (landline plus cellular phone) estimates. From 2018 onward, estimates are single-frame, cellular phone estimates.

Source: http://www.cdc.gov/vaccines/imz-managers/coverage/nis/teen/index.html

[¶¶¶] Revised definition of adequate provider data (APD) implemented.

**** MMR, Hep B, and Varicella estimates are not available for 2018 due to a provider reporting error.

Figure G.4: Trends in Vaccine-Specific Coverage Levels among Teens Aged 13-17 Years in the United States by Survey Year, National Immunization Survey - Teen, 2006-2022*



* Excludes U.S. territories.

† In 2006 and 2007, NIS-Teen was conducted only in Quarter 4.

§ Prior to 2011, estimates are single-frame, landline-sample estimates. From 2011-2017, estimates are dual-frame (landline plus cellular phone) estimates, and from 2018 onward estimates are single-frame, cellular phone sample estimates.

¶ Revised definition of adequate provider data (APD) implemented.

** MMR, Hep B, and Varicella estimates are not available for 2018 due to a provider reporting error

Figure G.4 presents a graphical representation of selected data contained in Table G.4. It displays the trend in selected vaccine-specific coverage levels among teens aged 13-17 years from 2006 to 2022. Note that these data apply to the landline sample only from 2006-2010, to the dual-frame sample from 2011-2017, and to the cellular phone sample only from 2018 forward.

Appendix H: Key NIS-Teen Response Rates by Area

Table H.1: Key Indicators* for the Cellular Phone Sample by Estimation Area, National Immunization Survey - Teen, 2022

Area	Resolution Rate (%)	Screener Completion Rate (%)	Interview Completion Rate (%)	CASRO Response Rate (%)	Adolescents with Adequate Provider Data (%)
U.S. National†	43.7	78.3	67.2	23.0	38.8
Alabama	47.8	78.2	65.4	24.4	35.6
Alaska	50.6	77.2	72.9	28.5	43.6
Arizona	38.8	78.8	65.2	20.0	34.2
Arkansas	52.1	76.8	67.3	26.9	42.3
California	38.1	78.4	60.9	18.2	32.7
Colorado	37.2	82.3	68.5	21.0	44.4
Connecticut	34.4	77.8	68.5	18.3	39.4
Delaware	41.3	77.7	64.4	20.7	37.6
District of Columbia	42.6	77.7	69.0	22.8	36.3
Florida	36.8	74.1	70.1	19.1	33.7
Georgia	42.3	76.4	62.9	20.4	39.7
Hawaii	33.3	77.8	62.7	16.2	36.6
Idaho	34.0	75.6	76.5	19.7	46.3
Illinois	47.0	78.3	65.3	24.0	36.8
IL-City of Chicago	47.8	77.7	63.5	23.6	35.9
IL-Rest of State	45.9	79.2	67.4	24.5	37.5
Indiana	43.6	79.0	67.8	23.4	37.4
Iowa	49.8	79.8	70.4	28.0	45.2
Kansas	46.4	80.2	72.5	27.0	40.8
Kentucky	45.4	77.3	68.2	23.9	40.1
Louisiana	49.1	77.2	61.8	23.4	36.7
Maine	42.3	80.9	69.3	23.7	43.8
Maryland	40.0	71.7	69.9	20.1	40.0
Massachusetts	45.9	81.1	68.1	25.4	38.4
Michigan	48.0	78.2	67.2	25.2	41.4
Minnesota	39.8	82.7	69.1	22.7	41.4
Mississippi	49.0	74.1	63.8	23.2	32.9
Missouri	47.2	78.8	72.7	27.0	38.6
Montana	41.2	80.1	71.2	23.5	43.4
Nebraska	42.7	78.9	72.8	24.5	43.3
Nevada	37.2	77.1	62.5	17.9	32.6
New Hampshire	39.8	80.2	67.1	21.5	39.8
New Jersey	41.9	78.7	62.0	20.4	32.8
New Mexico	40.7	80.3	66.8	21.9	43.6
New York	41.2	77.4	63.2	20.2	36.6

Area	Resolution Rate (%)	Screener Completion Rate (%)	Interview Completion Rate (%)	CASRO Response Rate (%)	Adolescents with Adequate Provider Data (%)
NY-City of New York	38.5	75.1	60.0	17.4	35.1
NY-Rest of State	43.1	79.4	66.4	22.7	37.6
North Carolina	39.8	78.6	67.9	21.3	41.1
North Dakota	47.4	77.5	69.0	25.3	44.1
Ohio	44.3	76.5	71.3	24.1	41.4
Oklahoma	50.8	77.1	69.9	27.3	38.0
Oregon	39.2	82.2	72.1	23.2	39.9
Pennsylvania	41.5	78.8	63.4	20.7	37.3
PA-Philadelphia County	41.0	76.8	60.3	19.0	39.5
PA-Rest of State	42.1	80.8	66.0	22.5	36.2
Rhode Island	39.2	79.1	66.2	20.5	43.1
South Carolina	41.0	79.5	68.1	22.2	35.2
South Dakota	47.2	77.4	71.9	26.2	43.1
Tennessee	41.2	73.9	69.5	21.1	41.6
Texas	40.4	77.2	63.9	19.9	34.0
TX-Bexar County	38.0	77.0	66.4	19.4	37.8
TX-City of Houston	41.0	77.1	60.7	19.2	32.4
TX-Rest of State	41.9	77.4	64.6	21.0	32.5
Utah	38.7	73.5	73.5	20.9	46.9
Vermont	38.4	78.0	72.3	21.6	48.7
Virginia	43.1	80.9	67.5	23.6	35.1
Washington	34.8	75.2	72.9	19.1	40.7
West Virginia	54.1	78.2	66.1	28.0	42.1
Wisconsin	43.5	81.4	66.4	23.5	41.4
Wyoming	66.4	76.8	73.3	37.4	41.2
Guam	37.0	69.2	57.6	14.7	45.1
Puerto Rico	44.5	83.2	59.7	22.1	27.8

* For the definition of the key indicators see Table 1.

† Excludes U.S. territories.