Technical Notes for NIS-Teen Vaccination Coverage Tables

Coverage Estimate Methodology

The NIS-Teen has a sample size of over 20,000 adolescents with adequate vaccination coverage data reported by provider (adequate provider data). A sample is not the entire population. Sample estimates and population values may be different. The difference is measured through the 95% Confidence Interval (CI). For example, in 2015, the vaccination coverage estimate for 3 or more doses of human papillomavirus vaccine among adolescent girls in the United States was 62.9% +/-1.8%. This means that the true coverage was probably between 61.1% and 64.7%. When comparing two estimates (e.g., between states or between years), an overlap in the confidence intervals indicates that the observed difference might be due to chance.

Vaccination Coverage Estimates and 95% Confidence Interval (95% CI)

The NIS-Teen samples part of the population. It does not collect data for the entire population. The NIS-Teen national sample contains over 20,000 adolescents with adequate vaccination coverage data reported by providers ([adequate provider data](https://www.cdc.gov/vaccines/imz-managers/coverage/teenvaxview/downloads/adequate-provider-data.pdf)). Vaccination coverage estimates are based on provider-reported vaccination histories. Complex statistical methods are used to adjust for adolescents whose parents did not participate in the survey, lived in households without telephones, or had vaccination histories that were not reported by their providers.

Vaccination coverage estimates measured by a sample are presented as a point estimate (%) with a 95% CI (+/- a CI half-width). Sample estimates may be different than the true vaccination coverage in a population. Part of the difference may be described by the 95% CI around the estimate. The 95% CI is a measure of precision. Wider confidence intervals are a sign of a relatively small sample size and relatively less precision.

Compared to state or local area estimates, national vaccination coverage estimates are based on a larger sample size, have much smaller CI, and are more precise. For example, in 2016, the vaccination coverage estimate for ≥1 dose of human papillomavirus (HPV) vaccine among adolescents 13-17 years in the United States was 60.4% +/-1.2. (The CI half-width is 1.2.) This means that the true population coverage was probably within the 95% CI of 59.2% (60.4%-1.2) and 61.6% (60.4% + 1.2). The same survey year, the vaccination coverage estimate for ≥1 dose of HPV vaccine among adolescents 13-17 years in Rhode Island was 88.9% +/-3.7. This means that the true population coverage was probably within the 95% CI of 85.2% (88.9%-3.7) and 92.6% (88.9%+3.7). When comparing vaccination coverage rates from NIS-Teen across states, if the confidence intervals do not overlap, then the estimates are statistically different. But if the confidence intervals do overlap, further statistical analysis may be needed to definitively make a determination of statistical difference.

If an estimate is listed as NA (Not Available), the estimate was not reported because it may not be reliable or adequately precise. If the unweighted sample size for the numerator was less than 30 or the [(CI half-width)/Estimate] was greater than 0.6, the estimate may not be reliable or precise. The individuals in that subgroup are still included in the overall sample and the overall coverage estimates. State estimates with a CI half-width greater than 10 percentage points (± 10) may be unreliable, but are reported.

Race/ethnicity

The adolescent’s race was reported by the parent or guardian. Hispanic adolescents can be of any race. Native Hawaiian or other Pacific Islanders and persons of multiple races were not included because of small sample sizes and the estimates may not be reliable or precise.

Survey Dates, Interview Dates, and Birthdates

 

Abbreviations

**HepB: hepatitis B**

**HPV: human papillomavirus**

**MenACWY: quadrivalent meningococcal conjugate**

**MMR: measles-mumps-rubella**

**Td: tetanus-diptheria toxoids**

**Tdap: tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis**