Technical Notes for NIS Surveillance Tables

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**Coverage Estimate Methodology and 95% Confidence Interval (CI)**

The NIS samples part of the population. It does not collect data for the entire population. The NIS national sample contains approximately 26,000 completed household interviews. National coverage estimates are based on the subsample of approximately 15,000 children with adequate provider data. Vaccination coverage estimates are based on provider-reported vaccination histories. Complex statistical methods are used to adjust for children whose parents did not participate in the survey, lived in households without telephones, or had immunization histories that were not reported by their providers.

Vaccination coverage estimates are presented as a point estimate (%) with a 95% CI. Sample estimates and population values may be different. Part of the difference may be measured through the 95% CI around the estimate. The 95% CI is a measure of precision. Wide confidence intervals are a sign of a relatively small sample size and relatively less precision.

National vaccination coverage estimates are based on a larger sample size, have much smaller (less than ± 1%) confidence intervals, and are more precise than state or local area estimates. For example, in 2015, the vaccination coverage estimate for ≥1 dose of measles, mumps, and rubella vaccine among children 19-35 months in the United States was 91.9% +/-0.8%. This means that the true coverage was probably between 91.1% and 92.7%. The same survey year, the vaccination coverage estimate for ≥1 dose of measles, mumps, and rubella vaccine among children 19-35 months in Connecticut was 97.5% +/-2.4%. This means that the true coverage was probably between 95.1% and 99.9%.

If an estimate is reported as NA (Not Available), the estimate was not reported because it may not be reliable or 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 estimate for such a subgroup is not reported. The individuals are still included in the overall sample and the overall estimate. State estimates with a CI half-width greater than 10 may be unreliable, but are reported and marked by a footnote.

**Race/ethnicity**

The child’s race/ethnicity was reported by the parent or guardian responding to the survey. Hispanic children can be of any race. Children identified as multiple races had more than one race category selected. Children identified as white, black, Asian, Native Hawaiian/other Pacific Islander, American Indian/Alaska Native, or multiple races were non-Hispanic.

**Age**

Starting in the 2011 data collection year, children were age eligible to be included in the survey if they were born from January, three years prior to the start of the survey, through May, one year prior to the start of the survey. For example, children in the survey period from January through December 2015 were born from January 2012 through May 2014.

Prior to the 2011 data collection year, children were age eligible to be included in the survey if they were born from February, three years prior to the start of the survey, through May, one year prior to the start of the survey. For example, children in the survey period from January through December 2010 were born from February 2007 through May 2009.

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**Vaccine Abbreviations**

**DTap: diphtheria and tetanus toxoids and acellular pertussis vaccine (includes children who might have been vaccinated with diphtheria and tetanus toxoids vaccine or diphtheria, tetanus toxoids, and pertussis vaccine)**

≥1 dose DTaP vaccination: 1 or more doses of DTaP

≥2 doses DTaP vaccination: 2 or more doses of DTaP

≥3 doses DTaP vaccination: 3 or more doses of DTaP

≥4 doses DTaP vaccination: 4 or more doses of DTaP

**Polio: poliovirus vaccine**

≥1 dose Polio vaccination: 1 or more doses of polio

≥2 dose Polio vaccination: 2 or more doses of polio

≥3 dose Polio vaccination: 3 or more doses of polio

**MCV: measles containing vaccine**

**MMR: measles-mumps-rubella vaccine**

≥1 dose MMR vaccination: 1 or more doses of MMR

**Hib: *Haemophilus influenzae* type b vaccine**

≥1 dose Hib vaccination: 1 or more doses of Hib

≥2 dose Hib vaccination: 2 or more doses of Hib

≥3 dose Hib vaccination: 3 or more doses of Hib

**Hib-PS vaccination: Primary series of Hib (≥2 or ≥3 doses, depending on product type)**

Hib-FS vaccination: full series of Hib (3 or 4 doses, depending on product type received)

**HepB: hepatitis B vaccine**

Hepatitis B Birth Dose vaccination: HepB administered from birth through age 3 days.

≥1 dose Hepatitis B Vaccination: 1 or more doses of HepB

≥2 dose Hepatitis B Vaccination: 2 or more doses of HepB

≥3 dose Hepatitis B Vaccination: 3 or more doses of HepB

**VAR: varicella vaccine**

≥1 Varicella vaccination: 1 or more doses of varicella vaccine received at or after age 12 months, unadjusted for history of varicella illness

PCV: pneumococcal conjugate vaccine

≥1 dose PCV vaccination: 1 or more doses of PCV

≥2 dose PCV vaccination: 2 or more doses of PCV

≥3 dose PCV vaccination: 3 or more doses of PCV

≥4 dose PCV vaccination: 4 or more doses of PCV

**HepA: hepatitis A vaccine**

≥1 dose Hepatitis A Vaccination: 1 or more doses of HepA

≥2 dose Hepatitis A Vaccination: 2 or more doses of HepA

**Rotavirus vaccination: 2 or more or 3 or more doses of Rotavirus vaccine, depending on the product type received (≥2 doses for Rotarix [RVI] or ≥3 doses for RotaTeq [RV5])**

**Combined 3 vaccine series (4:3:1): 3 or more doses of DTaP, 3 or more doses of Polio, and 1 or more doses of MMR**

Combined 4 vaccine series (4:3:1:3\*): 4 or more doses of DTaP, 3 or more doses of Polio, 1 or more doses of MMR, and Hib full series (3 or 4 doses, depending on product type received) (In 2013 data, referred to as 4:3:1:4-FS)

Combined 5 vaccine series (4:3:1:3\*:3): 4 or more doses of DTaP, 3 or more doses of Polio, 1 or more doses of MMR, Hib full series (3 or 4 doses, depending on product type received), and 3 or more doses of HepB (In 2013 data, referred to as 4:3:1:4:3-FS)

Combined 6 vaccine series (4:3:1:3\*:3:1): 4 or more doses of DTaP, 3 or more doses of Polio, 1 or more doses of MMR, Hib full series (3 or 4 doses, depending on product type received), 3 or more doses of HepB, and 1 or more doses of Varicella (In 2013 data, referred to as 4:3:1:4:3:1-FS)

Combined 7 vaccine series (4:3:1:3\*:3:1): 4 or more doses of DTaP, 3 or more doses of Polio, 1 or more doses of MMR, Hib full series (3 or 4 doses, depending on product type received), 3 or more doses of HepB, 1 or more doses of Varicella, and 4 or more doses of PCV (In 2013 data, referred to as 4:3:1:4:3:1:4-FS)