

Table 1. Conditional Adequacy Rates* Using Previous[†] Compared with Revised[§] Adequate Provider Data Definition, by State and Selected Local Areas, National Immunization Survey-Teen, United States, 2013

	Previous definition	Revised definition	Percentage point difference (Revised - previous)
US National	84.8	88.0	3.2
Alabama	82.2	84.0	1.8
Alaska	82.1	86.7	4.6
Arizona	77.3	84.2	6.9
Arkansas	80.9	83.8	2.9
California	78.2	85.5	7.4
Colorado	87.1	90.8	3.7
Connecticut	89.9	91.0	1.1
Delaware	88.3	89.6	1.3
Dist. of Columbia	79.0	80.2	1.2
Florida	84.3	86.2	1.8
Georgia	87.5	89.3	1.7
Hawaii	85.4	87.5	2.2
Idaho	83.4	88.3	4.9
Illinois	80.6	82.7	2.0
IL-City of Chicago	78.3	81.3	3.0
IL-Rest of State	82.1	83.5	1.4
Indiana	90.1	91.0	0.9
Iowa	89.3	90.7	1.4
Kansas	81.5	87.7	6.3
Kentucky	86.1	88.5	2.4
Louisiana	85.6	86.5	0.9
Maine	89.9	91.6	1.8
Maryland	84.7	86.8	2.1
Massachusetts	91.4	92.1	0.7
Michigan	83.6	86.1	2.5
Minnesota	87.2	91.3	4.0
Mississippi	83.0	86.2	3.2
Missouri	83.0	88.1	5.1
Montana	86.7	90.2	3.5
Nebraska	89.6	92.2	2.7
Nevada	78.4	82.4	4.0
New Hampshire	92.5	93.3	0.8
New Jersey	86.1	88.2	2.1
New Mexico	81.5	86.1	4.6
New York	84.5	86.1	1.5
NY-City of New York	81.7	82.8	1.1
NY-Rest of State	86.7	88.6	1.9
North Carolina	85.0	89.7	4.7
North Dakota	91.5	93.4	1.9
Ohio	82.4	87.1	4.7
Oklahoma	84.7	87.3	2.6
Oregon	85.4	90.1	4.7
Pennsylvania	88.8	90.4	1.5
PA-Philadelphia	85.0	87.2	2.2
PA-Rest of State	91.7	92.8	1.1
Rhode Island	92.1	92.7	0.6
South Carolina	80.7	86.1	5.4
South Dakota	88.0	92.5	4.5
Tennessee	88.1	90.7	2.6
Texas	75.5	81.6	6.1
TX-Bexar County	75.1	81.3	6.2
TX-City of Houston	77.9	83.5	5.6
TX-Rest of State	74.5	80.8	6.3
Utah	82.0	89.9	7.9
Vermont	90.8	92.7	2.0
Virginia	88.0	90.1	2.0
Washington	88.5	93.9	5.4
West Virginia	83.9	86.4	2.6
Wisconsin	89.2	91.4	2.2
Wyoming	86.1	87.7	1.6

* Conditional adequacy rate = of adolescents for whom consent to contact providers was given, the proportion for whom adequate provider data were available. In NIS-Teen 2013, consent to contact providers was given for 21,510 adolescents in the United States excluding Guam and the U.S. Virgin Islands.

[†] Previous adequate provider data definition = Any adolescent who: 1) was up-to-date by provider report with ≥ 1 Td/Tdap, ≥ 3 hepatitis B, ≥ 2 MMR and ≥ 1 varicella vaccines (or parental or provider report of history of varicella disease); or 2) was completely unvaccinated by parental report; or 3) a) if a shot card was used: had no more doses of measles-containing, varicella, hepatitis A, hepatitis B and Td/Tdap vaccines by household report than by provider report; or b) if a shot card was not used, and if a parent/guardian indicated that the adolescent had received "all" of his or her vaccinations in any of the measles-containing, varicella, hepatitis A or hepatitis B categories, there were at least two unique vaccination dates by provider report.

[§] Revised adequate provider data definition = Any adolescent who had one or more provider-reported vaccine doses, or who has never received any vaccinations.

Table 2. Conditional Adequacy Rates* Using Previous[†] Compared with Revised[§] Adequate Provider Data Definition, by Selected Sociodemographic Characteristics, National Immunization Survey-Teen, United States, 2013

	Revised definition	Previous definition	Percentage point difference (Revised - previous)
Overall	88.0	84.8	3.2
Age at interview			
13 years	89.0	86.1	3.0
14 years	89.3	85.9	3.4
15 years	88.7	85.2	3.5
16 years	87.4	84.6	2.8
17 years	85.2	81.9	3.3
Gender			
Male	87.7	84.6	3.1
Female	88.3	85.0	3.2
Race/ethnicity			
White, non-Hispanic	90.3	87.2	3.1
Black, non-Hispanic	84.0	81.4	2.7
Hispanic	81.7	78.0	3.7
Non-Hispanic, Other or Multiple race	86.8	83.8	3.0
Maternal age			
<35 years	85.2	82.3	2.8
35-44 years	87.2	83.8	3.4
≥ 45 years	89.2	86.1	3.1
Maternal education			
< High school	81.6	78.0	3.6
High school	85.9	83.3	2.6
Some college	88.0	84.4	3.6
College graduate	90.6	87.5	3.0
Household income to poverty ratio^{††}			
<1.33	84.2	81.2	3.1
1.33 to 4.0	87.9	84.6	3.3
> 4.0	90.8	87.7	3.2
MSA status^{**}			
MSA, central city	85.8	82.5	3.3
MSA, non-central city	89.2	86.2	3.1
Non-MSA	89.5	86.4	3.1
Phone status			
Landline only	87.3	84.2	3.1
Dual user	89.9	86.7	3.3
Cell-phone only	83.6	80.7	3.0

* Conditional adequacy rate = of adolescents for whom consent to contact providers was given, the proportion for whom adequate provider data was available. In NIS-Teen 2013, consent to contact providers was given for 21,510 adolescents excluding Guam and the U.S. Virgin Islands.

[†] Previous adequate provider data definition = Any adolescent who: 1) was up-to-date by provider report with ≥1Td/Tdap, ≥3 hepatitis B, ≥2 MMR and ≥1 varicella vaccines (or parental or provider report of history of varicella disease); or 2) was completely unvaccinated by parental report; or 3) a) if a shot card was used: had no more doses of measles-containing, varicella, hepatitis A, hepatitis B and Td/Tdap vaccines by household report than by provider report; or b) if a shot card was not used, and if a parent/guardian indicated that the adolescent had received "all" of his or her vaccinations in any of the measles-containing, varicella, hepatitis A or hepatitis B categories, there were at least two unique vaccination dates by provider report.

[§] Revised adequate provider data definition = Any adolescent who had one or more provider-reported vaccine doses, or who has never received any vaccinations.

^{††} Poverty status was based on 2012 U.S. Census poverty thresholds (available at <http://www.census.gov/hhes/www/poverty/data/threshld/index.html>).

^{**} Metropolitan Statistical Area (MSA) was constructed based on respondent-reported city, state, county, and zip code of residence using the February 2013 file name date MSA definitions file: <http://www.census.gov/population/metro/data/def.html>.

Table 3. Estimated Vaccination Coverage with Selected Vaccines among Adolescents Aged 13-17 Years* by Adequate Provider Data Definition, National Immunization Survey-Teen, United States, 2013

Vaccines	Adolescents meeting previous APD definition [†]	Additional adolescents meeting revised APD definition only [§]
	(n = 18,264) % (95% CI) [¶]	(n = 684) % (95% CI)
Td or Tdap		
≥1 dose Td/Tdap**	89.1(±0.9)	51.5(±8.2)
≥1 dose Tdap ^{††}	86.0(±0.9)	50.0(±8.2)
≥1 dose MenACWY^{§§}	77.8(±1.1)	44.9(±8.3)
HPV^{¶¶} vaccine coverage by doses		
FEMALE		
≥1 dose	57.3(±1.9)	40.9(±13.3)
≥2 doses	47.7(±2.0)	25.2(±12.8)
≥3 doses	37.6(±1.9)	12.9(±5.5)
MALE		
≥1 dose	34.6(±1.9)	17.1(±7.8)
≥2 doses	23.5(±1.7)	9.3(±5.3)
≥3 doses	13.9(±1.4)	NA
HPV 3-dose series completion^{***}		
Females	70.4(±2.5)	33.3(±18.8)
Males	48.3(±4.0)	55.9(±25.7)
≥2 doses MMR^{†††}	91.8(±0.8)	31.5(±7.2)
≥3 doses Hepatitis B	93.2(±0.7)	39.3(±8.1)
Varicella		
History of varicella disease ^{§§§}	25.4(±1.2)	21.7(±5.4)
≥1 dose vaccine if had no history of disease	94.9(±0.9)	58.7(±9.9)
≥2 doses vaccine if had no history of disease	78.5(±1.3)	31.4(±9.8)
History of disease or received ≥2 doses varicella vaccine	84.0(±1.0)	46.3(±8.2)

Abbreviations: APD = adequate provider data; CI = confidence interval; NA = not available (estimate not reported because unweighted sample size for the denominator was <30 or (95%CI half width / estimate) > 0.588); Td = tetanus toxoid, reduced diphtheria toxoid; Tdap = tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis; MenACWY = meningococcal conjugate; HPV = human papilloma virus; MMR = measles, mumps, and rubella

* Adolescents in the 2013 NIS-Teen were born during January 1995-February 2001. U.S. National estimates exclude Guam and U.S. Virgin Islands.

[†] Revised adequate provider data definition = Any adolescent who had one or more provider-reported vaccine doses, or who has never received any vaccinations.

[§] Previous adequate provider data definition = Any adolescent who: 1) was up-to-date by provider report with ≥1Td/Tdap, ≥3 hepatitis B, ≥2 MMR and ≥1 varicella vaccines (or parental or provider report of history of varicella disease); or 2) was completely unvaccinated by parental report; or 3) a) if a shot card was used: had no more doses of measles-containing, varicella, hepatitis A, hepatitis B and Td/Tdap vaccines by household report than by provider report; or b) if a shot card was not used, and if a parent/guardian indicated that the adolescent had received "all" of his or her vaccinations in any of the measles-containing, varicella, hepatitis A or hepatitis B categories, there were at least two unique vaccination dates by provider report.

[¶] Estimates with CI >20 may not be reliable.

** ≥1 dose of Td or Tdap vaccine at or after age 10 years.

†† ≥1 dose of Tdap vaccine at or after age 10 years.

§§ ≥1 dose of MenACWY or meningococcal-unknown type vaccine.

¶¶ HPV vaccine, either quadrivalent or bivalent.

*** Percent of adolescents who received 3 HPV vaccine doses among those who had ≥ 1 HPV vaccine dose with at least 24 weeks between the first dose and the interview date. The denominator for this calculation was limited to adolescents who received their first HPV dose and had enough time to receive the third HPV dose.

††† ≥2 doses of MMR vaccine.

§§§ By parent/guardian report or provider records.

Table 4. Sociodemographic characteristics of adolescents aged 13-17 years* by adequate provider data definition, National Immunization Survey-Teen, United States, 2013

	Adolescents meeting previous APD definition† (n = 18,264)		Additional adolescents meeting revised APD definition only‡ (n = 684)	
	n	% (95% CI)§	n	% (95% CI)
Age group at time of interview	18,264	100.0 (-----)	684	100.0 (-----)
13-15 years	11,221	60.9 (59.5-62.2)	430	58.4 (50.0-66.4)
16-17 years	7,043	39.1 (37.8-40.5)	254	41.6 (33.6-50.0)
Gender	18,264	100.0 (-----)	684	100.0 (-----)
Male	9,554	51.2 (49.8-52.5)	352	51.2 (43.0-59.3)
Female	8,710	48.8 (47.5-50.2)	332	48.8 (40.7-57.0)
Race/ethnicity	18,264	100.0 (-----)	684	100.0 (-----)
White, non-Hispanic	12,064	55.0 (53.7-56.4)	435	47.6 (39.7-55.7)
Black, non-Hispanic	1,647	13.8 (12.8-14.7)	54	11.0 (7.1-16.9)
Hispanic	2,741	22.1 (20.8-23.4)	131	33.5 (25.5-42.6)**
Other or Multiple race, non-Hispanic	1,812	9.1 (8.4-9.9)	64	7.8 (5.1-11.9)
Maternal age	18,264	100.0 (-----)	684	100.0 (-----)
<35 years	1,596	10.1 (9.3-10.9)	55	8.5 (5.2-13.6)
35-44 years	7,655	44.5 (43.1-45.9)	309	52.5 (44.4-60.5)
≥ 45 years	9,013	45.4 (44.1-46.8)	320	39.0 (31.5-47.0)
Maternal education	18,264	100.0 (-----)	684	100.0 (-----)
< High school	1,979	13.8 (12.7-14.9)	90	21.6 (14.5-30.9)
High school	3,198	24.2 (22.9-25.4)	100	18.4 (12.8-25.6)
Some college	5,049	25.9 (24.8-27.1)	217	29.6 (23.1-37.0)
College graduate	8,038	36.1 (34.9-37.4)	277	30.4 (23.9-37.9)
Household income to poverty ratio††	18,264	100.0 (-----)	684	100.0 (-----)
<1.33	4,478	33.1 (31.8-34.5)	168	39.4 (31.3-48.1)
1.33 to 4.0	7,312	38.9 (37.6-40.2)	283	31.8 (25.6-38.7)**
> 4.0	6,474	28.0 (26.9-29.2)	233	28.9 (21.9-36.9)
MSA status§§	18,264	100.0 (-----)	684	100.0 (-----)
MSA, central city	6,958	39.0 (37.7-40.3)	282	40.6 (33.1-48.6)
MSA, non-central city	7,175	47.7 (46.3-49.0)	255	48.2 (40.1-56.4)
Non-MSA	4,131	13.4 (12.7-14.1)	147	11.2 (8.3-14.8)
Census region	18,264	100.0 (-----)	684	100.0 (-----)
Northeast	3,833	16.9 (16.4-17.4)	60	7.0 (4.6-10.6)**
Midwest	4,151	21.7 (21.2-22.2)	146	17.6 (13.7-22.4)
South	6,012	37.5 (36.7-38.3)	234	26.7 (21.6-32.5)**
West	4,268	24.0 (23.1-24.9)	244	48.6 (40.6-56.7)**
Geographic mobility status	18,264	100.0 (-----)	684	100.0 (-----)
Moved from state of birth	4,287	23.7 (22.6-24.9)	261	34.6 (27.4-42.6)**
Did not move from state of birth	13,977	76.3 (75.1-77.4)	423	65.4 (57.4-72.6)**
Country of birth	18,207	100.0 (-----)	684	100.0 (-----)
Born in a foreign country	610	4.4 (3.8-5.1)	44	12.3 (6.8-21.3)**
Not born in a foreign country	17,597	95.6 (94.9-96.2)	640	87.7 (78.7-93.2)**
Number of nominated providers	18,264	100.0 (-----)	684	100.0 (-----)
Zero¶¶	NA	NA		
1	9,046	50.7 (49.3-52.1)	221	39.7 (31.5-48.5)**
2	5,397	29.0 (27.8-30.3)	233	28.1 (22.1-34.9)
3 or more	3,795	20.2 (19.1-21.3)	230	32.2 (25.4-39.9)**
Provider response categories	18,264	100.0 (-----)	684	100.0 (-----)
No providers identified¶¶	NA	NA		
Single provider identified and returned valid IHQ	9,046	50.7 (49.3-52.1)	221	39.7 (31.5-48.5)**
Multiple providers identified and all returned valid IHQ	7,567	39.2 (37.9-40.6)	326	37.0 (30.4-44.2)
Multiple providers identified and some returned valid IHQ	1,625	10.0 (9.1-10.9)	137	23.2 (16.8-31.2)**

Abbreviations: APD = adequate provider data; CI = confidence interval; NA = not available (estimate not reported because unweighted sample size for the denominator was <30 or (95%CI half width / estimate) > 0.588); MSA = Metropolitan Statistical Area

* Adolescents in the 2013 NIS-Teen were born during January 1995-February 2001.

† Previous APD definition = 1) be up-to-date by provider report with ≥ 1 Td/Tdap, ≥ 3 hepatitis B, ≥ 2 MMR, and ≥ 1 varicella vaccines (or parental or provider report of history of varicella disease); or 2) be completely unvaccinated ("zero-shot" adolescents) by parental report; or 3) a) if a shot card was used: have no more doses of measles-containing, varicella, hepatitis A, hepatitis B and Td/Tdap vaccines by household report than by provider report; or b) if a shot card was not used: if a parent/guardian indicated that the adolescent had received "all" of his or her vaccinations in any of the measles, varicella, hepatitis A or hepatitis B categories, have at least two unique vaccination dates by provider report.

‡ Revised APD definition = any adolescent for whom one or more providers reported vaccination history data or who by parental report were completely unvaccinated

§ Estimates with CI >20 may not be reliable.

** Statistically significant difference from original NIS-Teen sample (p<0.05)

†† Poverty status was based on 2012 U.S. Census poverty thresholds (available at <http://www.census.gov/hhes/www/poverty/data/threshld/index.html>).

§§ Metropolitan Statistical Area (MSA) was constructed based on respondent-reported city, state, county, and zip code of residence using the February 2013 file name date MSA definitions file: <http://www.census.gov/population/metro/data/def.html>.

¶¶ Adolescents with no identified vaccination providers have adequate provider data under both the revised and previous APD definitions if they are completely unvaccinated by parental report. No additional completely unvaccinated adolescents were added to the original NIS-Teen sample with application of the revised APD definition.

