

**SUPPLEMENTARY TABLE 1. Estimated vaccination coverage\* for MMR, DTaP, and varicella vaccines among children enrolled in kindergarten, by vaccine and immunization program — United States and territories, 2019–2020 school year**

Immunization program	Kindergarten population <sup>†</sup>	No. (%) surveyed	Type of survey conducted <sup>§</sup>	Local Data Available Online <sup>¶</sup>	% Coverage			
					MMR**	DTaP <sup>††</sup>	Varicella	
					2 doses	5 or 4 doses	1 dose	2 doses
<b>National estimate<sup>§§</sup></b>	<b>4,015,193</b>	<b>3,675,882 (91.5)</b>	—	—	<b>95.2</b>	<b>94.9</b>	<b>94.1</b>	<b>94.8</b>
<b>Median<sup>§§</sup></b>	<b>NA</b>	<b>NA</b>	—	—	<b>94.6</b>	<b>94.4</b>	<b>95.3</b>	<b>94.3</b>
<b>U.S. states and District of Columbia</b>								
Alabama	59,477	56,416 (94.9)	Census	Yes	≥86.6	≥86.6	≥86.6	NReq
Alaska <sup>¶¶,***</sup>	10,381	0 (0.0)	Voluntary response	No	NA	NA	NReq	NA
Arizona	83,976	82,848 (98.7)	Census (public), voluntary response (private)	Yes	92.8	92.6	95.3	NReq
Arkansas <sup>§§§</sup>	39,510	37,997 (96.2)	Census (public), voluntary response (private)	No	94.3	93.2	NReq	93.9
California <sup>†††</sup>	566,155	554,250 (97.9)	Census	Yes	96.5	96.2	NReq	96.1
Colorado	69,088	67,876 (98.2)	Census	No	91.1	92.8	NReq	90.1
Connecticut <sup>§§§</sup>	38,888	38,888 (100.0)	Census	No	96.2	96.2	NReq	95.9
Delaware	NA	NA	Not Conducted	No	NA	NA	NReq	NA
District of Columbia	NA	NA	Not Conducted	No	NA	NA	NReq	NA
Florida <sup>§§§,¶¶¶</sup>	228,298	228,298 (100.0)	Census	Yes	≥93.5	≥93.5	NReq	≥93.5
Georgia <sup>§§§</sup>	130,102	130,102 (100.0)	Census	No	≥93.1	≥93.1	NReq	≥93.1
Hawaii	15,695	1,403 (8.9)	Stratified 2-stage cluster sample	No	89.7	91.1	91.8	NReq
Idaho	23,301	22,950 (98.5)	Census	Yes	89.1	89.0	NReq	88.5
Illinois <sup>§§§</sup>	145,891	145,891 (100.0)	Census	Yes	96.6	96.5	NReq	96.4
Indiana	88,253	57,968 (65.7)	Voluntary response	No	94.4	84.0	NReq	94.0
Iowa <sup>§§§</sup>	40,812	40,812 (100.0)	Census	Yes	≥93.2	≥93.2	NReq	≥93.2
Kansas <sup>¶¶,***,†††</sup>	37,865	12,996 (34.3)	Stratified 2-stage cluster sample	Yes	90.0	89.7	NReq	89.1
Kentucky <sup>¶¶,†††</sup>	59,233	55,031 (92.9)	Census	Yes	93.1	93.3	NReq	92.5
Louisiana <sup>§§§</sup>	59,685	59,685 (100.0)	Census	Yes	95.6	97.2	NReq	95.0
Maine	13,450	13,395 (99.6)	Census	Yes	94.1	94.1	96.2	NReq
Maryland <sup>†††</sup>	72,443	71,225 (98.3)	Census (public), voluntary response (private)	No	97.9	98.2	NReq	97.5
Massachusetts <sup>§§§,†††</sup>	66,756	66,756 (100.0)	Census	Yes	97.3	97.2	NReq	97.0
Michigan <sup>§§§</sup>	120,565	120,565 (100.0)	Census	Yes	94.8	94.7	NReq	94.4
Minnesota <sup>¶¶</sup>	71,223	70,284 (98.7)	Census	Yes	92.6	92.3	NReq	92.0
Mississippi <sup>§§§</sup>	37,870	37,870 (100.0)	Census	Yes	≥99.1	≥99.1	NReq	≥99.1
Missouri <sup>§§§</sup>	72,324	72,324 (100.0)	Census	No	94.6	94.5	NReq	94.2
Montana <sup>§§§</sup>	12,501	12,501 (100.0)	Census	No	93.6	93.2	NReq	93.2
Nebraska <sup>†††</sup>	26,893	26,012 (96.7)	Census (public), voluntary response (private)	No	96.3	96.9	NReq	95.6
Nevada	37,724	37,678 (99.9)	Census	No	95.4	94.0	NReq	94.6
New Hampshire <sup>§§§</sup>	12,447	12,447 (100.0)	Census	No	≥91.5	≥91.5	NReq	≥91.5

New Jersey <sup>§§§</sup>	107,900	107,900 (100.0)	Census	Yes	≥95.9	≥95.9	≥95.9	NReq
New Mexico	23,087	23,087 (100.0)	Census	No	97.0	96.7	NReq	96.7
New York (incl. New York City)	234,165	234,031 (99.9)	Census	Yes	98.6	97.8	NReq	98.1
New York City	96,581	96,447 (99.9)	Census	No	98.1	97.3	NReq	97.7
North Carolina <sup>¶¶,†††</sup>	124,548	121,835 (97.8)	Census	No	95.5	95.5	NReq	95.3
North Dakota	10,587	10,536 (99.5)	Census	Yes	94.8	94.4	NReq	94.8
Ohio	139,103	137,441 (98.8)	Census	No	92.4	92.3	NReq	91.9
Oklahoma <sup>¶¶</sup>	55,348	47,374 (85.6)	Voluntary response	No	93.0	93.9	96.9	NReq
Oregon <sup>†††,§§§</sup>	45,959	45,959 (100.0)	Census	Yes	93.4	92.6	94.6	NReq
Pennsylvania	140,197	138,573 (98.8)	Census	Yes	96.6	96.8	NReq	96.3
Rhode Island <sup>¶¶,†††</sup>	11,219	11,054 (98.5)	Census	Yes	97.7	97.4	NReq	97.0
South Carolina	65,938	18,104 (27.5)	Stratified 1-stage cluster sample	No	95.0	95.2	NReq	94.5
South Dakota	12,367	12,337 (99.8)	Census	Yes	96.0	95.9	NReq	95.2
Tennessee <sup>§§§,¶¶</sup>	80,595	80,595 (100.0)	Census	Yes	96.8	96.4	NReq	96.5
Texas (including Houston) <sup>¶¶,†††</sup>	398,680	397,093 (99.6)	Census	Yes	96.9	96.6	NReq	96.4
Houston <sup>¶¶,†††</sup>	38,868	38,655 (99.5)	Census	No	96.3	96.4	NReq	95.2
Utah <sup>§§§</sup>	49,208	49,208 (100.0)	Census	Yes	92.7	92.2	NReq	92.4
Vermont <sup>§§§</sup>	6,293	6,293 (100.0)	Census	Yes	94.5	94.1	NReq	93.9
Virginia <sup>***</sup>	99,399	1,200 (1.2)	Stratified 2-stage cluster sample	Yes	94.6	97.6	NReq	93.3
Washington <sup>¶¶</sup>	87,757	80,623 (91.9)	Census	Yes	94.4	92.8	NReq	92.7
West Virginia <sup>¶¶¶</sup>	17,114	8,481 (49.6)	Voluntary response	Yes	98.2	98.8	NReq	97.8
Wisconsin <sup>¶¶,***,†††</sup>	67,391	1,777 (2.6)	Stratified 2-stage cluster sample	No	92.8	94.5	NReq	91.6
Wyoming <sup>§§§</sup>	7,913	7,913 (100.0)	Census	No	94.5	94.4	NReq	85.6
<b>Territories and freely associated states</b>								
American Samoa <sup>§§§,¶¶¶</sup>	781	781 (100.0)	Census	No	91.9	71.4	NReq	21.0
Federated States of Micronesia <sup>§§§</sup>	1,532	1,532 (100.0)	Census	No	90.7	76.8	NReq	NReq
Guam	2,513	2,492 (99.2)	Census	No	93.7	92.9	NReq	NReq
Marshall Islands <sup>§§§</sup>	1,115	1,115 (100.0)	Census	No	92.0	90.3	NReq	NReq
N. Mariana Islands <sup>§§§</sup>	895	895 (100.0)	Census	No	95.3	97.3	NA	95.0
Palau <sup>§§§,***</sup>	273	273 (100.0)	Census	No	90.1	90.1	NReq	NReq
Puerto Rico	26,980	1,266 (4.7)	Stratified 2-stage cluster sample	No	93.5	89.9	NA	93.0
U.S. Virgin Islands	NA	NA	Not conducted	No	NA	NA	NA	NA

Abbreviations: MMR = measles, mumps, and rubella vaccine; DTaP = diphtheria and tetanus toxoids and acellular pertussis vaccine; NA = not available; NReq = not required for school entry.

\* Estimates are adjusted for nonresponse and weighted for sampling where appropriate. Estimates based on a completed vaccine series (i.e., not vaccine-specific) use the “≥” symbol. Coverage might include history of disease or laboratory evidence of immunity.

† The kindergarten population is an approximation provided by each program.

§ Sample designs varied by state/area: census = program attempted to include all schools (public and private), and all children within schools in the assessment, and had a student response rate of ≥90%; 1-stage or 2-stage cluster sample = schools were randomly

selected, and all children in the selected schools were assessed (1-stage) or a random sample of children within the schools was selected (2-stage); voluntary response = a census with a student response rate of <90% (does not imply that participation was optional).

<sup>¶</sup> Some programs publish kindergarten vaccination data online that are more detailed than the state-level estimates in this table. Examples of more detailed data include county, parish, school district, and school-level estimates.

\*\* Most states require 2 doses of MMR; Alaska, New Jersey, and Oregon require 2 doses of measles, 1 dose of mumps, and 1 dose of rubella vaccines. California, Georgia, New York, New York City, North Carolina, and Virginia require 2 doses of measles and mumps and 1 dose of rubella vaccines. Iowa requires 2 doses of measles and 2 doses of rubella vaccines.

<sup>††</sup> Pertussis vaccination coverage might include some diphtheria and tetanus toxoids, and pertussis vaccine (DTP) vaccinations if administered in another country or by a vaccination provider who continued to use DTP after 2000. Most states require 5 doses of DTaP for school entry, or 4 doses if the fourth dose was received on or after the fourth birthday; Illinois, Maryland, Virginia, and Wisconsin require 4 doses; Nebraska requires 3 doses. The reported coverage estimates represent the percentage of kindergartners with the state-required number of DTaP doses, except for Kentucky, which requires ≥5 but reports ≥4 doses of DTaP.

<sup>§§</sup> Medians and national estimates calculated from data from 48 states (i.e., does not include Alaska, Delaware, the District of Columbia, Houston, New York City, American Samoa, Guam, Marshall Islands, Federated States of Micronesia, N. Mariana Islands, Palau, Puerto Rico, or U.S. Virgin Islands). Data reported represent 4,015,193 kindergartners.

<sup>¶¶</sup> Did not include some types of schools, such as online schools or those located in military bases or correctional facilities.

\*\*\* Kindergarten vaccination coverage data were collected from a sample, and exemption data were collected from a census of kindergartners.

<sup>†††</sup> Counted some or all vaccine doses received regardless of Advisory Committee on Immunization Practices recommended age and time interval; vaccination coverage rates reported might be higher than those calculated using only valid doses.

<sup>§§§</sup> The proportion surveyed likely was <100% but is reported as 100% based on incomplete information about the actual current enrollment.

<sup>¶¶¶</sup> Reported public school data only.

\*\*\*\* For Palau, estimates represent coverage among children in first grade.

**SUPPLEMENTARY TABLE 2. Estimated number and percentage\* of children enrolled in kindergarten by grace period/provisional enrollment and reported type of exemption from vaccination, by immunization program† — United States and territories, 2019–2020 school year**

Immunization program	Grace Period / Provisional Enrollment, <sup>§</sup> no. (%)	Medical exemptions, no. (%)	Nonmedical exemptions			Any exemption		
			Religious, no.	Philosophic, no.	Total, no. (%)	2019–2020, no. (%)	2018–2019, %	Percentage point difference (2018–19 to 2019–20)
<b>National</b>	<b>1.6</b>	<b>0.3</b>	—	—	<b>2.2</b>	— (2.5)	<b>2.5</b>	<b>0.0</b>
<b>Median<sup>¶</sup></b>	<b>1.6</b>	<b>0.2</b>	—	—	<b>2.6</b>	— (2.7)	<b>2.6</b>	<b>0.1</b>
<b>U.S. States and District of Columbia</b>								
Alabama	NP	63 (0.1)	650	**	650 (1.1)	713 (1.2)	0.8	0.4
Alaska	NR	51 (0.5)	557	**	557 (5.4)	608 (5.9)	7.1	-1.2
Arizona	NR	144 (0.2)	††	4,494	4,494 (5.4)	4,638 (5.5)	6.0	-0.5
Arkansas	456 (1.2)	15 (<0.1)	314	439	753 (1.9)	769 (1.9)	1.8	0.1
California	8,262 (1.5)	4,249 (0.8)	††	**	††, **	4,249 (0.8)	0.6	0.2
Colorado <sup>¶¶</sup>	500 (0.7)	121 (0.2)	280	2,974	3,254 (4.7)	3,376 (4.9)	4.9	0.0
Connecticut	NP	84 (0.2)	891	**	891 (2.3)	975 (2.5)	2.7	-0.2
Delaware	NR	NR	NR	**	NR	NR	1.2	NA
District of Columbia	NR	NR	NR	**	NR	NR	NR	NA
Florida	6,737 (3.0)	855 (0.4)	6,903	**	6,903 (3.0)	7,758 (3.4)	3.2	0.2
Georgia	292 (0.2)	158 (0.1)	3,741	**	3,741 (2.9)	3,899 (3.0)	2.5	0.5
Hawaii	0 (<0.1)	29 (0.2)	913	**	913 (5.9)	943 (6.1)	4.4	1.7
Idaho	373 (1.6)	75 (0.3)	§§	§§	1,689 (7.2)	1,764 (7.6)	7.7	-0.1
Illinois	925 (0.6)	407 (0.3)	2,487	**	2,487 (1.7)	2,894 (2.0)	1.8	0.2
Indiana	NR	199 (0.2)	1,701	**	1,701 (1.9)	1,901 (2.2)	1.3	0.9
Iowa	1,255 (3.1)	68 (0.2)	936	**	936 (2.3)	1,004 (2.5)	2.4	0.1
Kansas	NR	99 (0.3)	705	**	705 (1.9)	805 (2.1)	2.1	0.0
Kentucky	NR	274 (0.5)	809	**	809 (1.4)	1,082 (1.8)	1.4	0.4
Louisiana	NA	92 (0.2)	44	748	792 (1.3)	884 (1.5)	1.2	0.3
Maine	NR	40 (0.3)	95	660	755 (5.6)	795 (5.9)	6.2	-0.3
Maryland	NR	273 (0.4)	718	**	718 (1.0)	991 (1.4)	1.5	-0.1
Massachusetts	NP	153 (0.2)	737	**	737 (1.1)	890 (1.3)	1.4	-0.1
Michigan	798 (0.7)	290 (0.2)	1,520	3,510	5,030 (4.2)	5,320 (4.4)	4.5	-0.1
Minnesota <sup>¶¶</sup>	NR	133 (0.2)	§§	§§	2,565 (3.6)	2,699 (3.8)	3.7	0.1
Mississippi	17 (<0.1)	62 (0.2)	††	**	††, **	62 (0.2)	0.1	0.1
Missouri <sup>¶¶</sup>	NR	150 (0.2)	1,820	**	1,820 (2.5)	1,970 (2.7)	2.7	0.0
Montana	231 (1.8)	30 (0.2)	505	**	505 (4.0)	535 (4.3)	4.5	-0.2
Nebraska	440 (1.6)	106 (0.4)	485	**	485 (1.8)	591 (2.2)	2.1	0.1
Nevada	896 (2.4)	170 (0.5)	1,322	**	1,322 (3.5)	1,492 (4.0)	3.3	0.7
New Hampshire	561 (4.5)	29 (0.2)	360	**	360 (2.9)	389 (3.1)	3.3	-0.2
New Jersey	958 (0.9)	188 (0.2)	2,588	**	2,588 (2.4)	2,776 (2.6)	2.5	0.1
New Mexico	369 (1.6)	46 (0.2)	298	**	298 (1.3)	344 (1.5)	1.5	0.0
New York (incl. New York City)	3,827 (1.6)	320 (0.1)	††	**	††, **	320 (0.1)	1.3	-1.2
New York City	846 (0.9)	88 (0.1)	††	**	††, **	88 (0.1)	0.7	-0.6
North Carolina	1,499 (1.2)	158 (0.1)	2,003	**	2,003 (1.6)	2,161 (1.7)	1.6	0.1
North Dakota	NR	32 (0.3)	78	302	381 (3.6)	413 (3.9)	4.3	-0.4
Ohio	8,515 (6.1)	346 (0.2)	§§	§§	3,575 (2.6)	3,921 (2.8)	2.9	-0.1
Oklahoma	NR	73 (0.1)	445	950	1,395 (2.5)	1,468 (2.7)	2.6	0.1
Oregon	NR	73 (0.2)	§§	§§	3,192 (6.9)	3,265 (7.1)	7.7	-0.6

Pennsylvania	3,085 (2.2)	507 (0.4)	1,765	1,865	3,630 (2.6)	4,137 (3.0)	2.9	0.1
Rhode Island	NR	24 (0.2)	117	**	117 (1.0)	141 (1.3)	1.3	0.0
South Carolina	174 (0.3)	115 (0.2)	1,616	**	1,616 (2.5)	1,731 (2.6)	2.6	0.0
South Dakota	NR	18 (0.1)	319	**	319 (2.6)	337 (2.7)	2.6	0.1
Tennessee	1,529 (1.9)	101 (0.1)	1,509	**	1,509 (1.9)	1,610 (2.0)	1.9	0.1
Texas (including Houston)	5,507 (1.4)	929 (0.2)	§§	§§	8,965 (2.2)	9,894 (2.5)	2.4	0.1
Houston	415 (1.1)	70 (0.2)	§§	§§	511 (1.3)	580 (1.5)	1.5	0.0
Utah	1,144 (2.3)	59 (0.1)	155	2,425	2,580 (5.2)	2,639 (5.4)	5.7	-0.3
Vermont	262 (4.2)	9 (0.1)	223	**	223 (3.5)	232 (3.7)	4.7	-1.0
Virginia	NR	333 (0.3)	1,378	**	1,378 (1.4)	1,711 (1.7)	1.7	0.0
Washington	1,234 (1.4)	647 (0.7)	2,278	2,081	4,359 (5.0)	5,005 (5.7)	5.0	0.7
West Virginia***	16 (0.1)	21 (0.1)	††	**	††, **	21 (0.1)	0.8	-0.7
Wisconsin	68 (0.1)	168 (0.2)	460	3,233	3,693 (4.8)	3,861 (5.7)	5.9	-0.2
Wyoming	152 (1.9)	24 (0.3)	256	**	256 (3.2)	280 (3.5)	2.9	0.6
<b>Territories and Freely Associated States</b>								
American Samoa	NP	0 (0.0)	0	**	0 (0.0)	0 (0.0)	NA	NA
Guam	NR	NR	3	**	3 (0.1)	3 (0.1)	0.1	0.0
Marshall Islands	NR	0 (0.0)	††	**	NA	0 (0.0)	0.0	0.0
Federated States of Micronesia	NR	0 (0.0)	0	0	0 (0.0)	0 (0.0)	0.0	0.0
N. Mariana Islands	NR	0 (0.0)	0	**	0 (0.0)	0 (0.0)	0.0	0.0
Palau†††	NR	0 (0.0)	§§	§§	0 (0.0)	0 (0.0)	0.0	0.0
Puerto Rico	NR	385 (1.4)	167	**	167 (0.6)	552 (2.0)	1.6	0.4
U.S. Virgin Islands	NA	NA	NA	NA	NA	NA	NA	NA

Abbreviations: NA = not available; NR = not reported to CDC; NP = State does not allow grace period or provisional enrollment

\* Estimates are adjusted for nonresponse and weighted for sampling where appropriate.

† Medical exemptions, nonmedical exemptions, and grace period/provisional enrollment status might not be mutually exclusive. Some children might have both medical and nonmedical exemptions, and some enrolled under a grace period/provisional enrollment might be exempt from one or more vaccinations.

§ A grace period is a set number of days during which a student can be enrolled and attend school without proof of complete vaccination or exemption. Provisional enrollment allows a student without complete vaccination or exemption to attend school while completing a catch-up vaccination schedule. In states with one or both of these policies, the estimates represent the number of kindergartners within a grace period, provisionally enrolled, or some combination of these categories.

¶ Medians and national estimates calculated from data from 49 states; jurisdictions excluded were Delaware, District of Columbia, Houston, New York City, American Samoa, Guam, Marshall Islands, Federated States of Micronesia, N. Mariana Islands, Palau, Puerto Rico, and U.S. Virgin Islands. Exemption data reported represent 4,025,574 kindergartners. Grace period/provisional enrollment median was calculated from data from 28 states; data reported represent 3,056,741 kindergartners.

\*\* Philosophical exemptions were not allowed.

†† Religious exemptions were not allowed.

§§ Religious and philosophical exemptions were not reported separately.

¶¶ Program did not report the number of children with exemptions, but instead reported the number of exemptions for each vaccine, which could count some children more than once. Lower bounds of the percentage of children with any exemptions were estimated using the individual vaccines with the highest number of exemptions.

\*\*\* Reported public school data only.

††† For Palau, estimates represent exemptions among children in 1st grade.