

SUPPLEMENTARY TABLE 1. Estimated coverage* with measles, mumps, and rubella vaccine; diphtheria, tetanus, and acellular pertussis vaccine; polio; and varicella vaccine among kindergartners, by immunization program — United States,† 2022–23 school year

Immunization Program	Kindergarten population [§]	No. (%) surveyed	Type of survey conducted [¶]	Local Data Available Online ^{**}	%			
					MMR ^{††} 2 doses	DTaP ^{§§} 5 doses	Polio ^{¶¶} 4 doses	VAR ^{***} 2 doses
National Estimate ^{†††}	3,832,381	3,559,366 (92.9)	—	—	93.1	92.7	93.1	92.9
Median ^{†††}	—	—	—	—	92.1	91.9	92.2	92.7
U.S. jurisdictions								
Alabama ^{§§§}	59,113	59,113 (100.0)	Census	No	≥93.9	≥93.9	≥93.9	≥93.9
Alaska	9,650	8,573 (88.8)	Vol. response (pub.), not conducted (pvt.)	No	83.6	83.8	84.4	81.8
Arizona	80,814	78,937 (97.7)	Census	Yes	89.9	89.6	90.3	94.1
Arkansas	38,358	36,729 (95.8)	Census	No	91.9	90.6	90.7	91.1
California ^{¶¶¶}	541,132	540,864 (>99.9)	Census	Yes	96.5	95.6	96.3	96.1
Colorado	65,576	63,745 (97.2)	Census	Yes	87.0	87.2	87.0	85.9
Connecticut ^{§§§}	35,580	35,580 (100.0)	Census	Yes	97.3	97.3	97.3	97.0
Delaware ^{¶¶¶}	10,674	1,033 (9.7)	Stratified 2-stage cluster sample	No	95.1	93.8	94.0	94.0
District of Columbia ^{§§§}	8,064	8,064 (100.0)	Census	Yes	87.5	85.0	87.8	86.8
Florida	230,309	225,096 (97.7)	Census	Yes	≥90.6	≥90.6	≥90.6	≥90.6
Georgia ^{§§§}	123,771	123,771 (100.0)	Census	No	≥88.1	≥88.1	≥88.1	≥88.1
Hawaii	13,195	1,066 (8.1)	Stratified 2-stage cluster sample	Yes	86.4	87.0	87.0	84.4
Idaho	23,721	23,557 (99.3)	Census	Yes	81.3	81.0	81.8	80.7
Illinois ^{§§§}	135,332	135,332 (100.0)	Census	No	91.7	91.5	91.4	91.3
Indiana ^{****}	81,307	71,120 (87.5)	Census	Yes	92.0	83.0	88.8	91.6
Iowa ^{§§§}	39,178	39,178 (100.0)	Census	Yes	≥89.9	≥89.9	≥89.9	≥89.9
Kansas ^{¶¶¶,****,††††}	35,543	10,932 (30.8)	Stratified 1-stage cluster sample	Yes	91.6	90.5	92.2	90.8
Kentucky ^{¶¶¶,****}	54,742	53,052 (96.9)	Census	Yes	≥90.1	≥90.6	≥91.2	≥89.8
Louisiana ^{§§§}	54,314	54,314 (100.0)	Census	Yes	92.2	93.1	98.3	93.6
Maine	12,403	11,646 (93.9)	Census	Yes	96.8	96.6	96.8	96.6
Maryland ^{§§§,¶¶¶}	59,684	59,684 (100.0)	Census	Yes	96.7	96.9	97.2	96.6
Massachusetts ^{§§§,¶¶¶}	66,041	66,041 (100.0)	Census	Yes	96.5	96.2	96.3	96.0
Michigan ^{§§§}	113,678	113,678 (100.0)	Census	Yes	92.9	93.1	93.7	92.9
Minnesota	68,152	66,724 (97.9)	Census	Yes	87.6	88.3	88.6	87.9
Mississippi ^{§§§}	36,048	36,048 (100.0)	Census	Yes	≥98.4	≥98.4	≥98.4	≥98.4
Missouri ^{§§§}	69,126	69,126 (100.0)	Census	Yes	91.3	91.1	91.5	90.8
Montana	NR	NR	Not Conducted	No	NR	NR	NR	NR
Nebraska ^{§§§,¶¶¶}	23,176	23,176 (100.0)	Census	No	95.1	95.7	97.0	94.9
Nevada	34,333	30,582 (89.1)	Census	No	92.8	92.2	92.8	92.6
New Hampshire ^{§§§,****}	11,332	11,332 (100.0)	Census	Yes	≥89.4	≥89.4	≥89.4	≥89.4
New Jersey ^{§§§,****}	104,468	104,468 (100.0)	Census	Yes	≥94.3	≥94.3	≥94.3	≥94.3
New Mexico ^{§§§}	21,068	21,068 (100.0)	Census	No	94.9	94.7	95.0	94.4
New York (including NYC)	205,906	198,813 (96.6)	Census	Yes	97.9	97.2	97.5	97.5
NYC	85,379	83,363 (97.6)	Census	Yes	97.3	96.3	96.6	96.7

North Carolina ^{¶¶¶¶} ****	125,679	104,498 (83.1)	Census	No	93.8	93.7	93.9	93.6
North Dakota	10,554	10,490 (99.4)	Census	Yes	92.0	91.8	91.9	91.4
Ohio	134,893	126,408 (93.7)	Census	No	89.3	89.4	89.7	88.8
Oklahoma ^{¶¶¶¶}	52,548	47,031 (89.5)	Census	Yes	89.6	90.0	91.0	94.6
Oregon ^{§§§,¶¶¶¶}	40,963	40,963 (100.0)	Census	Yes	91.9	90.9	91.5	94.1
Pennsylvania	137,259	133,400 (97.2)	Census	Yes	94.0	94.3	94.1	93.7
Rhode Island ^{¶¶¶¶,****}	10,532	10,164 (96.5)	Census	Yes	96.9	96.9	96.9	96.3
South Carolina ^{††††}	58,878	16,520 (28.1)	1-stage cluster sample	Yes	93.2	92.1	92.4	92.8
South Dakota ^{§§§}	12,081	12,081 (100.0)	Census	Yes	92.5	92.2	92.3	92.0
Tennessee ^{§§§,****}	79,692	79,692 (100.0)	Census	Yes	95.4	94.8	95.0	95.1
Texas (including Houston) ^{¶¶¶¶,****}	381,680	373,967 (98.0)	Census	Yes	94.2	93.8	94.1	93.7
Houston ^{¶¶¶¶,****}	37,664	37,216 (98.8)	Census	Yes	91.3	90.7	91.0	90.6
Utah ^{§§§}	46,635	46,635 (100.0)	Census	Yes	90.0	89.7	89.9	89.6
Vermont ^{§§§}	5,816	5,816 (100.0)	Census	Yes	93.1	92.8	92.8	92.6
Virginia ^{††††}	93,271	1,492 (1.6)	Stratified 2-stage cluster sample	Yes	95.8	97.8	94.2	95.6
Washington ^{****}	86,284	84,457 (97.9)	Census	Yes	91.4	90.1	90.2	90.1
West Virginia ^{¶¶¶¶,****}	19,175	16,516 (86.1)	Census	Yes	≥95.6	≥95.6	≥95.6	≥95.6
Wisconsin ^{¶¶¶¶}	63,593	59,734 (93.9)	Census	Yes	86.5	87.0	88.2	85.9
Wyoming ^{§§§}	7,060	7,060 (100.0)	Census	Yes	90.8	89.4	90.1	90.5
Territories and Associated States								
American Samoa ^{§§§}	NR	NR	Not Conducted	No	NR	NR	NR	NR
Federated States of Micronesia ^{§§§,¶¶¶¶}	1,595	1,595 (100.0)	Census	No	92.2	77.6	82.7	Nreq
Guam ^{§§§}	2,079	2,079 (100.0)	Census	No	91.0	86.0	89.1	Nreq
Marshall Islands ^{§§§}	860	860 (100.0)	Census	No	98.1	89.2	90.3	Nreq
N. Mariana Islands ^{§§§}	791	791 (100.0)	Census	No	93.4	98.0	97.5	91.8
Palau ^{§§§}	261	261 (100.0)	Census	No	≥81.2	≥81.2	≥81.2	Nreq
Puerto Rico	21,255	1,973 (9.3)	2-stage stratified sample	No	92.8	95.2	96.7	92.9
U.S. Virgin Islands	NR	NR	Not Conducted	No	NR	NR	NR	NR

Abbreviations: DTaP = diphtheria and tetanus toxoids and acellular pertussis vaccine; MMR = measles, mumps, and rubella vaccine; VAR = varicella vaccine; NR = not reported; Nreq = not required for school entry; Polio = poliovirus vaccine; NA = not available; pub. = public; pvt. = private; vol. = voluntary; NYC = New York City.

*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. In Kentucky, public schools reported numbers of children up-to-date with specific vaccines while most private schools reported numbers of children who received all doses of all vaccines required for school entry. Coverage might include history of disease or laboratory evidence of immunity.

†Includes five territories and three freely associated states.

§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).

**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. Georgia, New York, New York City, North Carolina, and Virginia require 2 doses of measles and mumps, 1 dose of rubella vaccines. Iowa requires 2 doses of measles and 2 doses of rubella vaccines. Wyoming requires 1 dose of MMR for kindergarten entry, allowing students until the day before their seventh birthday to receive their 2nd dose, but reported kindergarten coverage with 2 doses of MMR at the time of the assessment.

^{§§}Pertussis vaccination coverage might include some diphtheria and tetanus toxoids, and pertussis vaccine (DTP) vaccinations if administered in another country or by a vaccine 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; Maryland 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. Wyoming requires 4 doses of DTaP for kindergarten entry, allowing students until the day before their seventh birthday to receive their fifth dose, but reported kindergarten coverage with 5 doses of DTaP at the time of the assessment.

^{¶¶} Most states require 4 doses of Polio for school entry, or 3 doses if the fourth dose was received on or after the fourth birthday; Maryland and Nebraska require 3 doses. The reported coverage estimates represent the percentage of kindergartners with the state-required number of Polio doses, except for Kentucky, which requires ≥ 4 but reports ≥ 3 doses of Polio. Wyoming requires 3 doses of Polio for kindergarten entry, allowing students until the day before their seventh birthday to receive their fourth dose, but reported kindergarten coverage with 4 doses of Polio at the time of the assessment.

^{***}Most states require 2 doses of VAR for school entry; Alabama, Arizona, New Jersey, Oklahoma, and Oregon require 1 dose. Reporting of varicella vaccination status for kindergartners with a history of varicella disease varied within and among states; some were reported as vaccinated against varicella and others as medically exempt. Wyoming requires 1 dose of VAR for kindergarten entry, allowing students until the day before their seventh birthday to receive their second dose, but reported kindergarten coverage with 2 doses of VAR at the time of the assessment.

^{†††}National estimates and medians calculated from data from 49 states and the District of Columbia (i.e., does not include Montana, Houston, New York City, American Samoa, Guam, Marshall Islands, Federated States of Micronesia, N. Mariana Islands, Palau, Puerto Rico, or U.S. Virgin Islands).

^{§§§}The proportion surveyed is reported as 100% but might be $<100\%$ if based on incomplete information about the actual current enrollment.

^{¶¶¶}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 for valid doses.

^{****}Did not include certain types of schools, such as kindergartens in child care facilities, online schools, correctional facilities, or those located on military bases or tribal lands.

^{††††}Kindergarten vaccination coverage data were collected from a sample, and exemption data were collected from a census of kindergartners.