

Mission:

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



Ron DeSantis
Governor


Joseph A. Ladapo, MD, PhD
State Surgeon General

Vision: To be the Healthiest State in the Nation

MEMORANDUM

DATE: January 27, 2022

TO: County Health Department Health Officers

FROM: Carina Blackmore, DVM, PhD, Dipl ACVPM, 
State Epidemiologist, Director, Division of Disease Control and Health Protection

SUBJECT: Results of the Survey of Immunization Levels in 2-Year-Old Children (2020)

This report summarizes data collected by Florida Department of Health (FDOH) Immunization Section field staff representatives on vaccination coverage among 2-year-old children born in Florida, both statewide and by the 24 counties with consistently higher annual birth counts. In April 2021, the Immunization Section completed an annual immunization survey of 5,518 2-year-old children born in Florida in January 2018. The Bureau of Vital Statistics' *Resident Live Births*, via the Florida State Health Online Tracking System (SHOTS), was the source of the target population.

To create the sample population, a stratified sampling methodology was used, where each of the 24 counties selected and all other counties grouped represent a stratum. Children with birth certificate numbers were selected, and children with death certificate numbers or who did not have a valid Vital Statistics County of Residence at Birth were removed. Children were categorized by their county of residence at birth. County sample sizes were determined by using a 50% vaccination coverage estimate per individual county, at a 95% confidence level and a margin of error of 5%.

Statewide and county coverage rates were based on completion of the 4:3:1:3:3:1:4 (expanded) vaccine series by age 24 months as recommended by the Advisory Committee on Immunization Practices. The expanded series consists of four or more doses of diphtheria, tetanus toxoids and acellular pertussis (DTaP) vaccine; three or more doses of poliovirus vaccine (IPV); one or more doses of measles, mumps and rubella (MMR) vaccine; three or four doses (depending upon product type) of *Haemophilus influenzae* type b conjugate (Hib) vaccine; three or more doses of hepatitis B (hep B) vaccine; one or more doses of varicella (VAR) vaccine (or physician-documented disease history), and four or more doses of pneumococcal conjugate vaccine (PCV).

Statewide and county coverage rates were also collected based on completion of the 4:3:1:3:3:1 (basic) vaccine series by age 24 months. The basic vaccine series consists of all doses of all vaccines in the expanded vaccine series minus the four doses of PCV. Statewide coverage rates were weighted by the number of births per county. FDOH's goal is to achieve 90% coverage for the expanded series by age 24 months. Invalid doses administered were not considered.

The survey protocol describes the methods of contact that field staff may use to obtain a child's vaccination history when Florida SHOTS indicates the child has not completed the expanded vaccination series (by any age). They may contact the vaccine provider indicated in Florida SHOTS (by telephone or

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FAX), the parent/guardian (by telephone, email or letter), the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) office from the local county health department (CHD), and other medical provider(s) that the parent/guardian, vaccine provider or the WIC office indicates. Although most children did not have a parent/guardian email address on file in Florida SHOTS, email was added as a contact method for this 2020 survey.

Normally, field staff would mail up to two letters to the parent/guardian when other contact methods have failed. However, by November 2020, internal processes prevented field staff from mailing letters, and in January 2021, it was determined letters would not be used for this 2020 survey. Therefore, the protocol for excluding a child from the survey (due to lack of response/unable to locate a vaccination history) was modified from requiring documentation of two telephone attempts (at different times of the day, on different days) and mailing two letters (initial and follow-up—one could be sent via email) to adding a third telephone attempt, one email attempt (if email address is on file), and one actual provider contact (vs. attempted contact). Additionally, survey administration was extended by two months, from February 6–April 5, 2021, to allow time for the additional contact attempts in lieu of mailing letters.

The 2020 statewide vaccination coverage rate for the basic vaccine series was 84.0% (4,605 of 5,518 survey participants). Coverage rates for the 24 selected counties ranged from 75.3% (Brevard) to 91.5% (Palm Beach). The statewide vaccination coverage rate for the expanded series was 83.2% (4,562 survey participants). Coverage rates for the selected counties ranged from 74.5% (Brevard) to 91.5% (Palm Beach) (Table 1, Figure 1). Statewide, 12.9% (basic) and 13.8% (expanded) were partially vaccinated by age 24 months. That is, those children who received some but not all doses of vaccine in the series. A total of 181 children (3.1%) received zero vaccinations for the expanded vaccine series; 175 (96.7%) due to *Religious Exemption From Immunization* (RE). For the 24 selected counties, the percentage of unvaccinated children ranged from 1.1% (Lake) to 13.0% (Sarasota) (Table 1, Figure 2).

For the past 10 years (2011–2020), statewide coverage by age 24 months for the basic vaccine series ranged from 83.0% (2012) to 86.7% (2013) and for the expanded vaccine series between 78.0% (2012) and 85.0% (2017). From 2019 to 2020, coverage for the basic series increased by 0.5 percentage points, from 83.5% to 84.0% and for the expanded series by 0.8 percentage points, from 82.4% to 83.2% (Table 2, Figure 3). The percentage of children partially vaccinated ranged from 11.7% (2017) to 15.5% (2012) for the basic series and between 12.8% (2017) and 20.4% (2012) for the expanded series. The percentage of children who received zero vaccinations for the expanded vaccine series ranged from 1.1% (2011) to 3.5% (2019). From 2019 (3.5%) to 2020 (3.1%), the percentage decreased by 0.4 percentage points (Table 2, Figure 4).

Statewide coverage for the vaccine series corresponding with FDOH's annual vaccination coverage goal for 2-year-old children was compiled for the past 20 years (2001–2020). Survey years 2016–2020 are based on the expanded vaccine series, years 2006–2015 are based on the basic series, and years 2001–2005 are based on the 4:3:1 vaccine series, which includes 4 DTaP, 3 IPV and 1 MMR only. Coverage rates for 2002–2008 were not weighted by the number of births per county. Coverage ranged from 79.2% (2006) to 87.2% (2009) (Table 3, Figure 5).

The percentage of children partially vaccinated for the vaccine series corresponding with FDOH's annual vaccination coverage goal in the past 20 years ranged from 11.9% (2013) to 20.3% (2003). The percentage of children who received zero vaccinations for the vaccine series corresponding with FDOH's annual vaccination coverage goal ranged from 0.2% (2001) to 3.5% (2019). From 2001 (0.2%) to 2010 (0.8%), the percentage remained <1%, except for in 2007 when it significantly increased (1.1%). From 2011 (1.1%) to 2015 (1.6%) it increased to <2%, from 2016 (2.1%) to 2017 (2.2%) it increased to <3%, and since 2018 (3.1%) has been >3%. From 2019 (3.5%) to 2020 (3.1%), the percentage decreased by 0.4 percentage points (Table 3, Figure 6).

Children were categorized by the vaccine provider type (private, CHD, community health center [CHC] and unknown) that administered the majority of the vaccinations in the vaccine series for the past 20 years. Private providers continue to lead in vaccinating Florida's children. Between 2001 (76.2%) and 2020 (82.7%), private providers vaccinated between 60.1% (2008) and 82.7% (2020) of the children surveyed. CHDs vaccinated between 13.5% (2007) and 18.4% (2004) of the children surveyed from 2001 to 2008, and in 2010 this significantly decreased to 9.6%. After a slight increase in 2011 (10.0%) CHDs were providers to significantly fewer children (from 7.0% in 2013 to 2.0% in 2020) (Table 3, Figure 7).

CHCs vaccinated between 2.7% (2007) and 7.1% (2015) in this same 20-year period. The percentage of children with no known provider type was relatively small from 2001 to 2005, ranging from 1.4% (2004) to 3.7% (2001), and in 2006 increased significantly to 14.9% as more birth records from the Bureau of Vital Statistics were regularly added into Florida SHOTS. The percentage of children with no known provider continued to increase through 2010 (19.1%), peaking at 20.2% in 2008. Provider type was not captured in 2009, when the Immunization Section was transitioning to performing the survey via Florida SHOTS. From 2011 to 2019, the percentage ranged from 11.4% (2019) to 14.7% (2013), and in 2020 decreased to 8.6% (Table 3, Figure 7).

For 2020, coverage by age 24 months was $\geq 90\%$ for ≥ 3 doses of IPV (93.4%), ≥ 1 dose of MMR (92.9%), ≥ 3 doses of Hib (92.9%), ≥ 3 doses of hep B (92.8%) and ≥ 1 dose of VAR (92.5%). Children were least likely to be up to date with ≥ 4 doses of DTaP (86.2%) and ≥ 4 doses of PCV (83.0%). Compared with 2019, coverage increased for DTaP, MMR and PCV, and decreased for IPV, Hib, hep B and VAR. Coverage by age 24 months for ≥ 3 doses of Hib (92.9%) is the lowest since 2010 (91.3%). Coverage for ≥ 3 doses of hep B (92.8%) is the lowest since 2012 (92.3%), and coverage for ≥ 1 dose of VAR (92.5%) is the lowest since 2006 (Table 3, Figures 8–14).

For 2020, children (5,337) who were vaccinated were categorized by the provider type that administered the majority of their vaccinations. Of those 5,337 children, 398 (7.5%) were vaccinated by a CHC, 148 (2.8%) by a CHD, 4,487 (84.1%) by a private provider and 304 (5.7%) by an unknown source. The number of each specific vaccine dose (in the expanded series) administered were categorized by provider type (e.g. 175 children received their first dose of MMR at a CHD) (Table 4).

Children (5,518), including those with an RE (175), were categorized by their immunization status for the expanded series (complete [82.7%], partially vaccinated [14.0%] and no shots [3.3%]). This group of children was also categorized by the vaccine provider type that administered the majority of their vaccinations in the expanded series. Of the 148 children vaccinated by CHDs, 117 (79.1%) were complete and 31 (21.0%) were partially vaccinated. Of the 398 children vaccinated by CHCs, 345 (86.7%) were complete and 53 (13.3%) were partially vaccinated. Of the 4,487 children vaccinated by private providers, 3,860 (86.0%) were complete and 627 (14.0%) were partially vaccinated. Of the 485 children vaccinated by an unknown source, 240 (49.5%) were complete, 64 (13.2%) were partially vaccinated and 181 (37.3%) received no vaccinations. Children whose vaccine provider was a CHD (79.1%), CHC (86.7%) or private provider (86%) completed the vaccine series by age 24 months more than those whose provider is unknown (49.5%) (Table 5, Figure 15).

For 2020, statewide coverage for the expanded vaccine series was assessed by several maternal characteristics at the child's birth. Children born to mothers with more than a twelfth-grade education (83.7%) completed the series on time compared with those born to mothers with less than a twelfth-grade education (83.2%) or a twelfth-grade education (81.1%) (Table 6, Figure 16). Children born to mothers age 30 years or older (83.6%) completed the series on time compared with those born to younger mothers: From age 25 to 29 (83.1%), from age 20 to 24 years (80.8%) and younger than age 20 (79.5%) (Figure 17). Children born to mothers with zero other children (85.4%) completed the series on time compared with those born to mothers with three or more other children (76.6%), two other

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children (78.5%) or one other child (83.5%) (Figure 18). Children born to married mothers (84.1%) completed the series on time compared with those born to unmarried mothers (81.2%) (Figure 19). Children born to mothers who began receiving prenatal care in the first trimester of their pregnancies (84.4%) completed the series on time compared with those born to mothers who began in the second trimester (81.1%) and in the third trimester (75.0%) (Figure 20).

For 2020, statewide coverage for the expanded vaccine series was assessed by child race. Of the 5,518 children who participated in the survey, 8 (0.1%) were American Indian/Alaska Native, 145 (2.6%) were Asian, 983 (17.8%) were black, 1,695 (30.7%) were Hispanic, 2,515 (45.6%) were white, 170 (3.1%) were other races and 2 (0.0%) had an unknown race. Of the three largest groups, the percentage of Hispanic children who completed the expanded vaccine series on time (85.7%) was higher than white children (82.0%) and black children (79.0%). More white children (4.2%) were unvaccinated compared with black children (3.8%) and Hispanic children (1.8%). Of the 181 unvaccinated children, 175 (96.7%) had an RE (Table 7, Figure 21).

Discussion

The findings in this report are subject to at least five limitations. First, as with previous editions of the *Survey of Immunization Levels in 2-Year-Old Children*, sampling only children born in January two years prior to the survey year, vaccination coverage estimates might be biased because of an incomplete sample frame. Second, vaccination coverage might be underestimated as a result of incomplete vaccination histories in Florida SHOTS, as the reporting of vaccination administration to children aged 17 years or younger was voluntary for providers prior to 2021. Third, vaccination coverage might be underestimated as a result of the parent/guardian or vaccine provider not responding to field staff vaccination history requests. Fourth, it is not known what percentage of children were excluded from the survey due to “refusal by parent/guardian to participate in the survey” (refusal) as a result of letters being eliminated as a contact method mid-survey. This creates the possibility for bias as some may respond better to a letter on FDOH letterhead than a telephone call or email. We do know 1.8% were excluded due to refusal in 2019 (when letters were sent) and 2020. Fifth, it is not known what percentage of children were excluded due to “lack of response (from parent/guardian) or field staff being unable to locate a vaccination history” (LOR/UTL) as a result of letters being eliminated as a contact method mid-survey. This also creates the possibility for bias as some may respond better to a letter on FDOH letterhead than a telephone call or email. We do know 10.8% were excluded due to LOR/UTL in 2020 compared to 10.3% in 2019 when letters were sent.

Finally, questions have been raised about the impact of the Novel Coronavirus Disease 2019 (COVID-19) pandemic on routine childhood vaccination. The children in this survey were already age 24 months (the vaccine compliance age) by the end of January 2020, prior to COVID-19 disruptions in Florida.

If you have questions or comments concerning this survey, please contact our survey and assessment consultant, Ms. Amy Wilson, at 850-901-6806.

CB/aw

Enclosures

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Table 1. Vaccination coverage for the 4:3:1:3:3:1 and 4:3:1:3:3:1:4 vaccine series by age 24 months, by selected counties and statewide, Florida—Survey of Immunization Levels in 2-Year-Old Children 2020

County	Sample Size ¹	Survey Participants ²	No Vaccinations ³		4:3:1:3:3:1 ⁴				4:3:1:3:3:1:4 ⁵			
					Complete ⁶		Partial		Complete ⁶		Partial	
			#	% ⁷	#	% ⁷	#	% ⁷	#	% ⁷	#	% ⁷
Alachua	159	150	2	1.3 (± 5.8)	126	84.0 (± 5.9)	22	14.7 (± 5.7)	125	83.3 (± 6.0)	23	15.3 (± 5.8)
Brevard	261	243	5	2.1 (± 5.3)	183	75.3 (± 5.4)	55	22.6 (± 5.3)	181	74.5 (± 5.5)	57	23.5 (± 5.3)
Broward	356	317	11	3.5 (± 4.1)	256	80.8 (± 4.3)	50	15.8 (± 4.0)	252	79.5 (± 4.4)	54	17.0 (± 4.1)
Collier	182	158	9	5.7 (± 5.1)	130	82.3 (± 6.0)	19	12.0 (± 5.1)	130	82.3 (± 6.0)	19	12.0 (± 5.1)
Dade	387	335	10	3.0 (± 3.4)	289	86.3 (± 3.7)	36	10.8 (± 3.3)	287	85.7 (± 3.8)	38	11.3 (± 3.4)
Duval	320	300	13	4.3 (± 4.5)	230	76.7 (± 4.8)	57	19.0 (± 4.4)	229	76.3 (± 4.8)	58	19.3 (± 4.5)
Escambia	201	156	5	3.2 (± 5.4)	132	84.6 (± 5.7)	19	12.2 (± 5.1)	130	83.3 (± 5.8)	21	13.5 (± 5.4)
Hillsborough	349	304	8	2.6 (± 3.3)	274	90.1 (± 3.4)	22	7.2 (± 2.9)	267	87.8 (± 3.7)	29	9.5 (± 3.3)
Lake	187	176	2	1.1 (± 5.6)	145	82.4 (± 5.6)	29	16.5 (± 5.5)	143	81.3 (± 5.8)	31	17.6 (± 5.6)
Lee	260	240	7	2.9 (± 3.2)	216	90.0 (± 3.8)	17	7.1 (± 3.2)	216	90.0 (± 3.8)	17	7.1 (± 3.2)
Leon	169	150	5	3.3 (± 4.9)	129	86.0 (± 5.6)	16	10.7 (± 4.9)	129	86.0 (± 5.6)	16	10.7 (± 4.9)
Manatee	172	156	9	5.8 (± 4.5)	133	85.3 (± 5.6)	14	9.0 (± 4.5)	133	85.3 (± 5.6)	14	9.0 (± 4.5)
Marion	184	168	3	1.8 (± 5.2)	144	85.7 (± 5.3)	21	12.5 (± 5.0)	142	84.5 (± 5.5)	23	13.7 (± 5.2)
Okaloosa	177	115	7	6.1 (± 5.4)	97	84.4 (± 6.6)	11	9.6 (± 5.4)	97	84.4 (± 6.6)	11	9.6 (± 5.4)
Orange	363	343	5	1.5 (± 4.3)	272	79.3 (± 4.3)	66	19.2 (± 4.2)	267	77.8 (± 4.4)	71	20.7 (± 4.3)
Osceola	232	205	7	3.4 (± 5.6)	157	76.6 (± 5.8)	41	20.0 (± 5.5)	155	75.6 (± 5.9)	43	21.0 (± 5.6)
Palm Beach	307	260	4	1.5 (± 3.1)	238	91.5 (± 3.4)	18	6.9 (± 3.1)	238	91.5 (± 3.4)	18	6.9 (± 3.1)
Pasco	221	210	8	3.8 (± 4.7)	175	83.3 (± 5.0)	27	12.9 (± 4.5)	172	81.9 (± 5.2)	30	14.3 (± 4.7)
Pinellas	294	276	14	5.1 (± 4.3)	219	79.4 (± 4.8)	43	15.6 (± 4.3)	219	79.4 (± 4.8)	43	15.6 (± 4.3)
Polk	270	242	4	1.7 (± 4.0)	212	87.6 (± 4.2)	26	10.7 (± 3.9)	210	86.8 (± 4.3)	28	11.6 (± 4.0)
Sarasota	163	139	18	13.0 (± 4.1)	112	80.6 (± 6.6)	9	6.5 (± 4.1)	112	80.6 (± 6.6)	9	6.5 (± 4.1)
Seminole	220	204	8	3.9 (± 4.9)	165	80.9 (± 5.4)	31	15.2 (± 4.9)	165	80.9 (± 5.4)	31	15.2 (± 4.9)
St. Lucie	164	141	4	2.8 (± 4.8)	126	89.4 (± 5.1)	11	7.8 (± 4.4)	124	87.9 (± 5.4)	13	9.2 (± 4.8)
Volusia	229	194	3	1.6 (± 5.3)	160	82.5 (± 5.3)	31	16.0 (± 5.2)	158	81.4 (± 5.5)	33	17.0 (± 5.3)
Other ⁸	381	336	10	3.0 (± 3.6)	285	84.8 (± 3.8)	41	12.2 (± 3.5)	281	83.6 (± 4.0)	45	13.4 (± 3.6)
Statewide ⁹	6,208 ¹⁰	5,518	181	3.1 (± 0.3)	4,605	84.0 (± 0.6)	732	12.9 (± 0.5)	4,562	83.2 (± 0.6)	775	13.8 (± 0.5)

Abbreviations: DTaP = diphtheria, tetanus toxoids and acellular pertussis; hep B = hepatitis B; Hib = *Haemophilus influenzae* type b conjugate; IPV = inactivated poliovirus vaccine; MMR = measles, mumps and rubella; PCV = pneumococcal conjugate vaccine; and VAR = varicella.

¹Children in this survey were born in January 2018.

²Excludes 111 children whose parents refused to participate, 557 who could not be located and 22 deceased or deleted from the database.

³Children with no vaccines for the vaccine series. Includes 175 children with a religious exemption.

⁴4:3:1:3:3:1 = vaccine series of ≥4 doses of DTaP vaccine, ≥3 doses of IPV, ≥1 dose of MMR vaccine, 3 or 4 doses of Hib vaccine (depending on product type), ≥3 doses of hep B vaccine and ≥1 dose of VAR vaccine (or physician-documented disease history).

⁵4:3:1:3:3:1:4 = 4:3:1:3:3:1 vaccine series plus ≥4 doses of PCV.

⁶Children have received all vaccines necessary to complete the series by age 24 months and do not have a religious exemption.

⁷Vaccination coverage levels (unweighted) presented as point estimate (%) ± 95% confidence interval.

⁸Children born in any Florida county may be selected to participate in the survey; however, county-specific data are provided for the 24 counties with the highest birth counts only. Children born in the other 43 counties are grouped together as "Other."

⁹Weighted average based on the number of births in each county.

¹⁰Statewide sample size includes 22 children deceased or deleted from the database.

Table 2. Vaccination coverage for the 4:3:1:3:3:1 and 4:3:1:3:3:1:4 vaccine series by age 24 months, statewide, Florida 2011–2020
—Survey of Immunization Levels in 2-Year-Old Children 2020

Year ¹	Survey Participants ²	No Vaccinations ³		4:3:1:3:3:1 ⁴				4:3:1:3:3:1:4 ⁵			
				Complete ⁶		Partial		Complete ⁶		Partial	
				#	% ⁷	# ⁸	% ⁷	#	% ⁷	# ⁸	% ⁷
2020	5,518	181	3.1 (± 0.3)	4,605	84.0 (± 0.6)	732	12.9 (± 0.5)	4,562	83.2 (± 0.6)	775	13.8 (± 0.5)
2019	5,268	187	3.5 (± 0.3)	4,405	83.5 (± 0.6)	676	13.0 (± 0.5)	4,351	82.4 (± 0.6)	730	14.1 (± 0.6)
2018	1,842	64	3.1 (± 0.5)	1,510	83.9 (± 1.1)	268	13.1 (± 0.9)	1,491	83.1 (± 1.1)	287	13.9 (± 1.0)
2017	1,817	44	2.2 (± 0.4)	1,554	86.1 (± 1.0)	219	11.7 (± 1.0)	1,530	85.0 (± 1.1)	243	12.8 (± 1.0)
2016	1,831	36	2.1 (± 0.4)	1,525	84.1 (± 1.2)	270	13.8 (± 1.1)	1,510	83.4 (± 1.2)	285	14.5 (± 1.1)
2015	1,828	36	1.6 (± 0.3)	1,528	85.5 (± 1.1)	264	12.9 (± 1.0)	1,511	84.5 (± 1.1)	281	13.9 (± 1.1)
2014	1,740	35	1.9 (± 0.4)	1,481	85.7 (± 1.1)	224	12.4 (± 1.0)	1,446	83.6 (± 1.1)	259	14.5 (± 1.1)
2013	1,759	33	1.4 (± 0.3)	1,512	86.7 (± 1.1)	214	11.9 (± 1.1)	1,447	82.9 (± 1.2)	279	15.7 (± 1.2)
2012	1,755	28	1.6 (± 0.4)	1,440	83.0 (± 1.2)	287	15.5 (± 1.1)	1,363	78.0 (± 1.3)	364	20.4 (± 1.3)
2011	1,780	25	1.1 (± 0.3)	1,515	86.1 (± 1.1)	240	12.8 (± 1.1)	1,474	83.2 (± 1.2)	281	15.8 (± 1.2)

Abbreviations: DTaP = diphtheria, tetanus toxoids and acellular pertussis; hep B = hepatitis B; Hib = *Haemophilus influenzae* type b conjugate; IPV = inactivated poliovirus vaccine; MMR = measles, mumps and rubella; PCV = pneumococcal conjugate vaccine; and VAR = varicella.

¹2016–2020 state goal was based on the 4:3:1:3:3:1:4 vaccine series. 2011–2015 state goal was based on the 4:3:1:3:3:1 vaccine series.

²Children were born in January two years prior to the survey year. Excludes children who could not be located, were deleted from the database or whose parent refused to participate.

³Includes children with no vaccines for the 4:3:1:3:3:1:4 vaccine series and children with a religious exemption.

⁴4:3:1:3:3:1 = vaccine series of ≥4 doses of DTaP vaccine, ≥3 doses of IPV, ≥1 dose of MMR vaccine, 3 or 4 doses of Hib vaccine (depending on product type), ≥3 doses of hep B vaccine and VAR vaccine (or physician-documented disease history).

⁵4:3:1:3:3:1:4 = 4:3:1:3:3:1 vaccine series plus ≥4 doses of PCV.

⁶Children have received all vaccines necessary to complete the series by age 24 months and do not have a religious exemption.

⁷Vaccination coverage levels (weighted by the number of births in each county) presented as point estimate (%) ± 95% confidence interval.

⁸Number of children who received all vaccines necessary to complete the series by age 24 months.

Table 3. Vaccination coverage by specified vaccine series, doses and provider type by age 24 months, statewide, Florida 2001–2020—Survey of Immunization Levels in 2-Year-Old Children 2020

Year	Survey Participants ¹ #	Vaccination Coverage Level ³			Coverage Level by Selected Vaccine Doses								Vaccination by Provider Type			
		Vaccine Series ²	Complete ⁴	Partial	No Shots ⁵	≥4 DTaP	≥3 IPV	≥1 MMR	≥3 Hib	≥3 Hep B	≥1 Varicella	≥4 PCV	Private Provider	CHD	CHC	Unknown
			%	%	%	%	%	%	%	%	%	%	%	%	%	%
2020 ⁶	5,518	4:3:1:3:3:1:4	83.2	13.8	3.1	86.2	93.4	92.9	92.9	92.8	92.5	83.0	82.7	2.0	6.7	8.6
2019 ⁶	5,268	4:3:1:3:3:1:4	82.4	14.1	3.5	86.1	93.8	92.8	93.1	93.2	93.1	82.6	79.6	2.4	6.6	11.4
2018 ⁶	1,842	4:3:1:3:3:1:4	83.1	13.9	3.1	86.2	93.3	92.2	93.1	93.1	92.7	83.0	79.7	2.4	6.3	11.6
2017 ⁶	1,817	4:3:1:3:3:1:4	85.0	12.8	2.2	87.9	94.3	93.8	94.1	94.7	93.8	84.3	79.3	2.2	5.4	13.0
2016 ⁶	1,831	4:3:1:3:3:1:4	83.4	14.5	2.1	87.2	94.8	93.8	94.0	94.5	93.5	82.0	78.3	3.8	5.2	12.7
2015 ⁶	1,828	4:3:1:3:3:1	85.5	12.9	1.6	89.5	94.8	93.4	94.8	94.3	94.3	84.7	75.3	4.2	7.1	13.3
2014 ⁶	1,740	4:3:1:3:3:1	85.7	12.4	1.9	88.2	95.5	94.4	96.1	94.1	95.2	81.0	75.1	4.7	5.9	14.3
2013 ⁶	1,759	4:3:1:3:3:1	86.7	11.9	1.4	89.3	96.2	93.3	95.8	95.0	94.0	80.5	73.7	7.0	4.6	14.7
2012 ⁶	1,755	4:3:1:3:3:1	83.0	15.5	1.6	87.8	95.5	92.5	96.7	92.3	93.3	78.3	76.7	6.0	4.7	12.5
2011 ⁶	1,780	4:3:1:3:3:1	86.1	12.8	1.1	89.4	95.2	93.6	94.0	94.6	94.9	84.1	70.9	10.0	4.8	14.3
2010 ⁶	1,716	4:3:1:3:3:1	81.1	18.1	0.8	88.0	94.2	93.3	91.3	93.0	93.9	80.7	65.9	9.6	5.4	19.1
2009 ^{6,7}	1,822	4:3:1:3:3:1	87.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2008	1,958	4:3:1:3:3:1	83.4	16.0	0.6	86.7	93.8	94.5	94.8	94.5	94.0	N/A	60.1	15.8	3.9	20.2
2007	1,876	4:3:1:3:3:1	83.2	15.7	1.1	86.9	92.5	93.4	94.8	94.3	92.8	N/A	68.3	13.5	2.7	15.5
2006	1,648	4:3:1:3:3:1	79.2	20.2	0.6	87.4	93.2	93.3	94.1	93.3	92.3	N/A	65.3	16.8	3.0	14.9
2005	1,901	4:3:1	86.6	13.1	0.5	86.4	93.2	93.7	95.1	94.0	90.6	N/A	75.2	17.2	4.5	3.0
2004	1,540	4:3:1	85.3	14.0	0.6	86.0	92.5	93.1	93.8	92.8	90.0	N/A	75.6	18.4	4.5	1.4
2003	1,190	4:3:1	79.4	20.3	0.3	80.2	93.5	93.9	78.7	92.3	85.3	N/A	76.1	16.9	3.4	3.6
2002	1,159	4:3:1	85.3	14.0	0.7	86.6	93.7	95.8	96.7	92.0	89.2	N/A	76.0	17.5	3.6	2.8
2001 ⁶	1,092	4:3:1	85.5	14.3	0.2	87.9	93.6	95.2	96.7	95.2	75.5	N/A	76.2	16.9	3.0	3.7

Abbreviations: CHD = county health department; CHC = community health center; DTaP = diphtheria, tetanus toxoids and acellular pertussis; hep B = hepatitis B; Hib = *Haemophilus influenzae* type b conjugate; IPV = inactivated poliovirus vaccine; MMR = measles, mumps and rubella; PCV = pneumococcal conjugate vaccine; and VAR = varicella.

¹Children were born in January two years prior to the survey year. Excludes children who could not be located, were deleted from the database, or whose parents refused to participate.

²2016–2020 are based on the 4:3:1:3:3:1:4 vaccine series: ≥4 doses of DTaP vaccine, ≥3 doses of IPV, ≥1 dose of MMR vaccine, 3 or 4 doses of Hib vaccine (depending on product type), ≥3 doses of hep B vaccine, ≥4 doses of PCV and ≥1 dose of VAR vaccine (or physician-documented disease history). 2006–2015 are based on the 4:3:1:3:3:1 vaccine series: 4:3:1:3:3:1:4 vaccine series minus the four doses of PCV. 2001–2005 are based on the 4:3:1 vaccine series: ≥4 doses of DTaP vaccine, ≥3 doses of IPV, and ≥1 dose of MMR vaccine.

³Vaccination coverage levels for vaccine series specified, presented as point estimate (%).

⁴Children have received all vaccines necessary to complete the vaccine series by age 24 months and do not have a religious exemption.

⁵Children with no vaccinations for the vaccine series and children with a religious exemption.

⁶Percentage weighted by the number of births in each county.

⁷2009 is based on the 4:3:1:3:3:1 vaccine series, excluding the Hib vaccinations. Including the Hib vaccinations, the completion percentage was 67.6%.

Table 4. Vaccinated children by provider type and specific doses administered, statewide, Florida—Survey of Immunization Levels in 2-Year-Old Children 2020

Provider Type	Participants w/Shots ¹		Number of Doses Administered												
	# ²	% ³	DTaP 1	DTaP 3	DTaP 4	IPV 1	IPV 3	MMR 1	Hib 3	hep B 3	VAR 1	PCV 1	PCV 2	PCV 3	PCV 4
CHC	398	7.5	396	388	354	396	387	400	376	398	400	401	394	387	350
CHD	148	2.8	181	152	154	178	151	175	151	165	175	186	162	150	141
Private Provider	4,487	84.1	4,353	4,263	3,898	4,342	4,215	4,168	4,230	4,150	4,187	4,361	4,314	4,239	3,775
Unknown	304	5.7	396	392	322	400	380	353	336	388	318	364	381	342	287
Statewide	5,337	100.0	5,326	5,195	4,728	5,316	5,133	5,096	5,093	5,101	5,080	5,312	5,251	5,118	4,553

Abbreviations: CHC = community health center; CHD = county health department; DTaP = diphtheria, tetanus toxoids and acellular pertussis; hep B = hepatitis B; Hib = *Haemophilus influenzae* type b conjugate; IPV = inactivated poliovirus vaccine; MMR = measles, mumps and rubella; PCV = pneumococcal conjugate; VAR = varicella.

¹Children in this survey were born in January 2018. Excludes 111 children whose parent/guardian refused to participate, 557 who could not be located, 22 who were deceased or deleted from the database, 175 with a religious exemption and 6 with no vaccinations for the 4:3:1:3:3:1:4 vaccine series.

²Children are grouped into the provider type that provided the majority of their vaccinations in the 4:3:1:3:3:1:4 vaccine series, which consists of ≥4 doses of DTaP vaccine, ≥3 doses of IPV, ≥1 dose of MMR vaccine, 3 or 4 doses of Hib vaccine (depending on product type), ≥3 doses of hep B vaccine, ≥1 dose of VAR vaccine (or physician-documented disease history) and ≥4 doses of PCV.

³Percent of children by vaccine provider type presented as point estimate (%).

Table 5. Vaccination coverage for the 4:3:1:3:3:1:4 vaccine series by age 24 months, by provider type, statewide, Florida—Survey of Immunization Levels in 2-Year-Old Children 2020

4:3:1:3:3:1:4 ¹ Vaccine Series	Survey Participants ²		County Health Department		Community Health Center		Private Provider		Unknown Source	
	#	% ³	# ⁴	% ³	# ⁴	% ³	# ⁴	% ³	# ⁴	% ³
Complete ⁵	4,562	82.7	117	79.1	345	86.7	3,860	86.0	240	49.5
Partial	775	14.0	31	21.0	53	13.3	627	14.0	64	13.2
No Shots ⁶	181	3.3	0	0.0	0	0.0	0	0.0	181	37.3
Statewide	5,518	100.0	148	100.0	398	100.0	4,487	100.0	485	100.0

Abbreviations: DTaP = diphtheria, tetanus toxoids and acellular pertussis; hep B = hepatitis B; Hib = *Haemophilus influenzae* type b conjugate; IPV = inactivated poliovirus vaccine; MMR = measles, mumps and rubella; PCV = pneumococcal conjugate vaccine; VAR = varicella.

¹4:3:1:3:3:1:4 = vaccine series of ≥4 doses of DTaP vaccine, ≥3 doses of IPV, ≥1 dose of MMR vaccine, 3 or 4 doses of Hib vaccine (depending on product type), ≥3 doses of hep B vaccine, ≥1 dose of VAR vaccine (or physician-documented disease history) and ≥4 doses of PCV.

²Children in this survey were born in January 2018. Excludes 111 children whose parents refused to participate in the survey, 557 children who could not be located and 22 children deceased or deleted from the database.

³Immunization levels (unweighted) presented as point estimate (%).

⁴Children are grouped into the vaccine provider type that provided the majority of the vaccines for the vaccine series.

⁵Children have received all vaccines necessary to complete the 4:3:1:3:3:1:4 vaccine series by age 24 months and do not have a religious exemption.

⁶Includes 6 children with no vaccines for the 4:3:1:3:3:1:4 vaccine series and 175 children with a religious exemption.

Table 6. Vaccination coverage for the 4:3:1:3:3:1:4 vaccine series¹ by age 24 months, by maternal characteristics, statewide, Florida —Survey of Immunization Levels in 2-Year-Old Children 2020

	Mother's Education Level (Years) ²							
	<12 ³		12		>12		Unknown	
Complete ⁴	560	83.2%	1,370	81.1%	2,599	83.7%	33	68.8%
Incomplete ⁵	113	16.8%	320	18.9%	508	16.4%	15	31.3%

	Mother's Age ²									
	<20 ³		20–24		25–29		≥30		Unknown	
Complete ⁴	206	79.5%	889	80.8%	1,397	83.1%	2,048	83.6%	22	81.5%
Incomplete ⁵	53	20.5%	211	19.2%	284	16.9%	403	16.4%	5	18.5%

	Number of Mother's Other Children ²									
	≥3 ³		2		1		0		Unknown	
Complete ⁴	454	76.6%	723	78.5%	1,492	83.5%	1,883	85.4%	10	71.4%
Incomplete ⁵	139	23.4%	198	21.5%	294	16.5%	321	14.6%	4	28.6%

	Mother's Marital Status ²			
	Not Married ³		Married	
Complete ⁴	2,188	81.2%	2,374	84.1%
Incomplete ⁵	506	18.8%	450	15.9%

	Trimester of Initiation of Mother's Prenatal Care ²							
	3rd ³		2nd		1st		Unknown	
Complete ⁴	204	75.0%	889	81.1%	3,175	84.4%	294	75.6%
Incomplete ⁵	68	25.0%	207	18.9%	586	15.6%	95	24.4%

Abbreviations: DTaP = diphtheria, tetanus toxoids and acellular pertussis; hep B = hepatitis B; Hib = *Haemophilus influenzae* type b conjugate; IPV = inactivated poliovirus vaccine; MMR = measles, mumps and rubella; PCV = pneumococcal conjugate vaccine; VAR = varicella. Children in this survey were born in January 2018.

¹4:3:1:3:3:1:4 = vaccine series of ≥4 doses of DTaP vaccine, ≥3 doses of IPV, ≥1 dose of MMR vaccine, 3 or 4 doses of Hib vaccine (depending on product type), ≥3 doses of hep B vaccine, ≥1 dose of VAR vaccine (or physician-documented disease history) and ≥4 doses of PCV.

²Characteristics of child's mother.

³The subset of characteristics that may increase the probability for not completing the 4:3:1:3:3:1:4 vaccine series by age 24 months.

⁴The number and percentage of children per subset who completed the 4:3:1:3:3:1:4 vaccine series by age 24 months.

⁵The number and percentage of children per subset who did not complete the 4:3:1:3:3:1:4 vaccine series by age 24 months. Includes children with no shots in the vaccine series and children with a religious exemption.

Table 7. Vaccination coverage by age 24 months by race—Survey of Immunization Levels in 2-Year-Old Children, Florida 2020

Race	Sample Size ¹	Survey Participants ²		No Shots ³			4:3:1:3:3:1:4 ⁴			
		#	%	#	% ⁶	Complete ⁵		Partial		
						#	% ⁶	#	% ⁶	
American Indian/ Alaska Native	10	8	0.1	0	0.0 (±0.0)	6	75.0 (±30.0)	2	25.0 (±30.0)	
Asian	170	145	2.6	1	0.7 (±1.3)	129	89.0 (±5.1)	15	10.3 (±5.0)	
Black	1,081	983	17.8	37	3.8 (±1.2)	777	79.0 (±2.5)	169	17.2 (±2.4)	
Hispanic	1,866	1,695	30.7	31	1.8 (±0.6)	1,452	85.7 (±1.7)	212	12.5 (±1.6)	
White	2,854	2,515	45.6	106	4.2 (±0.8)	2,061	82.0 (±1.5)	348	13.8 (±1.3)	
Other	201	170	3.1	3	3.5 (±2.8)	136	80.0 (±6.0)	28	16.5 (±5.6)	
Unknown	4	2	0.0	0	0.0 (±0.0)	1	50.0 (±69.3)	1	50.0 (±69.3)	
Statewide	6,208 ⁷	5,518	100.0	181	3.3 (±0.5)	4,562	82.7 (±1.0)	775	14.0 (±0.9)	

Abbreviations: DTaP = diphtheria, tetanus toxoids and acellular pertussis; hep B = hepatitis B; Hib = *Haemophilus influenzae* type b conjugate; IPV = inactivated poliovirus vaccine; MMR = measles, mumps rubella; PCV = pneumococcal conjugate vaccine; and VAR = varicella.

¹Children in this survey were born in January 2018.

²Excludes 111 children whose parents refused to participate in the survey, 557 who could not be located and 22 deceased or deleted from the database.

³Has no shots for the 4:3:1:3:3:1:4 vaccine series. Includes 175 children with a religious exemption.

⁴4:3:1:3:3:1:4 = vaccine series of ≥4 doses of DTaP vaccine, ≥3 doses of IPV, ≥1 dose of MMR vaccine, 3 or 4 doses of Hib vaccine (depending on product type), ≥3 doses of hep B, ≥1 dose of VAR vaccine (or physician-documented disease history) and ≥4 doses of PCV.

⁵Children have received all of the vaccines necessary to complete the vaccine series by age 24 months and do not have a religious exemption.

⁶Vaccination levels presented as point estimate (%) ± 95% confidence interval.

⁷Statewide sample size includes 22 children deceased or deleted from the database; however, they are not included in the individual race sample sizes.

Figure 1. Vaccination coverage for the 4:3:1:3:3:1 and 4:3:1:3:3:1:4 vaccine series by age 24 months, by selected counties and statewide, Florida, 2020

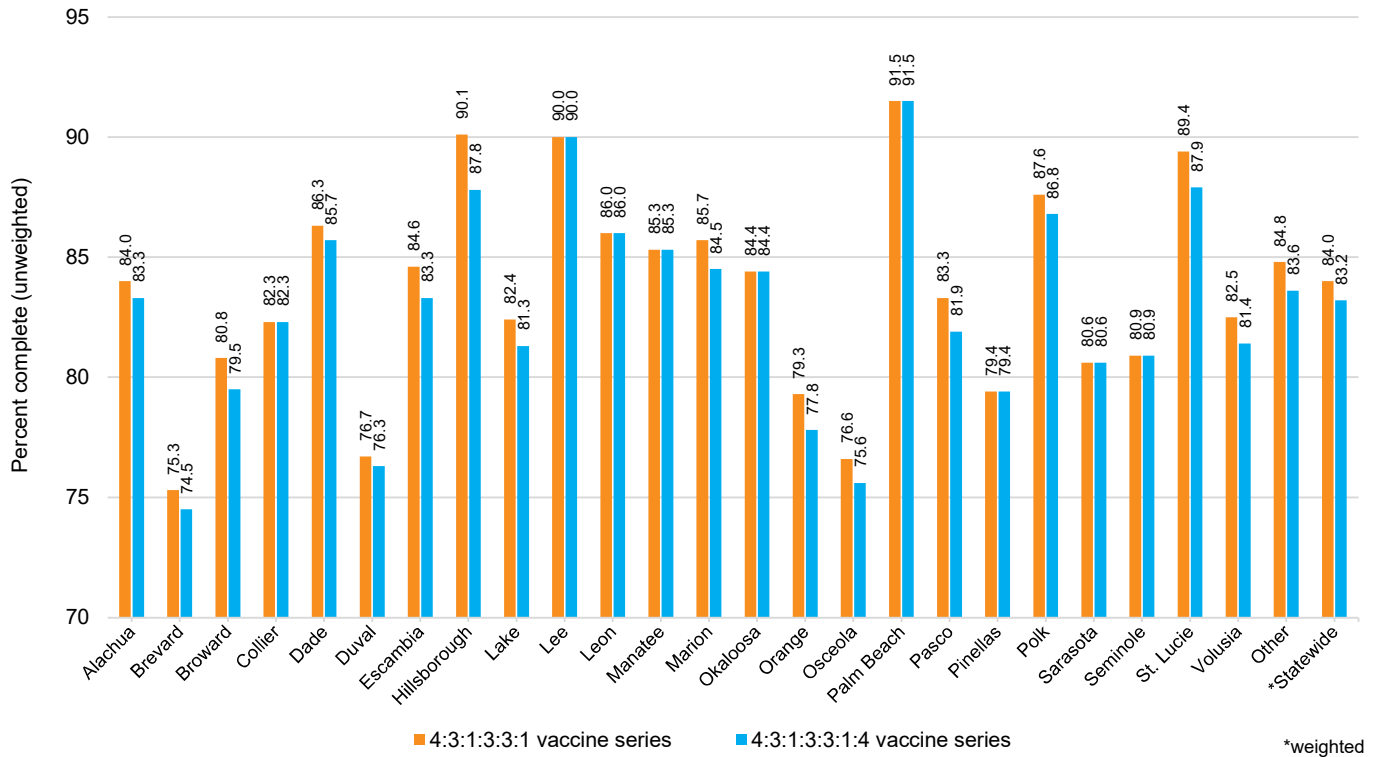


Figure 2. Percent of children with no vaccinations for the 4:3:1:3:3:1:4 vaccine series by age 24 months, by selected counties and statewide, Florida, 2020

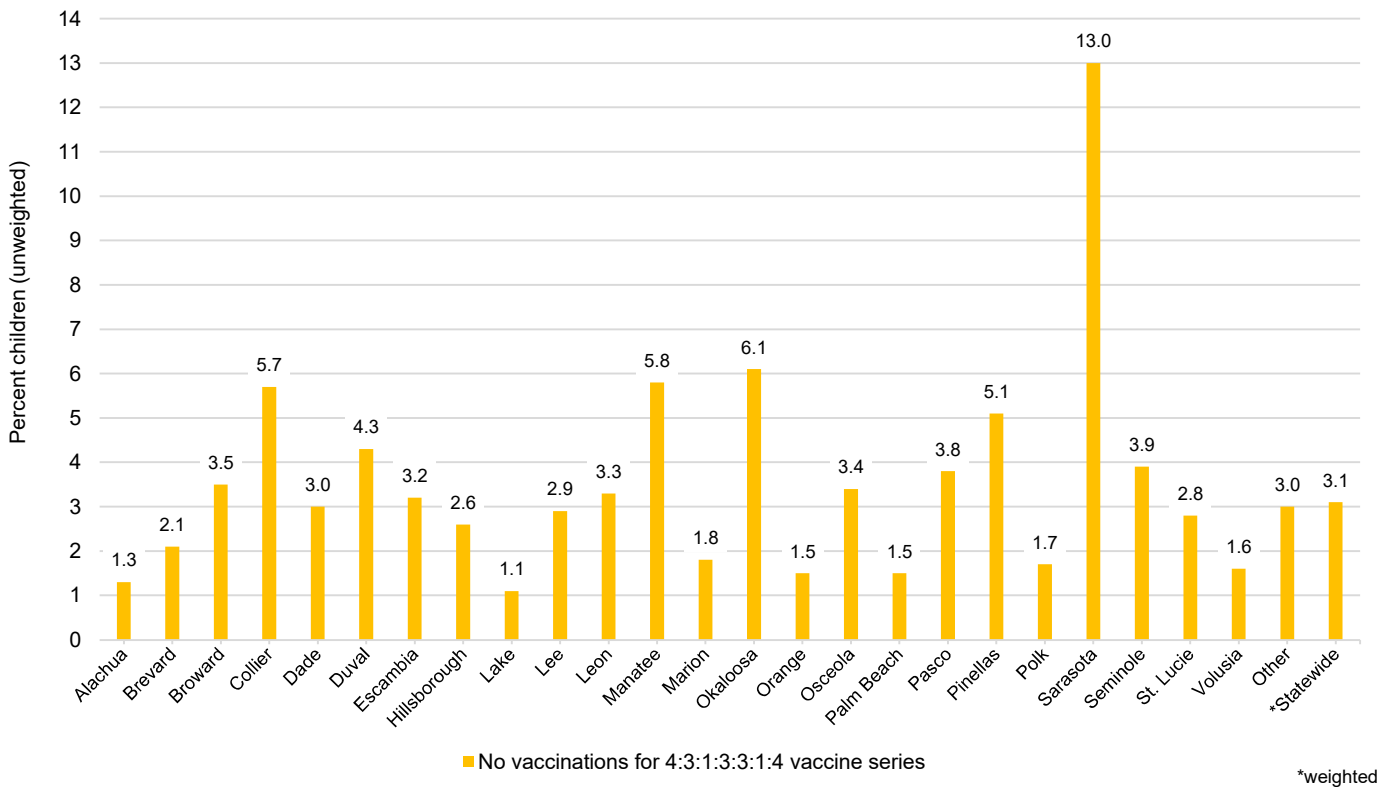


Figure 3. Vaccination coverage for the 4:3:1:3:3:1 and 4:3:1:3:3:1:4 vaccine series by age 24 months, by specified vaccine series, Florida, 2011–2020

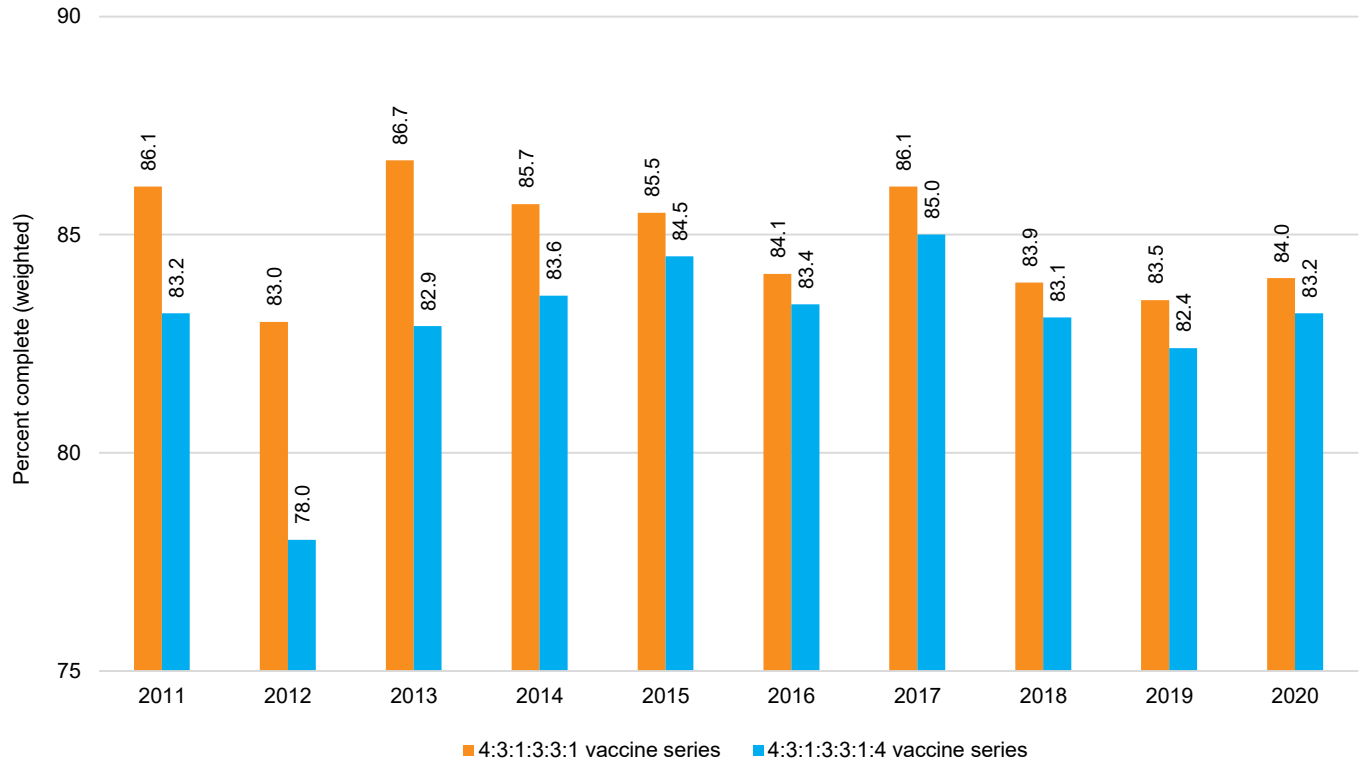


Figure 4. Percent of children with no vaccinations for the 4:3:1:3:3:1:4 vaccine series by age 24 months, by provider type, Florida, 2011–2020

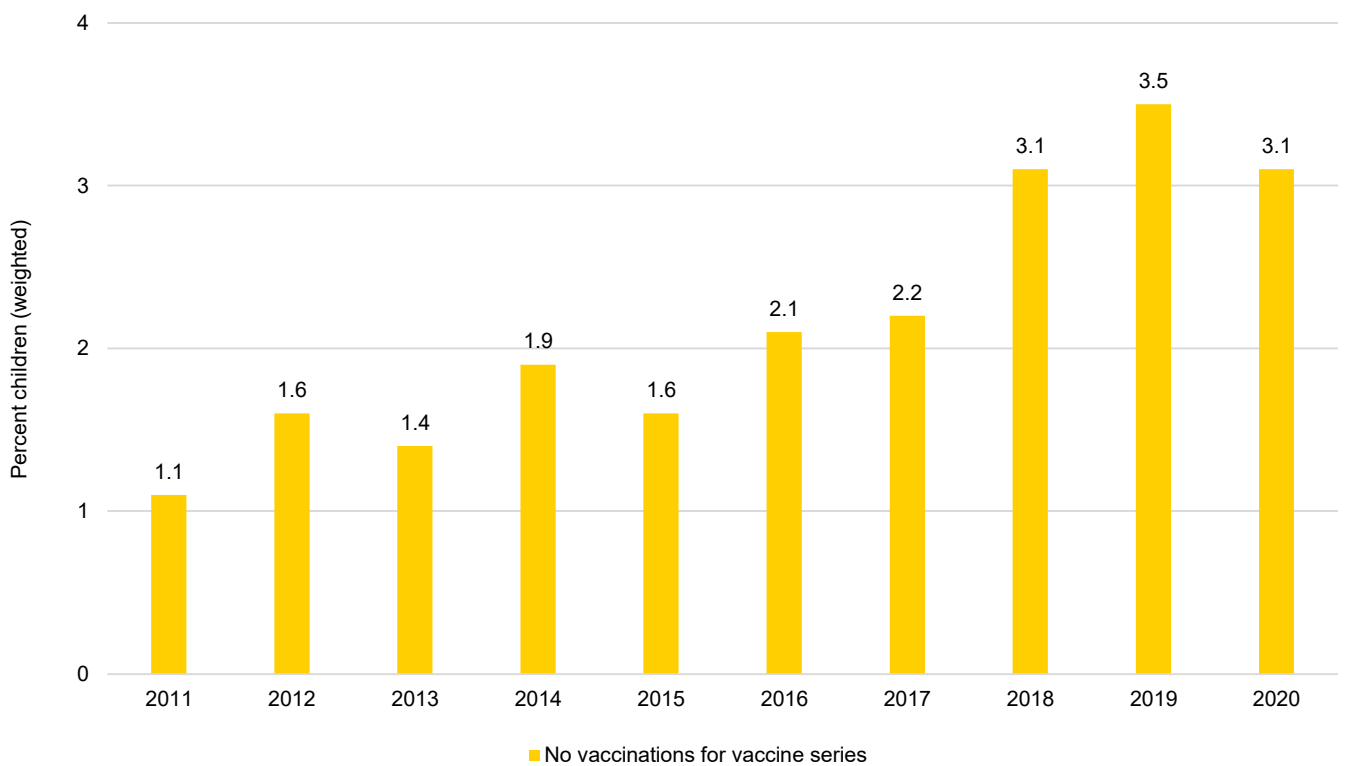


Figure 5. Vaccination coverage for specified vaccine series, by age 24 months, Florida, 2001–2020

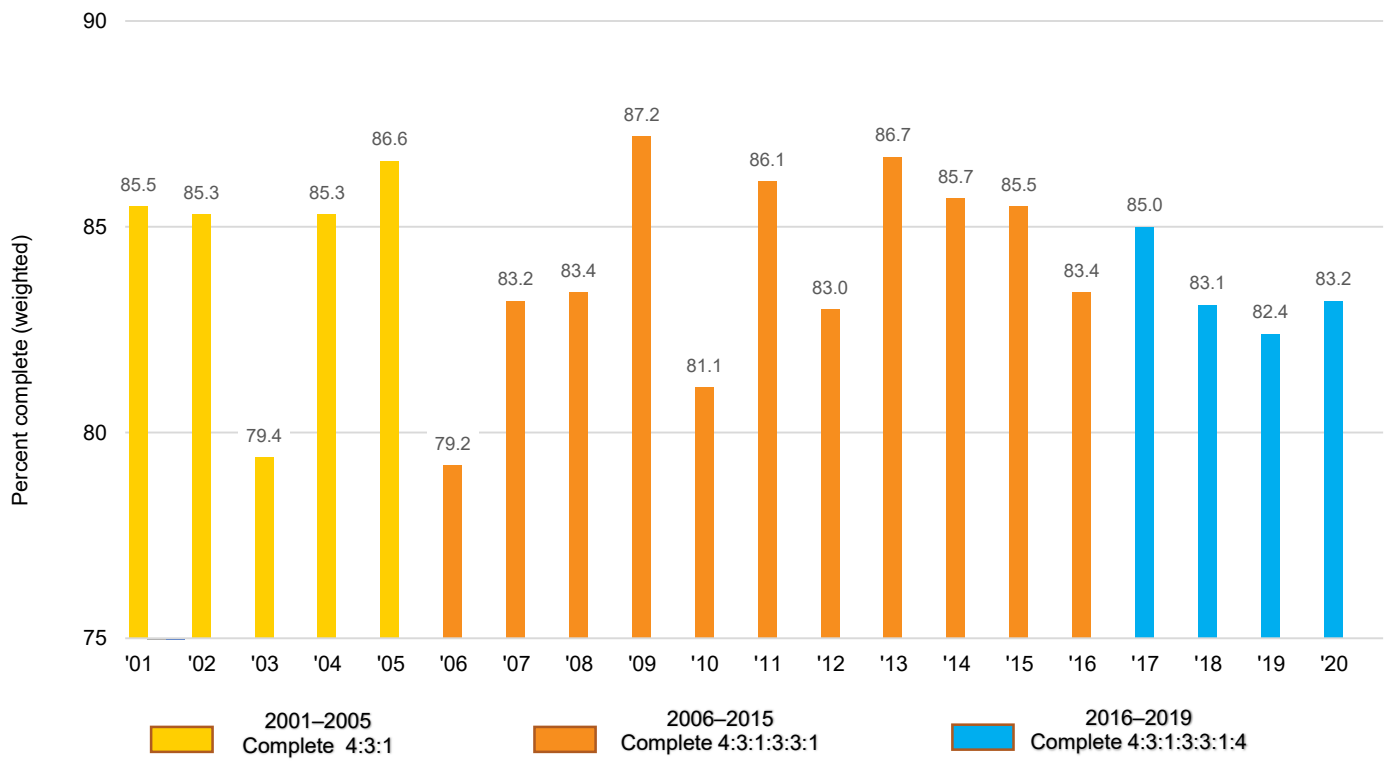


Figure 6. Percent of children with no vaccinations for specified vaccine series, by age 24 months, Florida, 2001–2020

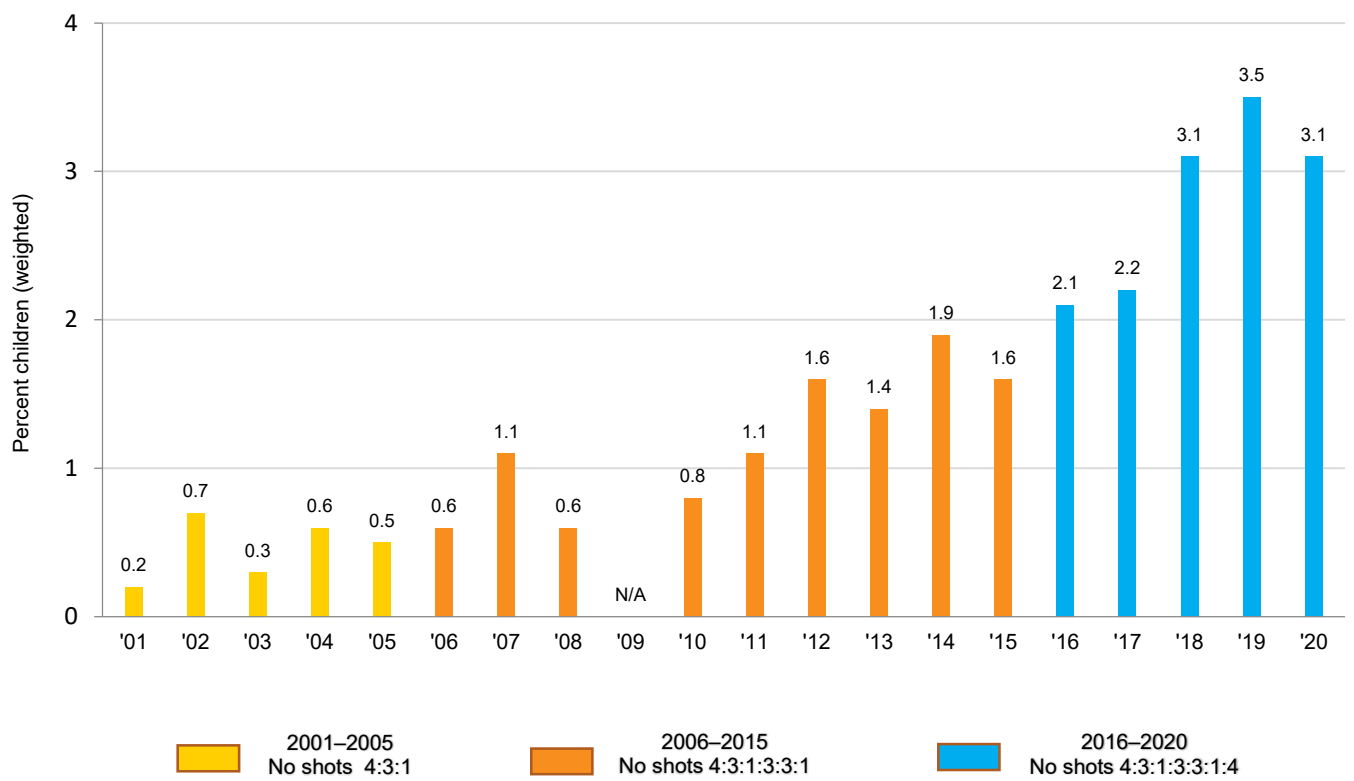


Figure 7. Vaccination coverage by age 24 months, by provider type, Florida, 2001–2020

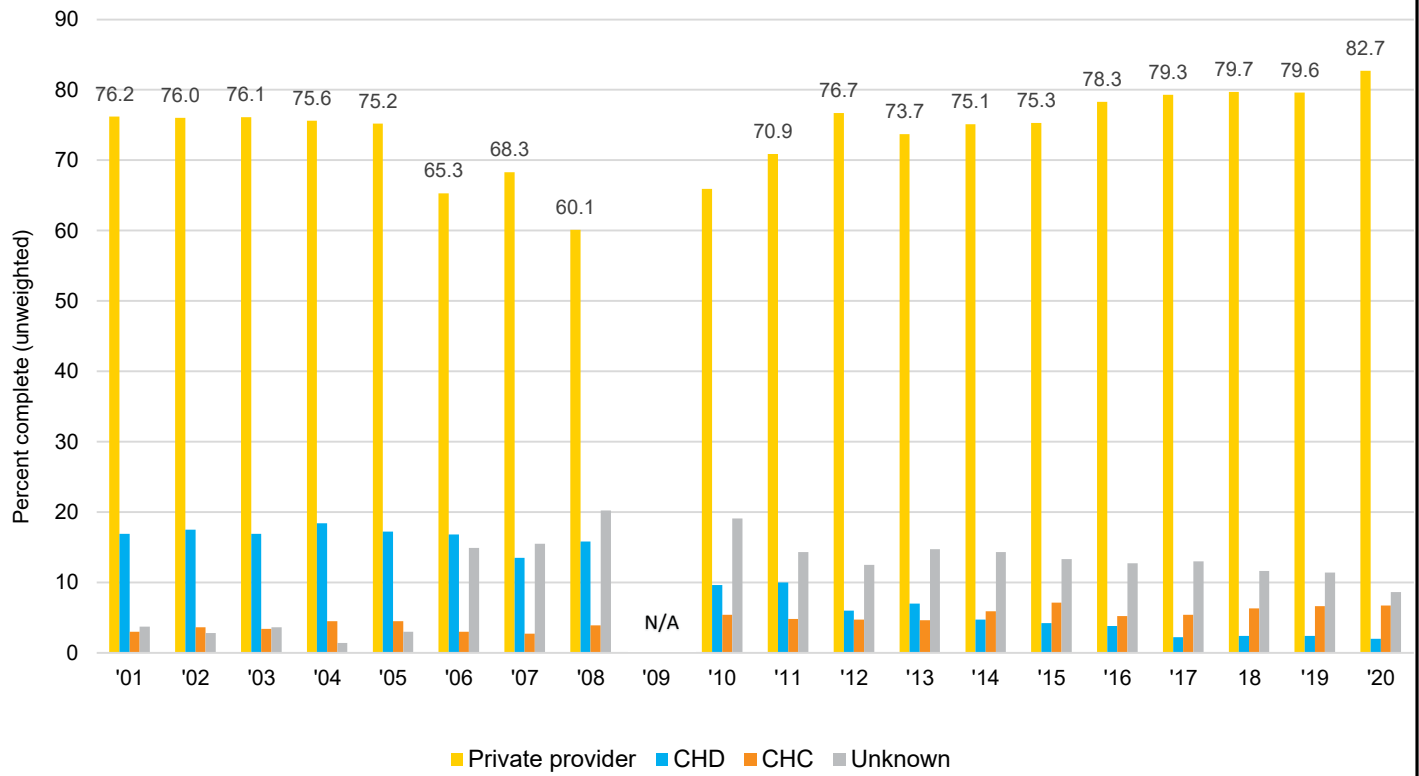


Figure 8. Percent of children who received ≥4 doses of DTaP vaccine by age 24 months, Florida, 2001–2020

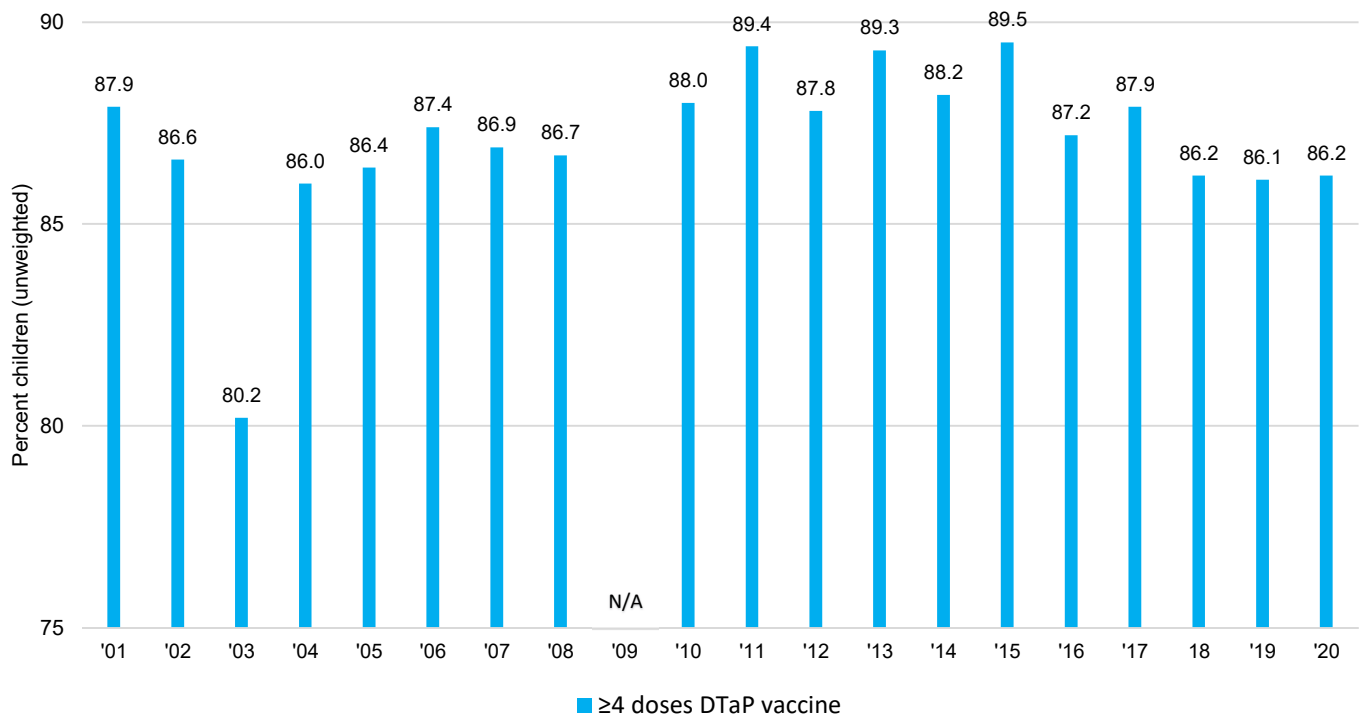


Figure 9. Percent of children who received ≥ 3 doses of IPV by age 24 months, Florida, 2001–2020

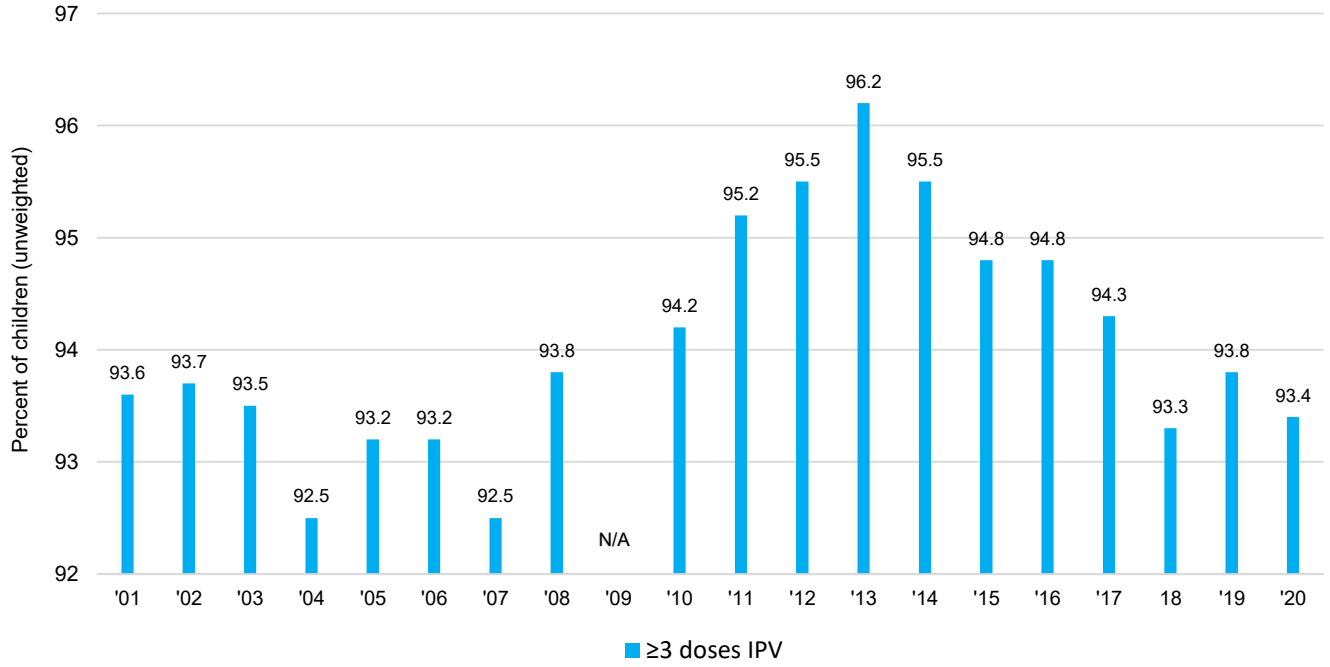


Figure 10. Percent of children who received ≥ 1 dose of MMR vaccine by age 24 months, Florida, 2001–2020

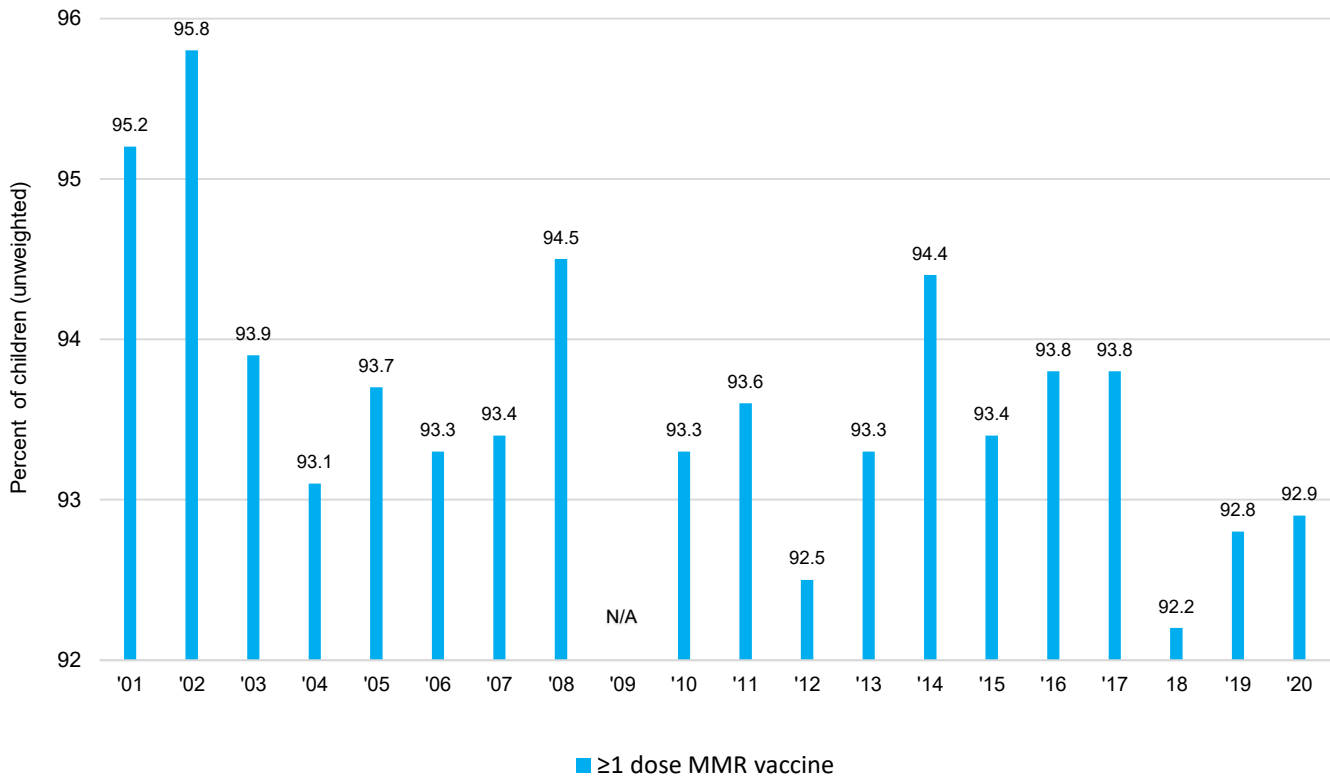


Figure 11. Percent of children who received ≥ 3 doses of Hib vaccine, by age 24 months, Florida, 2001–2020

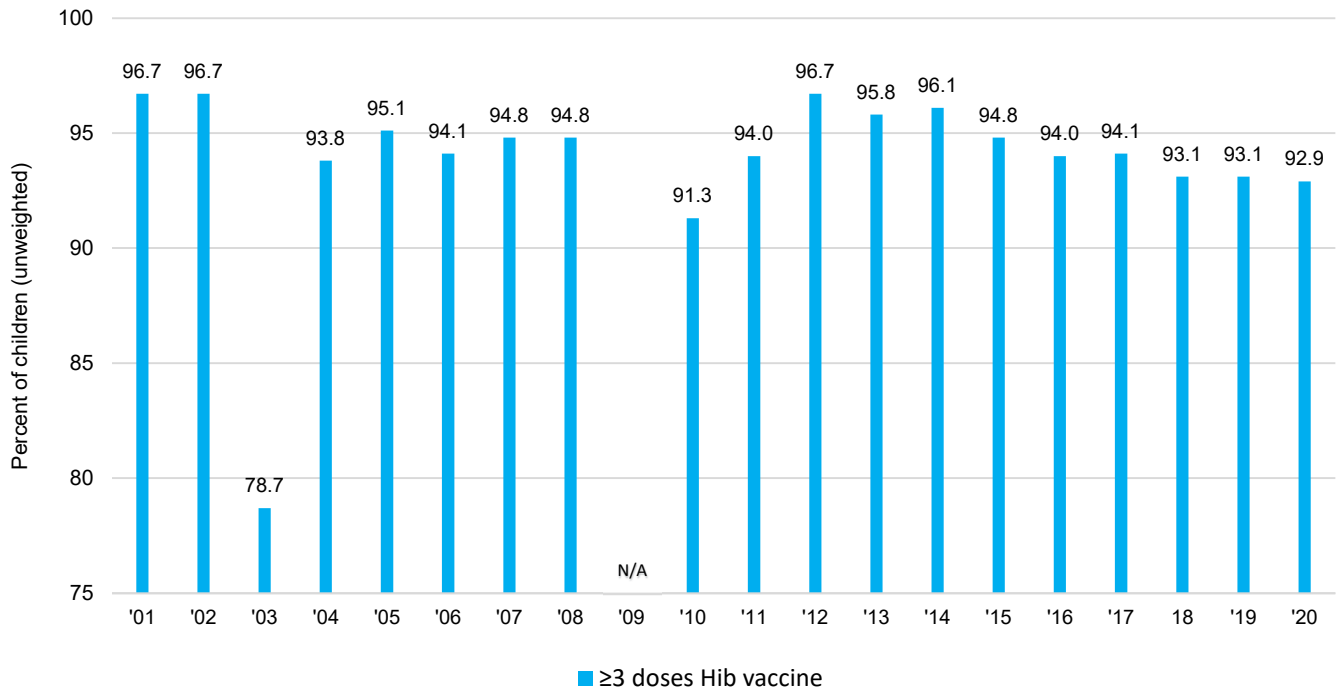


Figure 12. Percent of children who received ≥ 3 doses of hep B vaccine, by age 24 months, Florida, 2001–2020

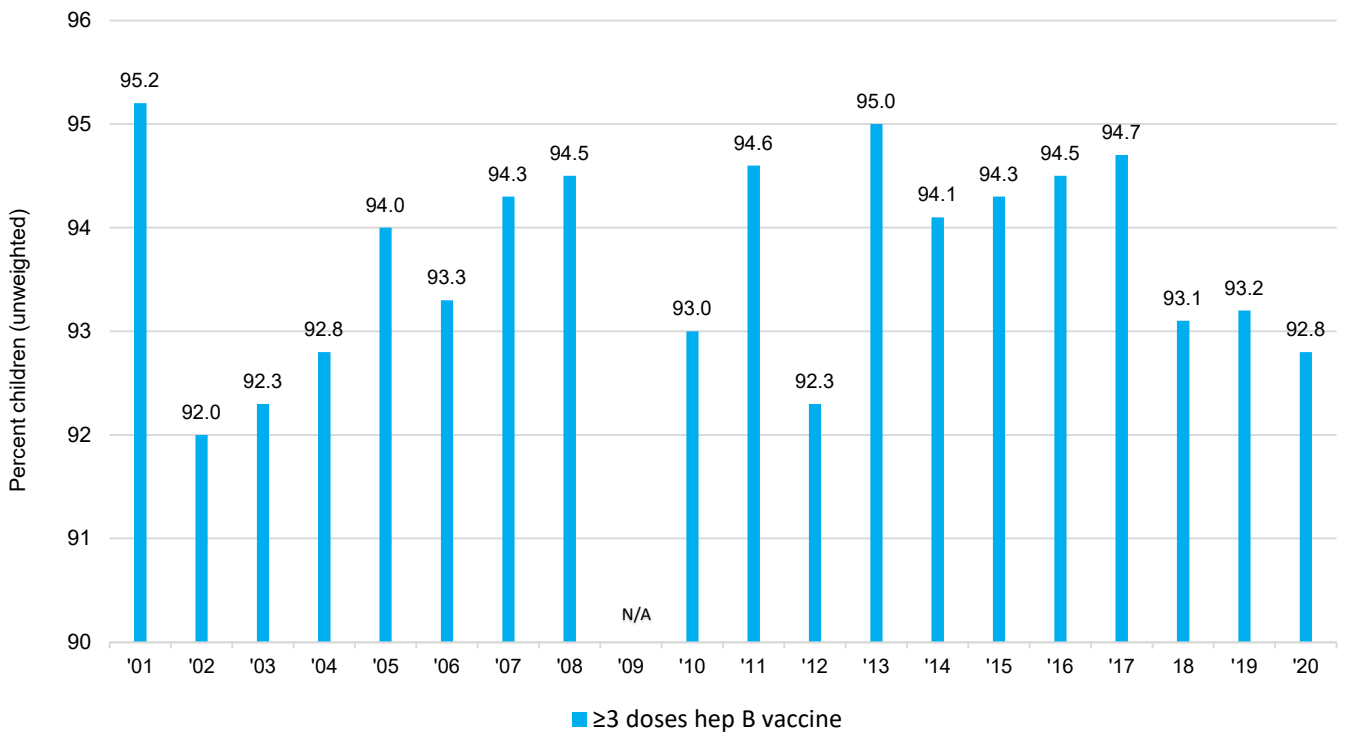


Figure 13. Percent of children who received ≥ 1 dose varicella vaccine by age 24 months, Florida, 2001–2020

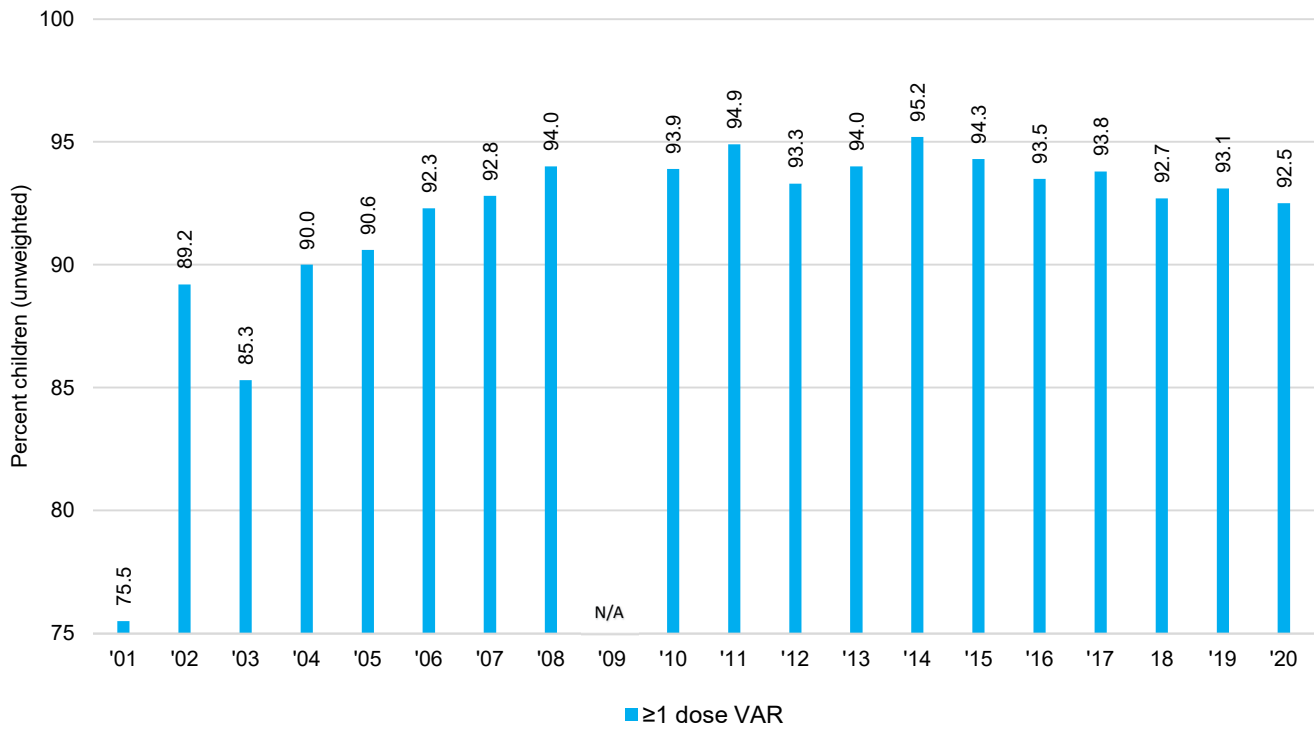


Figure 14. Percent of children who received ≥ 4 doses of PCV by age 24 months, Florida, 2011–2020

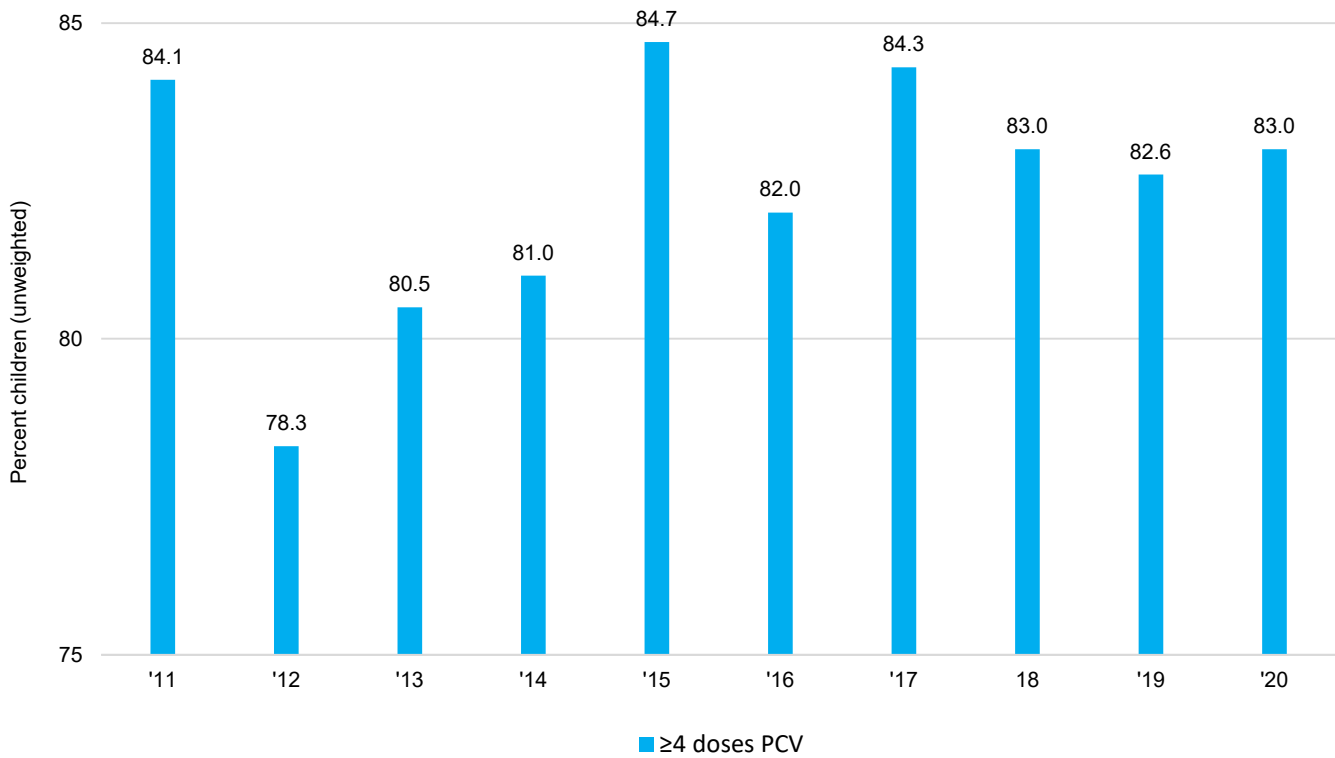


Figure 15. Vaccination coverage for 4:3:1:3:3:1:4 vaccine series by age 24 months, by provider type, Florida 2020

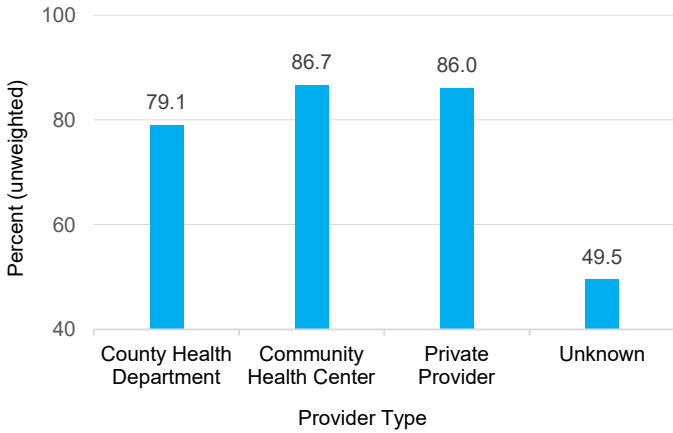


Figure 16. Vaccination coverage for 4:3:1:3:3:1:4 vaccine series by age 24 months, by mother's education (years), Florida, 2020

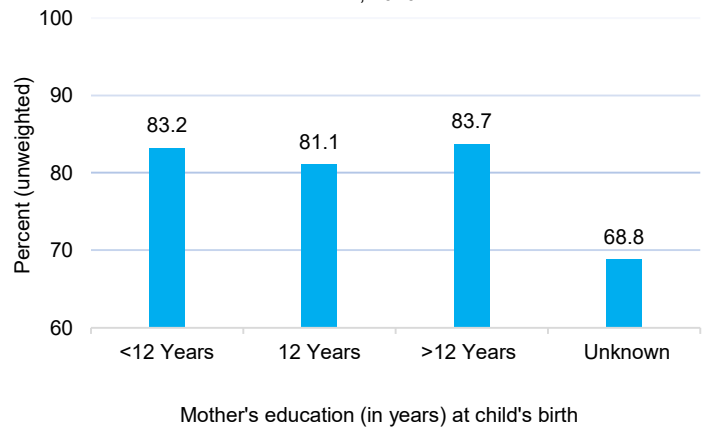


Figure 17. Vaccination coverage for 4:3:1:3:3:1:4 vaccine series by age 24 months, by mother's age, Florida 2020

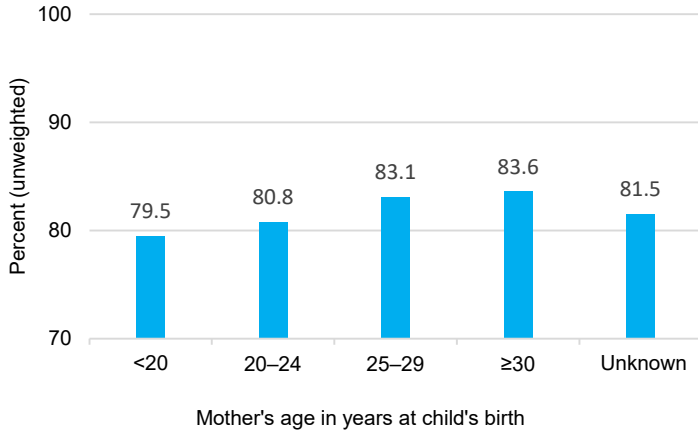


Figure 18. Vaccination coverage for 4:3:1:3:3:1:4 vaccine series by age 24 months, by number of mother's other children, Florida, 2020

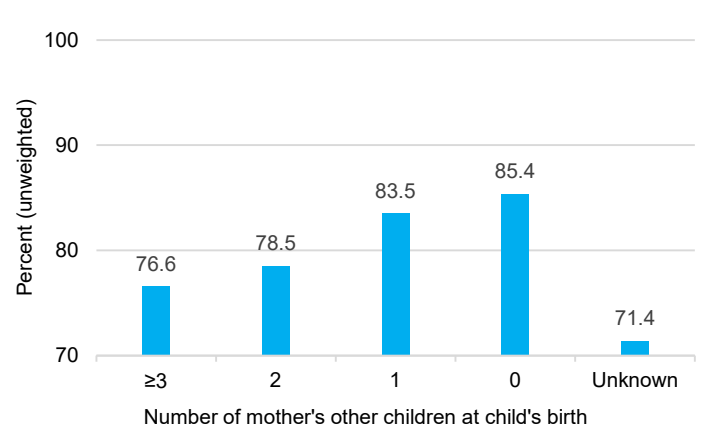


Figure 19. Vaccination coverage for 4:3:1:3:3:1:4 vaccine series by age 24 months, by mother's marital status, Florida, 2020

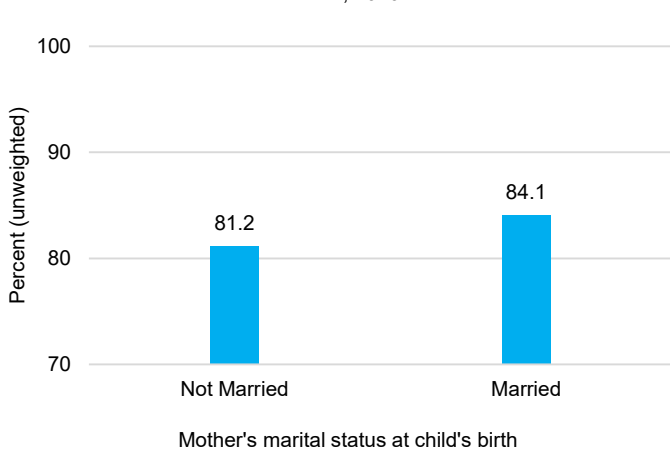


Figure 20. Vaccination coverage for 4:3:1:3:3:1:4 vaccine series by age 24 months, by mother's trimester of initiation of prenatal care, Florida, 2020

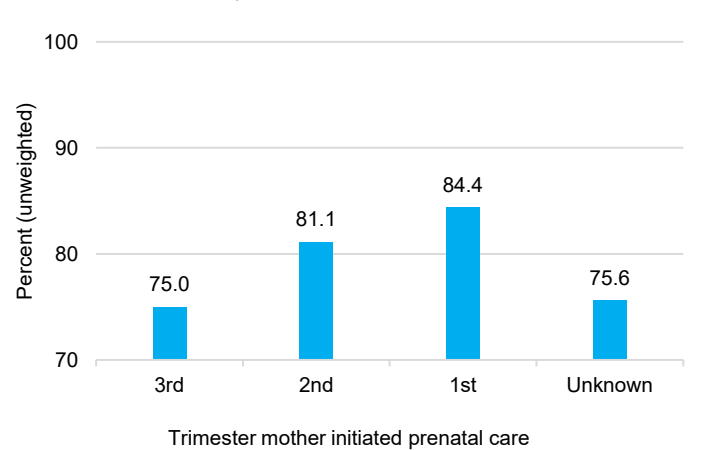
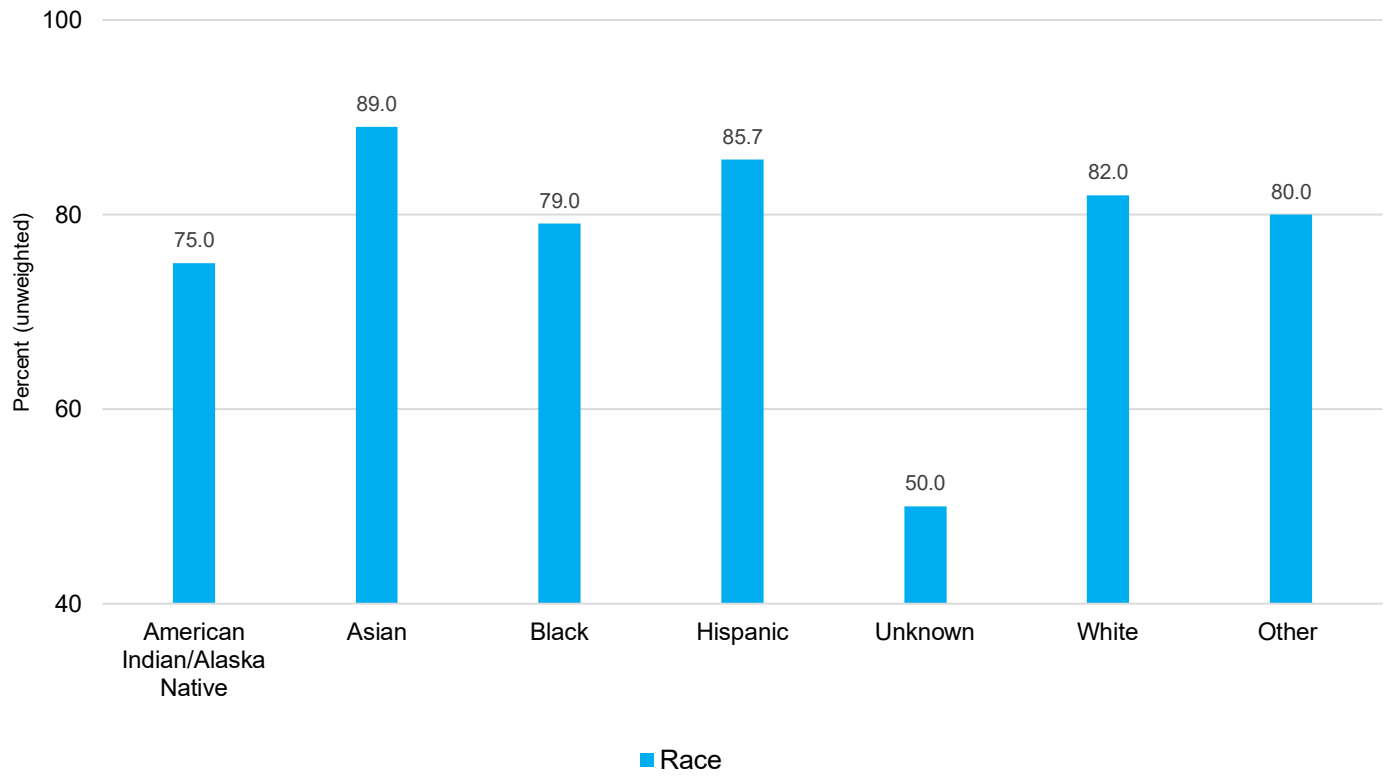


Figure 21. Vaccination coverage for 4:3:1:3:3:1:4 vaccine series by age 24 months, by race, Florida, 2020



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