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Ron DeSantis
Governor

Scott A. Rivkees, MD
State Surgeon General

Vision: To be the Healthiest State in the Nation

MEMORANDUM

DATE: August 24, 2020

TO: County Health Department Health Officers 

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

SUBJECT: Results of the Survey of Immunization Levels in 2-Year-Old Children (2019)

INFORMATION ONLY

This report summarizes data collected by Florida Department of Health's (FDOH) Immunization Section field staff representatives on vaccination coverage among 2-year-old children born in Florida, statewide and by the 24 counties with consistently higher annual birth counts.

In November 2019, the Immunization Section completed an annual immunization survey of 5,268 2-year-old children born in Florida in January 2017. The Bureau of Vital Statistics' *Resident Live Births*, via the Florida State Health Online Tracking System (SHOTS), was the source of the target population. Children with birth certificate numbers were selected, and children with a death certificate number 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. Statewide coverage rates were weighted by the number of births per county.

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. Prior to the 2019 survey, coverage estimates used to calculate sample size for a county were based on the coverage rate of that county from the previous year's survey results, at 95% confidence level and a confidence interval (margin of error) [MOE] of 6.5%. With a maximum sample size of 2,400 children statewide, counties with a low coverage rate were over-represented, and counties with a higher coverage rate were under-represented. County sample sizes were significantly smaller, and coverage rate MOEs were higher. Invalid doses (those administered ≥ 5 days earlier than the minimum age or minimum interval) were included when calculating completion rates.

From 2019 survey, it was decided to modify and use a coverage estimate of 50% at 95% confidence level and a required maximum MOE of 5% for the survey when calculating the sample sizes for counties. This change led to an increase in sample sizes across each county and correspondingly increased the total sample size of the survey to approximately 6,000 children and narrowed the resultant MOE for the survey coverage rate to 5.5% for individual counties. Additionally, invalid doses administered are no longer considered. This data will show an improved reliability in, and be more representative of, statewide and county level vaccination coverage.

The Advisory Committee on Immunization Practices (ACIP) recommends 2-year-old children (from age 24 to 35 months) complete the 4:3:1:3:3:1:4 (expanded) vaccine series by age 24 months. The expanded vaccine 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 (PCV) vaccine. FDOH's goal is to achieve 90% coverage for the expanded series.

The 2019 statewide vaccination coverage rate for the 4:3:1:3:3:1 (basic) vaccine series is 83.5% [4,405 of 5,268 survey participants]. The basic series consists of four or more doses of DTaP vaccine; three or more doses of IPV; one more doses of MMR vaccine; three or four doses (depending upon product type) of Hib vaccine; three or four doses of Hep B vaccine; and one or more doses of VAR. Coverage rates for the 24 selected counties ranged from 76.0% [Palm Beach] to 90.9% [Polk], with a median rate of 84.6%. The statewide vaccination coverage rate for the expanded series is 82.4% [4,351 survey participants]. Coverage rates for the 24 selected counties ranged from 75.6% [Palm Beach] to 90.9% [Polk], with a median rate of 83.7% (Table 1, Figure 1).

Statewide and county-level coverage rates for the children partially vaccinated by age 24 months were collected. That is, those children who have received at least one dose of one vaccine in the series by age 24 months. The data show 13.0% [basic] and 14.1% [expanded], respectively, were partially vaccinated. Coverage rates for the 24 selected counties ranged from 5.9% to 19.9% [basic], and from 6.8% to 21.0% [expanded]. For both vaccine series, Lee County had the lowest coverage and Escambia had the highest. A total of 187 children [3.5%] received no (zero) vaccinations for the expanded vaccine series, 182 [97.3%] of whom due to religious exemption (RE). For the 24 selected counties, the percentage of unvaccinated children ranged from 0.8% [Okaloosa] to 7.4% [Sarasota], with a median rate of 3.4% (Table 1, Figure 2).

Statewide coverage data for the past 10 years (2010–2019) were compiled. Coverage decreased from 2018 to 2019, from 83.1% to 82.4% for the expanded vaccine series, and from 83.9% to 83.5% for the basic series. Coverage has steadily declined, and is the lowest since 2012 [83.0%, basic; 78.0%, expanded] (Table 2, Figure 3). Correspondingly, the percentage of unvaccinated children increased from 2018 [3.1%] to 2019 [3.5%] and is the highest since 2012 [1.6%]. This may be attributed, in part, to methodology changes made, including increased sample size and excluding invalid vaccinations administered (Table 2, Figure 4). With the rate of parents declining routine vaccination for their children by obtaining a RE, children are at an increased risk for vaccine-preventable diseases. According to the National Conference of State Legislatures, Florida is one of 45 U.S. states and Washington D.C. that grant religious exemptions from immunization.

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 (2000–2019). Survey years 2016–2019 were based on the expanded vaccine series; years 2006–2015 were based on the basic series; and years 2000–2005 were based on the 4:3:1 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], with a median rate of 85.2% (Table 3, Figure 5). The percentage of unvaccinated children ranged from 0.2% [2001] to 3.5% [2019]. Between 2000 and 2006, the percentage remained <1%, and from 2007 [1.1%] to 2015 [1.6%] remained <2%, and in 2018 climbed to >3.0% [3.1%], and continues to increase [3.5%, 2019] (Table 3, Figure 6).

Children were categorized by the vaccine provider type (private, county health department (CHD), community health center (CHC), and unknown) that provided the majority of the vaccinations in the vaccine series. Private providers continue to lead in vaccinating Florida's children. Between 2000

[71.4%] and 2019 [79.6%], private providers vaccinated between 60.1% [2008] and 79.6% [2019] of the children surveyed. CHDs vaccinated between 13.5% [2007] and 22.5% [2000] of the children surveyed from 2000 through 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 [between 2.2% in 2017 to 7.0% in 2013] (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 an unknown provider type was relatively small from 2000 to 2005, ranging from 1.4% [2004] to 3.7% [2001], and in 2006 increased significantly in 2006 [14.9%], as more birth records from the Office of Vital Statistics were regularly added into Florida SHOTS. The percentage of children with an unknown provider type continued to increase through 2010 [19.1%], reaching 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 [14.3%] to 2019 [11.4%], the percentage remained between 11.4% [2019] and 14.7% [2013] (Table 3, Figure 7).

For 2019, coverage by age 24 months was $\geq 90\%$ for ≥ 3 doses of IPV [93.8%], ≥ 1 dose of MMR [92.8%], ≥ 3 doses of Hib [93.1%], ≥ 3 doses of Hep B [93.2%], and ≥ 1 dose of VAR [93.1%]. Children were least likely to be up to date with ≥ 4 doses of DTaP [86.1%], and ≥ 4 doses of PCV [82.6%]. Compared with 2018, coverage increased for ≥ 3 doses of IPV [from 93.3%], ≥ 1 dose of MMR [from 92.2%], ≥ 3 doses of Hep B [from 93.1%], and ≥ 1 dose of VAR [from 92.7%], and decreased for ≥ 4 doses of DTaP [from 86.2%] and ≥ 4 doses of PCV [from 83.0%] (Table 3, Figures 8–14).

For 2019, children [5,081] who were vaccinated were categorized by the provider type that administered most of their vaccinations in the expanded series. Of those 5,081 children, 372 [7.3%] were vaccinated by a CHC; 168 [3.3%] by a CHD; 4,153 [81.7%] by a private provider; and 388 [7.6%] by an unknown source. The number of each specific vaccine dose (in the expanded series) administered were categorized by provider type (e.g. 210 children received their fourth dose of DTaP at a CHD) (Table 4).

Children [5,268], including those with a religious exemption [182], were categorized by their immunization status for the expanded series (complete [82.6%], partially vaccinated [13.9%], and no shots [3.5%]). This group of children was also categorized by the vaccine provider type that administered the majority of their vaccinations in the expanded series, as well as by their immunization status for the expanded series. Of the 168 children vaccinated by CHDs, 132 [78.6%] were complete, and 36 [21.4%] were partially vaccinated. Of the 372 children vaccinated by CHCs, 328 [88.2%] were complete, and 44 [11.8%] were partially vaccinated. Of the 4,153 children vaccinated by private providers, 3,577 [86.1%] were complete, and 576 [13.9%] were partially vaccinated. Of the 388 children vaccinated by an unknown source, 314 [80.9%] were complete, 74 [18.8%] were partially vaccinated, and 187 [48.2%] received no vaccinations (Table 5, Figure 15).

Statewide coverage for the expanded vaccine series was assessed by five high-risk indicators known to impede timely childhood vaccinations: mother's education level, mother's age at delivery, mother's marital status, trimester mother began receiving prenatal care, and number of siblings in child's family. Children born to mothers with a high school diploma or equivalent [83.1%] were vaccinated on time (by age 24 months), compared with those born to mothers without a high school diploma [80.1%] (Table 6, Figure 16). Children born to mothers younger than age 20 years [83.4%] and those from age 25 to 29 years [83.7%], were vaccinated on time, compared with those born to mothers from age 20 to 24 years [80.3%] and mothers age 30 years or older [82.9%] (Figure 17). Children with no siblings [85.7%] were vaccinated on time, compared with those with three or more [75.2%], and those with two [80.7%] siblings (Figure 18). Children born to mothers married at the time of child's birth [83.2%] were vaccinated on time, compared with mothers not married [82.0%] (Figure 19).

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Children born to mothers who began receiving prenatal care in the first trimester of their pregnancy [84.4%] were vaccinated on time, compared with those born to mothers who began receiving prenatal care in the second trimester [77.0%] and in the third trimester [81.1%] (Figure 20).

Statewide coverage for the expanded vaccine series was assessed by child's race. Of the 5,268 children who participated in the survey, 2,440 [46.3%] were White; 1,596 [30.3%] were Hispanic; 924 [17.5%] were Black; 146 [2.8%] were Asian; 5 [0.1%] were American Indian/Alaskan; 152 [2.9%] were other races; and 5 [0.1%] had an unknown race. Of the three largest groups, the percentage of Hispanic children vaccinated on time [86.1%] was higher than Black children [81.6%] and White children [80.3%]. More White children [5.1%] were unvaccinated compared with Black children [2.9%] and Hispanic children [1.9%]. Of the 187 unvaccinated children, 182 [97.3%] had a religious exemption from vaccination (Table 7, Figure 21).

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 by age 24 months by vaccine series, by selected counties and statewide, Florida—Survey of Immunization Levels in 2-Year-Old Children 2019

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	183	159	6	3.8 (± 3.0)	141	88.7 (± 4.9)	12	7.6 (± 4.1)	139	87.4 (± 5.2)	14	8.8 (± 4.4)
Brevard	219	177	6	3.4 (± 2.7)	143	80.8 (± 5.8)	28	15.8 (± 5.4)	140	79.1 (± 6.0)	31	17.5 (± 5.6)
Broward	329	296	16	5.4 (± 2.6)	234	79.1 (± 4.6)	46	15.5 (± 4.1)	234	79.1 (± 4.6)	46	15.5 (± 4.1)
Collier	160	138	5	3.6 (± 3.1)	121	87.7 (± 5.5)	12	8.7 (± 4.7)	119	86.2 (± 5.7)	14	10.1 (± 5.0)
Dade	366	319	10	3.1 (± 1.9)	276	86.5 (± 3.7)	33	10.3 (± 3.3)	268	84.0 (± 4.0)	41	12.9 (± 3.7)
Duval	323	289	7	2.4 (± 1.8)	233	80.6 (± 4.6)	49	17.0 (± 4.3)	229	79.2 (± 4.7)	53	18.3 (± 4.5)
Escambia	217	181	5	2.8 (± 2.4)	140	77.4 (± 6.1)	36	19.9 (± 5.8)	138	76.2 (± 6.2)	38	21.0 (± 5.9)
Hillsborough	358	311	14	4.5 (± 2.3)	268	86.2 (± 3.8)	29	9.3 (± 3.2)	268	86.2 (± 3.8)	29	9.3 (± 3.2)
Lake	177	149	8	5.4 (± 3.6)	120	80.5 (± 6.4)	21	14.1 (± 5.6)	114	76.5 (± 6.8)	27	18.1 (± 6.2)
Lee	227	205	7	3.4 (± 2.5)	186	90.7 (± 4.0)	12	5.9 (± 3.2)	184	89.8 (± 4.2)	14	6.8 (± 3.5)
Leon	188	165	4	2.4 (± 2.3)	143	86.7 (± 5.2)	18	10.9 (± 4.8)	141	85.5 (± 5.4)	20	12.1 (± 5.0)
Manatee	185	170	4	2.4 (± 2.3)	149	87.7 (± 4.9)	17	10.0 (± 4.5)	149	87.7 (± 4.9)	17	10.0 (± 4.5)
Marion	195	176	3	1.7 (± 1.9)	154	87.5 (± 4.9)	19	10.8 (± 4.6)	152	86.4 (± 5.1)	21	11.9 (± 4.8)
Okaloosa	151	122	1	0.8 (± 1.6)	103	84.4 (± 6.4)	18	14.8 (± 6.3)	102	83.6 (± 6.6)	19	15.6 (± 6.4)
Orange	351	294	7	2.4 (± 1.7)	255	86.7 (± 3.9)	32	10.9 (± 3.6)	251	85.4 (± 4.0)	36	12.2 (± 3.7)
Osceola	211	177	5	2.8 (± 2.4)	152	85.9 (± 5.1)	20	11.3 (± 4.7)	150	84.8 (± 5.3)	22	12.4 (± 4.9)
Palm Beach	298	287	14	4.9 (± 2.5)	218	76.0 (± 4.9)	55	19.2 (± 4.6)	217	75.6 (± 5.0)	56	19.5 (± 4.6)
Pasco	218	197	8	4.1 (± 2.8)	158	80.2 (± 5.6)	31	15.7 (± 5.1)	156	79.2 (± 5.7)	33	16.8 (± 5.2)
Pinellas	280	242	10	4.1 (± 2.5)	205	84.7 (± 4.5)	27	11.2 (± 4.0)	203	83.9 (± 4.6)	29	12.0 (± 4.1)
Polk	265	241	5	2.1 (± 1.8)	219	90.9 (± 3.6)	17	7.1 (± 3.2)	219	90.9 (± 3.6)	17	7.1 (± 3.2)
Sarasota	155	136	10	7.4 (± 4.4)	109	80.2 (± 6.7)	17	12.5 (± 5.6)	108	79.4 (± 6.8)	18	13.2 (± 5.7)
Seminole	213	189	9	4.8 (± 3.0)	155	82.0 (± 5.5)	25	13.2 (± 4.8)	153	81.0 (± 5.6)	27	14.3 (± 5.0)
St. Lucie	154	148	5	3.4 (± 2.9)	120	81.1 (± 6.3)	23	15.5 (± 5.8)	118	79.7 (± 6.5)	25	16.9 (± 6.0)
Volusia	214	184	11	6.0 (± 3.4)	144	78.3 (± 6.0)	29	15.8 (± 5.3)	142	77.2 (± 6.1)	31	16.9 (± 5.4)
Other ⁸	366	316	7	2.2 (± 1.6)	259	82.0 (± 4.2)	50	15.8 (± 4.0)	257	81.3 (± 4.3)	52	16.5 (± 4.1)
Statewide ⁹	6,003	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)

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

¹Children in this survey were born in January 2017.

²Excludes 95 children whose parents refused to participate, 618 who could not be located, and 22 deceased or deleted from the database.

³Children with no vaccines for the vaccine series. Includes 182 children with a religious exemption.

⁴4:3:1:3:3:1 = vaccine series of ≥4 doses of DTaP, ≥3 doses of IPV, ≥1 dose of MMR, 3 or 4 doses of Hib (depending on product type), ≥3 doses of HepB, and ≥1 dose of varicella 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 all counties may be selected to participate in the survey; however, county-specific data is provided for the 24 counties with the highest birth counts only. Children born in the other 43 counties are grouped together as "Other."

⁹Statewide percentages are weighted by the number of births in each county.

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

Table 2. Vaccination coverage by age 24 months, by vaccine series, statewide, Florida 2010–2019—Survey of Immunization Levels in 2-Year-Old Children 2019

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
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)
2010	1,716	22	0.8 (± 0.2)	1,354	81.1 (± 1.3)	340	18.1 (± 1.3)	1,288	76.2 (± 1.5)	406	23.1 (± 1.5)

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

¹2016–2019 state goal was based on the 4:3:1:3:3:1:4 vaccine series. 2009–2015 state goal was based on the 4:3:1:3:3:1 vaccine series.

²Children in these surveys 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.

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, ≥3 doses of IPV, ≥1 dose of MMR, 3 or 4 doses of Hib (depending on product type), ≥3 doses of HepB; and ≥1 dose of varicella (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 vaccine series by age 24 months.

Table 3. Vaccination coverage by age 24 months, historic data, Florida 2000–2019— Survey of Immunization Levels in 2-Year-Old Children 2019

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	
			%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
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	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	
2000 ⁶	1,113	4:3:1	86.6	12.5	0.9	88.8	93.5	95.2	96.9	96.1	57.7	N/A	71.4	22.5	2.9	3.2	

Abbreviations: CHD = County Health Department; CHC = Community Health Center; DTaP = diphtheria, tetanus toxoids, and acellular pertussis; HepB = hepatitis B; Hib = *Haemophilus influenzae* type b conjugate; IPV = inactivated poliovirus vaccine; MMR = measles, mumps, and rubella; PCV = pneumococcal conjugate vaccine.

¹Children in this survey were born in January 2017. Excludes children who could not be located, were deleted from the database, or whose parents refused to participate.

²2016–2019 is based on the 4:3:1:3:3:1:4 vaccine series: ≥4 doses of DTaP, ≥3 doses of IPV, ≥1 dose of MMR, 3 or 4 doses of Hib (depending on product type), ≥3 doses of HepB, ≥1 dose of varicella (or physician documented disease history), and ≥4 doses of PCV. 2006–2015 is based on the 4:3:1:3:3:1 vaccine series: 4:3:1:3:3:1:4 minus the four doses of PCV.

2000–2005 is based on the 4:3:1 vaccine series: ≥4 doses of DTaP, ≥3 doses of IPV, and ≥1 dose of MMR.

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 uses 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. Children by age 24 months by provider type, and number of doses administered per specific vaccine dose, by provider type, Florida—Survey of Immunization Levels in 2-Year-Old Children 2019

Provider Type	Participants w/Shots ¹		Number of Doses Administered												
			DTaP 1	DTaP 3	DTaP 4	IPV 1	IPV 3	MMR 1	Hib 3	HepB 3	Varicella 1	PCV 1	PCV 2	PCV 3	PCV 4
	# ²	% ³													
CHC	372	7.3	363	357	327	363	355	347	337	354	345	367	341	357	299
CHD	168	3.3	182	194	210	182	196	229	194	201	229	183	194	197	180
Private Provider	4,153	81.7	3,998	3,932	3,670	3,977	3,893	3,947	3,897	3,873	3,955	4,014	4,018	3,930	3,574
Unknown	388	7.6	529	502	331	537	501	385	483	495	389	501	463	444	315
Statewide	5,081	100.0	5,072	4,985	4,538	5,059	4,945	4,908	4,911	4,923	4,918	5,065	5,016	4,928	4,368

Abbreviations: CHC = Community Health Center; CHD = County Health Department; DTaP = diphtheria, tetanus toxoids, and acellular pertussis; HepB = hepatitis B; Hib = *Haemophilus influenzae* type b conjugate; IPV = inactivated poliovirus vaccine; MMR = measles, mumps, and rubella; PCV = pneumococcal conjugate vaccine.

¹Children in this survey were born in January 2017. Excludes 95 children whose parents refused to participate, 618 who could not be located, 22 who were deceased or were deleted from the database, 182 with a religious exemption, and 5 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, ≥3 doses of IPV, ≥1 dose of MMR, 3 or 4 doses of Hib (depending on product type), ≥3 doses of HepB, ≥1 dose of varicella (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 by age 24 months by immunization status and provider type—Survey of Immunization Levels in 2-Year-Old Children 2019

4:3:1:3:3:1:4 ¹ Status	Survey Participants ²		County Health Department		Community Health Center		Private Provider		Unknown Source	
	#	% ³	# ⁴	% ³	# ⁴	% ³	# ⁴	% ³	# ⁴	% ³
Complete ⁵	4351	82.6	132	78.6	328	88.2	3577	86.1	314	54.6
Partial	730	13.9	36	21.4	44	11.8	576	13.9	74	12.9
No Shots ⁶	187	3.5	0	0.0	0	0.0	0	0.0	187	32.5
Statewide	5,268	100.0	168	100.0	372	100.0	4,153	100.0	575	100.0

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

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

²Children in this survey were born in January 2017. Excludes 95 children whose parents refused to participate in the survey, 618 children who could not be located, and 22 children deceased or deleted from the database.

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

⁴Children 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 five children with no vaccines for the 4:3:1:3:3:1:4 vaccine series and 182 children with a religious exemption.

Table 6. Vaccination coverage by age 24 months by high-risk characteristics—Survey of Immunization Levels in 2-Year-Old Children, Florida 2019

	Mother's Education Level (Years)							
	<12 ²		12		>12		Unknown	
Complete ³	488	80.1%	1396	83.1%	2437	82.8%	30	83.3%
Incomplete ⁴	121	19.9%	283	16.9%	507	17.2%	6	16.7%

	Age of Mother									
	<20 ²		20–24		25–29		≥30		Unknown	
Complete ³	241	83.4%	846	80.3%	1324	83.7%	1923	82.9%	17	77.3%
Incomplete ⁴	48	16.6%	208	19.7%	258	16.3%	398	17.2%	5	22.7%

	Number of Siblings in Family									
	≥3 ²		2		1		0		Unknown	
Complete ³	425	75.2%	714	80.7%	1,418	82.2%	1,786	85.7%	8	100.0%
Incomplete ⁴	140	24.8%	171	19.3%	308	17.8%	298	14.3%	0	0.0%

	Marital Status			
	No ²		Yes	
Complete ³	2,104	82.0%	2,247	83.2%
Incomplete ⁴	462	18.0%	455	16.8%

	Trimester of Initiation of Prenatal Care							
	3rd ²		2nd		1st		Unknown	
Complete ³	189	81.1%	754	77.0%	3,116	84.4%	292	80.4%
Incomplete ⁴	44	18.9%	225	23.0%	577	15.6%	71	19.6%

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

Children in this survey were born in January 2017.

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

²Categories that place children at high risk for completing vaccinations by age 24 months: Being born to a mother without a high school diploma or equivalent; being born to a mother less than age 20 years; having three or more siblings; being born to an unmarried mother; or being born to a mother who received no prenatal care until her third trimester of pregnancy.

³Completion of the 4:3:1:3:3:1:4 vaccine series by age 24 months.

⁴Includes children with no vaccines for 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 2019

Race	Sample Size ¹	Survey Participants ²		No Shots ³		4:3:1:3:3:1:4 ⁴			
						Complete ⁵		Partial	
		#	%	#	% ⁶	#	% ⁶	#	% ⁶
American Indian/Alaskan	7	5	0.1	0	0.0 (±0.0)	4	80.0 (±35.1)	1	20.0 (±35.1)
Asian	167	146	2.8	2	1.4 (±1.9)	125	85.6 (±5.7)	19	13.0 (±5.5)
Black	1,056	924	17.5	27	2.9 (±1.1)	754	81.6 (±2.5)	143	15.5 (±2.3)
Hispanic	1,743	1,596	30.3	31	1.9 (±0.7)	1,374	86.1 (±1.7)	191	12.0 (±1.6)
Unknown	7	5	0.1	0	0.0 (±0.0)	5	100.0 (±0.0)	0	0.0 (±0.0)
White	2,817	2,440	46.3	124	5.1 (±0.9)	1,960	80.3 (±1.6)	356	14.6 (±1.4)
Other	184	152	2.9	3	2.0 (±2.2)	129	84.9 (±5.7)	20	13.2 (±5.4)
Statewide	6,003 ⁷	5,268	100.0	187	3.6 (±0.5)	4,351	82.6 (±1.0)	730	13.9 (±0.9)

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

¹Children in this survey were born in January 2017.

²Excludes 95 children whose parents refused to participate in the survey, 618 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 182 children with a religious exemption.

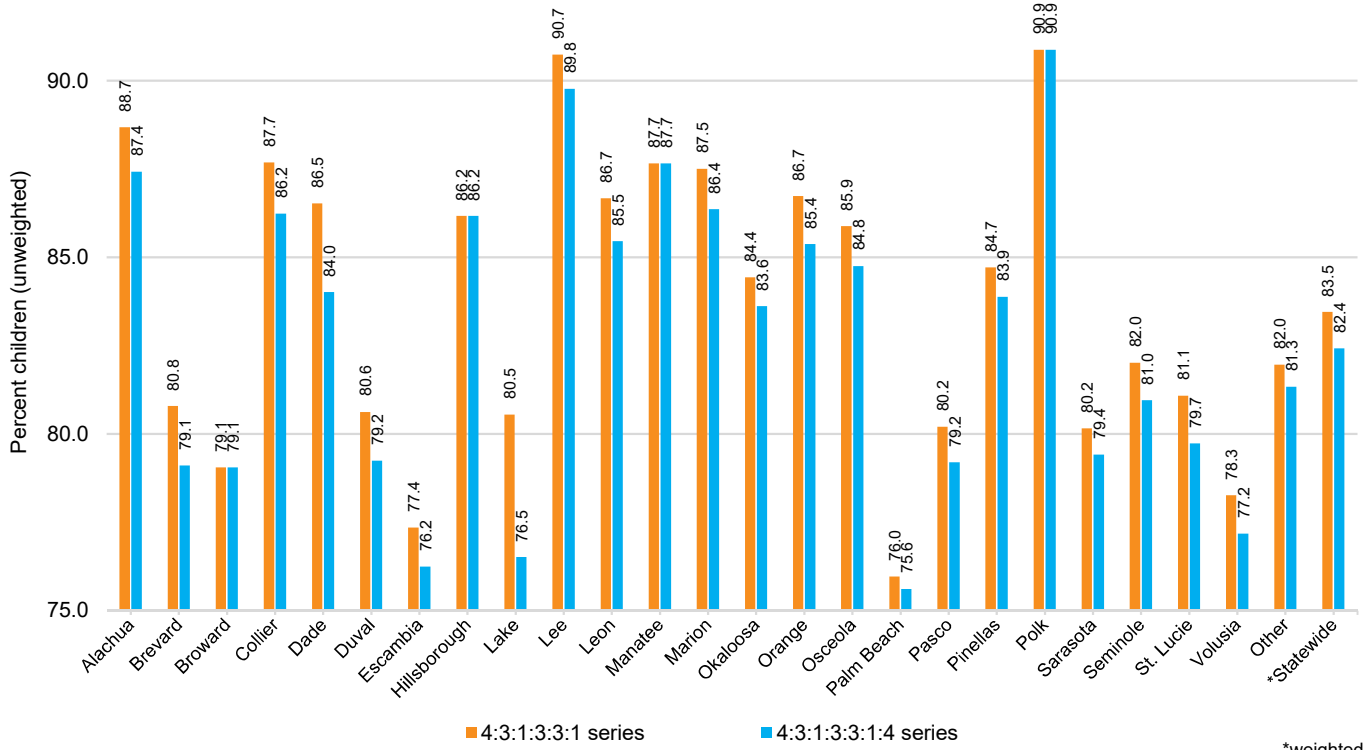
⁴4:3:1:3:3:1:4 = vaccine series of ≥4 doses of DTaP, ≥3 doses of IPV, ≥1 dose of MMR, 3 or 4 doses of Hib (depending on product type), ≥3 doses of HepB, ≥1 dose of varicella (or physician documented disease history), and ≥4 doses of PCV.

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.

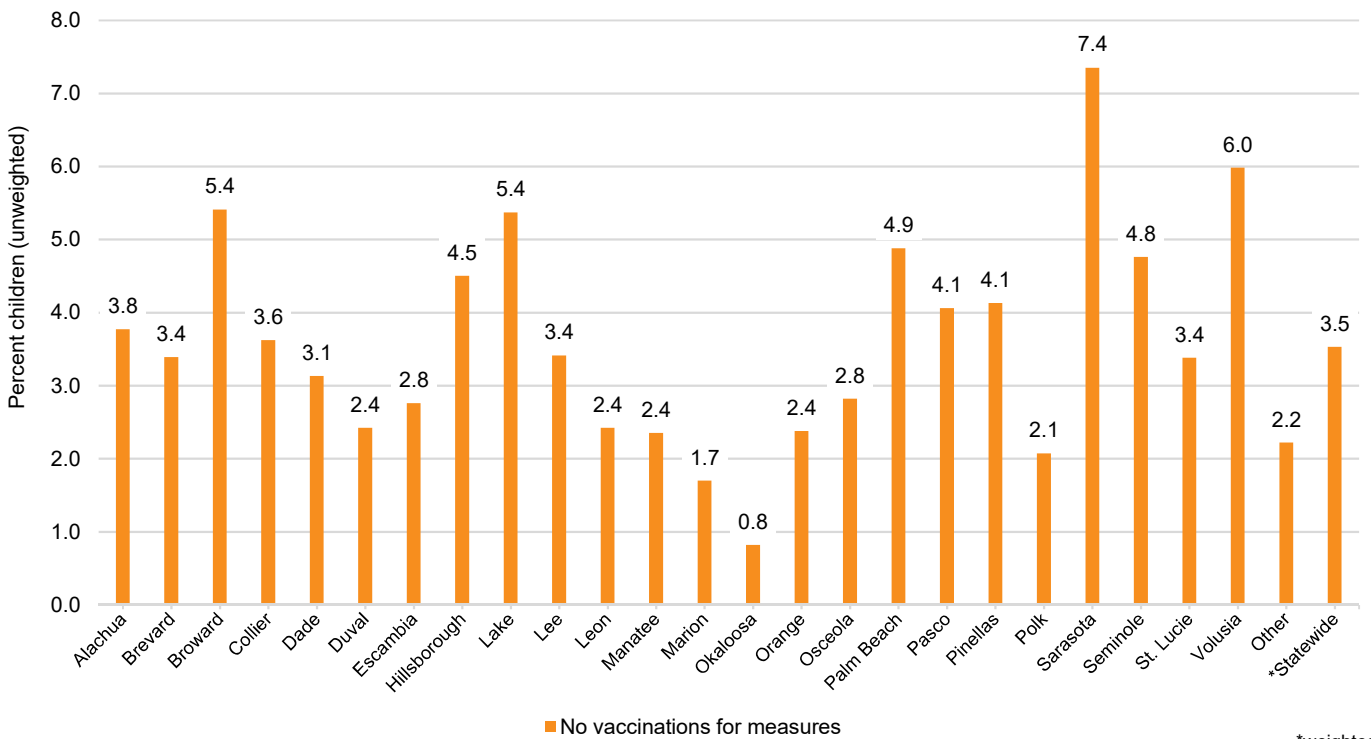
⁷Statewide sample size includes 22 children deceased or deleted from the database; however, they are not included in the individual race sample sizes.

Figure 1. Vaccination coverage for 4:3:1:3:3:1:4 vaccine series by age 24 months, by selected counties and statewide, Florida, 2019



*weighted

Figure 2. Percent children with no vaccinations for 4:3:1:3:3:1:4 vaccine series by age 24 months, by selected counties and statewide, Florida, 2019



*weighted

Figure 3. Vaccination coverage by age 24 months by specified vaccine series, Florida, 2010–2019

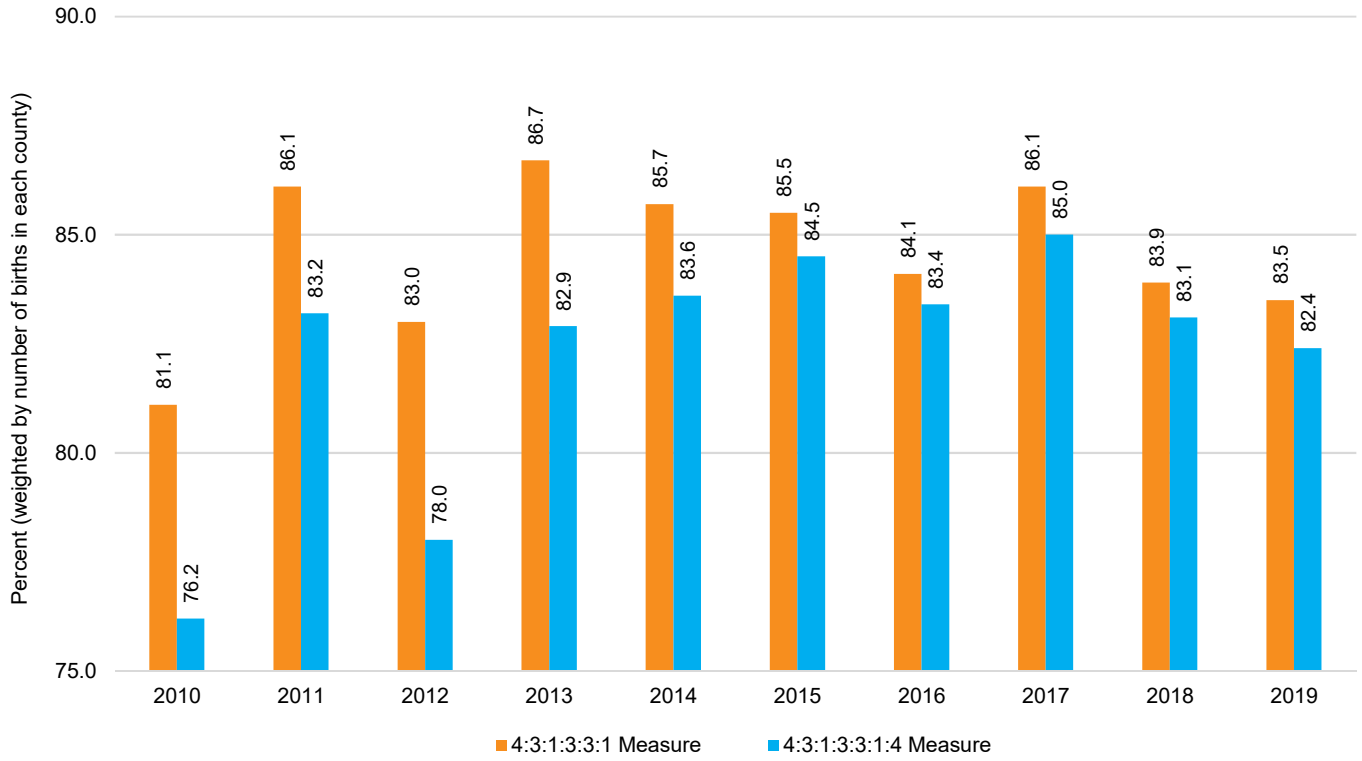


Figure 4. Percent children partially or unvaccinated for the 4:3:1:3:3:1:4 vaccine series by age 24 months, by provider type, Florida, 2010–2019

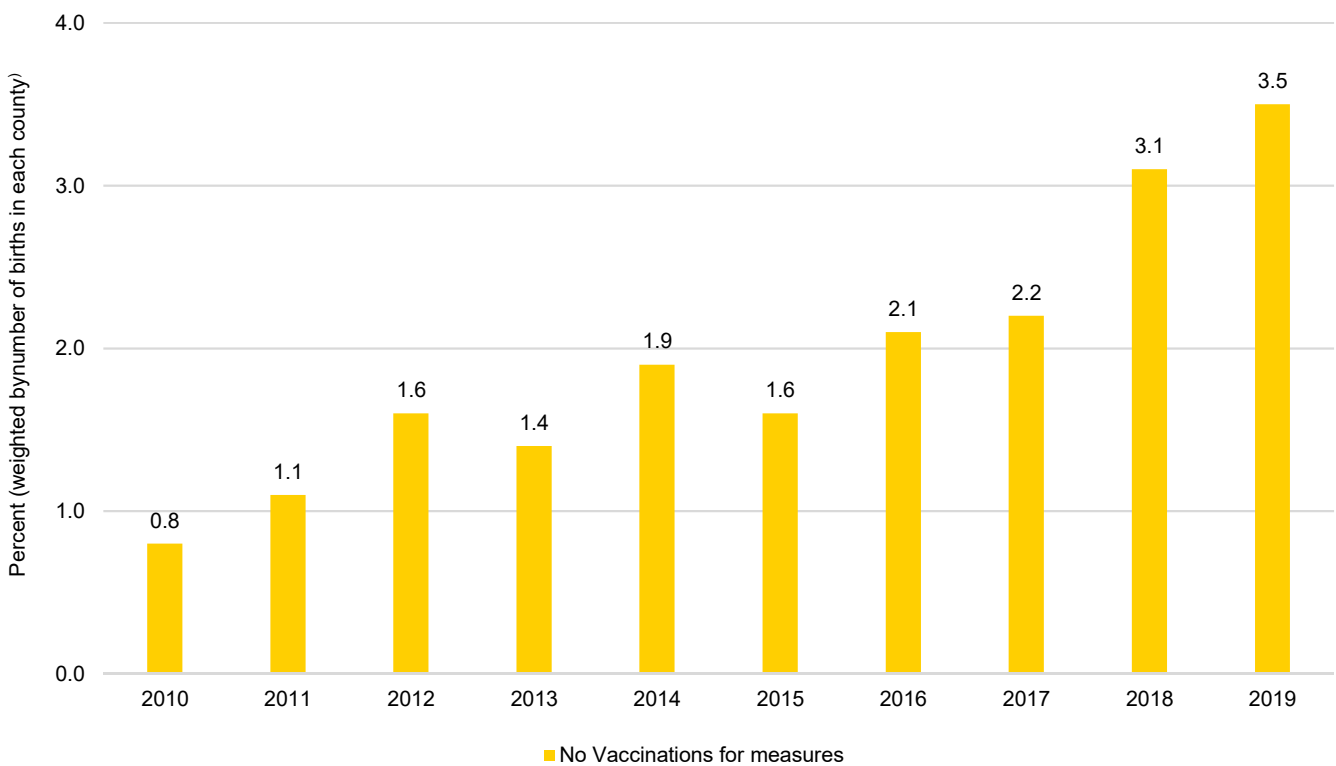


Figure 5. Vaccination coverage by age 24 months for specified vaccine series, Florida, 2000–2019

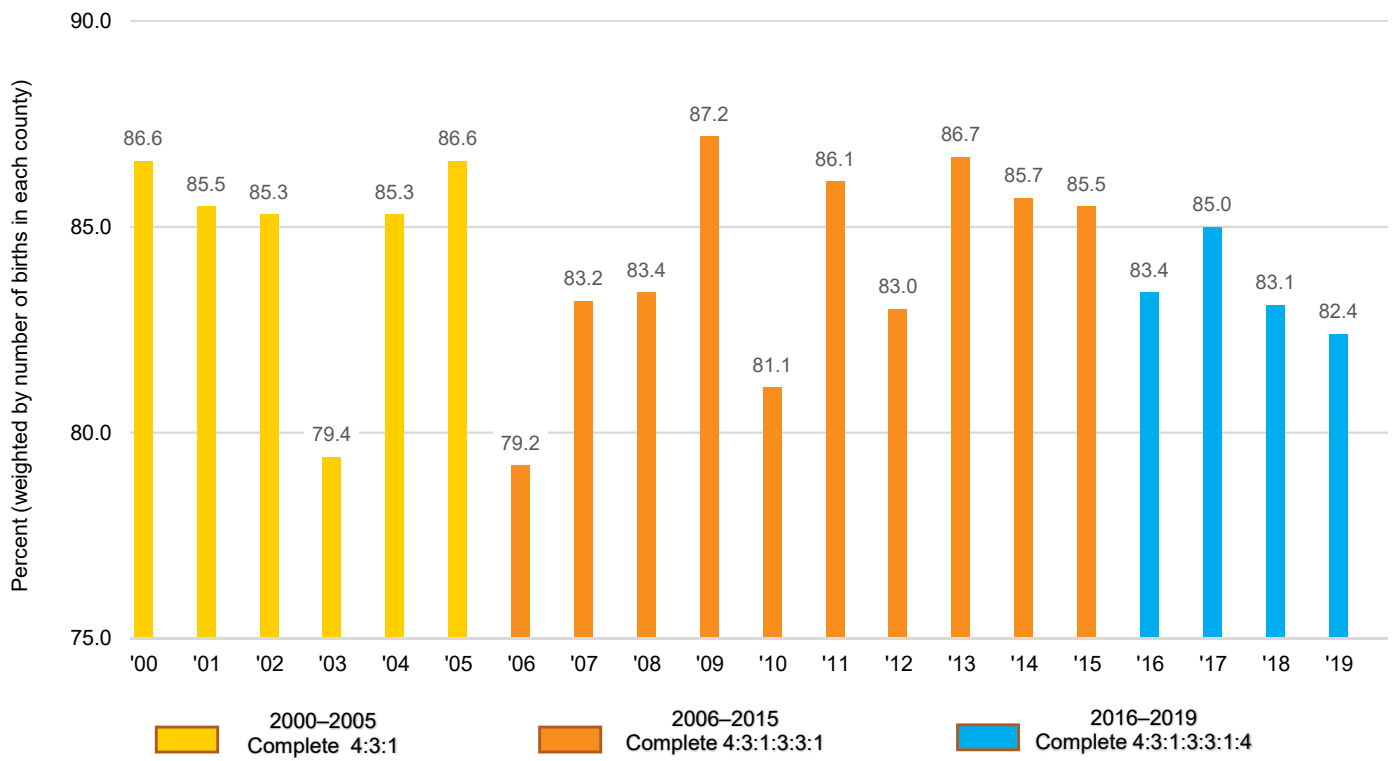


Figure 6. Percent children with no vaccinations for specified vaccine series by age 24 months, Florida, 2000–2019

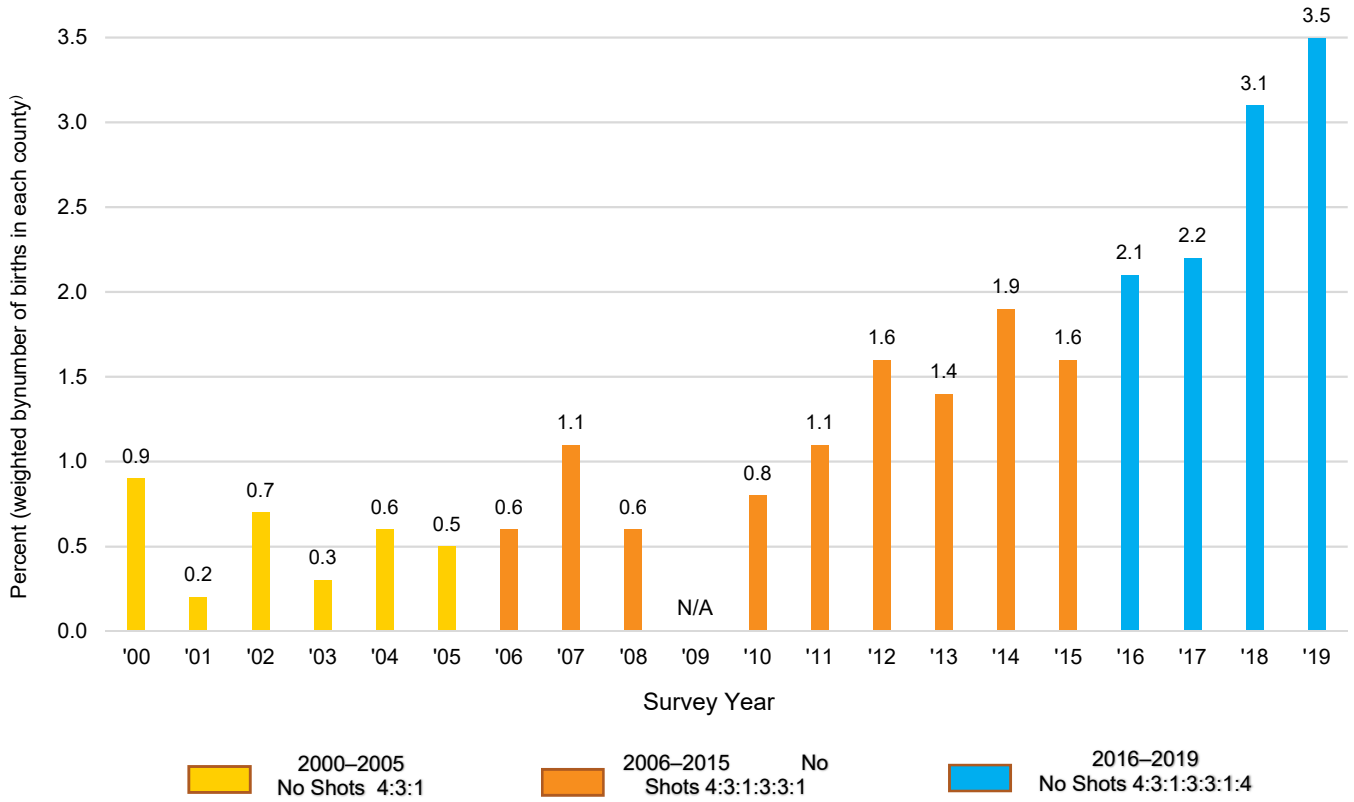


Figure 7. Vaccination coverage by age 24 months, by provider type, Florida, 2000–2019

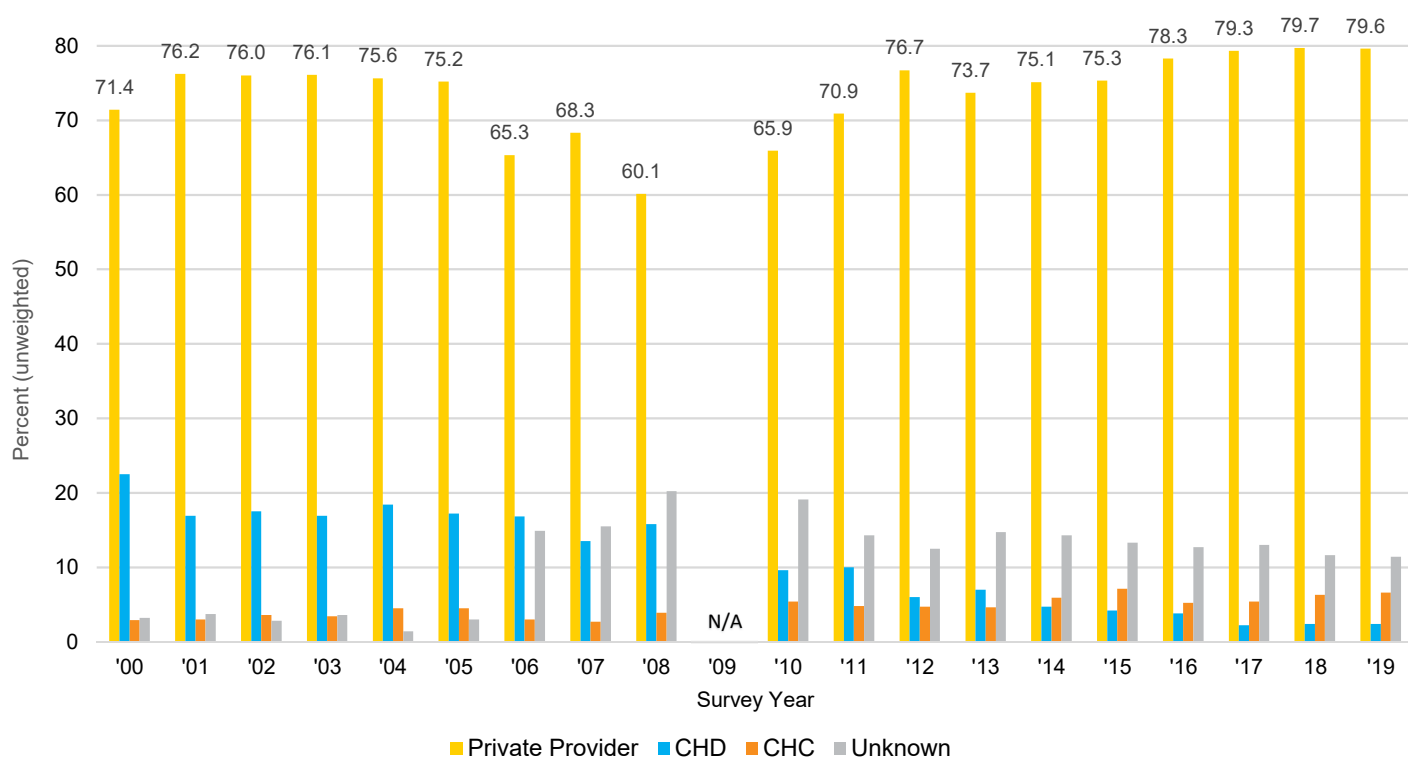


Figure 8. Percent children who received ≥4 DTaP by age 24 months, Florida, 2000–2019

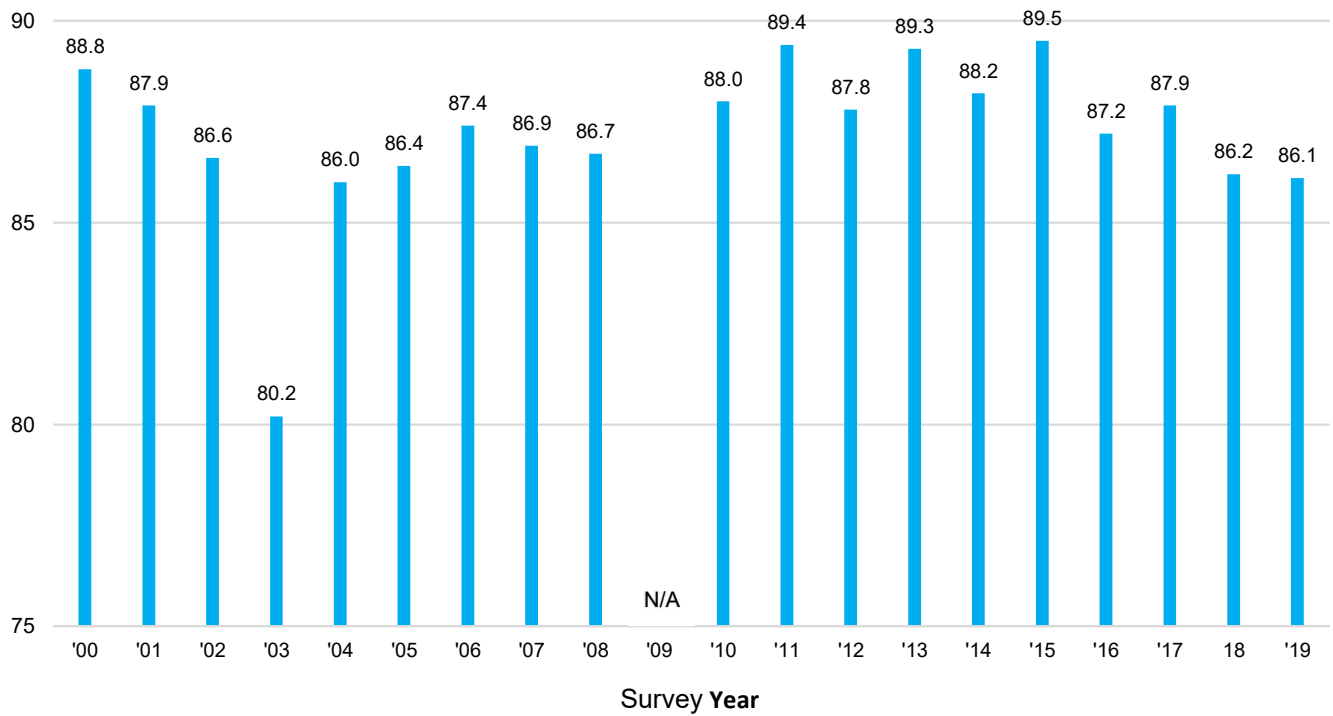


Figure 9. Percent children who received ≥ 3 IPV by age 24 months, Florida, 2000–2019

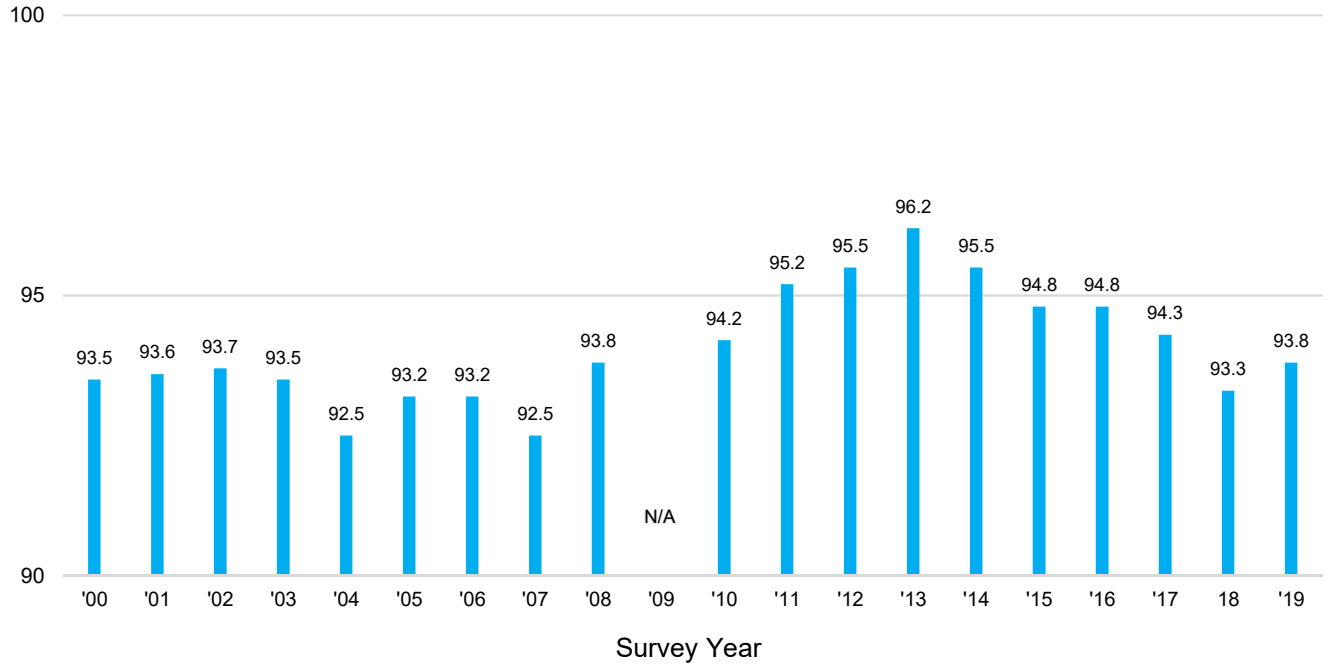


Figure 10. Percent children who received ≥ 1 MMR by age 24 months, Florida, 2000–2019

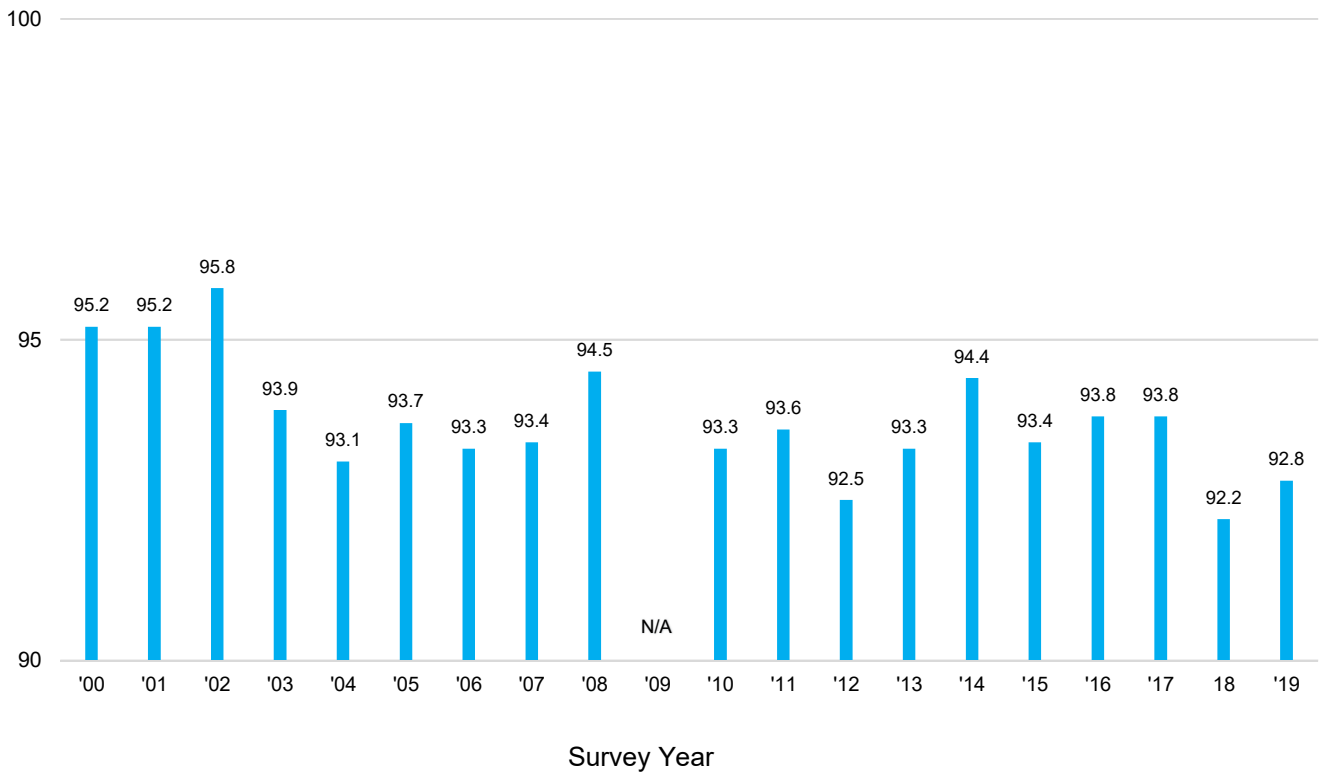


Figure 11. Percent children who received ≥ 3 HIB by age 24 months, Florida, 2000–2019

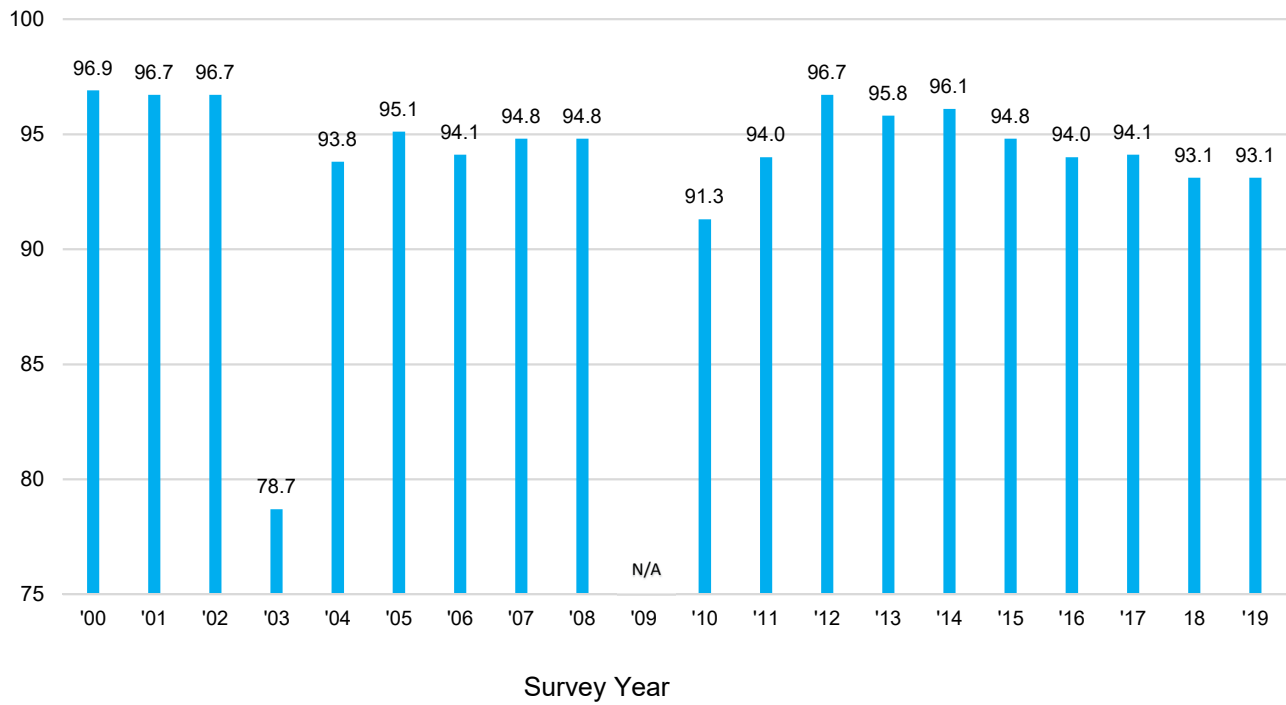


Figure 12. Percent children who received ≥ 3 HEP B by age 24 months, Florida, 2000–2019

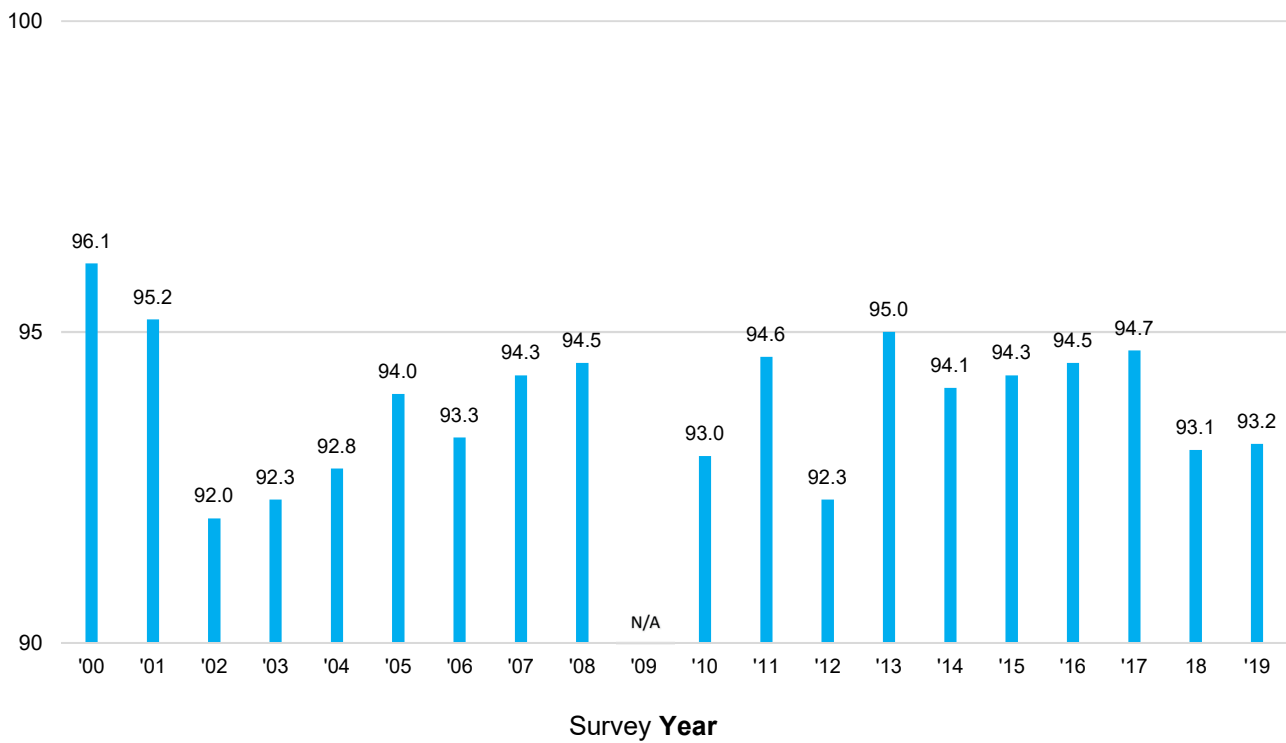


Figure 13. Percent of children who received ≥ 1 Varicella by age 24 months, Florida, 2000–2019

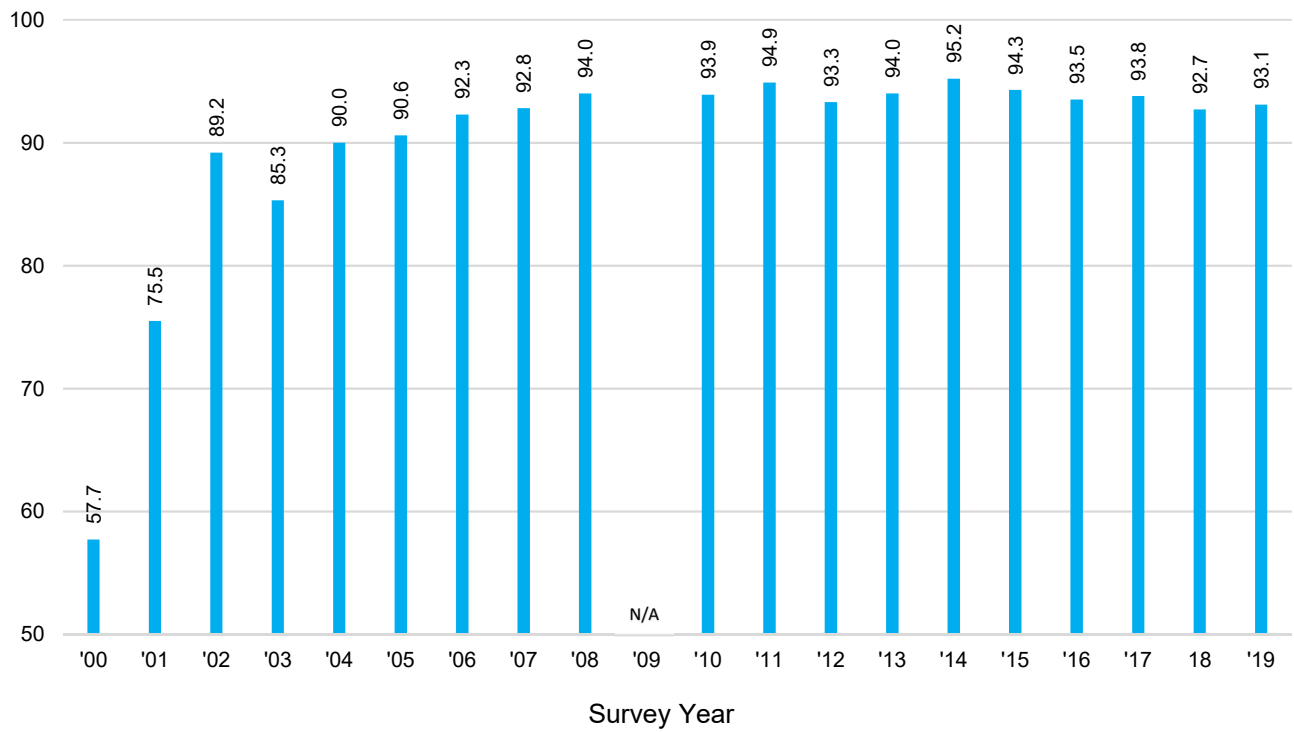


Figure 14. Percent of children who received ≥ 4 PCV by age 24 months, Florida, 2010–2019

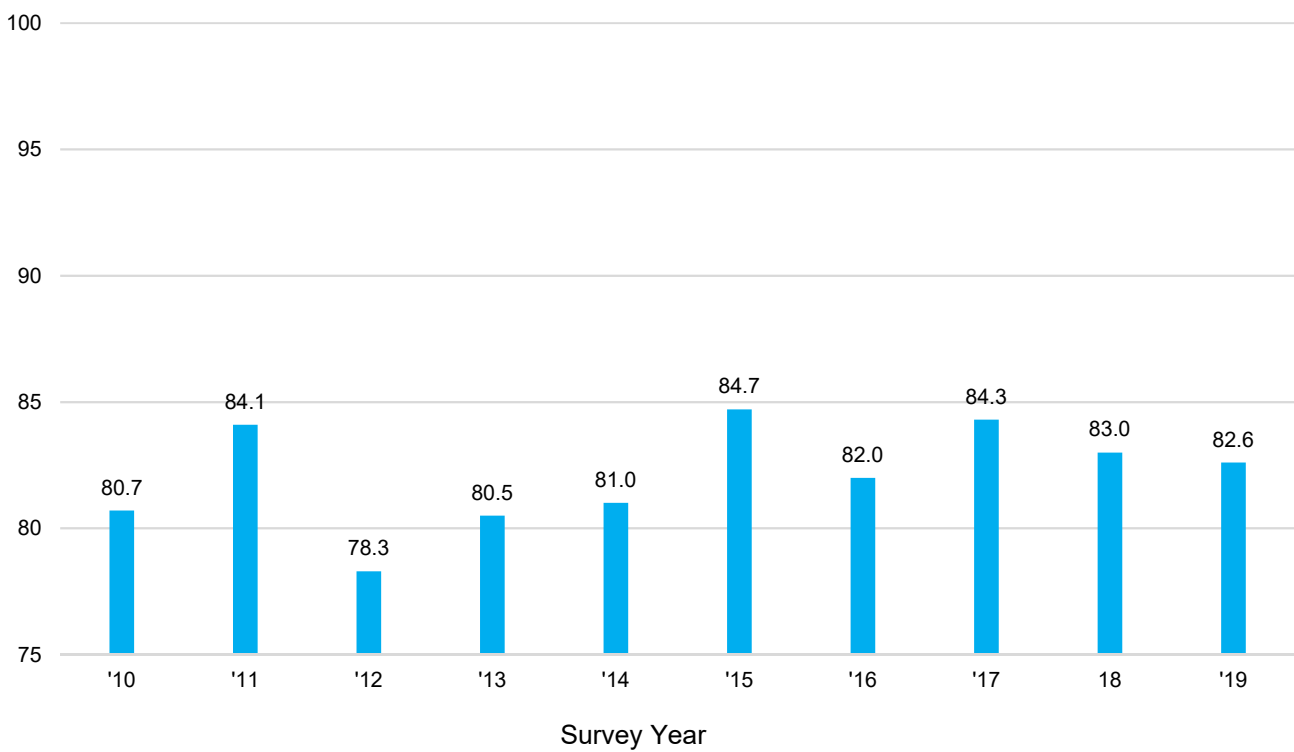


Figure 15. Vaccination coverage for 4:3:1:3:3:1:4 vaccine series by age 24 months, by provider type, Florida 2019

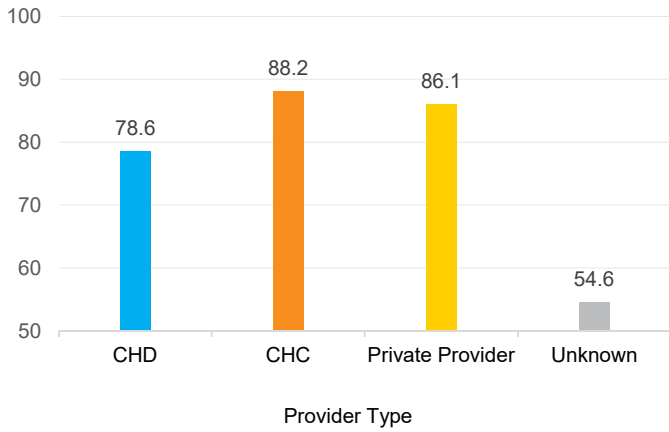


Figure 16. Vaccination coverage for 4:3:1:3:3:1:4 vaccine series by age 24 months, by mother's education (years), Florida, 2019

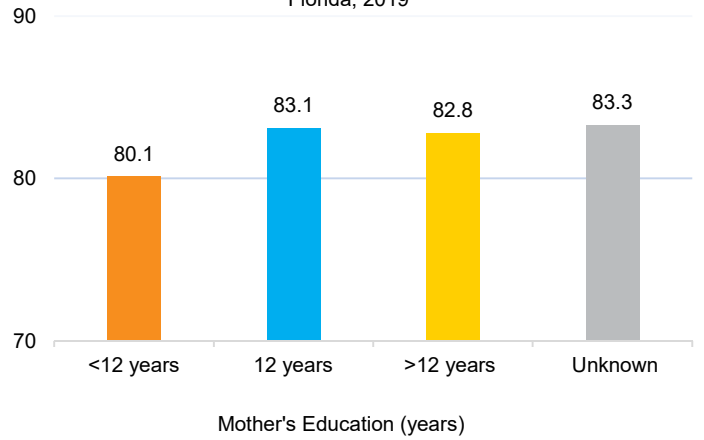


Figure 17. Vaccination coverage for 4:3:1:3:3:1:4 vaccine series by age 24 months, by mother's age, Florida 2019

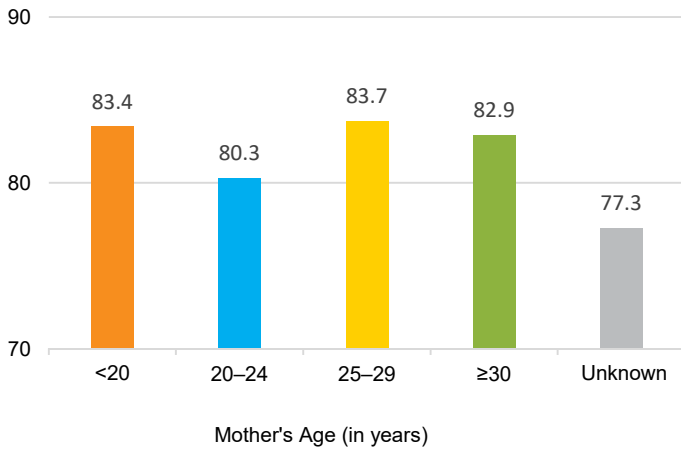


Figure 18. Vaccination coverage for 4:3:1:3:3:1:4 vaccine series by age 24 months, by number of siblings in family, Florida, 2019

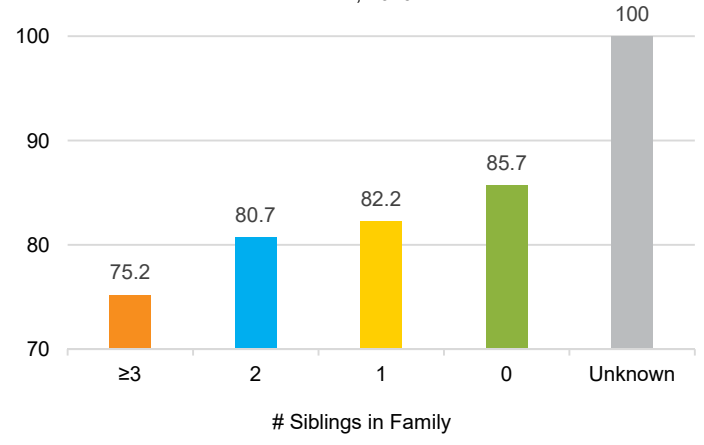


Figure 19. Vaccination coverage for 4:3:1:3:3:1:4 vaccine series by age 24 months, by mother's marital status, Florida, 2019

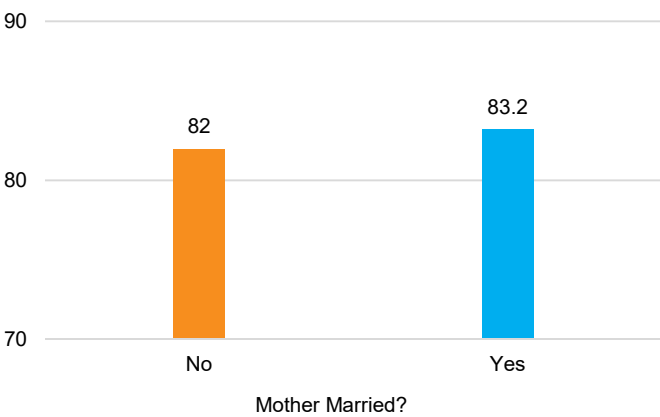


Figure 20. Vaccination coverage for 4:3:1:3:3:1:4 vaccine series by age 24 months, by trimester of initiation of prenatal care, Florida, 2019

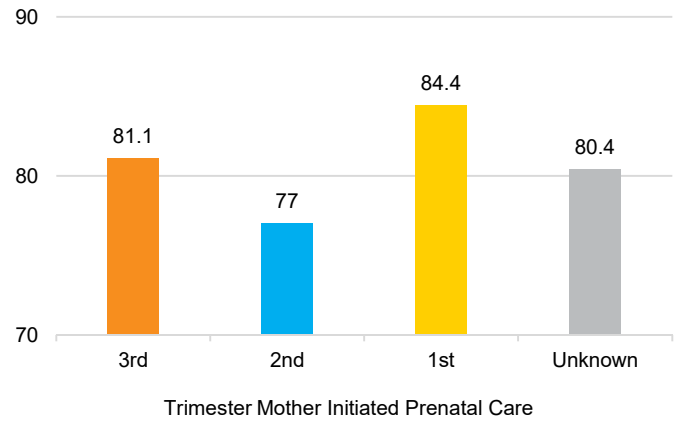
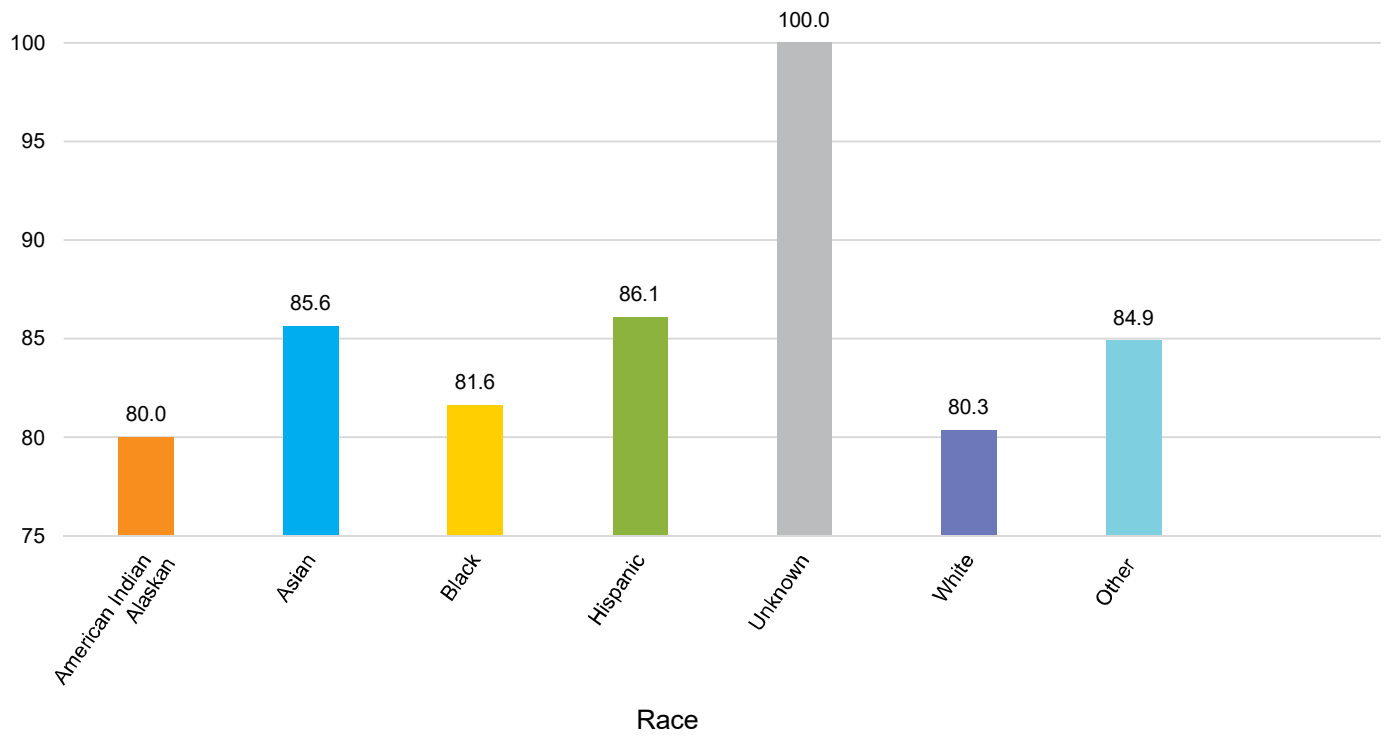


Figure 21. Vaccination coverage for 4:3:1:3:3:1:4 vaccine series by age 24 months, by race, Florida, 2019



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