

**Mission:**

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



**Ron DeSantis**  
Governor


**Vision:** To be the Healthiest State in the Nation

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## MEMORANDUM

**DATE:** May 10, 2019

**TO:** County Health Department Health Officers

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

**SUBJECT:** Survey of Immunization Levels in 2-Year-Old Children (2018)

### INFORMATION ONLY

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In December 2018, the Florida Department of Health's (DOH) Immunization Section completed an annual immunization survey of 1,842 2-year-old children born in Florida. The Bureau of Vital Statistics' *Resident Live Births*, via the Florida State Health Online Tracking System (SHOTS), was the source of the target population. The purpose of this survey was to estimate immunization coverage levels statewide and for 24 of the 67 counties with consistently higher annual birth counts.

The population was derived from children with birth certificate numbers who were born in January 2016. Children with a death certificate number were removed, as well as those who did not have a valid Vital Statistics County of Residence at Birth. Children were categorized by their county of residence at birth. As the survey involved estimating coverage levels across multiple counties, a stratified sampling methodology, where each of the 24 counties and all other counties grouped represent a stratum, was followed to derive the samples. The sample size (2,060 children) was also based on each county's coverage rate for the prior year, with a default margin of error ( $\pm 6.5\%$ ), and a 95% confidence level.

The Advisory Committee on Immunization Practices (ACIP) recommends that 2-year-old children (from 24 to 35 months of age) should complete the 4:3:1:3:3:1:4 (expanded) immunization measure by 24 months of age. The expanded immunization measure 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; *Haemophilus influenzae* type b (Hib) vaccine (three or four doses, depending on product type); three or more doses of hepatitis B vaccine; one or more doses of varicella vaccine; and four or more doses of pneumococcal conjugate vaccine (PCV).

DOH's goal is to achieve 90% coverage for the expanded immunization measure. **The 2018 statewide immunization coverage level for the expanded immunization measure is 83.1%.** The coverage rates for the 24 selected counties ranged from 67.7% [St. Lucie] to 93.1% [Dade], with a median rate of 80%. **The 2018 statewide immunization coverage level for the 4:3:1:3:3:1 (basic) [without PCV] immunization measure is 83.9%.** The coverage rates for the 24 selected counties ranged from 69.4% [St. Lucie] to 93.1% [Dade], with a median rate of 81.9%. Sixty-four children (3.1%) received "No Shots," 58 of which were due to religious exemption (Enclosure 1).



Enclosure 2 provides statewide results for the past 10 years. The 3.1% of children with “No Shots” in 2018 is the highest ever, 0.9% higher than 2017, and just under 400% higher than in 2010. The completion rates for the basic measure went down in 2018 by 2.2% and the expanded measure went down by 1.9% from 2017.

The 11.6% of children in 2018 with an unknown Provider Type is the lowest since 2006. All doses of vaccine are down from prior years. Of note, the 4th dose of DTaP (86.2%) is the lowest in 15 years, and the 1st dose of MMR is at an all-time low, with 92.2%. The fourth dose of DTaP continues to impede our achieving 90% coverage for the basic measure (Enclosure 3).

Enclosure 4 provides the number of children with a vaccination history, by the Provider Type that administered most of their vaccinations in the expanded measure. More than 80% of the children in the survey have a private provider, 8% go to a community health center (CHC), 3.5% go to a county health department (CHD), and 8.2% are unknown. Also included is the breakdown of the number of children who received a specific dose by provider type (e.g. 74 children received their 4th DTAP at a CHD).

The children were categorized by Provider Type and by immunization status for the expanded measure. The data shows that of the 1,842 children who participated in the survey, 80.9 percent (statewide, unweighted) completed the expanded measure by 24 months of age. CHCs achieved the highest coverage levels (86.7%), followed by private providers (84.1%), and CHDs (82.3%). Of the four provider types, private providers continue to lead in volume (1,428 of 1,842 children) of childhood immunization service delivery, while CHDs remain the lowest, with 62 children (Enclosure 5).

Of the five high-risk indicators known to impede timely childhood immunizations, “Number of Siblings in Family” had the highest impact to children not completing the expanded measure by 24 months of age. For children born to mothers who already had three or more children, only 77.1% completed the measure on time, compared to 85.3% whose mothers had no other children. Of the 55 children born to mothers with less than a 12th grade education, **none** completed the measure on time (Enclosure 6).

Fifty percent of the survey participants were white, 27% were Hispanic, 17% were black, 3% were Asian, less than one percent were American Indian/Alaskan, less than one percent were unknown races, and 3% were other races. Of the three largest groups, black children had the lowest measure completion rate (77.1%), white children were at 80.4%, and Hispanic children had the highest completion rate (83.4%). White children continue to have the highest rate of religious exemption from vaccination, with 39 of the 64 children (60.9%) (Enclosure 7).

Recommendations:

Vaccination prevents disease outbreaks and help ensure a healthy future for our children. We must continue to find ways to increase coverage levels for our 2-year-old children, with the challenge that more than 75% of Florida’s childhood immunization service delivery comes from the private sector. The following are best practices that may improve vaccination coverage rates in your county:

Administer all vaccines a child is eligible to receive at the time of each visit.

Conduct quarterly audits, at a minimum, via Florida SHOTS, to ensure complete immunization coverage of children whose immunization home is a CHD.

Ensure the *Survey of Immunization Levels in 2-Year-Old Children (2018)* report is distributed to county health departments and immunization partners.

Have a plan for discussing the importance of **timely** childhood vaccination with parents who ask to vaccinate on an alternate schedule or who choose not to vaccinate.

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Identify and target child care facilities with a high rate of children immunized on an alternative schedule or with a *Religious Exemption from Immunization (DH Form 681)*. Meet with the facility director to promote timely immunizations.

Increase partnerships with local private providers and managed care organizations to promote Florida SHOTS, as well as *The Standards for Pediatric Immunization Practices* located at [hhs.gov/nvpo/nvac/reports-and-recommendations/the-standards-for-pediatric-immunization-practice/index.html](https://hhs.gov/nvpo/nvac/reports-and-recommendations/the-standards-for-pediatric-immunization-practice/index.html).

Regularly schedule automated reminder and recall processes via Florida SHOTS to improve overall compliance with the recommended immunization schedule, particularly for the fourth dose of DTaP and PCV vaccines.

Utilize all clinical encounters to screen children for immunization services. If due (or past due), offer to vaccinate.

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

cc: Beth A. Paterniti, MPA, Interim Assistant Deputy Secretary  
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Immunization Section Field Staff Representatives





Florida Department of Health  
 Immunization Levels in 2-Year-Old Children  
 By Selected Counties and Statewide  
 Florida, 2018

County	Sample Size <sup>1</sup>	Survey Participants <sup>2</sup>	No Shots <sup>3</sup>		4:3:1:3:3:1 <sup>4</sup>				4:3:1:3:3:1:4 <sup>5</sup>			
			Complete <sup>6</sup>		Partial		Complete <sup>6</sup>		Partial			
			#	% <sup>7</sup>	#	% <sup>7</sup>	#	% <sup>7</sup>	#	% <sup>7</sup>	#	% <sup>7</sup>
Alachua	51	39	1	2.6 (± 5.0)	36	92.3 (± 8.4)	2	5.1 (± 6.9)	36	92.3 (± 8.4)	2	5.1 (± 6.9)
Brevard	87	78	4	5.1 (± 4.9)	61	78.2 (± 9.2)	13	16.7 (± 8.3)	60	76.9 (± 9.4)	14	18.0 (± 8.5)
Broward	64	62	2	3.2 (± 4.4)	46	74.2 (± 10.9)	14	22.6 (± 0.4)	45	72.6 (± 11.1)	15	24.2 (± 10.7)
Collier	93	87	2	2.3 (± 3.1)	75	86.2 (± 7.2)	10	11.5 (± 6.7)	75	86.2 (± 7.2)	10	11.5 (± 6.7)
Dade	78	72	2	2.8 (± 3.8)	67	93.1 (± 5.9)	3	4.2 (± 4.6)	67	93.1 (± 5.9)	3	4.2 (± 4.6)
Duval	93	81	1	1.2 (± 2.4)	74	91.4 (± 6.1)	6	7.4 (± 5.7)	74	91.4 (± 6.1)	6	7.4 (± 5.7)
Escambia	70	58	1	1.7 (± 3.4)	50	86.2 (± 8.9)	7	12.1 (± 8.4)	50	86.2 (± 8.9)	7	12.1 (± 8.4)
Hillsborough	77	65	0	0.0 (± 0.0)	59	90.8 (± 7.0)	6	9.2 (± 7.0)	59	90.8 (± 7.0)	6	9.2 (± 7.0)
Lake	92	81	3	3.7 (± 4.1)	63	77.8 (± 9.1)	15	18.5 (± 8.5)	59	72.8 (± 9.7)	19	23.5 (± 9.2)
Lee	64	62	2	3.2 (± 4.4)	53	85.5 (± 8.8)	7	11.3 (± 7.9)	53	85.5 (± 8.8)	7	11.3 (± 7.9)
Leon	60	50	1	2.0 (± 3.9)	44	88.0 (± 9.0)	5	10.0 (± 8.3)	44	88.0 (± 9.0)	5	10.0 (± 8.3)
Manatee	36	32	3	9.4 (± 10.1)	29	90.6 (± 10.1)	0	0.0 (± 0.0)	29	90.6 (± 10.1)	0	0.0 (± 0.0)
Marion	53	46	2	4.4 (± 5.9)	38	82.6 (± 11.0)	6	13.0 (± 9.7)	37	80.4 (± 11.5)	7	15.2 (± 10.4)
Okaloosa	75	62	1	1.6 (± 3.1)	49	79.0 (± 10.1)	12	19.4 (± 9.8)	49	79.0 (± 10.1)	12	19.4 (± 9.8)
Orange	129	110	2	1.8 (± 2.5)	86	78.2 (± 7.7)	22	20.0 (± 7.5)	83	75.5 (± 8.0)	25	22.7 (± 7.8)
Osceola	91	79	4	5.1 (± 4.8)	57	72.2 (± 9.9)	18	22.8 (± 9.2)	57	72.2 (± 9.9)	18	22.8 (± 9.2)
Palm Beach	104	103	4	3.9 (± 3.7)	76	73.8 (± 8.5)	23	22.3 (± 8.0)	75	72.8 (± 8.6)	24	23.3 (± 8.2)
Pasco	109	98	5	5.1 (± 4.4)	79	80.6 (± 7.8)	14	14.3 (± 6.9)	78	79.6 (± 8.0)	15	15.3 (± 7.1)
Pinellas	114	100	3	3.0 (± 3.3)	75	75.0 (± 8.5)	22	22.0 (± 8.1)	74	74.0 (± 8.6)	23	23.0 (± 8.2)
Polk	79	73	1	1.4 (± 2.7)	65	89.0 (± 7.2)	7	9.6 (± 6.8)	63	86.3 (± 7.9)	9	12.3 (± 7.5)
Sarasota	71	65	5	7.7 (± 6.5)	50	76.9 (± 10.2)	10	15.4 (± 8.8)	50	76.9 (± 10.2)	10	15.4 (± 8.8)
Seminole	96	90	4	4.4 (± 4.3)	73	81.1 (± 8.1)	13	14.4 (± 7.3)	71	78.9 (± 8.4)	15	16.7 (± 7.7)
St. Lucie	64	62	3	4.8 (± 5.3)	43	69.4 (± 11.5)	16	25.8 (± 10.9)	42	67.7 (± 11.6)	17	27.4 (± 11.1)
Volusia	103	91	4	4.4 (± 4.2)	79	86.8 (± 7.0)	8	8.8 (± 5.8)	78	85.7 (± 7.2)	9	9.9 (± 6.1)
Other	107	96	4	4.2 (± 4.0)	83	86.5 (± 6.8)	9	9.4 (± 5.8)	83	86.5 (± 6.8)	9	9.4 (± 5.8)
Statewide <sup>8</sup>	2,060 <sup>9</sup>	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)

**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.

<sup>1</sup>Children in this survey were born in January 2016.

<sup>2</sup>Excludes 16 children whose parents refused to participate, 200 who could not be located, and two deceased or deleted from the database.

<sup>3</sup>Children with no vaccines for the measures. **Includes 58 children with a religious exemption.**

<sup>4</sup>4:3:1:3:3:1 = Measure of ≥4 doses of DTaP vaccine, ≥3 doses of IPV, ≥1 dose of MMR vaccine, the full series of Hib vaccine (≥3 or ≥4 doses, depending on product type), ≥3 doses of HepB vaccine, and ≥1 dose of varicella vaccine.

<sup>5</sup>4:3:1:3:3:1:4 = 4:3:1:3:3:1 measure, plus ≥4 doses of PCV.

<sup>6</sup>Children have received all vaccines necessary to complete the measure by 24 months of age and do not have a religious exemption.

<sup>7</sup>Immunization levels (unweighted) presented as point estimate (%) ± 95% confidence interval.

<sup>8</sup>Weighted average based on the number of births in each county.

<sup>9</sup>Statewide sample includes two children deceased or deleted from the database.



Florida Department of Health  
 Immunization Levels in 2-Year-Old Children  
 Historic Data by Year and Immunization Measure 2009–2018  
 Florida, 2018

Year <sup>1</sup>	Survey Participants <sup>2</sup>	No Shots <sup>3</sup>		4:3:1:3:3:1 <sup>4</sup>				4:3:1:3:3:1:4 <sup>5</sup>			
				Complete <sup>6</sup>		Partial		Complete <sup>6</sup>		Partial	
				#	% <sup>7</sup>	# <sup>8</sup>	% <sup>7</sup>	#	% <sup>7</sup>	# <sup>8</sup>	% <sup>7</sup>
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)
2009 <sup>9</sup>	1,822	N/A	N/A	1,589	87.2 (± 1.8)	N/A	N/A	1,312	72.0 (± 2.7)	N/A	N/A

**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.

<sup>1</sup>2016–2018 state goal was based on the 4:3:1:3:3:1:4 measure. 2009–2015 state goal was based on the 4:3:1:3:3:1 measure.

<sup>2</sup>Children 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.

<sup>3</sup>Includes children with no vaccines for the measure and children with a religious exemption.

<sup>4</sup>4:3:1:3:3:1 = Measure of ≥4 doses of DTaP vaccine, ≥3 doses of IPV, ≥1 dose of MMR vaccine, the full series of Hib vaccine (≥3 or ≥4 doses, depending on product type), ≥3 doses of HepB vaccine, and ≥1 dose of varicella vaccine.

<sup>5</sup>4:3:1:3:3:1:4 = 4:3:1:3:3:1 measure, plus ≥4 doses of PCV.

<sup>6</sup>Children have received all vaccines necessary to complete the measure by 24 months of age and do not have a religious exemption.

<sup>7</sup>Immunization levels (weighted by the number of births in each county) presented as point estimate (%) ± 95% confidence interval.

<sup>8</sup>Number of children who received all vaccines necessary to complete the measure by 24 months of age.

<sup>9</sup>2009 both measures exclude Hib vaccinations. The completion rate for the 4:3:1:3:3:1 measure including Hib vaccinations was 81.9%. The completion for the 4:3:1:3:3:1:4 measure including Hib vaccinations was 67.6%.



Florida Department of Health  
 Immunization Levels in 2-Year-Old Children  
 Historic Data 1999–2018  
 Florida, 2018

Year <sup>1</sup>	Survey Participants <sup>2</sup> #	Immunization Measure Status <sup>3</sup>			Provider Type				Coverage Level By Vaccine Dose						
		Complete <sup>4</sup> %	Partial %	No Shots <sup>5</sup> %	Private Provider %	CHD %	CHC %	No Source %	≥4 DTaP %	≥3 IPV %	1 MMR %	3 Hib %	3 Hep B %	1 Varicella %	4 PCV %
2018 <sup>6</sup>	1,842	83.1	13.9	3.1	79.7	2.4	6.3	11.6	86.2	93.3	92.2	93.1	93.1	92.7	83.0
2017 <sup>6</sup>	1,817	85.0	12.8	2.2	79.3	2.2	5.4	13.0	87.9	94.3	93.8	94.1	94.7	93.8	84.3
2016 <sup>6</sup>	1,831	83.4	14.5	2.1	78.3	3.8	5.2	12.7	87.2	94.8	93.8	94.0	94.5	93.5	82.0
2015 <sup>6</sup>	1,828	85.5	12.9	1.6	75.3	4.2	7.1	13.3	89.5	94.8	93.4	94.8	94.3	94.3	84.7
2014 <sup>6</sup>	1,740	85.7	12.4	1.9	75.1	4.7	5.9	14.3	88.2	95.5	94.4	96.1	94.1	95.2	81.0
2013 <sup>6</sup>	1,759	86.7	11.9	1.4	73.7	7.0	4.6	14.7	89.3	96.2	93.3	95.8	95.0	94.0	80.5
2012 <sup>6</sup>	1,755	83.0	15.5	1.6	76.7	6.0	4.7	12.5	87.8	95.5	92.5	96.7	92.3	93.3	78.3
2011 <sup>6</sup>	1,780	86.1	12.8	1.1	70.9	10	4.8	14.3	89.4	95.2	93.6	94.0	94.6	94.9	84.1
2010 <sup>6</sup>	1,716	81.1	18.1	0.8	65.9	9.6	5.4	19.1	88.0	94.2	93.3	91.3	93.0	93.9	80.7
2009 <sup>6,7</sup>	1,822	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	83.4	16.0	0.6	60.1	15.8	3.9	20.2	86.7	93.8	94.5	94.8	94.5	94.0	N/A
2007	1,876	83.2	15.7	1.1	68.3	13.5	2.7	15.5	86.9	92.5	93.4	94.8	94.3	92.8	N/A
2006	1,648	79.2	20.2	0.6	64.8	16.8	2.9	0.1	87.4	93.2	93.3	94.1	93.3	92.3	N/A
2005	1,901	86.6	13.1	0.5	75.2	17.2	4.5	3.0	86.4	93.2	93.7	95.1	94.0	90.6	N/A
2004	1,540	85.3	14.0	0.6	75.6	18.4	4.5	1.4	86.0	92.5	93.1	93.8	92.8	90.0	N/A
2003	1,190	79.4	20.3	0.3	76.1	16.9	3.4	3.6	80.2	93.5	93.9	78.7	92.3	85.3	N/A
2002	1,159	85.3	14.0	0.7	76.0	17.5	3.6	2.8	86.6	93.7	95.8	96.7	92.0	89.2	N/A
2001 <sup>6</sup>	1,092	85.5	14.3	0.2	76.2	16.9	3.0	3.7	87.9	93.6	95.2	96.7	95.2	75.5	N/A
2000 <sup>6</sup>	1,113	86.6	12.5	0.9	70.8	22.3	2.9	3.1	88.8	93.5	95.2	96.9	96.1	57.7	N/A
1999 <sup>6</sup>	1,064	86.2	13.4	0.4	69.6	24.5	2.8	2.6	87.1	94.5	94.0	97.9	94.1	31.3	N/A

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

<sup>1</sup>2016–2018 state goal was based on the 4:3:1:3:3:1:4 measure: ≥4 doses of DTaP, ≥3 doses of IPV, ≥1 dose of MMR vaccine, the full series of Hib (≥3 or ≥4 doses, depending on product type), ≥3 doses of HepB, ≥1 dose of varicella vaccine, and ≥4 doses of PCV. 2006–2015 state goal was based on the 4:3:1:3:3:1 measure: 4:3:1:3:3:1:4 minus the 4 doses of PCV. 1998–2005 state goal was based on the 4:3:1 measure: 4 doses of DTaP vaccine, 3 doses of IPV, and 1 dose of MMR vaccine.

<sup>2</sup>Children in this survey were born in January 2016. Excludes children who could not be located, were deleted from the database, or whose parents refused to participate.

<sup>3</sup>Immunization levels presented as point estimate (%).

<sup>4</sup>Children have received all vaccines necessary to complete the measure by 24 months of age and do not have a religious exemption.

<sup>5</sup>Children with no vaccines for the measure and children with a religious exemption.

<sup>6</sup>Complete and partial percentage weighted by the number of births in each county.

<sup>7</sup>2009 uses the 4:3:1:3:3:1 measure, excluding the Hib vaccinations. Including the Hib vaccinations, the completion percentage is was 67.6%.



Florida Department of Health  
 Immunization Levels in 2-Year-Old Children  
 By Specific Vaccine and Provider Type  
 Florida, 2018

Provider Type	Participants w/Shots <sup>1</sup>		Number of Doses Given												
			DTaP			IPV		MMR	Hib	HepB	Varicella	PCV			
	# <sup>2</sup>	% <sup>3</sup>	Dose 1	Dose 3	Dose 4	Dose 1	Dose 3	Dose 1	Dose 3	Dose 3	Dose 1	Dose 1	Dose 2	Dose 3	Dose 4
CHD	62	3.5	70	72	74	71	74	80	79	71	79	73	66	69	66
Private Provider	1,428	80.3	1,309	1,354	1,222	1,305	1,341	1,313	1,345	1,320	1,319	1,306	1319	1,337	1,198
CHC	143	8.0	143	136	109	143	135	127	128	137	128	146	130	137	114
Unknown	145	8.2	252	150	148	255	141	156	133	167	154	246	227	146	130
<b>Statewide</b>	<b>1,778</b>	<b>100</b>	<b>1,774</b>	<b>1,712</b>	<b>1,553</b>	<b>1,774</b>	<b>1,691</b>	<b>1,676</b>	<b>1,685</b>	<b>1,695</b>	<b>1,680</b>	<b>1,771</b>	<b>1,742</b>	<b>1,689</b>	<b>1,508</b>

**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; 4:3:1:3:3:1:4 = Measure of ≥4 doses of DTaP vaccine, ≥3 doses of IPV, ≥1 dose of MMR vaccine, the full series of Hib vaccine (≥3 or ≥4 doses, depending on product type), ≥3 doses of HepB vaccine, ≥1 dose of varicella vaccine, and ≥4 doses of PCV.

<sup>1</sup>Children in this survey were born in January 2016. Excludes 16 children whose parents refused to participate, 200 who could not be located, two who are deceased or were deleted from the database, 58 with a religious exemption, and six with no vaccinations for the 4:3:1:3:3:1:4 measure.

<sup>2</sup>Children are grouped into the provider type that provided the majority of the vaccinations for the 4:3:1:3:3:1:4 measure.

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



Florida Department of Health  
 Immunization Levels in 2-Year-Old Children  
 Vaccine Provider Type By Immunization Status  
 Florida, 2018

4:3:1:3:3:1:4 <sup>1</sup>	Survey Participants <sup>2</sup>		County Health Department		Community Health Center		Private Provider		No Source or Unknown Source	
	#	% <sup>3</sup>	# <sup>4</sup>	% <sup>3</sup>	# <sup>4</sup>	% <sup>3</sup>	# <sup>4</sup>	% <sup>3</sup>	# <sup>4</sup>	% <sup>3</sup>
Complete <sup>5</sup>	1,491	80.9	51	82.3	124	86.7	1,201	84.1	115	55.0
Partial	287	15.6	11	17.7	19	13.3	227	15.9	30	14.4
No Shots <sup>6</sup>	64	3.5	0	0.0	0	0.0	0	0.0	64	30.6
<b>Statewide</b>	<b>1,842</b>	<b>100.0</b>	<b>62</b>	<b>100.0</b>	<b>143</b>	<b>100.0</b>	<b>1,428</b>	<b>100.0</b>	<b>209</b>	<b>100.0</b>

<sup>1</sup>4:3:1:3:3:1:4 = measure of ≥4 doses of DTaP (diphtheria, tetanus toxoids, and acellular pertussis) vaccine, ≥3 doses of IPV (inactivated poliovirus vaccine), ≥1 dose of MMR (measles, mumps, and rubella) vaccine, the full series of Hib vaccine (*Haemophilus influenzae* type b) (≥3 or ≥4 doses, depending on product type), ≥3 doses of hepatitis B vaccine, ≥1 dose of varicella vaccine, and ≥4 doses of PCV (pneumococcal conjugate vaccine).

<sup>2</sup>Children in this survey were born in January 2016. Excludes 16 children whose parents refused to participate in the survey, 200 children who could not be located, and two children deceased or deleted from the database.

<sup>3</sup>Immunization levels (unweighted) presented as point estimate (%).

<sup>4</sup>Children grouped into the vaccine provider type that provided the majority of the vaccines for the measure.

<sup>5</sup>Children have received all vaccines necessary to complete the 4:3:1:3:3:1:4 measure by 24 months of age and do not have a religious exemption.

<sup>6</sup>Includes six children with no vaccines for the 4:3:1:3:3:1:4 measure and 58 children with a religious exemption.





## Florida Department of Health

### Immunization Status in 2-Year-Old Children By High-Risk Characteristics for 4:3:1:3:3:1:4<sup>1</sup> Florida, 2018

		Mother's Education Level (Years)							
		<12 <sup>2</sup>		12		>12		Unknown	
Complete <sup>3</sup>		0	77.4%	465	79.0%	825	82.8%	13	92.9%
Incomplete <sup>4</sup>		55	22.6%	124	21.0%	171	17.2%	1	7.1%

		Age of Mother									
		<20 <sup>2</sup>		20–24		25–29		≥30		Unknown	
Complete <sup>3</sup>		87	84.5%	346	79.2%	415	79.8%	634	81.9%	9	81.8%
Incomplete <sup>4</sup>		16	15.5%	88	20.3%	105	20.2%	140	18.1%	2	18.2%

		Number of Siblings in Family									
		≥3 <sup>2</sup>		2		1		0		Unknown	
Complete <sup>3</sup>		145	77.1%	242	77.6%	443	78.1%	659	85.3%	2	100.0%
Incomplete <sup>4</sup>		43	22.9%	70	22.4%	124	21.9%	114	14.8%	0	0.0%

		Marital Status			
		No <sup>2</sup>		Yes	
Complete <sup>3</sup>		725	79.9%	766	82.0%
Incomplete <sup>4</sup>		183	20.0%	168	18.0%

		Trimester of Initiation of Prenatal Care							
		3rd <sup>2</sup>		2nd		1st		Unknown	
Complete <sup>3</sup>		70	81.4%	291	76.0%	1,040	82.7%	90	77.6%
Incomplete <sup>4</sup>		16	18.6%	92	24.0%	217	17.3%	26	22.4%

Children in this survey were born in January 2016.

<sup>1</sup>4:3:1:3:3:1:4 = Measure of ≥4 doses of DTaP (diphtheria, tetanus toxoids, and acellular pertussis) vaccine, ≥3 doses of IPV (inactivated poliovirus vaccine), ≥1 dose MMR (measles, mumps, and rubella) vaccine, the full series of Hib vaccine (*Haemophilus influenzae* type b) (≥3 or ≥4 doses, depending on product type), ≥3 doses of hepatitis B vaccine, ≥1 dose of varicella vaccine, and ≥4 doses of PCV (pneumococcal conjugate vaccine).

<sup>2</sup>Categories that place children at high risk for completing vaccinations by 24 months of age: Being born to a mother without a high school diploma or equivalent; born to a mother less than 20 years of age; 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.

<sup>3</sup>Completion of the 4:3:1:3:3:1:4 measure by 24 months of age.

<sup>4</sup>Includes children with no vaccines for the measure and children with a religious exemption.



## Florida Department of Health Immunization Levels in 2-Year-Old Children By Race, Florida 2018

Race	Sample Size <sup>1</sup>	Survey Participants <sup>2</sup>		No Shots <sup>3</sup>		4:3:1:3:3:1:4 <sup>4</sup>				
		#	%	#	% <sup>6</sup>	Complete <sup>5</sup>		Partial		
						#	% <sup>6</sup>	#	% <sup>6</sup>	
American Indian/Alaskan	5	3	0	1	33.3 (±53.3)	2	66.7 (±53.3)	0	0.0 (±0.0)	
Asian	62	54	3	1	1.9 (±3.6)	47	87.0 (±9.0)	6	11.1 (±8.4)	
Black	349	314	17	10	3.2 (±1.9)	242	77.1 (±4.6)	62	19.8 (±4.4)	
Hispanic	535	494	27	12	2.4 (±1.4)	412	83.4 (±3.3)	70	14.2 (±3.1)	
Unknown	2	2	0	0	0.0 (±0.0)	2	100.0 (±0.0)	0	0.0 (±0.0)	
White	1,040	918	50	39	4.3 (±1.3)	738	80.4 (±2.6)	141	15.4 (±2.3)	
Other	65	57	3	1	1.8 (±3.4)	48	84.2 (±9.5)	8	14.0 (±9.0)	
<b>Statewide</b>	<b>2,060<sup>7</sup></b>	<b>1,842</b>	<b>100</b>	<b>64</b>	<b>3.5 (±0.8)</b>	<b>1,491</b>	<b>80.9 (±1.8)</b>	<b>287</b>	<b>15.9 (±1.7)</b>	

<sup>1</sup>Children in this survey were born in January 2016.

<sup>2</sup>Excludes 16 children whose parents refused to participate in the survey, 200 who could not be located, and two deceased or deleted from the database.

<sup>3</sup>Has no shots for the 4:3:1:3:3:1:4 measure. Includes 58 children with a religious exemption.

<sup>4</sup>4:3:1:3:3:1:4 = Measure of ≥4 doses of DTaP (diphtheria, tetanus toxoids, and acellular pertussis) vaccine, ≥3 doses of IPV (inactivated poliovirus vaccine), ≥1 dose of MMR (measles, mumps, and rubella) vaccine, the full series of Hib vaccine (*Haemophilus influenzae* type b) (≥3 or ≥4 doses, depending on product type), ≥3 doses of hepatitis B vaccine, ≥1 dose of varicella vaccine, and ≥4 doses of PCV (pneumococcal conjugate vaccine).

<sup>5</sup>Children have received all of the vaccines necessary to complete the measure by 24 months of age and do not have a religious exemption.

<sup>6</sup>Immunization levels presented as point estimate (%) ± 95% confidence interval.

<sup>7</sup>Statewide sample size includes two children deceased or deleted from the database; however, these two children are not included in the individual race sample sizes.