

Mission:

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



Rick Scott
Governor

Celeste Philip, MD, MPH
Surgeon General and Secretary

Vision: To be the Healthiest State in the Nation

MEMORANDUM

DATE: April 10, 2017
TO: County Health Department Directors/Administrators
FROM: Kelli T. Wells, MD
Deputy Secretary for Health *KTW*
SUBJECT: Survey of Immunization Levels in 2-Year-Old Children (2016)

INFORMATION ONLY

In October 2016, the Florida Department of Health's (Department) Immunization Section completed an annual immunization survey of 1,831 2-year-old children born in Florida. The Bureau of Vital Statistics' *Resident Live Births*, via the Florida State Health Online Tracking System (Florida SHOTS), was the source of the target population. The purpose of this survey was to estimate immunization coverage levels statewide and for 20 of the 67 counties with consistently higher annual birth counts.

The population was derived from children with birth certificate numbers and born in January 2014. 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. The children were categorized by their County of Residence at Birth. As the survey involved estimating coverage levels across multiple counties, stratified sampling methodology, where each of the 20 counties and all other counties grouped represent a stratum, was followed to derive the samples. The sample size was also based on each county's coverage rate for the prior year, with a default margin of error ($\pm 6.5\%$), and at 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 series by 24 months of age. The expanded immunization 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 more doses of *Haemophilus influenzae* type b (Hib) vaccine; three or more doses of hepatitis B vaccine; one or more doses of varicella vaccine (VZV); and four or more doses of pneumococcal conjugate vaccine (PCV).

The Department's goal is to achieve 90 percent coverage, while the national goal (Healthy People 2020) is 80 percent. **The 2016 statewide immunization coverage level for the expanded immunization series is 83.4 percent.** The coverage rates for the 20 selected counties ranged from 63.6 percent to 91.3 percent, with a median rate of 82.8 percent (Enclosure 1).

Beginning in 2006, the Department's immunization coverage goal was based on the then standard 4:3:1:3:3:1 (basic) immunization series, which did not include the four doses of PCV. In 2009, when

Florida began collecting data for the expanded series, the difference between the coverage rates for the basic and expanded series was 15.2 percent (Enclosure 2). This gap has narrowed each year by a median of 2.9 percent annually. For 2016, Florida achieved an 84.1 percent coverage rate for the reduced series (Enclosure 1), with a 0.7 percent gap between the basic and expanded series.

Since 2004, coverage levels for completion of the individual vaccines (other than DTaP and PCV) in the basic or expanded immunization series have been at ≥ 90 percent. In contrast, DTaP coverage levels fluctuated between 86.0 percent (2004) and 89.5 (2015) (Enclosure 3). While adding the requirement for timely completion of four PCV doses (i.e., the expanded series) has raised the bar for achieving our state immunization goal, it is important to note that the fourth dose of DTaP is as much a factor for falling short of the 90 percent state goal as is the fourth dose of PCV (Enclosure 4).

The survey participants were categorized by provider type and immunization status for the expanded series. Of the four provider types (county health department, community health center, private provider, and unknown source), private providers continued to lead in volume of childhood immunization service delivery (73.8 percent), while the county health department remains the lowest (4.2 percent). Community health centers achieved the highest coverage levels (89.6 percent), followed by private providers (84.7 percent) and county health departments (77.6 percent) (Enclosure 5).

Of the five high-risk indicators known to impede timely childhood immunizations, "Trimester of Initiation of Prenatal Care" had the highest impact to children not completing the expanded series by 24 months of age. For children born to mothers who began receiving prenatal care in the third trimester, only 76.7 percent completed the series on time, compared to 84.1 percent of children whose mothers began prenatal care in the first trimester. Children with no siblings had a much higher completion rate (85.0 percent) compared to those with three or more siblings (78.8 percent) (Enclosure 6).

Forty-nine percent of the survey participants were white, 29 percent were Hispanic, 18 percent were black, 2 percent were Asian, 1 percent were other races, and 1 percent were of unknown race. Of the three largest groups, white children had the lowest series completion rate (81.3 percent), Hispanic children were at 82.3 percent, and black children had the highest completion rate (86.5 percent). Children with a religious exemption from immunization are a leading factor in this discrepancy, with 28 of the 31 children with religious exemption being white (Enclosure 7).

Recommendations:

We prevent dangerous outbreaks and help ensure a healthy future for our children through immunization. Therefore, we must continue to find ways to increase coverage levels for our 2-year-old children with the understanding that almost 75 percent of Florida's childhood immunization service delivery comes from the private sector. Following are recommended best practices to improve childhood immunization coverage rates in your county.

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

Utilize all clinical encounters to screen and, when indicated, immunize children.

Conduct quarterly audits, via Florida SHOTS, to ensure complete immunization coverage of children whose immunization home is a county health department.

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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.

Identify and target child care facilities with a high rate of children immunized on an alternative schedule. Meet with the director of the facility to possibly promote timely immunizations.

Ensure the *Survey of Immunization Levels in Two-Year-Old Children (2016)* report will be distributed to county health departments and immunization partners.

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 www.hhs.gov/nvpo/nvac/reports-and-recommendations/the-standards-for-pediatric-immunization-practice/index.html.

The Immunization Section's Florida SHOTS marketing and outreach staff will participate in medical facility grand rounds to market Florida SHOTS to immunizing providers.

The Immunization Section's Florida SHOTS development team will continue to work with the Florida Women, Infants, and Children (WIC) Program's IT team towards the completion of the system integration between Florida SHOTS and the Florida WIC Information System and Electronic Benefits Transfer (WISE) system.

If you have questions or comments concerning this survey, or have found other successful methods to improve your community's immunization levels, please contact Amy Wilson at 850-245-4444, ext. 2395.

KTW/RG/aw

Enclosures

cc: David J. Becker MD, President
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cc continued:

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County Health Department Nursing Directors
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Immunization Levels in 2-Year-Old Children¹ By Selected Counties and Statewide Florida, 2016

County	Sample Size	Survey Participants ²	No Shots 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
Brevard	142	109	3	2.8 (± 3.1)	93	85.3 (± 6.6)	13	11.9 (± 6.1)	88	80.7 (± 7.4)	18	16.5 (± 7.0)
Broward	120	107	5	4.7 (± 4.0)	86	80.4 (± 7.5)	16	15.0 (± 6.8)	86	80.4 (± 7.5)	16	15.0 (± 6.8)
Collier	81	72	1	1.4 (± 2.7)	57	79.2 (± 9.4)	14	19.4 (± 9.1)	57	79.2 (± 9.4)	14	19.4 (± 9.1)
Dade	122	107	3	2.8 (± 3.1)	86	80.4 (± 7.5)	18	16.8 (± 7.1)	85	79.4 (± 7.7)	19	17.8 (± 7.2)
Duval	99	92	2	2.2 (± 3.0)	76	82.6 (± 7.7)	14	15.2 (± 7.3)	76	82.6 (± 7.7)	14	15.2 (± 7.3)
Escambia	81	71	0	0.0 (± 0.0)	58	81.7 (± 9.0)	13	18.3 (± 9.0)	58	81.7 (± 9.0)	13	18.3 (± 9.0)
Hillsborough	111	101	4	4.0 (± 3.8)	90	89.1 (± 6.1)	7	6.9 (± 5.0)	89	88.1 (± 6.3)	8	7.9 (± 5.3)
Lee	79	70	1	1.4 (± 2.8)	62	88.6 (± 7.5)	7	10.0 (± 7.0)	62	88.6 (± 7.5)	7	10.0 (± 7.0)
Leon	52	46	0	0.0 (± 0.0)	43	93.5 (± 7.1)	3	6.5 (± 7.1)	42	91.3 (± 8.1)	4	8.7 (± 8.1)
Manatee	71	66	1	1.5 (± 2.9)	58	87.9 (± 7.9)	7	10.6 (± 7.4)	58	87.9 (± 7.9)	7	10.6 (± 7.4)
Marion	92	84	0	0.0 (± 0.0)	74	88.1 (± 6.9)	10	11.9 (± 6.9)	72	85.7 (± 7.5)	12	14.3 (± 7.5)
Orange	91	68	2	2.9 (± 4.0)	55	80.9 (± 9.3)	11	16.2 (± 8.8)	54	79.4 (± 9.6)	12	17.7 (± 9.1)
Osceola	124	110	3	2.7 (± 3.0)	70	63.6 (± 9.0)	37	33.6 (± 8.8)	70	63.6 (± 9.0)	37	33.6 (± 8.8)
Palm Beach	106	95	2	2.1 (± 2.9)	86	90.5 (± 5.9)	7	7.4 (± 5.3)	86	90.5 (± 5.9)	7	7.4 (± 5.3)
Pasco	129	111	1	0.9 (± 1.8)	87	78.4 (± 7.7)	23	20.7 (± 7.5)	86	77.5 (± 7.8)	24	21.6 (± 7.7)
Pinellas	113	100	1	1.0 (± 2.0)	90	90.0 (± 5.9)	9	9.0 (± 5.6)	90	90.0 (± 5.9)	9	9.0 (± 5.6)
Polk	113	108	2	1.9 (± 2.5)	90	83.3 (± 7.0)	16	14.8 (± 6.7)	89	82.4 (± 7.2)	17	15.7 (± 6.9)
Sarasota	91	75	2	2.7 (± 3.6)	62	82.7 (± 8.6)	11	14.7 (± 8.0)	61	81.3 (± 8.8)	12	16.0 (± 8.3)
Seminole	94	76	0	0.0 (± 0.0)	65	85.5 (± 7.9)	11	14.5 (± 7.9)	65	85.5 (± 7.9)	11	14.5 (± 7.9)
Volusia	109	95	3	3.2 (± 3.5)	78	82.1 (± 7.7)	14	14.7 (± 7.1)	77	81.1 (± 7.9)	15	15.8 (± 7.3)
Other	79	68	0	0.0 (± 0.0)	59	86.8 (± 8.1)	9	13.2 (± 8.1)	59	86.8 (± 8.1)	9	13.2 (± 8.1)
Statewide⁸	2,099⁹	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)

¹Children in this survey were born in January 2014.

²Excludes 25 children whose parents refused to participate, 240 children who could not be located, and three children deleted from the database.

³Includes five children with no vaccines for the immunization measures, and 31 children with a religious exemption.

⁴4:3:1:3:3:1 = Measure 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 more doses of *Haemophilus influenzae* type b (Hib) vaccine, three or more doses of hepatitis B vaccine, and one or more doses of varicella vaccine (VZV).

⁵4:3:1:3:3:1:4 = 4:3:1:3:3:1 measure, plus four or more doses of pneumococcal conjugate vaccine (PCV).

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

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

⁸Statewide immunization levels (weighted) based on the number of births in each county.

⁹Includes three children deleted from the database.

**Immunization Levels in 2-Year-Old Children¹
Historic Data by Year and Immunization Measure 2009–2016
Florida, 2016**

Year ⁸	Survey Participants ² #	No Shots 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	
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	1,822	N/A	N/A	N/A	1,589	87.2 ⁹	(± 1.8)	N/A	N/A	N/A	1,312	72.0 ⁹	(± 2.7)	N/A	N/A	N/A

¹Children in these surveys were born in January two years prior to the survey year.

²Excludes children who could not be located, were deleted from the database, or whose parents refused to participate.

³Includes children with no vaccines for the measure and children with a religious exemption.

⁴4:3:1:3:3:1 = Measure 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 more doses of *Haemophilus influenzae* type b (Hib) vaccine, three or more doses of hepatitis B vaccine, and one or more doses of varicella vaccine (VZV).

⁵4:3:1:3:3:1:4 = 4:3:1:3:3:1 measure, plus four or more doses of pneumococcal conjugate vaccine (PCV).

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

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

⁸2016 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.

⁹2009 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 rate for the 4:3:1:3:3:1:4 measure including Hib vaccinations was 67.6%.

Immunization Levels in 2-Year-Old Children¹ Historic Data 1997–2016 Florida, 2016

Year ⁶	Survey Participants ²	Complete ³	Partial	No Shots ⁴	Private Provider ⁵	County Health Dept. ⁵	Community Health Ctr. ⁵	No Source ⁵	≥4 DTaP	≥3 Polio	1 MMR	3 Hib	3 Hep B	1 VZV	4 PCV
	#	%	%	%	%	%	%	%	%	%	%	%	%	%	%
2016 ⁷	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 ⁷	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 ⁷	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 ⁷	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 ⁷	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 ⁷	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 ⁷	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 ^{7,8}	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 ⁷	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 ⁷	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 ⁷	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
1998 ⁷	1,498	82.9	16.6	0.5	67.1	27.9	2.8	1.7	86.6	95.0	92.4	94.8	93.0	N/A	N/A
1997 ⁷	942	83.0	16.5	0.5	67.4	31.2	N/A	1.4	84.3	94.3	92.5	94.6	87.3	N/A	N/A

¹Children in these surveys were born in January, two years prior to the survey year.

²Excludes children who could not be located, were deleted from the database, or whose parents refused to participate.

³Children have received all vaccines necessary to complete the measure by 24 months of age and do not have a religious exemption.

⁴Includes children with no vaccines for the measure and children with a religious exemption.

⁵Provider type of children's immunization home.

⁶2016 state goal was based on the 4:3:1:3:3:1:4 measure. 4:3:1:3:3:1:4 = Measure 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 more doses of *Haemophilus influenzae* type b (Hib) vaccine, three or more doses of hepatitis B vaccine, one or more doses of varicella vaccine (VZV), and four or more doses of pneumococcal conjugate vaccine (PCV). 2006–2015 state goal was based on the 4:3:1:3:3:1 measure, which is 4:3:1:3:3:1:4 minus the four doses of PCV. 1997–2005 state goal was based on the 4:3:1 measure which is four doses of DTaP, three doses of IPV, and one dose of MMR.

⁷Complete and partial percentage weighted by the number of births in each strata (county).

⁸2009 uses the 4:3:1:3:3:1 measure, excluding the Hib vaccinations. Including the Hib vaccinations, the completion percentage is was 67.6%.

Immunization Levels in 2-Year-Old Children¹ By Specific Vaccine and Provider Type Florida, 2016

Provider Type	Participants w/Shots ²		Dose 1 DTaP	Dose 3 DTaP	Dose 4 DTaP	Dose 1 Polio	Dose 3 Polio	Dose 1 MMR	Dose 3 Hib	Dose 3 Hep B	Dose 1 VZV	Dose 1 PCV ³	Dose 3 PCV ³	Dose 4 PCV ³
	# ⁴	% ⁵	# ⁶	# ⁶	# ⁶	# ⁶	# ⁶	# ⁶	# ⁶	# ⁶	# ⁶	# ⁶	# ⁶	# ⁶
County Health Department	76	4.2	92	89	88	92	90	93	93	92	94	93	87	72
Private Provider	1,351	75.3	1,318	1,285	1,157	1,313	1,267	1,254	1,250	1,234	1,245	1,291	1,242	1,097
Community Health Center	115	6.4	112	104	102	111	107	108	93	116	111	114	104	96
Unknown	253	14.1	271	276	231	274	264	260	284	276	260	289	287	234
Statewide Total	1,795	100.0	1,793	1,754	1,578	1,790	1,728	1,715	1,720	1,718	1,710	1,787	1,720	1,499

¹Children in this survey were born in January 2014.

²Excludes 25 children whose parents refused to participate, 240 children who could not be located, three children deleted from the database, 31 children with a religious exemption and five children with no vaccinations for the 4:3:1:3:3:1:4 measure.

³Pneumococcal conjugate (PCV) vaccine.

⁴Children are grouped by vaccine provider type for the majority of the the vaccines for the measure. 4:3:1:3:3:1:4 = Measure 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 more doses of *Haemophilus influenzae* type b (Hib) vaccine, three or more doses of hepatitis B vaccine, one or more doses of varicella vaccine (VZV), and four or more doses of pneumococcal conjugate vaccine (PCV).

⁵Children by vaccine provider type presented as point estimate (%).

⁶Number of doses given by provider type and specific vaccine type.

**Immunization Levels in 2-Year-Old Children¹
By Vaccine Provider Type for 4:3:1:3:3:1:4²
Florida, 2016**

Immunization Status	Survey Participants ³		County Health Department		Community Health Center		Private Provider		No Source or Unknown Source	
	#	%	# ⁴	%	# ⁴	%	# ⁴	%	# ⁴	%
Complete ⁵	1,510	82.5	59	77.6	103	89.6	1,144	84.7	204	70.6
Partial	285	15.6	17	22.4	12	10.4	207	15.3	49	17.0
No Shots ⁶	36	2.0	0	0.0	0	0.0	0	0.0	36	12.5
Statewide⁷	1,831	100	76	4.2	115	6.3	1,351	73.8	289	15.8

¹Children in this survey were born in January 2014.

²4:3:1:3:3:1:4 = Measure 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 more doses of *Haemophilus influenzae* type b (Hib) vaccine, three or more doses of hepatitis B vaccine, one or more doses of varicella vaccine (VZV), and four or more doses of pneumococcal conjugate vaccine (PCV).

³Excludes 25 children whose parents refused to participate in the survey, 240 children who could not be located, and three children deleted from the database.

⁴Children are grouped by vaccine provider type for the majority of the vaccines for the measure.

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

⁶Includes five children with no vaccines for the measure and 31 children with a religious exemption.

⁷Children by vaccine provider type presented as point estimate (%).

Immunization Status in 2-Year-Old Children¹
 By High-Risk² Characteristics for 4:3:1:3:3:1:4³
 Florida, 2016

		Mother's Education Level (Years)							
		<12 ²		12		>12		Unknown	
Complete ⁴		191	84.1%	485	80.4%	824	83.5%	10	71.4%
Incomplete ⁵		36	15.9%	118	19.6%	163	16.5%	4	28.6%

		Age of Mother									
		<20 ²		20–24		25–29		≥30		Unknown	
Complete ⁴		84	81.6%	365	80.0%	422	82.8%	631	83.7%	8	100.0%
Incomplete ⁵		19	18.5%	91	20.0%	88	17.3%	123	16.3%	0	0.0%

		Number of Siblings in Family							
		≥3 ²		2		1		0	
Complete ⁴		160	78.8%	242	80.7%	484	81.5%	624	85.0%
Incomplete ⁵		43	21.2%	58	19.3%	110	18.5%	110	15.0%

		Marital Status			
		No ²		Yes	
Complete ⁴		739	82.1%	771	82.8%
Incomplete ⁵		161	17.9%	160	17.2%

		Trimester of Initiation of Prenatal Care							
		3rd ²		2nd		1st		Unknown	
Complete ⁴		56	76.7%	282	79.4%	1,126	84.1%	46	71.9%
Incomplete ⁵		17	23.3%	73	20.6%	213	15.9%	18	28.1%

¹Children in this survey were born in January 2014.

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

³4:3:1:3:3:1:4 = Measure 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 more doses of *Haemophilus influenzae* type b (Hib) vaccine, three or more doses of hepatitis B vaccine, one or more doses of varicella vaccine (VZV), and four or more doses pneumococcal conjugate vaccine (PCV).

⁴Completion of the measure by 24 months of age.

⁵Includes children with no vaccines for the measure and children with a religious exemption.

Immunization Levels in 2-Year-Old Children¹
By Race, Florida 2016

Race	Sample Size	Survey Participants ²	No Shots ³			4:3:1:3:3:1:4 ⁴					
						Complete ⁵			Partial		
			#	% ⁶	(±)	#	% ⁶	(±)	#	% ⁶	(±)
Asian	51	40	0	0.0	(± 0.0)	28	70.0	(± 14.2)	12	30.0	(± 14.2)
Black	362	326	3	0.9	(± 1.0)	282	86.5	(± 3.7)	41	12.6	(± 3.6)
Hispanic	589	532	5	0.9	(± 0.8)	438	82.3	(± 3.2)	89	16.7	(± 3.2)
White	1,046	896	28	3.1	(± 1.1)	728	81.3	(± 2.6)	140	15.6	(± 2.4)
Other	36	25	0	0.0	(± 0.0)	23	92.0	(± 10.6)	2	8.0	(± 10.6)
Unknown	15	12	0	0.0	(± 0.0)	11	91.7	(± 15.6)	1	8.3	(± 15.6)
Statewide Total	2,099 ⁷	1,831	36	2.0	(± 0.6)	1,510	82.5	(± 1.7)	285	15.6	(± 1.7)

¹Children in this survey were born in January 2014.

²Excludes 25 children whose parents refused to participate in the survey, 240 children who could not be located, and three children deleted from the database.

³Includes children with no vaccines for the measure and 31 children with a religious exemption.

⁴4:3:1:3:3:1:4 = Measure 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 more doses of *Haemophilus influenzae* type b (Hib) vaccine, three or more doses of hepatitis B vaccine, one or more doses of varicella vaccine (VZV), and four or more doses of pneumococcal conjugate vaccine (PCV).

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

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

⁷Statewide sample size includes three children deleted from the database; however, these three children are not included in the individual race sample sizes.