



Jeb Bush
Governor

M. Rony François, M.D., M.S.P.H., Ph.D.
Secretary, Department of Health

INTEROFFICE MEMORANDUM

DATE: September 22, 2005

TO: County Health Department Directors/Administrators

FROM: Bonita J. Sorensen, M.D., M.B.A.
Deputy State Health Officer

SUBJECT: Survey of Immunization Levels in Two-Year-Old Children (2005)

FOR INFORMATION ONLY

In July, the Bureau of Immunization completed an annual immunization survey of 2,157 randomly selected two-year-old children born in Florida. The survey provides estimated immunization levels for 20 selected counties, as well as statewide figures (see Attachment 1).

This year's survey revealed an 86.4 percent coverage rate for the series containing four doses of diphtheria, tetanus, and acellular pertussis vaccine (DTaP); three doses of poliovirus vaccine; one dose of measles, mumps and rubella vaccine (MMR); and three doses of *Haemophilus influenzae* type b vaccine (Hib) (4/3/1/3). This shows an increase from the 84.8 percent coverage rate seen in 2004 for the same series. The 2005 statewide coverage rate for the basic four DTaP, three polio, and one MMR (4/3/1) series of vaccines among two-year-olds is 86.6 percent, which also demonstrates an improvement over last year's results of 85.3 percent. Coverage levels for the 20 largest counties ranged from 96.8 to 74.4 percent. Attachment 2 depicts statewide progress from 1990 to 2005. The coverage level of the four DTaP, three polio, one MMR, three Hib, and three Hepatitis B (4/3/1/3/3) series is 85.2 percent statewide.

The Secretary's 85 by '05 Initiative called for 85 percent coverage of two-year-old children by 2005 for the 4/3/1/3 series. Our survey data demonstrates that Florida has surpassed this goal. It is important to keep in mind that the measurement tool used to monitor the Secretary's Initiative – the National Immunization Survey (NIS) for 2004 – also shows Florida surpassing the goal with an 89.7 percent coverage rate for the 4/3/1/3 series. The next challenge for Florida is to achieve complete vaccine coverage of 90 percent of all two-year-olds for the four DTaP, three polio, one MMR, three Hib, three Hepatitis B and one Varicella (4/3/1/3/3/1) series by June 2007, to be measured by NIS results in July 2007.

The 2005 survey also reflected a 91.1 percent coverage rate for children at two years of age who completed three DTaP, three poliovirus, and one MMR (3/3/1) series. Failure to receive the fourth dose of DTaP by age two accounts for the difference between this 91.1 percent coverage rate and the 86.6 percent coverage rate of the 4/3/1 series. Furthermore, the data indicated that 87.1 percent of private sector children completed the 4/3/1 series by age two, in contrast to 80.1 percent of the children in the public sector (see Attachment 3, Table 1).

The increases seen in this year's survey are proof that coordinated efforts by our stakeholders produce a positive impact on the state's immunization coverage levels. As guardians of the public's health, we have a great responsibility to protect our children from these serious diseases. We must continue our efforts to reach our 2010 national goal, and our new state goal of 90 percent coverage for two-year-old children for the 4/3/1/3/3/1 series by 2007. Through immunization, we prevent dangerous outbreaks and ensure a healthy future for our children.

Survey Purposes:

This survey had three primary purposes: (1) to determine immunization levels among two-year-old children; (2) to evaluate our success in immunizing children on schedule; and (3) to measure immunization levels of children based on high-risk maternal factors.

Survey Method:

The Bureau of Immunization field staff conducted the survey with the assistance of county health department personnel, private physicians, and parents. The survey included a random sample of 2,275 birth records selected from a list of all live births occurring among Florida residents for the month of January 2003. One hundred and eighteen children were removed from the sample as death or adoption cases, and the sample was further reduced by eliminating 69 children whose parents refused to participate in the survey. Despite intensive follow-up, 187 children, or 8.7 percent, were not located. Consequently, a total of 1,901 children actually participated in this year's survey.

Survey Results:

Despite the fact that 90.3 percent of the children who were surveyed began their immunizations on time, only 66.8 percent continued on schedule by age seven months. At 18 months old, only 49.3 percent remained on schedule. Attachment 4 provides vaccine-specific coverage by provider type.

Of the 1,901 surveyed children, 170 failed to receive all of their recommended vaccines due to a missed opportunity to immunize. Such instances occur when the healthcare provider fails to provide the simultaneous administration of all appropriate vaccine doses at the time of the visit. For example, some healthcare providers are reluctant and/or refuse to administer more than four immunizations to a patient during an office visit.

The survey confirmed that most of the high-risk maternal factors shown in Attachment 5 continue to be associated with a decreased chance of completing the required immunization series. However, mothers below the age of 20 demonstrated slightly higher coverage rates than those ages 20 to 24. In addition, mothers whose prenatal care was initiated in the first trimester showed higher coverage rates than those whose care was initiated in the second trimester. Coverage rates were similar for those whose prenatal care was initiated in the first or third trimester.

Furthermore, the sample analysis reflected the following coverage rates by racial/ethnic breakdowns: White, 88.3 percent complete, with a margin of error of plus or minus 2.0 percent; non-White, 81.9 percent complete, plus or minus 4.6 percent; Hispanic, 91.9 percent complete, plus or minus 2.9 percent; and non-Hispanic, 84.8 percent complete, plus or minus 2.3 percent.

In cooperation with the Medicaid Office of the Agency for Health Care Administration, 1,078 children (56.7 percent of the sample) were eligible for Medicaid in their first two years of life. Among this group of children, 84.2 percent completed the 4/3/1 immunization series required at 24 months old, with a margin of error of plus or minus 2.7 percent. The coverage rates by race/ethnicity for the Medicaid-eligible children were: White, 85.0 percent, with a margin of error of plus or minus 3.2 percent; non-White, 81.5 percent, plus or minus 5.7 percent; Hispanic, 91.7 percent, plus or minus 3.4 percent; and non-Hispanic, 80.5 percent, plus or minus 3.7 percent.

Comments:

In recent years, the delivery of immunization services has shifted from the county health departments to the private sector, with private providers and managed care organizations administering 74.5 percent of childhood immunizations. This produces dramatic changes in program priorities. Other influencing factors include cutbacks in federal funding for county health department immunization programs in recent years and the addition of new school requirements. These changes mandate the need to focus our energy and resources on the following key areas if we are to reach the state goal of 90 percent immunization coverage levels for each of the vaccines administered to children by age two by 2007.

- Identify and target interventions toward geographic areas with populations at high risk for under-immunization (pockets of need).
- Continue linkage with the Women, Infants, and Children (WIC) program.
- Conduct semi-annual audits in county health department clinics using the Clinic Assessment Software Application (CASA) tool to assess immunization coverage levels, as part of ongoing quality assurance reviews, to assure complete immunization of children in the public sector.
- Implement automated reminders and recalls using the Immunization Module of the Health Clinic Management System (HCMS).
- Implement the Missed Immunization Opportunities Policy of the County Health Department Guidebook.

Also, county health departments should increase their partnerships with managed care organizations and private healthcare providers to reach the state goal. Collaborative efforts should include the following:

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- Promotion of the *Standards for Pediatric Immunization Practices*.
- Promotion of the statewide immunization registry currently under development by the Department of Health.

If you have any questions or comments about the survey, or if you have found other successful methods to improve your community's immunization levels, please contact Ms. Sarah Samuel, Government Operations Consultant I in the Bureau of Immunization, at (850) 245-4342 or SUNCOM 205-4342, extension 2395. We are eager to share any best practices that improve immunization rates with other county health departments and private providers.

BJS/cha/ss
Attachments

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Department of Health
Immunization Levels in Two-Year-Old Children
By Selected Counties and State
Florida, 2005

County	Sample Size	Survey Participants*	Complete 4/3/1 [†]	Partial	No Shots	Completion Percentage [^]						Partially Complete Percent	No Shots Percent
						4/3/1 [†]	4/3/1/3 [‡]	4/3/1/3/3 [§]					
Brevard	105	80	70	10	0	87.5 ± 7.4	87.5 ± 7.4	87.5 ± 7.4		12.5	0.0		
Broward	92	79	70	9	0	88.6 ± 7.2	88.6 ± 7.2	87.3 ± 7.5		11.4	0.0		
Collier	99	91	73	17	1	80.2 ± 8.4	80.2 ± 8.4	79.1 ± 8.5		18.7	1.1		
Dade	84	79	76	3	0	96.2 ± 4.3	96.2 ± 4.3	96.2 ± 4.3		3.8	0.0		
Duval	96	82	61	20	1	74.4 ± 9.6	74.4 ± 9.6	70.7 ± 10.1		24.4	1.2		
Escambia	109	98	81	17	0	82.7 ± 7.6	82.7 ± 7.6	80.6 ± 8.0		17.3	0.0		
Hillsborough	101	95	78	17	0	82.1 ± 7.9	82.1 ± 7.9	82.1 ± 7.9		17.9	0.0		
Lee	110	95	77	17	1	81.1 ± 8.0	81.1 ± 8.0	80.0 ± 8.2		17.9	1.1		
Leon	71	62	60	2	0	96.8 ± 4.5	96.8 ± 4.5	95.2 ± 5.4		3.2	0.0		
Manatee	124	117	99	18	0	84.6 ± 6.7	83.8 ± 6.8	82.1 ± 7.1		15.4	0.0		
Marion	104	89	70	16	3	78.7 ± 8.7	78.7 ± 8.7	78.7 ± 8.7		18.0	3.4		
Orange	107	84	66	18	0	78.6 ± 8.9	78.6 ± 8.9	78.6 ± 8.9		21.4	0.0		
Osceola	128	120	100	20	0	83.3 ± 6.8	82.5 ± 6.9	82.5 ± 6.9		16.7	0.0		
Palm Beach	100	89	78	11	0	87.6 ± 7.0	87.6 ± 7.0	85.4 ± 7.5		12.4	0.0		
Pasco	107	101	79	21	1	78.2 ± 8.2	77.2 ± 8.3	74.3 ± 8.7		20.8	1.0		
Pinellas	102	100	85	13	2	85.0 ± 7.1	84.0 ± 7.3	82.0 ± 7.7		13.0	2.0		
Polk	79	76	71	5	0	93.4 ± 5.7	93.4 ± 5.7	93.4 ± 5.7		6.6	0.0		
Sarasota	121	100	88	12	0	88.0 ± 6.5	88.0 ± 6.5	87.0 ± 6.7		12.0	0.0		
Seminole	96	78	72	6	0	92.3 ± 6.0	92.3 ± 6.0	92.3 ± 6.0		7.7	0.0		
Volusia	83	64	53	11	0	82.8 ± 9.4	81.3 ± 9.7	81.3 ± 9.7		17.2	0.0		
All other counties	139	122	107	15	0	87.7 ± 5.9	86.9 ± 6.1	84.4 ± 6.6		12.3	0.0		
Statewide [¶]	2,157	1,901	1,614	278	9	86.6 ± 1.9	86.4 ± 1.9	85.2 ± 2.0		13.1	0.5		

[^] % ± 95% Confidence Interval

* Does not include children who could not be located or those who refused to participate.

[†] Four or more doses of diphtheria, tetanus and acellular pertussis vaccine (DTaP), three doses of poliovirus vaccine, one dose of measles, mumps and rubella vaccine (MMR)

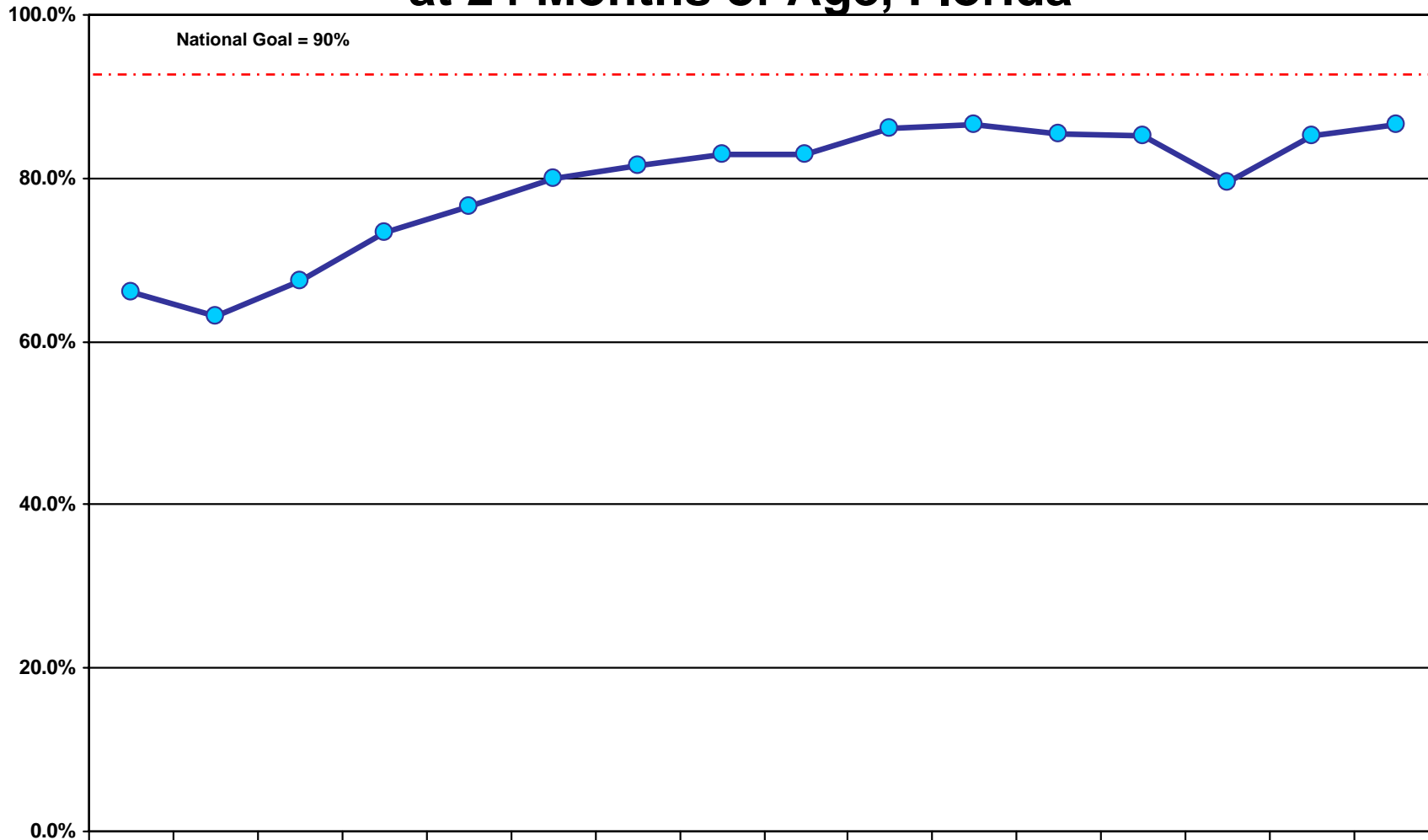
[‡] Four or more doses of DTaP, three or more doses of poliovirus vaccine, one or more doses of MMR, and three or more doses of *Haemophilus influenzae* type b vaccine (Hib)

[§] Four or more doses of DTaP, three or more doses of poliovirus vaccine, one or more doses of MMR, three or more doses of Hib, and three or more doses of Hepatitis B

[¶] Complete and partial percentage weighted by the number of births in each strata.

Department of Health Immunization Coverage Levels of Children at 24 Months of Age, Florida

Attachment 2



† 4 diphtheria, tetanus and acellular pertussis vaccine (DTaP), 3 poliovirus, & 1 measles, mumps and rubella vaccine (MMR) at 24 months of age

TABLE I
IMMUNIZATION LEVELS^ OF 1,901 TWO-YEAR-OLD CHILDREN BY VACCINE PROVIDER
FLORIDA, 2005

STATUS	TOTAL	% OF	CHD*		CHC†		PRIVATE PHYSICIAN		MILITARY		NO SOURCE	
	SAMPLE POP	SAMPLE	#	%	#	%	#	%	#	%	#	%
COMPLETE	1,614	84.9%	262	80.1%	71	82.6%	1234	87.1%	9	64.3%	38	66.7%
PARTIAL	278	14.6%	64	19.6%	15	17.4%	180	12.7%	5	35.7%	14	24.6%
NO SHOTS‡	9	0.5%	1	0.3%	0	0.0%	3	0.2%	0	0.0%	5	8.8%
TOTAL	1,901	100%	327	100.0%	86	100.0%	1417	100.0%	14	100.0%	57	100.0%

^ Unweighted completion of 4/3/1 series, consisting of four or more doses of diphtheria tetanus and acellular pertussis vaccine (DTaP), three or more doses of poliovirus vaccine and one more doses of measles mumps and rubella vaccine (MMR) at 24 months of age.

* County Health Department

† Community Health Center

‡ Includes four children with a religious exemption and five children with no shots.

TABLE II
IMMUNIZATION STATUS OF SURVEYED TWO-YEAR-OLD CHILDREN
FLORIDA, 1990 - 2005

YEAR	TOTAL SAMPLE	COMPLETE^ (%)	PARTIAL (%)	NO SHOTS (%)	PRIVATE PROVIDER (%)	CHD (%)	CHC (%)	MILITARY (%)	NO SOURCE (%)	4+ DTaP (%)	3+ POLIO (%)	MMR (%)	3 HIB* (%)	3 Hep B † (%)	Varicella (%)
‡2005	1,901	86.6	13.1	0.5	74.5	17.2	4.5	0.7	3.0	86.4	93.2	93.7	95.1	94.0	90.6
‡2004	1,540	85.3	14.0	0.6	74.0	18.4	4.5	1.6	1.4	86.0	92.5	93.1	93.8	92.8	90.0
‡2003	1,190	79.4	20.4	0.3	74.5	16.9	3.4	1.6	3.6	80.2	93.5	93.9	78.7	92.3	85.3
‡2002	1,159	85.3	14.0	0.7	74.8	17.5	3.6	1.2	2.8	86.6	93.7	95.8	96.7	92.0	89.2
‡2001	1,092	85.5	14.3	0.2	75.4	16.9	3.0	0.8	3.7	87.9	93.6	95.2	96.7	95.2	75.5
‡2000	1,113	86.6	12.5	0.9	69.0	22.3	2.9	1.8	3.1	88.8	93.5	95.2	96.9	96.1	57.7
‡1999	1,064	86.2	13.4	0.4	68.4	24.5	2.8	1.2	2.6	87.1	94.5	94.0	97.9	94.1	31.3
‡1998	1,498	82.9	16.6	0.5	66.2	27.9	2.8	0.9	1.7	86.6	95.0	92.4	94.8	93.0	N/A
‡1997	942	83.0	16.5	0.5	65.9	31.2	N/A	1.5	1.4	84.3	94.3	92.5	94.6	87.3	N/A
1996	1493	81.6	18.0	0.5	55.4	41.7	N/A	1.8	1.0	83.6	93.1	91.1	94.5	79.4	N/A
1995	1463	80.0	19.1	0.9	52.8	42.7	N/A	1.7	2.8	82.3	87.9	90.2	72.1	61.2	N/A
1994	553	76.5	22.4	1.1	55.8	41.7	N/A	2.2	0.3	78.1	86.3	88.5	77.5	N/A	N/A
1993	591	73.3	26.2	0.5	50.9	46.9	N/A	2.0	0.2	75.5	80.0	88.5	91.0	N/A	N/A
1992	549	67.4	31.0	1.6	50.2	45.9	N/A	2.6	1.3	69.0	77.0	89.3	83.9	N/A	N/A
1991	497	63.2	35.6	1.2	55.3	40.6	N/A	2.2	0.6	65.4	75.4	86.2	55.1	N/A	N/A
1990	532	66.0	32.7	1.3	51.3	44.2	N/A	3.2	1.3	75.9	82.0	89.7	59.2	N/A	N/A

^ Completion of 4/3/1 series at 24 months of age.

* Only one dose of *Haemophilus influenzae* type b vaccine (Hib) vaccine for years prior to 1994.

† Hepatitis B vaccine

‡ Complete and partial percentage weighted by number of births in each strata.

**Department of Health
Immunization Levels of Two-Year-Olds
Percent Immunized by Specific Vaccine and By Type of Provider
Florida, 2005**

Provider	Total Clients	% Population	% DTaP 1^	% DTaP 2^	% DTaP 3^	% DTaP 4^	% Polio 1	% Polio 2	% Polio 3	% MMR*	% HIB 3 [†]	% Hep 3 [‡]	% Varicella
CHD [§]	327	17.2	99.7	97.6	94.5	80.7	99.7	97.6	93.0	93.6	92.0	92.7	89.9
PRIVATE PHYSICIAN	1,417	74.5	99.6	99.2	97.9	88.8	99.6	98.9	94.0	94.1	96.3	94.8	91.2
CHC [¶]	86	4.5	98.8	96.5	95.3	83.7	98.8	96.5	93.0	91.9	94.2	94.2	90.7
MILITARY	14	0.7	100.0	100.0	100.0	78.6	100.0	92.9	64.3	100.0	100.0	92.9	92.9
NO SOURCE	57	3.0	91.2	89.5	84.2	66.7	89.5	89.5	80.7	84.2	80.7	82.5	78.9
TOTAL OR AVERAGE	1,901	100.0	99.4	98.5	96.8	86.4	99.3	98.3	93.2	93.7	95.1	94.0	90.6

^ Diphtheria, tetanus and acellular pertussis vaccine

* Measles, mumps and rubella vaccine

† *Haemophilus influenzae* type b vaccine

‡ Hepatitis B vaccine

§ County Health Department

¶ Community Health Center

|| Total sample population of 1,901 includes 9 children with no shots.

Table I

**IMMUNIZATION STATUS OF TWO-YEAR-OLD CHILDREN
BY HIGH-RISK CHARACTERISTICS
FLORIDA, 2005**

		Mother's Education Level (Years)							
		<12	12	>12	Unknown				
Complete [^]		306 79.3%	515 83.9%	789 88.0%	4 100.0%				
Incomplete [*]		80 20.7%	99 16.1%	108 12.0%	0 0.0%				
		Age of Mother							
		<20	20-24	25-29	30+	Unknown			
Complete [^]		167 85.6%	380 80.0%	392 85.0%	675 87.7%	0 0.0%			
Incomplete [*]		28 14.4%	95 20.0%	69 15.0%	95 12.3%	0 0.0%			
		Number of Siblings in Family							
		3+	2	1	0	Unknown			
Complete [^]		139 75.5%	231 79.4%	515 84.7%	729 89.1%	0 0.0%			
Incomplete [*]		45 24.5%	60 20.6%	93 15.3%	89 10.9%	0 0.0%			
		Marital Status							
		No	Yes						
Complete [^]		559 82.9%	1055 86.0%						
Incomplete [*]		115 17.1%	172 14.0%						
		Trimester of Initiation of Prenatal Care							
		3rd	2nd	1st	Unknown				
Complete [^]		25 86.2%	170 73.6%	1407 86.6%	12 75.0%				
Incomplete [*]		4 13.8%	61 26.4%	218 13.4%	4 25.0%				

[^] 4 doses of diphtheria, tetanus and acellular pertussis vaccine (DTaP), 3 doses of poliovirus vaccine, and 1 dose of measles, mumps and rubella vaccine (MMR)

^{*} Includes 9 children with no shots

Table II

**IMMUNIZATION STATUS OF TWO-YEAR-OLD CHILDREN
HIGH-RISK VERSUS NON-HIGH-RISK
FLORIDA, 2005**

	Total	Complete [^]		Partial		No Shots	
		#	%	#	%	#	%
High-risk	924	760	82.3%	159	17.2%	5	0.5%
Non-high-risk	977	854	87.4%	119	12.2%	4	0.4%

[^] 4 DTaP, 3 Polio, 1 MMR