FLORIDA DEPARTMENT OF HEALTH

Jeb Bush
Governor

John O. Agwunobi, M.D., M.B.A.
Secretary

INTEROFFICE MEMORANDUM

DATE: September 27, 2004

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 (2004)

INFORMATION ONLY

In July, the Bureau of Immunization completed an annual immunization survey of 1,700 randomly selected two-year-old children born in Florida. The survey provides estimated immunization levels for 17 selected counties, as well as statewide figures (see Attachment 1).

This year's survey revealed an 84.8 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 a noticeable increase from the 79 percent coverage rate seen in 2003 for the same series. The 2004 statewide coverage rate for the basic four DTaP, three polio, and one MMR (4/3/1) series of vaccines among two-year-olds is 85.3 percent, which also demonstrates a marked improvement over last year's results of 79.4 percent. Coverage levels for the 17 largest counties ranged from 92.5 to 77.6 percent. Attachment 2 depicts statewide progress from 1986 to 2004. The coverage level for the four DTaP, three polio, one MMR, three Hib, and three Hepatitis B (4/3/1/3/3) series is 83.4 percent statewide.

This survey data demonstrates definite progress towards accomplishing the Secretary's '85 by '05 Initiative, which calls for 85 percent coverage of two-year-old children by 2005 for the 4/3/1/3 series. It is important to keep in mind that, although the state's survey indicated an 84.8 percent coverage rate for the 4/3/1/3 series, the measurement tool used to monitor the Secretary's Initiative's is the National Immunization Survey. This national data will be available by the end of 2004 and should also show an upward trend.

The 2004 survey also reflected a 90 percent coverage rate for children who completed three DTaP, three poliovirus, and one MMR (3/3/1) series. The failure to receive the fourth dose of DTaP by age two accounts for the difference between this 90 percent coverage rate and the 85.3 percent coverage rate of the 4/3/1 series. Furthermore, the data indicated that 86.6 percent of private sector children completed the 4/3/1 series by age two, in contrast to 79.6 percent of the children in the public sector (see Attachment 3, Table 1).

The increases seen in this year's survey show 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 state goal of 85 percent coverage for the 4/3/1/3 series by 2005, and the 2010 national goal of 90 percent coverage for two-year-old children for each of the following vaccines: four doses of DTaP, three doses of poliovirus, one dose of MMR, three doses of Hib, three doses of Hepatitis B, and one dose of varicella. 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 the 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 1,774 birth records selected from a list of all live births occurring among Florida residents for the month of January 2002. Seventy-four children were removed from the sample as death or adoption cases, and the sample was further reduced by eliminating 34 children whose parents refused to participate in the survey. Despite intensive follow-up, 126 children, or 7.4 percent, were not located.

Survey Results:

Despite the fact that 85.4 percent of the children who were surveyed began their immunizations on time, only 58.7 percent continued on schedule by age seven months. At 18-months-old, only 47.2 percent remained on schedule. Attachment 4 provides vaccine-specific coverage by provider type.

Of the 1,540 surveyed children, 20 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, one child surveyed should have received her third poliovirus, third Hepatitis B, fourth Hib, MMR, and varicella immunizations at 12-months-old. However, due to her healthcare provider's refusal to simultaneously administer more than three vaccines, the child received only three of her five needed immunizations at that visit. In addition, 89 of the 221 children who had partial immunizations by 24-months-old completed their immunizations by three years of age.

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, the sample analysis reflected the following coverage rates by racial/ethnic breakdowns: White, 86.8 percent complete, with a margin of error of plus or minus 2.4 percent; non-White, 82.3 percent complete, plus or minus 4.2 percent; Hispanic, 87.1 percent complete, plus or minus 4.3 percent; and non-Hispanic, 84.8 percent complete, plus or minus 2.4 percent.

In cooperation with the Medicaid Office of the Agency for Health Care Administration, 941 children (61.1 percent of the sample) were eligible for Medicaid in their first two years of life. Among this group of children, 82.9 percent completed the 4/3/1 immunizations series required at 24-months-old, with a margin of error of plus or minus 2.8 percent. The coverage rates by race/ethnicity for the Medicaid-eligible children were: White, 84.3 percent, with a margin of error of plus or minus 3.4 percent; non-White, 81.9 percent, plus or minus 4.8 percent; Hispanic, 86.7 percent, plus or minus 5.4 percent; and non-Hispanic, 81.3 percent, plus or minus 3.4 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 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 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 national year 2010 goal of 90 percent immunization coverage levels for each of the vaccines administered to children by age two, and the state goal of 85 percent coverage by 2005.

- 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 year 2010 goal. Collaborative efforts should include the following:

- 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. Deanna Hamilton, Statistical Analyst, in the Bureau of Immunization, at (850) 245-4342, or SUNCOM 205-4342. We are eager to share any best practices that improve immunization rates with other county health departments and private providers.

BJS/cha/dbh
Attachments
cc: Rick Lentz, M.D., President
Florida Medical Association
Louis B. St. Petery, Jr., M.D., Executive Vice-President
Florida Pediatric Society
Tad P. Fisher, Executive Vice-President
Florida Academy of Family Physicians
Stephen R. Winn, Executive Director
Florida Osteopathic Medical Association
John O. Agwunobi, M.D., M.B.A., M.P.H.
Secretary, Department of Health
Nancy Humbert, A.R.N.P., M.S.N.
Deputy Secretary for Health and
State Director of Public Health Nursing
Landis K. Crockett, M.D., M.P.H., Director
Division of Disease Control
Meade Grigg, Director
Office of Planning, Evaluation and Data Analysis
Annette Phelps, A.R.N.P, M.S.N., Director
Division of Family Health Services
Phyllis J. Sloyer, R.N., Ph.D., Division Director
CMS Network and Related Programs
Shannon B. Lease, M.S., Director
Office of Performance Improvement
Charles H. Alexander, Chief
Bureau of Immunization
County Health Department Nursing Directors
Bureau of Immunization Field Staff

Department of Health
Immunization Levels in Two-Year-Old Children
By Selected Counties and State
Florida, 2004

County	Sample Size	Survey Participants*	Complete 4/3/1†	Partial	No Shots	Completion Percentage^ 4/3/1†	4/3/1/3‡	4/3/1/3/3§	Partially Complete Percent	No Shots Percent
Brevard	100	97	86	11	0	88.7 ± 6.4	86.6 ± 6.9	83.5 ± 7.5	11.3	0.0
Broward	96	83	74	9	0	89.2 ± 6.8	89.2 ± 6.8	86.7 ± 7.5	10.8	0.0
Collier	100	94	83	10	1	88.3 ± 6.6	88.3 ± 6.6	88.3 ± 6.6	10.6	1.1
Dade	86	80	74	6	0	92.5 ± 5.9	92.5 ± 5.9	92.5 ± 5.9	7.5	0.0
Duval	83	71	59	12	0	83.1 ± 8.9	83.1 ± 8.9	81.7 ± 9.2	16.9	0.0
Escambia	81	68	54	14	0	79.4 ± 9.8	79.4 ± 9.8	76.5 ± 10.3	20.6	0.0
Hillsborough	75	67	52	15	0	77.6 ± 10.2	77.6 ± 10.2	77.6 ± 10.2	22.4	0.0
Lee	86	73	58	14	1	79.5 ± 9.4	79.5 ± 9.4	78.1 ± 9.7	19.2	1.4
Leon	73	63	57	6	0	90.5 ± 7.4	90.5 ± 7.4	88.9 ± 7.9	9.5	0.0
Manatee	96	88	70	18	0	79.5 ± 8.6	79.5 ± 8.6	77.3 ± 8.9	20.5	0.0
Orange	85	78	66	12	0	84.6 ± 8.2	82.1 ± 8.7	74.4 ± 9.9	15.4	0.0
Palm Beach	100	86	71	12	3	82.6 ± 8.2	82.6 ± 8.2	80.2 ± 8.6	14.0	3.5
Pasco	100	97	79	18	0	81.4 ± 7.9	80.4 ± 8.1	80.4 ± 8.1	18.6	0.0
Pinellas	66	64	52	10	2	81.3 ± 9.7	79.7 ± 10.1	79.7 ± 10.1	15.6	3.1
Polk	77	76	68	8	0	89.5 ± 7.0	88.2 ± 7.4	88.2 ± 7.4	10.5	0.0
Seminole	100	93	83	10	0	89.2 ± 6.4	88.2 ± 6.7	83.9 ± 7.6	10.8	0.0
Volusia	87	77	70	6	1	90.9 ± 6.6	90.9 ± 6.6	88.3 ± 7.3	7.8	1.3
All other counties	209	185	153	30	2	82.7 ± 5.6	82.2 ± 5.6	82.2 ± 5.6	16.2	1.1
Statewide¶	1,700	1,540	1,309	221	10	85.3 ± 2.1	84.8 ± 2.1	83.4 ± 2.2	14.0	0.6

^ % ± 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)

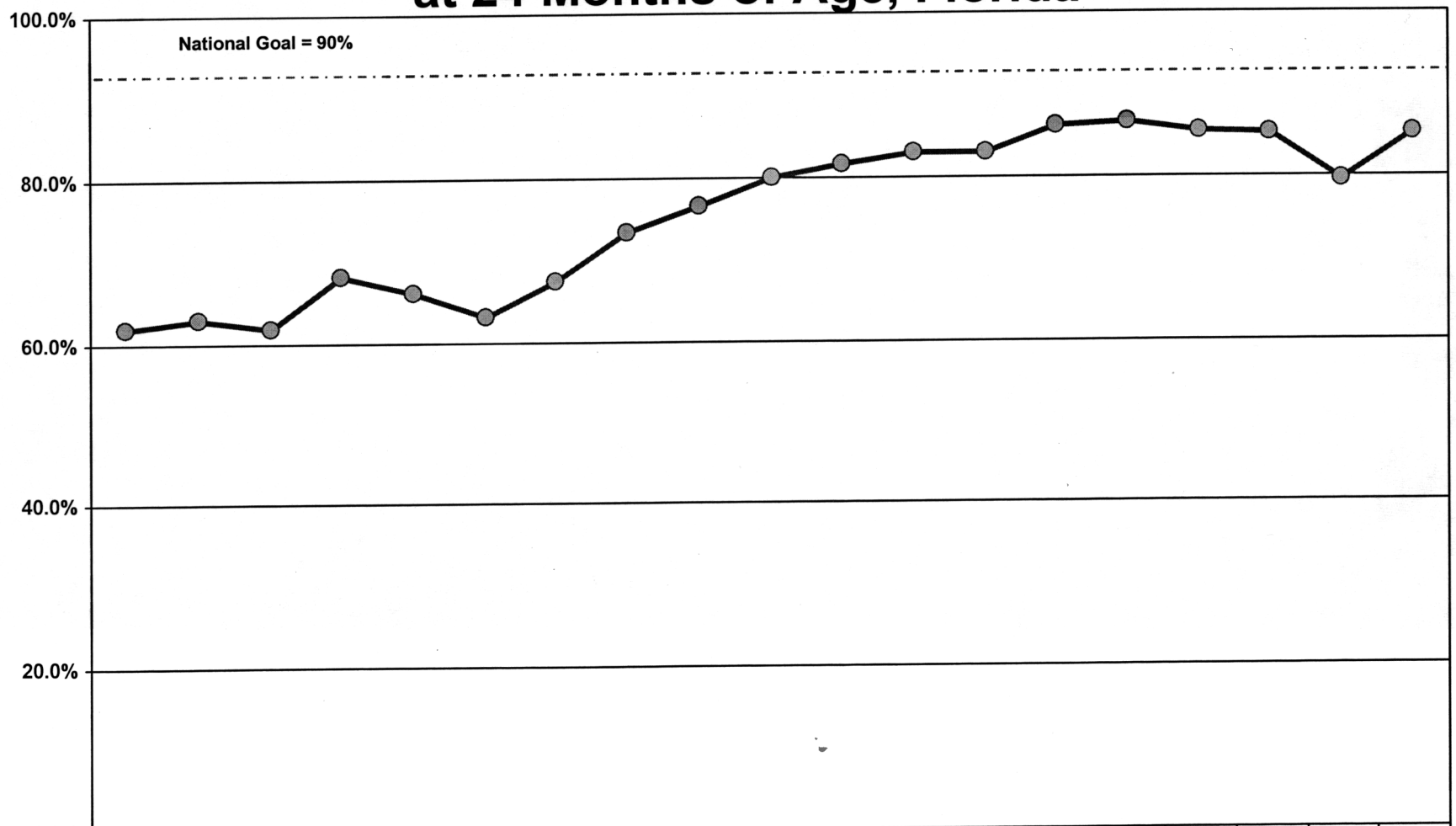
‡ Four or more doses of DTaP, three or more doses of poliovirus vaccine, one or more doses of MMR, and three or more doses of *Haemophilus influenzae* type b vaccine (Hib)

§ 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



	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
% Immunized†	61.8%	62.9%	61.8%	68.1%	66.0%	63.2%	67.4%	73.3%	76.5%	80.0%	81.6%	83.0%	82.9%	86.2%	86.6%	85.5%	85.3%	79.4%	85.3%

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

Department of Health

TABLE I
IMMUNIZATION LEVELS^ OF 1,540 TWO-YEAR-OLD CHILDREN BY VACCINE PROVIDER
FLORIDA, 2004

STATUS	TOTAL SAMPLE POP	% OF SAMPLE	CHD*		CHC†		PRIVATE PHYSICIAN		MILITARY		NO SOURCE	
			#	%	#	%	#	%	#	%	#	%
COMPLETE	1,309	85.3%	226	79.6%	58	82.9%	987	86.6%	21	84.0%	17	81.0%
PARTIAL	221	14.0%	58	20.4%	12	17.1%	146	12.8%	4	16.0%	1	4.8%
NO SHOTS‡	10	0.6%	0	0.0%	0	0.0%	7	0.6%	0	0.0%	3	14.3%
TOTAL	1,540	100%	284	100.0%	70	100.0%	1140	100.0%	25	100.0%	21	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 five children with a religious exemption and five children with no shots.

TABLE II
IMMUNIZATION STATUS OF SURVEYED TWO-YEAR-OLD CHILDREN
FLORIDA, 1986 - 2004

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 (%)
‡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
1989	571	68.1	30.8	1.1	52.5	43.6	N/A	2.8	1.1	73.4	79.2	88.8	42.0	N/A	N/A
1988	531	61.8	35.6	2.6	52.0	41.8	N/A	3.6	2.6	69.2	74.5	85.1	23.5	N/A	N/A
1987	512	62.9	36.8	0.8	58.5	36.8	N/A	3.9	0.8	65.0	72.3	82.6	N/A	N/A	N/A
1986	505	61.8	38.2	1.6	53.2	41.5	N/A	3.7	1.6	64.2	74.9	83.8	N/A	N/A	N/A

^ Completeion 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, 2004

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§	284	18.4	99.6	97.2	92.6	79.9	99.6	97.2	91.2	91.5	89.8	91.5	88.0
PRIVATE PHYSICIAN	1,140	74.0	99.1	98.5	97.2	87.8	99.2	98.4	93.2	93.5	94.7	93.3	90.8
CHC¶	70	4.5	100.0	98.6	98.6	82.9	100.0	98.6	91.4	91.4	95.7	92.9	85.7
MILITARY	25	1.6	100.0	100.0	96.0	84.0	100.0	100.0	88.0	100.0	96.0	92.0	96.0
NO SOURCE	21	1.4	85.7	85.7	85.7	81.0	85.7	85.7	85.7	85.7	85.7	81.0	81.0
TOTAL‖ OR AVERAGE	1,540	100.0	99.1	98.1	96.2	86.0	99.2	98.1	92.5	93.1	93.8	92.8	90.0

^ 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 1,540 includes 10 children with no shots.

Department of Health

Attachment 5

Table I

IMMUNIZATION STATUS OF TWO-YEAR-OLD CHILDREN BY HIGH-RISK CHARACTERISTICS FLORIDA, 2004

	Mother's Education Level (Years)							
	<12		12		>12		Unknown	
Complete^	271	80.2%	434	84.4%	599	88.1%	5	62.5%
Incomplete*	67	19.8%	80	15.6%	81	11.9%	3	37.5%

	Age of Mother									
	<20		20-24		25-29		30+		Unknown	
Complete^	142	82.1%	343	81.1%	341	85.5%	483	88.8%	0	0.0%
Incomplete*	31	17.9%	80	18.9%	58	14.5%	61	11.2%	1	100.0%

	Number of Siblings in Family									
	3+		2		1		0		Unknown	
Complete^	97	75.8%	216	80.3%	451	86.2%	544	87.9%	1	100.0%
Incomplete*	31	24.2%	53	19.7%	72	13.8%	75	12.1%	0	0.0%

	Marital Status			
	No		Yes	
Complete^	514	82.6%	795	86.6%
Incomplete*	108	17.4%	123	13.4%

	Trimester of Initiation of Prenatal Care					
	3rd		2nd		1st		Unknown	
Complete^	22	73.3%	155	78.7%	1125	86.3%	7	70.0%
Incomplete*	8	26.7%	42	21.3%	178	13.7%	3	30.0%

^ 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 10 children with no shots

Table II

IMMUNIZATION STATUS OF TWO-YEAR-OLD CHILDREN HIGH-RISK VERSUS NON-HIGH-RISK FLORIDA, 2004

		Complete^		Partial		No Shots	
	Total	#	%	#	%	#	%
High-risk	810	665	82.1%	140	17.3%	5	0.6%
Non-high-risk	730	644	88.2%	81	11.1%	5	0.7%

^ 4 DTaP, 3 Polio, 1 MMR