



**INTEROFFICE MEMORANDUM**

**DATE:** October 7, 2003

**TO:** County Health Department Directors/Administrators

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

**SUBJECT:** Survey of Immunization Levels in Two-Year-Old Children (2003)

**ACTION  
REQUIRED:** Information Only

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In July, the Bureau of Immunization completed an annual immunization survey of 1,326 randomly selected two-year-old children in Florida. The survey provides estimated immunization levels for 12 selected counties, as well as statewide figures (see Attachment 1).

The 2003 statewide coverage rate for the basic series of vaccines (4 DTaP, 3 polio, and 1 MMR [4/3/1]) by two years of age is 79.4 percent, which is statistically less than last year's results of 85.3 percent. Coverage levels for the 12 largest counties ranged from 90.5 to 64.5 percent. Attachment 2 depicts statewide progress from 1986 to 2002. The coverage level for the 4/3/1/3/3 series of 4 DTaP, 3 polio, 1 MMR, 3 Hib, and 3 hepatitis B is 77.4 percent statewide.

The survey also reflected a 90 percent coverage rate for children, who completed 3 DTaP, 3 polio, and 1 MMR (3/3/1). However, when assessing the coverage for 4 DTaP, 3 polio, and 1 MMR (4/3/1), the rate dropped dramatically to 79.4 percent. The data indicated that 82.1 percent of private sector children had completed the 4/3/1 series in contrast to 60.2 percent of children in the public sector (see Table 1, Attachment 3).

This year's survey results reveal the need for continued efforts by all the stakeholders in order to reach the year 2010 national goal of 90 percent coverage for two-year-old children for each of the following individual vaccines: 4 doses of DTaP, 3 doses of polio, 1 dose of MMR, 3 doses of Hib, 3 doses of hepatitis B, and 1 dose of varicella (4/3/1/3/3/1). To improve our chances of achieving the long-term goal, the department has set a short-term objective of 85 percent coverage for the 4/3/1/3/3 series by 2005. Attachment 4 indicates our progress thus far in meeting these targets, with the exception of the fourth dose of DTaP, the third dose of Hib, and varicella.

We depend on the county health departments and private health care providers to meet the immunization coverage level goals. Local coalitions and our other community partners have also contributed to immunization efforts and deserve our appreciation. The continued collaboration between the public and private medical community, as well as our community

partners, will enable us to reach the 2005 and 2010 immunization coverage goals for this core public health function.

**Survey Purposes:**

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

**Survey Method:**

Bureau of Immunization field staff conducted the survey with the assistance of county health departments' personnel, private physicians, and parents. The survey method included the following: (1) a random sample of 1,374 birth records was selected from a list of all live births occurring among Florida residents for the month of January 2001; (2) 48 children were removed from the sample as death or adoption cases; and, (3) the sample was further reduced by eliminating 25 children whose parents refused to participate in the survey. Despite intensive follow-up, 111 children, or 8.4 percent, were not located.

**Survey Results:**

Despite the fact that 90.1 percent of the children who were sampled started their immunizations on time, only 67.5 percent continued on schedule at age seven months. The difference in coverage between the first DTaP and the third DTaP represents a dropout rate of 25.1 percent. At 18-months-old, only 34.2 percent remained on schedule and the dropout rate between first DTaP and fourth DTaP increased to 49.3 percent. Overall, the sample shows a 62 percent dropout rate between the first DTaP and fourth DTaP doses. Attachment 4 provides vaccine-specific coverage by provider.

Of the 258 children who were partially immunized at two-years-old, 43 children were not up-to-date due to a missed opportunity. Such instances occur when the healthcare provider fails to provide the simultaneous administration of all appropriate vaccine doses at the time of the visit. Additionally, 106 of those tabulated as having partial immunizations had completed their immunizations by the time they were located.

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. Also, unwed mothers showed higher coverage rates than married mothers.

Additionally, the sample analysis reflected the following racial/ethnic breakdowns: white, 80.7 percent complete with plus or minus 2.9 percent; non-white, 77.3 percent with plus or minus 4.8 percent; Hispanic, 83.2 percent with plus or minus 5.1 percent; and, non-Hispanic, 78.0 percent with plus or minus 2.9 percent.

In cooperation with the Medicaid Office of the Agency for Health Care Administration, 729 children (61.2 percent of the sample) were matched as eligible for Medicaid in their first two years. These children were analyzed for 4 DTaP, 3 polio, and 1 MMR at 24-months-old, and were 76.9 percent complete with a plus or minus 3.4 percent. Additionally, these children were analyzed for the following: white, 78.5 percent with a plus or minus 4.2 percent; non-white, 76.0 percent with a plus or minus 5.6 percent; Hispanic, 82.5 percent with a plus or minus 6.3 percent; and, non-Hispanic, 73.8 percent with a plus or minus 4.1 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 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 two years of age, 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 in order to reach the year 2010 goal. Collaborative efforts should include the following:

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

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If you have any questions or comments about the survey, or if you have found other successful methods of improving your community's immunization levels, please contact Ms. Deanna Bishop 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.

BJS/cha/dlb  
Attachments

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**Department of Health  
Immunization Levels in Two-Year-Old Children  
By Selected Counties and State, Florida 2003**

County	Sample Size	Survey Participants*	Complete 4/3/1	Partial	No Shots	Completion Percent Plus or Minus ***		Partially Complete Percent	No Shots Percent
						4/3/1	4/3/1/3/3		
Broward	100	88	76	11	1	86.4 ± 7.3	86.4 ± 7.3	12.5	1.1
Dade	83	74	67	7	0	90.5 ± 6.8	87.8 ± 7.6	9.5	0.0
Duval	89	83	64	19	0	77.1 ± 9.2	77.1 ± 9.2	22.9	0.0
Escambia	85	73	53	20	0	72.6 ± 10.4	71.2 ± 10.6	27.4	0.0
Hillsborough	77	62	40	22	0	64.5 ± 12.2	62.9 ± 12.3	35.5	0.0
Lee	80	71	57	14	0	80.3 ± 9.4	77.5 ± 9.9	19.7	0.0
Leon	74	69	55	13	1	79.7 ± 9.7	79.7 ± 9.7	18.8	1.4
Orange	90	83	62	21	0	74.7 ± 9.5	66.3 ± 10.4	25.3	0.0
Palm Beach	98	87	70	17	0	80.5 ± 8.5	78.2 ± 8.9	19.5	0.0
Pinellas	74	68	57	11	0	83.8 ± 8.9	80.9 ± 9.5	16.2	0.0
Polk	75	70	61	9	0	87.1 ± 8.0	87.1 ± 8	12.9	0.0
Volusia	92	84	61	23	0	72.6 ± 9.7	71.4 ± 9.9	27.4	0.0
All other counties	309	278	209	68	1	75.2 ± 5.2	73.7 ± 5.3	24.5	0.4
Statewide**	1326	1190	932	255	3	79.4 ± 2.5	77.4 ± 2.6	20.3	0.3

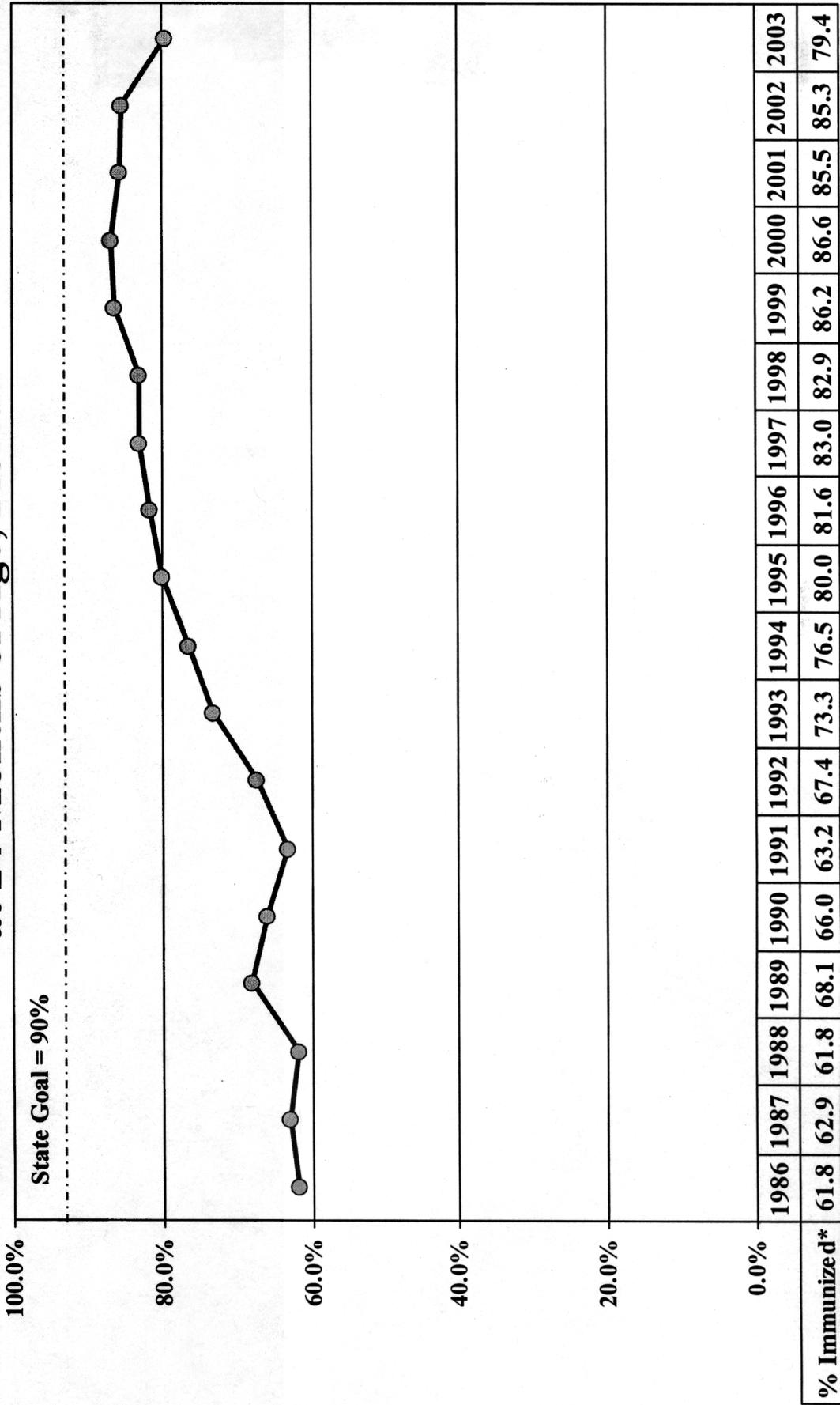
\* Does not include participants who could not be located or those who refused to participate.

\*\* Complete and partial percent weighted by the number of births in each strata.

\*\*\* Estimates are accurate within plus or minus with 95 percent confidence.

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

Attachment 2



\*4 DTaP, 3 polio, & 1 MMR by 24 months of age

**TABLE I**  
**IMMUNIZATION LEVELS\* OF 1190 TWO-YEAR-OLD CHILDREN BY VACCINE PROVIDER**  
**FLORIDA 2003**

STATUS	TOTAL SAMPLE POP		% OF SAMPLE		CHD		CHC		PRIVATE PHYSICIAN		MILITARY		NO SOURCE	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
COMPLETE	932	78.3%	121	60.2%	31	77.5%	728	82.1%	15	78.9%	37	86.0%		
PARTIAL	255	21.4%	80	39.8%	9	22.5%	159	17.9%	4	21.1%	3	7.0%		
NO SHOTS**	3	0.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3	7.0%		
TOTAL	1190	100%	201	100.0%	40	100.0%	887	100.0%	19	100.0%	43	100.0%		

\* Unweighted completion of basic series (4 DTaP, 3 polio, 1 MMR) by 24 months of age

\*\* No Shots includes: 2 religious exemptions; and 1 no shots before 24 months of age

**TABLE II**  
**IMMUNIZATION STATUS OF SURVEYED TWO-YEAR-OLD CHILDREN,**  
**FLORIDA SELECTED YEARS 1986 - 2003**

YEAR	TOTAL SAMPLE	COMPLETE* (%)	PARTIAL (%)	NO SHOTS (%)	PRIVATE PROVIDER (%)	CHD (%)	CHC (%)	MILITARY (%)	NO SOURCE (%)	4+ DTP (%)	3+ POLIO (%)	MMR (%)	HIB** (%)	3 Hep B (%)	Varicella (%)
***2003	1190	79.4	20.5	0.1	74.5	16.9	3.4	1.6	3.6	80.2	93.5	93.9	78.7	92.3	85.3
***2002	1159	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	1092	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	1113	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	1064	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	1498	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

\* COMPLETION OF BASIC SERIES (4 DTaP, 3 POLIO, 1 MMR) BY 24 MONTHS OF AGE

\*\* DATA PRIOR TO 1994 AT LEAST ONE DOSE

\*\*\* 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 2003**

Provider	Total Clients	Percent of Population	DTaP 1	DTaP 2	DTaP 3	DTaP 4	Polio 1	Polio 2	Polio 3	MMR	HIB 3	Hep 3	Varicella
CHD	201	16.9%	100.0%	97.0%	95.0%	60.7%	99.5%	97.0%	92.0%	94.0%	68.2%	91.0%	78.1%
PRIVATE PHYSICIAN	887	74.7%	99.9%	99.1%	98.0%	84.4%	99.8%	99.2%	93.9%	94.1%	82.5%	92.6%	87.6%
CHC	40	3.4%	97.5%	95.0%	97.5%	77.5%	97.5%	95.0%	95.0%	90.0%	70.0%	95.0%	75.0%
MILITARY	19	1.6%	100.0%	100.0%	100.0%	78.9%	100.0%	100.0%	94.7%	94.7%	42.1%	94.7%	84.2%
NO SOURCE	40	3.4%	100.0%	100.0%	100.0%	92.5%	100.0%	100.0%	97.5%	100.0%	80.0%	95.0%	87.5%
<b>TOTAL * OR AVERAGE</b>	<b>1187</b>	<b>100.0%</b>	<b>99.8%</b>	<b>98.7%</b>	<b>97.6%</b>	<b>80.4%</b>	<b>99.7%</b>	<b>98.7%</b>	<b>93.8%</b>	<b>94.2%</b>	<b>78.9%</b>	<b>92.5%</b>	<b>85.5%</b>

\*Total sample population of 1190 includes 3 children with no shots

Table I

**IMMUNIZATION STATUS OF TWO-YEAR-OLD CHILDREN  
BY HIGH RISK CHARACTERISTICS  
FLORIDA 2003**

		Education of Mother							
		<12		12		>12			
Complete*		191	72.9%	304	76.4%	437	82.5%		
Incomplete**		71	27.1%	94	23.6%	93	17.5%		
		Age of Mother							
		<20		20-24		25-29		30+	
Complete*		114	73.1%	229	71.8%	234	84.8%	355	80.9%
Incomplete**		42	26.9%	90	28.2%	42	15.2%	84	19.1%
		Siblings in Family							
		3+		2		1		0	
Complete*		73	65.8%	128	74.0%	292	76.0%	439	84.1%
Incomplete**		38	34.2%	45	26.0%	92	24.0%	83	15.9%
		Marital Status							
		No		Yes					
Complete*		605	80.3%			327	74.8%		
Incomplete**		148	19.7%			110	25.2%		
		Trimester of Initiation of Prenatal Care							
		3rd		2nd		1st			
Complete*		18	62.1%	93	69.9%	821	79.9%		
Incomplete**		11	37.9%	40	30.1%	207	20.1%		

\* 4 DTaP, 3 POLIO, 1 MMR

\*\* Includes 3 children with no shots

Table II

**IMMUNIZATION LEVELS OF TWO-YEAR-OLD CHILDREN  
HIGH-RISK VS NON HIGH-RISK GROUP  
FLORIDA 2002**

	Total	Complete*		Partial		No Shots	
		#	%	#	%	#	%
High-Risk	606	448	73.9%	157	25.9%	1	0.2%
Non-High-Risk	584	484	82.9%	98	16.8%	2	0.3%

\* 4 DTaP, 3 POLIO, 1 MMR