



Charlie Crist
Governor

Ana M. Viamonte Ros, M.D., M.P.H.
State Surgeon General

INTEROFFICE MEMORANDUM

DATE: June 17, 2009

TO: County Health Department Directors/Administrators

FROM: Jean L. Kline, R.N., B.S.N., M.P.H.
Deputy Secretary for Health, Public Health Programs

SUBJECT: Survey of Immunization Levels in Two-Year-Old Children (2008)

FOR INFORMATION ONLY

In November 2008, the Bureau of Immunization (BOI) completed an annual immunization survey of 1,958 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 Enclosure 1).

The 2008 statewide coverage rate for the basic 4/3/1 (four DTaP, three polio, and one MMR) series of vaccines among two-year-old children is 85.6%. The 2008 survey reflects 93.6% of private sector children completed this series by age two, compared to public sector children, consisting of county health department (CHD) and community health center (CHC) children, as reflected in Enclosure 3, Table I. Table I reflects 89.7% of CHD children, and 89.5% of CHC children have completed the 4/3/1 series by age two.

More importantly, the current state immunization coverage goal among two-year-old children is 90% for the 4/3/1/3/3/1 (four DTaP, three polio, one MMR, three Hib, three Hepatitis B, and one Varicella) series. The 2008 statewide coverage rate for this expanded series is 83.4%. Enclosure 1 shows coverage rates for the 20 largest counties ranged from 72.4% to 90.4%.

Through immunization, we prevent dangerous outbreaks and ensure a healthy future for our children. We must continue our efforts to reach our 2010 goal of 90% coverage for two-year-old children for the 4/3/1/3/3/1 series. Therefore, this will be the last year we will publish data for the 4/3/1 series.

Survey Purposes:

This survey has 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 BOI field staff conducted the survey with the assistance of CHD personnel, private

physicians, and parents. The survey included an original random sample of 2,404 birth records selected from a list of all live births occurring among Florida residents for the month of January 2006.

One hundred twenty-one (121) children were removed from the sample as deceased or adoption cases, and the sample was further reduced by eliminating 99 children whose parents refused to participate in the survey. Despite intensive follow-up, 226 children, or 8.7%, were not located. Consequently, 1,958 children were included in this year's survey.

Survey Results:

Despite the fact that 90.5% of surveyed children began their immunizations on time, only 66.1% continued on schedule by age 7 months. At 18 months old, only 48.3% remained on schedule. Enclosure 4 provides vaccine-specific coverage by provider type.

The survey confirmed that most of the high-risk maternal factors shown in Enclosure 5 continue to be associated with a decreased chance of completing the required immunization series. Number of siblings continues to be a factor in demonstrating lower coverage rates. 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 or third trimesters.

The sample analysis reflected the following coverage rates for the 4/3/1/3/3/1 series, by racial/ethnic breakdowns: White, 83.8% complete; Black, 80.4% complete; and Hispanic, 84.6% complete. Please refer to Enclosure 6 for breakdown of other series.

Comments:

In recent years, the delivery of immunization services has shifted from the CHDs to the private sector, with private providers and managed care organizations administering 61.8% of childhood immunizations. If we are to reach the state goal of 90% immunization coverage levels by 2010 for each of the vaccines administered to two-year-old children, we need to continue focusing our energy and resources on the following key areas:

- Identify and target interventions toward geographic areas with populations at high risk for under-immunization (pockets of need)
- Continue linkage with the WIC program
- Conduct semi-annual audits in CHD clinics, using the Florida State Health Online Tracking System (SHOTS) to assess immunization coverage levels as part of ongoing quality assurance reviews, and to ensure complete immunization of children in the public sector

- Implement automated reminders and recalls using the Florida SHOTS
- Implement the Missed Immunization Opportunities Policy of the CHD Guidebook
- Use reminder and recall systems to improve overall compliance with the recommended immunization schedule, particularly for the fourth dose of DTaP

In addition, CHDs should increase their partnerships with managed care organizations and private healthcare providers to reach the state goal. Collaborative efforts should include:

- Promotion of the *Standards for Pediatric Immunization Practices*
- Promotion of the statewide immunization registry (Florida SHOTS) by the Department of Health

If you have any questions or comments about this survey, or if you have found other successful methods to improve your community's immunization levels, please contact Ms. Amy Wilson in the Bureau of Immunization at (850) 245-4342. We are eager to share any best practices that improve immunization rates with other CHDs and private providers.

JLK/cha/aw

Enclosures

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Department of Health Immunization Levels in Two-Year-Old Children By Selected Counties and State Florida, 2008

County	Sample Size	Survey Participants*	Complete 4/3/1 [†]	Partial 4/3/1 [†]	No Shots	Completion Percentage [^]												Partially Complete % 4/3/1 [†]	No Shots %
						4/3/1 [†]			4/3/1/3 [‡]			4/3/1/3/3 [§]			4/3/1/3/3/1 ^{§§}				
Brevard	99	91	78	12	1	85.7	±	7.2%	84.6	±	7.4%	84.6	±	7.4%	83.5	±	7.6%	13.2	1.1
Broward	109	88	77	9	2	87.5	±	3.8%	87.5	±	7.2%	86.4	±	7.7%	85.2	±	7.5%	10.2	2.3
Collier	116	97	79	18	0	81.4	±	7.6%	79.4	±	7.9%	79.4	±	7.9%	77.3	±	8.3%	18.6	0.0
Dade	100	87	78	8	1	89.7	±	2.2%	89.7	±	2.2%	87.4	±	2.2%	87.4	±	7.0%	9.2	1.1
Duval	104	92	77	15	0	83.7	±	8.6%	83.7	±	8.6%	82.6	±	8.7%	81.5	±	8.8%	16.3	0.0
Escambia	119	86	75	11	0	87.2	±	6.8%	86.0	±	7.1%	86.0	±	9.1%	84.9	±	9.4%	12.8	0.0
Hillsborough	98	94	84	10	0	89.4	±	6.2%	89.4	±	6.2%	87.2	±	7.0%	87.2	±	7.0%	10.6	0.0
Lee	102	76	57	19	0	75.0	±	9.7%	75.0	±	6.9%	75.0	±	9.7%	72.4	±	10.1%	25.0	0.0
Leon	113	104	95	7	2	91.3	±	5.4%	91.3	±	5.4%	90.4	±	5.9%	90.4	±	5.7%	6.7	1.9
Manatee	100	91	77	14	0	84.6	±	7.4%	83.5	±	7.6%	83.5	±	7.6%	83.5	±	7.8%	15.4	0.0
Marion	97	80	63	15	2	78.8	±	9.0%	78.8	±	9.0%	77.5	±	9.2%	77.5	±	9.2%	18.8	2.5
Orange	101	74	56	17	1	75.7	±	9.8%	75.7	±	7.0%	74.3	±	10.1%	74.3	±	10.1%	23.0	1.4
Osceola	108	96	81	15	0	84.4	±	7.3%	84.4	±	5.2%	84.4	±	5.2%	83.3	±	7.5%	15.6	0.0
Palm Beach	114	97	88	7	2	90.7	±	5.8%	90.7	±	4.3%	90.7	±	4.3%	88.7	±	6.8%	7.2	2.1
Pasco	103	94	81	13	0	86.2	±	7.0%	85.1	±	5.1%	84.0	±	5.3%	81.9	±	8.1%	13.8	0.0
Pinellas	96	84	73	11	0	86.9	±	7.2%	84.5	±	5.5%	83.3	±	5.7%	82.1	±	8.2%	13.1	0.0
Polk	99	94	85	9	0	90.4	±	6.0%	90.4	±	4.3%	89.4	±	4.4%	89.4	±	6.2%	9.6	0.0
Sarasota	74	63	46	17	0	73.0	±	11.0%	71.4	±	8.0%	71.4	±	8.0%	69.8	±	11.3%	27.0	0.0
Seminole	102	91	82	9	0	90.1	±	6.1%	90.1	±	4.4%	90.1	±	4.4%	89.0	±	6.4%	9.9	0.0
Volusia	98	82	67	14	1	81.7	±	8.4%	81.7	±	6.0%	80.5	±	6.1%	78.0	±	9.1%	17.1	1.2
All other counties	231	197	178	19	0	90.4	±	4.2%	89.8	±	3.1%	88.8	±	3.4%	87.8	±	4.9%	9.6	0.0
Statewide ¶	2,283	1,958	1,677	269	12	85.6	±	7.0%	85.1	±	6.1%	84.4	±	6.6%	83.4	±	8.0%	13.7	0.6

[^] % ± 95% Confidence Interval

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

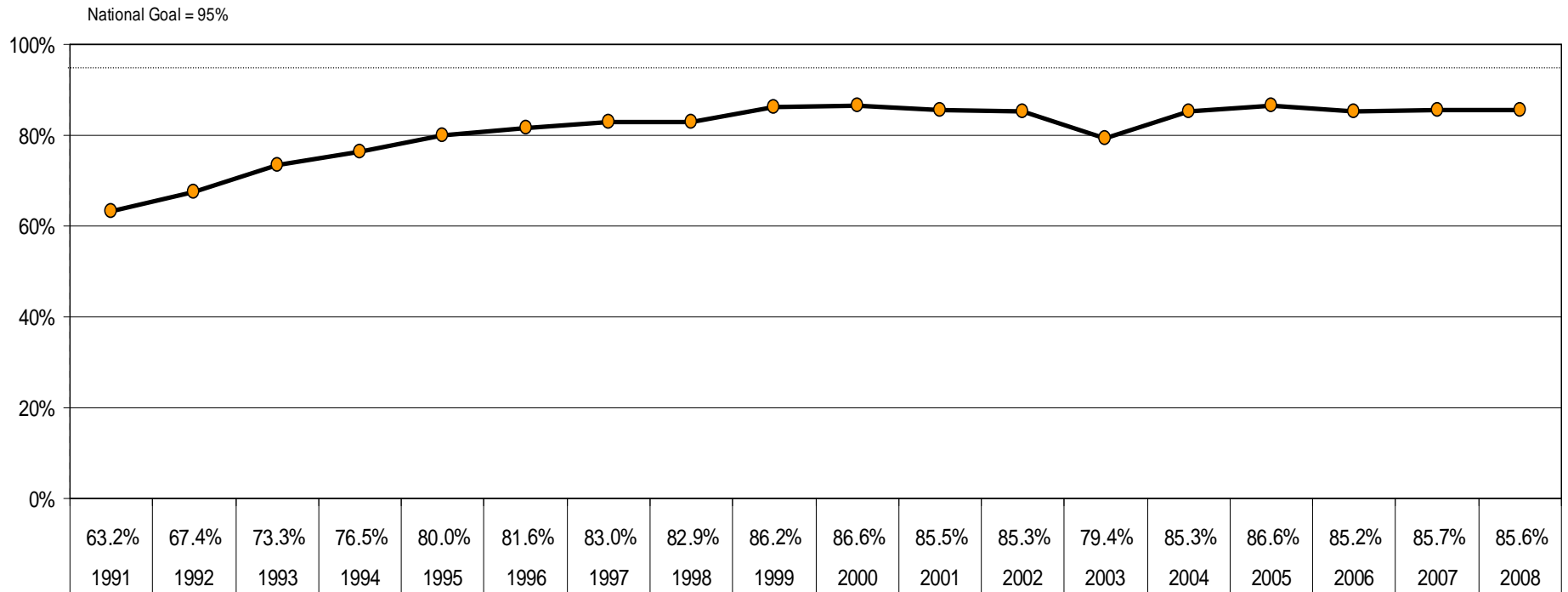
[†] Four or more doses of diphtheria, tetanus and acellular pertussis vaccine (DTaP), three doses of poliovirus vaccine, one dose of measles, mumps and rubella vaccine (MMR)

[‡] 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 *Hemophilus influenzae* type b (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

^{§§} 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, three or more doses of Hepatitis B, and one dose of Varicella

Department of Health Immunization Coverage Levels (4:3:1) of Children at 24 Months of Age, Florida



% Immunized[^]

[^]4 diphtheria, tetanus and acellular pertussis vaccine (DTaP), 3 poliovirus, and 1 measles, mumps and rubella (MMR) at 24 months of age.

Department of Health

TABLE I
IMMUNIZATION LEVELS[^] OF 1958 TWO-YEAR-OLD CHILDREN BY VACCINE PROVIDER
FLORIDA, 2008

STATUS	SAMPLE POPULATION	% OF SAMPLE	CHD*		CHC [†]		PRIVATE PHYSICIAN		MILITARY		NO SOURCE	
			#	%	#	%	#	%	#	%	#	%
COMPLETE [^]	1,677	85.6%	278	89.7%	68	89.5%	1,074	93.6%	27	93.1%	230	58.2%
PARTIAL	269	13.7%	32	10.3%	8	10.5%	73	6.4%	2	6.9%	153	38.7%
NO SHOTS [‡]	12	0.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	12	3.0%
TOTAL	1,958	100%	310	100.0%	76	100.0%	1,147	100.0%	29	100.0%	395	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 or more doses of measles mumps and rubella vaccine (MMR) at 24 months of age.

* County Health Department

[†] Community Health Center

[‡] Includes 12 children with Religious Exemptions (No Shots)

TABLE II
IMMUNIZATION STATUS OF SURVEYED TWO-YEAR-OLD CHILDREN
FLORIDA, 1990 - 2008

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 (%)
2008	1,958	85.6	13.7	0.6	58.6	15.8	3.9	1.5	20.2	86.7	93.8	94.5	94.8	94.5	94.0
2007	1,876	85.7	13.3	1.1	66.2	13.5	2.7	2.1	15.5	86.9	92.5	93.4	94.8	94.3	92.8
2006	1,648	85.2	13.5	0.6	64.8	16.8	2.9	0.005	0.1	87.4	93.2	93.3	94.1	93.3	92.3
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	1,493	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	1,463	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

[‡] 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, 2008**

Provider	Average 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 §	310	15.6%	307	284	287	310	309	280	300	306	282	298	309
PRIVATE PHYSICIAN	1,205	61.8%	1,163	1,185	1,189	1,148	1,161	1,180	1,159	1,205	1,168	1,164	1,193
CHC ¶	84	4.2%	82	81	77	76	84	84	80	78	75	76	82
MILITARY	29	1.3%	22	23	23	29	21	22	25	25	26	28	26
UNKNOWN	318	17.0%	370	359	334	248	369	361	318	280	322	313	281
TOTAL	1,946	100.0%	1,944	1,932	1,910	1,811	1,944	1,927	1,882	1,894	1,873	1,879	1,891

§ County Health Department

¶ Community Health Center

Total sample population of 1,958 minus 12 children with Religious Exemptions (no shots)

**Department of Health
Immunization Status of Two-Year-Old Children
Florida, 2008**

**Table I
By High-Risk Characteristics**

	<12		Mother's Education Level (Years)				Unknown			
			12		>12					
Complete [^]	351	80.9%	484	86.3%	830	87.4%	12	92.3%		
Incomplete [*]	83	19.1%	77	13.7%	120	12.6%	1	7.7%		
			Age of Mother							
	<20		20 - 24		25 - 29		30+		Unknown	
Complete [^]	167	85.6%	445	84.9%	411	83.4%	653	87.7%	1	100.0%
Incomplete [*]	28	14.4%	79	15.1%	82	16.6%	92	12.3%	0	0.0%
			Number of Siblings in Family							
	3+		2		1		0		Unknown	
Complete [^]	150	77.3%	244	81.1%	519	84.3%	764	90.2%	0	0.0%
Incomplete [*]	44	22.7%	57	18.9%	97	15.7%	83	9.8%	0	0.0%
			Marital Status							
	No		Yes							
Complete [^]	707	83.7%	970 87.2%							
Incomplete [*]	138	16.3%	143 12.8%							
			Trimester of Initiation of Prenatal Care							
	3rd		2nd		1st		Unknown			
Complete [^]	206	78.9%	279	84.0%	1,192	87.3%	0 0.0%			
Incomplete [*]	55	21.1%	53	16.0%	173	12.7%	0 0.0%			

[^] 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 12 children with no shots

Department of Health Immunization Levels in Two-Year-Old Children Florida, by Racial and Ethnic Groups, 2008

	Sample Size	Survey Participants*	Complete 4/3/1 [†]	Partial 4/3/1 [†]	No Shots	Completion Percentage [^]										Partially Complete % 4/3/1 [†]	No Shots %		
						4/3/1 [†]		4/3/1/3 [‡]		4/3/1/3/3 [§]		4/3/1/3/3/1 ^{§§}							
Non-White	561	487	409	74	4	84.0	±	3.3%	83.8	±	3.3%	82.8	±	3.3%	81.9	±	3.4%	15.2	0.8
White	1,722	1,471	1,268	195	8	86.2	±	1.8%	85.6	±	1.8%	84.9	±	1.8%	83.8	±	1.9%	13.3	0.5
Statewide	2,283	1,958	1,677	269	12	85.6	±	1.6%	85.1	±	1.6%	84.4	±	1.4%	83.4	±	1.6%	13.7	0.6
Black	432	382	315	65	2	82.5	±	3.8%	82.5	±	3.8%	81.4	±	3.9%	80.4	±	4.0%	17.0	0.5
Hispanic	586	495	430	63	2	86.9	±	3.1%	86.5	±	3.0%	85.7	±	3.1%	84.6	±	3.2%	12.7	0.4
White	1,157	981	843	132	6	85.9	±	2.2%	85.2	±	2.2%	84.6	±	2.3%	83.5	±	2.3%	13.5	0.6
Other	108	100	89	9	2	89.0	±	6.1%	88.0	±	6.2%	87.0	±	6.6%	87.0	±	6.6%	9.0	2.0
Statewide	2,283	1,958	1,677	269	12	85.6	±	1.6%	85.1	±	1.6%	84.4	±	1.4%	83.4	±	1.6%	13.7	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

^{§§} 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, three or more doses of Hepatitis B, and one Varicella