



COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC HEALTH  
IMMUNIZATION PROGRAM  
NATIONAL IMMUNIZATION SURVEY, 2004  
AUGUST 2006

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## Background

The National Immunization Survey (NIS) provides estimates of vaccination coverage levels by vaccine and series among children 19-35 months of age in the United States at selected age milestones. Estimates are also provided for each state and 28 urban areas, including Los Angeles County (LAC). The NIS was initiated by the Centers for Disease Control and Prevention (CDC), sponsored by the National Immunization Program and the National Center for Health Statistics, in April 1994 as a standardized means to monitor progress in meeting national goals to appropriately vaccinate 90% of preschool aged children by the year 2010. Results of the NIS are summarized and distributed annually on the CDC website.

## Methods

### NIS Eligibility

- Households with children 19-35 months of age are eligible for inclusion in the survey.

### NIS Sample Design

- Quarterly telephone surveys.
- Randomly generated listed and unlisted telephone numbers.
- Telephone numbers are linked to geographic areas based on the area code and prefix.

### Collected Data

- Participants are asked to provide the following:
  - the dates of their child's vaccinations from written records. If the record is not available they are asked to recall the number of doses of each vaccine their child has.
  - the names and addresses of their child's vaccination providers.
  - verbal consent to contact their child's vaccination providers.
  - demographic information.
- Vaccination providers are contacted by mail to obtain and/or verify vaccination dates of their patients participating in the NIS, provided the parent/guardian gives consent.

### Data Analysis

- Vaccination rates are estimated by adjusting the data for non-response of parents and providers and for households that do not have telephones.
- Confidence limits are presented for each estimate. The confidence limits reflect the range within which 95% of the estimates would fall if the survey were repeated over and over. When confidence intervals overlap in comparisons, the point estimates do not represent statistically significant differences.

## Results

The 2004 survey includes children who were born from February 2001 through May 2003, i.e., children who were 19-35 months of age during 2004. In this report, the results are grouped into four categories:

- I. Sampling and Response Rates.
- II. Estimated Vaccination Coverage with Individual Vaccines and Selected Vaccination Series
  - General Summary and Trends.

- III. Estimated Vaccination Coverage with Individual Vaccine and Selected Vaccination Series – Stratified Summary.
- IV. Estimated Vaccination Coverage with Individual Vaccines by Age Milestone.
- V. Healthy People 2010 Objectives and Los Angeles County Status.

I. Sampling and Response Rates

**Table 1. Number of eligible households and children with completed interviews and adequate provider data for the United States and Los Angeles County, National Immunization Survey – 2004.**

	United States	Los Angeles County
Households		
Number eligible	32,638	490
Number with completed interviews (%)	30,019 (92.0)	446 (91.0)
Children		
Number with completed interviews	30,987	473
Completed interviews and adequate provider data (%)	21,998 (71.0)	299 (63.4)

In 2004, LAC had 490 households that were eligible for inclusion in NIS. Over 90 percent (446) of these households completed interviews, which is a considerably high response rate. These 446 household interviews resulted in 473 completed interviews on children in the eligible age-range. Of these 473 children, 299 (63.4%) also had adequate provider data. This proportion is less than 10 points lower than the proportion for the entire United States. The calculated coverage level estimates in the NIS are derived from the analysis of the collected data from children with completed interviews and adequate provider data (299 for LAC and 21,998 for the U.S.).

II. Estimated Vaccination Coverage with Individual Vaccines and Selected Vaccination Series – General Summary and Trends

**Table 2. Estimated vaccination coverage levels among children 19-35 months of age for Los Angeles County, the United States, and other urban areas, National Immunization Survey – 2004.**

	4:3:1 series <sup>1</sup>	4:3:1:3 series <sup>2</sup>	4:3:1:3:3 series <sup>3</sup>
	% ± 95% CI <sup>4</sup>	% ± 95% CI	% ± 95% CI
Los Angeles County, CA (n=299)	83.6 ± 5.1	81.7 ± 5.3	80.1 ± 5.5
United States (n=21,998)	83.5 ± 0.9	82.5 ± 0.9	80.9 ± 0.9
California State	84.1 ± 3.2	83.1 ± 3.3	81.3 ± 3.4
Jefferson County, AL [Birmingham] <sup>5</sup>	83.9 ± 6.5	83.5 ± 6.6	82.1 ± 6.7
Maricopa County, AZ [Phoenix]	81.5 ± 5.1	80.7 ± 5.2	77.8 ± 5.4
San Diego County, CA [San Diego]	80.0 ± 5.4	79.9 ± 5.4	77.2 ± 5.6
Santa Clara County, CA [San Jose]	88.1 ± 4.7	87.7 ± 4.7	84.6 ± 5.1
District of Columbia	86.3 ± 5.2	86.0 ± 5.2	82.5 ± 5.7
Dade County, FL [Miami]	85.8 ± 5.0	85.3 ± 5.1	84.0 ± 5.2
Duval County, FL [Jacksonville]	76.4 ± 7.3	74.6 ± 7.3	72.7 ± 7.6
Fulton/DeKalb Counties, GA [Atlanta]	86.9 ± 4.8	86.0 ± 4.9	85.6 ± 4.9
Chicago, IL	83.4 ± 6.8	80.7 ± 7.1	77.8 ± 7.3
Marion County, IN [Indianapolis]	81.8 ± 6.4	81.8 ± 6.4	78.3 ± 6.7
Orleans Parish, LA [New Orleans]	77.1 ± 6.4	75.9 ± 6.5	71.5 ± 7.0
Baltimore, MD	85.3 ± 5.4	85.3 ± 5.4	82.8 ± 5.7
Boston, MA	86.9 ± 5.4	85.8 ± 5.5	82.4 ± 5.8
Detroit, MI	68.6 ± 6.8	68.1 ± 6.8	67.9 ± 6.8
Newark, NJ	77.4 ± 6.1	74.5 ± 6.4	72.2 ± 6.6
New York, NY	81.2 ± 6.0	79.6 ± 6.1	79.4 ± 6.1
Cuyahoga County, OH [Cleveland]	86.5 ± 5.0	86.0 ± 5.0	83.0 ± 5.6
Franklin County, OH [Columbus]	87.4 ± 4.8	86.7 ± 4.9	86.4 ± 4.9
Philadelphia County, PA [Philadelphia]	80.5 ± 5.8	80.0 ± 5.8	78.0 ± 5.9
Davidson County, TN [Nashville]	90.4 ± 4.1	90.0 ± 4.1	89.7 ± 4.1
Shelby County, TN [Memphis]	78.6 ± 6.2	73.8 ± 6.7	73.0 ± 6.7
Bexar County, TX [San Antonio]	75.0 ± 6.8	75.0 ± 6.8	74.3 ± 6.8
Houston, TX	69.0 ± 6.6	68.4 ± 6.6	65.5 ± 6.7
Dallas County, TX [Dallas]	73.1 ± 6.3	71.9 ± 6.3	68.7 ± 6.5
El Paso County, TX [El Paso]	71.8 ± 6.2	70.6 ± 6.3	64.8 ± 6.5
King County, WA [Seattle]	85.7 ± 5.0	84.5 ± 5.2	81.0 ± 5.5
Milwaukee County, WI [Milwaukee]	80.4 ± 5.9	80.2 ± 6.0	78.7 ± 6.1

<sup>1</sup> Four or more doses of DTaP/DTP, three or more doses of poliovirus vaccine, one or more doses of MMR.

<sup>2</sup> Four or more doses of DTaP/DTP, three or more doses of poliovirus vaccine, one or more doses of MMR, and three or more doses of Hib.

<sup>3</sup> Four or more doses of DTaP/DTP, 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 vaccine.

<sup>4</sup> Confidence interval.

<sup>5</sup> Cities in brackets are the primary cities in the county.

Among the 28 urban areas for which coverage levels were estimated, the 4:3:1 series and the 4:3:1:3 series were lowest for Detroit, Michigan (68.6% and 68.1%, respectively). The 4:3:1:3:3 estimate was lowest for El Paso County, Texas (64.8%). All three estimates were

highest for Davidson County, Tennessee (90.4%, 90.0%, and 89.7%, respectively). Estimates for LAC were consistent with those for other California counties, the state of California, and most other urban areas throughout the U.S.

**Table 3. Estimated vaccination coverage levels among children 19-35 months of age, Los Angeles County and the United States, National Immunization Survey – 2004.**

Vaccine(s)	Los Angeles County (n=299)	United States (n=21,998)
	% ± 95% CI <sup>1</sup>	% ± 95% CI
DTaP/DTP 4+	85.2 ± 5.0	85.5 ± 0.8
DTaP/DTP 3+	95.6 ± 3.3	95.9 ± 0.5
Poliovirus 3+	93.1 ± 3.5	91.6 ± 0.7
MMR <sup>2</sup> 1+	94.1 ± 2.9	93.0 ± 0.6
Hib 3+	90.8 ± 4.1	93.5 ± 0.6
Hepatitis B 3+	91.8 ± 3.9	92.4 ± 0.6
Varicella 1+	89.7 ± 4.0	87.5 ± 0.7
PCV 3+	72.3 ± 6.4	73.2 ± 1.0
4:3:1 <sup>3</sup>	83.6 ± 5.1	83.5 ± 0.9
4:3:1:3 <sup>4</sup>	81.7 ± 5.3	82.5 ± 0.9
4:3:1:3:3 <sup>5</sup>	80.1 ± 5.5	80.9 ± 0.9

<sup>1</sup> Confidence interval.

<sup>2</sup> Measles-Mumps-Rubella vaccine; previous reports of vaccination coverage were for measles-containing vaccine (MCV).

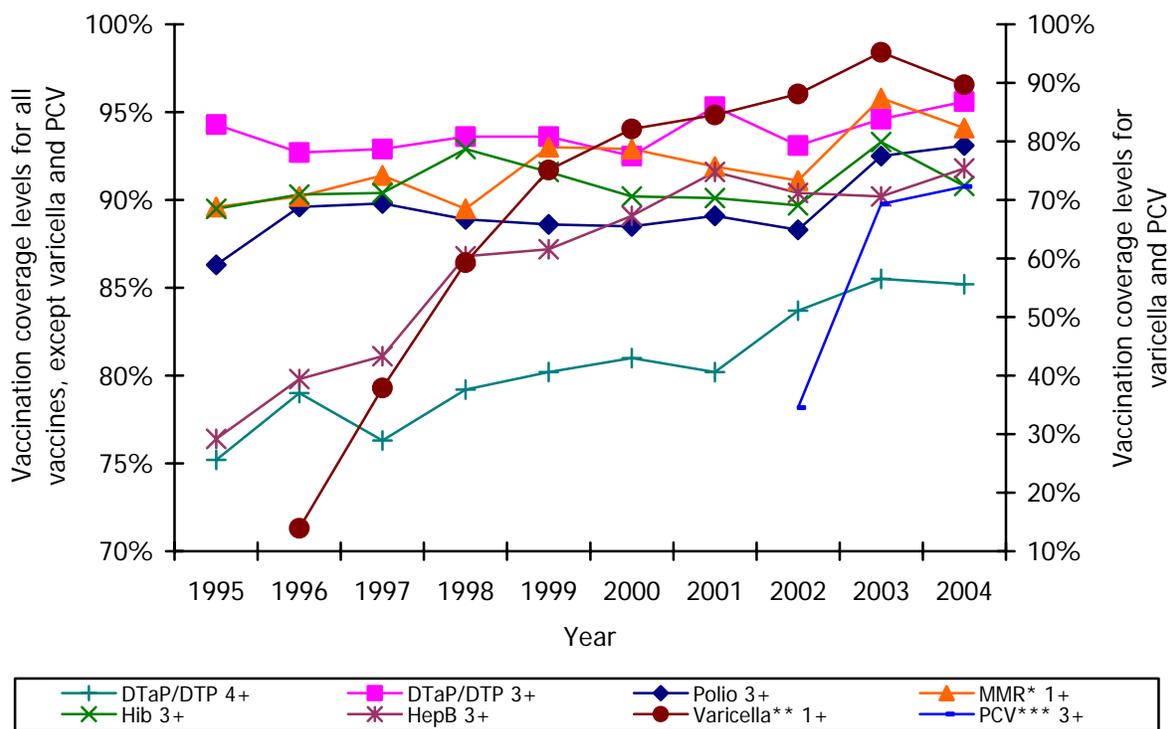
<sup>3</sup> Four or more doses of DTaP/DTP, three or more doses of poliovirus vaccine, one or more doses of MMR.

<sup>4</sup> Four or more doses of DTaP/DTP, three or more doses of poliovirus vaccine, one or more doses of MMR, and three or more doses of Hib.

<sup>5</sup> Four or more doses of DTaP/DTP, 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 vaccine.

U.S. and LAC individual vaccine coverage estimates were highest for three or more doses of diphtheria-tetanus-pertussis (DTaP/DTP) vaccine and lowest for three or more doses of pneumococcal conjugate vaccine (PCV). There are no statistically significant differences in coverage level estimates between LAC and the U.S.

**Figure 1. Estimated vaccination coverage with individual vaccines among children 19-35 months of age, Los Angeles County, National Immunization Survey, 1995-2004.**



\*Measles-Mumps-Rubella vaccine; previous reports of vaccination coverage were for measles-containing vaccine (MCV).  
 \*\*Varicella vaccine was licensed by the Food and Drug Administration in 1995 and was added to the recommended childhood immunization schedule and the VFC Program in 1996.  
 \*\*\*Pneumococcal conjugate vaccine (PCV) was first licensed in 2000 and was added to the recommended childhood immunization schedule and the VFC Program that same year.

In this graph, vaccination coverage levels for all vaccines except varicella and PCV are graphed using the vertical axis on the left. There were decreases in coverage levels for varicella vaccine, MMR, and Hib from 2003 to 2004. The estimate for four or more doses of DTaP/DTP remained about the same in 2004 as in 2003. All other vaccines experienced slight increases. Since the NIS began, vaccination coverage levels for three or more doses of DTaP/DTP have been 3-8 points higher than vaccination coverage levels for three or more doses of polio vaccine. In 2003, the increase in vaccination coverage with three or more doses of polio vaccine has decreased the difference between coverage levels for three or more doses of polio vaccine and three or more doses of DTaP/DTP to two points, which was the same in 2004. The vaccination coverage levels for varicella and PCV vaccines are graphed using the vertical axis on the right. The increases in the varicella and PCV coverage estimates from 2002 to 2003 were both statistically significant. The low coverage for PCV in 2002 was most likely due to a vaccine shortage.

**Table 4. Estimated vaccination coverage levels for children 19-35 months of age, Los Angeles County, National Immunization Survey – 1995-2004.**

Year	4:3:1 series <sup>1</sup>	4:3:1:3 series <sup>2</sup>	4:3:1:3:3 series <sup>3</sup>
	% ± 95% CI <sup>4</sup>	% ± 95% CI	% ± 95% CI
1995 <sup>5</sup>	71.5 ± 8.5	67.7 ± 8.8	60.9 ± 9.0
1996 <sup>5</sup>	75.6 ± 6.3	74.6 ± 6.4	67.3 ± 6.8
1997 <sup>5</sup>	74.1 ± 6.6	71.6 ± 6.8	64.6 ± 7.2
1998	76.5 ± 5.9	76.0 ± 6.0	70.5 ± 6.3
1999	78.1 ± 5.6	76.0 ± 5.7	71.0 ± 6.0
2000	78.2 ± 5.1	76.5 ± 5.2	72.6 ± 5.4
2001	76.7 ± 5.2	73.3 ± 5.4	71.6 ± 5.5
2002	79.6 ± 5.6	77.1 ± 5.8	76.0 ± 5.9
2003	84.8 ± 4.9	83.5 ± 5.0	80.3 ± 5.4
2004	83.6 ± 5.1	81.7 ± 5.3	80.1 ± 5.5

<sup>1</sup> Four or more doses of DTaP/DTP, three or more doses of poliovirus vaccine, one or more doses of MMR.

<sup>2</sup> Four or more doses of DTaP/DTP, three or more doses of poliovirus vaccine, one or more doses of MMR, and three or more doses of Hib.

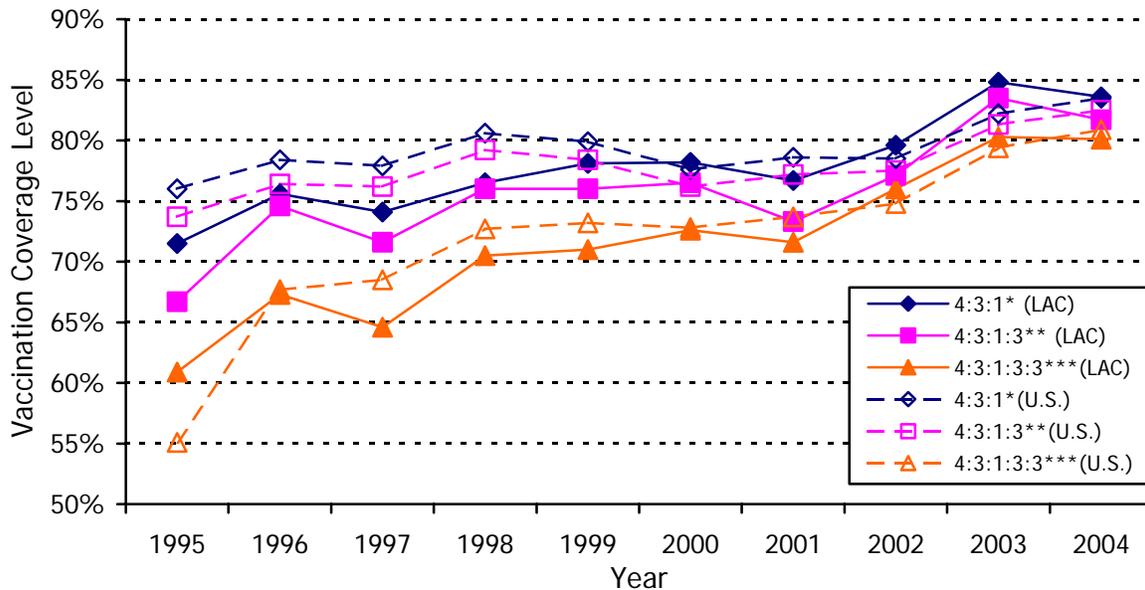
<sup>3</sup> Four or more doses of DTaP/DTP, three or more doses of poliovirus vaccine, one or more doses of MMR, three or more doses of Hib, and three or more doses of hepatitis B vaccine.

<sup>4</sup> Confidence interval.

<sup>5</sup> Estimates from previous reports differ because they were obtained from different reporting sources. Currently, all estimates are obtained from NIS tables.

Over the previous five years (1999-2003) estimates for all three vaccine series have basically increased, experiencing a slight decrease in 2001. Coverage levels with all three vaccine series exhibited an increase to over 80% from 2002 to 2003, but decreased slightly in 2004. However, these changes were not statistically significant and the 2004 estimates remained above 80%. These results are also displayed graphically in figure 2.

**Figure 2. Estimated vaccination coverage levels with selected vaccination series among children 19-35 months of age, Los Angeles County (LAC) and the United States (U.S.), National Immunization Survey, 1995-2004.**



\*Four or more doses of DTaP/DTP, three or more doses of poliovirus vaccine, one or more doses of Measles-Mumps-Rubella vaccine (MMR).

\*\*Four or more doses of DTaP/DTP, three or more doses of poliovirus vaccine, one or more doses of MMR, and three or more doses of Hib.

\*\*\*Four or more doses of DTaP/DTP, three or more doses of poliovirus vaccine, one or more doses of MMR, three or more doses of Hib, and 3 or more doses of hepatitis B vaccine.

LAC estimates for all three series have been steadily increasing since 2001. Until 2002, U.S. estimates have been generally higher than LAC estimates, but the differences were not statistically significant. In 2002, LAC coverage estimates for the 4:3:1 and 4:3:1:3:3 series were higher than U.S. estimates. In 2003, all three series estimates were higher for LAC than the entire U.S. In 2004, the U.S. estimates for the 4:3:1:3 and 4:3:1:3:3 series were higher than the LAC estimates.

Estimated coverage levels for the different series are usually lower than the estimated coverage levels for the individual vaccines. Delaying the fourth dose of DTaP is the primary reason vaccine coverage levels for the 4:3:1, 4:3:1:3, and 4:3:1:3:3 series are not higher.

III. Estimated Vaccination Coverage with Individual Vaccine and Selected Vaccination Series – Stratified Summary

IIIa. Race/Ethnicity

There were no significant differences in any of the vaccine coverage estimates for non-Hispanic whites compared with Hispanics (data not shown). Race-specific estimates for other racial/ethnic groups were not calculated because of insufficient sample size.

IIIb. Poverty Level

**Table 5. Estimated vaccination coverage levels among children 19-35 months of age, overall and by poverty level, Los Angeles County, National Immunization Survey – 2004.**

Vaccine(s)	Children 19-35 months of age	Above poverty level	Below poverty level
	% ± 95% CI <sup>1</sup>	% ± 95% CI	% ± 95% CI
DTaP/DTP 4+	85.2 ± 5.0	90.2 ± 4.9	82.0 ± 8.7
DTaP/DTP 3+	95.6 ± 3.3	98.6 ± 1.4	97.0 ± 3.3
Poliovirus 3+	93.1 ± 3.5	96.6 ± 2.6	90.6 ± 5.7
MMR <sup>2</sup> 1+	94.1 ± 2.9	93.1 ± 4.3	96.0 ± 3.9
Hib 3+	90.8 ± 4.1	95.1 ± 3.4	89.6 ± 6.3
Hepatitis B 3+	91.8 ± 3.9	93.8 ± 4.4	89.0 ± 6.4
Varicella 1+	89.7 ± 4.0	88.0 ± 5.6	91.6 ± 6.7
PCV 3+	72.3 ± 6.4	77.6 ± 7.5	75.1 ± 9.7
4:3:1 <sup>3</sup>	83.6 ± 5.1	87.4 ± 5.5	81.4 ± 8.8
4:3:1:3 <sup>4</sup>	81.7 ± 5.3	85.8 ± 5.7	80.2 ± 9.0
4:3:1:3:3 <sup>5</sup>	80.1 ± 5.5	84.3 ± 6.2	78.0 ± 9.3

<sup>1</sup> Confidence interval.

<sup>2</sup> Measles-Mumps-Rubella vaccine; previous reports of vaccination coverage were for measles-containing vaccine (MCV).

<sup>3</sup> Four or more doses of DTaP/DTP, three or more doses of poliovirus vaccine, one or more doses of MMR.

<sup>4</sup> Four or more doses of DTaP/DTP, three or more doses of poliovirus vaccine, one or more doses of MMR, and three or more doses of Hib.

<sup>5</sup> Four or more doses of DTaP/DTP, 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 vaccine.

For all vaccines and vaccine series, estimates for the 37% of children living below the poverty level were not significantly different from the estimates for children living at or above the poverty level or from the overall estimates.

### IIIc. VFC Provider Status

**Table 6. Estimated vaccination coverage levels among children 19-35 months of age by provider participation in the Vaccines for Children (VFC) Program, Los Angeles County, National Immunization Survey – 2004.**

Vaccine(s)	Children whose providers participated in the VFC program	Children whose providers did not participate in the VFC program
	% ± 95% CI <sup>1</sup>	% ± 95% CI
DTaP/DTP 4+	83.6 ± 5.9	94.3 ± 8.0
DTaP/DTP 3+	94.7 ± 4.1	NA
Poliovirus 3+	92.4 ± 4.2	98.3 ± 3.4
MMR <sup>3</sup> 1+	93.8 ± 3.4	95.0 ± 7.7
Hib 3+	90.1 ± 4.8	95.4 ± 7.5
Hepatitis B 3+	91.2 ± 4.5	96.1 ± 7.4
Varicella 1+	90.9 ± 4.3	NA
PCV 3+	69.8 ± 7.5	NA
4:3:1 <sup>4</sup>	81.6 ± 6.1	93.2 ± 8.3
4:3:1:3 <sup>5</sup>	79.5 ± 6.3	92.6 ± 8.3
4:3:1:3:3 <sup>6</sup>	77.5 ± 6.6	92.6 ± 8.3

<sup>1</sup> Confidence interval.

<sup>2</sup> Estimate Not Available (NA) if the unweighted sample size for the numerator was <30 or (CI half width)/Estimate >0.5 or (CI half width)>10.

<sup>3</sup> Measles-Mumps-Rubella vaccine; previous reports of vaccination coverage were for measles-containing vaccine (MCV).

<sup>4</sup> Four or more doses of DTaP/DTP, three or more doses of poliovirus vaccine, one or more doses of MCV.

<sup>5</sup> Four or more doses of DTaP/DTP, three or more doses of poliovirus vaccine, one or more doses of MCV, and three or more doses of Hib.

<sup>6</sup> Four or more doses of DTaP/DTP, three or more doses of poliovirus vaccine, one or more doses of MCV, three or more doses of Hib, and three or more doses of hepatitis B vaccine.

The Vaccines for Children (VFC) Program is federally funded and, through state and local health departments, provides free vaccines to participating health care providers. These providers administer vaccines to children who are eligible for Medi-Cal and the Child Health and Disability Prevention (CHDP) Program, are American Indian or Alaskan Native, or do not have health insurance. Additionally, children whose health insurance does not cover vaccinations may go to federally qualified health centers and rural health clinics to receive vaccine provided by the VFC Program. Due to insufficient data, coverage levels for three or more doses of DTaP/DTP, varicella, and PCV could not be estimated for children whose provider did not participate in the VFC program. There was a slightly significant difference in the 4:3:1:3:3 series estimate when comparing children whose providers participated in the VFC Program to children whose providers did not participate in the VFC Program.

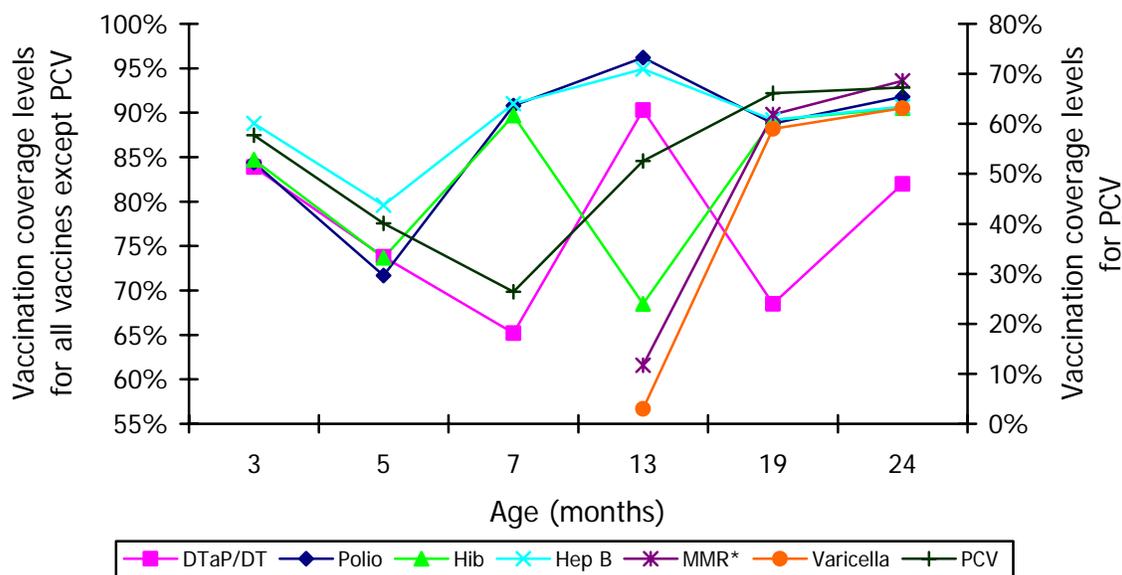
IV. Estimated Vaccination Coverage with Individual Vaccines by Age Milestone

**Table 7. Required number of doses of individual vaccines at 3, 5, 7, 13, 19 and 24 months of age.**

Age (months)	DTaP/DTP	Polio	MMR	Hib	Hep B	Varicella	PCV
3	1	1	0	1	1	0	1
5	2	2	0	2	2	0	2
7	3	2	0	2	2	0	3
13	3	2	1	3	2	1	3
19	4	3	1	3	3	1	3
24	4	3	1	3	3	1	3

Coverage was also estimated at 3, 5, 7, 13, 19, and 24 months of age. The required number of doses of individual vaccines at each age milestone for which coverage was estimated is shown in Table 7. Four Hib conjugate vaccines are licensed for use in infants 6 weeks of age and older. One of these requires only two primary doses, as opposed to three primary doses, for children immunized before 7 months of age. This particular vaccine is also the Hib component in the combination Hib and hepatitis B vaccine, which is widely used in Los Angeles County. For this reason, the assessment of Hib coverage levels at 7, 13, 19, and 24 months is based upon the schedule for the vaccine requiring two primary doses.

**Figure 3. Estimated vaccination coverage with individual vaccines by age, Los Angeles County, National Immunization Survey, 2004.**



\*Measles-Mumps-Rubella vaccine; previous reports of vaccination coverage were for measles-containing vaccine (MCV).

In this graph, all vaccines except PCV are graphed using the vertical axis on the left. The low coverage rates for PCV are most likely due to the fact that it is a relatively new vaccine and there have been periodic shortages since its licensure in 2000. For DTaP, poliovirus, and hepatitis B vaccines, coverage estimates peaked at 13 months of age. Coverage estimates for

Hib, varicella, MMR, and PCV increased at each successive age milestone after 13 months. At 24 months of age, there were similar coverage estimates for five of the seven vaccines. DTaP and PCV had lower coverage levels than the other vaccines.

The increase in DTaP/DTP vaccine coverage levels from 65% at 7 months to 90% at 13 months implies a delay in children getting the third dose of the vaccine. Similarly, the change from a 69% coverage level at 19 months to an 82% coverage level at 24 months implies that children are also late in receiving their fourth dose of DTaP/DTP vaccine.

V. Healthy People 2010 Objectives and Los Angeles County Status

**Table 8. Immunization objectives for Healthy People 2010, target coverage levels vs. Los Angeles County NIS estimates for 2004, and the Los Angeles County average NIS estimate for a 5-year period.**

Healthy People 2010 Objective	Healthy People 2010 Target (%)	Los Angeles County Estimate (%), 2004	Previous 5-year average (%), Los Angeles County (1999-2003)
<b>Increase in and Maintenance of Vaccination Coverage Levels Among Children Aged 19 to 35 Months</b>			
DTaP 4 doses	90	85.2	83.9
Hib 3 doses	90	90.8	90.8
Hep B 3 doses	90	91.8	90.8
MMR 1 dose	90	94.1	92.7
polio 3 doses	90	93.1	90.5
varicella 1 dose	90	89.7	86.8
<b>Increase in Coverage Levels of Universally Recommended Vaccines</b>			
Children aged 19 to 35 months who receive the recommended vaccines (4:3:1:3:3*)	80	80.1	76.4

\* Four doses of DTaP/DTP, three doses of poliovirus vaccine, one dose of MMR, three doses of Hib, and three doses of hepatitis B vaccine.

The national 90% vaccination goal for children 19 to 35 months of age was achieved for three doses of Hib vaccine, three or more doses of hepatitis B vaccine, one or more doses of MMR, and three or more doses of polio vaccine, which was also the case in the 2003 NIS. The Healthy People 2010 goal of 80% was also achieved for the 4:3:1:3:3 series. LAC has not reached the Healthy People 2010 target levels for four or more doses of DTaP and 1 dose of varicella vaccine but both vaccines have shown increases in coverage levels in 2004 when compared to the previous 5-year average.

**Table 9. Immunization objectives for Healthy People 2010, target coverage levels vs. Los Angeles County coverage estimates at 24 month age milestone from different data sources.**

Healthy People 2010 Objective	Healthy People 2010 Target (%)	Clinic Audits 2004 DHS <sup>1</sup> Facilities (% children 24-35 months in 2004)	Clinic Audits 2004 CHC <sup>2</sup> Facilities (% children 24-35 months in 2004)	NIS <sup>3</sup> 2004 (% Children 19-35 months in 2004)
Increase in and Maintenance of Vaccination Coverage Levels Among Children Aged 19 to 35 Months				
DTaP 4 doses	90	70.8	85.1	85.2
Hib 3 doses	90	83.2	92.8	90.8
Hep B 3 doses	90	82.1	92.4	91.8
MMR 1 dose	90	85.7	92.2	94.1
polio 3 doses	90	86.6	94.6	93.1
varicella 1 dose	90	84.2	89.9	89.7
Increase in Coverage Levels of Universally Recommended Vaccines Among Children Aged 19 to 35 Months				
4:3:1:3:3 <sup>4</sup>	80	63.7	79.6	80.1
4:3:1 <sup>5</sup>	N/A	67.5	81.9	83.6

<sup>1</sup> LAC Department of Health Services health centers and hospitals.

<sup>2</sup> Community Health Centers (non-profit healthcare providers that receive immunization subvention contract funds).

<sup>3</sup> National Immunization Survey, random-digit telephone survey conducted by the Centers for Disease Control and Prevention National Immunization Program.

<sup>4</sup> Four doses of DTaP/DTP, three doses of poliovirus vaccine, one dose of MMR, three doses of Hib, and three doses of hepatitis B vaccine.

<sup>5</sup> Four doses of DTaP/DTP, three doses of poliovirus vaccine, one dose of MMR.

Clinic record audits of children 24-35 months of age are conducted yearly at public pediatric clinics and select non-profit health care providers in order to measure vaccine coverage rates of children seeking immunization services at these facilities. Estimates reported in the National Immunization Survey are more similar to the CHC facility estimates from the 2004 clinic audits than the estimates determined in the DHS facilities. A probable explanation for this finding is because the NIS is a population-based survey and there are few DHS facilities in proportion to the size of the LAC population, the probability of sampling a child who obtained immunizations in the public sector is low.

## **Discussion**

### Summary

Through annual surveys like the NIS, LAC Immunization Program will continue to monitor our progress in achieving our vaccination goals. With a 4% increase in 2004, PCV coverage levels continue to improve. Although there was a slight drop in coverage estimates for MMR and Hib, LAC still met the Healthy People 2010 goal of 90% for each antigen. Varicella vaccine coverage experienced a 5.8% decrease, which delays LAC from reaching the Healthy People 2010 varicella vaccine coverage goal of 90%.

### Limitations

The NIS provides overall vaccination coverage estimates for Los Angeles County. Because of the sample size and survey technique, the data cannot be analyzed for smaller geographic regions or specific communities. The NIS is useful for monitoring overall trends in the county but is limited in its ability to assist communities in assessing their immunization needs.

### Further Information

Complete results of the 2004 NIS are available at [www.cdc.gov/nip/coverage/default.htm](http://www.cdc.gov/nip/coverage/default.htm).