



Background

In April 1994, the Centers for Disease Control and Prevention (CDC), sponsored by the National Center for Immunization and Respiratory Disease and the National Center for Health Statistics, initiated the National Immunization Survey (NIS). The NIS was established to provide a standardized method to monitor progress toward meeting national immunization goals. The NIS for children produces estimates of vaccination coverage levels at selected age milestones for the national, state, and 17 local jurisdictions, including Los Angeles County (LAC). The CDC initiated the NIS-Teen in 2006 and the NIS-Adult in 2007 to measure national coverage of select teen and adult vaccinations. The NIS is conducted for the CDC by the National Opinion Research Center (NORC). Results of the NIS are summarized and posted annually on the CDC website.

Objective

The primary objective of the National Immunization Survey is to monitor LAC's progress toward the national goal of a 90% vaccine coverage level for preschool aged children and a 90% coverage level of select vaccines for teens by the year 2010.

Note: NIS-Teen and NIS-Adult data are not available at the county level.

Methods

NIS-Children

Eligibility

- Households with children 19-35 months of age (i.e. children who were born between February 2004 and May 2006).

Sample Design

- Data are collected from quarterly telephone surveys.
- The sample is identified through 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 information:
 - 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.
 - 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-Children, provided the parent/guardian gives consent.
- The influenza vaccination-coverage measures are based upon a subset of children included in the 2008 NIS. Only those children who were aged 6-23 months during the entire period of September-December 2007 and who had provider-reported immunization records are included.

NIS-Teen

Sample Design and Data Collection

NIS-Teen, conducted since 2006, is similar to the NIS-Children sample design. NIS-Teen produces estimates of vaccination coverage levels for adolescents aged 13-17 years in the 50 states and selected local areas. Data are collected using a random-digit-dialed sample of household telephone numbers. After parents/guardians grant permission, surveys are mailed to all of the adolescents' vaccination providers identified by the parents/guardians to obtain vaccination histories.

Results

Results from the 2008 survey are grouped into the following categories:

NIS-Children

- 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 Vaccines 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.
- VI. Estimated Vaccination Coverage for Influenza.

NIS- Teen

- VII. Vaccination Coverage Among U.S. Teens.

NIS-Children

I. Sampling and Response Rates

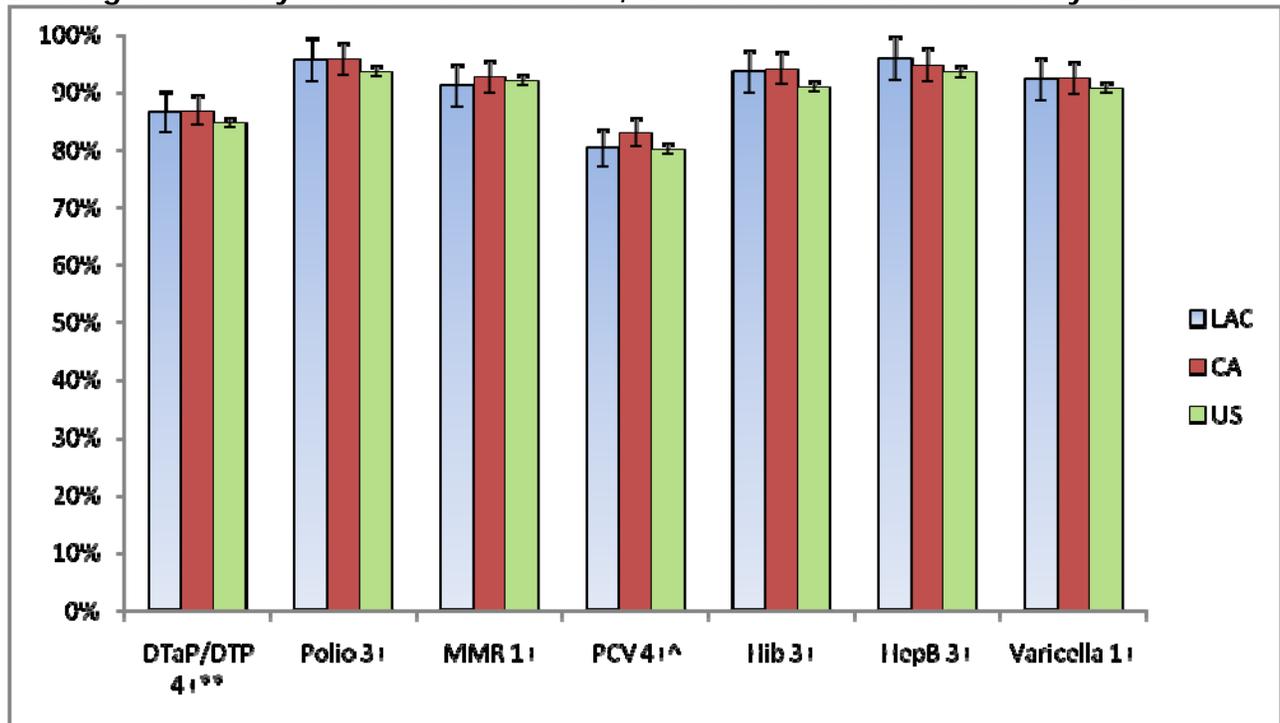
Table 1. Number of eligible households and children with completed interviews and adequate provider data for the United States (U.S.) and Los Angeles County (LAC), National Immunization Survey – 2008.

	United States	Los Angeles County
Households		
Number eligible	29,678	575
Number with completed interviews (%)	25,251 (85.1)	450 (78.3)
Children		
Number with completed interviews	25,948	462
Completed interviews and adequate provider data (%)	18,430 (71.0)	291 (63.0)

- In 2008, LAC's NIS-Children household response rate was slightly below the national rate.
 - Of the 575 households that were eligible for inclusion, 450 (78.3%) completed interviews, 8.0% below the national level and 6.9% below the 2007 level.
- The percent of completed child interviews with adequate provider data in LAC slightly improved from 2007 (by 1.3%) but remained below the national level.
 - The 450 household interviews resulted in 462 completed interviews on children in the eligible age-range. Of these 462 children, 291 (63.0%) had adequate provider data. This proportion is 11.3% below the national rate.

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

Figure 1. Estimated vaccination coverage levels among children 19-35 months of age, Los Angeles County and the United States, National Immunization Survey – 2008*.



LAC	86.5±4.3^^	95.6±2.4	91.1±3.6	80.2±5.1	93.5±2.9	95.8±2.3	92.2±3.2
CA	86.8 ± 3.5	95.7 ± 2.0	92.7±2.8	83.0±3.9	94.1±2.3	94.7±2.5	92.4±2.7
US	84.6 ± 1.0	93.6 ± 0.6	92.1±0.7	80.1±1.1	90.9±0.7	93.5±0.7	90.7±0.7

* The lines at the top of each bar represent confidence intervals of the estimated coverage levels.

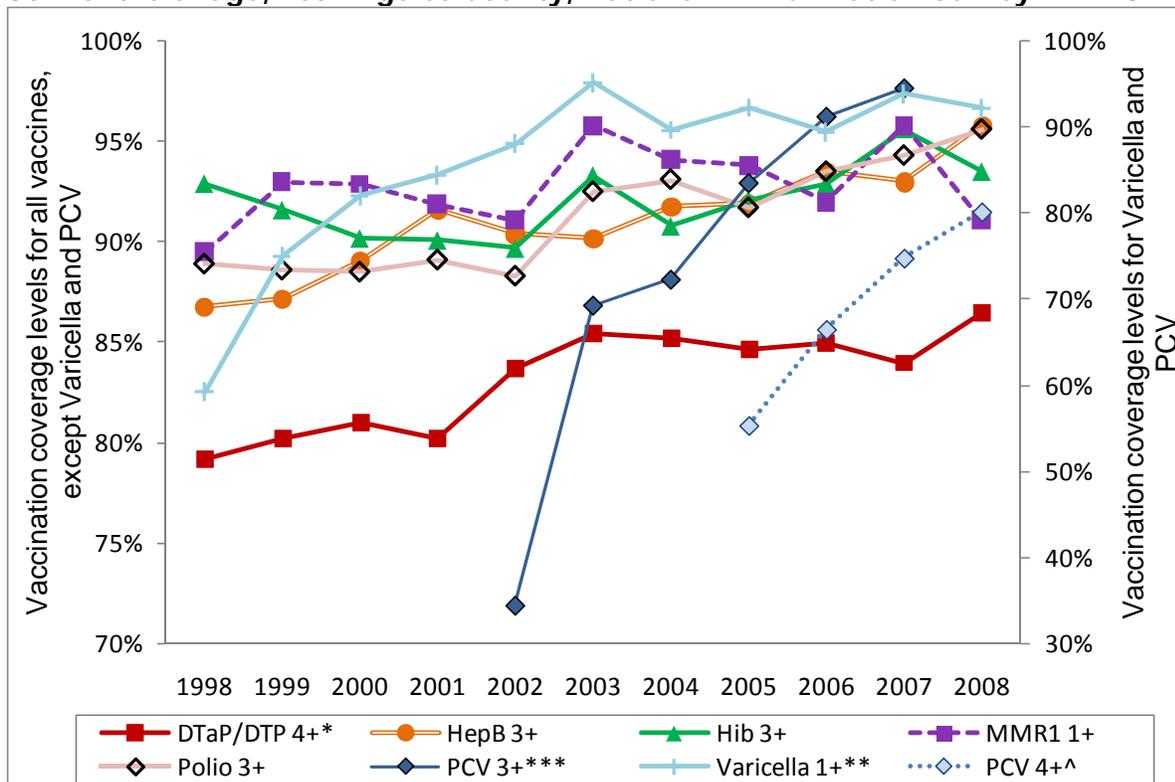
** DTaP/DTP represents doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP). DTaP is the vaccine of choice for children 6 weeks through 6 years of age. Pediatric DT is recommended for children with valid contraindications to pertussis vaccine. DTP has not been used in the U.S. since 2002.

^ NIS discontinued reporting three or more doses of pneumococcal conjugate vaccine (PCV) coverage for children aged 19-35 months of age at the local level in 2008.

^^ Coverage level is presented as % ± 95% confidence interval.

- In 2008, LAC exceeded most of the national antigen-specific immunization coverage levels (range: 0.1% - 2.9% above national levels).
 - The only antigen-specific coverage level in which LAC was slightly below the national level was the first dose of MMR, 1.1% below the national level.
- With the exception of the third dose of Hep B, LAC was slightly below the state antigen-specific immunization coverage levels in 2008.
 - The largest variation in coverage between LAC and the State was for PCV 4+; LAC's coverage was 3.4% below the state level.
 - LAC coverage level for Hep B 3+ was 1.2% above the state level.

Figure 2. Estimated vaccination coverage with individual vaccines among children 19-35 months of age, Los Angeles County, National Immunization Survey – 1998-2008.



* DTaP/DTP represents doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP). DTaP is the vaccine of choice for children 6 weeks through 6 years of age. Pediatric DT is recommended for children with valid contraindications to pertussis vaccine. DTP has not been used in the U.S. since 2002.

** 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. NIS discontinued reporting PCV 3+ coverage for the local level in 2008.

^ NIS began reporting PCV 4+ coverage in 2005.

- In 2008, three or more doses of Polio, three or more doses of Hep B, and three or more doses of Hib ranked as the top three highest coverage levels.
 - Polio 3+ coverage rose for the third consecutive year to 95.6% in 2008.
 - Following a decline in 2007, coverage for Hep B 3+ rose 3.0% to 95.8% in 2008.
 - Although, coverage of Hib 3+ decreased 2.2% from 2007, Hib 3+ continued to rank in the top three coverage levels in 2008.
- Although the fourth dose of DTaP has one of the lowest coverage levels over the last 10 years, DTaP 4+ reached its highest coverage level in 2008, 86.5%.
- Three antigen specific coverage levels declined between 2007 and 2008, the first dose of MMR, the third dose of Hib, and the first dose of varicella.
 - MMR 1+ fell 4.9% to 91.1%, its lowest coverage level since 2002.
 - Varicella 1+ decreased slightly to 92.2% in 2008.
- Coverage for PCV continued to increase between 2007 and 2008.
 - Among the antigen-specific coverage levels, the fourth dose of PCV experienced the biggest increase in coverage between 2007 and 2008. PCV4+ increased 7.2% to 80.2%.
 - The low coverage for the third dose of PCV in 2002 was most likely due to a vaccine shortage.

Table 2. Estimated vaccination coverage levels for children 19-35 months of age, Los Angeles County, National Immunization Survey – 1998-2008.

Year	4:3:1:3:3 series ¹	4:3:1:3:3:1 series ²	4:3:1:3:3:1:4 series ³
	% ± 95% CI ⁴	% ± 95% CI	% ± 95% CI
1998	70.5 ± 6.3	-	-
1999	71.0 ± 6.0	-	-
2000	72.6 ± 5.4	-	-
2001	71.6 ± 5.5	-	-
2002	76.0 ± 5.9	72.3 ± 6.1 ⁵	-
2003	80.3 ± 5.4	79.1 ± 5.5	-
2004	80.1 ± 5.5	76.6 ± 5.8	-
2005	79.0 ± 5.8	77.9 ± 5.9	-
2006	81.3 ± 5.7	78.5 ± 5.9	-
2007	80.3 ± 5.7	78.0 ± 5.9	65.0 ± 6.7 ⁵
2008 ⁶	78.6 ± 5.1	76.2 ± 5.3	67.6 ± 5.9

¹ 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.

² 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, three or more doses of hepatitis B vaccine, and one or more doses of varicella vaccine.

³ 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, three or more doses of hepatitis B vaccine, one or more doses of varicella vaccine, and four or more doses of pneumococcal conjugate vaccine (PCV).

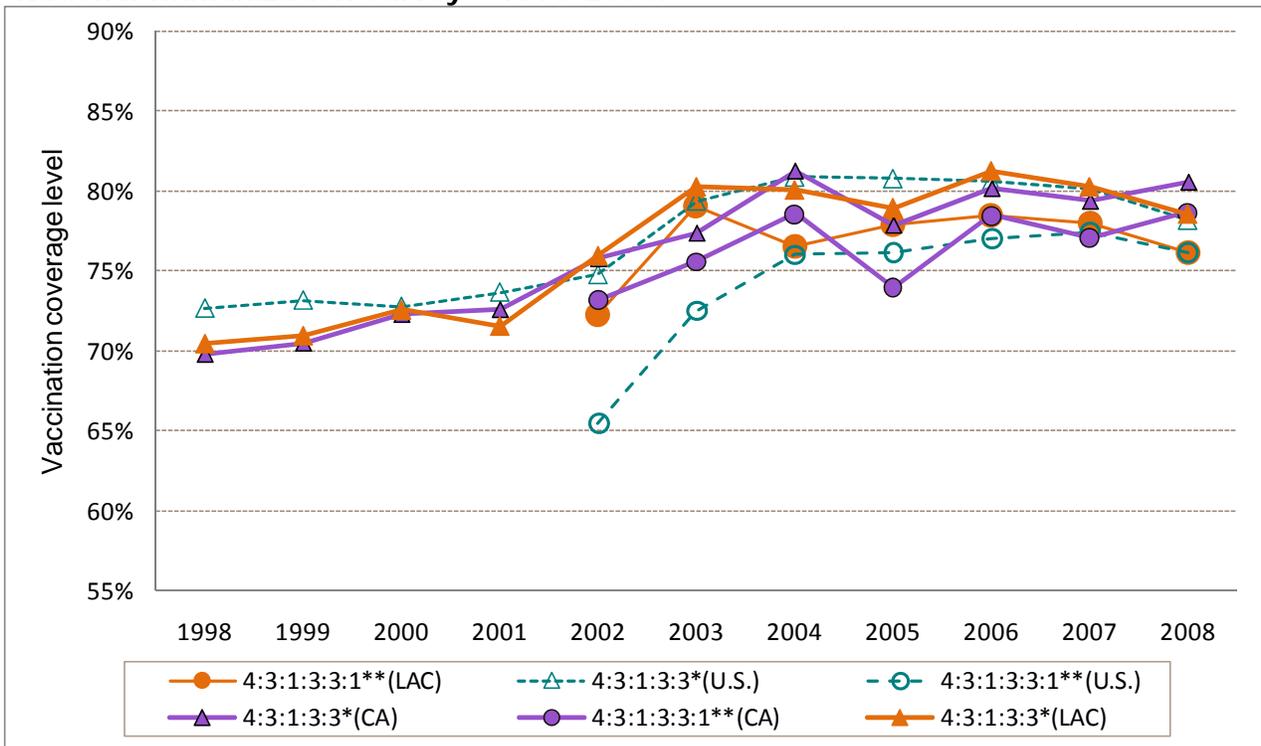
⁴ Confidence interval.

⁵ First year series estimates were collected.

⁶ NIS did not report the 4:3:1:3 (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) series coverage estimates in 2008.

- LAC’s coverage estimate for the 4:3:1:3:3:1:4 series increased 4.0% between 2007 and 2008 to 67.6%.
- In 2008, coverage estimates for both the 4:3:1:3:3 and the 4:3:1:3:3:1 series declined for the second year.
 - While the 4:3:1:3:3 series coverage has increased 10.3% over the last decade, in 2008 the series coverage dropped slightly to 78.6%.
 - The 4:3:1:3:3:1 series coverage decreased slightly, 2.4%, from 2007 to 2008.

Figure 3. Estimated vaccination coverage levels with selected vaccination series among children 19-35 months of age, Los Angeles County and the United States, National Immunization Survey – 1998-2008.



* 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.

** 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, 3 or more doses of hepatitis B vaccine, and one or more doses or varicella vaccine.

- Since 2002, LAC has matched or exceeded national vaccination series coverage levels.
 - From 2004 to 2008, LAC levels were within 2.4% of national coverage levels.
- LAC has maintained series coverage levels similar to the state levels for the last decade.
 - Since 2006, LAC vaccination series coverage levels were within 3.2% of the state coverage levels.
- In 2008, LAC’s series coverage levels surpassed the national level but fell slightly below the state levels.
 - The LAC’s 4:3:1:3:3 series coverage was 78.6% in 2008, 0.5% above the national level and 2.5% below the state level.
 - The LAC’s 4:3:1:3:3:1 series coverage reached 76.2%, 0.1% above the national level and 3.2% below the state level.
- Estimated coverage levels for each series are typically lower than the estimated coverage levels for the individual vaccines. Delaying the fourth dose of DTaP is the primary reason for the low vaccine coverage levels for the 4:3:1:3:3 and 4:3:1:3:3:1 series.

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

IIIa. Comparison of series vaccination coverage levels for Los Angeles County and other urban areas.

- In 2008, LAC’s 4:3:1:3:3:1 series coverage, at 76.2% (95% Confidence Interval(CI): 70.9% to 81.5%), was similar to the average coverage level for urban areas, at 76.4% (95% CI: 70.3% to 82.5%).
- Compared to other California regions, at 76.2%, LAC 4:3:1:3:3:1 series coverage was above Northern California’s (68.5%; 95% CI: 62.0% to 75.0%) and below Santa Clara County’s (80.9%; 95% CI: 74.2% to 87.6%) and the rest of the state’s (79.9%; 95% CI: 74.0% to 85.8%) coverage level.

IIIb. Race/Ethnicity

Table 3. Estimated vaccination coverage levels by race/ethnicity among children 19-35 months of age, Los Angeles County, National Immunization Survey – 2008.

	DTaP 4+ ¹	Polio 3+	MMR 1+	Hib 3+	Hep B 3+	Varicella 1+	PCV 4+	4:3:1:3:3 ²
White	89.9 ±7.6	93.8 ±5.4	91.2 ±7.2	93.5 ±5.3	95.1 ±4.8	93.7 ±5.2	88.5 ±7.8	84.6 ±8.7
Black	-- ³	-- ³	-- ³	-- ³	-- ³	-- ³	-- ³	-- ³
Hispanic	85.1 ±5.5	96.6 ±2.5	90.7 ±4.7	92.3 ±3.9	95.3 ±3.1	91.9 ±4.1	75.4 ±6.9	76.8 ±6.5
Asian	89.8 ±9.8	96.9 ±4.3	91.3 ±7.0	93.3 ±7.9	-- ³	91.9 ±8.1	-- ³	-- ³

¹ DTaP/DPT represents doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP). DTaP is the vaccine of choice for children 6 weeks through 6 years of age. Pediatric DT is recommended for children with valid contraindications to pertussis vaccine. DTP has not been used in the U.S. since 2002.

² 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.

³ Coverage estimates were not calculated because of insufficient sample size.

- Although there were no statistically significant differences between race-specific vaccine coverage estimates, Non-Hispanic Whites tended to have the highest antigen-specific and series coverage levels, followed by Asians and Hispanics.

IIIc. Poverty Level

- Although both antigen-specific and vaccination series coverage estimates were lower for children living below the poverty level compared with children living at or above the poverty level in LAC, none of the differences were statistically significant (data not shown).
 - Although not significant, the biggest disparity in coverage between children living below poverty and children who are not in 2008 was coverage for the fourth dose of PCV and the 4:3:1:3:3:1:4 series coverage. Children not in poverty had a 9.9% higher coverage level for PCV4+ and a 8.4% higher coverage level for the 4:3:1:3:3:1:4 series.

IV. Estimated Vaccination Coverage with Individual Vaccines by Age Milestone

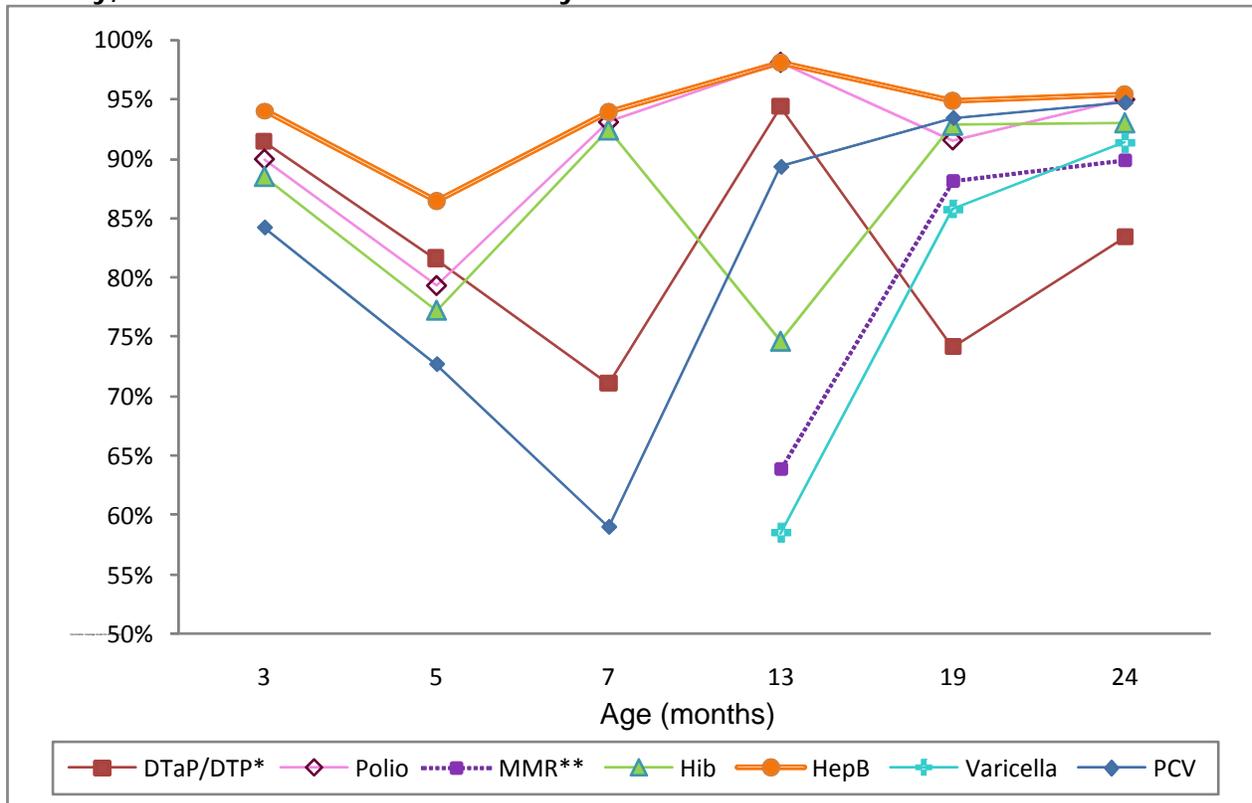
Table 4. Required number of doses of individual vaccines at 3, 5, 7, 13, 19 and 24 months of age.

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 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 the table above.

Note: 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 4. Estimated vaccination coverage with individual vaccines by age, Los Angeles County, National Immunization Survey – 2008.



* DTaP/DTP represents doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP). DTaP is the vaccine of choice for children 6 weeks through 6 years of age. Pediatric DT is recommended for children with valid contraindications to pertussis vaccine. DTP has not been used in the U.S. since 2002.

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

- Coverage levels by age milestone for antigen-specific vaccines varied. However, by the 24-month milestone, most antigen-specific vaccines achieved similar coverage estimates (range: 89.8%-95.4%). The exception was DTaP which had a considerably lower coverage level at 83.4%.
- Hep B consistently has the highest coverage level at each age milestone. Coverage peaked at the 13-month age milestone at 98.1% for two doses of Hep B and reached 95.4% at the 24-month age milestone for three doses of Hep B.
- Trends in coverage levels by age milestone may reflect the variation in the dose schedule of each antigen-specific vaccine.
 - Drops in coverage levels occur when an additional dose for the antigen-specific vaccine is required. DTaP, the only vaccine that requires four doses by 19 months, had the lowest coverage levels at the 19 month and 24 month milestones when the fourth dose is required.
- PCV had the lowest coverage at the 3, 5 and 7 months but caught up to most other antigen specific coverage levels by 19 months. PCV is a relatively new vaccine and has experienced periodic shortages since its licensure in 2000 attributing to its low coverage rate.

Table 5. Estimated vaccination coverage levels for children at the 24-month age milestone, Los Angeles County, National Immunization Survey – 1998-2008.

Year	4:3:1:3 series ¹	4:3:1:3:3 series ²	4:3:1:3:3:1 series ³
	% ± 95% CI ⁴	% ± 95% CI	% ± 95% CI
1998	74.2 ± 7.0	67.6 ± 7.5	-
1999	78.3 ± 6.3	72.3 ± 6.8	-
2000	81.3 ± 5.4	77.3 ± 5.9	-
2001	73.7 ± 6.5	72.2 ± 6.7	-
2002	75.9 ± 7.7	74.0 ± 7.8	71.8 ± 7.8 ⁵
2003	81.5 ± 6.4	77.5 ± 7.0	75.8 ± 7.1
2004	77.2 ± 7.2	76.4 ± 7.3	74.7 ± 7.4
2005	81.1 ± 6.8	78.5 ± 7.2	76.5 ± 7.5
2006	79.7 ± 5.8	78.9 ± 5.8	77.2 ± 5.9
2007	78.2 ± 5.9	77.1 ± 6.0	76.7 ± 6.1
2008	77.3 ± 5.3	76.2 ± 5.3	73.7 ± 5.5

¹ 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.

² 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.

³ 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, three or more doses of hepatitis B vaccine, and one or more doses of varicella vaccine.

⁴ Confidence interval.

⁵ 2002 is the first year estimates for the 4:3:1:3:3:1 series were collected.

- Similar to the series coverage levels for the total NIS sample (children aged 19-35 months), the 4:3:1:3:3 and 4:3:1:3:3:1 series coverage levels for the 24-month age milestone declined slightly from 2007 to 2008.
 - The 2008 4:3:1:3:3 and 4:3:1:3:3:1 series coverage levels decreased 1.2% and 4.1% respectively from 2007.
 - The 24-month age milestone series coverage levels were approximately 3% below coverage for children aged 19-35 months reflecting the older age group included in the total NIS sample.

V. *Healthy People 2010* Objectives and Los Angeles County Status

Table 6. Immunization objectives for *Healthy People 2010*, target coverage levels vs. Los Angeles County coverage estimates from different data sources.

	<i>Healthy People 2010 Target (%)</i>	NIS LAC Estimate 2008 (%)	NIS previous 5-Year Average 2003-2007 (%)	Clinic Audits 2008 DHS ¹ Facilities (%)	Clinic Audits 2008 CHC ² Facilities (%)	Fall Assessment 2008 (%)
Age of Enrollees		19-35 months	19-35 months	24-35 months	24-35 months	24-59 months
<i>Healthy People 2010 Objective #1:</i>						
Increase in and Maintenance of Vaccination Coverage Levels for Among Enrollees Aged 19 to 35 Months						
4 doses DTaP	90	86.5	84.9	53.2	71.1	93.4
3 doses HiB	90	93.5	92.9	81.6	89.2	--
3 doses Hep B	90	95.8	92.1	80.3	87.4	96.4
1 dose MMR	90	91.1	94.3	75.9	86.6	97.2
3 doses polio	90	95.6	93.0	80.9	89.6	94.1
1 dose varicella	90	92.2	92.1	71.8	83.4	97.0
<i>Healthy People 2010 Objective #2:</i>						
Increase in Coverage Levels of Universally Recommended Vaccines Among Children Aged 19 to 35 Months						
4:3:1:3:3 ³	80	78.6	80.2	50.6	68.0	--

¹ LAC Department of Health Services health centers and hospitals.

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

³ 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.

- Based on the 2008 NIS estimates, LAC has achieved most of the *Healthy People 2010* targets. Coverage ranged between 1.2% and 6.4% above the antigen-specific target levels.
 - The exceptions were the DTaP 4+ coverage which was 3.9% below the 90% target level and the 4:3:1:3:3 series coverage which was 1.8% below the 80% target level.
- NIS demonstrated higher coverage levels than the clinics, but placed below the Fall Assessment levels for most coverage levels.
 - High Fall Assessment coverage levels may reflect the older age group of the sample. The Fall Assessment includes children between 24-59 months of age whereas NIS includes children between 19-35 months.
 - The disparity in coverage between NIS and CHC may be the product of variations in healthcare providers. NIS encompasses all households and provider types while CHC only includes enrollees whose care is given by non-profit healthcare providers that receive immunization contract funds.

VI. Estimated Vaccine Coverage for Seasonal Influenza

Table 7. Seasonal influenza vaccination coverage levels for September-December 2007 among children aged 6-23 months, Los Angeles County and the United States, National Immunization Survey.¹

	Seasonal Influenza Vaccination Coverage Levels	
	≥ 1 dose(s)	Fully Vaccinated ²
U.S. National	40.7%	23.4%
California	44.5%	21.9%
Los Angeles County	40.8%	21.6%
Northern Counties	20.8%	9.6%
Santa Clara County	51.6% ³	40.9%
Rest of State	45.8%	21.1%

¹ n=1286 (unweighted) The influenza vaccination-coverage measures are based upon a subset of children included in the 2008 NIS. Only those children who were aged 6-23 months during the entire period of September-December 2007 and who had provider-reported immunization records are included.

² Fully vaccinated is defined as: 1) receipt of 2 doses from September 1, 2007, through the date of interview or January 31, 2008 (whichever was earlier) among influenza vaccine naïve children and children who received 1 dose for the first time in the previous influenza season, or 2) received 1 dose of influenza vaccine from September 1, 2007 through December 31, 2007 among all other children.

³ Estimate might not be reliable; confidence interval width >20.0.

- At the regional level, there was considerable variation in seasonal influenza vaccination coverage levels.
 - For both one or more doses of influenza vaccination and percent fully vaccinated, LAC had similar coverage levels as the rest of the state, was below coverage levels for Santa Clara County, but was above the coverage levels of the northern counties.
- LAC had similar seasonal influenza vaccine coverage levels to the national and state levels.
 - For one or more doses of influenza vaccination, LAC, at 40.8%, had a similar coverage level as the U.S. (0.2% above the national level) but slightly below the State (8.3% below the state level).
 - For the percent fully vaccinated, LAC, at 21.6%, had a coverage level slightly below the U.S. (7.7% below the national level) but had a similar coverage level as the State (1.4% below the state level).

NIS-Teen

VII. Vaccination Coverage Among U.S. Teens

**Table 8. Estimated vaccination coverage among adolescents aged 13-17 years.¹
National Immunization Survey – 2008.**

	NIS 2008 National Coverage (<i>Healthy People 2010 Target²</i>)				
	≥ 1 Td or Tdap ³	≥ 1 Tdap ⁴	≥ 1 MCV4 ⁵	≥ 1 HPV4 ⁶	≥ 3 HPV4
U.S. National	72.2 (90%)	40.8	41.8	37.2	17.9
California	71.3 (90%)	43.7	48.0	46.6	22.1

¹ Adolescents in the 2008 NIS-Teen were born during January 1990 - February 1996. Vaccination coverage estimates include only adolescents who had adequately complete provider-reported immunization records.

² Target for adolescents aged 13-15 years.

³ Includes ≥ 1 dose of tetanus toxoid-diphtheria vaccine (Td) or tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) since the age of ten years.

⁴ Tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) since the age of ten years.

⁵ Includes percentages receiving meningococcal conjugate vaccine (MCV4) and meningococcal -unknown type vaccine.

⁶ Quadrivalent human papillomavirus vaccine. Percentages reported among females only (n=8,607); HPV4 vaccine is not recommended for males.

- In 2008, California exceeded national coverage levels for meningococcal conjugate vaccine (MCV4) and human papillomavirus vaccines (HPV4) for adolescents aged 13-17 years.
 - The State coverage for one or more doses of MCV4, one or more doses of HPV4, and three or more doses of HPV4 exceeded national levels by 12.9%, 20.2%, and 19.0% respectively.
- The U.S. and the State had a similar coverage level for one or more doses of Td/Tdap. The State was only 1.3% below the national level.
- Both the U.S. and the State was approximately 20% below the Healthy People 2010 target coverage level of 90% for one or more doses of the tetanus-diphtheria booster.

Discussion

NIS-Child

The National Immunization Survey provides an essential tool for LAC in monitoring immunization trends and detecting changes in coverage levels. According to the NIS 2008 statistics, LAC has met or exceeded most of the *Healthy People 2010* targets and most national levels. Nevertheless coverage for the fourth dose of DTaP is still below the 2010 target, 3.9% below target in 2008. However DTaP 4+ coverage increased 3% between 2007 and 2008 to 86.5%, its highest coverage level to date. The second coverage level that did not meet the *2010* target was the 4:3:1:3:3 series which, at 78.6%, exceeded the national level but failed to reach the 80% target.

Similar coverage trends were observed in the 2008 Fall Assessment. The Fall Assessment, which evaluated immunization coverage from the population of children enrolled in licensed preschools and kindergartens, also found declines in coverage levels. In the Fall Assessment, although the percent of children up-to-date with immunizations for kindergarten enrollees remained stable, the number of children up-to-date for preschool enrollees decreased 2.3%. In the NIS, coverage for the 4:3:1:3:3 and 4:3:1:3:3:1 series both declined by a similar percentage (2.2% and 2.4% respectively). Additionally, in the Fall Assessment, all antigen-specific coverage for preschools and kindergartens declined between 1% and 2%. NIS also showed declines in antigen-specific coverage levels for Hib, MMR, and varicella. However, NIS also showed slight increases in Polio, HepB, DTaP, and PCV coverage levels.

Because of the slight declines in coverage, public health efforts continue to focus on maintaining and improving coverage levels, especially as the number of vaccine preventable disease (VPD) cases in the US continued to persist in 2008. A number of confirmed case(s) of measles, mumps, pertussis, and varicella occurred locally in 2008. Additionally, 132 measles cases were reported nationally in 2008, the largest number since 1997. Eighty nine percent of cases were imported or associated with an imported case; and 91% of cases were in persons who were unvaccinated (primarily due to personal or religious belief exemptions) or of unknown vaccination status. According to the CDC, the increase in the number of cases of measles in 2008 was not a result of a greater number of imported measles cases, but a result of more measles transmission after the virus was imported. The importation-associated cases occurred largely among school-aged children who were eligible for vaccination but whose parents chose not to have them vaccinated.¹

Limitations

The NIS provides overall vaccination coverage estimates for Los Angeles County. Because of the sample size and survey methodology, 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 2008 NIS are available at www.cdc.gov/vaccines/stats-surv/default.htm.

References:

1. Centers for Disease Control and Prevention. Epidemiology and Prevention of Vaccine-Preventable Diseases. 11th ed. Washington DC: Public Health Foundation, 2009.