



**COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
IMMUNIZATION PROGRAM
KINDERGARTEN RETROSPECTIVE SURVEY, 2008
JUNE 2009**

Background

The Kindergarten Retrospective Survey (KRS) is an annual survey conducted by the State of California that provides state and regional estimates of vaccination coverage among kindergarten enrollees at significant age milestones and by race/ethnicity.

Methods

Approximately 3% (n=264) of all California kindergarten schools were randomly selected. Every sixth immunization record was selected at each sampled school. Collected data included kindergarten enrollee's date of birth, vaccination dates, and race/ethnicity.

Key Results

The 2008 Kindergarten Retrospective Survey results are grouped into three categories:

- I. Study Population
- II. Series Coverage Results by Race/Ethnicity and Region
- III. Coverage by Age Milestone and Race/Ethnicity

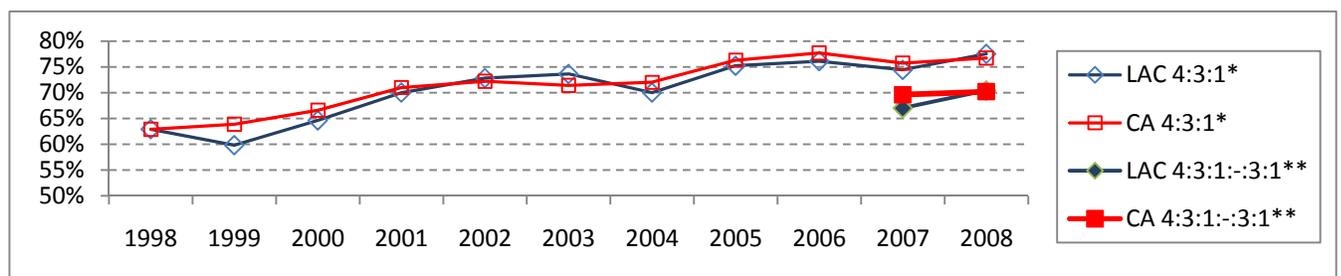
Note: Not all results or differences that are presented are statistically significant.

I. Study Population

- The 2008 Los Angeles County (LAC) sample represented 30.6% (n=789) of the state's total sample of 2,577 children.
 - LAC representation in the state's total sample in 2008 (30.6%) was slightly above the previous 5-year average of 29.0% (n=718).
- The children sampled in 2008 were born between 2001 and 2003; thus this report presents the vaccination coverage assessment of children who were 4-6 years of age in 2008 or 24 months of age in 2004-2005.

II. Series Coverage Results by Race/Ethnicity and Region

Figure 1. Estimated vaccination coverage at 24 months of age, Los Angeles County vs. California, KRS 1998-2008.



* ≥ 4 doses of DTaP/DT, ≥ 3 doses of polio, ≥ 1 dose(s) of MMR vaccines.

** ≥ 4 doses of DTaP/DT, ≥ 3 doses of polio, ≥ 1 dose(s) of MMR, ≥ 3 doses of Hep B, and ≥ 1 dose(s) of varicella vaccines.

Note: DTaP/DT represents doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP/DT). 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.

- In 2008, Los Angeles County and the State had similar coverage levels for the 4:3:1:-:3:1 series coverage estimate at 24 months of age, 70.4% and 70.2% respectively.
- California and LAC 4:3:1 series coverage levels have paralleled each other since 1998, although California levels are commonly higher than LAC levels. Between 2007 and 2008, both California and LAC 4:3:1 coverage increased 1.3% and 4.2% to 76.7% and 77.5%, respectively.

Table 1. Vaccination coverage estimates for the 4:3:1--:3:1 series¹ at 24 months of age by race/ethnicity² and region³, KRS 2008.

	California ⁴ (N=2,577)	LAC ⁵ (N=789)	Other SoCal ⁶ (N=602)	SF Bay Area ⁷ (N=532)	Central Coast ⁸ (N=141)	Central Valley ⁹ (N=209)	North Central Valley ¹⁰ (N=223)	Rural NorCal ¹¹ (N=81)
Overall	70.2 ± 2.1	70.4 ± 3.8	71.3 ± 3.9	74.7 ± 5.8	75.6 ±10.1	62.2 ± 6.8	66.7 ± 5.0	60.2 ± 15.7
African-American (n=313)	60.7 ± 9.0	57.3 ± 10.1	63.9	69.0	– ¹²	– ¹²	64.7	– ¹²
Asian (n=204)	71.7 ± 8.4	60.4 ± 19.4	76.2	84.0	– ¹²	– ¹²	51.5	– ¹²
Hispanic (n=1,062)	72.2 ± 3.3	72.4 ± 5.2	74.2	77.6	76.1	64.4	68.1	65.2
White (n=731)	66.9 ± 3.4	68.7 ± 8.2	64.2	63.6	80.4	61.6	70.4	59.5
Other (n=110)	72.2 ± 9.0	– ¹²	– ¹²	– ¹²	– ¹²	– ¹²	– ¹²	– ¹²
Unknown (n=157)	79.9 ± 6.8	– ¹²	– ¹²	– ¹²	– ¹²	– ¹²	– ¹²	– ¹²

¹ ≥ 4 doses of DTaP/DT, ≥ 3 doses of polio, ≥ 1 dose(s) of MMR, ≥ 3 doses of Hep B, and ≥ 1 dose(s) of varicella vaccines.

² As recorded on student immunization record (blue card). Individual racial groups do not include Hispanic children. Children of Hispanic ethnicity may be of any race.

³ Regions do not exactly match Field Rep assigned regions.

⁴ California includes all regions.

⁵ Los Angeles includes Los Angeles County.

⁶ Other So. California includes Imperial, Orange, Riverside, San Bernardino, and San Diego Counties.

⁷ SF Bay Area includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties.

⁸ Central Coast includes Monterey, San Luis Obispo, Santa Barbara, Santa Cruz, and Ventura Counties.

⁹ Central Valley includes Fresno, Kern, Kings, Madera, Merced, and Tulare Counties.

¹⁰ No. Central Valley includes Sacramento, San Joaquin, and Stanislaus Counties.

¹¹ Rural No. California includes Alpine, Amador, Butte, Calaveras, Colusa, Del Norte, El Dorado, Glenn, Humboldt, Inyo, Lake, Lassen, Mariposa, Mendocino, Modoc, Mono, Nevada, Placer, Plumas, San Benito, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Tuolumne, Yolo, and Yuba Counties.

¹² Inadequate sample size to calculate coverage estimates.

Note: DTaP/DT represents doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP/DT). 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.

- LAC showed adequate results when ranked against the six other state regions, LAC ranked fourth for 4:3:1--:3:1 series at 70.4% (95% CI: 66.6% - 74.2%).
- LAC African-American kindergarten enrollees had the lowest 4:3:1--:3:1 coverage level (57.3%) relative to other ethnic groups within LAC, and the lowest coverage level for African-Americans compared to the other sampled regions in the State.
- Among Asians, LAC had the second lowest 4:3:1--:3:1 coverage level (60.4%) compared to the other regions in the State.
- LAC Hispanic kindergarten enrollees had the highest 4:3:1--:3:1 coverage level (72.4%), relative to other ethnic groups within LAC. However, LAC had the fourth lowest 4:3:1--:3:1 coverage level among Hispanics when ranked against the other California regions.
- Among Whites, LAC ranked third for the 4:3:1--:3:1 coverage level (68.7%) below the Central Coast (80.4%) and the North Central Valley (70.4%).

Table 2. Vaccination coverage estimates at 24 months of age by region and antigen, KRS 2008.

	California ¹ (N=2,577)	LAC (N=789)	Other SoCal ² (N=602)	SF Bay Area ³ (N=532)	Central Coast ⁴ (N=141)	Central Valley ⁵ (N=209)	North Central Valley ⁶ (N=223)	Rural NorCal ⁷ (N=81)
4:3:1:-:3:1 series ⁸	70.2 ± 2.1	70.4 ± 3.8	71.3 ± 3.9	74.7 ± 5.8	75.6 ±10.1	62.2 ± 6.8	66.7 ± 5.0	60.2 ± 15.7
4:3:1:-:3 series ⁹	74.1 ± 2.0	73.9 ± 3.8	75.0 ± 3.3	80.4 ± 5.3	76.3 ± 10.4	63.3 ± 6.2	73.0 ± 5.1	67.4 ± 12.2
DTaP/DT (4+)	79.4	80.7	79.1	85.1	79.3	68.1	79.0	76.7
Polio (3+)	91.7	92.4	91.6	93.5	93.1	88.5	89.9	88.4
MMR (1+)	92.3	92.6	92.2	94.7	93.6	88.8	92.2	86.4
Hep B (3+)	90.1	89.0	91.1	91.9	93.1	86.7	89.2	89.8
Varicella (1+)	87.2	88.6	87.1	86.7	89.5	85.9	85.3	81.5
Hib (1+)	_10	_10	_10	_10	_10	_10	_10	_10

¹ California includes all regions.

² Other So. California includes Imperial, Orange, Riverside, San Bernardino, and San Diego Counties.

³ SF Bay Area includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties.

⁴ Central Coast includes Monterey, San Luis Obispo, Santa Barbara, Santa Cruz, and Ventura Counties.

⁵ Central Valley includes Fresno, Kern, Kings, Madera, Merced, and Tulare Counties.

⁶ North Central Valley includes Sacramento, San Joaquin, and Stanislaus Counties.

⁷ Rural No. California includes Alpine, Amador, Butte, Calaveras, Colusa, Del Norte, El Dorado, Glenn, Humboldt, Inyo, Lake, Lassen, Mariposa, Mendocino, Modoc, Mono, Nevada, Placer, Plumas, San Benito, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Tuolumne, Yolo, and Yuba Counties.

⁸ ≥ 4 doses of DTaP/DT, ≥ 3 doses of polio, ≥ 1 dose(s) of MMR, ≥ 3 doses of Hep B, and ≥ 1 dose(s) of varicella vaccines.

⁹ ≥ 4 doses of DTaP/DT, ≥ 3 doses of polio, ≥ 1 dose(s) of MMR, ≥ 3 doses of Hep B vaccines.

¹⁰ Not estimated for Kindergarten students.

Note: DTaP/DT represents doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP/DT). 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.

- When ranking the seven sampled regions by their antigen-specific coverage levels at 24 months of age, LAC kindergarten enrollees ranked second for DTaP/DT 4+ and Varicella, third for Polio 3+ and MMR 1+, fourth for the 4:3:1:-:3 and 4:3:1:-:3:1 series, and sixth for Hep 3+ coverage.

III. Coverage by Age Milestone and Race/Ethnicity

Figure 2. Estimated vaccination coverage with recommended vaccines by age among African-Americans, Los Angeles County KRS 2004-2008.

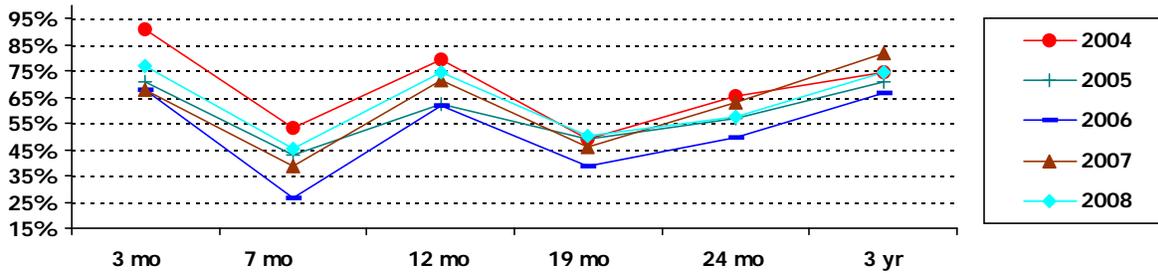


Figure 3. Estimated vaccination coverage with recommended vaccines by age among Whites, Los Angeles County KRS 2004-2008.

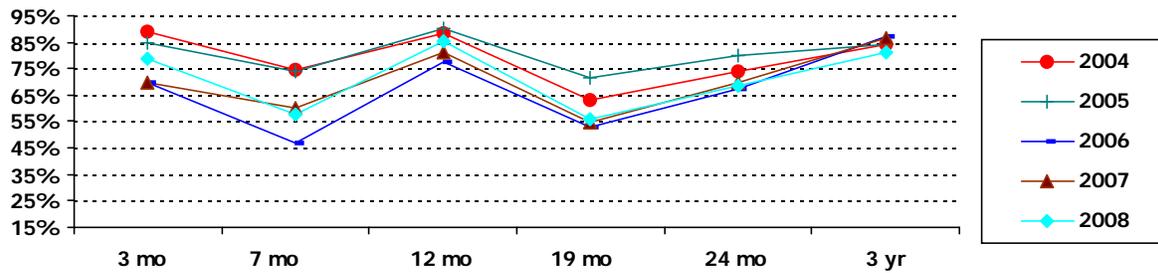


Figure 4. Estimated vaccination coverage with recommended vaccines by age among Hispanics, Los Angeles County KRS 2004-2008.

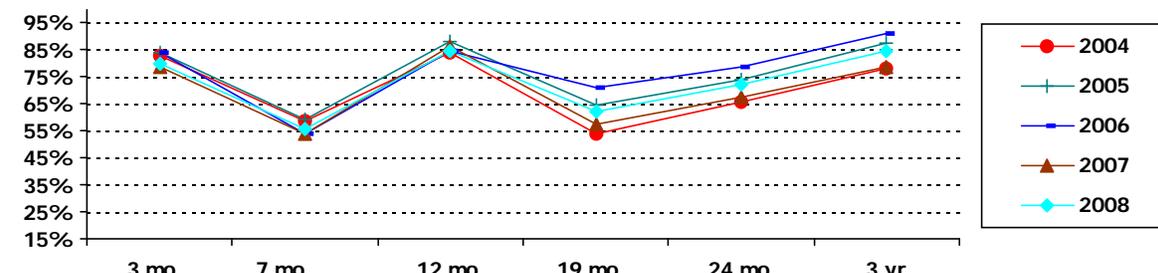
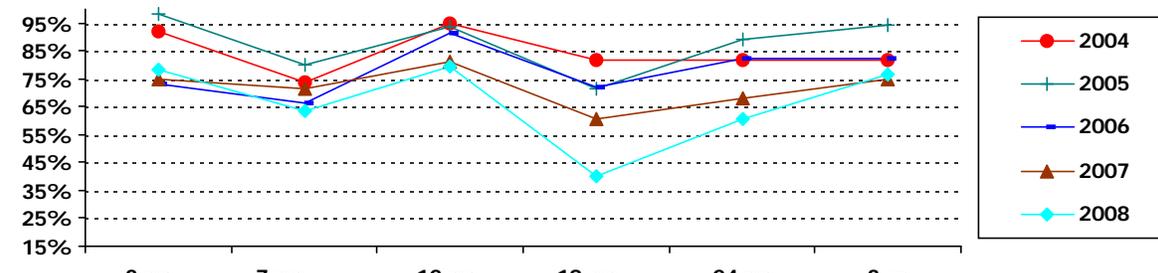


Figure 5. Estimated vaccination coverage with recommended vaccines by age among Asians, Los Angeles County KRS 2004-2008.



Note#1: Between 2004-2006, the recommended coverage by age milestone was: 3 months- ≥ 1 dose(s) of DTaP/DT and ≥ 1 dose(s) of Polio; 7 months - ≥ 3 doses of DTaP/DT and ≥ 2 doses of Polio; 12 months- ≥ 3 doses of DTaP/DT and ≥ 2 doses of Polio; 19 months, 24 months, and 3 years - ≥ 4 doses of DTaP/DT, ≥ 3 doses of polio, and ≥ 1 dose(s) of MMR vaccines. For 2007, the recommended coverage was: 3 months- ≥ 1 dose(s) of DTaP/DT, ≥ 1 dose(s) of Polio, ≥ 1 dose(s) of Hep B; 7 months - ≥ 3 doses of DTaP/DT, ≥ 2 doses of Polio, ≥ 2 doses of Hep B, 12 months- ≥ 3 doses of DTaP, ≥ 2 doses of Polio, ≥ 2 doses of Hep B; 19 months, 24 months, and 3 years - ≥ 4 doses of DTaP/DT, ≥ 3 doses of polio, ≥ 1 dose(s) of MMR, ≥ 3 doses of Hep B, ≥ 1 dose(s) of varicella vaccines.

Note#2: DTaP/DT represents doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP/DT). 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.

Table 3. Vaccination coverage estimates at age milestones by race/ethnicity, California vs. Los Angeles County, KRS 2008.

	3 mo		7 mo		12 mo		13 mo		19 mo		24 mo				3 yr			
	1DTaP/DT 1Polio 1HepB		3DTaP/DT 2Polio 2HepB		3DTaP/DT 2Polio 2HepB		3:2:1:-:2:1 series ¹		4:3:1:-:3:1 series ²		4:3:1:-:3 series ³		4:3:1:-:3:1 series ²		4:3:1:-:3 series ³		4:3:1:-:3:1 series ²	
	LAC	CA	LAC	CA	LAC	CA	LAC	CA	LAC	CA	LAC	CA	LAC	CA	LAC	CA	LAC	CA
Overall	80.1 ± 3.5	78.6 ± 1.9	56.4 ± 5.1	58.4 ± 2.6	84.1 ± 3.6	84.5 ± 1.8	48.3 ± 3.8	43.0 ± 2.6	58.8 ± 4.1	59.2 ± 2.2	73.9 ± 3.8	74.1 ± 2.0	70.4 ± 3.8	70.2 ± 2.1	86.0 ± 2.6	85.4 ± 1.6	83.5 ± 2.8	81.9 ± 1.9
African-American	77.2	73.5	45.4	41.4	74.4	77.2	45.2	35.3	50.3	48.9	61.0	62.8	57.3	60.7	76.2	78.3	74.2	77.0
Asian	78.5	77.3	63.6	67.7	79.6	83.7	47.2	38.7	39.9	60.1	70.5	76.3	60.4	71.7	83.1	85.7	76.4	81.8
Hispanic	80.0	79.9	55.9	56.8	84.6	85.5	48.3	46.9	62.3	62.0	75.2	74.9	72.4	72.2	87.0	87.1	84.8	84.2
White	78.8	77.0	57.9	58.4	85.6	84.1	47.0	40.5	56.0	56.5	73.6	72.7	68.7	66.9	84.9	83.4	81.3	78.4
Other	94.6	81.7	60.1	66.6	95.2	89.0	59.4	36.5	59.5	61.3	76.1	75.8	76.1	72.2	100	88.9	100	84.1
Unknown	84.6	82.3	73.9	69.6	92.8	85.1	53.9	46.4	61.1	60.8	89.9	82.8	86.9	79.9	92.8	88.5	92.8	86.8

¹ ≥ 3 doses of DTaP/DT, ≥ 2 doses of polio, ≥ 1 dose(s) of MMR, ≥ 2 doses of Hep B, and ≥ 1 dose(s) of varicella vaccines.

² ≥ 4 doses of DTaP/DT, ≥ 3 doses of polio, ≥ 1 dose(s) of MMR, ≥ 3 doses of Hep B, and ≥ 1 dose(s) of varicella vaccines.

³ ≥ 4 doses of DTaP/DT, ≥ 3 doses of polio, ≥ 1 dose(s) of MMR, ≥ 3 doses of Hep B vaccines.

Note: DTaP/DT represents doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP/DT). 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.

- All race/ethnicity group coverage estimates peaked at the 3-month, 12-month, and 3-year age milestones.
 - African-Americans reached their highest recommended coverage level at the 3-month age milestone. Asians and Whites reached their highest coverage level at the 12-month milestone; and Hispanics at the 3-year age milestone.
- Hispanics had the highest recommended coverage levels for most age milestones. The exceptions were coverage at the 7-month and 12-month age milestones in which Asians and Whites had the highest coverage levels respectively.
- With the exception of the 19-month age milestone, African-Americans had the lowest recommended coverage levels compared to the other three race/ethnicity groups.
- Overall, LAC coverage estimates were similar to the State's coverage estimates for each age milestone.
 - With the exception of the 13-month age milestone, LAC was within 3% of California's coverage levels.
- LAC had adequate coverage levels by race and ethnicity, compared to the State's levels.
 - Among Whites, LAC estimates were slightly higher at all age milestones with the exception of the 7-month and 19-month age milestones.
 - Hispanics in LAC had higher estimates for the 3-month, 13-month, 19-month, 24-month, and 36-month age milestones than the State coverage estimates.

- African Americans in LAC had higher coverage estimates than California overall at the 3-month, 7-month, 13-month, and 19-month age milestones.
- Asians in LAC had higher coverage estimates for the 3-month and 13-month age milestones only.