



COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
IMMUNIZATION PROGRAM
KINDERGARTEN RETROSPECTIVE SURVEY, 2007
AUGUST 2008

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.

Methods

Approximately 3% (n=248) 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 2007 Kindergarten Retrospective Survey results are grouped into four categories:

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

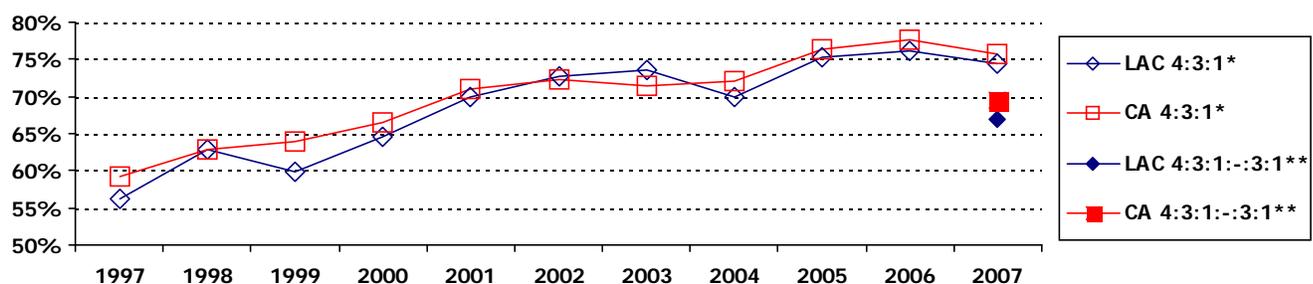
Note: Not all results or differences that are presented are statistically significant.

I. Study Population

- The 2007 Los Angeles County (LAC) sample represented 31.5% (n=767) of the state's total sample of 2,438 children.
 - LAC representation in the state's total sample in 2007 (31.5%) was slightly above the previous 5-year average of 28.0% (n=689).
- The children sampled in 2007 were born between 2000 and 2002; thus this report presents the vaccination coverage assessment of children who were 4-6 years of age in 2007 or 24 months of age in 2003-2004.

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 1997-2007.



* ≥ 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.

- California's 4:3:1:-:3:1 series coverage estimate at 24 months of age in 2007 (69.6%) was 4% higher than that of LAC (67.0%).
- California and LAC 4:3:1 series coverage levels have paralleled each other since 1997, although California levels are commonly higher than LAC levels. In 2007, California and LAC experienced their first decline in 4:3:1 coverage in 3 years, dropping 2% and 3% from 2006 to 75.7% and 74.4% 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 2007.

	California ⁴ (N=2,438)	LAC ⁵ (N=767)	Other SoCal ⁶ (N=612)	SF Bay Area ⁷ (N=466)	Central Coast ⁸ (N=93)	Central Valley ⁹ (N=190)	North Central Valley ¹⁰ (N=199)	Rural NorCal ¹¹ (N=111)
Overall	69.6 ± 2.3	67.0 ± 3.8	72.0 ± 4.3	75.2 ± 6.3	69.7 ±10.8	68.3 ± 9.0	61.0 ± 9.4	69.0 ± 6.0
African-American (n=346)	66.3 ± 8.8	62.8 ± 16.9	70.4	61.4	– ¹²	– ¹²	59.8	– ¹²
Asian (n=223)	74.5 ± 7.1	68.1 ± 17.0	73.2	84.6	– ¹²	– ¹²	77.9	– ¹²
Hispanic (n=1080)	69.2 ± 2.7	67.4 ± 3.7	71.8	74.1	76.0	69.3	55.3	– ¹²
White (n=541)	70.5 ± 4.7	69.9 ± 10.1	71.9	78.8	55.5	71.4	60.8	– ¹²
Other (n=106)	70.1 ± 12.2	– ¹²	– ¹²	– ¹²	– ¹²	– ¹²	– ¹²	– ¹²
Unknown (n=142)	63.2 ± 11.9	– 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 modest results when ranked against the seven other state regions: LAC ranked sixth for 4:3:1--:3:1 series at 67.0% (95% CI: 63.2-70.8).
- LAC African-American kindergarten enrollees had the lowest 4:3:1--:3:1 coverage level (62.8%), relative to other ethnic groups within LAC. However, LAC had the second highest coverage level for African-Americans compared to the other sampled regions in the state.
- Among Asians, LAC had the lowest 4:3:1--:3:1 coverage level (68.1%) compared to the other regions in the state.
- Among Whites, LAC had a 4:3:1--:3:1 coverage level (69.9%) below the San Francisco Bay Area (78.8%), other Southern California Regions (71.9%), and the Central Valley (71.4%).
- LAC had the second lowest 4:3:1--:3:1 coverage level among Hispanics (67.4%), ranking below the Central Coast (76.0%), the San Francisco Bay Area (74.1%), other Southern California Regions (71.8%), and the Central Valley (69.3%).

Table 2. Vaccination coverage estimates at 24 months of age by region and antigen, KRS 2007.

	California ¹ (N=2,438)	LAC (N=767)	Other SoCal ² (N=612)	SF Bay Area ³ (N=466)	Central Coast ⁴ (N=93)	Central Valley ⁵ (N=190)	North Central Valley ⁶ (N=199)	Rural NorCal ⁷ (N=111)
4:3:1:-:3:1 series ⁸	69.6 ± 2.3	67.0 ± 3.8	72.0 ± 4.2	75.2 ± 6.3	69.7 ± 10.8	68.3 ± 9.0	61.0 ± 9.4	69.0 ± 6.0
4:3:1:-:3 series ⁹	73.2 ± 2.2	71.0 ± 3.4	75.7 ± 4.1	79.1 ± 5.7	70.2 ± 10.9	71.8 ± 7.5	64.9 ± 9.6	72.5 ± 4.8
DTaP/DT (4+)	78.8	78.8	81.0	82.3	76.0	75.6	71.6	76.2
Polio (3+)	90.5	91.7	91.2	91.3	84.4	88.6	84.7	96.7
MMR (1+)	92.4	93.5	93.5	92.3	91.0	94.3	82.7	93.0
Hep B (3+)	89.8	88.2	90.2	91.6	86.1	92.6	88.2	92.2
Varicella (1+)	84.8	84.4	85.4	87.0	87.9	86.9	76.1	83.4
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 vaccines.

⁹ ≥ 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.

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 MMR 1 and Polio, third for DTaP/DT 4+, fifth for the 4:3:1:-:3 series, Hep B 3+, and varicella, and sixth for the 4:3:1:-:3:1 series 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 2003-2007.

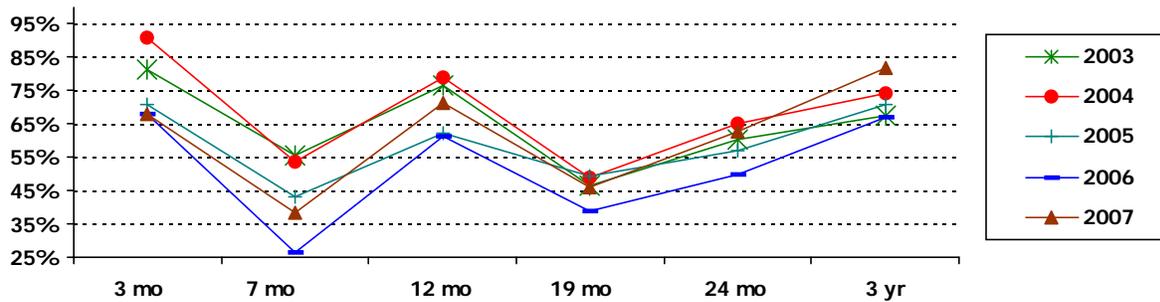


Figure 3. Estimated vaccination coverage with recommended vaccines by age among Whites, Los Angeles County KRS 2003-2007.

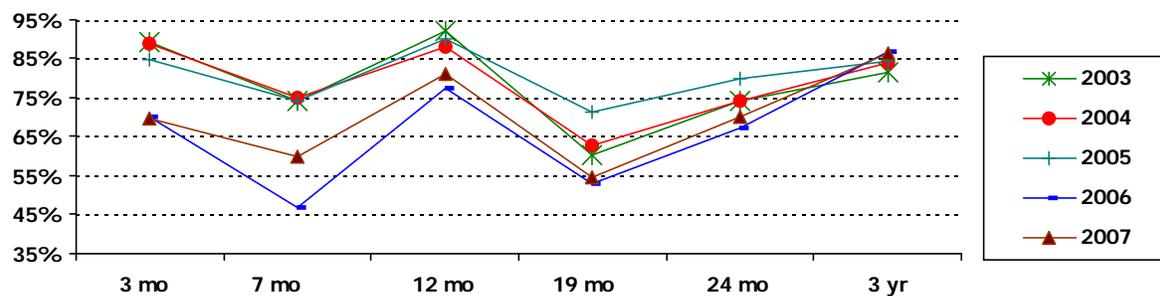


Figure 4. Estimated vaccination coverage with recommended vaccines by age among Hispanics, Los Angeles County KRS 2003-2007.

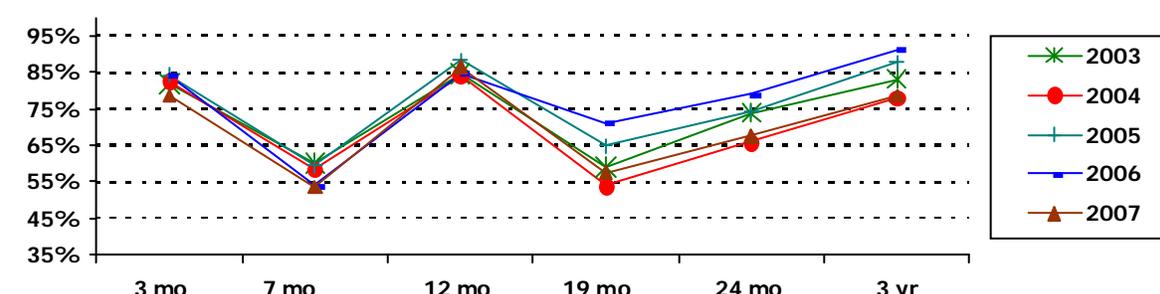
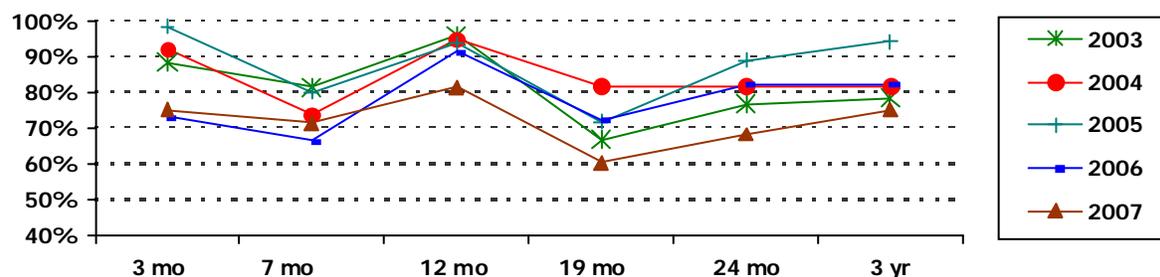


Figure 5. Estimated vaccination coverage with recommended vaccines by age among Asians, Los Angeles County KRS 2003-2007.



Note#1: Between 2003-2006, 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) 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 2007.

	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	75.8 ± 4.0	78.1 ± 2.2	55.0 ± 4.2	57.1 ± 3.0	83.2 ± 3.1	84.1 ± 2.0	41.7 ± 3.9	38.5 ± 2.8	55.7 ± 4.8	55.5 ± 2.8	71.1 ± 3.5	73.2 ± 2.2	67.1 ± 3.8	69.6 ± 2.3	83.2 ± 4.0	84.9 ± 1.9	79.2 ± 3.5	81.0 ± 2.1
African-American	68.1	71.6	38.4	37.7	71.2	75.8	32.1	28.3	46.0	48.7	64.6	70.3	62.8	66.3	82.4	81.5	81.7	79.2
Asian	75.0	82.4	71.4	73.2	81.2	86.9	42.4	41.2	60.4	64.6	69.5	78.4	68.3	74.5	75.6	87.2	75.1	84.7
Hispanic	78.5	79.3	53.7	54.7	86.3	85.3	45.6	41.8	57.5	56.5	72.0	72.7	67.5	69.2	84.3	85.3	78.6	80.2
White	69.7	77.1	59.9	59.2	81.1	84.6	30.5	34.5	54.5	53.9	75.8	74.6	69.9	70.5	86.3	85.5	86.3	82.5
Other	56.1	80.1	56.1	69.3	65.6	86.6	9.4	38.1	31.2	52.5	49.4	73.7	48.5	70.1	76.1	86.0	75.2	84.9
Unknown	65.3	70.7	52.8	54.8	54.0	72.1	25.7	35.4	21.3	48.3	64.5	64.3	63.5	63.2	76.0	76.8	76.0	73.4

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, except for Whites who peaked at the 12-month, 24-month, and 3-year age milestones.
- African-Americans and Whites reached their highest recommended coverage levels at the 3-year age milestone. Asians and Hispanics reached their highest coverage levels at the 12-month milestone.
- With the exception of the 7-month milestone, Asians and Hispanics had the highest recommended coverage levels from the 3-month to the 19-month age milestones. However, at the 24-month and 3-year age milestones Whites had the highest coverage levels.
- Overall, LAC coverage estimates are lower than California at each age milestone except for 13-month and 19-month milestones. However, LAC exceeded CA coverage levels in many race and ethnicity groups.
 - Among Whites, LAC estimates were slightly higher at the 7-month, 19-month, and 3-year age milestones.
 - Hispanics in LAC had higher estimates for the 12-month, 13-month, and 19-month age milestones.
 - African Americans in LAC had higher coverage estimates than California overall at the 7-month, 13-month, and 3-year age milestones.
 - Asians in LAC had lower coverage estimates for all age milestones except for the 13-month milestone.