



**COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES**  
**IMMUNIZATION PROGRAM**  
**KINDERGARTEN RETROSPECTIVE SURVEY, 2005**  
**AUGUST 2006**

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## **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=224) 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** (Note: Not all results or differences that are presented are statistically significant.)

The 2005 Los Angeles County (LAC) sample represented 33.90% (n=902) of the state's total sample of 2,660 children. This sample size increased from the 2004 survey (n=507) because more schools with larger student populations were randomly selected this year. A majority of the children sampled in 2005 were born in 1999; thus this report presents the vaccination coverage assessment of children who were 5-6 years of age in 2005 or 24 months of age in 2001-2002.

Ranking the seven sampled regions in the state by their 4:3:1 coverage level at 24 months of age (4 doses of diphtheria-tetanus-pertussis (DTP) vaccine, 3 doses of polio vaccine, and 1 dose of measles-mumps-rubella (MMR) vaccine), LAC had the third lowest coverage level of 75.2% (95% CI: 68.9-81.1).

LAC African-American kindergarten enrollees had the lowest 4:3:1 coverage level (57.0%), relative to other ethnic groups in LAC, and the second lowest level overall compared to the other sampled regions in the state (Table 1).

Among Whites, LAC had a 4:3:1 coverage level (79.8%) lower than the Central Coast region (86.4%), the San Francisco Bay Area (85.2%), and the Northern Central Valley (84.2%) (Table 1).

Among Hispanics, LAC had the third highest 4:3:1 coverage level of 74.3%, relative to other regions (Table 1).

Ranking the seven sampled regions by their antigen-specific coverage levels at 24 months of age, LAC kindergarten enrollees were ranked third for MMR 1 and varicella, fifth for DTP 4+ and 4:3:1, fourth for polio 3+, and sixth for Hep B 3+ coverage (Table 2).

California's 4:3:1 coverage estimate at 24 months of age (76.3%) was 1% point higher than that of LAC in 2005 (75.2%) (Figure 1). LAC's 4:3:1 coverage estimate of 75.2% in 2005 is the highest evidenced in the past 10 years (Figure 1).

LAC African-American coverage estimates in 2005 were higher than those of the previous years for the 19-month age milestone only. Compared to the 2004 assessment, LAC African-American coverage estimates decreased in all other age milestones in 2005 (Figure 2).

LAC coverage estimates in 2005 for Whites were higher than those of the previous years for the 19-month (71.4%), 24-month (79.8%) and 3-year age (84.3%) milestones. Compared to the 2004 assessment, LAC coverage estimates in 2005 among Whites at 3-months (85.0%), and 7-months (74.1%) decreased by 4.3% and 0.9%, respectively (Figure 3).

LAC coverage estimates in 2005 for Hispanics increased at all age milestones from the previous year (range: 1.7%-20.2%) (Figure 4).

LAC coverage estimates in 2005 for Asians were higher than those of the previous years at the 3-month (98.3%), 7-month (80.1%), 24-month (89.0%) and 3-year age (94.1%) milestones. Compared to the 2004 assessment, LAC coverage estimates for Asians in 2005 at 12 months (93.6%) and 19 months (71.7%) decreased by 1.2%, and 12.1%, respectively (Figure 5).

Overall, LAC coverage estimates are lower than CA at each age milestone except for 19 months. However, among Asians LAC estimates were higher than California at 3 months, 12 months, 24 months and 3 yrs. Among Whites LAC estimates were slightly higher at 7 months, 12 months, 19 months and 24 months. African Americans and Hispanics only had higher LAC estimates compared to California at 19 months (Table 3).

**Table 1. Vaccination coverage estimates for the 4:3:1 series<sup>1</sup> at 24 months of age by race/ethnicity<sup>2</sup> and region<sup>3</sup>, KRS 2005**

	California <sup>4</sup> (N=2,660)	LAC <sup>5</sup> (N=902)	Other SoCal <sup>6</sup> (N=682)	SF Bay Area <sup>7</sup> (N=408)	Central Coast <sup>8</sup> (N=107)	Central Valley <sup>9</sup> (N=219)	North Central Valley <sup>10</sup> (N=242)	Rural NorCal <sup>11</sup> (N=100)
Overall	76.3 ± 2.3	75.2 ± 3.5	77.6 ± 3.9	81.1 ± 4.5	77.7 ± 8.8	68.9 ± 10.8	74.4 ± 10.8	77.3 ± 13.7
African-American (n=288)	57.7 ± 8.1	57.0 ± 13.0	44.9	75.5	– <sup>12</sup>	– <sup>12</sup>	– <sup>12</sup>	– <sup>12</sup>
Asian (n=266)	85.8 ± 4.7	89.0 ± 7.1	86.4	89.0	– <sup>12</sup>	– <sup>12</sup>	70.9	– <sup>12</sup>
Hispanic (n=1125)	74.7 ± 2.9	74.3 ± 4.0	77.9	70.7	71.9	75.1	69.1	– <sup>12</sup>
White (n=715)	78.7 ± 5.1	79.8 ± 9.9	79.8	85.2	86.4	67.6	84.2	72.3
Other (n=166)	76.3 ± 9.1	90.4 ± 10.8	81.4	83.9	– <sup>12</sup>	– <sup>12</sup>	– <sup>12</sup>	– <sup>12</sup>
Unknown (n=100)	78.1 ± 9.9	– <sup>12</sup>	76.5	81.7	– <sup>12</sup>	– <sup>12</sup>	– <sup>12</sup>	– <sup>12</sup>

<sup>1</sup> ≥ 4 doses of DTaP/DT, ≥ 3 doses of polio, ≥ 1 dose(s) of any measles-containing vaccines

<sup>2</sup> 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

<sup>3</sup> Regions do not exactly match Field Rep assigned regions

<sup>4</sup> California includes all regions

<sup>5</sup> Los Angeles includes Los Angeles County

<sup>6</sup> Other So. California includes Imperial, Orange, Riverside, San Bernardino, and San Diego Counties

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

<sup>8</sup> Central Coast includes Monterey, San Luis Obispo, Santa Barbara, Santa Cruz, and Ventura Counties

<sup>9</sup> Central Valley includes Fresno, Kern, Kings, Madera, Merced, and Tulare Counties

<sup>10</sup> No Central Valley includes Sacramento, San Joaquin, and Stanislaus Counties

<sup>11</sup> 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, Yuba

<sup>12</sup> Inadequate sample size to calculate coverage estimates

**Table 2. Vaccination coverage estimates at 24 months of age by region and antigen, KRS 2005**

	California <sup>2</sup> (N=2,660)	LAC (N=902)	Other SoCal <sup>3</sup> (N=682)	SF Bay Area <sup>4</sup> (N=408)	Central Coast <sup>5</sup> (N=107)	Central Valley <sup>6</sup> (N=219)	North Central Valley <sup>7</sup> (N=242)	Rural NorCal <sup>8</sup> (N=100)
4:3:1 series <sup>1</sup>	76.3 ± 2.3	75.2 ± 3.5	77.6 ± 3.9	81.1 ± 4.5	77.7 ± 8.8	68.9 ± 10.8	74.4 ± 10.8	77.3 ± 13.7
DTaP (4+)	78.9	78.1	80.3	82.2	81.1	72.5	75.0	81.6
Polio (3+)	88.7	88.2	87.7	91.0	93.0	89.8	88.2	85.2
MMR (1+)	92.2	93.5	90.8	95.0	93.8	89.5	91.8	89.0
Hep B (3+)	87.9	86.7	89.4	85.9	90.8	87.9	88.4	87.5
Varicella (1+)	77.9	78.4	78.8	82.9	75.8	77.2	73.0	70.6
Hib (1+)	- <sup>9</sup>	- <sup>9</sup>	- <sup>9</sup>	- <sup>9</sup>	- <sup>9</sup>	- <sup>9</sup>	- <sup>9</sup>	- <sup>9</sup>

<sup>1</sup> ≥ 4 doses of DTaP/DT, ≥ 3 doses of polio, ≥ 1 dose(s) of any measles-containing vaccines

<sup>2</sup> California includes all regions

<sup>3</sup> Other So. California includes Imperial, Orange, Riverside, San Bernardino, and San Diego Counties

<sup>4</sup> SF Bay Area includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties

<sup>5</sup> Central Coast includes Monterey, San Luis Obispo, Santa Barbara, Santa Cruz, and Ventura Counties

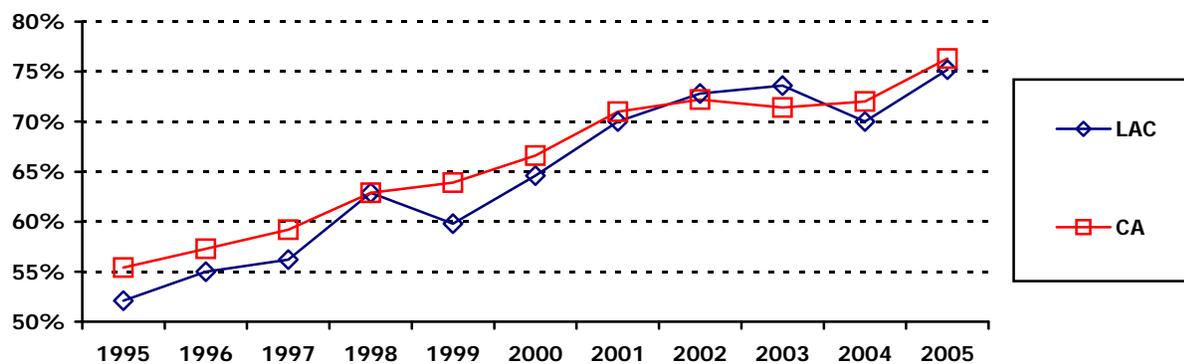
<sup>6</sup> Central Valley includes Fresno, Kern, Kings, Madera, Merced, and Tulare Counties

<sup>7</sup> North Central Valley includes Sacramento, San Joaquin, and Stanislaus Counties

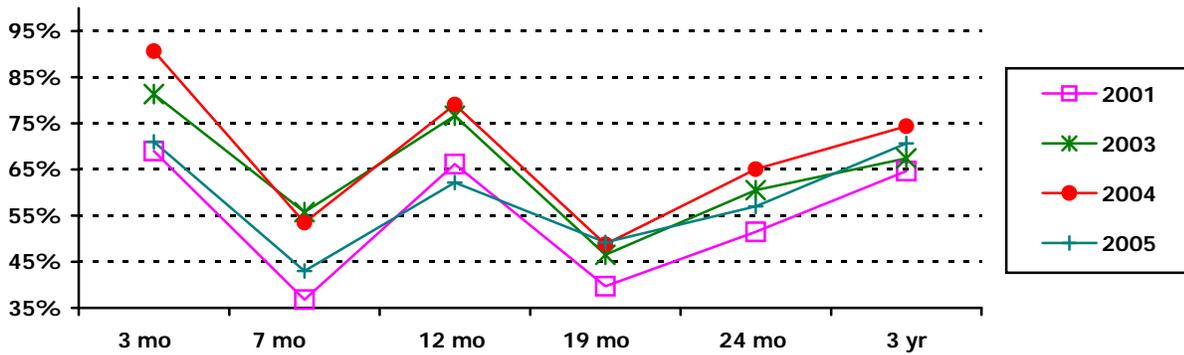
<sup>8</sup> Rural No. California includes Alpine, Amador, Butte, Calaveras, Colusa, Del Norte, El Dorado, Glenn, Humboldt, Inyo, Lake, Lassen, Mariposa, Mendocino, Modoc, Mono, Nevada, Placer, Plumas, San Benito, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Tuolumne, Yolo, and Yuba Counties

<sup>9</sup>Not estimated

**Figure 1. Estimated 4:3:1 vaccination coverage at 24 months of age, Los Angeles County vs. California, KRS 1995-2005**

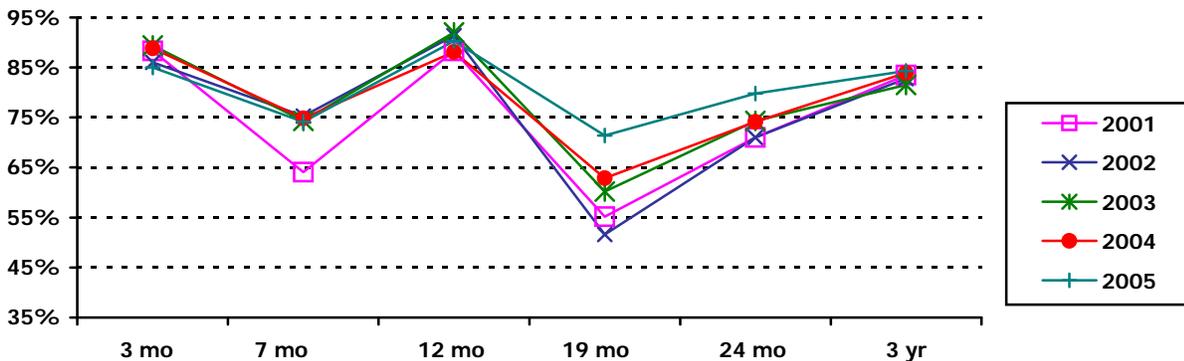


**Figure 2. Estimated vaccination coverage with recommended vaccines by age among African-Americans, Los Angeles County KRS 2001-2005\*\***

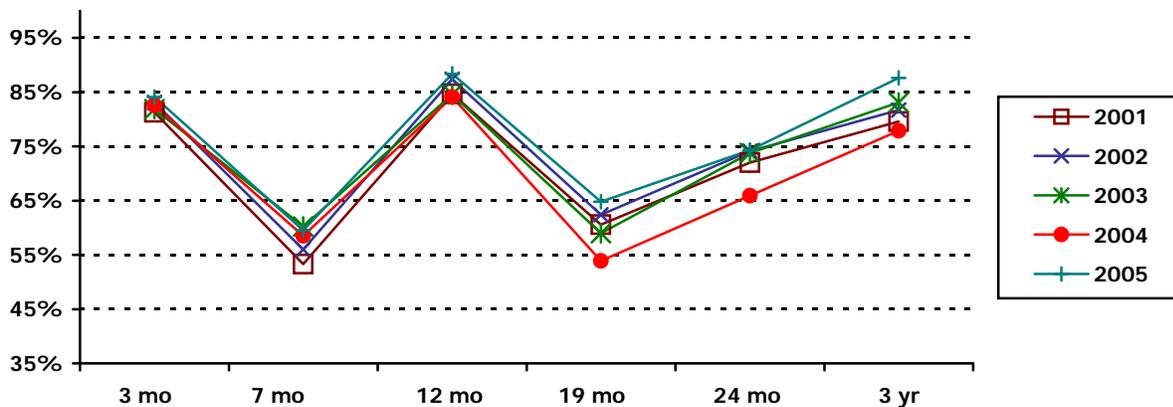


\*\* Inadequate sample size of African Americans in 2002 to calculate coverage estimates

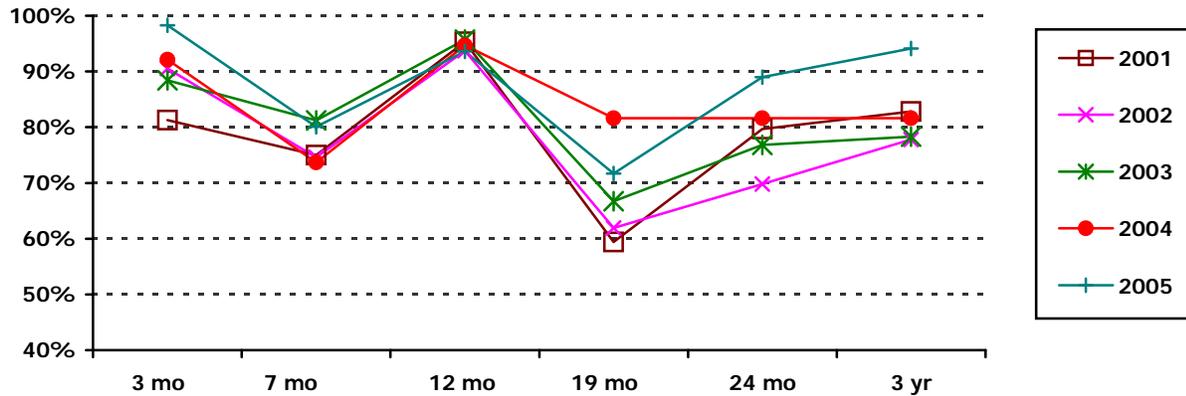
**Figure 3. Estimated vaccination coverage with recommended vaccines by age among Whites, Los Angeles County KRS 2001-2005**



**Figure 4. Estimated vaccination coverage with recommended vaccines by age among Hispanics, Los Angeles County KRS 2001-2005**



**Figure 5. Estimated vaccination coverage with recommended vaccines by age among Asians, Los Angeles County KRS 2001-2005**



**Table 3. Vaccination coverage estimates at age milestones by race/ethnicity, California vs. Los Angeles County, KRS 2005**

	3 mo (1DTP, 1Polio)		7 mo (3DTP, 2Polio)		12 mo (3DTP, 2Polio)		19 mo (4:3:1) <sup>1</sup>		24 mo (4:3:1) <sup>1</sup>		3 yr (4:3:1) <sup>1</sup>	
	LAC	CA	LAC	CA	LAC	CA	LAC	CA	LAC	CA	LAC	CA
Overall	84.3 ± 2.6	86.3 ± 1.6	62.0 ± 4.5	65.3 ± 3.1	87.3 ± 3.4	88.1 ± 1.7	65.3 ± 3.6	64.2 ± 2.0	75.2 ± 3.5	76.3 ± 2.3	86.5 ± 3.7	86.5 ± 2.1
African-American	71.0	73.8	43.0	49.0	62.2	71.2	49.2	47.0	57.0	57.7	70.7	73.4
Asian	98.3	88.9	80.1	81.2	93.6	91.0	71.7	72.8	89.0	85.8	94.1	91.8
Hispanic	84.1	86.1	59.5	60.9	88.4	89.2	64.8	62.8	74.3	74.7	87.6	87.5
White	85.0	88.7	74.1	69.5	90.3	89.5	71.4	66.3	79.8	78.7	84.3	86.2
Other	79.0	83.8	68.0	63.6	97.8	87.1	79.4	65.3	90.4	76.3	95.5	84.4
Unknown	- <sup>2</sup>	83.9	- <sup>2</sup>	71.5	- <sup>2</sup>	83.5	- <sup>2</sup>	66.2	- <sup>2</sup>	78.1	- <sup>2</sup>	89.5

<sup>1</sup> ≥ 4 doses of DTaP/DT, ≥ 3 doses of polio, ≥ 1 dose(s) of any measles-containing vaccines

<sup>2</sup> Percents are not calculated (< 25 children)