

2005 KINDERGARTEN RETROSPECTIVE SURVEY RESULTS  
CALIFORNIA DEPARTMENT OF HEALTH SERVICES, IMMUNIZATION BRANCH

### Introduction

The annual Kindergarten Retrospective Survey (KRS) is a primary source of information about childhood immunization coverage in California. This survey provides state and regional estimates of immunization coverage among kindergarten students at various age checkpoints. This report presents results from this year's Kindergarten Retrospective Survey and the attached tables and figures present comparisons of immunization coverage by a variety of factors, including race/ethnicity and region.

### Methods and Participants

This year's Kindergarten Retrospective Survey was conducted in a sample of approximately 3% of California's kindergartens in concurrence with selective review. Local health departments visited 224 schools with kindergartens and collected copies of every sixth student immunization record (blue card). Demographic information and immunization history were extracted from each record. Data were analyzed using birth dates and immunization dates to retrospectively estimate immunization coverage at various age checkpoints. Age checkpoints are defined according to whether or not children are up-to-date for DTaP, polio, MMR, Hep B, and varicella vaccines at 3, 5, 7, 13, 19 and 24 months. Since this is a retrospective survey, estimates of immunization coverage represent data from approximately 3-4 years ago.

This year's sample consists of 2,660 kindergarten students. The majority of these children were born in 1999. There were 6 children with permanent medical exemptions and 34 children with personal beliefs exemptions in the sample.

### Results and Discussion

Overall, results from this year's Kindergarten Retrospective Survey indicate that immunization coverage among California's children is similar to previous years (Table 1). Among kindergarten students at 24 months of age, coverage for DTaP, polio, MMR, and Hep B has remained stable. However, there has been a large increase in varicella coverage since 2002. This year, the percent of kindergarten students at 24 months of age who received one or more doses of varicella was 77.9±2.1%. In 2002, it was 53.8±2.7%. This is almost a 25% increase since varicella was first added as a kindergarten entry requirement in 2001.

Table 2 shows immunization coverage among California's children by race/ethnicity. This year, the percent of kindergarten students at 24 months of age with the 4:3:1 (4 DTaP, 3 polio, and 1 MMR) vaccine series was 85.8±4.7% among Asian children, 78.7±5.1% among White children, 74.7±2.9% among Hispanic children, and 57.7±8.1% among Black children. The Kindergarten Retrospective Survey is one of the only sources of information on subpopulations of Black and Asian children and data suggest a serious and persistent disparity in immunization coverage among Black children. Over the past 5 years, coverage with the 4:3:1 vaccine series among Black children has

been significantly lower than White, Hispanic, and Asian children (Figure 2a) and this is consistent at all age checkpoints (Figure 2b).

Immunization coverage among California's children is similar across regions (Table 3). This year, the percent of kindergarten students at 24 months of age with the 4:3:1 vaccine series was  $75.2 \pm 3.5\%$  among children in Los Angeles,  $77.6 \pm 3.9\%$  among children in Southern California,  $81.1 \pm 4.5\%$  among children in the Bay Area,  $77.7 \pm 8.8\%$  among children in the Central Coast,  $68.9 \pm 10.8\%$  among children in the Central Valley,  $74.4 \pm 10.8\%$  among children in the North Central Valley, and  $77.3 \pm 13.7\%$  among children in rural Northern California Central Valley. Although the point estimates may seem different, once confidence intervals are factored in, it becomes clear that any observed differences are not statistically significant.

Table 4 shows a comparison of this year's Kindergarten Retrospective Survey and the July 2001-June 2002 National Immunization Survey. There were no differences in coverage between the Kindergarten Retrospective Survey and the National Immunization Survey for individual vaccines or the 4:3:1 vaccine series.

#### Description of Attached Tables

Enclosed are tables and figures showing this year's results. Table 1 compares results of the 2001 to 2005 surveys among kindergarten students at 24 months of age. Table 2 shows immunization coverage among kindergarten students at 24 months of age by race/ethnicity. Figures 2a&b show a persistent disparity in 4:3:1 vaccine series coverage among Black children at all age checkpoints. Table 3 shows immunization coverage among kindergarten students at 24 months of age by region. Figure 3a is a map of 4:3:1 vaccine series coverage by region. Table 4 presents a comparison of immunization coverage as measured by the Kindergarten Retrospective Survey and the National Immunization Survey. Tables 5-9 show immunization coverage among kindergarten students at 3, 5, 7, 13 and 19 months of age by race/ethnicity.

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TABLE 1: IMMUNIZATION COVERAGE AMONG KINDERGARTEN STUDENTS AT 24 MONTHS OF AGE BY YEAR OF KRS<sup>1</sup>

Yr Collected	Yr Estimated	n	DTaP (4+) <sup>2</sup>	Polio (3+) <sup>3</sup>	MMR (1+) <sup>4</sup>	Hep B (3+) <sup>5</sup>	Var (1+) <sup>6</sup>	4:3:1 <sup>7</sup>	4:3:1:-:3 <sup>8</sup>	4:3:1:-:3:1 <sup>9</sup>
2004-2005	2001-2002	2,660	78.9% ± 2.4%	88.7% ± 1.4%	92.2% ± 1.5%	87.9% ± 1.6%	77.9% ± 2.1%	76.3% ± 2.3%	73.2% ± 2.5%	65.1% ± 2.7%
2003-2004	2000-2001	2,222	77.7% ± 3.0%	89.4% ± 1.5%	91.2% ± 1.3%	87.6% ± 1.7%	75.1% ± 2.4%	75.4% ± 2.9%	72.6% ± 2.8%	63.0% ± 2.5%
2002-2003	1999-2000	2,475	79.6% ± 2.3%	91.5% ± 1.2%	91.9% ± 1.2%	88.1% ± 1.7%	65.9% ± 3.7%	76.3% ± 2.4%	72.6% ± 2.4%	54.3% ± 3.6%
2001-2002	1998-1999	2,268	77.9% ± 2.5%	91.9% ± 1.4%	90.2% ± 2.0%	85.6% ± 1.9%	53.8% ± 2.7%	75.0% ± 2.5%	71.3% ± 2.5%	45.3% ± 2.6%
2000-2001	1997-1998	2,306	75.2% ± 2.5%	90.2% ± 1.6%	88.7% ± 1.2%	82.7% ± 2.1%	n/a	72.7% ± 2.7%	67.9% ± 2.9%	n/a

1. Year of KRS: year collected is the school year that students were in kindergarten. Since this is a retrospective survey, year estimated reflects the year when kindergarten students were 24 months
2. Four or more doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP/DT)
3. Three or more doses of any poliovirus vaccine
4. One or more doses of measles-mumps-rubella vaccine
5. Three or more doses of hepatitis B vaccine
6. One or more doses of varicella vaccine, unadjusted for history of varicella disease
7. Four or more doses of DTaP, three or more doses of polio, and one or more doses of MMR
8. Four or more doses of DTaP, three or more doses of polio, one or more doses of MMR, and three or more doses of Hep B
9. Four or more doses of DTaP, three or more doses of polio, one or more doses of MMR, three or more doses of Hep B, and one or more doses of varicella

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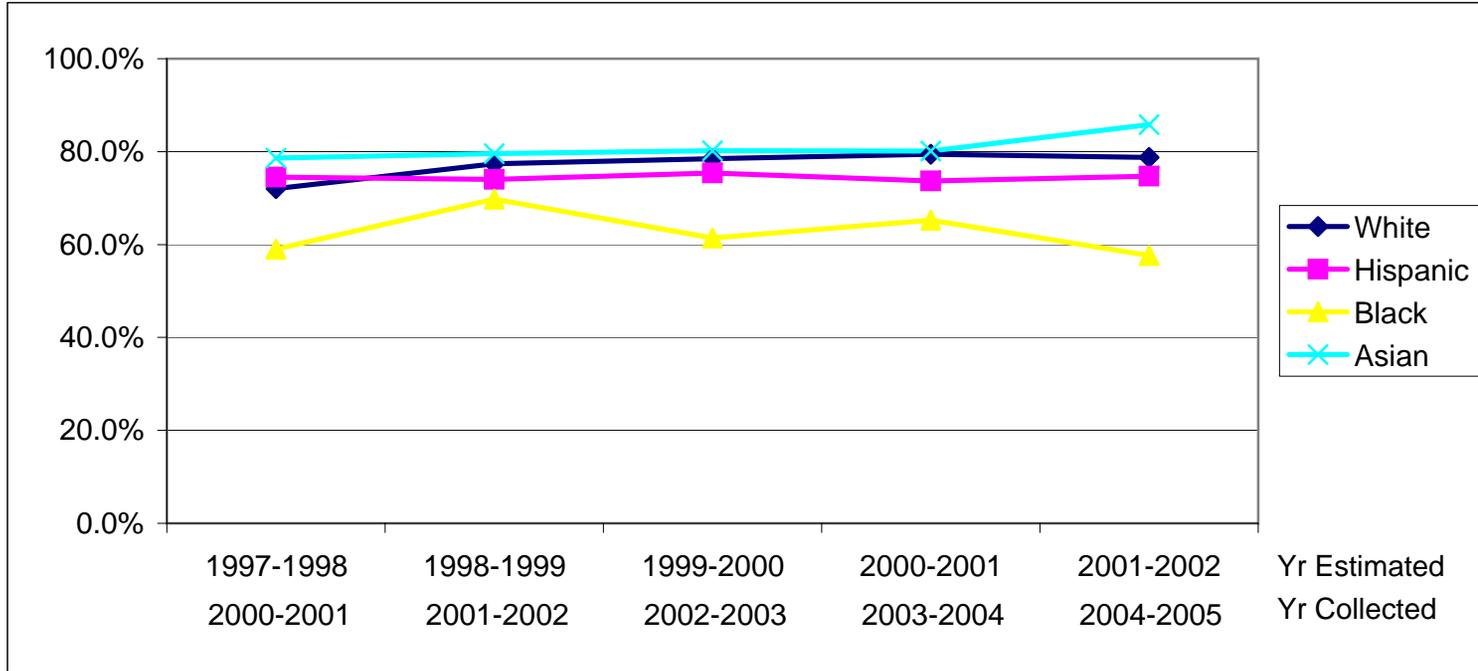
TABLE 2: IMMUNIZATION COVERAGE AMONG KINDERGARTEN STUDENTS AT 24 MONTHS OF AGE BY RACE/ETHNICITY<sup>1</sup>

	n	DTaP (4+) <sup>2</sup>	Polio (3+) <sup>3</sup>	MMR (1+) <sup>4</sup>	Hep B (3+) <sup>5</sup>	Var (1+) <sup>6</sup>	4:3:1 <sup>7</sup>	4:3:1:-:3 <sup>8</sup>	4:3:1:-:3:1 <sup>9</sup>
ALL	2,660	78.9% ± 2.4%	88.7% ± 1.4%	92.2% ± 1.5%	87.9% ± 1.6%	77.9% ± 2.1%	76.3% ± 2.3%	73.2% ± 2.5%	65.1% ± 2.7%
White	715	81.6% ± 4.8%	89.1% ± 2.4%	92.1% ± 2.6%	89.4% ± 2.6%	76.8% ± 4.0%	78.7% ± 5.1%	74.7% ± 5.3%	63.2% ± 5.3%
Hispanic	1,125	77.6% ± 2.9%	90.0% ± 1.9%	93.7% ± 2.2%	87.9% ± 2.3%	78.1% ± 3.2%	74.7% ± 2.9%	72.5% ± 3.1%	65.9% ± 3.3%
Black	288	60.4% ± 8.8%	73.0% ± 8.4%	77.5% ± 7.7%	79.0% ± 7.3%	68.0% ± 8.6%	57.7% ± 8.1%	53.4% ± 8.2%	48.6% ± 8.5%
Asian	266	88.4% ± 4.5%	94.2% ± 3.5%	96.0% ± 3.3%	92.6% ± 4.0%	83.6% ± 5.1%	85.8% ± 4.7%	82.4% ± 5.2%	73.9% ± 6.0%
Other	166	76.6% ± 9.1%	85.6% ± 6.9%	90.0% ± 5.9%	82.6% ± 7.9%	80.3% ± 8.8%	76.3% ± 9.1%	73.9% ± 9.8%	69.0% ± 10.6%
Unknown	100	79.0% ± 9.6%	86.9% ± 8.8%	91.0% ± 7.4%	85.0% ± 7.9%	84.3% ± 9.0%	78.1% ± 9.9%	76.8% ± 9.7%	71.9% ± 10.7%

1. 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
2. Four or more doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP/DT)
3. Three or more doses of any poliovirus vaccine
4. One or more doses of measles-mumps-rubella vaccine
5. Three or more doses of hepatitis B vaccine
6. One or more doses of varicella vaccine, unadjusted for history of varicella disease
7. Four or more doses of DTaP, three or more doses of polio, and one or more doses of MMR
8. Four or more doses of DTaP, three or more doses of polio, one or more doses of MMR, and three or more doses of Hep B
9. Four or more doses of DTaP, three or more doses of polio, one or more doses of MMR, three or more doses of Hep B, and one or more doses of varicella

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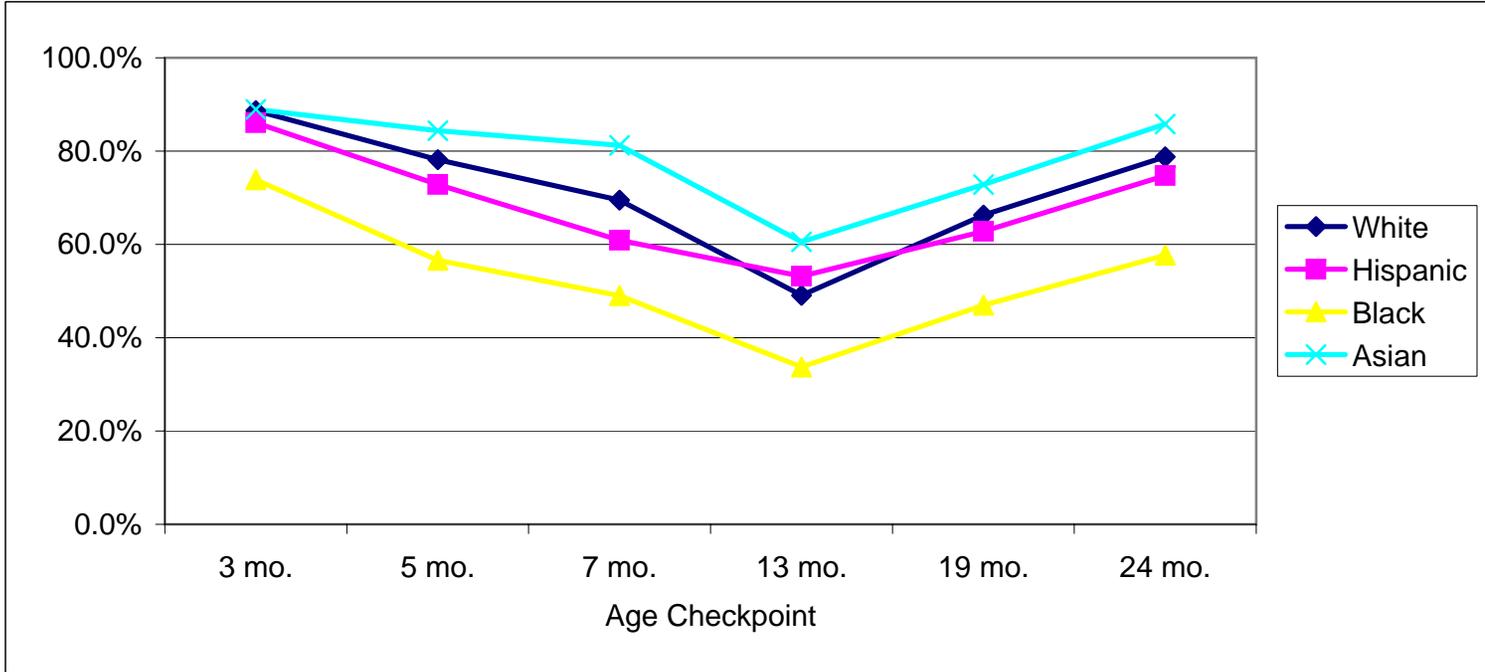
FIGURE 2a: 4:3:1<sup>1</sup> COVERAGE AMONG KINDERGARTEN STUDENTS AT 24 MONTHS OF AGE BY YEAR OF KRS<sup>2</sup> AND RACE/ETHNICITY<sup>3</sup>



1. Four or more doses of DTaP, three or more doses of polio, and one or more doses of MMR
2. Year of KRS: year collected is the school year that students were in kindergarten. Since this is a retrospective survey, year estimated reflects the year when kindergarten students were 24 months
3. 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

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FIGURE 2b: 4:3:1<sup>1</sup> COVERAGE AMONG KINDERGARTEN STUDENTS BY AGE CHECKPOINT<sup>2</sup> AND RACE/ETHNICITY<sup>3</sup>



1. Age appropriate doses of DTaP, polio, and MMR
2. Age checkpoints are defined according to whether or not children are up-to-date for age appropriate doses of DTaP, polio, and MMR at 3, 5, 7, 13, 19 and 24 months
3. 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

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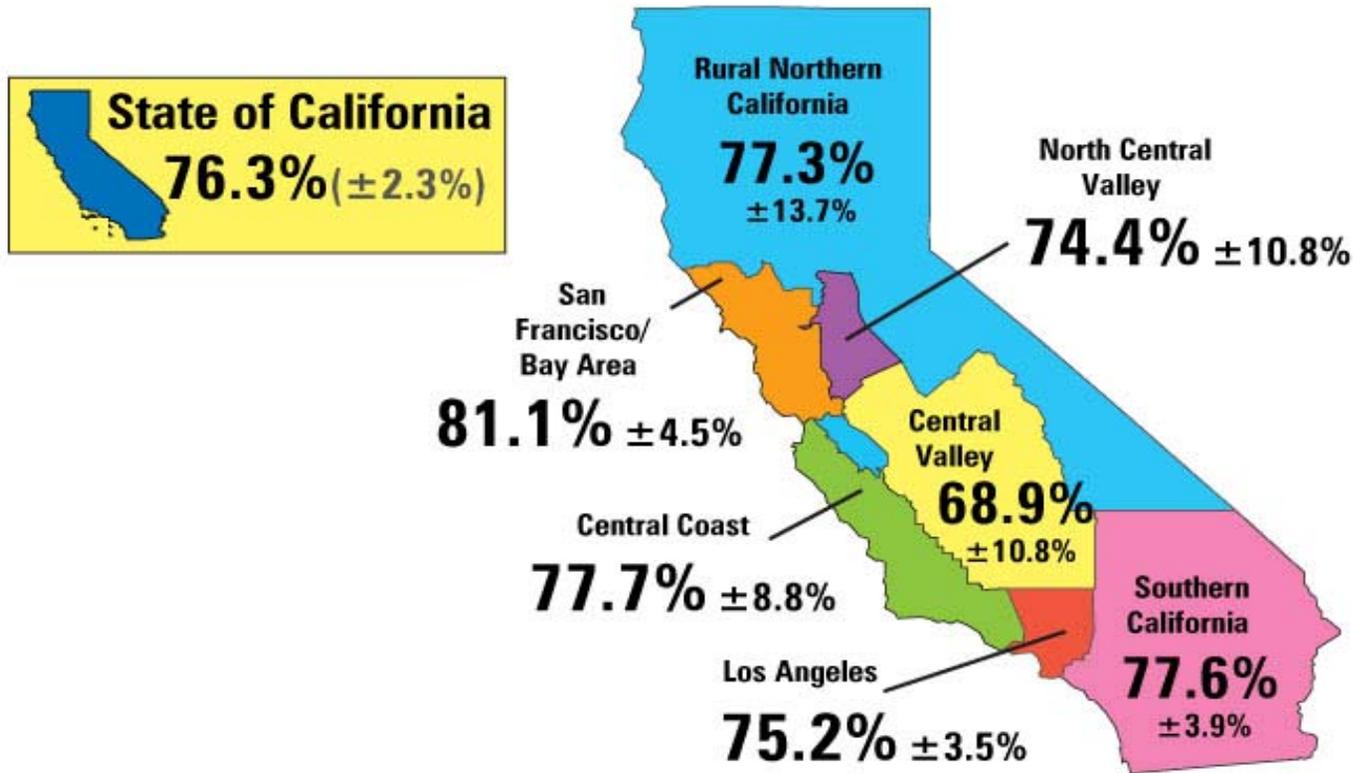
TABLE 3: IMMUNIZATION COVERAGE AMONG KINDERGARTEN STUDENTS AT 24 MONTHS OF AGE BY REGION<sup>1</sup>

	n	DTaP (4+) <sup>2</sup>	Polio (3+) <sup>3</sup>	MMR (1+) <sup>4</sup>	Hep B (3+) <sup>5</sup>	Var (1+) <sup>6</sup>	4:3:1 <sup>7</sup>	4:3:1:-:3 <sup>8</sup>	4:3:1:-:3:1 <sup>9</sup>
ALL	2,660	78.9% ± 2.4%	88.7% ± 1.4%	92.2% ± 1.5%	87.9% ± 1.6%	77.9% ± 2.1%	76.3% ± 2.3%	73.2% ± 2.5%	65.1% ± 2.7%
Los Angeles <sup>10</sup>	902	78.1% ± 3.8%	88.2% ± 2.8%	93.5% ± 2.3%	86.7% ± 2.8%	78.4% ± 3.2%	75.2% ± 3.5%	72.4% ± 3.9%	65.7% ± 3.7%
Other So. California <sup>11</sup>	682	80.3% ± 4.6%	87.7% ± 2.0%	90.8% ± 2.7%	89.4% ± 3.3%	78.8% ± 4.0%	77.6% ± 3.9%	75.1% ± 4.2%	65.5% ± 4.4%
SF Bay Area <sup>12</sup>	408	82.2% ± 4.4%	91.0% ± 3.5%	95.0% ± 2.7%	85.9% ± 5.5%	82.9% ± 3.8%	81.1% ± 4.5%	75.9% ± 5.9%	69.5% ± 5.0%
Central Coast <sup>13</sup>	107	81.1% ± 8.3%	93.0% ± 5.8%	93.8% ± 4.4%	90.8% ± 6.8%	75.8% ± 7.0%	77.7% ± 8.8%	74.7% ± 10.6%	63.7% ± 12.7%
Central Valley <sup>14</sup>	219	72.5% ± 9.6%	89.8% ± 3.8%	89.5% ± 6.1%	87.9% ± 4.8%	77.2% ± 9.7%	68.9% ± 10.8%	66.4% ± 10.6%	61.3% ± 13.0%
North Central Valley <sup>15</sup>	242	75.0% ± 10.8%	88.2% ± 5.6%	91.8% ± 6.7%	88.4% ± 4.8%	73.0% ± 8.8%	74.4% ± 10.8%	72.2% ± 11.3%	62.5% ± 13.4%
Rural No. California <sup>16</sup>	100	81.6% ± 11.6%	85.2% ± 10.5%	89.0% ± 7.3%	87.5% ± 5.5%	70.6% ± 13.0%	77.3% ± 13.7%	73.8% ± 12.7%	61.3% ± 17.2%

1. Regions do not exactly match Field Rep assigned regions
2. Four or more doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP/DT)
3. Three or more doses of any poliovirus vaccine
4. One or more doses of measles-mumps-rubella vaccine
5. Three or more doses of hepatitis B vaccine
6. One or more doses of varicella vaccine, unadjusted for history of varicella disease
7. Four or more doses of DTaP, three or more doses of polio, and one or more doses of MMR
8. Four or more doses of DTaP, three or more doses of polio, one or more doses of MMR, and three or more doses of Hep B
9. Four or more doses of DTaP, three or more doses of polio, one or more doses of MMR, three or more doses of Hep B, and one or more doses of varicella
10. Los Angeles includes Los Angeles County
11. Other So. California includes Imperial, Orange, Riverside, San Bernardino, and San Diego Counties
12. SF Bay Area includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties
13. Central Coast includes Monterey, San Luis Obispo, Santa Barbara, Santa Cruz, and Ventura Counties
14. Central Valley includes Fresno, Kern, Kings, Madera, Merced, and Tulare Counties
15. No. Central Valley includes Sacramento, San Joaquin, and Stanislaus Counties
16. 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

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FIGURE 3a: 4:3:1<sup>1</sup> COVERAGE AMONG KINDERGARTEN STUDENTS AT 24 MONTHS OF AGE BY REGION<sup>2</sup>



1. Four or more doses of DTaP, three or more doses of polio, and one or more doses of MMR

2. Regions do not exactly match Field Rep assigned regions:

Los Angeles includes Los Angeles County

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

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

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

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

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

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

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TABLE 4: COMPARISON OF IMMUNIZATION COVERAGE AS MEASURED BY THE KINDERGARTEN RETROSPECTIVE SURVEY (KRS) AND THE NATIONAL IMMUNIZATION SURVEY (NIS)<sup>1</sup>

	n	DTaP (4+) <sup>2</sup>	Polio (3+) <sup>3</sup>	MMR (1+) <sup>4</sup>	Hep B (3+) <sup>5</sup>	Var (1+) <sup>6</sup>	4:3:1 <sup>7</sup>
KRS (24 mo.)	2,660	78.9% ± 2.4%	88.7% ± 1.4%	92.2% ± 1.5%	87.9% ± 1.6%	77.9% ± 2.1%	76.3% ± 2.3%
NIS (24 mo.)	n/a	79.8% ± 4.1%	88.6% ± 3.3%	91.2% ± 2.9%	87.7% ± 3.4%	82.5% ± 3.9%	76.2% ± 4.3%

1. The July 2001-June 2002 NIS is used as a comparison because KRS is a retrospective survey and estimates of immunization coverage represent data from 3-4 years ago
2. Four or more doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP/DT)
3. Three or more doses of any poliovirus vaccine
4. One or more doses of measles-mumps-rubella vaccine
5. Three or more doses of hepatitis B vaccine
6. One or more doses of varicella vaccine, unadjusted for history of varicella disease
7. Four or more doses of DTaP, three or more doses of polio, and one or more doses of MMR

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TABLE 5: IMMUNIZATION COVERAGE AMONG KINDERGARTEN STUDENTS AT 3 MONTHS OF AGE BY RACE/ETHNICITY<sup>1</sup>

	n	DTaP (1+) <sup>2</sup>	Polio (1+) <sup>3</sup>	Hep B (1+) <sup>4</sup>	1:1:0 <sup>5</sup>	1:1:0:-:1 <sup>6</sup>
ALL	2,660	87.5% ± 1.6%	87.5% ± 1.5%	82.8% ± 2.0%	86.3% ± 1.6%	76.6% ± 2.2%
White	715	90.5% ± 2.4%	89.3% ± 2.4%	83.8% ± 3.0%	88.7% ± 2.5%	77.8% ± 3.5%
Hispanic	1,125	86.8% ± 2.2%	88.1% ± 2.3%	83.0% ± 3.3%	86.1% ± 2.2%	77.1% ± 3.0%
Black	288	74.4% ± 9.0%	73.8% ± 9.1%	81.9% ± 6.8%	73.8% ± 9.1%	68.7% ± 9.5%
Asian	266	89.4% ± 5.4%	89.5% ± 5.3%	85.5% ± 5.3%	88.9% ± 5.4%	80.9% ± 6.3%
Other	166	84.1% ± 6.9%	84.1% ± 6.9%	75.3% ± 8.8%	83.8% ± 7.0%	71.4% ± 8.8%
Unknown	100	87.6% ± 9.4%	84.3% ± 10.1%	78.4% ± 8.1%	83.9% ± 10.2%	72.5% ± 10.0%

1. 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
2. One or more doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP/DT)
3. One or more doses of any poliovirus vaccine
4. One or more doses of hepatitis B vaccine
5. One or more doses of DTaP and one or more doses of Polio
6. One or more doses of DTaP, one or more doses of polio, and one or more doses of Hep B

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TABLE 6: IMMUNIZATION COVERAGE AMONG KINDERGARTEN STUDENTS AT 5 MONTHS OF AGE BY RACE/ETHNICITY<sup>1</sup>

	n	DTaP (2+) <sup>2</sup>	Polio (2+) <sup>3</sup>	Hep B (2+) <sup>4</sup>	2:2:0 <sup>5</sup>	2:2:0:-:2 <sup>6</sup>
ALL	2,660	76.7% ± 2.7%	76.2% ± 2.7%	70.9% ± 2.4%	74.9% ± 2.6%	61.5% ± 2.5%
White	715	81.5% ± 4.0%	78.7% ± 4.0%	71.4% ± 3.3%	78.2% ± 4.0%	61.0% ± 3.8%
Hispanic	1,125	73.9% ± 3.3%	75.0% ± 3.7%	71.0% ± 4.0%	72.9% ± 3.4%	61.9% ± 3.6%
Black	288	57.5% ± 8.6%	56.6% ± 8.6%	69.7% ± 8.3%	56.6% ± 8.6%	49.3% ± 8.8%
Asian	266	84.8% ± 5.0%	84.8% ± 5.0%	75.9% ± 6.2%	84.4% ± 5.1%	71.3% ± 6.4%
Other	166	76.6% ± 9.0%	77.2% ± 8.8%	66.9% ± 9.6%	76.2% ± 9.0%	63.0% ± 10.0%
Unknown	100	75.3% ± 11.5%	74.9% ± 13.0%	63.6% ± 11.8%	73.2% ± 12.0%	57.1% ± 11.5%

1. 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
2. Two or more doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP/DT)
3. Two or more doses of any poliovirus vaccine
4. Two or more doses of hepatitis B vaccine
5. Two or more doses of DTaP and two or more doses of Polio
6. Two or more doses of DTaP, two or more doses of polio, and two or more doses of Hep B

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TABLE 7: IMMUNIZATION COVERAGE AMONG KINDERGARTEN STUDENTS AT 7 MONTHS OF AGE BY RACE/ETHNICITY<sup>1</sup>

	n	DTaP (3+) <sup>2</sup>	Polio (2+) <sup>3</sup>	Hep B (2+) <sup>4</sup>	3:2:0 <sup>5</sup>	3:2:0:-:2 <sup>6</sup>
ALL	2,660	65.8% ± 3.1%	89.6% ± 1.7%	80.7% ± 2.1%	65.3% ± 3.1%	57.6% ± 2.7%
White	715	70.6% ± 4.3%	90.6% ± 2.5%	80.3% ± 3.1%	69.5% ± 4.3%	59.0% ± 4.2%
Hispanic	1,125	61.1% ± 4.5%	90.0% ± 2.6%	82.0% ± 3.2%	60.9% ± 4.5%	55.1% ± 3.9%
Black	288	49.0% ± 8.4%	77.6% ± 8.6%	77.7% ± 7.4%	49.0% ± 8.4%	45.1% ± 8.3%
Asian	266	81.2% ± 6.0%	92.4% ± 4.3%	85.2% ± 5.8%	81.2% ± 6.0%	74.7% ± 6.7%
Other	166	64.0% ± 8.7%	89.4% ± 6.1%	73.4% ± 8.9%	63.6% ± 8.8%	55.0% ± 9.0%
Unknown	100	71.5% ± 12.8%	88.8% ± 8.3%	76.5% ± 8.8%	71.5% ± 12.8%	60.0% ± 12.0%

1. 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
2. Three or more doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP/DT)
3. Two or more doses of any poliovirus vaccine
4. Two or more doses of hepatitis B vaccine
5. Three or more doses of DTaP and two or more doses of polio
6. Three or more doses of DTaP, two or more doses of polio, and two or more doses of Hep B

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TABLE 8: IMMUNIZATION COVERAGE AMONG KINDERGARTEN STUDENTS AT 13 MONTHS OF AGE BY RACE/ETHNICITY<sup>1</sup>

	n	DTaP (3+) <sup>2</sup>	Polio (2+) <sup>3</sup>	MMR (1+) <sup>4</sup>	Hep B (2+) <sup>5</sup>	Var (1+) <sup>6</sup>	4:3:1 <sup>7</sup>	4:3:1:-:3 <sup>8</sup>	4:3:1:-:3:1 <sup>9</sup>
ALL	2,660	89.6% ± 1.7%	94.7% ± 1.1%	52.9% ± 3.1%	90.5% ± 1.4%	46.5% ± 2.9%	51.5% ± 3.1%	49.4% ± 2.9%	37.2% ± 2.7%
White	715	91.4% ± 2.8%	95.5% ± 1.7%	50.4% ± 5.0%	92.4% ± 2.1%	50.6% ± 4.8%	49.0% ± 5.0%	47.7% ± 5.0%	36.6% ± 4.4%
Hispanic	1,125	90.4% ± 2.1%	95.7% ± 1.4%	54.0% ± 4.3%	90.2% ± 2.3%	43.2% ± 3.9%	53.2% ± 4.1%	49.8% ± 3.8%	37.7% ± 3.6%
Black	288	73.0% ± 8.2%	85.7% ± 7.2%	34.4% ± 7.6%	83.0% ± 6.8%	32.3% ± 7.7%	33.8% ± 7.7%	33.0% ± 7.7%	24.9% ± 7.6%
Asian	266	91.0% ± 4.1%	94.9% ± 3.6%	64.1% ± 6.2%	92.4% ± 4.2%	50.2% ± 7.3%	60.6% ± 5.8%	60.1% ± 5.9%	41.8% ± 6.6%
Other	166	88.7% ± 6.0%	91.7% ± 5.6%	61.2% ± 10.1%	87.4% ± 7.4%	49.7% ± 10.0%	59.4% ± 10.3%	58.9% ± 10.3%	41.3% ± 10.1%
Unknown	100	87.0% ± 9.1%	91.9% ± 7.2%	52.6% ± 11.0%	88.1% ± 6.6%	54.4% ± 12.7%	50.6% ± 11.0%	47.8% ± 11.0%	38.0% ± 12.1%

1. 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
2. Three or more doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP/DT)
3. Two or more doses of any poliovirus vaccine
4. One or more doses of measles-mumps-rubella vaccine
5. Two or more doses of hepatitis B vaccine
6. One or more doses of varicella vaccine, unadjusted for history of varicella disease
7. Three or more doses of DTaP, three or more doses of polio, and one or more doses of MMR
8. Three or more doses of DTaP, three or more doses of polio, one or more doses of MMR, and three or more doses of Hep B
9. Three or more doses of DTaP, three or more doses of polio, one or more doses of MMR, three or more doses of Hep B, and one or more doses of varicella

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TABLE 9: IMMUNIZATION COVERAGE AMONG KINDERGARTEN STUDENTS AT 19 MONTHS OF AGE BY RACE/ETHNICITY<sup>1</sup>

	n	DTaP (4+) <sup>2</sup>	Polio (3+) <sup>3</sup>	MMR (1+) <sup>4</sup>	Hep B (3+) <sup>5</sup>	Var (1+) <sup>6</sup>	4:3:1 <sup>7</sup>	4:3:1:-:3 <sup>8</sup>	4:3:1:-:3:1 <sup>9</sup>
ALL	2,660	67.6% ± 2.7%	83.4% ± 1.9%	87.3% ± 1.7%	84.3% ± 1.8%	73.3% ± 2.2%	64.2% ± 2.6%	60.7% ± 2.8%	53.0% ± 2.6%
White	715	70.2% ± 5.2%	83.4% ± 3.6%	88.4% ± 2.8%	84.9% ± 3.2%	73.9% ± 4.1%	66.3% ± 5.3%	61.3% ± 5.4%	50.9% ± 5.0%
Hispanic	1,125	66.1% ± 3.7%	86.5% ± 2.2%	88.2% ± 2.7%	84.6% ± 2.7%	71.5% ± 3.0%	62.8% ± 3.5%	60.4% ± 3.9%	53.5% ± 3.4%
Black	288	51.6% ± 9.8%	63.9% ± 9.6%	71.3% ± 7.5%	77.2% ± 7.5%	66.1% ± 8.6%	47.0% ± 8.9%	43.2% ± 8.9%	39.1% ± 9.1%
Asian	266	74.8% ± 5.2%	86.8% ± 4.7%	93.6% ± 3.7%	89.6% ± 4.4%	79.9% ± 5.4%	72.8% ± 5.2%	69.7% ± 5.4%	61.1% ± 6.4%
Other	166	66.6% ± 11.6%	79.9% ± 8.7%	83.8% ± 6.8%	81.2% ± 8.1%	78.1% ± 8.9%	65.3% ± 11.7%	62.5% ± 12.1%	58.9% ± 12.2%
Unknown	100	69.8% ± 11.1%	75.0% ± 10.4%	84.1% ± 8.7%	78.9% ± 8.7%	76.7% ± 11.6%	66.2% ± 11.6%	63.1% ± 9.6%	59.0% ± 10.7%

1. 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
2. Four or more doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP/DT)
3. Three or more doses of any poliovirus vaccine
4. One or more doses of measles-mumps-rubella vaccine
5. Three or more doses of hepatitis B vaccine
6. One or more doses of varicella vaccine, unadjusted for history of varicella disease
7. Four or more doses of DTaP, three or more doses of polio, and one or more doses of MMR
8. Four or more doses of DTaP, three or more doses of polio, one or more doses of MMR, and three or more doses of Hep B
9. Four or more doses of DTaP, three or more doses of polio, one or more doses of MMR, three or more doses of Hep B, and one or more doses of varicella