

# Sonoma County Department of Health Services Expanded Kindergarten Retrospective Survey (EKRS) 2005

## BACKGROUND

The purpose of this survey was to evaluate the immunization levels of Sonoma County kindergartners compared to previous studies and look for disparities between racial and ethnic groups, U.S. born and foreign-born children, private and public schools, and schools in areas with high health and social needs.

## METHODS

Schools were selected for the survey by random sample. In addition, a selection of the Community Action Partnership (CAP) Project Schools was included in the review.

Photocopies of the California School Immunization Record were obtained from school staff at each participating school for children enrolled in kindergarten in the 2004-05 school year.

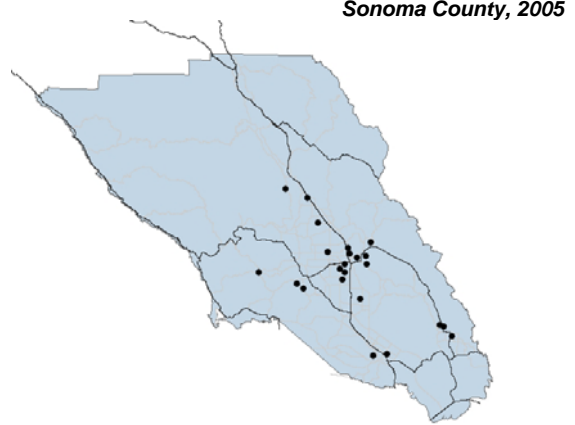
Temporary health interns entered the data into the EKRS database developed by the San Francisco Department of Public Health (1). All statistical analysis was performed using SAS (2).

## RESULTS

A total of 1131 children from 23 schools were included in the review (Figure 1). Nearly half of the children surveyed were Hispanic (50%), followed by White, non-Hispanic (39%) and Asian, non-Hispanic (5%). This distribution differs from the composition of Sonoma County children in that it contains a larger proportion of Hispanic children (50% vs. 33%) and a smaller proportion of White children (39% vs. 57%) (3).

Eleven percent of children were foreign-born, and 36% were CAP Project Schools. Most of the children included in the survey were born in 1999 and were 24 months old in 2001.

Figure 1 –Geographic Location of Kindergartens Selected for EKRS (N=23)



## Overall Coverage Levels

Stratified by individual immunization, 90% of children were up to date on the Polio and MMR series, followed by Hepatitis B (84%) and DTaP (79%) (Table 1). With these estimates, Sonoma County is currently meeting the Healthy People 2010 goal of 90% coverage for Polio and MMR (4).

Table 1: Immunization Coverage of Kindergartners at 24 Months of Age by Vaccine  
Sonoma County 2002 and 2005

Vaccine	2002 (N=1369)	2005 (N=1131)
DTaP (4+)	71% [69%-74%]	79% [78%-80%]
Polio (3+)	90% [88%-91%]	90% [89%-91%]
MMR (1+)	79% [77%-81%]	90% [89%-91%]
Hep B (3+)	78% [76%-81%]	84% [83%-85%]
Var (1+)	--	68% [67%-69%]
<b>4:3:1</b> (4 DTP, 3 Polio & 1 MMR)	65% [63%-68%]	76% [74%-77%]
<b>4:3:1:-:3</b> (4 DTP, 3 Polio, 1 MMR & 3 Hep B)	--	72% [71%-73%]
<b>4:3:1:-:3:1</b> (4 DTP, 3 Polio, 1 MMR, 3 Hep B & 1 Var)	--	58% [57%-59%]

The estimated immunization coverage level with the 4:3:1 series (4 DTaP, 3 Polio, 1 MMR) among kindergartners at 24 months of age was 76%, a notable increase from 2002 (65%). This proportion varied by race and ethnicity, with Whites and Asian/Pacific Islanders having consistently higher proportions of complete coverage levels (Table 2). No individual group meets the Healthy People 2010 goal of 80% coverage for children 19 to 35 months up to date on the 4:3:1 series(4).

**Table 2 – Immunization Coverage Levels (4:3:1\*) of Kindergartners at 24 Months of Age, by Race and Ethnicity**

	<i>Sonoma County, 2002 and 2005</i>	
	<b>2002</b>	<b>2005</b>
Total Sample Size	1369	1131
All Races	65% [63%-68%]	76% [74%-77%]
White	71% [67%-75%]	77% [76%-79%]
Hispanic	61% [57%-65%]	72% [70%-74%]
Asian/Pacific Islander	65% [50%-78%]	84% [82%-90%]
African American**	55% [36%-73%]	72% [63%-82%]
Amer. Indian/Ala. Nat.**	54% [33%-74%]	55% [41%-66%]
Other/Unknown	66% [56%-75%]	86% [80%-90%]

\*4 DTaP, 3 Polio, 1 MMR

\*\*The coverage ratios for African Americans and American Indian/Alaska Natives are unstable due to small sample numbers.

### Special Populations

U.S. born children are significantly more likely to have complete 4:3:1 coverage compared to foreign born children (79% vs. 35%, respectively; Pearson’s  $p < 0.01$ ).

Children in private schools are significantly more likely to have complete 4:3:1 coverage than children in public schools (88% vs. 75%, respectively; Pearson’s  $p < 0.01$ ).

Although a lower proportion of children attending CAP Project Schools have complete 4:3:1 coverage at age 2 compared to other

Sonoma County schools, the difference is not statistically significant (73%, CAP; 76%, Non-CAP; Pearson’s  $p = 0.22$ ).

### Late Start Rate

Twelve percent of children surveyed were considered ‘Late-Starters’, receiving their first DTaP or Polio vaccine after three months of age<sup>†</sup>. Children sampled who received their first immunization by 3 months of age were three times more likely to complete the 4:3:1 series on time (OR 2.9; Wald 95% CI [2.6,3.4]).

### Personal Belief Exemptions

California is one of 11 states allowing exemptions from immunization for religious or personal beliefs. Sonoma County’s estimated personal beliefs exemption rate is 4.6%.

### DISCUSSION

Although not up to 80%, the estimated 4:3:1 coverage level in Sonoma County has notably improved from 2002 to 2005. Disparities in coverage levels exist among children of different racial and ethnic backgrounds, and between children born in the U.S. compared to those born abroad. As expected, children attending private schools have a higher coverage level compared to those attending public schools, and children attending schools in an area of high social and health needs have lower coverage compared to those in other areas.

Results from this study will be shared with stakeholders and used for grant preparation, program planning, and education to Public Health staff, health care providers, schools, community agencies and parents.

In addition to continued education, other possible next steps include developing a process to identify barriers to starting on time and examining factors that contribute to the high proportion of personal belief exemptions.

<sup>†</sup> Hib data was excluded from this calculation as it is not routinely collected at kindergartens.

## REFERENCES

1. San Francisco Department of Public Health, EKRS Database (Access 2000); 2005.
2. SAS version 8. Cary, NC: SAS Institute, Inc; 2001.
3. State of California, Department of Finance, *Race/Ethnic Population with Age and Sex Detail, 2000–2050*. Sacramento, CA, May 2004.
4. U.S. Department of Health and Human Services. *Healthy People 2010. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health*. 2 vols. Washington, DC: U.S. Government Printing Office, November 2000