

# Childhood Immunization and Vaccine-Preventable Diseases

Contra Costa did not meet the Healthy People 2010 objective for immunization for 2 year olds.

Immunization is a critical public health prevention activity. In 2008 among all children in Contra Costa 2 years of age, 80.0% had been fully immunized. However, Contra Costa did not meet the Healthy People 2010 objective of having at least 90% of all 2 year olds fully immunized.

**Table 1 ■ Percent fully immunized at 24 months, 2008**

	Percent
Contra Costa	80.0%
California	76.7%
Healthy People 2010 objective	90.0%

Fully immunized means four doses of DTaP, three doses of polio vaccine and one dose of MMR by 24 months.

**Table 2 ■ Percent fully immunized at 24 months, 2003-2008**

	2003	2004	2005	2006	2007	2008
Contra Costa	76.6%	81.6%	73.9%	75.5%	81.0%	80.0%
California	71.4%	71.8%	76.3%	77.7%	75.7%	76.7%

Fully immunized means four doses of DTaP, three doses of polio vaccine and one dose of MMR by 24 months.

Between 2003 and 2008, the percentage of fully immunized 2-year -old children in Contra Costa has fluctuated from a high of 81.6% in 2004 to a low of 75.5% in 2006.

**Table 3 ■ Percent fully immunized at 24 months**

By Race/Ethnicity, 2008

	Contra Costa	California
White	85.0%	75.6%
Hispanic	80.0%	77.3%
African American	67.0%	66.0%
<b>Total</b>	<b>80.0%</b>	<b>76.7%</b>

Fully immunized means four doses of DTaP, three doses of polio vaccine and one dose of MMR by 24 months.

The rate of immunizations by race/ethnicity in both Contra Costa and California are below 90%, the Healthy People 2010 objective.

### What is immunization?

Immunization is the process by which an individual's immune system becomes fortified against an infection or disease, most often through vaccines.

A vaccine is an injection, oral dose or nasal spray that typically contains an agent that resembles a disease-causing microorganism, and is often made from weakened or killed forms of the microbe or its toxins. Vaccines can prepare the body's immune system, thus helping to fight or prevent an infection.

### Why is it important?

Vaccination is a highly effective method of preventing certain infectious diseases.

For the individual, and for society in terms of public health, prevention is better and more cost-effective than cure. Vaccines are generally very safe and serious adverse reactions are uncommon.<sup>1</sup>

California law requires that children be up-to-date on their immunizations before entering kindergarten and seventh grade, and before enrolling in licensed child care programs.

### Brief summary of some vaccine-preventable diseases:

Diphtheria	Bacterial infection that produces a toxin that interferes with normal heart, nerve and organ function. It has a 20% case fatality rate
Tetanus (lockjaw)	Bacterial infection that can cause muscle spasms and interferes with breathing
Pertussis (whooping cough)	Bacterial infection that can cause severe respiratory complications, pneumonia and death in infants
Polio	Viral infection that attacks the motor neurons and causes a crippling paralysis

Vaccines are responsible for the control of many deadly infectious diseases that were once common in this country, including polio, measles, diphtheria, pertussis (whooping cough), rubella (German measles), mumps, tetanus and *Haemophilus influenzae* type b (Hib).

For some vaccine-preventable diseases, there are now only a small number of cases reported in the county each year. Still, immunization remains an important part of the strategy to maintain the reduction in cases. Because a rise in disease is always possible, it is important to be vigilant. The success of an immunization program depends on high rates of acceptance and coverage.

### Who does it impact most?

People who cannot be immunized include those who are too young to be vaccinated (e.g., children younger than 1 year old cannot receive the measles vaccine but can be infected by the measles virus), those who cannot be vaccinated for medical reasons (e.g., children with leukemia), and those who cannot make an adequate response to vaccination.<sup>2</sup>

Others choose not to be immunized. Some parents refuse to get their children vaccinated, believing that the vaccine is unnecessary or may harm their child. In Contra Costa, the percent of personal belief exemptions (PBEs) have been on the rise, increasing from 0.75% among kindergarten entrants in 1998 to 2.18% in 2008.<sup>3</sup> Public health officials are concerned about this rise in PBEs because there will be less “community immunity” as fewer people are vaccinated and protected. This is particularly important for those who can’t be vaccinated including the very young and immunocompromised people.

### What can we do about it?

In the United States, policy interventions, such as immunization requirements for school entry, have contributed to high vaccine coverage and record or near-record lows in the levels of vaccine-preventable diseases.

Parents view doctors as respected sources of information. There is a renewed need for doctors to discuss the hazards of refusing vaccination for both the individual, their family members and the community as a whole. There is no scientific evidence that links autism to vaccines, and numerous large studies have failed to find any connection.<sup>4</sup>

By law, California managed care organizations (such as the Contra Costa Health Plan and Kaiser Permanente) must cover recommended immunizations for children.

Children without health insurance may be able to get free immunizations through one of these programs:  
**Healthy Families:** Children enrolled in *California’s Healthy Families* plan receive free immunizations with no copayment.

**Medi-Cal:** *Medi-Cal* covers preventive care services for eligible low-income children and adults.

**Vaccines for Children:** Many private-practice California doctors participate in the *Vaccines for Children* (VFC) program, which gives free vaccines to eligible children up to age 18.

**CHDP:** Children eligible for *California’s Child Health and Disability Prevention* (CHDP) program may also be eligible for free or low-cost shots.<sup>5</sup>

Preschool-age children who remain under-vaccinated are likely to have missed some vaccinations because of interruptions in the family’s health care coverage or socio-demographic characteristics, such as poverty or limited English proficiency.<sup>3</sup>

## Data Sources: Immunizations

### TABLES

Tables 1–3: Local data about immunization levels is analyzed by the California Department of Public Health (CDPH), Immunization Branch and the Contra Costa Health Services Immunizations Program. A random survey of schools is used to assess the immunization levels of students in kindergarten. CDPH uses these immunization records to estimate the percentage of children who were up-to-date when they were 2 years old. Not all race/ethnicity groups were available due to small sample size.

“Fully immunized” in this survey means receiving four DTaP (diphtheria, tetanus, pertussis) vaccine, three doses of Polio vaccine and one dose of MMR (measles, mumps, rubella) vaccines before 24 months of age.

### TEXT

1. World Health Organization *International Travel and Health 2010*. Retrieved July 16, 2010 from the WHO website: <http://www.who.int/topics/immunization/en/>
2. Department of Health & Human Services. (2009) *Vaccines & Immunizations: How Vaccines Prevent Disease*. Retrieved July 16, 2010 from the CDC website: <http://www.cdc.gov/vaccines/vac-gen/howvpd.htm>
3. Contra Costa Health Services, Public Health Division, Communicable Disease Program, Immunization Coordinator, December 2009
4. Omer SB, Salmon DA, et al. (2009) Vaccine Refusal, Mandatory Immunization, and the Risks of Vaccine-Preventable Diseases. *The New England Journal of Medicine*. 360;19 May 7, 2009. Available: <http://content.nejm.org/cgi/reprint/360/19/1981.pdf>
5. California Immunization Coalition (2008) *Vaccine Basics*. Retrieved July 16, 2010 from <http://www.whyichoose.org/vaccinebasics.html>