



**COUNTY OF ORANGE
HEALTHCARE AGENCY**

MAILING ADDRESS:
P.O. Box 6128
Santa Ana, CA 92706-0128

**PUBLIC HEALTH SERVICES
EPIDEMIOLOGY & ASSESSMENT**

TELEPHONE: (714) 834-8180
FAX: (714) 834-8196

Pertussis, Orange County 2005 – 2014

Pertussis is a respiratory infection caused by the bacteria *Bordetella pertussis*. Pertussis' incubation period is 5 to 10 days (range 5 to 21 days). Early signs and symptoms usually consist of a runny nose, low-grade fever, mild cough, and apnea. Early symptoms can last for one to two weeks. Later-stage symptoms may include paroxysms (sudden attacks) of rapid coughing followed by a high pitched "whoop," vomiting during or after coughing fits, and exhaustion. The bacterium is transmitted from person to person via coughing or sneezing. Infected people are most contagious for two weeks after the cough begins. For more information, please visit <http://www.cdc.gov/pertussis>.

Each case of pertussis is investigated to assess exposure and prevent transmission. Isolates from contacts are obtained during the disease investigation and are sent to Orange County Public Health Laboratory for confirmation via polymerase chain reaction.

Table 1. Orange County Pertussis Cases by Gender, Race/Ethnicity and Age Group, 2005 – 2014.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total Cases	120	58	24	37	81	467	153	53	93	407
Gender										
Male	51	35	12	18	34	208	65	22	38	201
Female	69	23	12	19	47	259	88	31	55	205
Unknown	0	0	0	0	0	0	0	0	0	1
Race/Ethnicity										
White	36	22	9	14	36	139	62	25	38	156
Black	1	0	1	0	0	4	0	0	0	0
Hispanic	73	36	14	22	39	263	64	17	28	189
Asian	7	0	0	0	0	18	7	2	9	10
NHOPI ¹	0	0	0	0	0	0	1	0	1	1
AI/AN ²	0	0	0	0	0	0	1	0	0	0
Multiracial	0	0	0	0	0	0	0	0	3	6
Other/Unknown	3	0	0	1	6	43	18	9	14	45
Age Group										
Under 1 year	49	23	6	20	39	107	32	13	17	88
1-4	9	7	5	3	9	76	20	14	16	75
5-9	13	2	2	1	7	56	17	8	17	61
10-14	14	1	2	2	6	75	33	5	10	89
15-19	2	6	1	5	5	25	12	2	4	50
20-24	5	0	0	1	5	15	6	0	0	8
25-34	12	10	0	3	5	35	5	1	3	11
35-44	12	3	1	0	2	26	10	4	8	13
45-54	0	1	1	1	1	19	8	2	7	7
55-64	3	1	2	1	0	14	6	1	4	4
65 & over	1	4	4	0	1	18	4	3	7	1
Unknown	0	0	0	0	1	1	0	0	0	0

¹NHOPI = Native Hawaiian and Other Pacific Islanders

²AI/AN = American Indian/Alaska Native

Table 2. Orange County Pertussis Incidence Rates* by Gender, Race/Ethnicity and Age Group, 2005 – 2014.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total Rate	4.1	2.0	0.8	1.2	2.7	15.5	5.0	1.7	3.0	13.0
Gender										
Male	3.5	2.4	0.8	1.2	2.3	13.9	4.3	1.4	2.5	13.0
Female	4.7	1.6	0.8	1.3	3.2	17.4	5.8	2.0	3.6	13.3
Race/Ethnicity										
White	2.5	1.6	0.6	1.0	2.6	10.4	4.7	1.9	2.9	11.8
Black	--	--	--	--	--	--	--	--	--	--
Hispanic	7.7	3.7	1.4	2.2	3.9	25.9	6.2	1.6	2.6	17.5
Asian	1.5	--	--	--	--	3.4	1.3	--	1.6	1.7
NHOP1 ¹	--	--	--	--	--	--	--	--	--	--
AI/AN ²	--	--	--	--	--	--	--	--	--	--
Multiracial	--	--	--	--	--	--	--	--	--	7.9
Age Group										
Under 1 year	116.7	56.0	14.9	49.7	104.7	287.6	84.0	34.5	45.4	236.8
1-4	5.3	4.2	3.1	--	5.7	49.3	13.1	9.3	10.7	50.1
5-9	6.1	--	--	--	3.5	28.3	8.6	4.0	8.6	31.2
10-14	6.1	--	--	--	2.9	35.8	15.9	2.4	4.9	43.8
15-19	--	2.8	--	2.3	2.2	11.0	5.3	--	--	23.2
20-24	2.4	--	--	--	2.4	7.0	2.8	--	--	3.5
25-34	2.9	2.4	--	--	1.2	8.5	1.2	--	--	2.6
35-44	2.5	--	--	--	--	5.9	2.3	--	1.9	3.1
45-54	--	--	--	--	--	4.3	1.8	--	1.5	1.5
55-64	--	--	--	--	--	4.3	1.8	--	--	--
65 & over	--	--	--	--	--	5.1	--	--	1.8	--

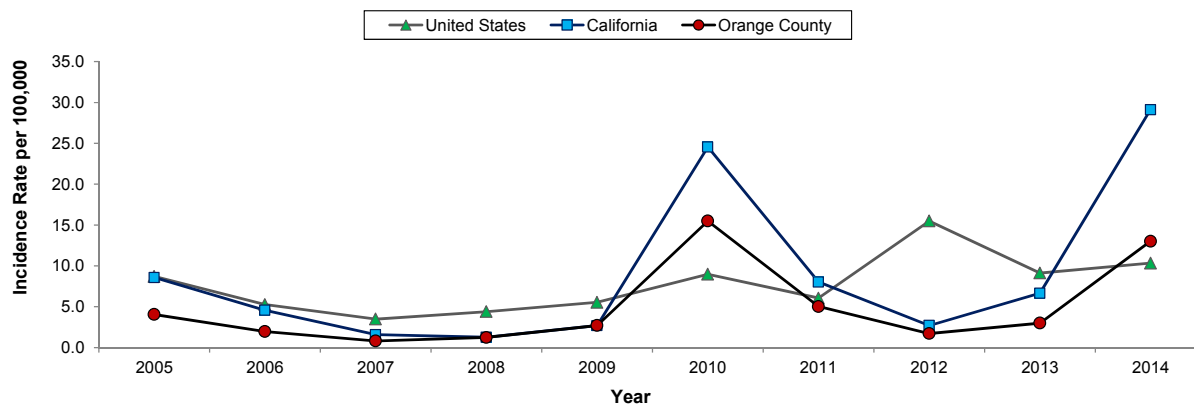
*Incidence rates are per 100,000 population but not calculated when cases are less than five.

**Incidence rates for "Unknown" gender, race/ethnicity, and age cannot be calculated.

¹NHOP1 = Native Hawaiian and Other Pacific Islanders

²AI/AN = American Indian/Alaska Native

Figure 1. Comparison of Pertussis Incidence Rates* in United States, California, and Orange County, 2005-2014.



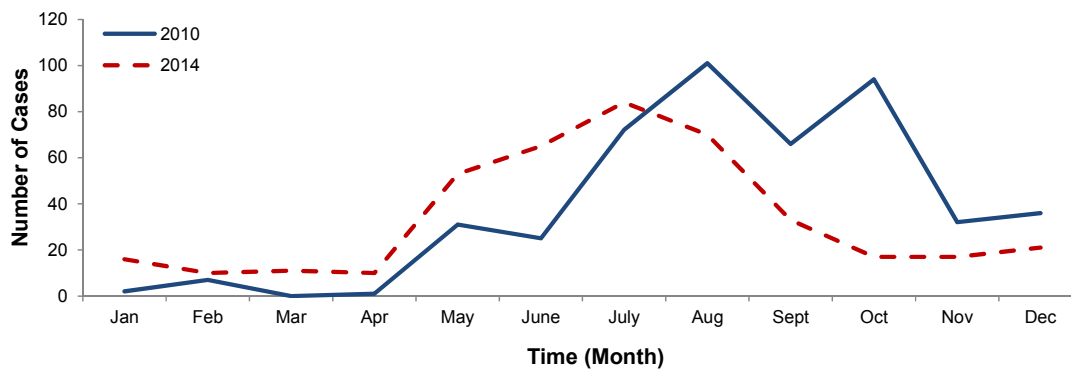
Sources:
 Summary of Notifiable Diseases - United States, 2013. MMWR 2013;62(No. 53)
 Immunization Branch, California Department of Public Health, 5/2015.

Outbreaks

During the outbreak years of 2010 and 2014, two specific groups were disproportionately impacted: children under the age of one and Hispanics. In 2010, the incidence rate for children under the age of one was approximately six times greater than children aged one to four; in 2014, it was five times greater. In the outbreak year of 2010, the incidence rate amongst Hispanics was approximately two and a half times greater than Whites and eight times greater than Asians. For 2014, the incidence rate amongst Hispanics was one and a half times greater than Whites and ten times greater than Asians.

Peak incidence for the two recent outbreak years occurred in different seasons. Outbreak year 2010 peaked twice – once in August, and again in October. In 2014, disease incidence peaked in July. Overall, disease incidence was much lower from January to April compared to the rest of year for both outbreak years.

Figure 2. Comparison of Number of Pertussis Cases During Outbreak Years 2010 and 2014.



Vaccine Recommendations

Children under the age of one, since 2005, have consistently had the highest incidence rate of disease compared to any other age group in Orange County (See Table 2). For children aged up to six years, five doses of DTaP (Pediatric diphtheria, tetanus, acellular pertussis) are recommended starting at two months of age. Starting in 2012, the Advisory Committee on Immunization Practices recommended that all pregnant women receive a dose of Tdap (tetanus, diphtheria, acellular pertussis) at 27–36 weeks gestation.

Vaccination during this time stimulates maternal antibody response and activates passive antibody transfer to the infant, offering protection to the baby against pertussis during the first few months following birth. Maternal vaccination during pregnancy has been found to be 90% effective in preventing pertussis disease in children under two months of age.

For more information about immunizations, including pertussis, please contact the Orange County Health Care Agency Immunization Division by visiting <http://ohealthinfo.com/phs/about/family/iz>

2016 Recommended Immunizations for Children from Birth Through 6 Years Old

