



# Pertussis Report

## August 3, 2015

California experienced a pertussis epidemic in 2014. Pertussis is cyclical and peaks every 3-5 years as the numbers of susceptible persons in the population increases due to waning of immunity following both vaccination and disease. The overall incidence of pertussis has increased since the 1990s. One reason for the increase is the use of acellular pertussis vaccines, which cause fewer reactions than the whole-cell vaccines that preceded them, but do not protect as long. Young infants are at greatest risk of hospitalization and death from pertussis, therefore pregnant women are encouraged to receive pertussis vaccine (Tdap) during the 3rd trimester of every pregnancy. Pertussis antibodies are transferred from vaccinated mothers to their infants and will help protect them until they are old enough to be vaccinated. The primary DTaP vaccine series is essential for reducing severe disease in young infants and should not be delayed. DTaP can be given to infants at an accelerated schedule with the first dose given as early as 6 weeks of age. Even one dose of DTaP may offer some protection against severe pertussis disease in infants.

- **3,404 cases with onset in 2015** have been reported to CDPH (Table 1, Figures 1-2).
  - Pertussis incidence remains high in California. Excluding the epidemic years of 2010 and 2014, more cases of pertussis have already been reported in 2015 than any year since the 1950's (Table 1, Figures 2-3).
  - 126 cases have been hospitalized; 32 (25%) of these required intensive care
    - 89 (71%) of hospitalized patients were infants <4 months of age.
  - One death has been reported in an infant that was <3 weeks of age at the time of disease onset.
  - Overall pertussis rates are highest for infants <1 year of age and older children and adolescents and teens 14-17 years of age (Figure 4). Rates by race/ethnicity are highest for White and Hispanic infants <6 months of age and White, non-Hispanic adolescents and teens aged 10-17 years of age (Figure 5).
  
- **11,203 cases with onset in 2014** were reported to CDPH for a state rate of 29.3 cases per 100,000 population.
  - 456 cases were hospitalized; 119 (26%) of these required intensive care.
    - 278 (61%) of hospitalized patients were infants <4 months of age.
  - Three deaths with disease onset in 2014 were reported; all were infants who were  $\leq 5$  weeks old at time of disease onset.
    - Two additional deaths occurring in 2014 but with disease onset in 2013 were reported. These cases will be attributed to 2013. Both infants were  $\leq 2$  months of age at disease onset.

Table 1. Pertussis cases and rate\* by year of onset and local health jurisdiction – California, 2010-2015\*\*

	2010¶		2011¶		2012¶		2013¶		2014**		2015**	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
<b>CALIFORNIA</b>	<b>9159</b>	<b>24.5</b>	<b>3016</b>	<b>8.0</b>	<b>1023</b>	<b>2.7</b>	<b>2537</b>	<b>6.6</b>	<b>11203</b>	<b>29.3</b>	<b>3404</b>	<b>8.9</b>
ALAMEDA	423	30.2	206	14.6	62	4.4	124	8.6	364	25.1	137	9.4
City of Berkeley‡	13	11.5	3	2.6	6	5.2	13	11.3	56	48.6	9	7.8
ALPINE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
AMADOR	4	10.6	11	29.5	1	2.7	2	5.5	1	2.8	1	2.8
BUTTE	32	14.5	16	7.3	3	1.4	33	14.9	33	14.9	4	1.8
CALAVERAS	9	19.8	5	11.1	0	0.0	2	4.4	17	37.3	1	2.2
COLUSA	11	51.2	1	4.7	0	0.0	0	0.0	0	0.0	4	18.5
CONTRA COSTA	205	19.5	114	10.7	24	2.2	69	6.4	477	44.1	159	14.7
DEL NORTE	16	56.1	0	0.0	0	0.0	0	0.0	2	7.2	0	0.0
EL DORADO	54	29.8	11	6.1	3	1.6	4	2.2	36	19.6	19	10.4
FRESNO	550	59.0	58	6.2	16	1.7	44	4.6	392	40.9	31	3.2
GLENN	1	3.6	1	3.5	0	0.0	0	0.0	1	3.5	2	7.1
HUMBOLDT	58	43.1	15	11.1	1	0.7	5	3.7	149	110.5	56	41.5
IMPERIAL	9	5.1	3	1.7	8	4.5	3	1.7	10	5.6	9	5.0
INYO	8	43.2	0	0.0	1	5.3	0	0.0	0	0.0	0	0.0
KERN	376	44.7	49	5.8	2	0.2	31	3.6	163	18.8	133	15.3
KINGS	26	17.0	7	4.6	0	0.0	2	1.3	16	10.6	5	3.3
LAKE	5	7.7	3	4.7	2	3.1	3	4.7	3	4.7	6	9.3
LASSEN	1	2.8	0	0.0	0	0.0	0	0.0	5	15.3	0	0.0
LOS ANGELES	1303	14.1	612	6.6	209	2.2	342	3.6	1997	21.2	826	8.8
City of Long Beach‡	68	14.7	17	3.7	4	0.9	16	3.4	182	39.1	30	6.4
City of Pasadena‡	24	17.5	15	10.8	1	0.7	2	1.4	22	15.8	6	4.3
MADERA	120	79.3	8	5.3	0	0.0	10	6.5	47	30.7	4	2.6
MARIN	351	138.9	26	10.2	5	2.0	184	71.9	272	106.3	43	16.8
MARIPOSA	10	55.0	1	5.6	0	0.0	0	0.0	0	0.0	0	0.0
MENDOCINO	27	30.7	3	3.4	0	0.0	6	6.8	10	11.3	1	1.1
MERCED	131	51.2	27	10.4	0	0.0	1	0.4	9	3.4	6	2.3
MODOC	0	0.0	0	0.0	0	0.0	0	0.0	6	64.7	0	0.0
MONO	18	126.4	2	14.0	21	146.1	2	14.1	0	0.0	0	0.0
MONTEREY	132	31.7	38	9.0	17	4.0	49	11.5	129	30.4	59	13.9
NAPA	25	18.3	11	8.0	6	4.3	13	9.3	137	98.5	39	28.0
NEVADA	23	23.3	2	2.0	5	5.1	70	71.5	16	16.3	1	1.0
ORANGE	499	16.5	142	4.7	73	2.4	113	3.6	447	14.4	101	3.3
PLACER	80	22.8	19	5.3	11	3.1	86	23.6	122	33.4	32	8.8
PLUMAS	2	10.0	4	20.1	0	0.0	1	5.2	1	5.2	1	5.2
RIVERSIDE	467	21.3	166	7.5	46	2.0	80	3.5	470	20.7	122	5.4
SACRAMENTO	175	12.3	69	4.8	35	2.4	70	4.8	447	30.9	233	16.1
SAN BENITO	7	12.7	3	5.4	1	1.8	1	1.7	11	19.2	3	5.2
SAN BERNARDINO	182	8.9	115	5.6	54	2.6	39	1.9	205	9.9	69	3.3
SAN DIEGO	1140	36.7	398	12.7	162	5.1	408	12.8	2017	63.4	600	18.9
SAN FRANCISCO	141	17.5	70	8.6	30	3.6	59	7.1	128	15.4	45	5.4
SAN JOAQUIN	84	12.2	27	3.9	15	2.1	26	3.7	215	30.5	64	9.1
SAN LUIS OBISPO	371	137.5	15	5.6	14	5.2	17	6.3	45	16.6	9	3.3
SAN MATEO	191	26.5	58	8.0	23	3.1	104	14.0	129	17.4	15	2.0
SANTA BARBARA	66	15.6	18	4.2	11	2.6	28	6.5	120	27.8	50	11.6
SANTA CLARA	478	26.8	176	9.7	45	2.5	254	13.7	538	29.0	101	5.4
SANTA CRUZ	87	33.1	22	8.3	13	4.8	54	19.9	165	60.8	49	18.0
SHASTA	32	18.0	27	15.2	2	1.1	7	3.9	33	18.5	12	6.7
SIERRA	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
SISKIYOU	10	22.3	0	0.0	2	4.4	5	11.1	7	15.5	6	13.3
SOLANO	40	9.7	12	2.9	10	2.4	15	3.5	144	34.0	27	6.4
SONOMA	246	50.8	116	23.8	18	3.7	51	10.4	704	143.0	20	4.1
STANISLAUS	159	30.9	43	8.3	11	2.1	16	3.0	92	17.4	36	6.8
SUTTER	5	5.3	1	1.1	0	0.0	2	2.1	8	8.2	2	2.1
TEHAMA	10	15.8	1	1.6	0	0.0	0	0.0	38	59.9	5	7.9
TRINITY	0	0.0	0	0.0	0	0.0	0	0.0	6	44.6	4	29.8
TULARE	230	51.9	77	17.2	27	6.0	25	5.5	37	8.1	79	17.3
TUOLUMNE	32	58.0	4	7.3	1	1.8	2	3.7	16	29.5	9	16.6
VENTURA	372	45.1	163	19.6	15	1.8	36	4.3	349	41.5	67	8.0
YOLO	17	8.4	5	2.5	6	2.9	4	1.9	147	71.3	50	24.2
YUBA	3	4.1	0	0.0	1	1.4	4	5.5	10	13.6	2	2.7

\*Incidence rate per 100,000 persons

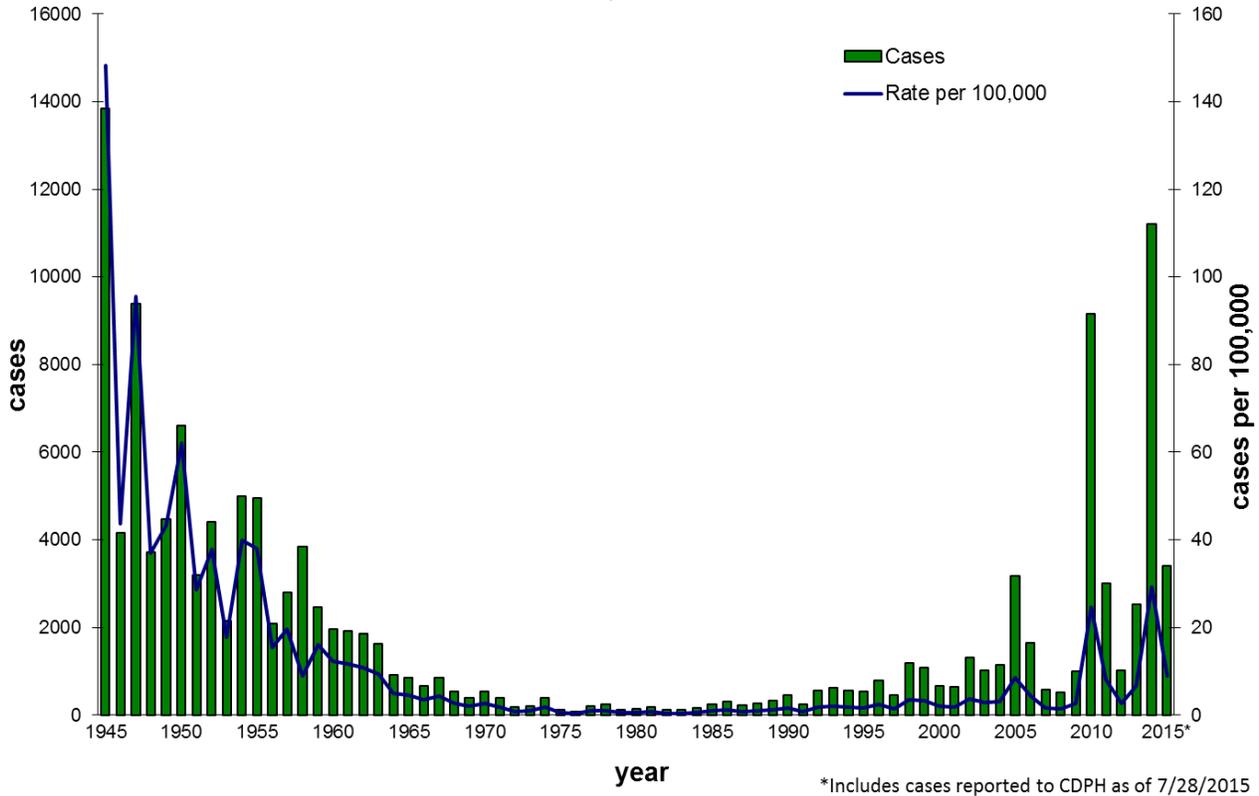
\*\*Includes cases reported to CDPH as of 7/28/2015

¶Data have been updated from previous reports; population denominator data from the Department of Finance have been standardized with 2010 Census data

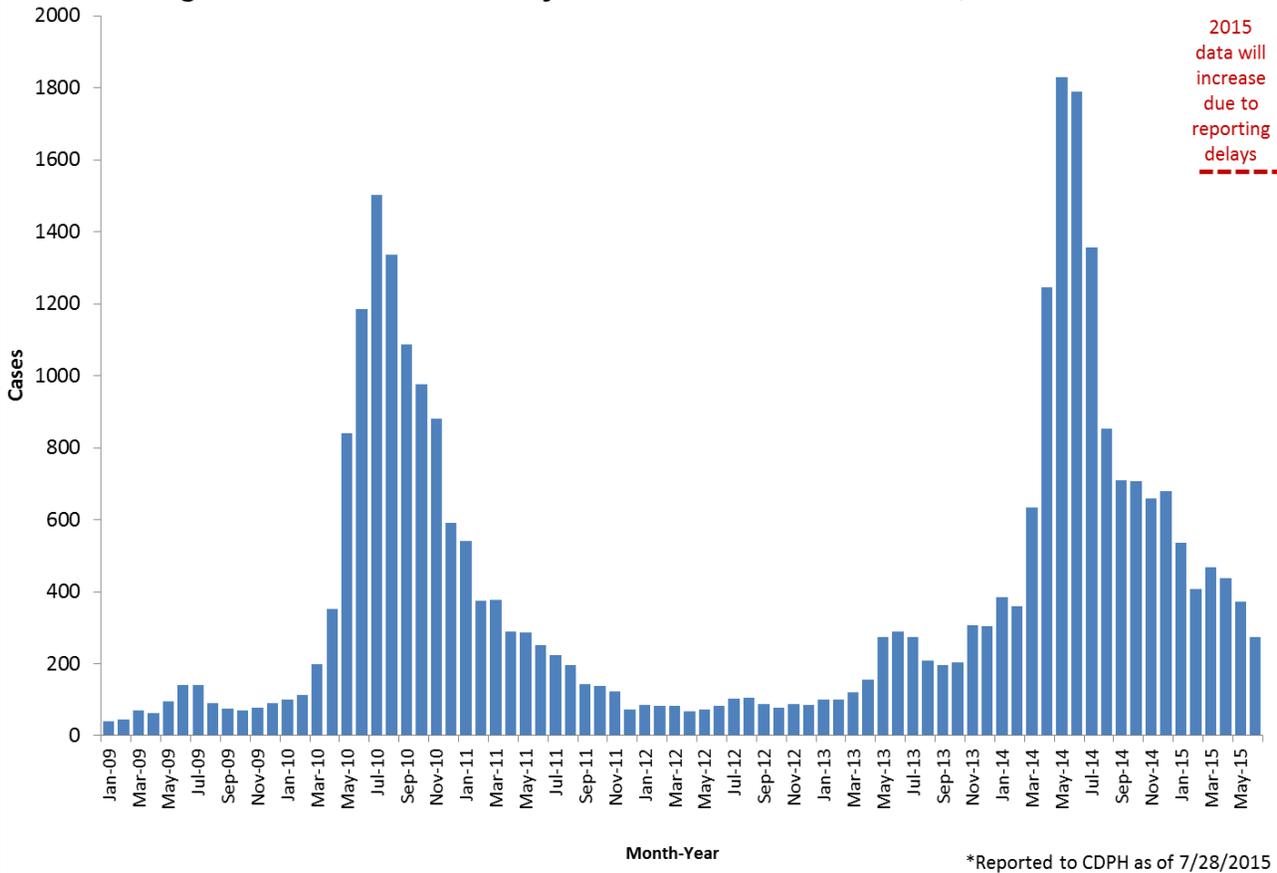
‡City health jurisdictions not included in county total



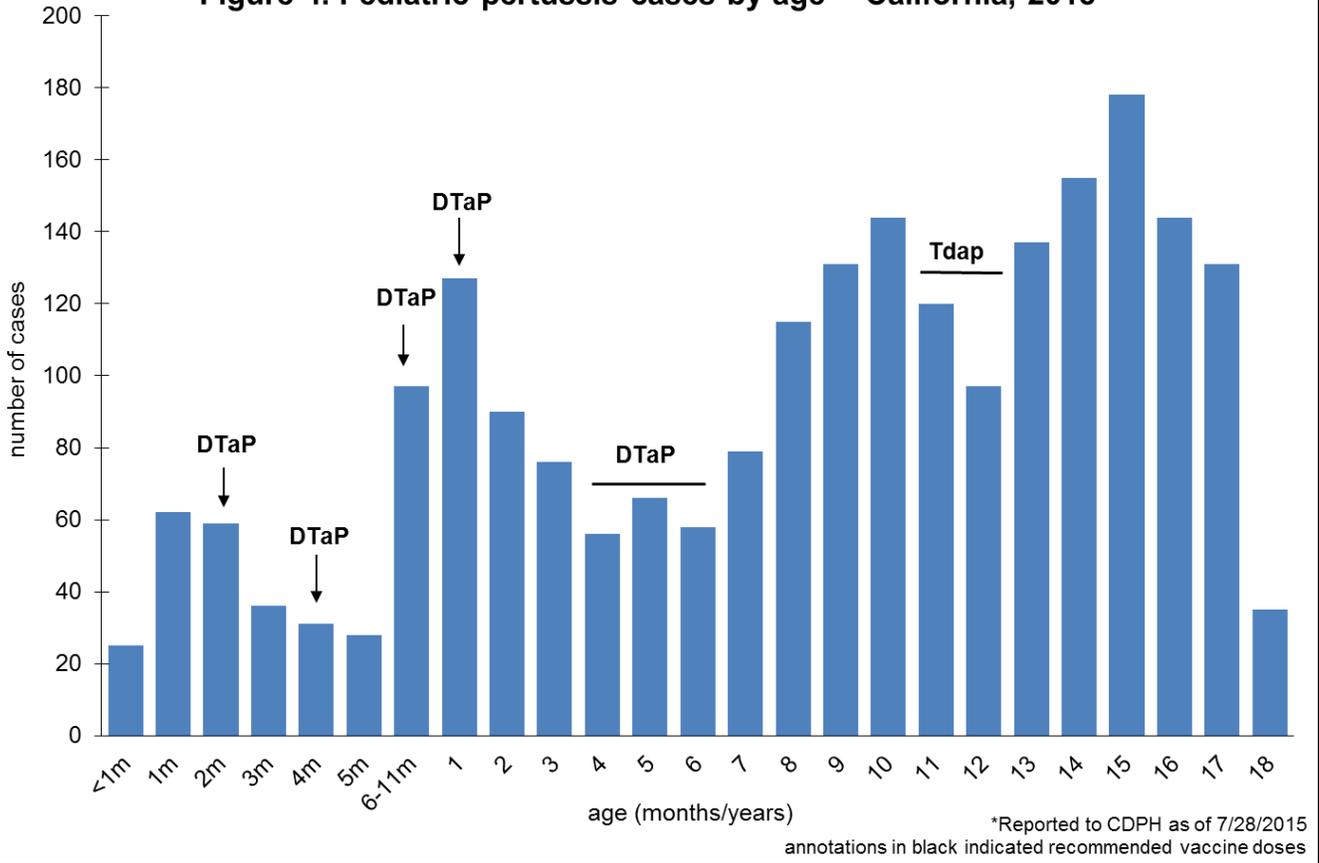
**Figure 2. Number and incidence of reported pertussis cases by year of onset -- California, 1945-2015\***



**Figure 3. Pertussis cases by month of onset -- California, 2009-2015\***



**Figure 4. Pediatric pertussis cases by age -- California, 2015\***



**Figure 5. Pertussis rates by age and race/ethnicity -- California, 2015\***

