

Pertussis Report

June 24, 2014

California is currently experiencing a pertussis epidemic. 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 last epidemic in California occurred in 2010, however, 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 fatal pertussis disease in infants.

2014: 4,558 cases with onset in 2014 have been reported to CDPH for a state rate of 11.9 cases per 100,000 population (Table 1).

- This is more cases than was reported in all of 2013 (Figures 1 and 2).
- 142 cases have been hospitalized; 28 (20%) of these required intensive care.
 - 89 (63%) of hospitalized patients were infants <4 months of age.
- One death has been reported in a 2 month-old infant who was 5 weeks old at time of disease onset.
 - Two additional deaths occurring in 2014 have been reported; one was a 2 month-old infant who was 4 weeks old at time of disease onset. The other was a 1 year-old baby who was 3 weeks old at time of pertussis onset and hospitalized for over a year due to pertussis-related complications. Both patients had disease onset in 2013 and will be attributed to last year.
- Of the 43 (24%) infant cases <4 months of age whose mothers vaccination history was available, only 7 (16%) of mothers had received Tdap during pregnancy; most of these women were not vaccinated in the optimal window of 27-36 weeks gestation.
- The majority of cases (3,614; 84%) have occurred in infants and children <18 years of age and the peak age beyond infancy is 15 years (Figure 3).
 - 236 (7%) of pediatric cases were infants <6 months of age.
 - 2,554 (71%) of pediatric cases were children/adolescents 7-16 years of age.
 - Among 2,710 (75%) of pediatric cases with vaccination history information, 9% had never received pertussis-containing vaccine.
- Elementary, middle and high school outbreaks have been reported from counties all over California.
- Incidence is highest in Sonoma, Napa and Marin Counties (Table 1).
- Overall pertussis rates are highest for infants <1 year of age and older children and adolescents and teens 10-17 years of age. Rates by race/ethnicity are highest for Hispanic infants <1 year of age and White, non-Hispanic adolescents and teens aged 7-17 years of age (Figure 4).

Table 1. Pertussis cases and rate* by year of onset and local health jurisdiction -- California, 2010-2014**

	2010†		2011†		2012†		2013†		2014**	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
CALIFORNIA	9159	24.55	3016	8.03	1023	2.70	2532	6.63	4558	11.93
ALAMEDA	423	30.21	206	14.59	62	4.35	122	8.41	155	10.69
City of Berkeley‡	13	11.51	3	2.62	6	5.20	12	10.42	34	29.53
ALPINE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
AMADOR	4	10.56	11	29.48	1	2.74	2	5.52	0	0.00
BUTTE	32	14.55	16	7.26	3	1.36	33	14.87	7	3.15
CALAVERAS	9	19.80	5	11.08	0	0.00	2	4.39	7	15.38
COLUSA	11	51.20	1	4.65	0	0.00	0	0.00	0	0.00
CONTRA COSTA	205	19.48	114	10.74	24	2.24	69	6.37	169	15.61
DEL NORTE	16	56.06	0	0.00	0	0.00	0	0.00	2	7.16
EL DORADO	54	29.85	11	6.09	3	1.64	4	2.18	14	7.63
FRESNO	550	58.99	58	6.17	16	1.69	41	4.28	252	26.28
GLENN	1	3.55	1	3.54	0	0.00	0	0.00	0	0.00
HUMBOLDT	58	43.07	15	11.09	1	0.74	5	3.71	52	38.57
IMPERIAL	9	5.13	3	1.69	8	4.49	3	1.68	2	1.12
INYO	8	43.17	0	0.00	1	5.29	0	0.00	0	0.00
KERN	376	44.70	49	5.77	2	0.23	31	3.58	66	7.61
KINGS	26	17.03	7	4.61	0	0.00	2	1.33	7	4.65
LAKE	5	7.74	3	4.66	2	3.11	3	4.66	2	3.10
LASSEN	1	2.85	0	0.00	0	0.00	0	0.00	0	0.00
LOS ANGELES	1303	14.12	612	6.61	209	2.24	343	3.64	701	7.45
City of Long Beach‡	68	14.70	17	3.66	4	0.86	16	3.44	107	22.99
City of Pasadena‡	24	17.54	15	10.80	1	0.72	2	1.44	6	4.31
MADERA	120	79.30	8	5.26	0	0.00	10	6.53	24	15.68
MARIN	351	138.90	26	10.22	5	1.97	184	71.91	156	60.96
MARIPOSA	10	54.96	1	5.56	0	0.00	0	0.00	0	0.00
MENDOCINO	27	30.71	3	3.41	0	0.00	6	6.77	1	1.13
MERCED	131	51.19	27	10.42	0	0.00	1	0.38	4	1.52
MODOC	0	0.00	0	0.00	0	0.00	0	0.00	1	10.79
MONO	18	126.43	2	13.98	21	146.07	2	14.11	0	0.00
MONTEREY	132	31.71	38	9.05	17	4.03	49	11.54	71	16.72
NAPA	25	18.28	11	7.99	6	4.35	13	9.35	106	76.20
NEVADA	23	23.32	2	2.03	5	5.11	70	71.51	4	4.09
ORANGE	499	16.54	142	4.66	73	2.37	113	3.64	149	4.80
PLACER	80	22.84	19	5.33	11	3.05	85	23.28	55	15.06
PLUMAS	2	10.05	4	20.06	0	0.00	1	5.19	1	5.19
RIVERSIDE	467	21.31	166	7.48	46	2.04	80	3.53	148	6.53
SACRAMENTO	175	12.32	69	4.82	35	2.44	70	4.84	217	14.99
SAN BENITO	7	12.65	3	5.36	1	1.76	1	1.75	1	1.75
SAN BERNARDINO	182	8.93	115	5.60	54	2.62	38	1.83	63	3.03
SAN DIEGO	1140	36.74	398	12.73	162	5.14	408	12.82	599	18.82
SAN FRANCISCO	141	17.49	70	8.61	30	3.65	59	7.10	26	3.13
SAN JOAQUIN	84	12.23	27	3.90	15	2.15	26	3.69	77	10.94
SAN LUIS OBISPO	371	137.54	15	5.55	14	5.17	17	6.25	14	5.15
SAN MATEO	191	26.54	58	7.97	23	3.13	104	14.00	47	6.33
SANTA BARBARA	66	15.57	18	4.23	11	2.58	28	6.48	18	4.16
SANTA CLARA	478	26.76	176	9.74	45	2.46	257	13.86	222	11.98
SANTA CRUZ	87	33.05	22	8.28	13	4.84	54	19.89	48	17.68
SHASTA	32	18.03	27	15.16	2	1.12	7	3.92	11	6.17
SIERRA	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SISKIYOU	10	22.27	0	0.00	2	4.41	5	11.05	2	4.42
SOLANO	40	9.68	12	2.90	10	2.38	15	3.54	89	21.03
SONOMA	246	50.82	116	23.83	18	3.68	51	10.36	552	112.12
STANISLAUS	159	30.86	43	8.30	11	2.10	16	3.03	42	7.96
SUTTER	5	5.28	1	1.06	0	0.00	2	2.06	0	0.00
TEHAMA	10	15.75	1	1.57	0	0.00	0	0.00	27	42.56
TRINITY	0	0.00	0	0.00	0	0.00	0	0.00	3	22.32
TULARE	230	51.91	77	17.20	27	5.97	25	5.48	14	3.07
TUOLUMNE	32	58.03	4	7.27	1	1.85	1	1.84	5	9.21
VENTURA	372	45.09	163	19.63	15	1.80	36	4.28	131	15.59
YOLO	17	8.44	5	2.47	6	2.93	4	1.94	47	22.79
YUBA	3	4.15	0	0.00	1	1.37	4	5.46	0	0.00

*Incidence rate per 100,000 persons

**Includes cases reported to CDPH as of 6/24/2014; the case count for Los Angeles County has increased from previously published reports and now include cases classified as 'Suspect', consistent with other local health jurisdictions

†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 1. Number and incidence of reported pertussis cases by year of onset -- California, 1946-2014*

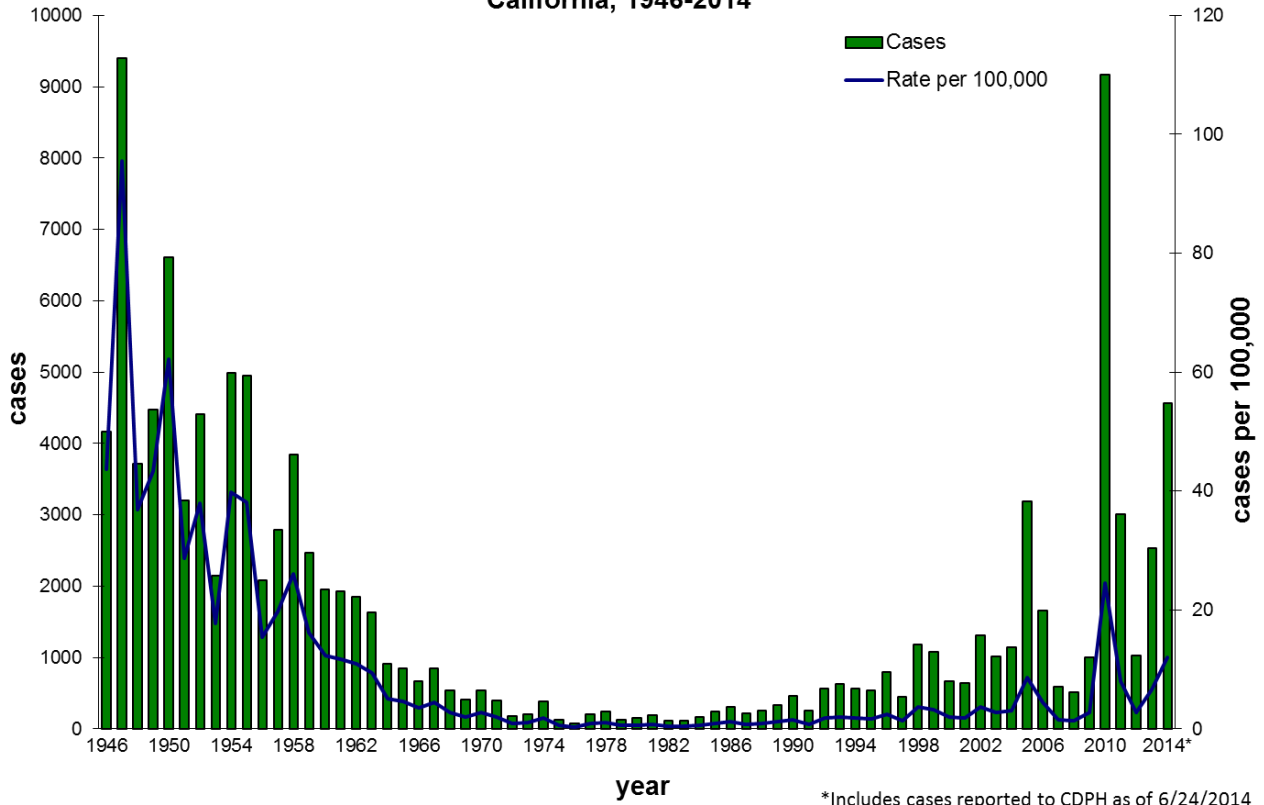


Figure 2. Pertussis cases by month of onset -- California, 2009-2014*

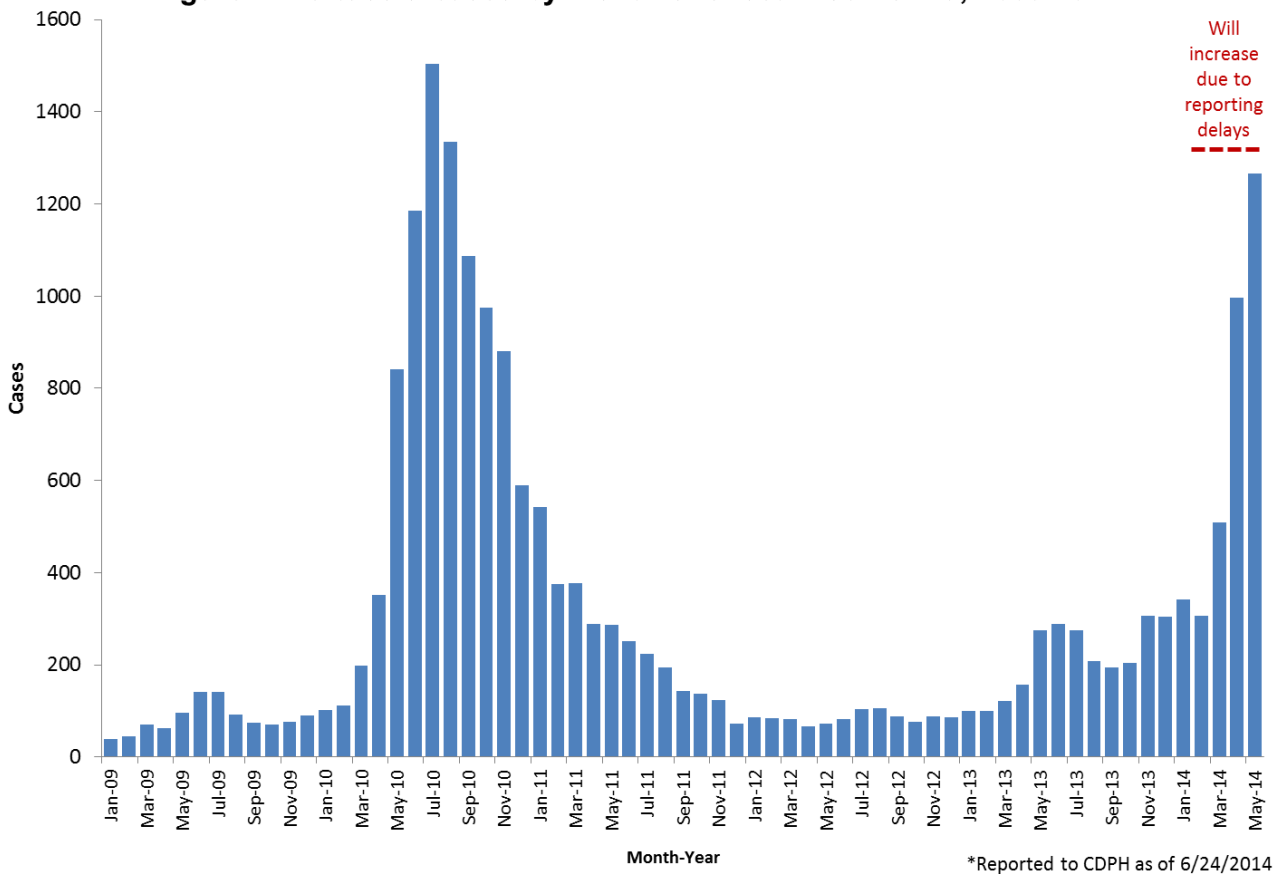


Figure 3. Pediatric pertussis cases by age -- California, 2014*

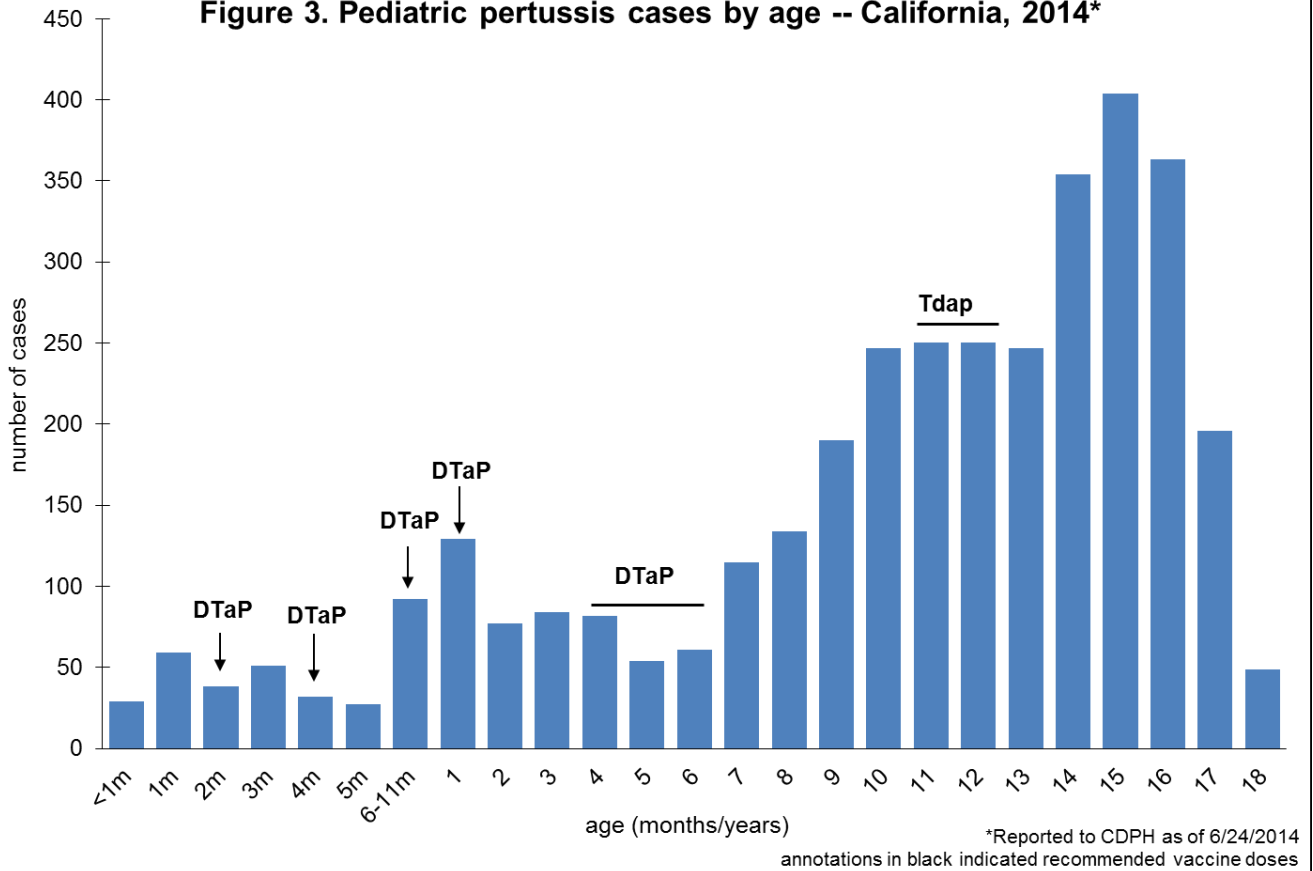


Figure 4. Pertussis rates by age and race/ethnicity -- California, 2014*

