



Infectious Disease Epidemiology Report



Pertussis, Maine 2016

Background

Pertussis is caused by bacteria called *Bordetella pertussis*. Pertussis is clinically defined as a cough illness lasting at least two weeks with one or more of the following:

- Paroxysms of coughing
- Inspiratory “whoop”
- Post-tussive vomiting
- Apnea (for infants less than 1 year old)

The disease symptoms mainly affect the respiratory tract. Pertussis can be very serious, especially in infants.

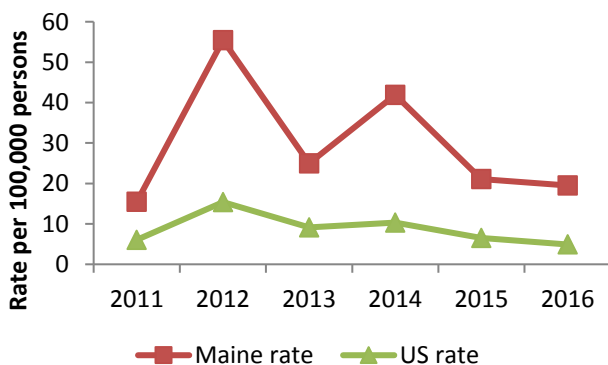
Methods

The Infectious Disease Epidemiology Program of Maine Center for Disease Control and Prevention monitors the incidence of pertussis through mandatory reporting by health care providers, clinical laboratories and other public health partners. Pertussis cases must be clinically compatible, with laboratory confirmation or epidemiological-linkage to a lab confirmed case to be counted as a case. Standardized case reports were completed for all cases and were documented in Maine CDC’s surveillance system.

Results

A total of 259 cases of pertussis were reported in 2016, a slight decrease from the 281 cases reported in 2015. The 2016 rate of pertussis in Maine was 19.5 cases per 100,000 persons. (Figure 1).

Figure 1: Pertussis rates, Maine and the US – 2011-2016



Of the 259 reported cases, 3 (1.6%) were hospitalized. 219 (84.5%) reported receiving at least one pertussis vaccine and 182 (70.3%) were defined as being up to date on vaccination (they had received the correct number of doses for their age (up to date)* (Table 1).

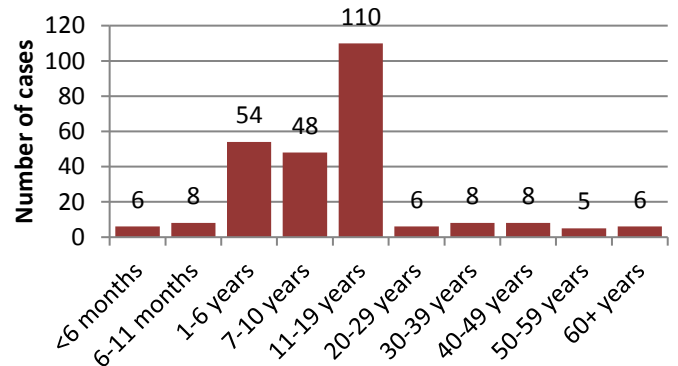
Table 1: Pertussis Vaccination status – Maine, 2016

Age	Un- or under-vaccinated	Up to date*	Unk	Total
< 6 months	0	6	0	6
6 – 1 months	3	5	0	8
1-6 years	7	47	0	54
7 – 10 years	9	39	0	48
11 – 19 years	30	80	0	110
> 20 years	1	5	27	33
Total	50	182	27	259

* Up to date indicates the proper number of doses were given, it does not determine if the doses were given at the proper intervals.

The majority of cases occurred (n = 158) among children and adolescents aged 7-19 years (61.0%). Fourteen cases (8.8%) were identified in children less than 1 year of age, including six under six months old (Figure 2).

Figure 2: Pertussis by Age Group – Maine, 2016



Almost all pertussis cases reported having paroxysmal cough (98.4%), and over half had post-tussive vomiting (Table 2).

Table 2: Pertussis by Symptoms* – Maine, 2016

Symptoms	#	%
Apnea	22	8.4
Paroxysmal cough	255	98.4
Post-tussive vomiting	133	51.3
Whoop	48	18.5

* Cases may report more than one symptom

Pertussis cases were identified among residents of fourteen Maine counties in 2016 (Table 3). Kennebec, Oxford and Waldo counties had the highest incidence with 53.1, 62.9 and 45.7 cases per 100,000 persons respectively compared to the state rate of 19.5 cases per 100,000 persons. In total, six counties had rates above the state rate (Aroostook, Kennebec, Knox, Oxford, Waldo and York).

Figure 3: Pertussis Rate by County per 100,000 persons - Maine, 2015

County	Count	Rate
Androscoggin	1	0.9
Aroostook	19	28.0
Cumberland	55	18.8
Franklin	1	3.3
Hancock	1	1.8
Kennebec	64	53.1
Knox	9	22.6
Lincoln	1	2.9
Oxford	36	62.9
Penobscot	8	5.3
Piscataquis	0	0.0
Sagadahoc	1	2.8
Somerset	4	7.9
Waldo	18	45.7
Washington	0	0
York	41	20.3
Maine	259	19.5

Discussion

Pertussis cases decreased from 2015, with the majority of cases still occurring in school aged children. The majority of cases (over 80%) reported receiving at least one vaccine, and 70% were up to date with the correct number of doses for their age (as reported to Maine CDC). This may

be skewed in the adult population as many adults do not have their childhood vaccination records and may have only reported booster doses. This data does not tell us if the case followed the proper vaccination schedule, it just provides an estimate of the number of cases who have the correct number of doses of vaccine.

Maine CDC encourages providers to test clinically appropriate patients and report all pertussis cases. Early treatment of pertussis is very important and may lessen symptoms. This is particularly important for infants due to the severity of illness. Maine CDC developed guidance for clinicians for infant cases modified from American Academy of Pediatrics California District which includes the recommendation to hospitalize all suspected pertussis cases in infants \leq three months old.

Health care providers are encouraged to promote the use of pertussis vaccines. Starting in 2017, all 7th graders are required to have a dose of Tdap. There are two pertussis vaccines (DTaP and Tdap). Both vaccines contain pertussis antigen in combination with tetanus and diphtheria.

- Tdap is recommended only for a single dose across all age groups except for pregnant women.
- Tdap is recommended during each pregnancy.

Pertussis cases can be reported to Maine CDC by calling 1-800-821-5821 or faxing to 1-800-293-7534. For more information contact your healthcare provider or local health center.

More information about pertussis can be found at:

- Maine CDC
<http://www.maine.gov/dhhs/mecdc/infectious-disease/epi/vaccine/pertussis.shtml>
- Federal CDC
<http://www.cdc.gov/pertussis>
- Federal vaccine schedule
<http://www.cdc.gov/vaccines/schedules/>
- Infant guidance
<http://www.maine.gov/dhhs/mecdc/infectious-disease/epi/vaccine/documents/Pertussis-Infants-Guidance-Clinicians.docx>