



Infectious Disease Epidemiology Report



Pertussis, Maine 2014

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.

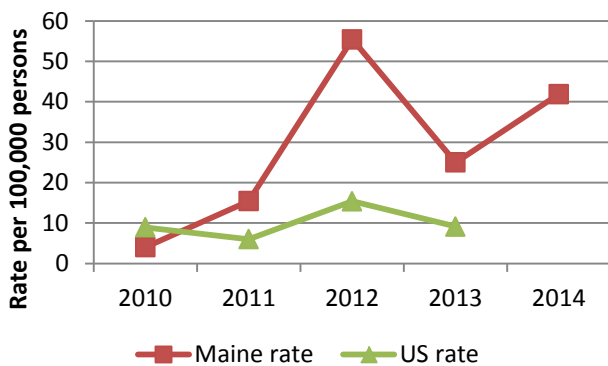
Methods

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 557 cases of pertussis were reported in 2014, an increase from the 332 cases reported in 2013. The 2014 rate of pertussis in Maine was 41.9 cases per 100,000 persons. (Figure 1).

Figure 1: Pertussis rates, Maine and the US – 2010-2014



Of the 557 reported cases, nine (1.6%) were hospitalized, and 450 (80.8%) reported ever receiving a pertussis vaccine. Of the 557 reported cases, 315 (56.6%) had the correct number of doses for their age (up to date)* (Table 1).

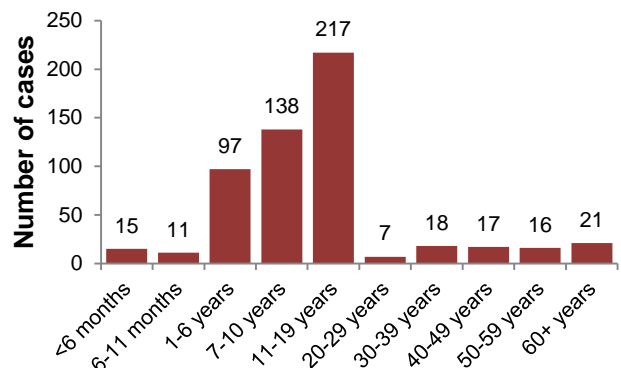
Table 1: Pertussis Vaccination status – Maine, 2014

Age	Un- or under-vaccinated	Up to date*	Unk	Total
<2 months	5	NA	0	5
2-3 months	1	4	0	5
4-5 months	2	3	0	5
6-14 months	11	5	0	16
15 months - 3 years	16	34	0	50
4-10 years	41	136	3	180
11-18 years	78	130	6	214
>18 years	39	3	40	82
Total	193	315	49	557

* 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 among children and adolescents aged 7-19 years (63.7%). Twenty-six cases (4.7%) were identified in children less than 1 year of age, including fifteen under six months old (Figure 2).

Figure 2: Pertussis by Age Group – Maine, 2014



Almost all pertussis cases reported having paroxysmal cough, and the majority had post-tussive vomiting (Table 2).

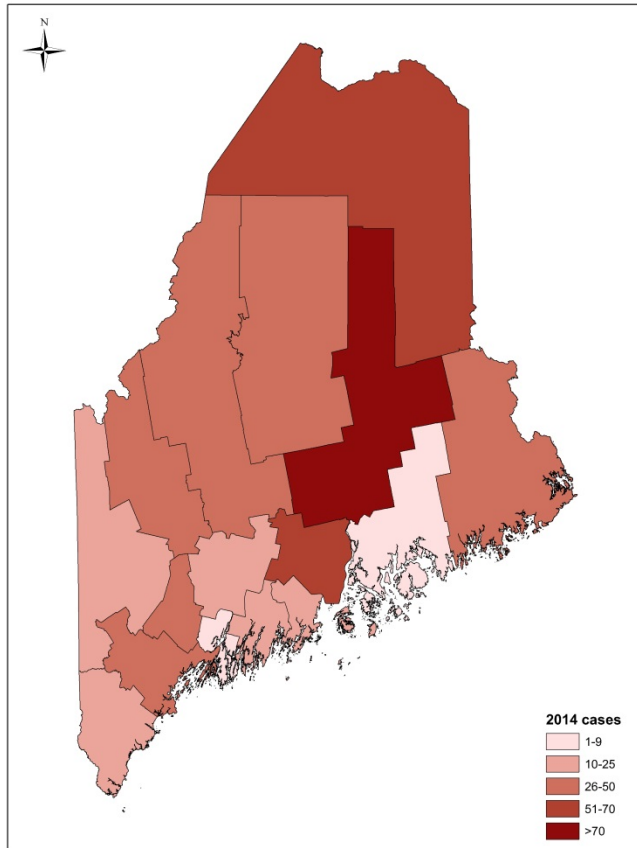
Table 2: Pertussis by Symptoms* – Maine, 2014

Symptoms	#	%
Apnea	42	7.5
Paroxysmal cough	544	97.7
Post-tussive vomiting	307	55.1
Whoop	102	18.3

* Cases may report more than one symptom

Pertussis cases were identified among residents of all sixteen Maine counties in 2014 (Figure 3). Franklin and Piscataquis counties had the highest incidence with 165 cases per 100,000 persons compared to the state rate of 41.9 cases per 100,000 persons. Nine counties had rates above the state rate (Aroostook, Franklin, Knox, Lincoln, Penobscot, Piscataquis, Somerset, Waldo, and Washington).

Figure 3: Pertussis by County - Maine, 2014



Discussion

Pertussis cases increased from 2013, with the majority of cases occurring in school aged children. The majority of cases (over 80%) reported receiving at least one vaccine, but a little more than half 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 include the recommendation to hospitalize all suspected pertussis cases in infants less than three months old.

Health care providers are encouraged to promote the use of pertussis vaccines. 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.

Additional information about pertussis disease 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>