June 2018

Summary

State activity:

- **Thirty-six pertussis cases were reported among 16 counties in May.**
  - Pertussis activity increased slightly from the previous month but remained consistent with trends observed in previous years at this time.
  - From January 1, 2018 through June 30, 2018, 146 cases of pertussis were reported among 30 of Florida's 67 counties.
- Since 2014, an overall decrease in the annual number of cases of pertussis reported has been observed. Pertussis is cyclic in nature with peaks in disease every 3-5 years. Pertussis cases last peaked between 2013 and 2014. Thus far in 2018, it appears case counts will remain consistent with those seen during non-peak years.
- **There were two outbreaks of pertussis reported in June.**
  - One outbreak was in a school, and the other in a daycare.
  - For most pertussis cases, exposure to other known cases is never identified, and they are not able to be linked to outbreaks.
- **In June, for every pertussis case identified, there was an average of three exposed contacts who were recommended antibiotics to prevent illness.** For those diagnosed with pertussis, antibiotics can shorten the amount of time they are contagious to others. Antibiotics can also be used to prevent illness in those who have been exposed to someone with pertussis while they are contagious.
- **Infants less than one year old had the highest incidence of pertussis.** This is consistent with national trends. Infants less than two months old are too young to receive vaccinations against pertussis, which is why vaccination of other age groups is so important to help prevent infection in infants.
- **Vaccination is the best way to prevent pertussis infections.** In June, more than half of reported cases had not received the recommended number of pertussis vaccinations for their age or had unknown vaccination status. In general, those who have received at least one pertussis vaccination have less severe outcomes than those who have never been vaccinated. **In June, those who were too young for vaccination were most likely to visit the emergency department and require hospitalization.**
- To learn more about pertussis, please visit http://www.floridahealth.gov/pertussis.

National activity:

- The number of pertussis cases has been gradually increasing since the 1980s, peaking in 2012 at levels not seen since the 1950s. Since 2012, the number of pertussis cases has started to gradually decrease.
- Pertussis incidence has remained highest among infants less than one year old and lowest among those age 20 and older since the 1990s.

Map 2

Map 2 shows the previous three-month average of pertussis incidence rates per 100,000 population, March through May 2018 (green shading). Counties with one or more cases reported in June 2018 are highlighted in pink.
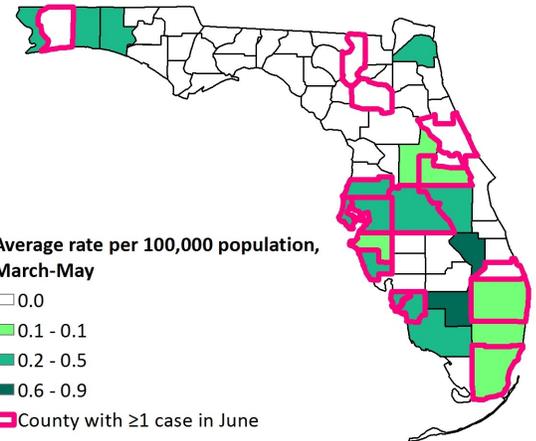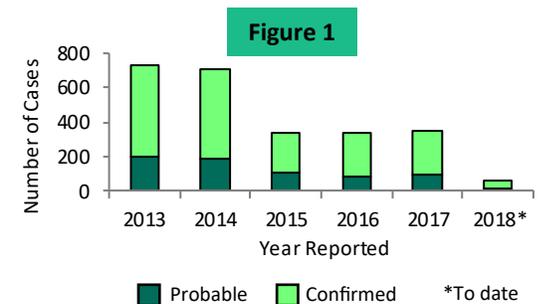

Average rate per 100,000 population, March-May
- 0.0
- 0.1 - 0.1
- 0.2 - 0.5
- 0.6 - 0.9
- County with ≥1 case in June

Figure 1 shows the number of confirmed and probable cases of pertussis reported into Merlin, 2013 through June 2018.

Probable   Confirmed   *To date

Pertussis surveillance goals:

- Pertussis surveillance is conducted to identify cases to limit transmission in settings with infants or others who may transmit pertussis to infants, and identify and prevent outbreaks.
- Surveillance is also conducted to identify contacts of cases and recommend appropriate prevention measures, including exclusion, antibiotic prophylaxis and immunization and to monitor the effectiveness of immunization programs and vaccines. For more information on the data sources used in Florida for pertussis surveillance, see page 11 ▶
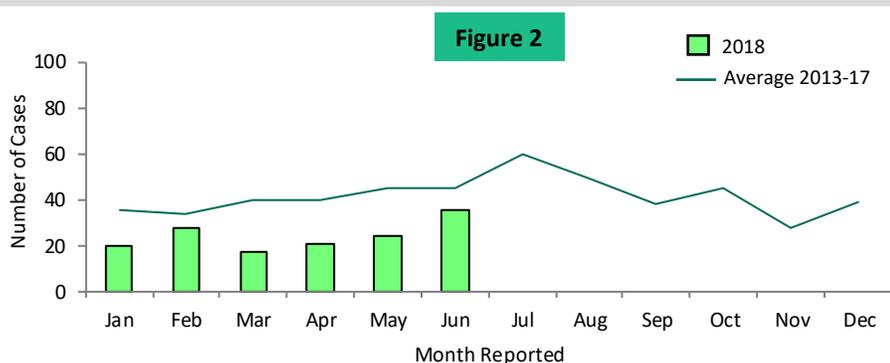
Pertussis Cases by Month Reported

Figure 2 shows the number of confirmed and probable cases of pertussis reported into Merlin, January 2018 through June 2018 and the previous five-year average.

In June, the number of reported pertussis cases increased from May and remained below the five-year average. In general, the number of reported pertussis cases tends to be highest during the summer months.
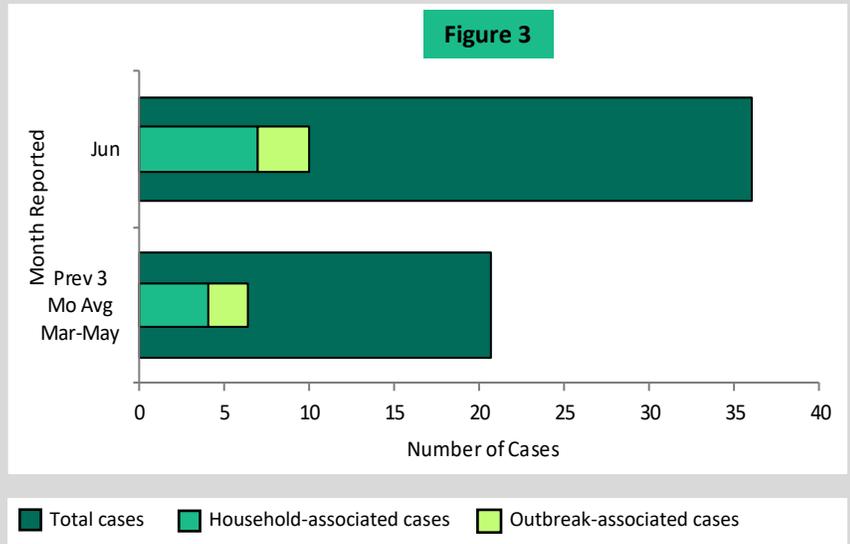
Pertussis Outbreaks

Figure 3 shows the number of confirmed and probable cases that were associated with at least one other case and the total number of confirmed and probable cases as reported into Merlin, June 2018 and the previous three-month average.

In June, seven (19%) cases were associated with transmission within households and three (8%) cases were outbreak associated.

Outbreak Summary:

In June, two outbreaks of pertussis was reported. The first outbreak consisted of two cases, and transmission occurred in a school. The second outbreak consisted of two cases, and transmission occurred in a daycare.

See page 11 for outbreak definitions.

Figure 3

Month Reported

Jun

Prev 3 Mo Avg Mar-May

Number of Cases

■ Total cases   ■ Household-associated cases   ■ Outbreak-associated cases

Pertussis Treatment and Contacts

Figure 4

= 10 individuals

36 cases in June

108 contacts in June

146 cases in 2018

390 contacts in 2018

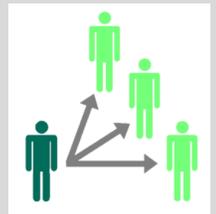**Figure 4** shows the number of confirmed and probable cases of pertussis, as reported into Merlin, and the number of contacts who were recommended antibiotics to prevent illness, June 2018 and 2018 to date.

For each case reported in June, there was an average of three contacts recommended antibiotics to prevent illness.
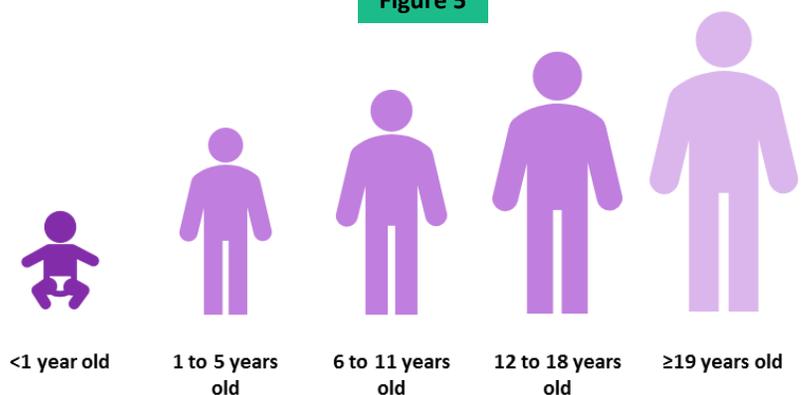
Pertussis Age-Specific Incidence Rates

Figure 5 shows the age-specific incidence rates of confirmed and probable cases of pertussis, as reported into Merlin, June 2018.

In June, the incidence rate was highest among infants less than one year old at 4.4 cases per 100,000 population, which is consistent with previous months. Infants experience the greatest burden of pertussis infections, not only in number of cases but also in severity. Infants less than two months old are too young to receive vaccinations against pertussis, which is why vaccination of grandparents, parents, siblings, and other age groups is so important to help prevent infection in infants.

Figure 5

<1 year old   1 to 5 years old   6 to 11 years old   12 to 18 years old   ≥19 years old

Age-specific incidence rate per 100,000 population

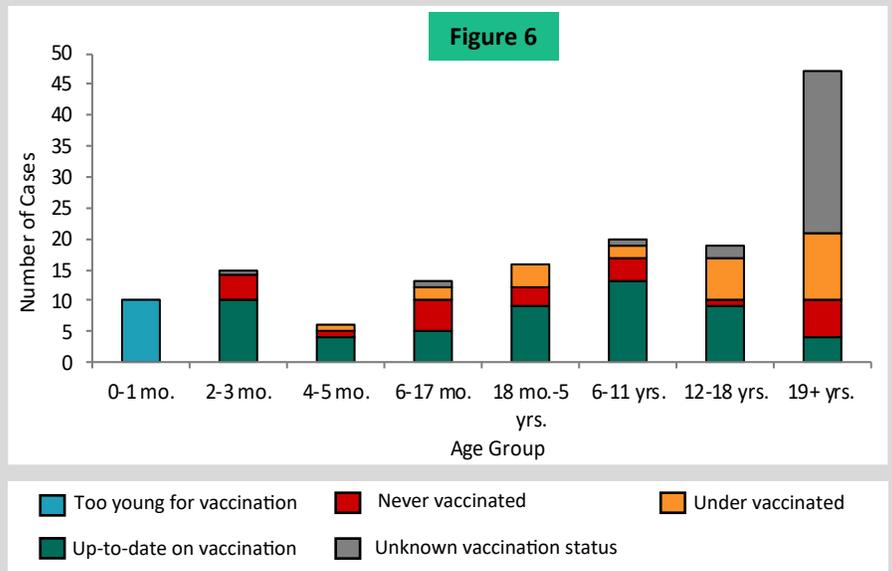□ 0.01—0.20   □ 0.21—0.49   □ 0.50—1.00   ■ 1.01—4.50

Vaccination History for Pertussis Cases
UTD = up-to-date

Figure 6 shows the vaccination status of pertussis cases by age group for confirmed and probable cases of pertussis, as reported into Merlin, January through June 2018 (n=146).

Most individuals in the 6-17 months age group were not up-to-date on their pertussis vaccinations. In general, those who have received at least one pertussis vaccination have less severe outcomes than those who have never been vaccinated. Over half of individuals 19 years and older had unknown vaccination status.

See page 11 for links to CDC recommended vaccination schedules.

Figure 6

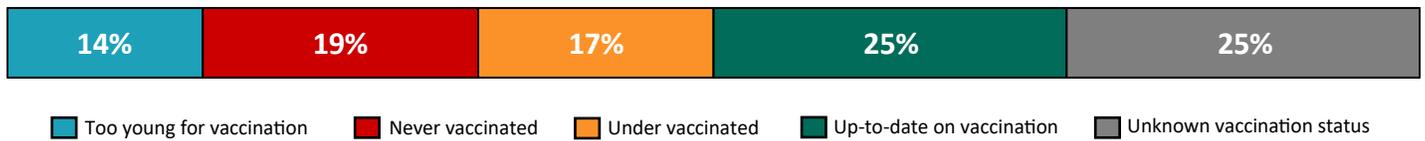## Pertussis Cases by Vaccination Status
UTD = up-to-date

Figure 7 shows the percent of confirmed and probable pertussis cases for each vaccination status, as reported into Merlin, June 2018.

Although individuals who have been vaccinated can still get pertussis, complete and timely vaccination remains the best way to prevent pertussis and severe complications.

In June, 14% of cases were too young for vaccination. Vaccination against pertussis is important for infants, children, teenagers, and adults. Pregnant women should get vaccinated during the third trimester of each pregnancy to protect their babies.

Figure 7

Too young for vaccination	Never vaccinated	Under vaccinated	Up-to-date on vaccination	Unknown vaccination status
14%	19%	17%	25%	25%

Pertussis Outcomes
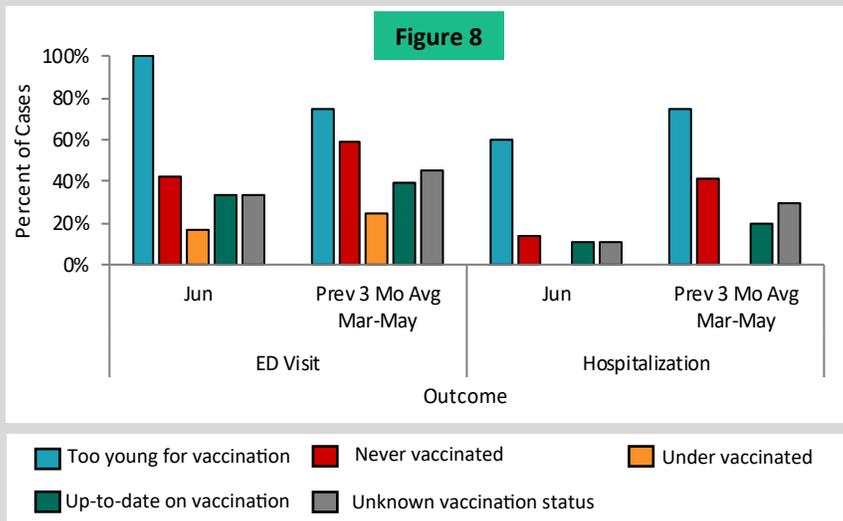### UTD = up-to-date, ED = emergency department

Figure 8

Figure 8 shows the percent of confirmed and probable cases of pertussis with select outcomes by vaccination status, as reported into Merlin, June 2018 and the previous three-month average.

In June and the previous three-month average, cases who were too young for vaccination were more likely to visit the emergency department and require inpatient hospitalization.

In general, older individuals are more likely to experience paroxysmal cough while younger individuals are more likely to experience posttussive vomiting and whoop. Infants less than one year old primarily experience apnea.

Case Data
- Current case information is preliminary and will change as new data are gathered. The most recent data available are displayed in this report.
- Pertussis, varicella, and mumps are reportable diseases in Florida. Case information is documented by county health department (CHD) epidemiologists in Merlin, Florida's reportable disease surveillance system.
- CHD epidemiologists also report outbreaks of pertussis, varicella, and mumps into Merlin.
  - Household-associated cases are defined as two or more cases exposed within the same household.
  - Pertussis and mumps outbreaks are defined as two or more cases associated with a specific setting outside of a household.
  - Varicella outbreaks are defined as five or more cases associated with a specific setting outside of a household.
- For more information about reportable diseases, please visit www.Floridahealth.gov/diseasereporting.
- For more information about Florida's guides to surveillance and investigation, including disease specific probable and confirmed case definitions, please visit www.Floridahealth.gov/gsi.
- For the full article on a Minnesota outbreak of measles, please visit https://www.cdc.gov/mmwr/volumes/66/wr/mm6627a1.htm

Population Data
- Population data used to calculate incidence rates are from FLHealthCHARTS (Community Health Assessment Resource Tool Set).
- For more information about FLHealthCHARTS, please visit www.flhealthcharts.com.

Vaccination Data
- Vaccination data from cases are from Merlin, as identified by CHD epidemiologists.
- Vaccination status is determined using the Advisory Committee on Immunization Practices Recommended Immunization Schedule for Children and Adolescents Aged 18 Years or Younger, 2018.
- Cases are considered up-to-date if they have received the recommended number of doses of vaccine for a particular disease for their age at the time of their illness onset. Cases are considered under vaccinated if they have received at least one but not all doses of vaccine recommended for a particular disease for their age at the time of their illness onset.
- For more information about immunization schedules, please visit https://www.cdc.gov/vaccines/schedules/index.html.
- For a full text version of a new study on pertussis vaccination, please visit http://www.cidid.org/publications-1/2018/3/29/the-impact-of-past-vaccination-coverage-and-immunity-on-pertussis-resurgence