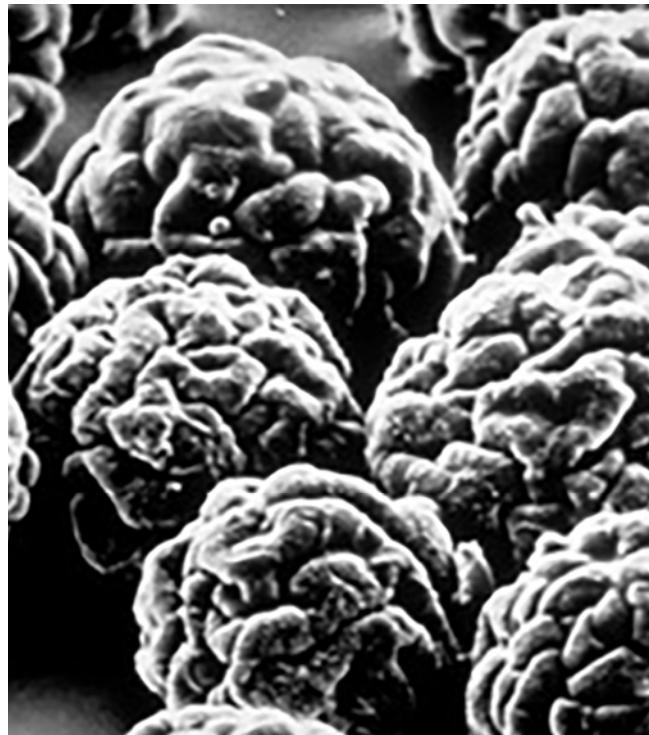




*mi*Ottawa Department of  
**Public Health**

## 2017 Vaccine Preventable Disease Summary



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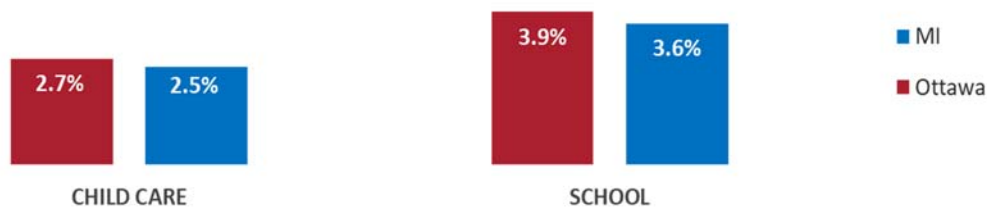
## 2017 Summary of Vaccine Preventable Diseases in Ottawa County

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This is a detailed summary of reported cases of selected vaccine preventable diseases (VPDs) in Ottawa County during 2017. See the [2017 Annual Summary of Reportable Diseases](#) for the number of county cases for all reportable diseases.

A slightly higher percentage of Ottawa County children have nonmedical waivers objecting to one or more vaccines for philosophical or religious reasons (see Figure 1) than Michigan.<sup>1</sup> Children without medically documented immunity from a disease or a record of vaccination can be excluded from school or child care for 3 or more weeks when a case of a VPD is reported in their building.

Fig. 1. A higher percentage of school-aged children have vaccine waivers than children in childcare/preschool.



Vaccines for the following diseases are recommended for children by the time they are three years old<sup>5</sup>:

**Chickenpox**  
**Hepatitis A**  
**Hepatitis B**  
**H. influenza, serotype b**  
**Influenza**

**Measles, Mumps & Rubella**  
**Pneumococcal bacteria**  
**Polio**  
**Rotavirus**  
**Whooping Cough**

In Ottawa County, only 70.7% of children have all of the recommended vaccines by the time they are three years old. Still, Ottawa County ranks 1<sup>st</sup> among Michigan's counties for the percentage of young children who are fully vaccinated and 15<sup>th</sup> among Michigan's counties for the percentage of fully vaccinated adolescents.<sup>1</sup>

All vaccine-preventable diseases (VPDs) can make people very sick; some can kill. VPD rates are low in Ottawa County, but if the percentage of vaccine waivers continue to increase, these diseases can spread and create epidemics. Some children and adults cannot be vaccinated because of their health. Vaccinating not only protects the one being vaccinated, it protects others who can't. In 2017, there were 15 outbreaks of VPDs (including influenza). There were two instances when unvaccinated people exposed to a confirmed case of a VPD were excluded by public health order from school, preschool and childcare for 21 days.

Since VPDs occur less often than they used to, the Ottawa County Department of Public Health recommends that health care providers [request an appropriate laboratory test](#) to confirm the diagnosis of any suspect vaccine preventable disease. Chickenpox (varicella), whooping cough (pertussis) and mumps are easy to misdiagnose, leading to delayed treatment and further spread of disease. Report all suspected VPDs within 24 hours to the Ottawa County Department of Public Health at (616) 393-5266.

## Five-Year VPD Trends

Of the 14 VPDs, 8 had no reported cases over the past five years, indicating that overall, vaccination is offering good protection to our community. The top 2 VPDs by their 5-year average:

### Pertussis a.k.a whooping cough

**31.2 cases/yr**

Number of cases fluctuates from year to year



### Varicella a.k.a. chickenpox

**24.6 cases/yr**

Declining trend in cases in the past five years



Table 1. Confirmed, probable or suspect VPD cases reported to Ottawa County over the past five years

Vaccine Preventable Disease (VPD)	2013 Cases	2014 Cases	2015 Cases	2016 Cases	2017 Cases	5-Year Total Cases
Congenital Rubella	0	0	0	0	0	0
Chickenpox (Varicella)	36	28	17	26	14	123
Diphtheria	0	0	0	0	0	0
H. influenza, serotype b	0	0	0	0	0	0
Hepatitis A	0	0	0	0	2	2
Acute Hepatitis B	0	0	2	2	0	4
Measles	0	0	0	0	0	0
Meningococcal Disease ( <i>Neisseria</i> )	0	0	0	1	0	1
Mumps	0	0	0	1	4	5
Pertussis (Whooping Cough)	58	41	19	6	32	156
Pneumococcal Disease	13	15	13	12	16	69
Polio	0	0	0	0	0	0
Rubella	0	0	0	0	0	0
Tetanus	0	0	0	0	0	0

## 2017 Details by Disease

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**Congenital Rubella Syndrome** – People infected with rubella virus are contagious before they have symptoms. There were no reported cases of infants born with congenital rubella syndrome among Ottawa County residents in 2017.

Year of last case: before 1984<sup>2</sup>

Vaccine<sup>5</sup>: MMR; 2 doses, typically first given at 1 year of age

**Diphtheria** – There were no reported cases of diphtheria among Ottawa County residents in 2017.

Year of last case: before 1984<sup>2</sup>

Vaccine<sup>5</sup>: DTaP; 5 doses, typically first given at 2 months of age

**Invasive *Haemophilus influenzae*, serotype b (Hib)** – There were no reported cases of H. influenzae serotype b among Ottawa County residents. The vaccine protects against serotype b only. There were 3 invasive *H. influenzae* laboratory-confirmed adult cases of unknown type reported in 2017<sup>3</sup>.

Year of last case: Not known

Vaccine<sup>5</sup>: Hib; 3-4 doses, typically first given at 2 months of age

**Hepatitis A** – There were two reported cases of Hepatitis A among Ottawa County residents in 2017. There has been an ongoing outbreak in Michigan since August 2016, but neither case matched the outbreak strain of the virus.

Year of last case: 2017

Vaccine<sup>5</sup>: Hepatitis A; 2 doses, typically first given at 1 year of age

**Hepatitis B** – A serious disease that affects the liver, there were no reported cases of acute onset hepatitis B infection. When hepatitis B virus remains in a person's body, it can lead to long-term illness and can be spread to others. There were 19 newly identified cases of chronic hepatitis B reported among Ottawa County residents in 2017. Two of these cases were pregnant.

Year of last acute case: 2016

Vaccine<sup>5</sup>: Hepatitis B; 3 doses, typically first given at birth

Age Range: 13 to 79 years

Vaccine Status: Five cases (26%) were vaccinated as children or adults; none were vaccinated at birth. Three were born in countries with high rates of Hepatitis B and may have been infected prior to vaccination. Two have unknown birth history.

**Measles** – People infected with measles virus are contagious before they have symptoms. There were no reported cases of measles among Ottawa County residents in 2017.

Year of last case: 1991 (two cases)

Vaccine<sup>5</sup>: MMR; 2 doses, typically first given at 1 year of age

**Meningococcal disease (*Neisseria meningitidis*)** – People infected with *N. meningitidis* are contagious before they have symptoms. There were no reported cases of meningococcal disease caused by the bacterium *N. meningitidis* among Ottawa County residents in 2017.

Year of last case: 2016

Vaccine<sup>5</sup>: MenACWY; 2 doses, typically first given at 11-12 years of age. MenB; 2 doses, given at 16-18 years of age.

**Mumps** – People infected with mumps virus are contagious before they have symptoms. There were four reported cases of mumps among Ottawa County residents in 2017: 1 confirmed, 2 probable and 1 suspect. The confirmed case was a close contact to a confirmed case in Kent County. The suspect case had symptoms compatible with mumps but no laboratory test.

Year of last case: 2017

Vaccine<sup>5</sup>: MMR; 2 doses, typically first given at 1 year of age

Age Range: 18 to 33 years

Vaccine Status: One case was unvaccinated; three cases had two doses of MMR

**Pertussis (Whooping Cough)** – There were 32 whooping cough cases reported among Ottawa County residents in 2017, a 5-fold increase over 2016. There had been a decreasing trend in reported cases from 2013-2016. Of the 32 cases, 72% resided in the southern half of the county, 24 were confirmed and 8 were probable. In general, probable cases have a cough lasting more than two weeks but are neither laboratory confirmed nor associated with a laboratory confirmed case of whooping cough. Of note, 41% of cases required two or more visits to a healthcare provider before being diagnosed. Since whooping cough mimics many other health conditions, laboratory testing for pertussis by culture or PCR should be considered for any severe or prolonged cough. Early detection and treatment is very important, particularly in infants.

Year of last case: 2017

Vaccine<sup>5</sup>: DTaP; 5 doses, typically first given at 2 months of age. Tdap; given at 27-36 weeks gestation during each pregnancy, at 11-12 years of age, any adult who has not yet received it.

Age Range: 2 months to 58 years

Vaccine Status:

Median Age: 13.5 years

- 31 (95%) had at least one dose of vaccine
  - 12 (39%) had 5 doses of DTaP plus one or more doses Tdap
- 1 case was unvaccinated
- 1 case was an infant whose mother did not receive recommended vaccine during pregnancy

Sex: 11 males and 21 females

Race/Ethnicity: 84% White; 13% Hispanic

Outbreaks: One pertussis outbreak was detected by public health involving 5 known cases.

Control Measures: The 32 cases had 166 close contacts for whom antibiotic treatment was recommended. Exclusion of cases and coughing contacts from childcare, work and school until completion of five days of antibiotic treatment. Exposure letters sent to school, childcare and others as needed.

Laboratory Testing: 22 cases (69%)

Outcome: No cases were hospitalized in 2017. There were two whooping cough-related hospitalizations in 2016. The last death was before 1992<sup>4</sup>.

**Pneumococcal disease** – There were 16 confirmed cases of pneumococcal disease caused by *Streptococcus pneumoniae* reported among Ottawa County residents in 2017, the highest number of cases in the past five years. There is no Probable case status for Pneumococcal disease. Forty-four percent of the cases occurred in November and December. There are two vaccines for pneumococcal disease:

- PCV13 should be given to all children before 2 years of age; all adults 65 years and older; to people 2 through 64 years old with certain medical conditions.
- PPSV23 should be given to all adults 65 years and older; people 2 through 64 with certain medical conditions; to cigarette smokers and those with asthma between the ages of 19 and 64 years old.

Seventy-five percent of the cases who died had not received the recommended vaccines for their age and medical condition.

Year of last case: 2017

Vaccine<sup>5</sup>: PCV13 & PPSV23; dependent on age and health status

Age Range: 5 to 94 years

Vaccine Status:

Median Age: 60.5 years

- 2 (12%) had unknown vaccine status
- 6 (38%) had not received all or some of the recommended vaccines based on their age and medical condition
  - Half of these cases died
- 8 (50%) had received all of the recommend vaccines based on their age and medical condition
  - One of these cases died

Sex: 9 males and 5 females

Cases consisted of one child, nine adults ages 30 to 64 years and six adults 65 years and older

Outbreaks: None detected

Control Measures: Patients were given information about the vaccines they should receive.

Laboratory Testing: 100% of cases

Outcome: Fifteen cases (94%) required hospitalization for meningitis, pneumonia and/or sepsis. Four (25%) cases died. Among those who died, all died in December, three of the four were ages 65 years or older, and three of the four were insufficiently vaccinated.

**Polio** – There were no cases of wild-type poliomyelitis reported among Ottawa County residents in 2017.

Year of last case: before 1984<sup>2</sup>

Vaccine<sup>5</sup>: Polio; 4 doses, typically first given at 2 months of age

**Rubella** – People infected with rubella virus are contagious before they have symptoms. There were no cases of rubella reported among Ottawa County residents.

Year of last case: 1994 (two cases)

Vaccine: MMR; 2 doses, typically first given at 1 year of age



**Tetanus** – People infected with tetanus virus do not transmit the disease to others. There were no reported cases of tetanus among Ottawa County residents in 2017.

Year of last case: before 1984<sup>2</sup>

Vaccine<sup>5</sup>: DTaP; 5 doses, typically first given at 2 months of age. Tdap; given at 27-36 weeks gestation during each pregnancy, at 11-12 years of age, any adult who has not yet received it. Td; typically given every 10 years.

**Varicella (Chickenpox)** – People infected with chickenpox virus are contagious before they have symptoms. There were 14 chickenpox cases reported among Ottawa County residents in 2017, the lowest number of cases in the past five years: 8 were confirmed and 6 were probable. Probable cases are neither laboratory confirmed nor associated with another case of chickenpox. Eight additional people were referred to public health as chickenpox cases but were determined not to be cases following investigation and laboratory testing.

Year of last case: 2017

Vaccine: Varicella; 2 doses, typically first given at 1 year of age

Age Range: 10 months to 56 years

Vaccine Status:

Median Age: 6 years

- 9 (64%) were either unvaccinated due to parent refusal or were too young to receive vaccine
- 2 had received one dose of vaccine
- 3 had received both doses of vaccine (only 1 of the 3 had laboratory confirmation of disease)

Sex: 9 males and 5 females

Outbreaks: None

Control Measures: Exposure letters sent to schools, childcare and others as needed. Two public health orders to exclude from school/childcare were issued as a disease control measure

Laboratory Testing: 5 cases (36%)

Outcome: One case required emergency department care but none required hospitalization. The last hospitalization was in 2016 for a child who was unvaccinated.

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<sup>1</sup>Vaccine waiver and immunization coverage data through September 30, 2018 from the Michigan Department of Health & Human Services' County Quarterly Immunization Report Card. [https://www.michigan.gov/documents/mdch/Ottawa\\_447497\\_7.pdf](https://www.michigan.gov/documents/mdch/Ottawa_447497_7.pdf)

<sup>2</sup>Electronic data are available from 1984 to the present. There may have been a case of this disease among Ottawa County residents prior to 1984, however this data is not currently obtainable.

<sup>3</sup>Serotyping is mandatory for patients who are under 15 years of age.

<sup>4</sup>Electronic data for deaths related to this disease are available from 1992 to the present. There may have been a death among Ottawa County residents prior to 1992, however this data is not currently obtainable.

<sup>5</sup>Please consult the most current Centers for Disease Control and Prevention (CDC) Recommended Immunization Schedule for children, teens and adults for detailed information on ages and the number of doses needed for all vaccines.

<https://www.cdc.gov/vaccines/schedules/index.html>

<http://www.miOttawa.org/healthdata>

**Front Cover Image:** Scanning electron microscope view of the wild polio virus;. Credit: <http://polioeradication.org/>