

# Vaccine-Preventable Diseases Surveillance Summary Wisconsin, 2018



This report summarizes information on vaccine-preventable diseases among Wisconsin residents [reported to](#) the Wisconsin Department of Health Services through the Wisconsin Electronic Disease Surveillance System.

## Measles

### Trends

After measles vaccine was introduced in 1963, the number of measles cases decreased significantly in Wisconsin (Figure 1) and in the United States.

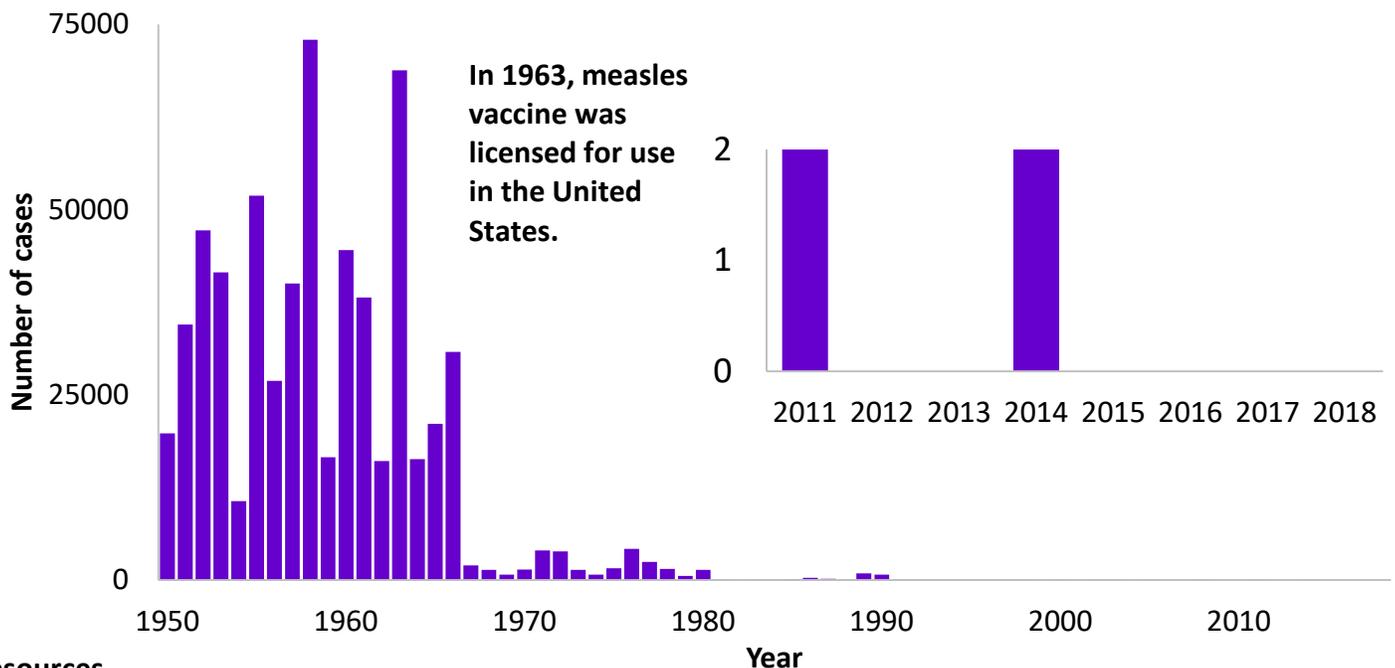
### 2018

During 2018, no measles cases were reported among Wisconsin residents.

### Summary

Although measles is now rare in Wisconsin, measles is still common in many parts of the world, including some countries in Europe, Asia, and Africa. Travelers continue to bring measles to the United States and to Wisconsin. In 2018, the US experienced 17 outbreaks of measles and 372 confirmed cases. In 2014, two Wisconsin residents were infected with measles. One was believed to be infected at a U.S. airport while waiting for a domestic flight, and the other had travelled internationally. It is important to prevent measles because measles spreads quickly among unvaccinated people and can cause [serious illness and complications](#), especially for children. The measles vaccine is the most effective method for preventing measles.

**Figure 1.** Number of reported confirmed measles cases, by year, Wisconsin, 1950–2018



### Resources

DHS measles page: <https://www.dhs.wisconsin.gov/immunization/measles.htm>

United States cases and outbreaks: <https://www.cdc.gov/measles/cases-outbreaks.html>

Measles vaccine: <https://www.cdc.gov/measles/vaccination.html>

# Mumps

## Trends

After the live attenuated mumps vaccine was introduced in 1967, the number of mumps cases decreased significantly in Wisconsin (Figure 2) and in the United States. However, cases and outbreaks still occur.

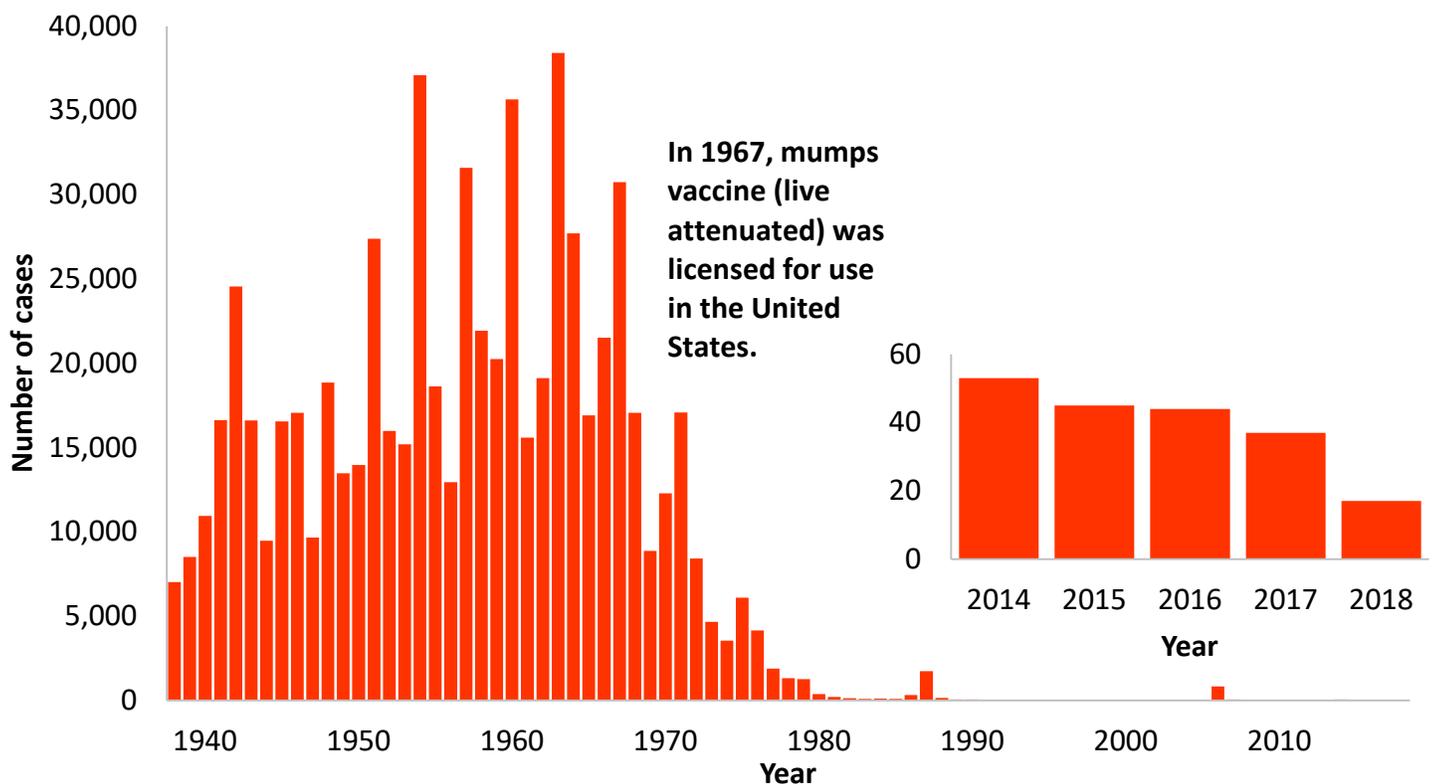
## 2018

- During 2018, 17 confirmed mumps cases were reported among Wisconsin residents of 6 counties.
- Ages ranged from 10 to 59 years (median age: 31 years) with 35% female and 65% male.
- Vaccination status was known for 10 (59%) cases. Of cases with known vaccination status, 90% had received two doses and 10% had received one dose.
- Three cases (18%) were associated with two outbreaks.
- Two (12%) cases were known to have had contact with another mumps case.
- One (6%) had a recent history of travel outside of Wisconsin. None travelled internationally.

## Summary

Cases and outbreaks of mumps continue to occur in Wisconsin and the United States, often among young adults in close-contact settings. It is important to prevent mumps because mumps can cause [serious complications](#), especially among adults. The mumps vaccine prevents most mumps cases and complications.

**Figure 2.** Number of reported confirmed mumps cases, by year, Wisconsin, 1950–2018



## Resources

Update on recent Wisconsin mumps cases: <https://www.dhs.wisconsin.gov/immunization/mumps-report.pdf>

DHS mumps page: <https://www.dhs.wisconsin.gov/immunization/mumps.htm>

United States cases and outbreaks: <https://www.cdc.gov/mumps/outbreaks.html>

Mumps vaccine: <https://www.cdc.gov/mumps/vaccination.html>

## Pertussis (Whooping Cough)

### Trends

After whole cell pertussis vaccine was introduced during the 1940s, the number of pertussis cases decreased significantly in Wisconsin (Figure 3) and in the United States. During the 1990s a new diagnostic test (PCR) was introduced that allowed for more pertussis cases to be detected and reported. Additionally, during the 1990s whole cell vaccine was replaced by acellular pertussis vaccine (DTaP) and recent studies indicate it provides a shorter duration of protection from pertussis than whole cell vaccine. A booster vaccine, Tdap, was introduced in 2006. Recent studies indicate the protection from Tdap vaccination [waned in 3-4 years](#).

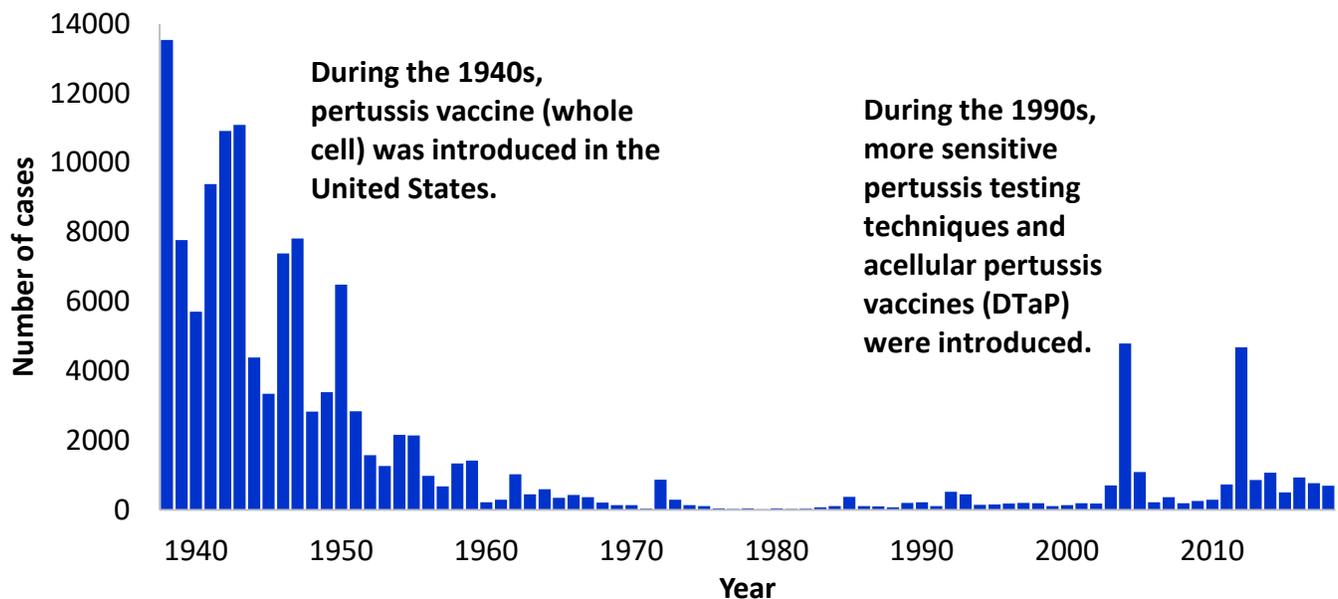
### 2018

- During 2018, 388 confirmed and 312 probable pertussis cases were reported among Wisconsin residents in 60 counties. Persons with pertussis ranged in age from <1 month to 88 years (median age: 1 year).
- Thirty-five (5%) cases were hospitalized.
- Among cases aged 2 months through 10 years, 55% were up to date with pertussis vaccinations, and 79% of cases aged 11–18 years had previously received the Tdap booster dose.
- For the full 2018 annual summary: <https://www.dhs.wisconsin.gov/publications/p01263-18.pdf>

### Summary

Pertussis continues to affect people of all ages in Wisconsin and the United States. Large and small outbreaks continue to occur. Infants too young to be fully vaccinated are at highest risk of pertussis and its [serious complications](#), including death. Routine vaccination with pertussis vaccine is the most effective method for preventing pertussis. Newborn infants are best protected from pertussis when their mothers are vaccinated with Tdap vaccine during the third trimester of pregnancy. These infants are born with passive protection from pertussis.

**Figure 3.** Number of reported confirmed pertussis cases, by year, Wisconsin, 1938–2018



### Resources

Update on recent Wisconsin pertussis cases: <https://www.dhs.wisconsin.gov/immunization/pert-report.pdf>

DHS annual surveillance summaries: [pertussis page](#) | [2017](#) | [2016](#) | [2015](#) | [2014](#) | [2013](#) | [2012](#)

National pertussis trends: <https://www.cdc.gov/pertussis/surv-reporting.html>

Pertussis vaccine: <https://www.cdc.gov/vaccines/vpd/pertussis/index.html>

# Rubella

## Trends

After rubella vaccine was introduced in 1969, the number of rubella cases decreased significantly in Wisconsin (Figure 4) and in the United States.

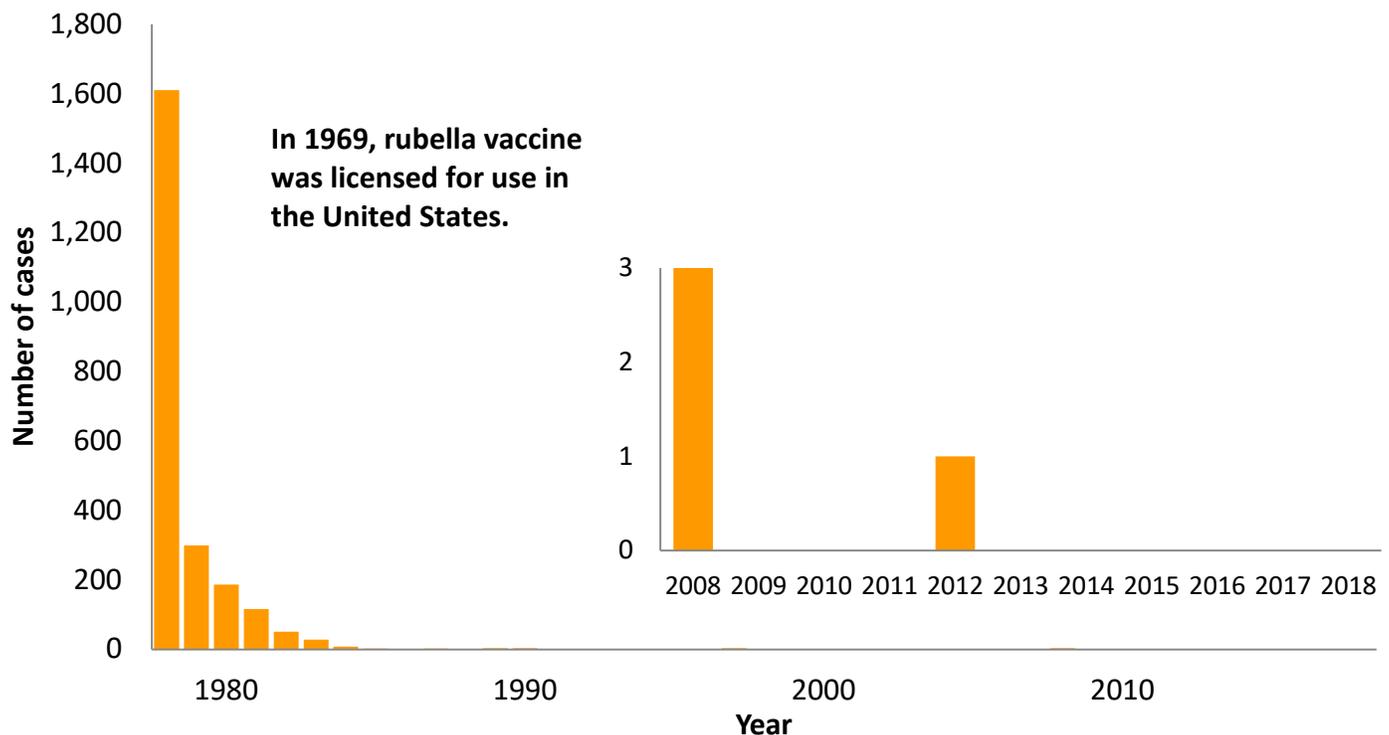
## 2018

During 2018, no rubella cases were reported among Wisconsin residents.

## Summary

Rubella is no longer constantly present in the United States. However, because rubella is still common in many parts of the world, including Southeast Asia, Africa, and the Eastern Mediterranean region, travelers to affected areas can bring rubella to the United States and Wisconsin. For example, in 2012 a Wisconsin resident developed rubella after having contact with family members who recently arrived from an affected country. It is important to prevent rubella because rubella can cause [serious complications](#), and women who are infected with rubella during pregnancy are at risk for miscarriage, stillbirth, and of having a baby with severe birth defects, a condition known as [congenital rubella syndrome](#). Vaccination with rubella vaccine is the most effective method for preventing rubella. To prevent congenital rubella syndrome, before women become pregnant, they should be vaccinated with rubella vaccine.

**Figure 4.** Number of reported confirmed rubella cases, by year, Wisconsin, 1978–2018



## Resources

DHS rubella page: <https://www.dhs.wisconsin.gov/immunization/rubella.htm>

CDC rubella page: <https://www.cdc.gov/rubella/about/index.html>

Congenital rubella syndrome: <https://www.cdc.gov/rubella/pregnancy.html>

Information for travelers: <https://wwwnc.cdc.gov/travel/diseases/rubella>

Rubella vaccine: <https://www.cdc.gov/vaccines/vpd/mmr/public/index.html>

# Tetanus

## Trends

After tetanus vaccine was introduced for routine childhood vaccination during the late 1940s, the number of tetanus cases decreased steadily in Wisconsin (Figure 5) and in the United States.

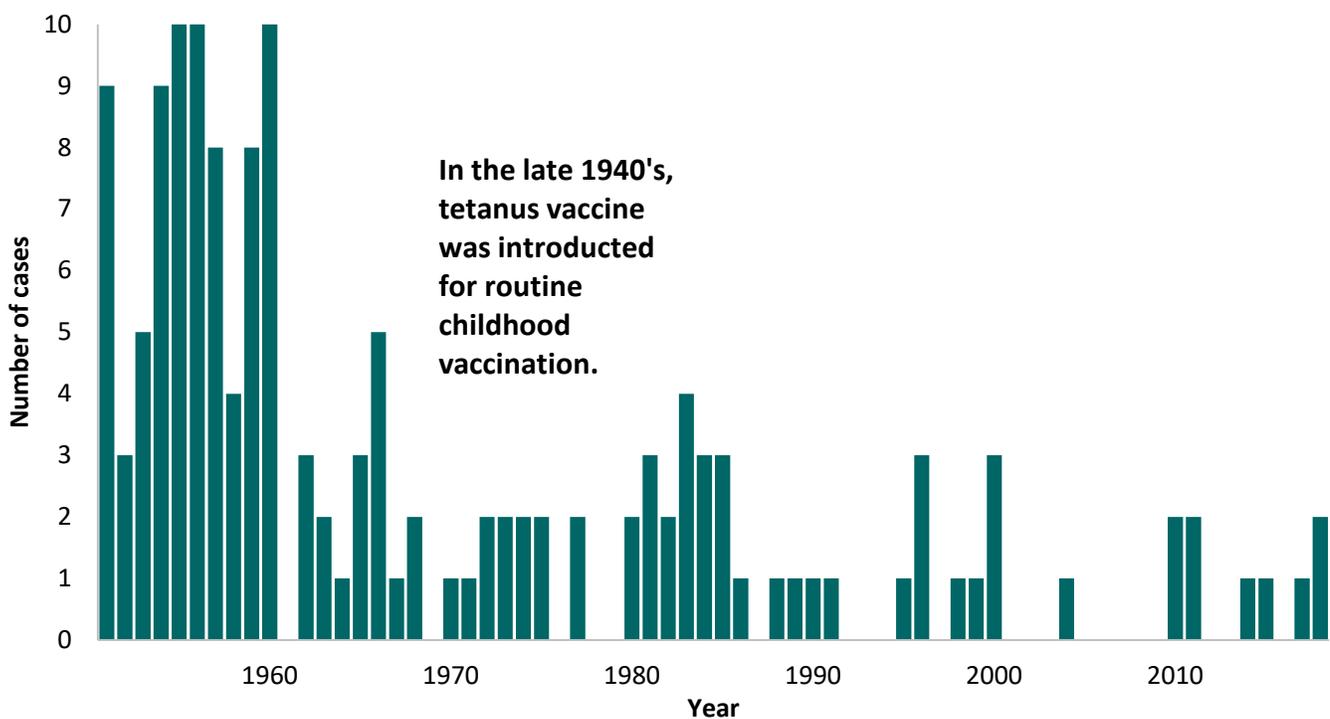
## 2017

During 2018, there were two tetanus cases reported among Wisconsin residents.

## Summary

Because the bacteria that cause tetanus live in soil, unvaccinated people and people overdue for a tetanus booster shot are at risk for tetanus when they have a contaminated wound or [other breaks in the skin](#). Tetanus cases continue to occur among Wisconsin residents. For example, in 2015 an unvaccinated Wisconsin child was diagnosed with tetanus requiring hospitalization for 33 days (including 15 days in intensive care). Preventing tetanus is important because tetanus can cause severe [symptoms and complications](#), including breathing difficulty that can lead to death. Vaccination with tetanus vaccine is the most effective method for preventing tetanus.

**Figure 5.** Number of reported tetanus cases, by year, Wisconsin, 1951–2018



## Resources

DHS tetanus page: <https://www.dhs.wisconsin.gov/immunization/tetanus.htm>

CDC tetanus page: <https://www.cdc.gov/tetanus/about/index.html>

Tetanus vaccine: <https://www.cdc.gov/tetanus/vaccination.html>

# Diphtheria

## Trends

After use of diphtheria vaccine became routine and widespread during the late 1940s, the number of diphtheria cases decreased significantly in Wisconsin (Figure 6) and in the United States.

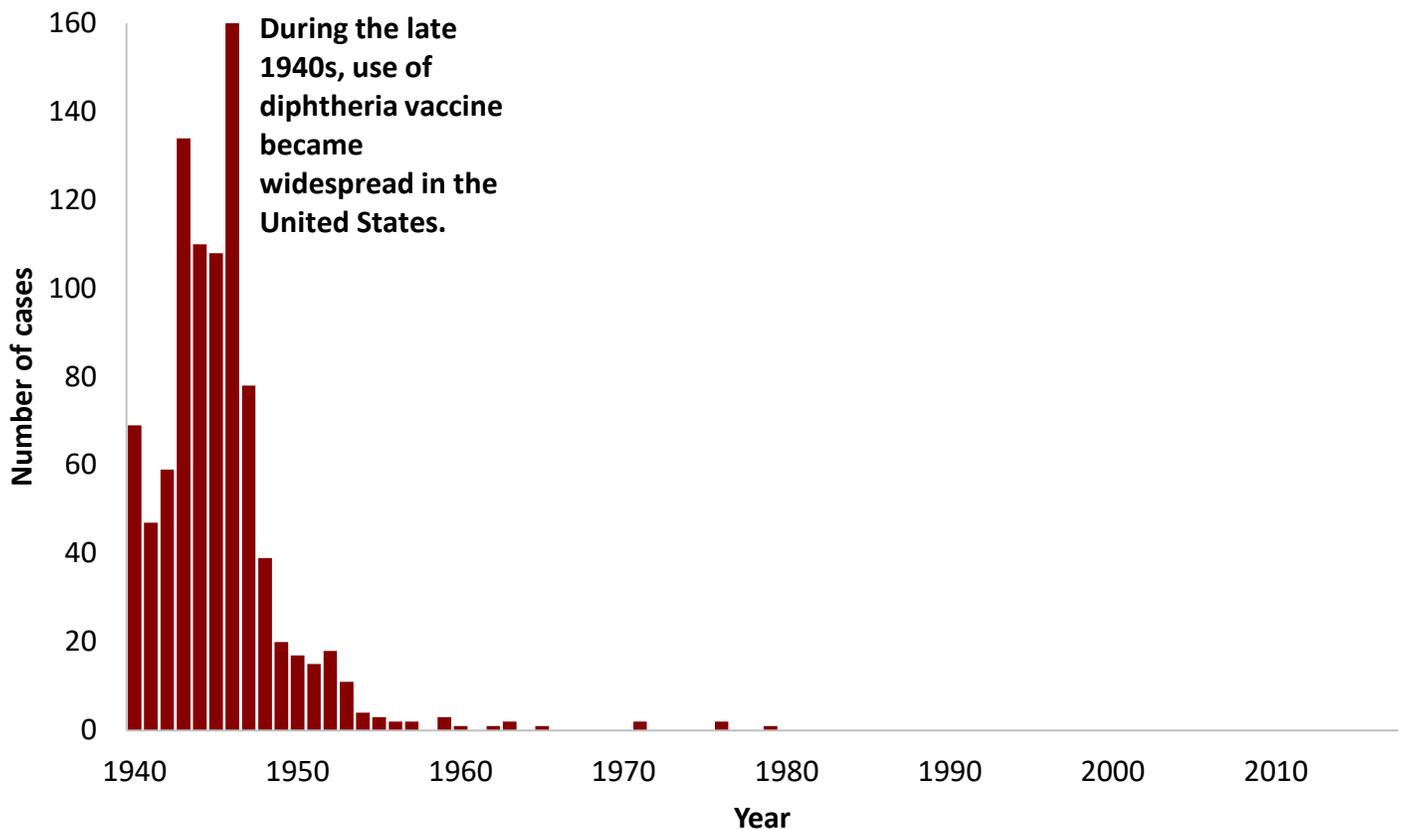
## 2018

During 2018, no diphtheria cases were reported among Wisconsin residents.

## Summary

Diphtheria infection is rare in the United States, but continues to occur in many developing countries in Asia, the Middle East, Eastern Europe, Haiti, and the Dominican Republic. Travelers to these areas are at risk of diphtheria infection. It is important to prevent diphtheria because diphtheria can cause [serious complications](#), including death. Vaccination with diphtheria vaccine is the most effective method for preventing diphtheria.

**Figure 6.** Number of reported confirmed diphtheria cases, by year, Wisconsin, 1943–2018



## Resources

DHS diphtheria page: <https://www.dhs.wisconsin.gov/immunization/diphtheria.htm>

CDC diphtheria page: <https://www.cdc.gov/diphtheria/index.html>

Information for travelers: <https://wwwnc.cdc.gov/travel/diseases/diphtheria>

Diphtheria vaccine: <https://www.cdc.gov/diphtheria/vaccination.html>

# Polio

## Trends

After the first polio vaccine was introduced in 1955, the number of polio cases decreased significantly in Wisconsin (Figure 7) and in the United States.

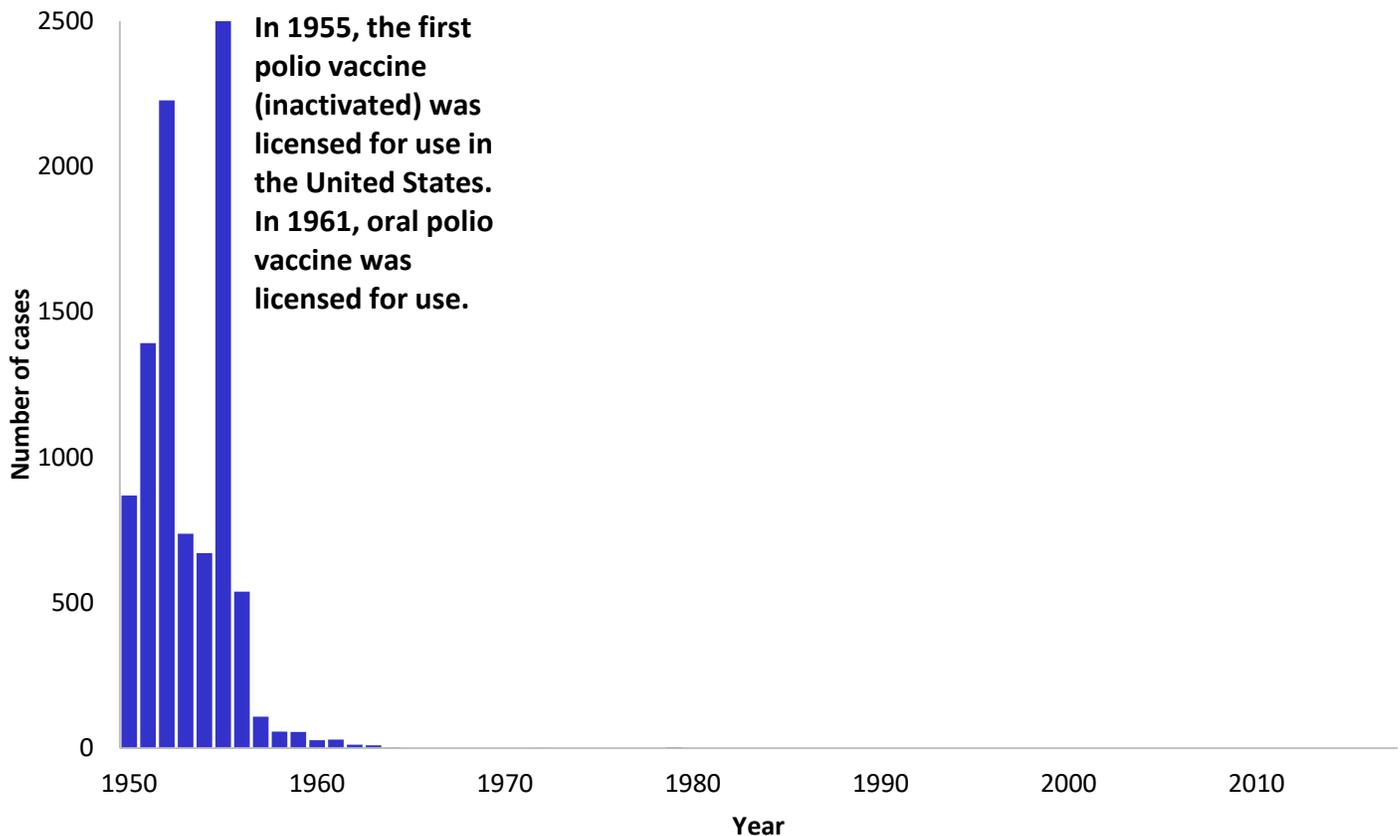
## 2018

During 2018, no polio cases were reported among Wisconsin residents.

## Summary

Health officials from around the globe have been working intently to eradicate polio. Only a few countries remain where polio cases continue to occur, but travelers can and have spread polio to other previously polio-free countries. Travelers to affected areas, including some parts of Africa and Asia, are at risk for polio. Vaccination with polio vaccine prevents polio, its [serious complications](#), and reduces polio transmission to other countries.

**Figure 7.** Number of reported confirmed polio cases, by year, Wisconsin, 1950–2018



## Resources

DHS polio page: <https://www.dhs.wisconsin.gov/immunization/polio.htm>

CDC polio page: <https://www.cdc.gov/polio/about/index.htm>

Information for travelers: <https://wwwnc.cdc.gov/travel/diseases/poliomyelitis>

Polio vaccine: <https://www.cdc.gov/vaccines/vpd/polio/index.html>

## Varicella (Chickenpox)

### Trends

After varicella vaccine was introduced in 1995, the number of varicella cases decreased significantly in Wisconsin (Figure 8) and in the United States. In response to outbreaks among vaccinated children, in 2006 a second dose of varicella vaccine was routinely recommended. Varicella cases and outbreaks continue to occur. Surveillance for varicella is challenging because most cases are not laboratory confirmed and the clinical presentation of varicella can be confused with other rash illnesses.

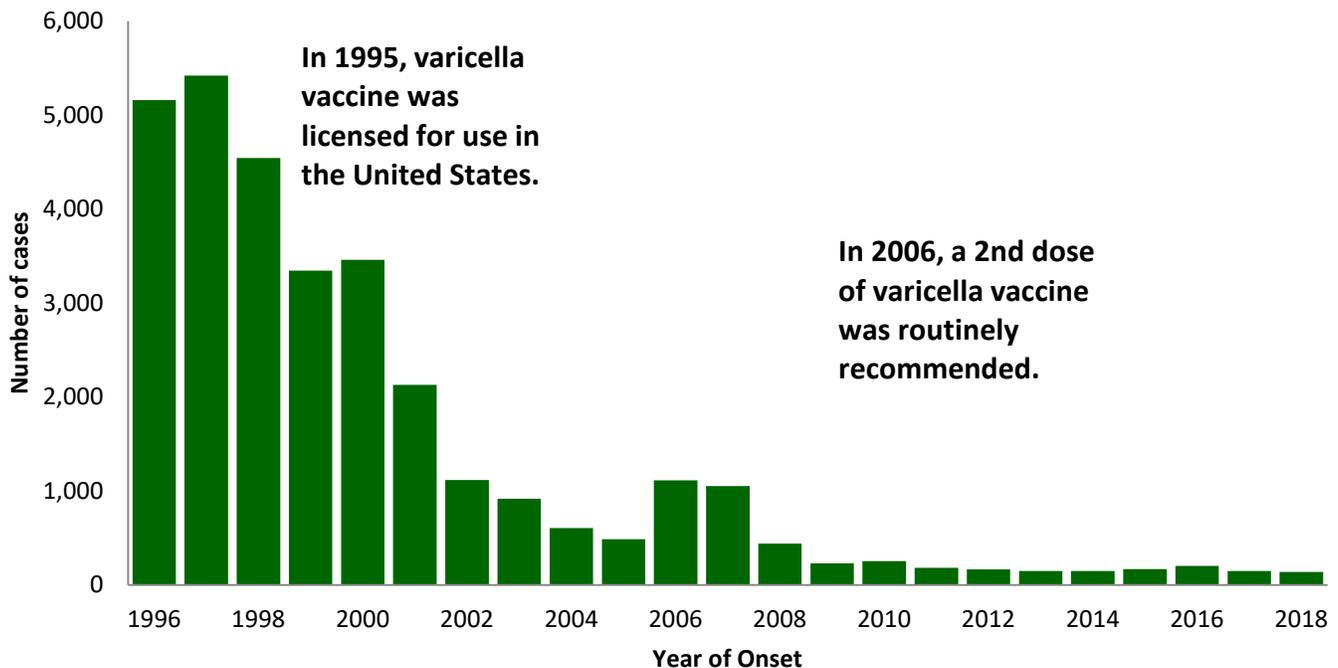
### 2018

- During 2018, 136 confirmed and 154 probable varicella cases were reported among Wisconsin residents.
- Cases of varicella were reported from 56 of Wisconsin's 72 counties.
- Persons with varicella ranged in age from 2 months to 90 years (median age: 6 years).
- Seven (2%) persons with varicella were hospitalized, including one infant.
- Among persons with varicella aged 1–3 years, 65% were up to date for age and had received one dose of varicella vaccine. Among persons with varicella aged 4–18 years, 56% were up to date for age and had received two doses of varicella vaccine, 10% had received one dose of varicella vaccine, and 32% had not been vaccinated with varicella vaccine.

### Summary

Varicella continues to affect persons of all ages in Wisconsin and the United States. It is important to prevent varicella because varicella can result in [serious complications](#), especially for infants, adolescents, adults, pregnant women, and [immunocompromised persons](#). Vaccination with varicella vaccine prevents most varicella cases and complications.

**Figure 8.** Number of reported confirmed varicella cases, by year, Wisconsin, 1996–2018



### Resources

DHS varicella page: <https://www.dhs.wisconsin.gov/immunization/varicella.htm>

CDC varicella page: <https://www.cdc.gov/chickenpox/index.html>

Varicella vaccine: <https://www.cdc.gov/chickenpox/vaccination.html>

## Notes

### Additional Resources

Vaccination rates for Wisconsin: <https://www.dhs.wisconsin.gov/immunization/data.htm>

Vaccine-preventable diseases by year: <https://www.dhs.wisconsin.gov/immunization/vpdsbyyear.pdf>

Recommended vaccination schedules

Children: <https://www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html>

Adults: <https://www.cdc.gov/vaccines/schedules/hcp/adult.html>

### References

Epidemiology and Prevention of Vaccine-Preventable Diseases: The Pink Book:

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

Measles transmission at a domestic terminal gate in an international airport – United States, January 2014:

<https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6350a9.htm>

### Data Source

The diseases included in this report have significant public health impact and are required by law to be reported to the local health officer when suspected in a Wisconsin resident. This information is collected and reported to DHS through the Wisconsin Electronic Disease Surveillance System:

<https://www.dhs.wisconsin.gov/wiphin/wedss.htm>

More information on disease reporting: <https://www.dhs.wisconsin.gov/disease/diseasereporting.htm>

### Limitations

Monitoring trends in disease occurrence depends on complete and consistent reporting of diseases to DHS through the Wisconsin Electronic Disease Surveillance System. This report only includes information on the cases that were reported to WDPH. Therefore, to the extent that diseases are underreported or misreported to WDPH, the results depicted in this report might differ from the true burden of these diseases in Wisconsin.

### Abbreviations

CDC: Centers for Disease Control and Prevention

DTaP: diphtheria, tetanus, acellular pertussis vaccine

Tdap: tetanus, diphtheria, acellular pertussis vaccine

DHS: Wisconsin Division of Public Health

Wisconsin Immunization Program, Division of Public Health

Wisconsin Department of Health Services

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