

Chickenpox and Shingles in Minnesota, 2016

Reporting of all suspected cases of chickenpox (varicella) has been required in Minnesota since 2013. This report is based on case reports submitted by schools, health care providers, and child care providers.

Chickenpox Case Reporting, January to December 2016

In 2016, the Minnesota Department of Health (MDH) received 555 reports of suspected chickenpox. Of these, 336 were classified as probable or confirmed cases and were used for statistics. Minnesota had an annual incidence of chickenpox of 6 cases/100,000 persons, compared to 7/100,000 in 2015. The national incidence was 3.8/100,000 in 2015, the most recent year for which data is available. Age and county of residence information was available for all Minnesota cases.

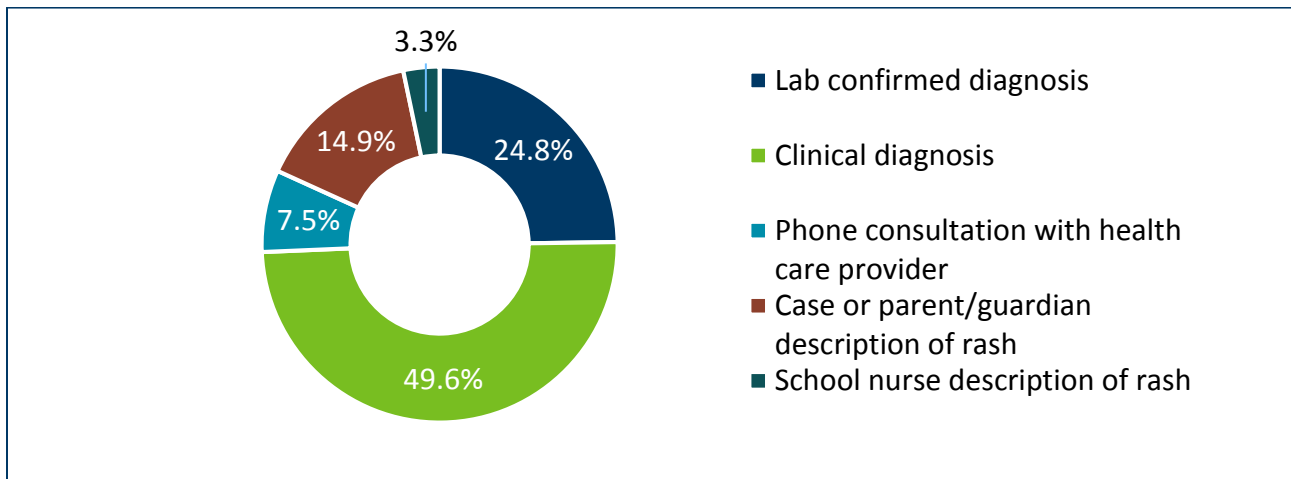
Minnesota chickenpox cases by county, 2016

| County | Cases | County | Cases | County | Cases | County | Cases |
|------------|-------|-------------------|-------|------------|-------|------------------------|------------|
| Aitkin | 0 | Fillmore | 0 | Martin | 2 | Rock | 5 |
| Anoka | 11 | Freeborn | 1 | McLeod | 4 | Roseau | 1 |
| Becker | 1 | Goodhue | 1 | Meeker | 1 | St. Louis | 5 |
| Beltrami | 1 | Grant | 0 | Mille Lacs | 1 | Scott | 12 |
| Benton | 0 | Hennepin | 81 | Morrison | 5 | Sherburne | 2 |
| Big Stone | 0 | Houston | 0 | Mower | 2 | Sibley | 2 |
| Blue Earth | 2 | Hubbard | 0 | Murray | 0 | Stearns | 4 |
| Brown | 1 | Isanti | 1 | Nicollet | 1 | Steele | 5 |
| Carlton | 2 | Itasca | 8 | Nobles | 7 | Stevens | 2 |
| Carver | 5 | Jackson | 1 | Norman | 0 | Swift | 1 |
| Cass | 1 | Kanabec | 0 | Olmsted | 8 | Todd | 1 |
| Chippewa | 2 | Kandiyohi | 5 | Otter Tail | 6 | Traverse | 0 |
| Chisago | 2 | Kittson | 0 | Pennington | 0 | Wabasha | 1 |
| Clay | 0 | Koochiching | 1 | Pine | 3 | Wadena | 2 |
| Clearwater | 0 | Lac Qui Parle | 0 | Pipestone | 0 | Waseca | 1 |
| Cook | 0 | Lake | 0 | Polk | 2 | Washington | 5 |
| Cottonwood | 4 | Lake of the Woods | 0 | Pope | 0 | Watonwan | 3 |
| Crow Wing | 3 | Le Sueur | 6 | Ramsey | 38 | Wilkin | 0 |
| Dakota | 22 | Lincoln | 0 | Red Lake | 0 | Winona | 0 |
| Dodge | 4 | Lyon | 4 | Redwood | 0 | Wright | 25 |
| Douglas | 3 | Mahnomen | 1 | Renville | 1 | Yellow Medicine | 1 |
| Faribault | 1 | Marshall | 0 | Rice | 2 | Total Statewide | 336 |

Identification of Cases Used for Statistics

MDH encourages laboratory testing for the virus that causes chickenpox. However, cases may be used for most statistical purposes if verified in other ways. Most commonly, MDH receives evidence of a clinical diagnosis made by a health care provider (HCP). If neither of these are available, cases may be included if symptoms can be verified by the case, parent/guardian, or other means (see below).

How varicella cases were identified in Minnesota, 2016

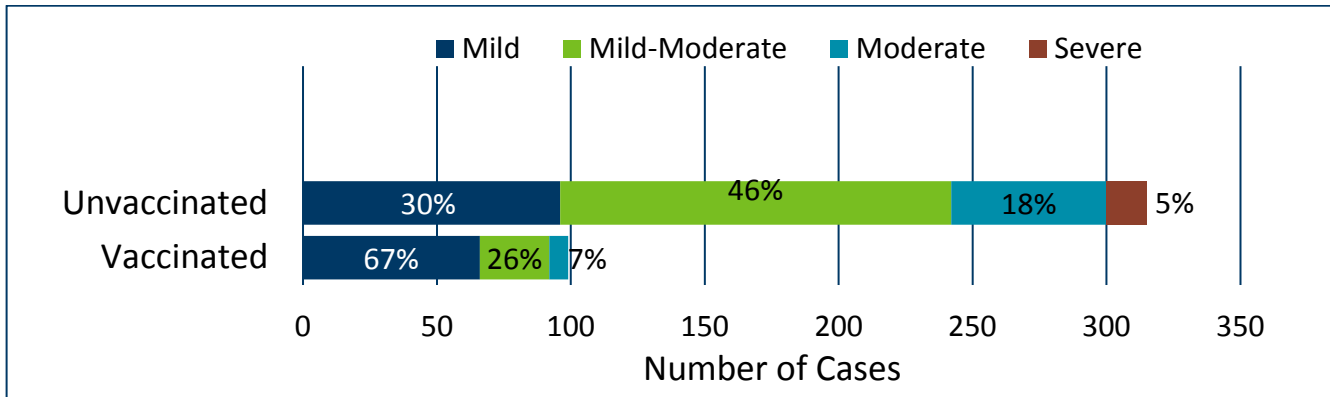


This graph shows that 49.6 percent of all cases used for statistics were clinically diagnosed by a HCP. Another 25 percent of cases were confirmed by laboratory testing, and the remaining cases were identified by a description of the rash to an MDH interviewer by the case or a parent/guardian, a record of a phone consultation with a health care provider, or a description of the rash by a school nurse or child care provider.

Severity of Disease and the Effect of Vaccination

Rash severity is one measure of disease severity. Persons with severe rash generally feel more ill and are at increased risk of complications that may require hospitalization, such as dehydration and secondary bacterial infections. Breakthrough chickenpox disease can occur in vaccinated persons but is usually mild. Vaccination with two doses is very effective at preventing chickenpox and nearly 100 percent effective at preventing severe cases.

Confirmed chickenpox cases by vaccination status and rash severity, Minnesota, 2013-2016 (N=414)



This graph shows that most of the lab-confirmed cases in Minnesota since 2013 have occurred in unvaccinated individuals. When disease occurred in vaccinated persons, it is more likely to be mild compared to disease in unvaccinated persons (67 percent vs. 30 percent, respectively), and severe cases have occurred only in unimmunized cases.

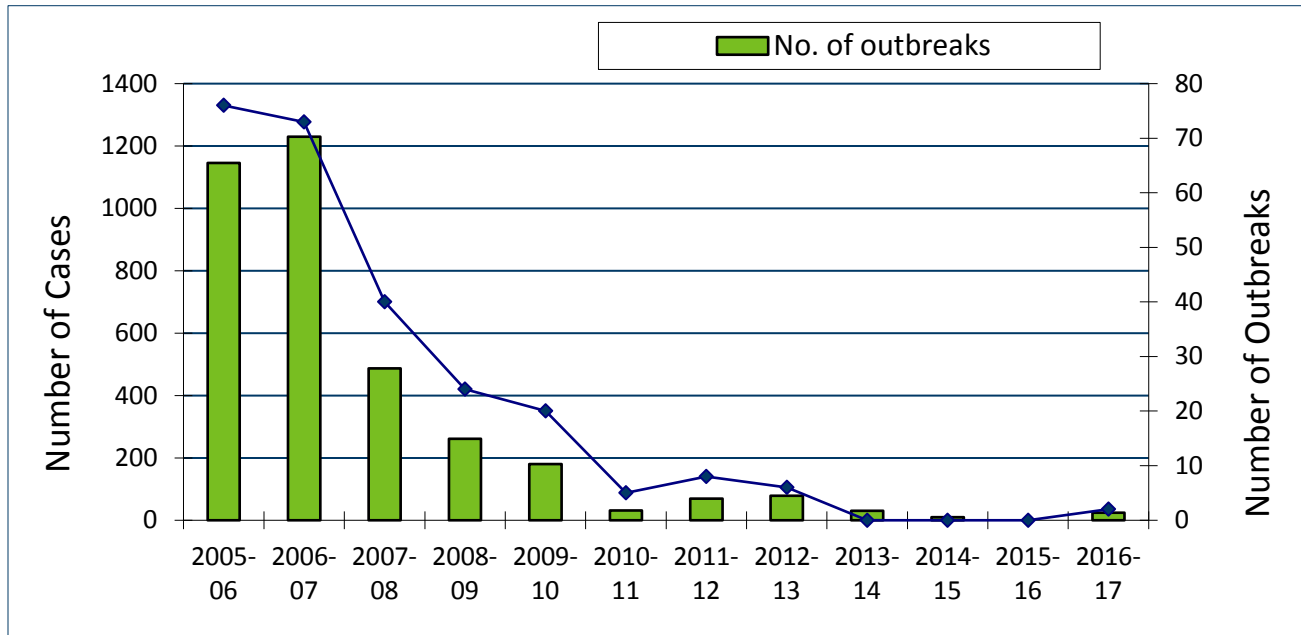
Hospitalized Cases of Chickenpox

Because of widespread protection of children by immunization, hospitalizations for chickenpox are no longer common in Minnesota. During 2016, only five persons in Minnesota were hospitalized. Three of them had severe, prolonged rash and/or complications including bacterial superinfection and Guillain-Barré syndrome. Four of the five hospitalized individuals were unvaccinated, including the case with Guillain-Barré. The remaining person was partly vaccinated (one dose) and had eczema as a risk factor for severe chickenpox rash.

Chickenpox School Reporting

An outbreak of chickenpox is defined as five or more cases in a 2-month period. Minnesota K-12 schools were asked to report outbreaks of chickenpox beginning in 2004, the first year that one dose of chickenpox (varicella) vaccine was required for entry into kindergarten and seventh grade. A requirement for a second dose was added in 2009-10. Because of a dramatic drop in the numbers of outbreaks and cases being reported, schools were asked to report individual cases in addition to outbreaks starting in the fall of 2012.

Chickenpox (varicella) outbreaks and number of students involved as reported by Minnesota schools, by school year



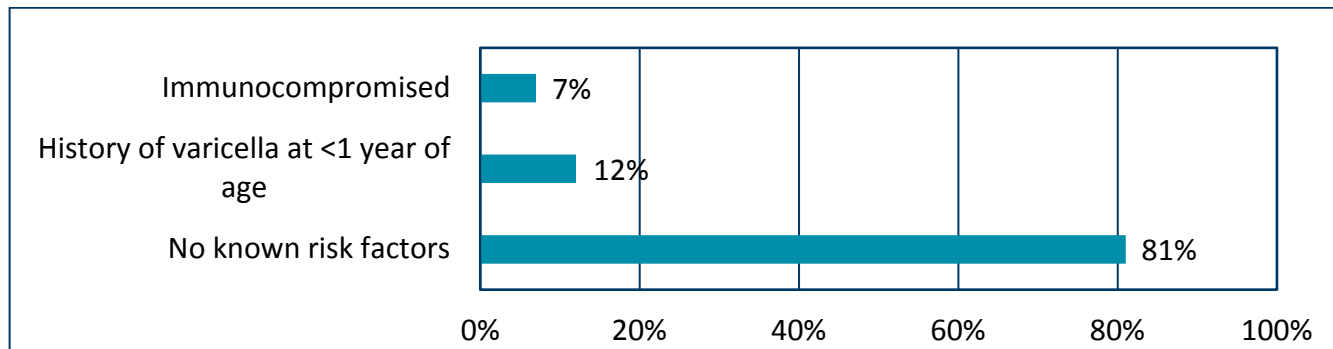
This graph shows that outbreaks of chickenpox in Minnesota schools have declined dramatically since school entry requirements for vaccination against chickenpox were introduced in 2004 (one dose) and in 2009-10 (two doses). In 2016, only two verifiable school outbreaks were reported.

In 2016, schools reported 140 cases that occurred singly or as part of clusters of two to four cases. These 140 cases are not shown on the graph because they didn't cause outbreaks. When immunization rates in a school are high, the likelihood of an outbreak resulting from a case of chickenpox is low.

Shingles (Zoster) in Minnesota Children Under 18 Years of Age

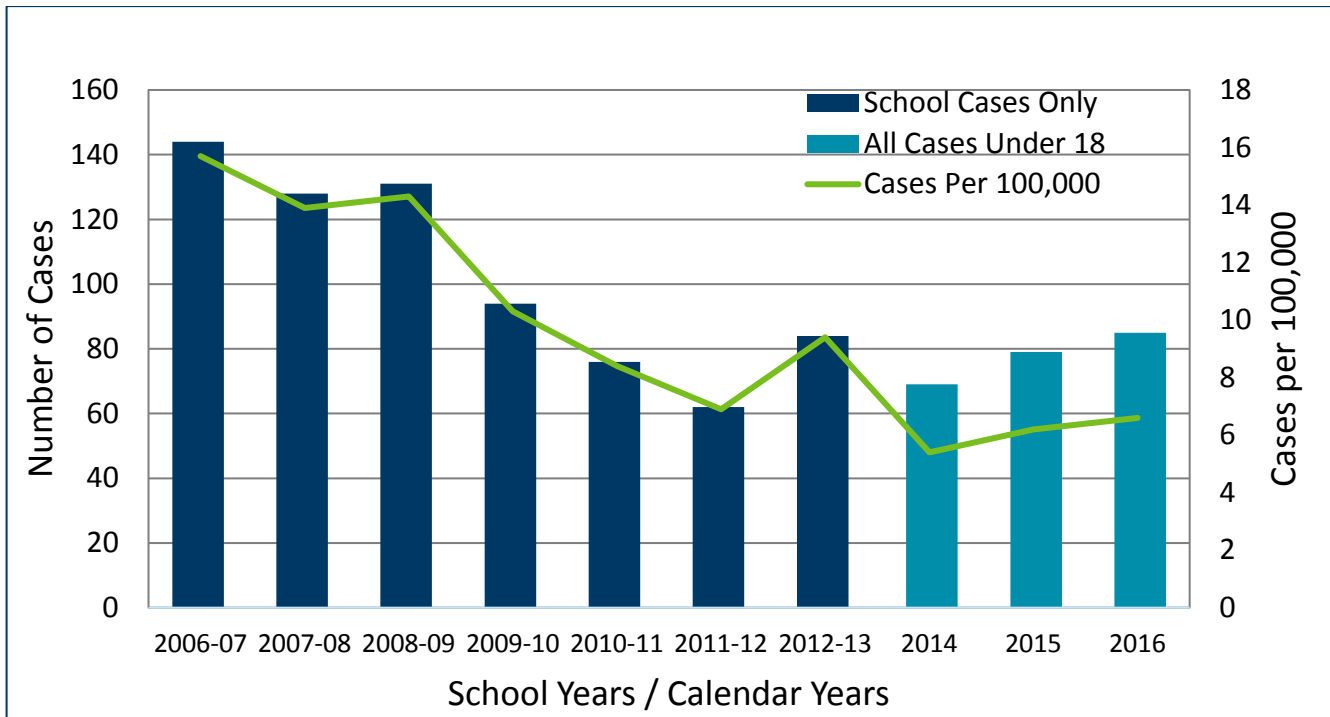
Shingles in children is uncommon. In 2016, 85 probable and confirmed cases of shingles were reported. The disease usually occurs without a known triggering event, but known risk factors for childhood shingles are having had chickenpox at <1 year of age, or having a weakened immune system.

Zoster cases <18 years of age by risk factors, Minnesota, 2016 (N=85)



This graph shows that most children with shingles had no known risk factors for the disease.

Zoster cases under age 18, Minnesota, 2006-2016



This graph shows that the number of shingles cases reported by schools also declined for the first 5 years following implementation of varicella vaccination. Beginning in 2014, child care and health care providers also began to report cases of shingles in children (teal bars), but even with this broader reporting, the reported incidence of disease (the cases per 100,000 children under surveillance for the disease) remains lower than it was in 2006-2008.

For more information on shingles in children and complicated cases of shingles in adults, see the “Varicella and Zoster” articles in the [Disease Control Newsletter](#) (www.health.state.mn.us/divs/idepc/newsletters/dcn/index.html).

Vaccine Preventable Disease Section
 PO Box 64975
 St. Paul, MN 55164-0975
 651-201-5414
www.health.state.mn.us/immunize

To obtain this information in a different format, call: 651-201-5414.