

## Chickenpox and Shingles in Minnesota, 2018

Reporting of all cases of chickenpox (varicella) has been required in Minnesota since 2013. Shingles (zoster) cases must also be reported if they are in a child under the age of 18 years, or in any age if there are complications. This report is based on chickenpox and shingles case reports submitted by health care providers, schools, and child care providers.

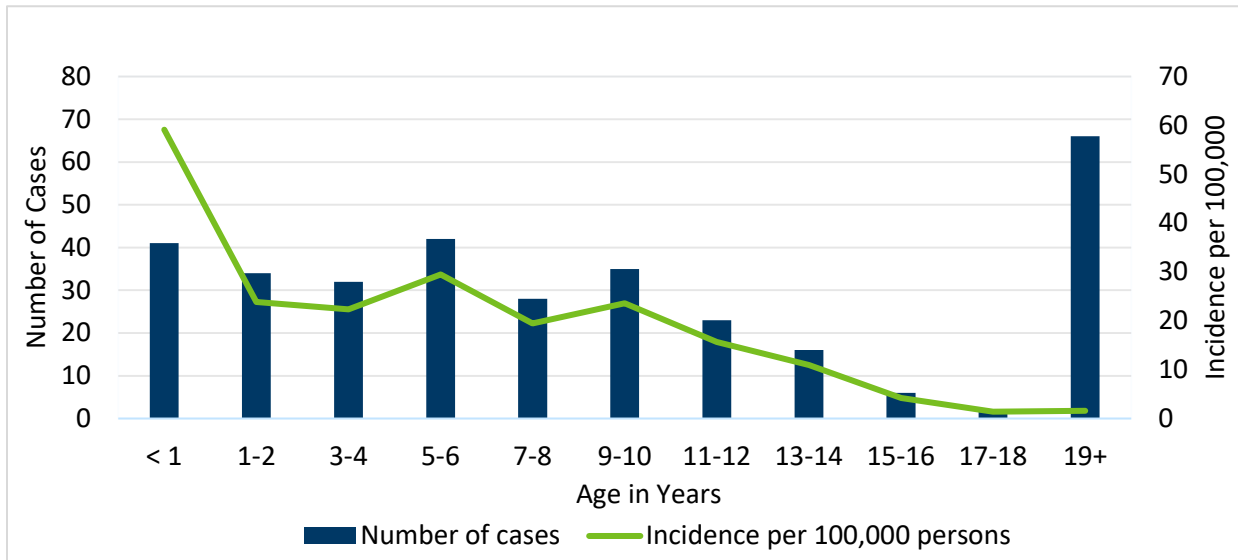
### Chickenpox Case Reporting, January to December 2018

In 2018, the Minnesota Department of Health (MDH) received 567 reports of suspected chickenpox. Of these, 325 were identified as probable or confirmed cases. The annual incidence of chickenpox in Minnesota in 2018 was 5.8 per 100,000 persons. This was a decline from last year, which was 8 per 100,000 persons.

#### Minnesota varicella (chickenpox) cases by county, 2018

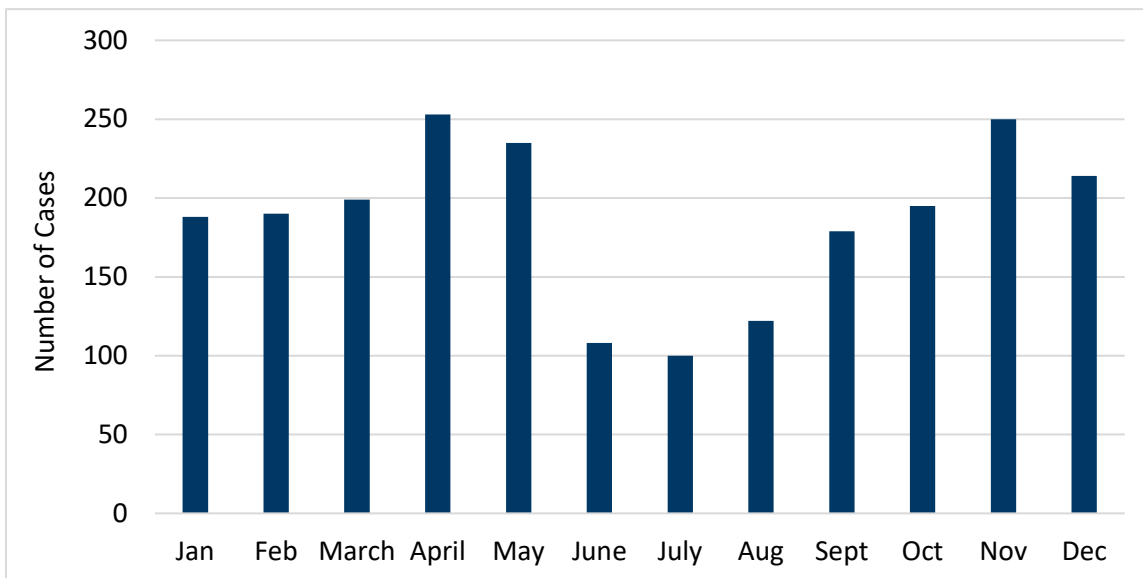
County	Cases	County	Cases	County	Cases	County	Cases
Aitkin	0	Fillmore	0	Martin	0	Rock	0
Anoka	23	Freeborn	0	McLeod	1	Roseau	0
Becker	6	Goodhue	1	Meeker	1	St. Louis	6
Beltrami	2	Grant	0	Mille Lacs	0	Scott	26
Benton	1	Hennepin	72	Morrison	2	Sherburne	3
Big Stone	0	Houston	0	Mower	3	Sibley	2
Blue Earth	5	Hubbard	4	Murray	0	Stearns	10
Brown	1	Isanti	1	Nicollet	0	Steele	3
Carlton	3	Itasca	1	Nobles	0	Stevens	0
Carver	6	Jackson	3	Norman	0	Swift	0
Cass	0	Kanabec	0	Olmsted	8	Todd	1
Chippewa	2	Kandiyohi	0	Otter Tail	11	Traverse	0
Chisago	6	Kittson	0	Pennington	0	Wabasha	1
Clay	1	Koochiching	0	Pine	0	Wadena	4
Clearwater	0	Lac Qui Parle	0	Pipestone	0	Waseca	2
Cook	0	Lake	0	Polk	1	Washington	12
Cottonwood	0	Lake of the Woods	0	Pope	0	Watonwan	2
Crow Wing	0	Le Sueur	0	Ramsey	25	Wilkin	0
Dakota	33	Lincoln	0	Red Lake	0	Winona	1
Dodge	1	Lyon	10	Redwood	0	Wright	15
Douglas	1	Mahnomen	0	Renville	0	Yellow Medicine	0
Faribault	0	Marshall	0	Rice	2	<b>Total Statewide</b>	<b>325</b>

### Varicella cases and incidence rate by age group, Minnesota 2018



This graph shows the incidence and number of probable and confirmed cases of chickenpox by age in years. The incidence/100,000 persons (green line) was highest in children younger than one year old, who are too young to be vaccinated. The next peak occurs at five to six years, the usual age for kindergarten entry. Incidence was lowest in adults 18 years and older. However, adults who get chickenpox often have more severe symptoms and may require hospitalization. For adults who are not sure if they are immune, MDH recommends consulting a health care provider about testing and/or vaccination. Immunity is especially important in adults who work in health care or long term care facilities, or for those who are considering becoming pregnant.

### Minnesota varicella cases by month, 2013-2018

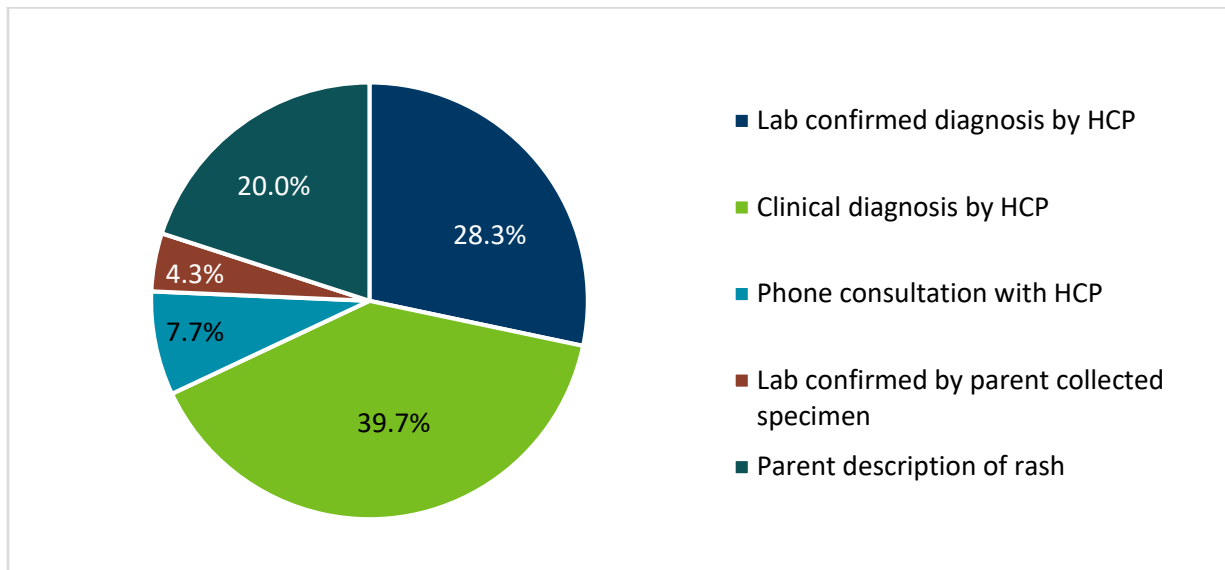


The above graph shows that over the last six years, reported varicella cases have peaked in April and November. This suggests that exposures in school over time are important, and that summer and winter breaks help to reduce transmission. However, because schools are common reporters, cases occurring in summer may also be underrepresented.

## Identification of Cases Used for Statistics

MDH encourages laboratory testing for the virus that causes chickenpox. However, the most common way cases are identified is still by clinical diagnosis by a health care provider (HCP). If neither a lab confirmation or clinical diagnosis are available, cases may be counted if symptoms can be verified by the case or their parent/guardian (see below).

### How varicella cases were identified in Minnesota, 2018

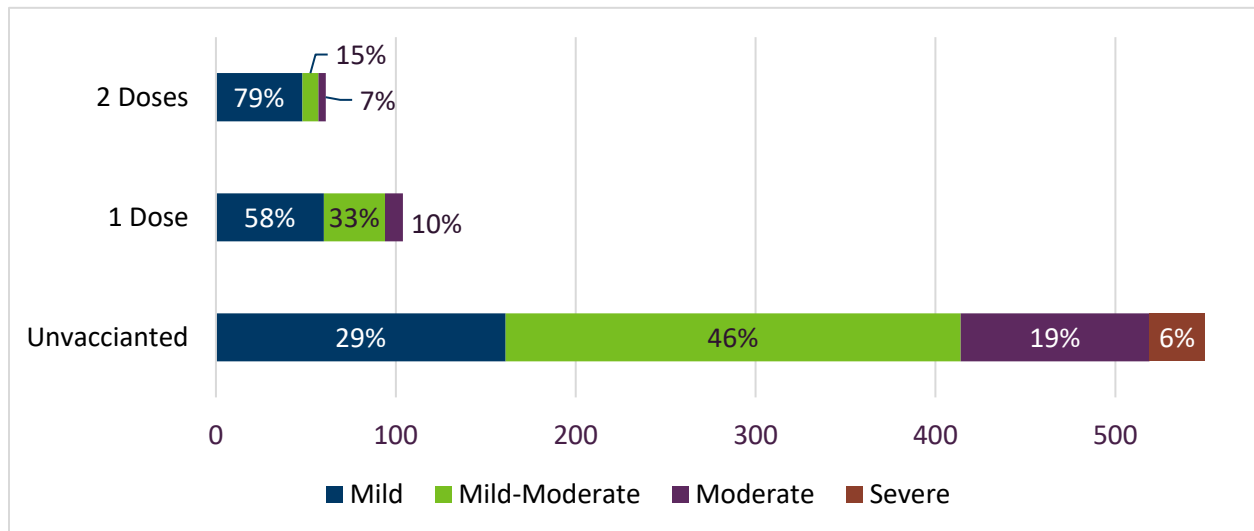


Cases reported to MDH were most commonly seen by health care providers (HCPs) who diagnosed them clinically (39.7%) or confirmed them by laboratory testing (28.3%). The remaining 32% of cases did not visit HCPs. Most of those cases were reported to schools and child cares by parents or guardians of cases. Symptoms were then described to MDH staff during follow-up phone interviews. MDH provides specimen collection kits and testing at no charge to parents and guardians of suspected cases during outbreaks at schools and child care centers. In 2018, 4.3% percent of cases were confirmed in this way.

## Severity of Disease and the Effect of Vaccination

Cases with severe rash are more likely to have lesions in the mouth and throat, which can make swallowing uncomfortable and increase the risk of dehydration. Severe disease also increases the risk of other complications, such as secondary infections caused by bacteria, which may require hospitalization. Vaccination is very effective at preventing chickenpox and nearly 100% effective at preventing severe cases.

### Confirmed chickenpox cases by vaccination status and rash severity, Minnesota, 2013-2018 (N=715)



This graph shows confirmed cases of chickenpox over the last six years by vaccination status and severity. Most confirmed cases of chickenpox in Minnesota occurred in unvaccinated individuals. When chickenpox did occur in a fully vaccinated person, it was mild 79% of the time. When chickenpox occurred in a partially vaccinated individual, it was mild 58% of the time. Among unvaccinated cases, only 29% of the cases were mild.

### Hospitalized Cases of Chickenpox

During 2018, eight individuals were hospitalized due to chickenpox, but no deaths were reported. Seven of the eight cases had never been vaccinated. In addition, one case was reported while already hospitalized, and was likely a nosocomial infection, or an infection acquired while in the hospital.

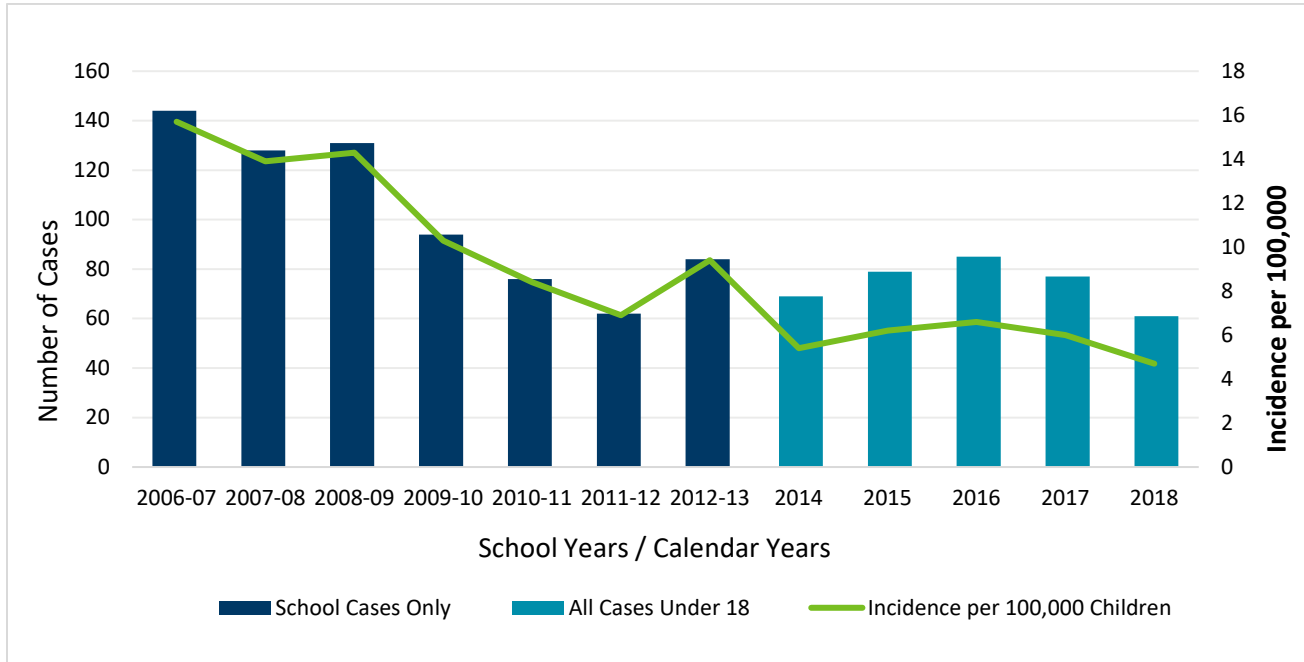
### Chickenpox (Varicella) School Reporting

Schools are required to report individual cases of chickenpox, as well as outbreaks of five or more cases. During the 2018-19 school year, two private schools and one public school reported outbreaks. Vaccination has dramatically reduced the number of outbreaks, and has influenced their size.

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

Shingles in children is uncommon. In 2018, 61 probable or confirmed cases of shingles were reported in children in Minnesota. Two known risk factors for childhood shingles are having had chickenpox at younger than age 1 year and having a weakened immune system. However, most cases occur without a known triggering event. Starting in 2006, schools were asked to report cases of shingles in children.

### Shingles (zoster) cases under age 18, Minnesota, 2006-2018



This graph shows that as more children were vaccinated for chickenpox, the number of cases of childhood shingles started to decline. Beginning in 2014, child care and health care providers were also asked to report cases of shingles in children. As a result, the number of cases reported increased slightly, but the actual incidence of disease (green line on graph) has remained lower than it was in 2006-2008, when surveillance began.

Children who have had chickenpox disease in the past carry what is called the “wild type” chickenpox virus, which can reactivate and cause shingles. This is more likely to happen as a person ages, but occasionally occurs in childhood. Vaccinated children may carry the vaccine strain of the chickenpox virus, but it is a weakened form of the chickenpox virus and is less likely to cause shingles than the wild type virus. This appears to account for the decline in childhood cases. Our surveillance results support previously published research regarding the effect of vaccinating for chickenpox on shingles in children.

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](http://www.health.state.mn.us/diseases/reportable/dcn/index.html) (www.health.state.mn.us/diseases/reportable/dcn/index.html).

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