

North Dakota 2016-17 Influenza Season Final Report

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North Dakota Department of Health

Division of Disease Control

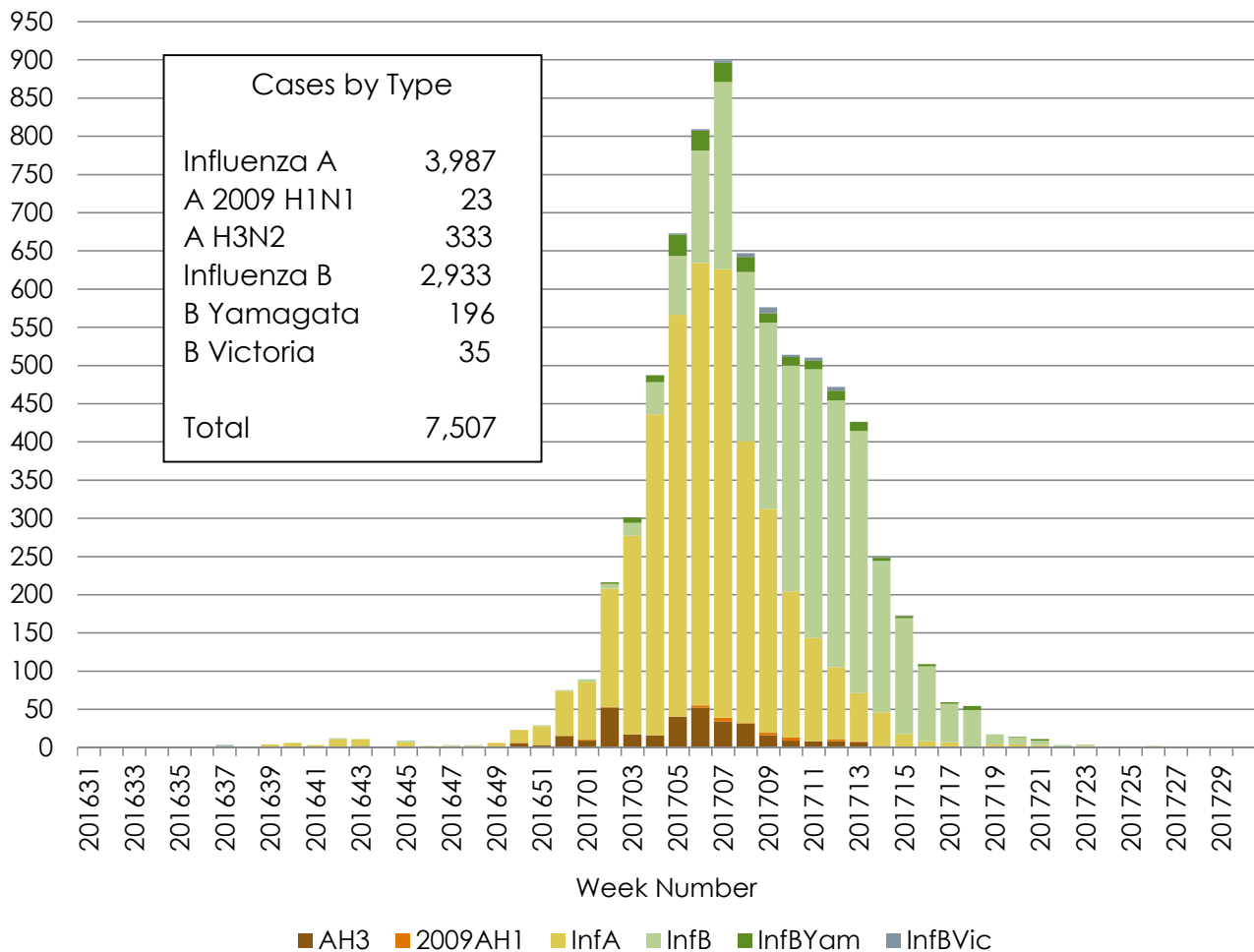
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Summary

The North Dakota Department of Health (NDDoH) received reports of 7,507 cases of laboratory-identified influenza, the largest seasonal case count on record. This statistic captures cases that are identified with a laboratory test. Cases diagnosed based on symptomology or contact with another known case are required to be reported, but probably are under-reported. Additionally, not all people with influenza will seek the care of a medical professional. Therefore, the true seasonal burden of influenza is higher than presented in this report.

The predominant strain this season was the influenza A H3N2. This strain last predominated during the 2014-15 influenza season. As usual, the influenza A 2009 H1N1 pandemic strain circulated as well, in much lower numbers. There was also a total of 3,164 cases of influenza B reported. At 40% of cases, this is a higher percentage of B than normal. Larger numbers of B were reported in the latter half of the season, which is typical. For more details, see the Influenza A and B Comparison section in this report. For more information on influenza statistics, visit www.ndflu.com.

Number of Reported Laboratory-Identified Influenza Cases by Week Number

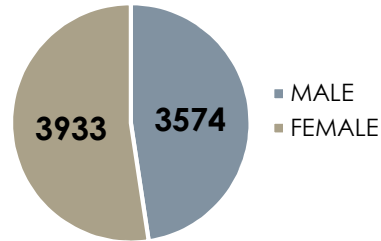


County	Case Count
Adams	23
Barnes	88
Benson	57
Billings	3
Bottineau	43
Bowman	85
Burke	9
Burleigh	1029
Cass	1013
Cavalier	128
Dickey	46
Divide	5
Dunn	49
Eddy	15
Emmons	43
Foster	33
Golden Valley	52
Grand Forks	626
Grant	25
Griggs	9
Hettinger	28
Kidder	36
Lamoure	38
Logan	31
McHenry	53
McIntosh	42
McKenzie	276
McLean	96
Mercer	101
Morton	380
Mountrail	146
Nelson	23
Oliver	36
Pembina	192
Peirce	66
Ramsey	172
Ransom	42
Renville	19
Richland	70
Rolette	223
Sargent	50
Sheridan	17
Sioux	154
Slope	5
Stark	424
Steele	8
Stutsman	170
Towner	68
Traill	51
Walsh	107
Ward	628
Wells	46
Williams	328

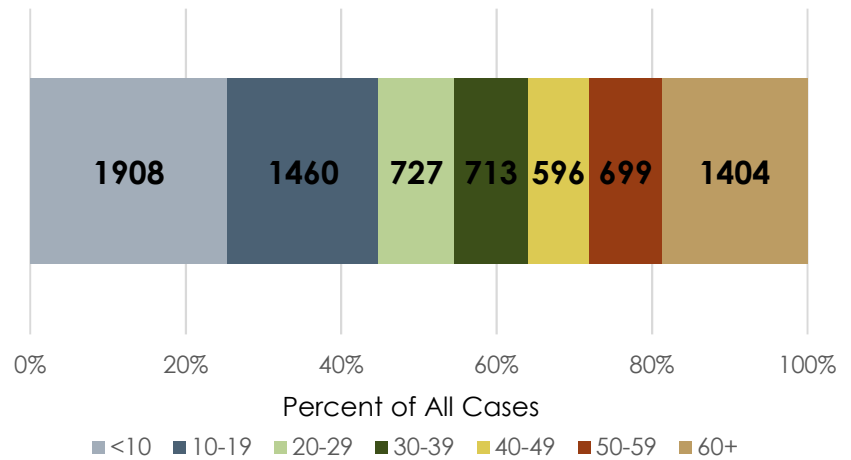
Demographics

Influenza cases were reported for all counties in North Dakota. An increase in the number of hospitals and clinics sending influenza reports electronically likely contributed to the high case count for this season.

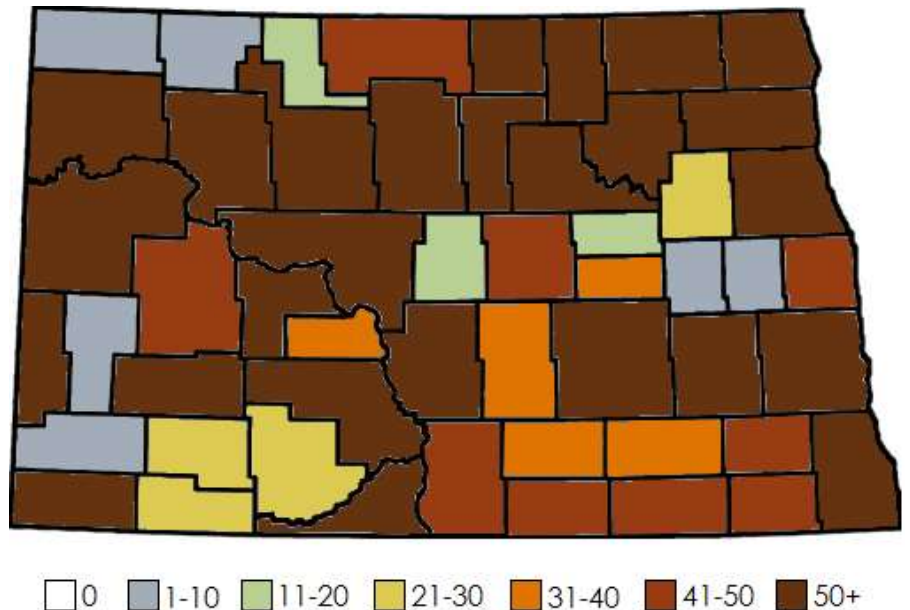
Case Count by **Gender**



Case Count by **Age Group**



Case Burden by **County**

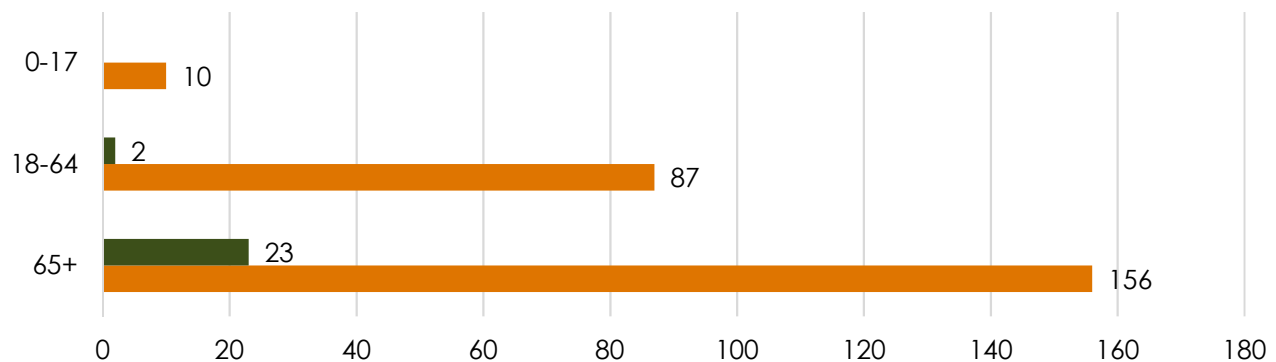


Hospitalizations and Deaths

The NDDoH received reports of 253 hospitalizations. Many providers now report cases electronically, and electronic laboratory data does not include hospitalization status. Therefore, the NDDoH's ability to report accurate hospitalization data has declined considerably, although some hospitals still report their hospitalizations separately. For this reason, hospitalization rates for the 2015-16 and 2016-17 seasons are not comparable to rates from previous seasons. The reporting of influenza hospitalizations is not mandatory in North Dakota.

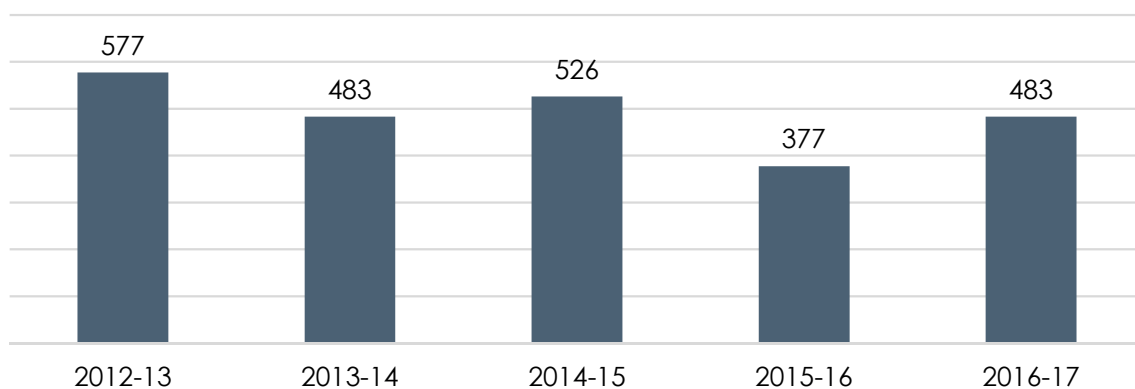
The NDDoH continues to receive information on influenza deaths from the NDDoH Division of Vital Records, as well as ad hoc reports from providers. For the 2016-17 influenza season, 25 deaths were reported in North Dakota.

Influenza Hospitalizations and Deaths by Age Group, 2016-17 Season



In addition, 483 pneumonia deaths were identified in the death record. The NDDoH tracks pneumonia deaths because influenza respiratory disease generally contributes significantly to the number of deaths due to pneumonia during the influenza season. Because influenza is not always diagnosed with a laboratory test, tracking pneumonia deaths is another way to illustrate the magnitude of the influenza season. Although a record number of cases were reported this year, 2012-13 and 2014-15 had more deaths than this season. This supports the hypothesis that more reliable reporting methods contributed to the record-breaking case count this season.

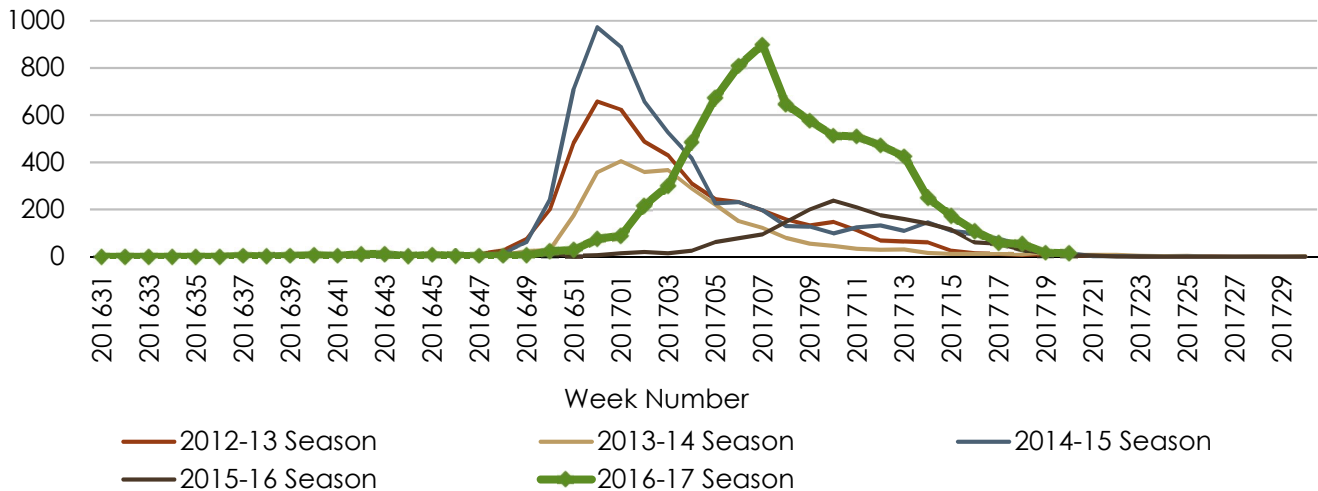
Pneumonia Deaths During the Past Five Influenza Seasons



Seasonal Timing and Multi-season Comparison

The 2016-17 influenza season peaked the week ending February 18, 2017 (week 7). The peak was before the previous season, which was a late season, but was later than the 2012-2015 seasons. Overall, influenza season in North Dakota typically peaks between January and March, so timing for 2016-17 was fairly average.

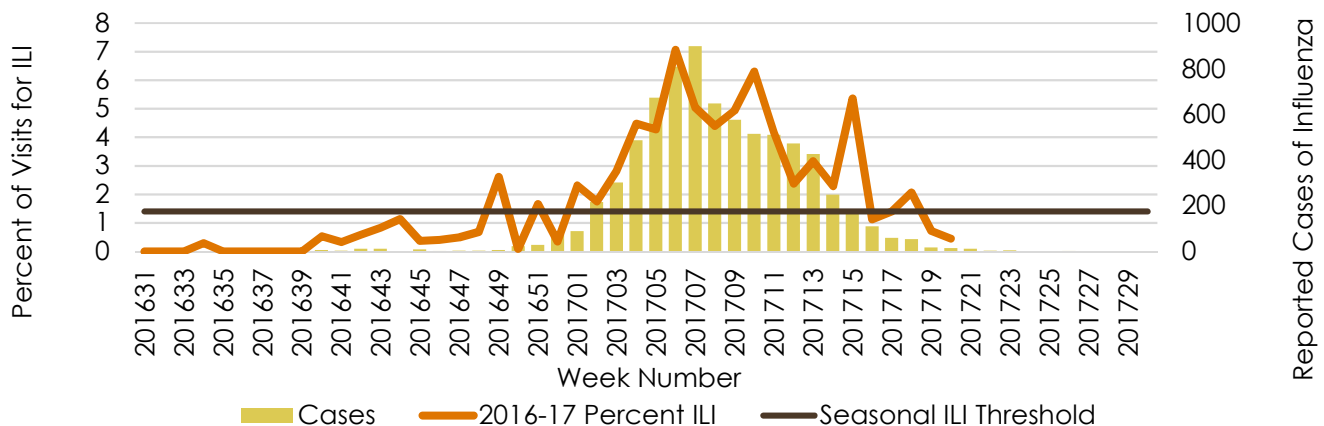
North Dakota Influenza Cases by Week, 2012-Current Season



Outpatient Influenza-like Illness Network (ILINet)

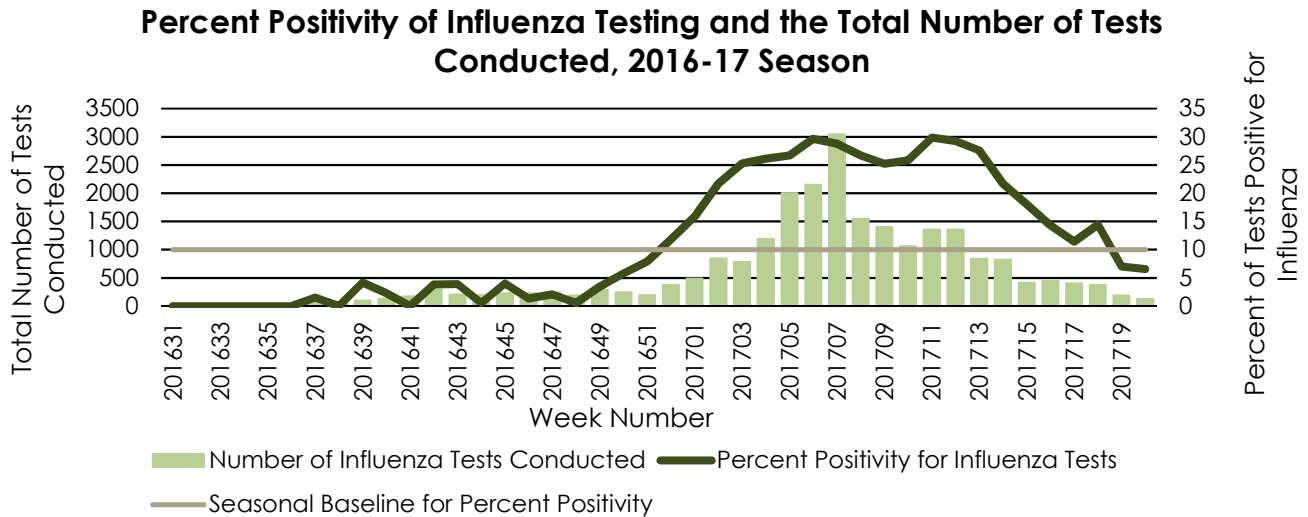
Thirteen individual health care providers or clinics located throughout the state submitted influenza-like illness (ILI) data to the NDDoH as part of the national ILINet sentinel provider program. ILI is defined as having a fever accompanied by a cough and/or sore throat. Percent ILI peaked the 6th week of 2017, the week ending February 11th, with 7.06 percent of visits due to ILI. The seasonal threshold for ILI in North Dakota is 1.4 percent. For the 2016-17 season, this threshold was exceeded for 15 straight weeks, starting with week 1 (the week ending January 7th, 2017).

Number of Cases and Percent of Outpatient Visits Due to Influenza-like Illness by Week, 2016-17 Season



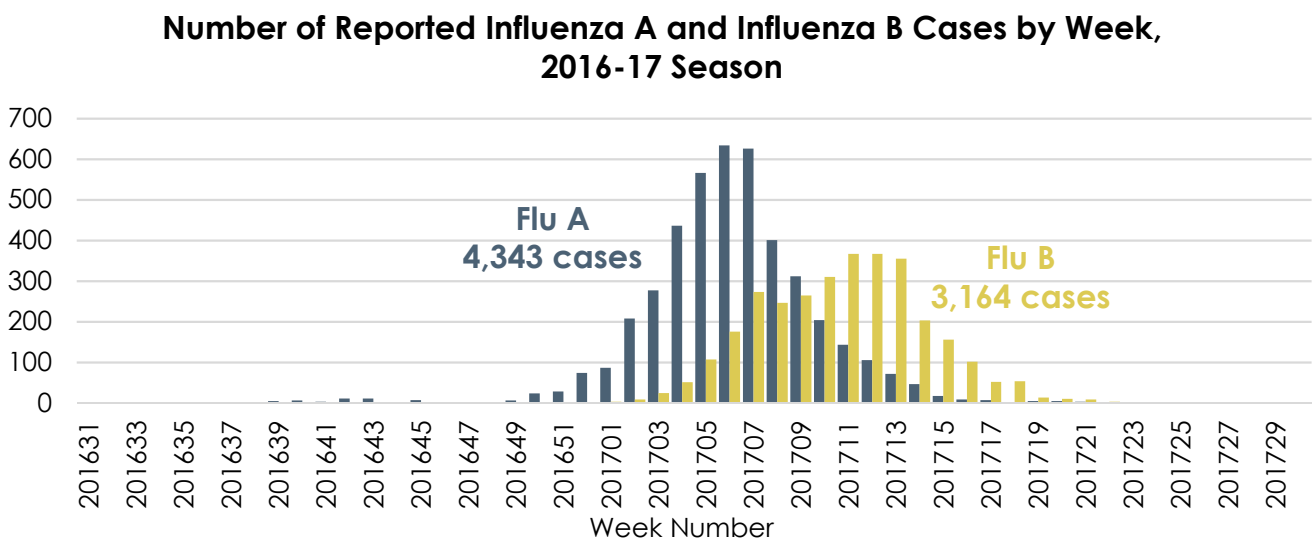
Laboratory Surveillance

Twenty-four laboratories in North Dakota participated in the laboratory sentinel program for the season, submitting the total number of influenza tests conducted and the total number of positive results. Tests include rapid, DFA, culture, and RT-PCR methodology. Ten percent or greater positivity is considered season-level influenza activity. Percent positivity for the 2016-17 season was above 10 percent for 19 weeks, beginning in week 52, the week ending December 31st, 2016. The highest percent positivity was 29.86 percent during week 11, the week ending March 18th, 2017.



Influenza A and B Comparison

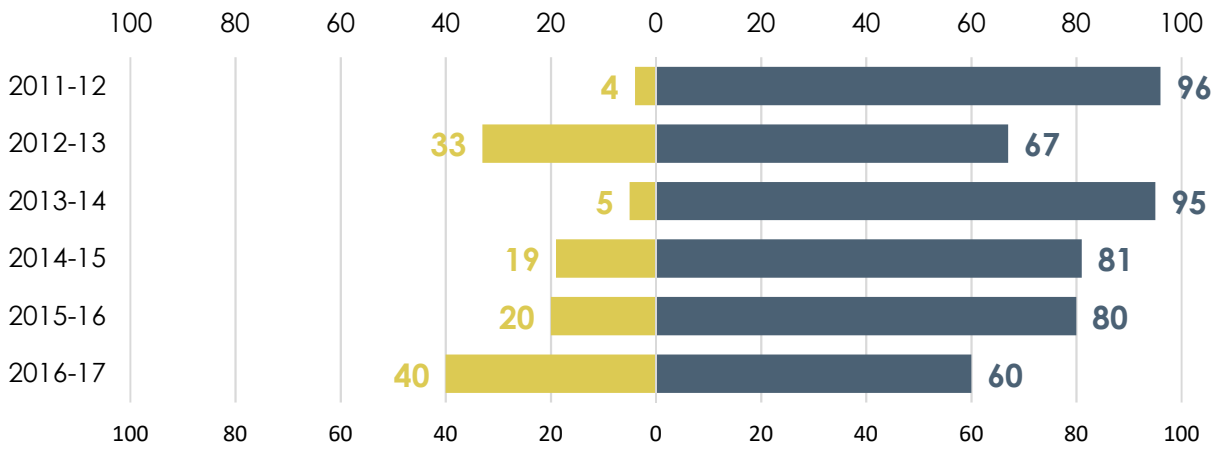
At 3,164 cases, influenza B made up 40 percent of influenza cases this year, an unusually high percentage. In the previous five seasons, influenza B cases made up 16.2 percent of all reported influenza cases (range: 4 percent to 33 percent).



Of the known B viruses that underwent lineage testing, 85 percent were of the Yamagata lineage, while the remaining 15 percent were of the Victoria lineage. In recent years, Yamagata has been more prevalent in the Midwest region of the United States. For 2016-17,

only quadrivalent vaccines provided protection against the B Yamagata lineage. Trivalent flu vaccine, which provides protection against only one B lineage virus included protection for B Victoria only. This may have contributed to higher B case counts locally.

Percent of total cases made up of Influenza A and Influenza B by season



Vaccination

The North Dakota Immunization Information System (NDIIS) collects data on vaccinations administered to North Dakotans. Vaccines given to children are required to be entered into the NDIIS, while vaccines given to adults are often entered into the NDIIS, but are not required to be entered. Many providers in North Dakota have established an electronic connection with the NDIIS, allowing all vaccinations for that provider to be sent to the NDIIS automatically.

According to the NDIIS, vaccination rates for all age groups were higher during the 2016-2017 influenza season compared with the 2015-2016 season. One possible reason for this increase is that it reflects an increase in reporting to the NDIIS, as more clinics and facilities become interoperable and begin sending adult vaccine doses.

Percent of ND residents who received at least 1 dose of influenza vaccine during the flu season

