

2014-2015 Influenza Season Summary



Total Number of Reported Influenza Cases: 6,443

Cases by Influenza Subtype

2009 A H1N1	A H3N2	Influenza A (unsubtyped)	Influenza B Yamagata Lineage	Influenza B Victoria Lineage	Influenza B (unsubtyped)	Influenza Unspecified
2	314	4908	60	44	1115	0

Cases by Age

Age Range of Reported Influenza Cases: 3 days – 105 years

Median Age of Reported Influenza Cases: 25 years

Cases by Age Group

<1	1-5	6-10	11-19	20-24	25-34	35-44	45-54	55-64	65+
243	1059	847	780	298	624	511	474	507	1100

Cases by Gender

Male	Female
3105	3338

Cases by County

Adams	40	Grand Forks	517	Ramsey	91
Barnes	103	Grant	34	Ransom	34
Benson	34	Griggs	4	Renville	17
Billings	3	Hettinger	18	Richland	52
Bottineau	41	Kidder	24	Rolette	86
Bowman	56	Lamoure	25	Sargent	53
Burke	8	Logan	26	Sheridan	6
Burleigh	1177	McIntosh	36	Sioux	38
Cass	777	McHenry	48	Slope	4
Cavalier	83	McKenzie	86	Stark	483
Dicky	56	McLean	97	Steele	6
Divide	25	Mercer	78	Stutsman	154
Dunn	36	Morton	348	Towner	20
Eddy	6	Mountrial	69	Traill	56
Emmons	20	Nelson	16	Walsh	154
Foster	12	Oliver	25	Ward	738
Golden Valley	19	Pembina	62	Wells	23
		Pierce	29	Williams	380

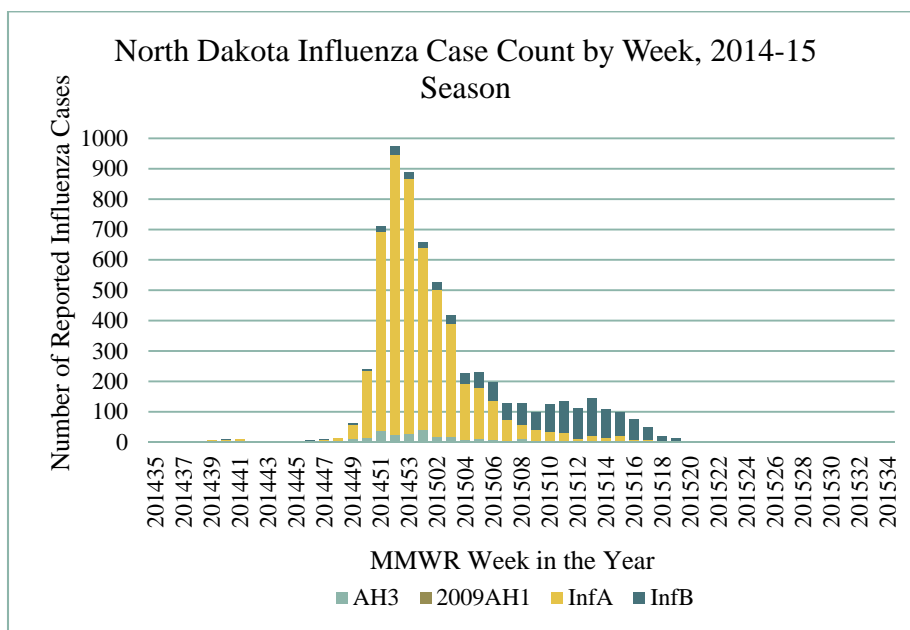
2014-15 Seasonal Narrative

Reported Cases

The North Dakota Department of Health (NDDoH) received reports of **6,443** cases of laboratory-identified influenza from September 1, 2014 to July 31, 2015, the largest case count on record. This statistic only captures cases that are identified with a laboratory test. Cases diagnosed based on symptomology or contact with another known case are not reportable, and not all people sick with influenza will seek the care of a medical professional. Therefore, the true seasonal burden of influenza disease is higher than presented here.

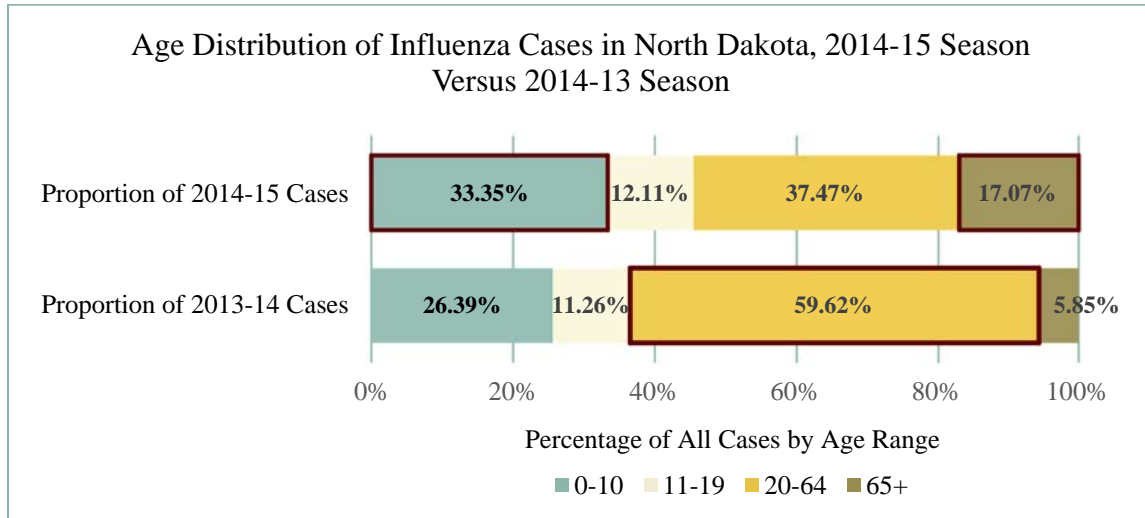
During the season the dominant circulating strain was influenza A H3N2. About two-thirds of the H3N2 viruses circulating were different, or “drifted,” from the H3N2 vaccine strain. This likely contributed to the large case count for the 2014-15 season. This season there was also an increase in medical facilities reporting diseases electronically to the NDDoH, which likely decreased the number of influenza cases not reported due to human error. This may also contributed to the increased number of cases identified this season.

Other strains of influenza also circulated at lower numbers, as is typical for an influenza season. The 2009 A H1N1 pandemic strain circulated in very low numbers; two cases of 2009 A H1N1 were identified this season, and likely account for a small percentage of unsubtyped influenza A’s reported. Influenza B viruses made up just under 20 percent of the reported cases. This season the North Dakota Department of Health Division of Laboratory Services (NDDoH DLS) was able to identify influenza B lineages for the first time. Of the B viruses tested, 58 percent were of the Yamagata lineage and 42 percent were of the Victoria lineage. Nationally, B Victoria viruses made up 28 percent of the B viruses tested, meaning North Dakota sees more of the Victoria lineage than average. Protection against B Victoria strains is only provided by quadrivalent influenza vaccines, vaccines that contain protection against four strains of influenza.



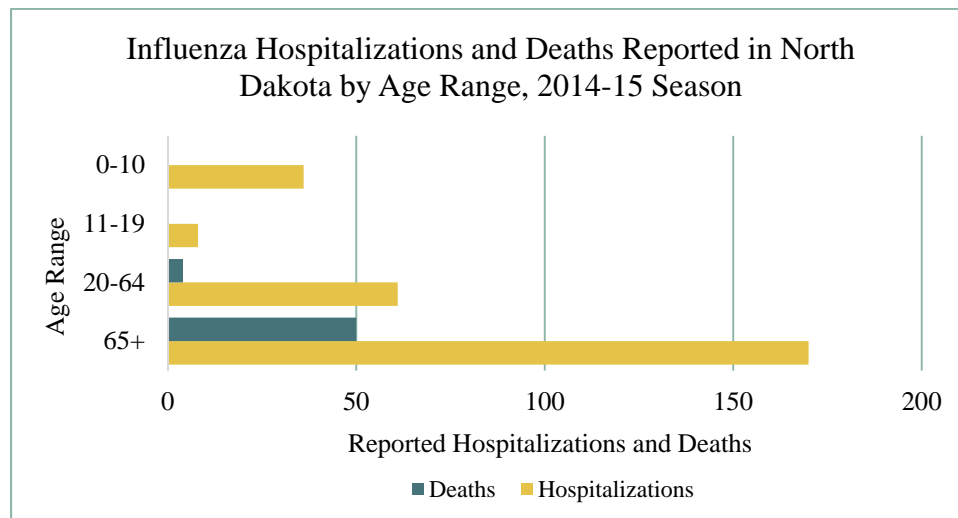
Age Distribution of Cases

The age distribution of cases this season was typical for a predominantly A H3N2 year, significantly impacting all ages, but especially young children and the elderly. In contrast, the previous influenza season (2013-14) saw a greater proportion of cases in working-aged adults. This trend is typical for seasons in which the 2009 A H1N1 influenza strain is predominant, as it was for the 2013-14 season. For example, four long term care outbreaks were reported during the 2013-14 season, versus **40** long term care outbreaks reported for the 2014-15 season.

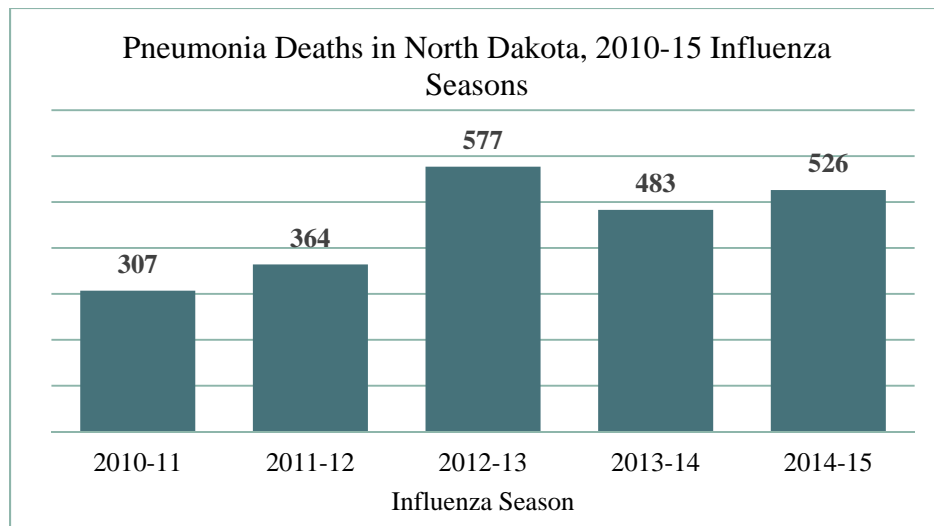


Hospitalizations and Deaths

For the 2014-15 season, NDDoH received **275** reports of hospitalizations due to influenza. Influenza hospitalizations are not specifically required to be reported to the NDDoH, so hospitalization report data underrepresents the true burden of influenza hospitalizations. A large majority of reported hospitalizations were in people 65 years of age and older. The NDDoH also identified **54** deaths due to influenza using a combination of provider reporting and death data from state Vital Records. Like hospitalizations, adult deaths are not explicitly required to be reported to the state. Pediatric influenza deaths are nationally notifiable; the most recent child death from influenza reported to NDDoH occurred during the 2010-11 influenza season. The NDDoH changed the definition of an influenza death to be more complete this season, but it is likely 2014-15 would still be a significant year for reported influenza deaths regardless.

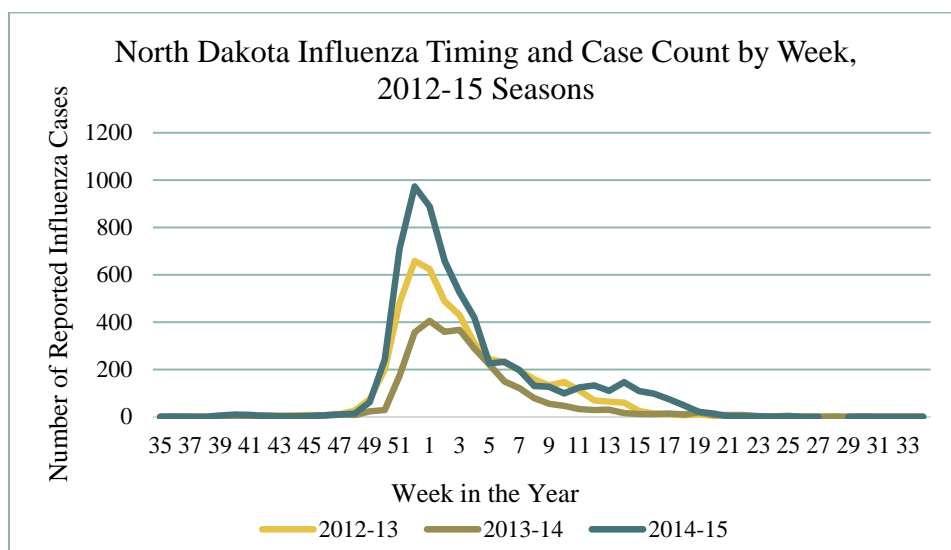


Another influenza death indicator tracked by the NDDoH is pneumonia deaths. As a respiratory disease, influenza contributes significantly to the number of deaths due to pneumonia during the influenza season. Because influenza is not always diagnosed with a laboratory test, tracking pneumonia deaths is another way to illustrate the magnitude of influenza disease during the influenza season. The NDDoH identified 526 pneumonia deaths in the Vital Record for the 2014-15 influenza season, the second highest number in the last five years. The highest number of pneumonia deaths on record happened during the 2012-13 season, with 577 identified deaths. The 2012-13 season was also an A H3N2-predominant season with a poor vaccine match to the H3N2 vaccine strain.



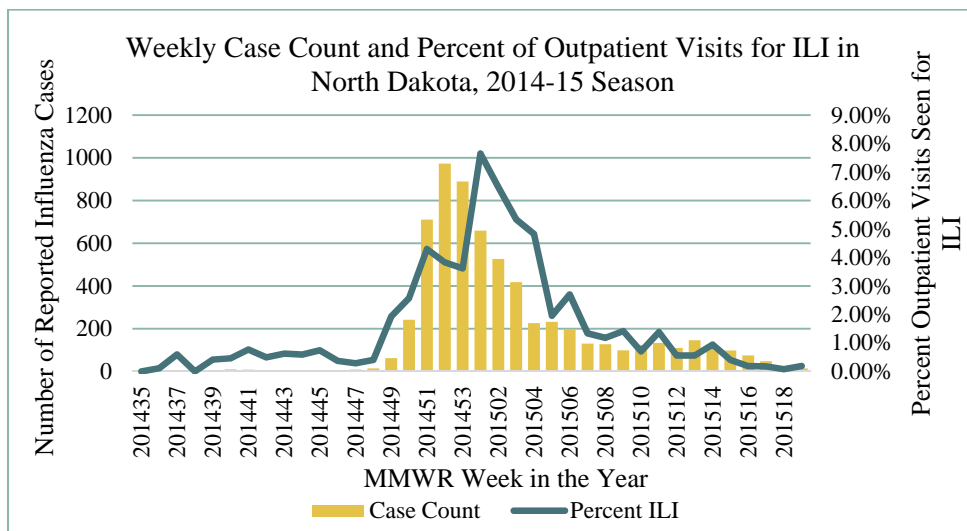
Seasonal Timing

For the third season in a row, the timing of the influenza season was early, with cases becoming widespread in early December. Typically, widespread activity in North Dakota first occurs between January and March. The peak week of the season occurred the 52nd week of 2014, the week of December 21st. A second, smaller increase in cases was observed in the spring when the number of influenza B cases increased, a typical late-season occurrence. Regular reports of cases continued well into May, making the 2014-15 season a fairly long season.



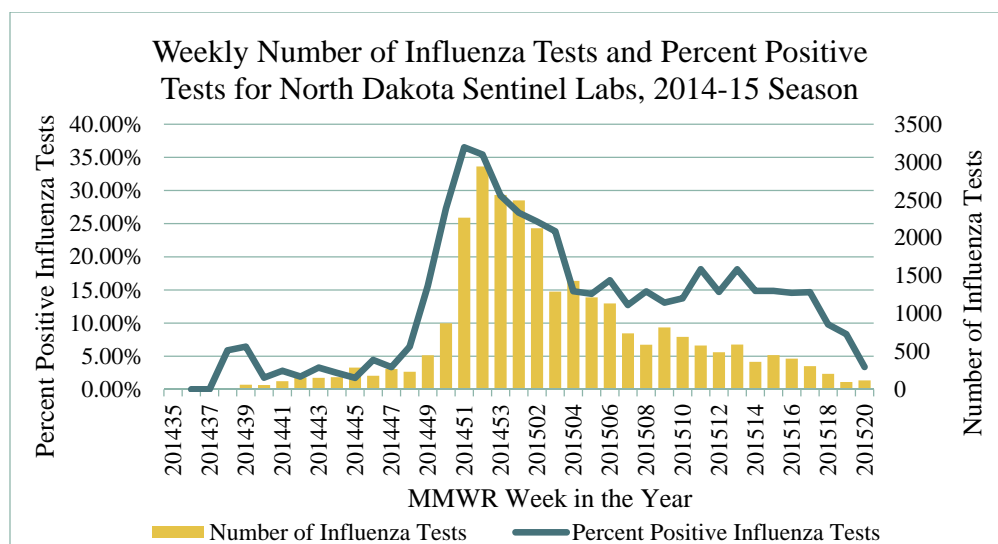
Outpatient Influenza-like Illness Surveillance Network (ILINet)

Seventeen individual health care providers and clinics located throughout the state submitted 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 second week of 2015, the week of January 11th, with **7.65** percent of visits due to ILI. The seasonal threshold for ILI in North Dakota is 1.3 percent; for the 2014-15 season this threshold was first exceeded the week of December 7th.



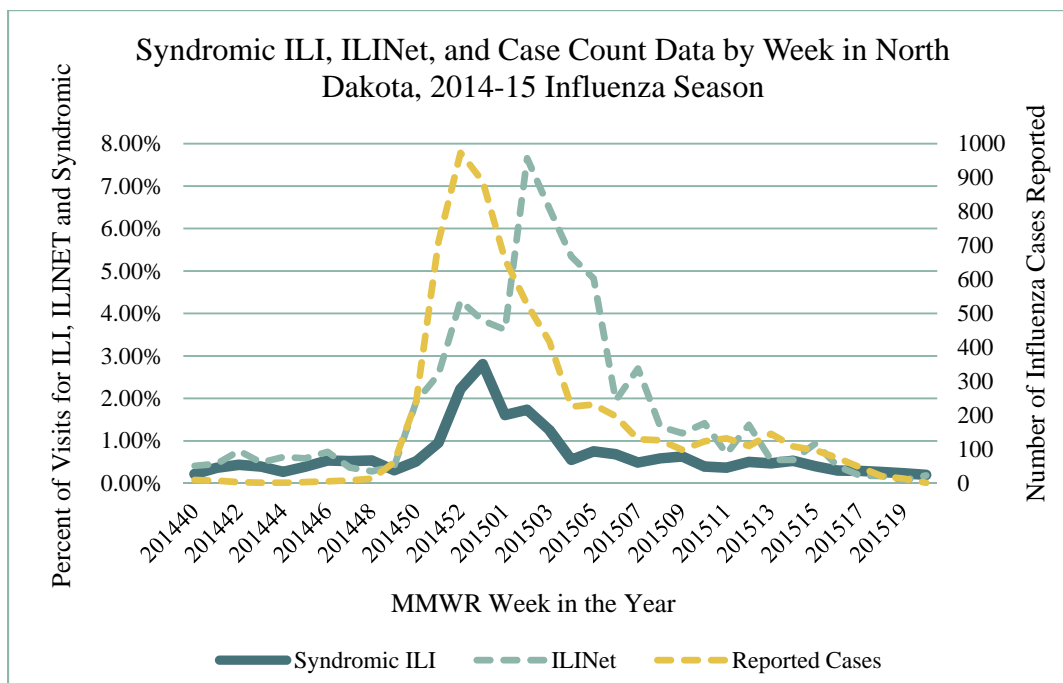
Laboratory Surveillance

Thirty-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 and RT-PCR methodology. Seasonal influenza activity is generally considered 10 percent or greater percent positivity. Percent positivity for the 2014-15 season was above 10 percent for 22 weeks, beginning the week of December 7th—a longer than usual season—with a high of **36.52** percent, the week of December 14th.



2014-15 Syndromic Surveillance

Syndromic surveillance is the use of chief complaint, diagnosis or other “reason for visit” data used to track trends in different categories of diseases (“syndromes”) across space and time. Six hospitals and 18 clinics provided data to the North Dakota syndromic surveillance program during the 2014-15 influenza season. This was the first season the BioSense 2.0 platform was used in North Dakota, and influenza-like illness syndrome data was tracked throughout the season. The highest recorded ILI occurred the 53rd week in 2014, the week of December 28th, when **2.81** percent of visits were for influenza-like illness.



It was unknown how ILI data from BioSense 2.0, which contains emergency department and hospital data in addition to outpatient data, would compare with ILINet data. Therefore, the two data sources were not pooled together, as had been done during previous seasons with a different syndromic surveillance platform. When the influenza season ended, weekly syndromic data was compared with ILINet and case count data to assess the comparability of the syndromic data to our other seasonal measures. The syndromic data out of BioSense 2.0 was very highly correlated with the weekly case and ILINet trends. Interestingly, the syndromic data was an even stronger match against our case count data than the ILINet data. This may be because there are more facilities in our syndromic feed than report as ILINet providers. Additionally, because the syndromic feed also contains emergency department and hospital data, the full spectrum of influenza illness may be better represented than in our outpatient ILINet data, which does not include visits for the severely ill.

2014-15 Unusual Events

Several unexpected manifestations of influenza occurred this season, highlighting the unpredictable nature of influenza.

Influenza A and Parotitis

In January of 2014, providers in the United States began noticing an increase in parotitis, the swelling of the parotid gland in the neck traditionally associated with mumps disease. However, these patients did not test positive for mumps. Many of these patients reported experiencing mild respiratory symptoms before their parotitis developed. After some of these patients tested positive for influenza A H3N2, there was concern that parotitis was becoming a more common symptom of influenza. Previously, parotitis was seen in influenza patients rarely. In January, the NDDoH released a Health Alert to North Dakota providers to alert them to the possible differential diagnosis of influenza for people presenting with parotitis. The NDDoH also offered testing on specimens collected from patients with parotitis. Nine specimens were submitted to the NDPHL for testing; none tested positive for influenza, but one tested positive for human metapneumovirus, another common respiratory illness. Across the United States, testing revealed some additional patients with parotitis tested positive for influenza A H3N2. Additionally, some tested positive for other respiratory viruses, as was seen in North Dakota. Ultimately, parotitis can still be considered an uncommon manifestation of infection with influenza virus.

Influenza B and Rash

In March of 2014, several states reported a small number of cases of influenza B presenting with a measles-like rash. Previously, this presentation of influenza had also been seen in a small cluster of patients in Canada. No influenza positive-patients with a measles-like rash were identified in North Dakota.

Avian Influenza in North Dakota Turkeys

Beginning in December of 2014, the United States began to see outbreaks of high pathogenic avian influenza (HPAI) in backyard and commercial flocks and wild birds. Three strains of influenza A H5 were identified: A H5N1, A H5N2, and A H5N8. Twenty states were affected, with very large outbreaks mostly identified in Midwest states. The most common strain identified was A H5N2.

In North Dakota, outbreaks of influenza A H5N2 were identified on two commercial turkey farms in during the month of April. The outbreaks occurred in the southwest portion of the state, and a total of 129,000 turkeys and 2,000 chickens were destroyed as a result of these outbreaks. A total of 17 people involved with the care and destruction of the affected birds monitored themselves for development of ILI for 10 days after their potential exposures. None of these people developed symptoms. In the United States, no human cases of HPAI have been identified as a result of these outbreaks. The United States Department of Agriculture has announced HPAI may return to the United States in migratory during the fall of 2015.
