

INFLUENZA: the 2015-2016 Flu Season in South Dakota and the United States

South Dakota Influenza Epidemiology and Laboratory Surveillance

National Influenza Surveillance Data

During the 2015-2016 season, influenza activity was lower and peaked later compared with the previous three seasons. Activity remained low from October 2015 until late December 2015 and peaked in mid-March 2016. During the most recent 18 influenza seasons, (including this season) only two other seasons have peaked in March (2011-12 and 2005-06). Overall influenza activity was moderate this season, with lower percentage of outpatient visits for influenza-like illness (ILI), lower hospitalization rates, and a lower percentage of deaths attributed to pneumonia and influenza (P&I) compared with the preceding three seasons. Influenza A(H1N1)pdm09 viruses predominated overall, but Influenza A(H3N2) viruses were more commonly identified from October to early December, and influenza B viruses were more commonly identified from mid-April through mid-May. The majority of viruses characterized this season were antigenically similar to the reference viruses representing the recommended components of the 2015-16 Northern Hemisphere influenza vaccine.

Influenza A(H1N1)pdm09 virus was the most commonly reported influenza virus in all U.S. Department of Health and Human Services regions, the portion of influenza infections from influenza A(H1N1)pdm09 viruses ranged from 75% in Upper Midwest to 36% in South Central. Influenza A(H3N2) viruses accounted for approximately 25% of viruses reported in South Central and South West, and Influenza B viruses accounted for approximately 43% of viruses reported in Northwest.

During the 2015-16 influenza season, three human infections with novel influenza A viruses were reported to CDC. Two were reported from the Minnesota Department of Health and one from the New Jersey Department of Health. All three patients have recovered fully and there is no evidence of human-to-human transmission.

CDC characterizes influenza viruses through one or more laboratory tests. These data are used to monitor circulating influenza viruses for early identification of viruses that are antigenically different from the recommended influenza vaccine reference viruses. CDC has antigenically for genetically characterized 2,616 influenza viruses collected and submitted by U.S. Laboratories since October 1, 2015, including 997 influenza A(H1N1)pdm09 viruses, 625 influenza A(H3N2) viruses, and influenza B viruses of which 548 Yamagata –lineage were similar to B/Phuket/3073/2013 and 446 influenza B/Victoria lineages characterized and the majority were similar to B/Brisbane/60/2008.

Since October 1, 2015, a total of 2,408 influenza viruses specimens have been tested for susceptibility to influenza antiviral medications. All 1,188 influenza B viruses and 658 influenza A(H3N2) viruses tested were susceptible to oseltamivir, zanamivir, and peramivir. Among 2,193 influenza A(H1N1)pdm09 viruses tested for susceptibility, 18 (0.8%) were found to be resistant to oseltamivir and peramivir. All 1,127 influenza A(H1N1)pdm09 viruses tested were susceptible to zanamivir. High levels of resistance to the adamantines (amantadine and rimantadine) persist among influenza A viruses currently circulating globally; adamantines are not effective

against influenza B viruses. Amantadine drugs are not recommended for use against influenza at this time.

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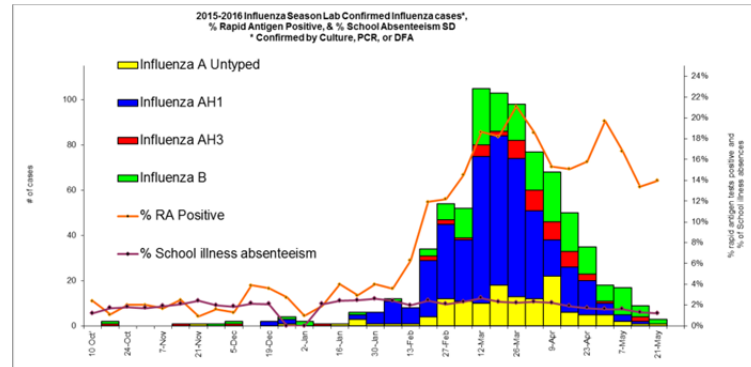
The South Dakota Department of Health (SD DOH) and SD Public Health Laboratory (SDPHL) conduct surveillance for influenza year-round, and intensifies activities October through May. The components of South Dakota’s influenza surveillance program for the 2015-2016 season included 60 laboratory sentinel sites; 34 Influenza Like Illness Network (ILINet) providers; viral culture, PCR and DFA testing for confirmatory testing; reporting of aggregate rapid antigen results; influenza associated hospitalizations and deaths, and institutional outbreaks. During the influenza season, weekly summary reports are posted on the SD DOH website at: www.doh.sd.gov/Flu/.

There were 786 confirmed influenza cases, A(H3N2) 54 (7%), A(H1N1) 407 (52%), A-not subtyped 134 (17%) and 191 (24%) influenza B, were reported to SDDOH. Additionally, 30,968 rapid antigen influenza tests were accomplished with 3853 positive (12%), 2901 (9%) positive for influenza A and 952 (3%) positive for influenza B.

The 2015-2016 influenza viruses had a substantial impact on all age groups but was mild season compared to previous seasons. The median age of confirmed influenza cases was 32 years with an age range of 11 weeks to 96 years.

The first confirmed case of influenza was reported the third week of October 2015 and the last case reported late May 2016. The predominant virus in South Dakota was influenza A(H1N1). The peak of the season was the second week in March 2016 with AH1N1, AH3N2 and Influenza B viruses all circulating at the same time.

Nine individuals died due to influenza and its complications during the 2015-2016 season. Gender breakdown was 44% female and 56% male. The median age was 87 years, with an age range of 65 years to 95 years. 77% of the influenza associated deaths were White and 23% were Unknown.



South Dakota seasonal distribution of influenza by MMWR week

Lab Confirmed Influenza Cases (by DFA, PCR, or culture)		Influenza Associated Hospitalizations	Influenza Associated Deaths
Age Group	# Cases (%)	# Hosp (%)	# Deaths
0-4	170 (22%)	31 (19%)	0
5-18	156 (20%)	10 (6%)	0
19-49	174 (22%)	28 (17%)	0
50-64	150 (19%)	35 (22%)	0
> 64	136 (17%)	57 (35%)	9 (100%)
Total	786	161	9

South Dakota distribution of influenza hospitalizations & deaths by age

There were 161 individuals reported hospitalized during the 2015-2016 influenza season. The first hospitalization was identified early February 2016 and the last was reported late August 2016. Hospitalizations peaked Mid-March. For patients that were hospitalized with influenza, the age range was 11 weeks to 95 years with a median age of 54 years.

Other viral respiratory pathogen reports included 214 adenovirus, 73 corona virus OC43, 45 corona virus 229E, 14

chlamydiophila pneumonia, 387 hMPV, 137
parainfluenza-1, 14, parainfluenza-2, 19
parainfluenza-3, 80 parainfluenza-4, 627
respiratory syncytial virus, 850
rhino/enterovirus.