State of Wyoming

Department of Health

Wyoming Influenza Summary Report
2006-2007 Season

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WYOMING INFLUENZA SUMMARY REPORT
2006 – 2007 SEASON

SYNOPSIS

Overall, influenza activity in the 2006-2007 influenza season was relatively mild. Almost one-third fewer confirmed cases of influenza were reported this season as compared to last season. Accordingly, the percentages of outpatient visits for influenza-like illnesses were lower than last season. Wyoming activity, as measured by reported cases and influenza-like illness activity peaked during the week ending March 17, 2007. The two major components of the influenza surveillance system in Wyoming are described below.

SURVEILLANCE FOR CONFIRMED INFLUENZA CASES

Influenza is a reportable disease in Wyoming. The Wyoming Department of Health receives reports of both rapid test and culture positive cases from physicians, hospitals, and laboratories. Our program relies on these sectors to test for and subsequently report (as mandated by state statute) all positive results for surveillance purposes. The numbers included in this report represent only the cases of influenza that are reported to our agency, but are intended to demonstrate trends in influenza activity. Influenza surveillance is designed to determine when influenza viruses are circulating, identify circulating strains, identify clusters/outbreaks, and detect changes in the viruses.

INFLUENZA SENTINEL PHYSICIANS SURVEILLANCE NETWORK

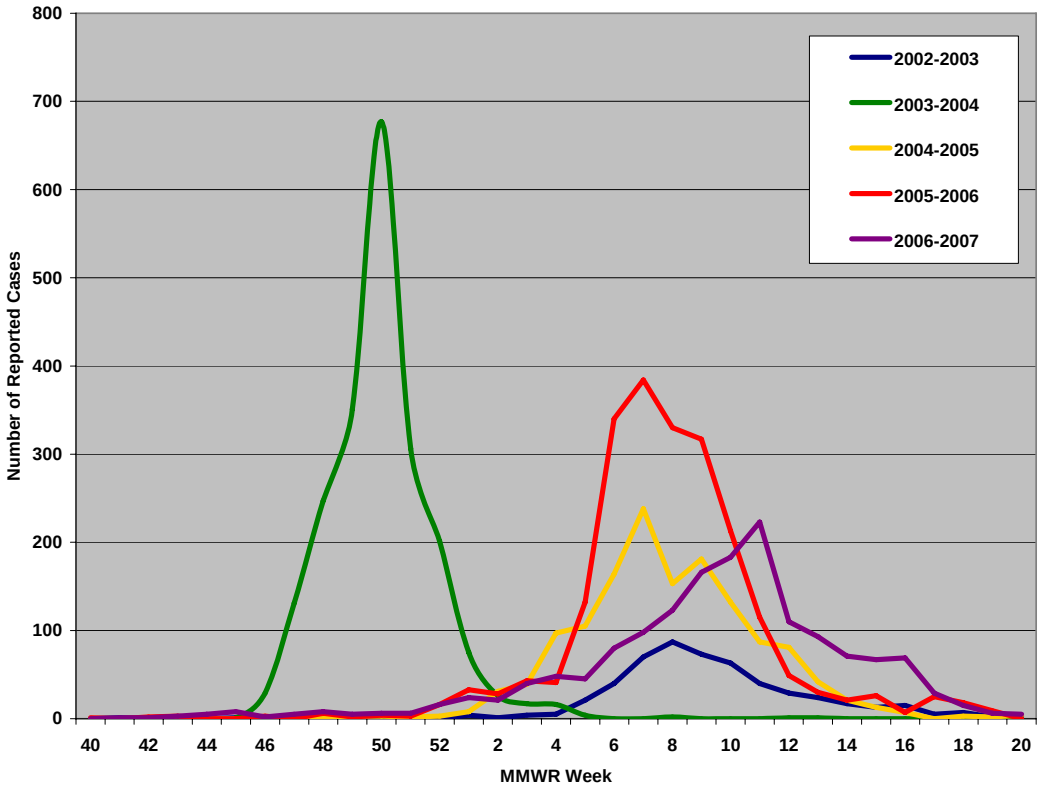
The sentinel provider program involves two major components. Sentinel providers record and report summary data (total number of patient visits for any reason and the number of patient visits for influenza-like illness by age group) each week to the Centers for Disease Control and Prevention (CDC) either via the internet or fax. The case definition for influenza-like illness used by CDC for national surveillance is fever $\geq$100° F AND cough and/or sore throat (in the absence of a known cause other than influenza). Reports are submitted at the end of each week, even when no activity is seen, to develop annual epidemic thresholds. In addition, sentinel providers collect specimens from a small number of patients with influenza-like illness, which are sent to the Wyoming Public Health Laboratory (WPHL) for influenza culture free of charge, which often provides the earliest identification of circulating virus types, subtypes, and strains in a season.

REPORTED CASES

Rapid test and culture confirmed cases of influenza are reportable in the state of Wyoming. This season, 1586 cases of influenza (rapid test and culture positives combined) were reported from all 23 Wyoming counties. The first cases were reported the week ending October 14, 2006. Reporting of influenza peaked the week ending March 17, 2007, when 223 cases were reported. During the previous season, reporting of influenza peaked the week ending February 18, 2006, when 384 cases were reported. The table on the adjacent page displays the number of cases reported by week, county, age group, and gender.

Although all positive laboratory tests for influenza are required by law to be reported to the Wyoming Department of Health, not all providers report these results. Additionally, the majority of ill persons do not seek medical care or are not tested for the disease. Comparing reported cases of influenza from year to year or week to week may not be valid because many factors influence both testing and reporting.

REPORTED CASES OF INFLUENZA (RAPID AND CULTURE TEST POSITIVE)
WYOMING, 2006-2007 SEASON



REPORTED CASES OF INFLUENZA; WYOMING, 2006-2007 SEASON

Week Ending	Number
7-Oct	0
14-Oct	1
21-Oct	1
28-Oct	3
4-Nov	5
11-Nov	8
18-Nov	2
25-Nov	5
2-Dec	8
9-Dec	5
16-Dec	6
23-Dec	6
30-Dec	16
6-Jan	24
13-Jan	21
20-Jan	40
27-Jan	48
3-Feb	45
10-Feb	80
17-Feb	98
24-Feb	123
3-Mar	166
10-Mar	183
17-Mar	223
24-Mar	110
31-Mar	93
7-Apr	71
14-Apr	67
21-Apr	69
28-Apr	29
5-May	15
12-May	6
19-May	5
Unknown	4
Total	**1586**

County	Number
Albany	9
Big Horn	12
Campbell	148
Carbon	63
Converse	73
Crook	42
Fremont	206
Goshen	32
Hot Springs	14
Johnson	5
Laramie	502
Lincoln	7
Natrona	101
Niobrara	2
Park	53
Platte	24
Sheridan	24
Sublette	9
Sweetwater	126
Teton	6
Uinta	25
Washakie	81
Weston	18
Unknown	4
Total	**1586**

Age	Number
0-4	397
5-10	308
11-19	194
20-39	290
40-59	203
60+	138
Unknown	56
Total	**1586**

Gender	Number
Male	801
Female	767
Unknown	18
Total	**1586**

Type	Number
A*	1026
B	41
Unknown	519
Total	**1586**

LABORATORY DATA

Of the 1586 reported cases, 1025 (64.6%) were type A, 41(2.6%) were type B, and 520 (32.8%) were not typed. Twenty-seven of these cases were confirmed by cell culture at the Wyoming Public Health Laboratory (WPHL); the remaining 1559 were confirmed by rapid test only. During the 2006-2007 influenza season, the WPHL tested a total of 65 specimens for influenza virus and 27 (41.5%) were positive. The first culture positive was tested during the week ending January 13 and the last positive was tested during the week ending March 31. Among the 27 influenza isolates, 14 (51.9%) were A (H1) viruses and 13 (48.1%) were A (H3) viruses. The WPHL did not culture any type B viruses this season.

Seven isolates (all type A) were further tested by the CDC. Three influenza A viruses were A (H3N2) and four influenza A viruses were A (H1N1). Of the three isolates that were H3N2, all were found to be most closely related to A/Wisconsin/67/2005-like. A/California/07/2004-like virus was selected as the H3 component for the 2006-07 vaccine. A/Wisconsin/67/2005 is an antigenic variant which evolved from A/California/07/2004. An A/Wisconsin/67/2005-like virus was recommended by WHO as the H3 component for the 2007-08 vaccine. The four isolates that were found to be H1N1 were most related to A/New Caledonia/20/99-like. A/New Caledonia/20/99-like was the WHO recommended H1 component of the 2006-07 vaccine. A/Solomon Islands/03/2006 has been selected to be the H1 component of the 2007-08 vaccine.

On a national level, U.S. WHO and National Respiratory and Enteric Virus Surveillance System collaborating laboratories tested a total of 172,735 specimens for influenza viruses and 23,181 (13.4%) were positive. Among the 23,181 influenza viruses, 18,392 (79.3%) were influenza A viruses and 4,789 (20.7%) were influenza B viruses. Six thousand one hundred and two (33.2%) of the 18,392 influenza A viruses have been subtyped: 3,872 (63.5%) were influenza A (H1) viruses and 2,230 (36.5%) were influenza A (H3) viruses. While influenza A (H1) viruses were predominant this season overall, influenza A (H3) viruses have been reported more frequently than influenza A (H1) viruses since early March.

As of May 20, 2007, CDC had antigenically characterized 740 influenza viruses collected by U.S. laboratories since October 1, 2006 [358 influenza A (H1), 173 influenza A (H3) viruses, and 209 influenza B viruses] .

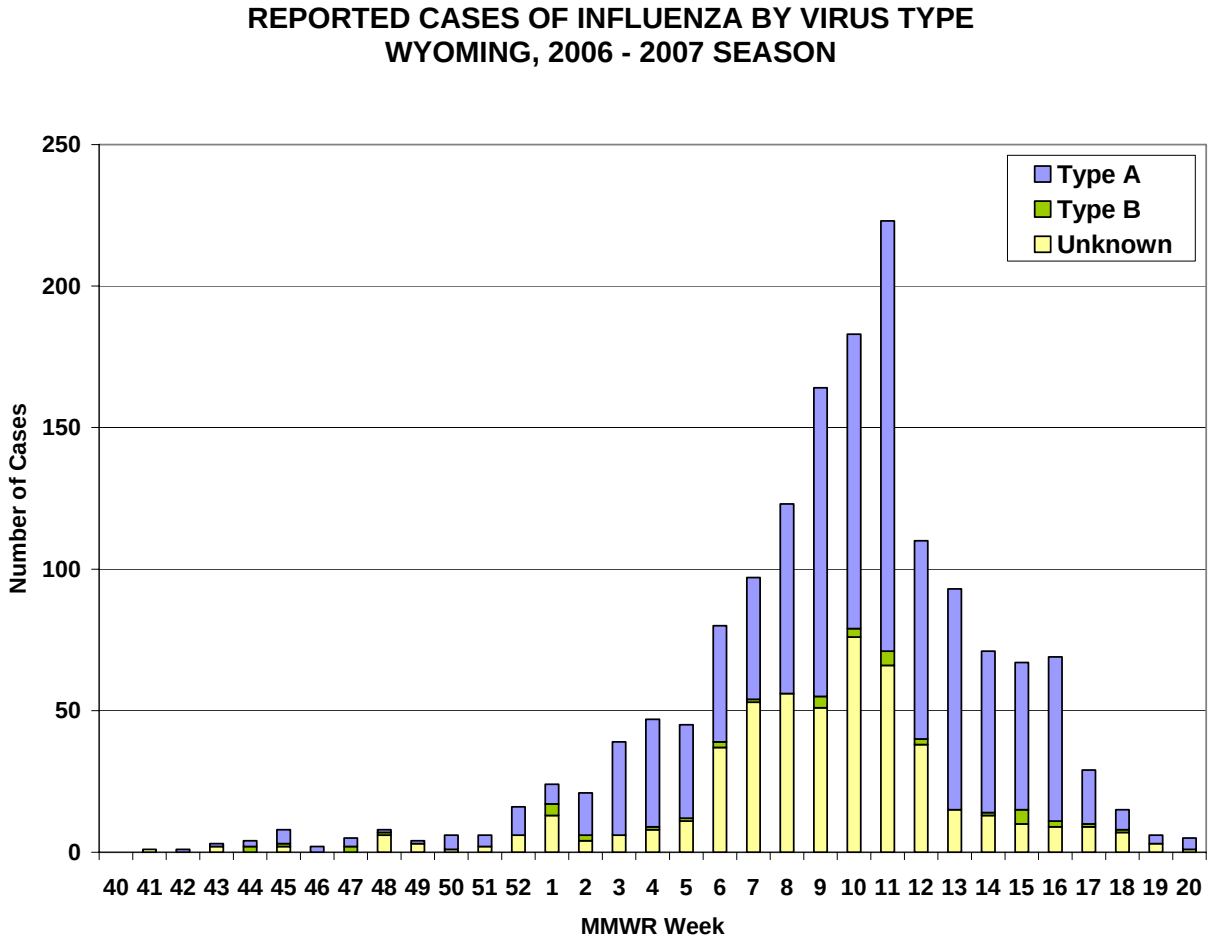
Of the 358 Influenza A (H1) viruses, 331 (92%) were similar to A/New Caledonia/20/99-like, which is the influenza A (H1) component of the 2006-07 influenza vaccine, and 26 (7%) of the 358 viruses showed somewhat reduced titers with antisera produced against A/New Caledonia/20/99 and are similar to A/Solomon Islands/3/2006-like. A/Solomon Islands/3/2006 is a recent antigenic variant of A/New Caledonia/20/99. One virus showed somewhat reduced titers with antisera produced against A/New Caledonia/20/99 and A/Solomon Islands/3/2006.

Forty-three (25%) of the 173 viruses (H3) were characterized as A/Wisconsin/67/2005-like, which is the influenza A (H3) component of the 2006-07 influenza vaccine. One hundred and thirty (75%) of the 173 viruses showed somewhat reduced titers with antisera produced against A/Wisconsin/67/2005.

Fifty (24%) of the 209 B viruses characterized nationally belong to the B/Yamagata lineage. One hundred and fifty-nine (76%) of the 209 influenza B viruses were identified as belonging to the B/Victoria lineage: 85 (53%) of these 159 viruses were similar to B/Ohio/01/2005, the B component selected for the 2006-07 influenza vaccine.

REPORTED INFLUENZA-ASSOCIATED DEATHS

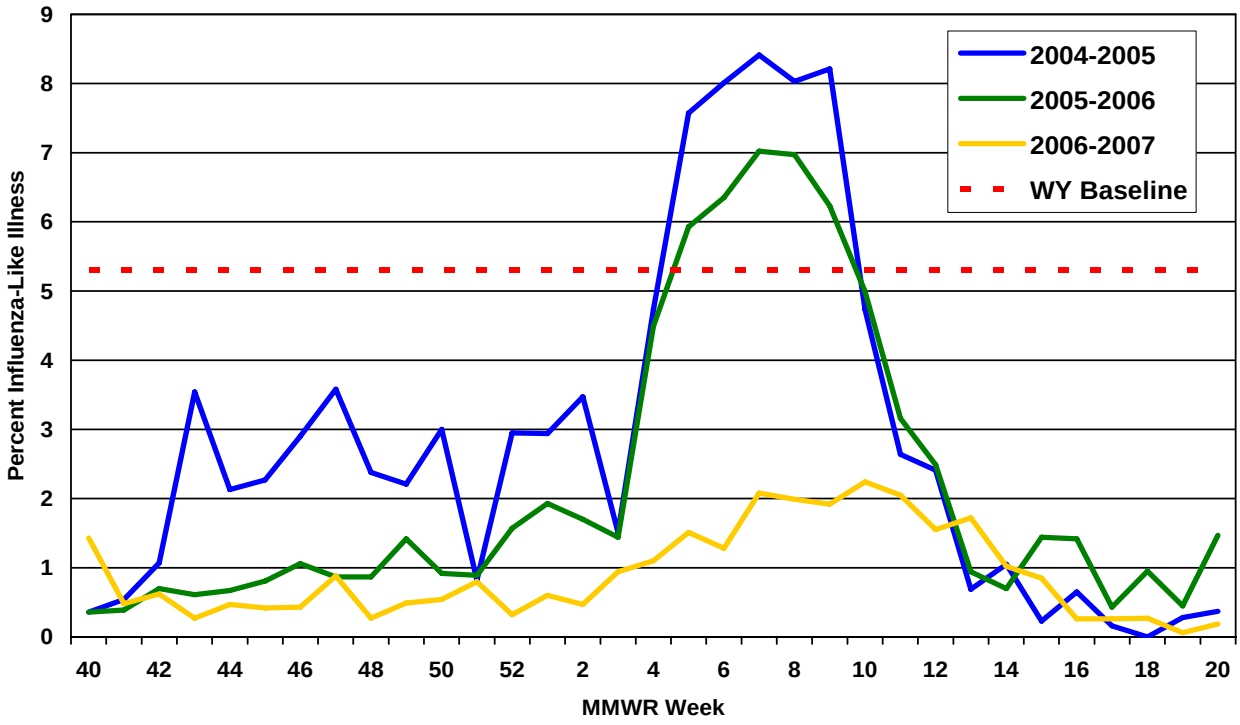
Influenza-associated deaths are reportable in the state of Wyoming. This season, one influenza-associated death was reported in a middle-aged person.



INFLUENZA-LIKE ILLNESS REPORTS FROM WYOMING SENTINEL SITES

Each week, sentinel providers reported the total number of patients seen and the number of those patients with influenza-like illness by age group. Influenza-like illness morbidity as reported by Wyoming sentinel physicians remained below the baseline level (0-5.6%)* throughout the entire 2006-2007 season. The peak percentage of patient visits for ILI was 2.57% during the week ending March 10, 2007. During the 2005-2006 influenza season, the peak percentage of patient visits for influenza-like illness was 7.0%, during the week ending February 18, 2006.

PERCENTAGE OF VISITS FOR INFLUENZA-LIKE ILLNESS REPORTED BY SENTINEL PROVIDERS; WYOMING 2006-2007 SEASON



*This baseline was calculated as the mean percentage of visits for ILI during non-influenza weeks plus two standard deviations.

ABOUT THE WYOMING INFLUENZA SENTINEL SURVEILLANCE NETWORK

The Wyoming Department of Health is always seeking new health care providers to participate in this important surveillance system. Influenza viruses cause substantial morbidity and mortality almost every winter. Data from sentinel providers are critical for monitoring the impact of influenza and, in combination with other influenza surveillance data, can be used to guide prevention and control activities, vaccine strain selection, and patient care. Providers of any specialty (e.g., family practice, internal medicine, pediatrics, infectious diseases) in any type of practice (e.g., private practice, public health clinic, urgent care center, emergency room, university student health center) are eligible to be sentinel providers. The sentinel provider program involves two major components, which are described below.

Weekly Influenza-Like Illness (ILI) Reporting: Consists of recording and reporting summary data (total number of patient visits for any reason; number of patient visits for influenza-like illness by age group) each week to CDC either via the internet or fax. The influenza-like illness case definition used by CDC for national surveillance is fever ≥100° F AND cough and/or sore throat (in the absence of a known cause other than influenza). Reports are submitted weekly beginning during Week 40 (10/7/06 for this season) and continue through Week 20 of the following year (5/19/07 for this year), even when no influenza-like illness activity is seen, in order to develop annual epidemic thresholds.

Lab Specimen Collection: Consists of collecting specimens from a small number of patients with influenza-like illness, which are sent to the Wyoming Public Health Laboratory for influenza culture. This testing often provides the earliest identification of circulating virus types, subtypes, and strains in a season.

Participating sentinels are offered summaries of state and national influenza data, free subscriptions to CDC's Morbidity and Mortality Weekly Report and Emerging Infectious Diseases journal, and a number of viral isolation test kits for free influenza testing. The most important consideration is that the data provided are critical for protecting the public's health.

Thank you to all of those providers who participated in the Influenza Sentinel Surveillance Network during the 2006-2007 influenza season. Your efforts are greatly appreciated!

For more information on the Influenza Sentinel Surveillance Network, or if you are interested in becoming a sentinel provider, please contact the Infectious Disease Epidemiology Program at (877) 996-9000.

AVIAN INFLUENZA H5N1

Influenza A (H5N1) is an influenza A virus subtype that occurs mainly in birds and is highly contagious among birds. Outbreaks of highly pathogenic H5N1 among poultry and wild birds are ongoing in a number of countries. H5N1 does not usually infect people, however, a small number of human cases of H5N1 infection have been reported in association with these avian outbreaks. Most of these cases have occurred from direct or close contact with infected poultry or contaminated surfaces. And while the H5N1 virus does not now infect people easily, infection in humans is very serious when it occurs; so far, about half of the people reportedly infected have died. In rare instances, limited human-to-human spread of H5N1 virus has occurred.

Nonetheless, because all influenza viruses have the ability to change, scientists are concerned that H5N1 virus one day could be able to infect humans and spread easily from one person to another. Because these viruses do not commonly infect humans, there is little or no immune protection against them in the human population and an influenza pandemic (worldwide outbreak of disease) could begin. Experts from around the world are watching the H5N1 situation very closely and are preparing for the possibility that the virus may begin to spread more easily from person to person.

PANDEMIC INFLUENZA PLANNING

The presence of a virulent strain of avian influenza H5N1 in parts of Asia and Europe has resulted in a sense of urgency among health officials world-wide to prepare for the possibility of a future influenza pandemic. The WDH is working on a state public health pandemic influenza plan that can be used to provide guidance on control of such an outbreak. The plan will contain information on measures that may be helpful such as surveillance methods to detect an outbreak early, controlling the early spread of the disease through isolation of those ill, and using antiviral medications and vaccine in the most effective ways. A draft of the Wyoming Pandemic Influenza Response Plan can be found at: http://wdh.state.wy.us/epiid/wpirp.pdf. The federal government maintains a comprehensive website: http://www.pandemicflu.gov.

COMPOSITION OF THE 2007-2008 VACCINE

WHO has recommended that the 2007-08 trivalent influenza vaccine for the Northern Hemisphere contain A/Solomon Islands/3/2006-like (H1N1), A/Wisconsin/67/2005-like (H3N2), and B/Malaysia/2506/2004-like viruses. The influenza A (H1N1) component has been changed from the 2006-07 vaccine components. A/Solomon Islands/3/2006 is a recent antigenic variant of the current vaccine strain A/New Caledonia/20/99. The influenza A (H3N2) and influenza B components remain the same. B/Ohio/1/2005 is antigenically equivalent to B/Malaysia/2506/2004. This recommendation was based on antigenic analyses of recently isolated influenza viruses, epidemiologic data, and post-vaccination serologic studies in humans.

REPORTING REMINDER

All of the following are reportable to the Wyoming Department of Health: laboratory confirmed cases of influenza, influenza-associated deaths; an unusual incidence of influenza-like illness; and outbreaks or unusual clusters of influenza or influenza-like illness in schools, nursing homes, and other institutions. A report is required by state statute from <u>both</u> the attending health care provider/hospital <u>and</u> any laboratory performing diagnostic testing. Reports can be faxed to our secure fax machine at (307) 777-5573 or can be made by phone to (307) 777-3593.