

Iowa Influenza Surveillance Network (IISN) 2006-2007 Final Report

Summary

The Iowa Influenza Surveillance Network (IISN) tracks the overall activity, age groups impacted, outbreaks, type and strain, and severity of seasonal influenza. In the 2006-2007 season the network had more than 90 reporting sites that included physicians, clinics, hospitals, schools and long term care facilities (Appendix A). Other non-network reporters who contributed influenza data included medical clinics, hospitals, laboratories, local public health departments and neighboring state health departments. The 2006-2007 influenza season in Iowa began earlier than any previously recorded data indicates, however, the season's peak occurred much later in the season. In addition to early cases, this season was also unusual in that all three anticipated strains (AH1N1, AH3N2, and B) were reported by the first of December (Appendix B). The first laboratory-confirmed case in the 2005-2006 season was identified December 5, 2005; the first case for the 2006-2007 season was on November 2, 2006. The predominant strain for 2005-2006 was influenza AH3, but for 2006-2007 both influenza AH1 and B dominated influenza infections. However improvements in influenza specimen submission to the University Hygienic Laboratory may have also played a role in early detection and overall case detection. In summary, all influenza activity indicators show a peak between the MMWR weeks 5 and 9 (i.e. February 14- March 4). Children from five years to eight years of age were impacted more than other age groups. There

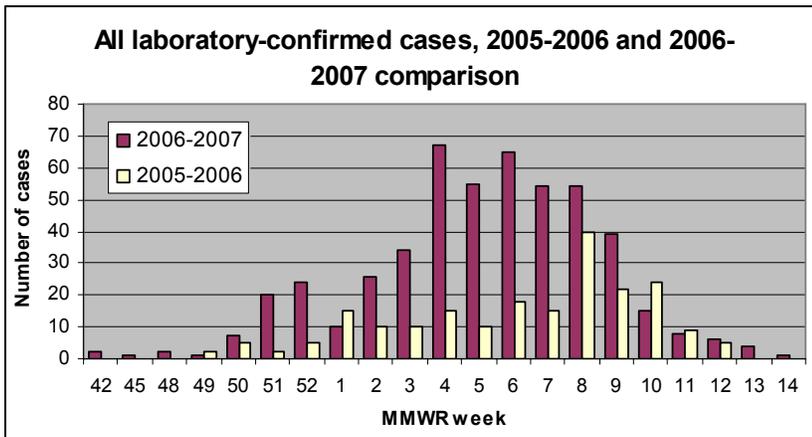


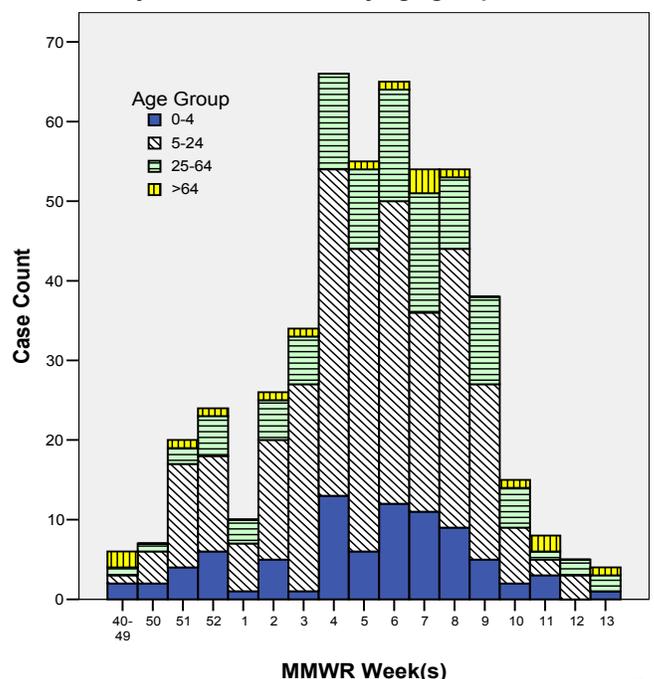
Figure 1 were few influenza hospitalizations and fatalities in all age groups.

Laboratory-confirmed cases

Laboratory-confirmed cases of influenza reported to the Iowa Department of Public Health were tracked if the cases were tested using PCR, culture or DFA; rapid influenza tests were not tracked. The University Hygienic Laboratory (UHL) was the primary source for laboratory-confirmed cases although reports were received from other laboratories. All cases were analyzed by age, strain and county of residence. The largest number of laboratory-confirmed cases was reported in the 5-24 year old age group (Figure 2). Within this group, 12.1% (35/290) of cases occurred in six year olds. An average of 9% of cases within the same age group was seen in children ages five, seven and eight. The predominant strain reported for this age group was influenza AH1. Assessment of all cases revealed that influenza B followed closely by influenza AH1 were the most common strains seen in Iowa this season (Table 1).

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Laboratory-confirmed* cases by age group, Iowa 06-07



*Laboratory-confirmed cases include only DFA, culture or PCR confirmed cases. There are no rapid influenza tests results included in this graph.

Figure 2

		Frequency	Percent
Valid	A	112	22.6
	AH1	173	34.9
	AH3	36	7.3
	B	174	35.2
	Total	495	100.0

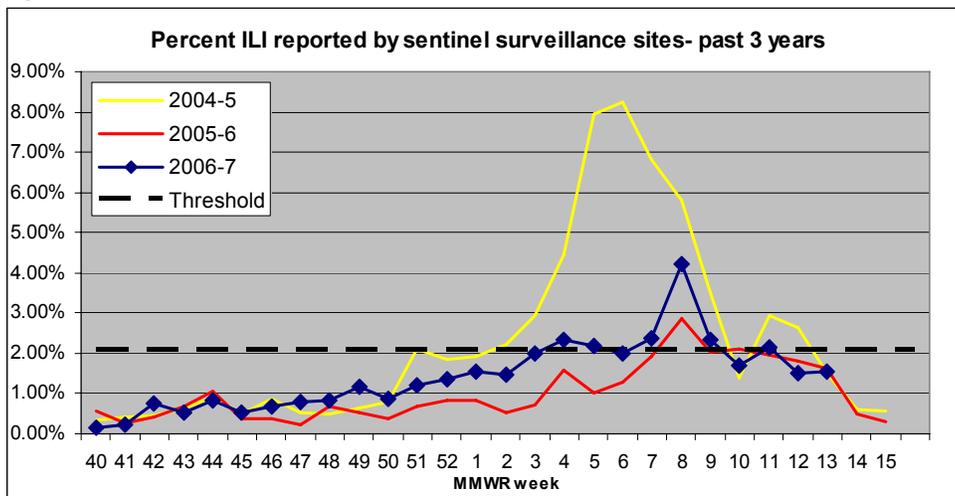
However, since not all influenza A strains were further distinguished as either H1 or H3, H1 may have had a higher incidence than B. All strains, with one exception, identified by UHL matched the vaccine strains or were like the vaccine strain (and were therefore still susceptible to the vaccine)¹. UHL, with the Centers for Disease Control and Prevention (CDC), identified an H1N1_{sw} influenza strain in an eastern Iowa case. To view additional information on laboratory-confirmed cases, see Appendix B.

Table 1

Sentinel physician network

Twenty-five physicians' offices and clinics participated in the Centers for Disease Control and Prevention Sentinel Influenza Surveillance Network. Of those sites, seventeen routinely reported data. Overall rates of influenza-like illness² (ILI) were higher than the previous 2005-06 season but ILI peaked the same week (week ending February 25) at 4.22% (Figure 3).

Figure 3



School and long term care facility reporting

More than thirty schools throughout Iowa routinely participated in the IISN. Schools in the network tracked absence due to illness on a weekly basis. Historical Iowa school data has shown that influenza activity will contribute to an increase in absence due to illness slightly prior to other key indicators of flu activity (i.e. sentinel reports of ILI).

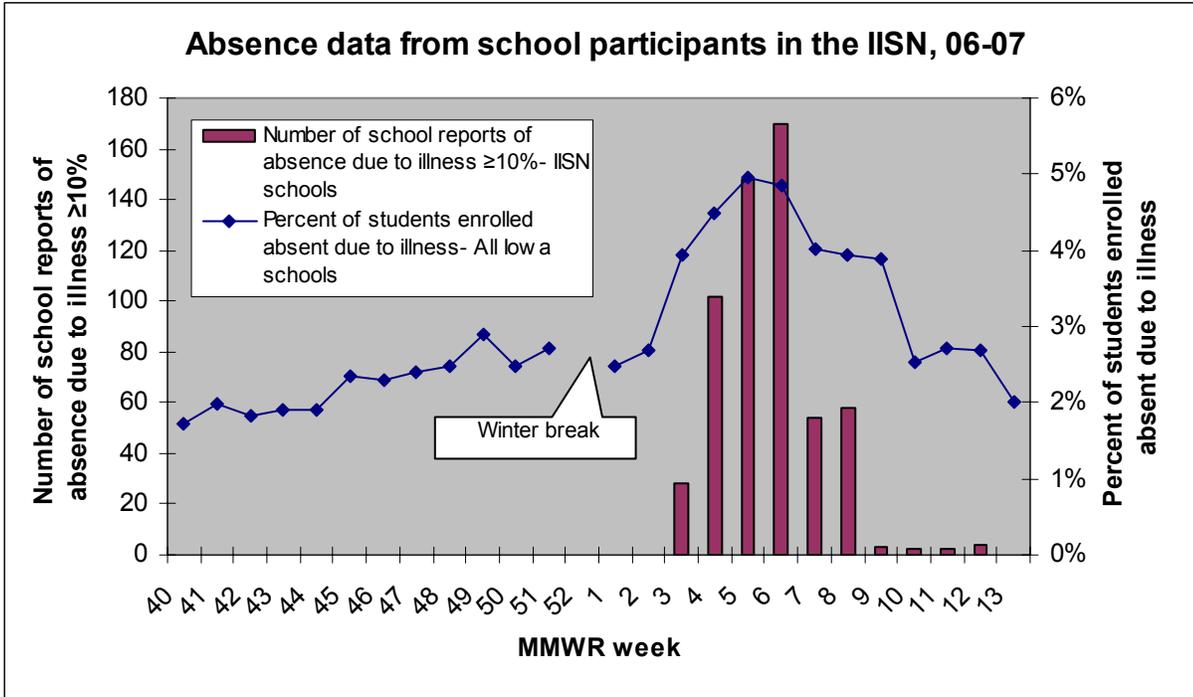
Data collected from laboratory-confirmed cases indicated that school age children were impacted significantly by this season's influenza strains. School data supports that conclusion. Absences due to illness as reported by IISN sites were significantly higher than expected between weeks 5 and 9. In all Iowa schools the percent of enrolled students who were absent due to illness peaked in week 6 (Figure 4). More reports for school absence meeting or exceeding 10% were received this season than from any previous influenza seasons.

For additional school data, see Appendix C.

¹ Strains contained the 2006-2007 influenza vaccine were the A/Solomon Islands/3/2006-like (H1N1), A/Wisconsin/67/2005-like (H3N2), and B/Malaysia/2506/2004-like viruses.

² Influenza-like illness is defined as a fever 100°F or greater and cough and/or sore throat without other apparent cause.

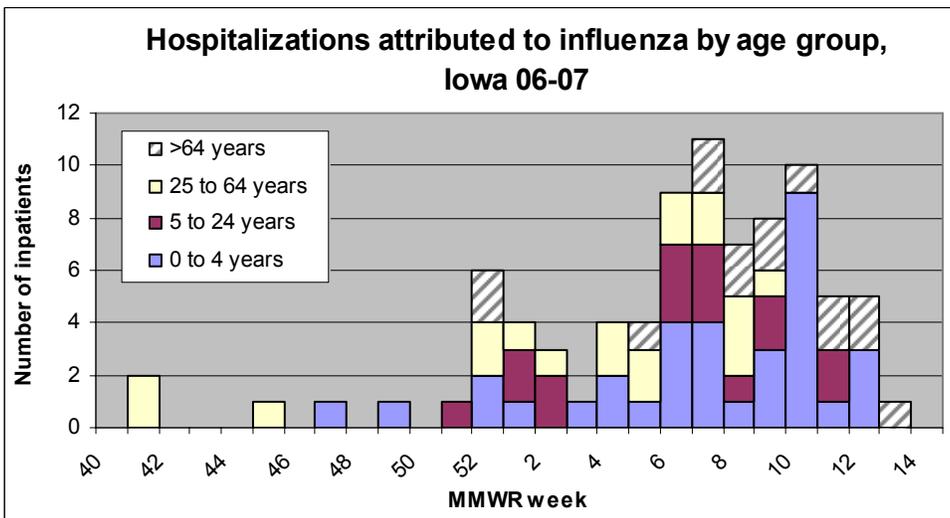
Figure 4



Hospital-based surveillance

This year Iowa piloted a hospital-based surveillance system with the goal of assessing the severity of the flu season. Hospitals tracked the number of inpatients hospitalized for influenza or influenza-related illnesses who also had laboratory confirmation of infection with influenza. The system was successful in detecting an increase in hospitalizations at the appropriate peak time and indicated that the influenza season had low severity (Figure 5).

Figure 5



Long term care facility surveillance

Four long term care facilities participated in the IISN. Approximately 757 residents were surveyed for seventeen weeks. Long term care facilities surveyed residents for influenza-like illness and reported whether affected residents had been vaccinated. Residents were surveyed for seventeen weeks, during which 17 residents were reported to have ILI. Of those reported to have ILI, 14 (82%) had been

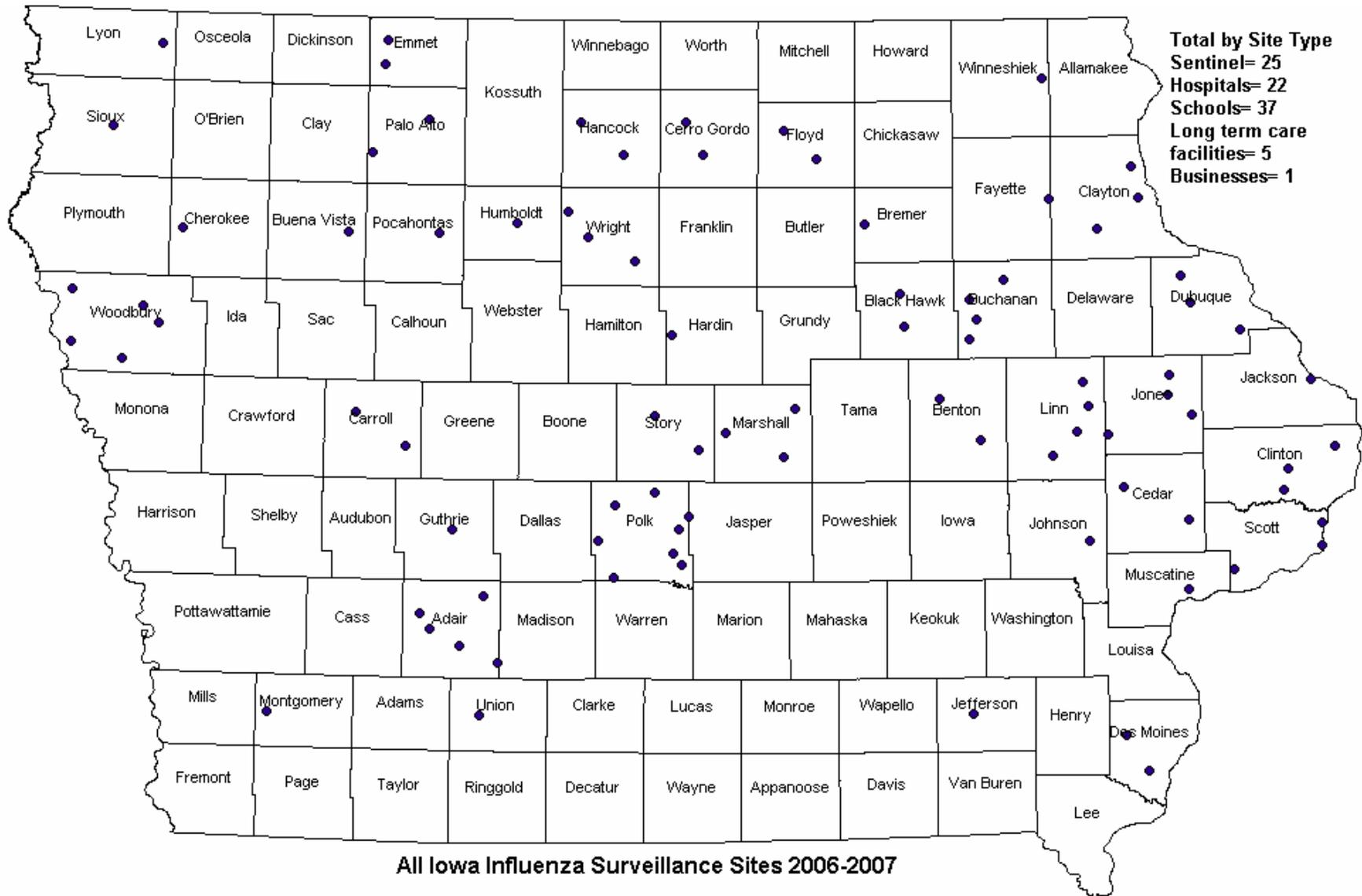
vaccinated. There were no outbreaks reported by facilities in the network. However, several outbreaks of influenza were reported by facilities not participating in the network.

Year-round and 2007-2008 surveillance

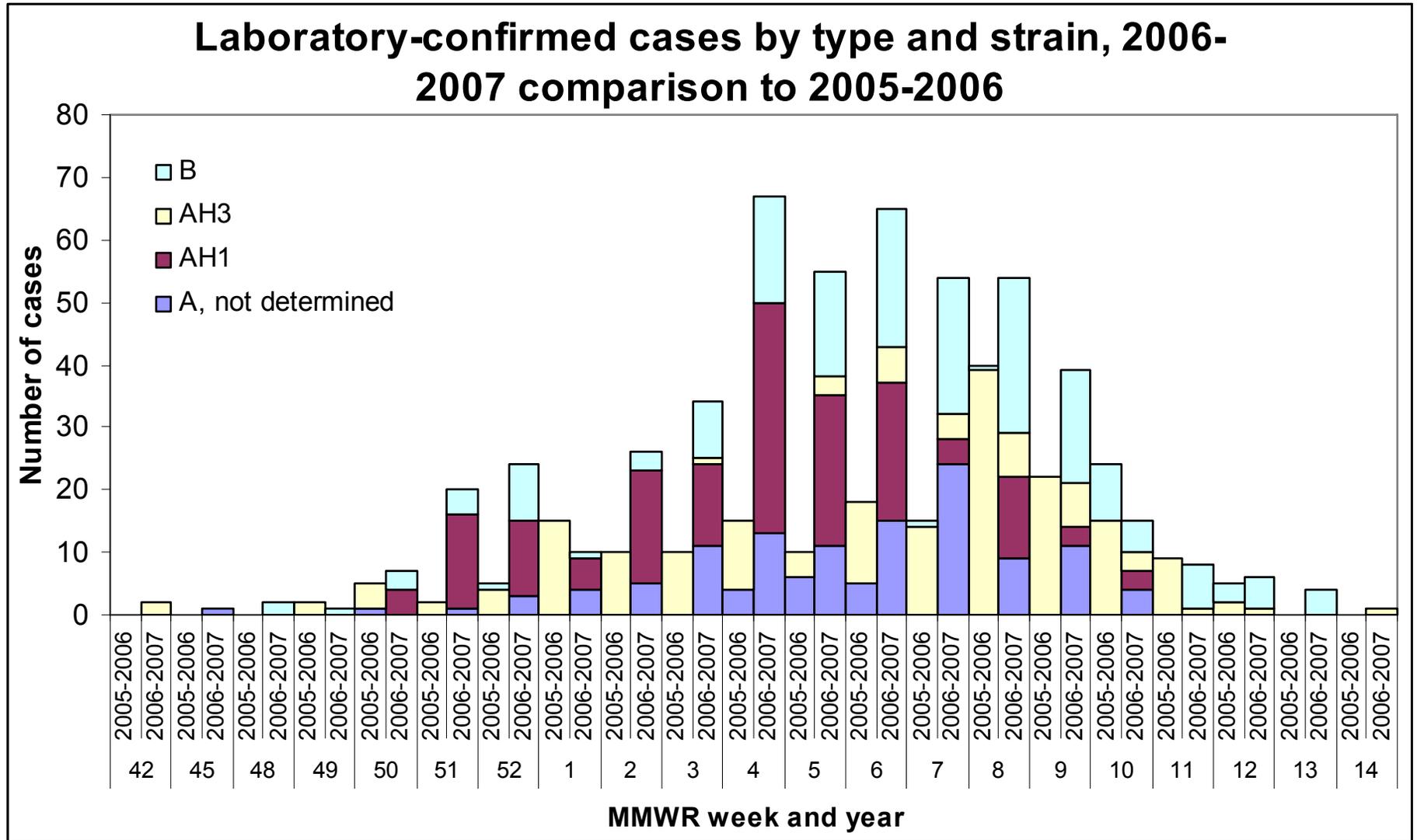
Certain components of the IISN continue to function year-round. Four sentinel sites will continue to survey and report cases of influenza-like illness. UHL will continue to test suspected cases of influenza outside of the normal influenza season.

The Iowa Department of Public Health plans to continue all of the reporting programs utilized in the 2006-2007 season. All were successful in detecting the influenza peak with real-time data. IDPH hopes to recruit additional school and sentinel sites, and will assess the feasibility of business and child care-based surveillance.

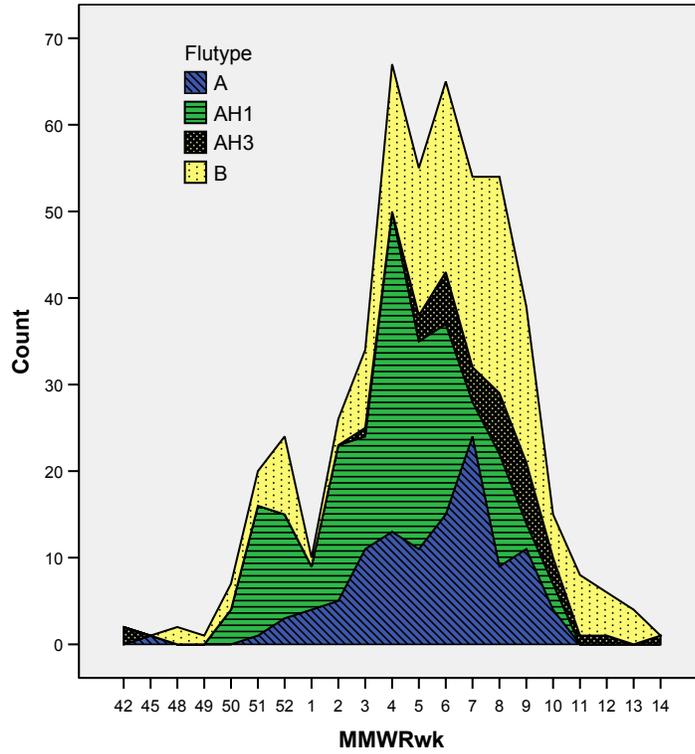
Appendix A



Appendix B

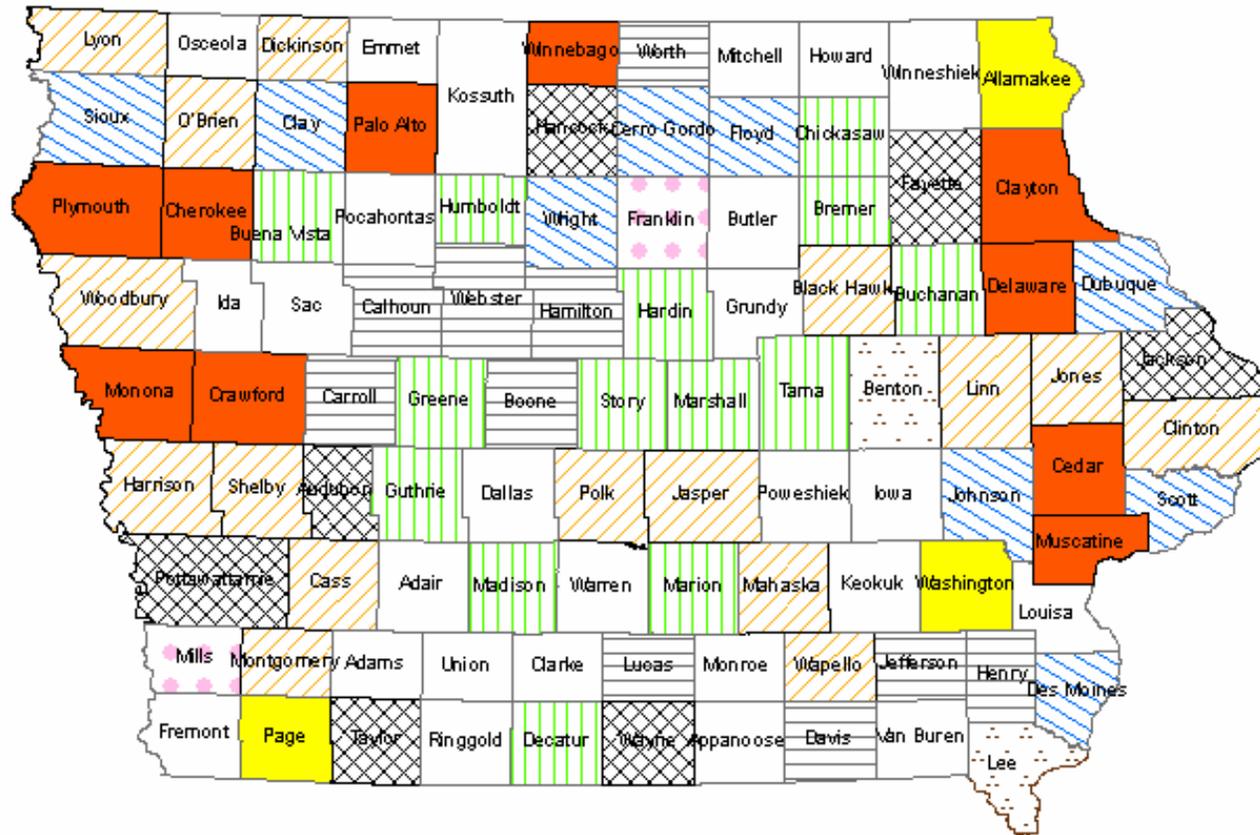


Laboratory-confirmed influenza cases by type and strain, Iowa 06-07



MMWR week	Flu type				Total
	A	AH1	AH3	B	
42	0	0	2	0	2
45	1	0	0	0	1
48	0	0	0	2	2
49	0	0	0	1	1
50	0	4	0	3	7
51	1	15	0	4	20
52	3	12	0	9	24
1	4	5	0	1	10
2	5	18	0	3	26
3	11	13	1	9	34
4	13	37	0	17	67
5	11	24	3	17	55
6	15	22	6	22	65
7	24	4	4	22	54
8	9	13	7	25	54
9	11	3	7	18	39
10	4	3	3	5	15
11	0	0	1	7	8
12	0	0	1	5	6
13	0	0	0	4	4
14	0	0	1	0	1
Total	112	173	36	174	495

Laboratory-Confirmed Cases by County, as of 04/05/2007*



These represent only cases that were laboratory-confirmed by either PCR, DFA or culture. The map does not include activity reported by sentinel surveillance sites or rapid influenza positive test results reported to IDPH.

Appendix C

Cumulative reports of school absence due to illness $\geq 10\%$

