

## 6.4 Influenza

### 6.4.1 Influenza Surveillance

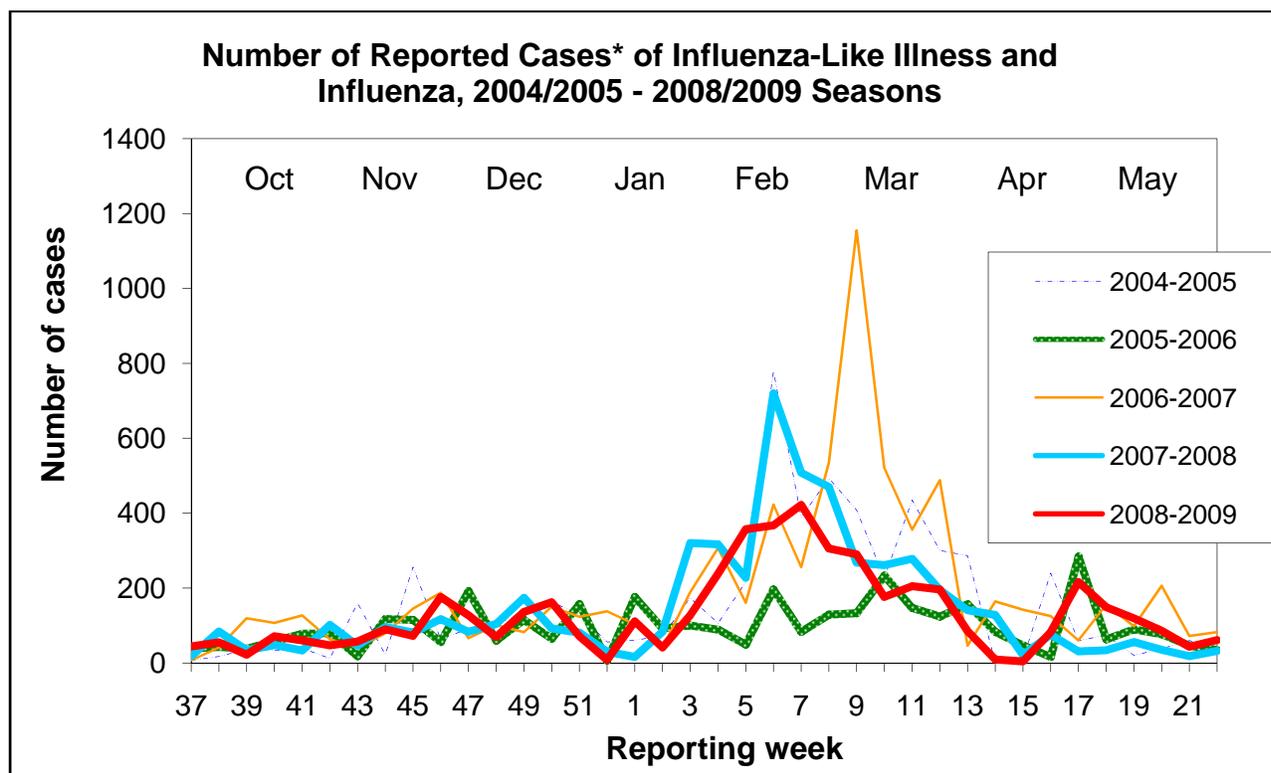
The Centers for Disease Control and Prevention estimates that each year between 5% and 20% of the population get influenza, more than 200,000 people are hospitalized as a result, and approximately 36,000 people in the United States die each year from influenza<sup>1</sup>.

In Kalamazoo County, there are multiple methods of surveillance used to monitor the impact of influenza on the community. These influenza surveillance systems consist of voluntary reporting to the Kalamazoo County Health and Community Services Department by health care providers and laboratories of influenza-like-illness or laboratory confirmed cases of influenza, and school reporting of the number of absences each week due to “flu”; sentinel laboratories (Borgess Medical Center and Bronson Methodist Hospital laboratories) which routinely submit specimens to the Michigan Department of Community Health for viral typing; and sentinel health care providers who report the percentage of all visits they see each week which are for an influenza-like-illness to the Michigan Department of Community Health. Other statewide surveillance systems include surveillance of the number of emergency department visits in selected hospitals due to respiratory complaints and constitutional complaints, and surveillance of pharmacy sales of over-the-counter medications that are likely to be used to treat a person with influenza. Although influenza surveillance does not tell us the number of cases of influenza that are occurring, these systems collectively indicate whether the number of cases is increasing or decreasing, provide information about when the flu season may be peaking in the community, and help to guide vaccine development for future years by contributing information about the strains of influenza that are circulating during the flu season.

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<sup>1</sup> Centers for Disease Control and Prevention, on the web at <http://www.cdc.gov/flu/keyfacts.htm>

Flu season in North America is between October and May. Influenza activity may peak early or late during these months; in recent years, reports of influenza-like illness in Kalamazoo County peaked in February (2004/2005, 2007/2008, and 2008/2009 flu seasons) and in March (2006/2007 flu season). The chart below shows trends in the number of cases of influenza-like-illness and laboratory confirmed cases of influenza reported to the Kalamazoo County Health and Community Services Department during the previous five flu seasons.



\*The number of cases is voluntarily reported to KCHCSD by schools, providers and hospitals on a weekly basis.

\*\*Starting in 2007, counts include influenza-like-illnesses and individually reported influenza cases.

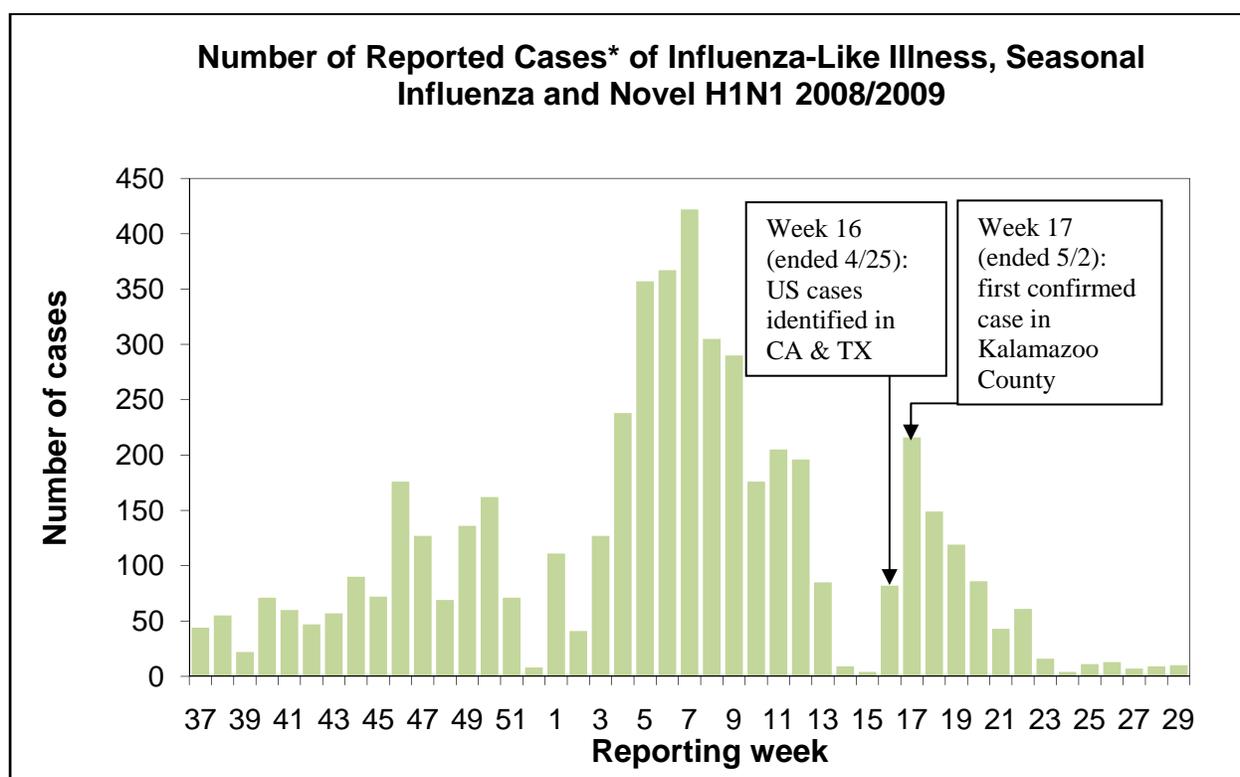
Numbers include clinically diagnosed cases, laboratory confirmed cases, and school absences due to flu-like illness. (Flu-like-illnesses include any person with fever and any of the following symptoms: sore throat, cough, generalized aching in the back or limb muscles. Vomiting and diarrhea alone is NOT respiratory 'flu'.)

Source: Michigan Disease Surveillance System, cases as of 7/24/09

On June 11, 2009, the World Health Organization declared a global pandemic of a novel strain of influenza A (H1N1). The H1N1 virus has continued to spread worldwide, with significant sustained transmission occurring in the United States through the summer months. Most people who have become ill have recovered without medical treatment, and planning continues for the upcoming flu season which likely will consist of continued transmission of the novel H1N1 strain along with regular seasonal flu viruses.

In late April 2009 when the novel strain (H1N1) was initially identified in the United States, surveillance for H1N1 consisted of individually reported confirmed cases when clinical and subsequent laboratory testing criteria were met. In total, 22 confirmed cases were identified in Kalamazoo County through July 24, 2009. As the virus was identified throughout the country (and

throughout the state of Michigan), surveillance shifted to aggregate reporting of flu-like-illness in mid-June (the majority of individuals with flu-like-illness no longer have confirmatory testing done to determine if they have the novel H1N1 strain) in order to best utilize available resources. Therefore, the number of confirmed cases likely greatly under-represents the actual number of individuals who became ill due to H1N1. Data and specimens are still collected from sentinel laboratories and sentinel provider sites in order to continue to monitor circulating strains, as is done during regular influenza season. For this reason (and the continued strain testing for patients with severe illness or who have died), confirmed cases will continue to be reported to Health and Community Services Department as they are identified, but the number of confirmed cases does not reflect burden of disease in the community. The chart below shows reports of influenza-like-illness during the 2008-2009 flu season and during the emergence of the novel H1N1 strain into the summer months.



\*The number of cases is voluntarily reported to KCHCSD by schools, providers and hospitals on a weekly basis. Numbers include clinically diagnosed cases, laboratory confirmed cases, and school absences due to flu-like illness. (Flu-like-illnesses include any person with fever and any of the following symptoms: sore throat, cough, generalized aching in the back or limb muscles. Vomiting and diarrhea alone is NOT respiratory 'flu'.)

The spike in influenza-like-illnesses reported to HCS starting in week 16 likely reflects a mixture of transmission of the novel strain H1N1, an increase in healthcare seeking behavior among individuals who may otherwise have not gone to a healthcare provider if it had not been for the heightened media attention on H1N1, and an increased likelihood that students were staying home with flu-like-illness due to public messages that emphasized staying home when ill in order to minimize transmission of H1N1 (or any illness).

## 6.4.2 Influenza Vaccinations

Annual influenza vaccination is the most effective method for preventing influenza and its complications. Anyone who wants to reduce his or her chances of getting the flu can be vaccinated<sup>2</sup>. Vaccination is especially important for people at high risk of serious flu complications including young children, pregnant women, people with chronic health conditions like asthma, diabetes or heart and lung disease and people 65 years and older. Seasonal flu vaccine is also important for health care workers, and other people who live with or care for high risk people to prevent giving the flu to those at high risk.

The Advisory Committee on Immunization Practices<sup>3</sup> (ACIP) recommends the following people be vaccinated against seasonal flu<sup>4</sup>:

- Children aged 6 months – 18 years
- Pregnant women and those who will be pregnant during the influenza season
- People 50 years of age and older
- People of any age with certain chronic medical conditions:
  - Chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, hematological or metabolic disorders (including diabetes mellitus)
  - Persons who have immunosuppression (including immunosuppression caused by medications or by human immunodeficiency virus)
  - People with any condition that can compromise respiratory function or the handling of respiratory secretions (that is, a condition that makes it hard to breathe or swallow, such as brain injury or disease, spinal cord injuries, seizure disorders, or other nerve or muscle disorders)
- People who live in nursing homes and other long term care facilities
- People who live with or care for those at high risk for severe complications from influenza, including:
  - Health care workers
  - Household contacts of persons at high risk for complications from the flu
  - Household contacts and out of home caregivers of children less than 6 months of age (these children are too young to be vaccinated)

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<sup>2</sup> Some people should not be vaccinated without first consulting a physician. They include:

- People who have a severe allergy to chicken eggs.
- People who have had a severe reaction to an influenza vaccination in the past.
- People who developed Guillain-Barré syndrome (GBS) within 6 weeks of getting an influenza vaccine previously.
- Children less than 6 months of age (influenza vaccine is not approved for use in this age group).
- People who have a moderate or severe illness with a fever should wait to get vaccinated until their symptoms lessen.

<sup>3</sup> The Advisory Committee on Immunization Practices shall provide advice and guidance to the Secretary, HHS, the Assistant Secretary for Health, and the Director, CDC, regarding the most appropriate selection of vaccines and related agents for effective control of vaccine-preventable diseases in the civilian population. Charter: <http://www.cdc.gov/vaccines/recs/ACIP/charter.htm>

<sup>4</sup> Centers for Disease Control and Prevention, on the web at <http://www.cdc.gov/flu/keyfacts.htm>

Surveillance data on the proportion of all people at high risk for serious flu complications who receive flu vaccinations is not available; however, surveillance data on flu vaccinations among the largest of the high risk groups, adults age 65 years and over, is available. In Kalamazoo County in 2004, 73.9% of adults aged 65 and older had received a flu vaccination in the previous twelve months. In comparison, 66.6% of Michigan adults in this age group had received a flu vaccination in the past year. Differences in likelihood of receiving a flu vaccination among seniors aged 65 and older were apparent by demographic characteristics in Kalamazoo County, although differences were not statistically significant. These differences included gender (males were more likely to have been vaccinated than females), race (white population was more likely to be vaccinated than African American population), education (individuals with more education were more likely to have been vaccinated), and income (individuals with higher incomes were more likely to have been vaccinated).

### Influenza Vaccination Among Adults Aged 65 and Older in Kalamazoo County, 2004

Demographic Characteristics	Had Flu Vaccination in Past Year <sup>a</sup>	
	%	95% C.I.
<b>Total</b>	73.9	(67.6 - 80.3)
<b>Age</b>		
65-74 years	69.7	(60.7 - 78.6)
75 years +	80.6	(73.1 - 88.0)
<b>Gender</b>		
Male	78.7	(68.0 - 89.4)
Female	70.9	(63.1 - 78.6)
<b>Race</b>		
White	74.5	(67.9 - 81.1)
Black	66.5	(46.1 - 86.8)
<b>Education</b>		
Less than HS	64.8	(44.6 - 84.9)
HS graduate	77.1	(68.0 - 86.2)
Some college	72.8	(58.7 - 86.9)
College graduate	76.6	(66.9 - 86.4)
<b>Income</b>		
LT \$20K	68.7	(56.0 - 81.3)
\$20-34,999K	75.4	(62.6 - 88.3)
\$35-49,999K	74.0	(57.5 - 90.5)
\$50K+	81.2	(67.9 - 94.4)

<sup>a</sup> Among those aged 65 years and older, the proportion who reported that they had a flu shot or flu nasal spray during the past 12 months.

Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

Among all adults in Kalamazoo County, 34.1% received a flu vaccination in the previous twelve months. Almost all of these vaccinations were administered through shots; only 0.9% of the adult population received a flu nasal spray vaccination in the previous year<sup>5</sup>.

### Influenza Vaccination Among Adults Age 18 Years and Older in Kalamazoo County, 2004

Demographic Characteristics	Had Flu Shot in Past Year		Had Flu Nasal Spray in Past Year		Had Flu Vaccination in Past Year <sup>a</sup>	
	%	95% C.I.	%	95% C.I.	%	95% C.I.
<b>Total</b>	33.7	(30.5 - 36.9)	0.9	(0.3 - 1.5)	34.1	(30.9 - 37.4)
<b>Age</b>						
18-34 years	17.4	(12.2 - 22.5)	0.4	*	17.8	(12.6 - 23.0)
35-54 years	27.7	(22.8 - 32.6)	0.7	*	28.3	(23.3 - 33.2)
55-64 years	45.7	(37.6 - 53.7)	1.7	*	46.7	(38.6 - 54.8)
65 years +	73.9	(67.6 - 80.3)	1.8	(0.1 - 3.4)	73.9	(67.6 - 80.3)
<b>Gender</b>						
Male	29.5	(24.8 - 34.3)	1.3	(0.2 - 2.4)	30.2	(25.3 - 35.0)
Female	37.5	(33.3 - 41.7)	0.5	*	37.8	(33.5 - 42.0)
<b>Race</b>						
White	36.0	(32.5 - 39.5)	0.8	(0.2 - 1.5)	36.4	(32.8 - 39.9)
Black	20.2	(12.2 - 28.2)	0.2	(0.0 - 0.5)	20.2	(12.2 - 28.3)
<b>Education</b>						
Less than HS	29.8	(19.3 - 40.4)	0.2	(0.0 - 0.5)	29.8	(19.3 - 40.4)
HS graduate	33.8	(27.5 - 40.0)	0.8	*	33.8	(27.5 - 40.0)
Some college	31.5	(25.5 - 37.5)	1.7	(0.1 - 3.2)	32.9	(26.8 - 38.9)
College graduate	37.6	(32.6 - 42.5)	0.3	*	37.6	(32.6 - 42.5)
<b>Income</b>						
LT \$20K	26.6	(19.9 - 33.3)	1.7	*	28.0	(21.1 - 34.8)
\$20-34,999K	32.9	(25.8 - 40.0)	0.1	*	32.9	(25.8 - 40.0)
\$35-49,999K	35.9	(27.0 - 44.8)	0.4	*	35.9	(27.0 - 44.8)
\$50-74,999K	30.4	(22.8 - 38.0)	1.6	*	30.4	(22.8 - 38.0)
\$75K+	37.3	(30.0 - 44.5)	1.3	*	38.2	(30.8 - 45.5)

<sup>a</sup> Proportion who reported that they had a flu shot or flu nasal spray during the past 12 months.

\*Confidence interval exceeds possible limits

Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

<sup>5</sup> The nasal-spray flu vaccine – a vaccine made with live, weakened flu viruses that do not cause the flu (sometimes called LAIV for “Live Attenuated Influenza Vaccine”). LAIV is approved for use in healthy people 5 years to 49 years of age who are not pregnant. Centers for Disease Control and Prevention; on the web at <http://www.cdc.gov/flu/keyfacts.htm>