

## April-May-June 2010

### In this Issue:

- 2009-2010 Influenza Summary
- 2009-2010 AGE Outbreak Summary
- Summary of Selected Reportable Conditions

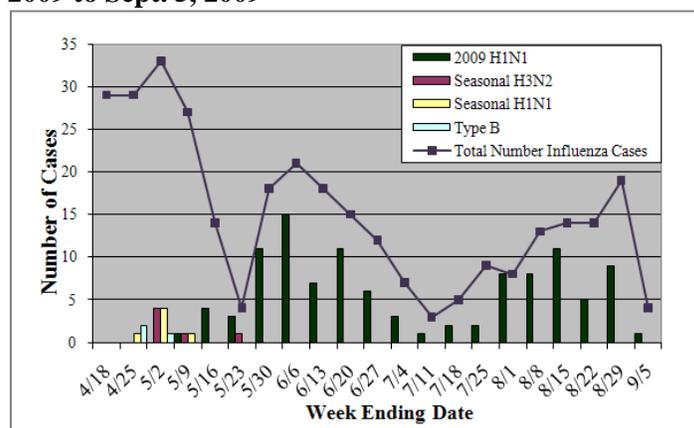
## 2009-2010 Influenza Summary

In March and April of 2009, a novel flu virus emerged and began causing illness in the United States and Mexico. On April 15, 2009, the U.S. Centers for Disease Control and Prevention (CDC) confirmed the first novel influenza A H1N1 virus infection in a U.S. patient. As the next few cases were identified, it became evident that person-to-person transmission of the virus was occurring. On June 11, 2009, the World Health Organization raised the pandemic alert level to phase 6 to reflect the ongoing spread of the virus in multiple countries around the world. The North Dakota Department of Health (NDDoH) has been actively tracking influenza illness through existing and enhanced surveillance activities.

The first case of novel H1N1 in a North Dakota resident was confirmed May 8, 2009. This marked the beginning of the first wave of 2009 H1N1 influenza illness in North Dakota (**Figure 1**). Seasonal influenza strains continued to co-circulate through the month of May but soon transitioned to only 2009 H1N1 influenza being detected by PCR testing methodologies.

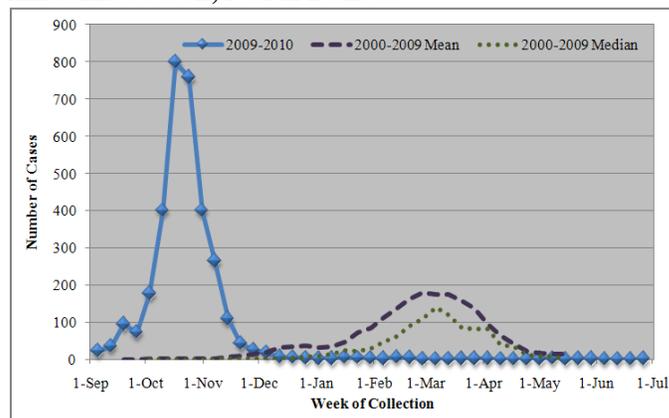
Influenza surveillance activities continued for the 2009-2010 season which began in September 2009. The NDDoH utilized multiple surveillance systems to track influenza activity in the state. These surveillance systems include (1) laboratory-identified influenza case reports, (2) influenza-like illness reports from outpatient visits, (3) influenza-like illness syndrome surveillance at eight emergency rooms and one ask-a-nurse call center, (4) laboratory influenza testing reports, (5) school absenteeism due to illness reports and (6) influenza and pneumonia-related death reports.

**Figure 1. Distribution of confirmed influenza cases using PCR and total reported laboratory identified cases by week of collection, North Dakota, April 18, 2009 to Sept. 5, 2009**



A much larger second wave of 2009 H1N1 influenza illness occurred in the fall following the first spring wave of illness. In contrast to non-pandemic influenza seasons, influenza reached peak activity in the state the week ending October 17, 2009. Influenza activity usually peaks in January, February or March (**Figure 2**). Minimal flu activity was

**Figure 2. Number of reported influenza cases 2000-2001 to 2008-2009 influenza seasons, 2009-2010 influenza season, North Dakota**



documented following the fall peak with only sporadic cases being reported after January in the state. Some areas in the southeast United States did experience small increases in influenza activity during February and March. This activity did remain local however, and did not have a large impact on the other regions of the country.

Children and teens were the age groups more affected by 2009 H1N1 influenza compared to all other age groups. The largest number of positive influenza cases was reported in the 11- to 19-year-old age range (877). Those ages 19 and younger comprised 69 percent of the total cases reported during the 2009-2010 influenza season. The median age of reported cases was 12.96 years and ranged from 0.01 to 87.76 years.

The past six influenza seasons show a trend with age group affected and the predominant type of influenza circulating that season. Even during non-pandemic seasons, the age groups largely impacted when influenza A H1N1 viruses are the predominant type are the younger age groups. In contrast, during influenza A H3N2 seasons, the impact of the virus is similar across all age groups, with most of the cases being reported in the very young and old (**Figure 3**).

Influenza type A was the predominant type identified during the 2009-2010 flu season, with 99 percent (3,219) of the cases being type A. The Division of Laboratory Services sub-typed 544 influenza isolates, with 543 identified as type A-2009 H1N1 and one

identified as type A-H3 (one type B was also identified). Figure 4 summarizes the 2009-2010 influenza cases by age group and type.

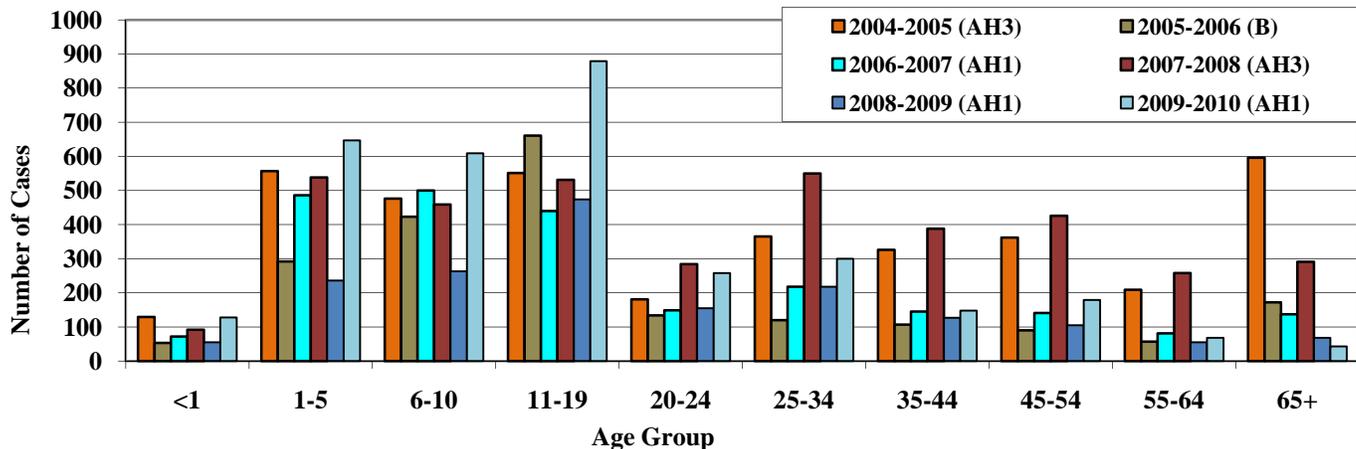
**Figure 4. All Influenza cases by age group and type, North Dakota, 2009-2010 influenza season.**

		TYPE			Total
		A	B	Unspecified	
AGE GROUP	<1	127	0	1	128
	1-5	640	6	1	647
	6-10	604	5	0	609
	11-19	869	7	1	877
	20-24	254	3	1	258
	25-34	294	1	4	299
	35-44	143	3	2	148
	45-54	178	0	1	179
	55-64	67	1	0	68
65+	43	0	0	43	
Total		3219	26	11	

The 2009 H1N1 influenza virus caused a disproportionate number of pediatric deaths than seen during regular influenza seasons. In the United States, approximately 90 pediatric influenza deaths occur in a typical influenza season; however, during the 2009-2010 season, 276 deaths were reported<sup>1</sup>. Influenza-associated pediatric deaths are part of the National Notifiable Diseases Surveillance System (NNDSS). During the 2009-2010 influenza season, no influenza-associated deaths among children were identified in North Dakota.

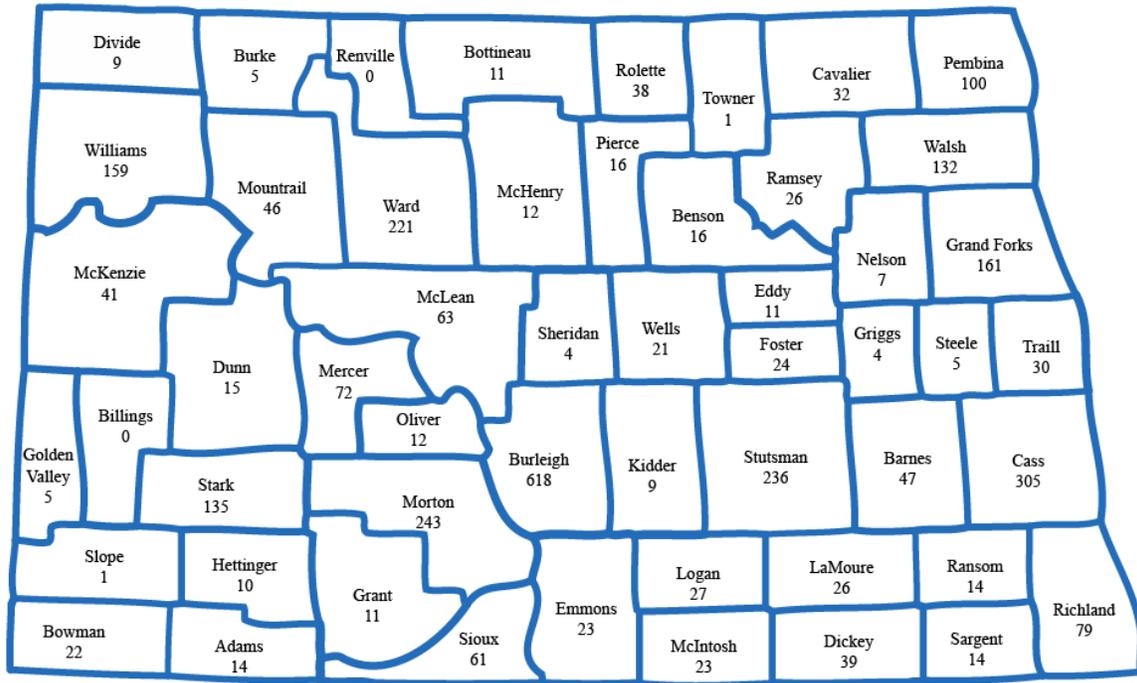
A total of 51 out of the 53 counties in the state reported laboratory-identified influenza infection during the 2009-2010 season (**Figure 5**).

**Figure 3. Number of Reported Influenza Cases\* by Age Group With Predominant Influenza Type, 2004-2005 Through 2009-2010 Influenza Seasons, North Dakota**



\*Positive culture, DFA, IFA or other rapid tests.

**Figure 5. Number of Influenza Cases by County, North Dakota, 2009-2010 Influenza Season.**



The emergence of this virus caused the first influenza pandemic in more than 40 years. In order to describe the burden of illness in the United States, the CDC developed a model to estimate the number of cases, hospitalizations and deaths contributed to the 2009 H1N1 influenza pandemic virus. The CDC estimates demonstrate the burden of 2009 H1N1 influenza illness in people younger than 65 (**Figure 6**).

As of Aug. 9, 2010, overall worldwide influenza activity currently remains low for both pandemic and seasonal influenza activity. Areas in the tropical, subtropical and southern hemisphere are experiencing a mixture of seasonal influenza viruses circulating, largely influenza A H3N2 and some influenza B viruses. In addition, some states in the United States which recently have detected seasonal influenza A H3N2 viruses in some sporadic and local outbreaks.

We cannot predict which influenza type will be the predominant influenza circulating in the Northern Hemisphere during the 2010-2011 influenza season. However, individuals should be vigilant of the possibility of an influenza A H3N2 season, which traditionally causes more severe disease and increased mortality, especially in the elderly population.

**Figure 6. CDC estimates of 2009 H1N1 influenza by age group, April 2009 – April 10, 2010, United States<sup>2</sup>**

2009 H1N1	Mid-Level Range*	Estimated Range*
<b>Cases</b>		
0-17 years	~20 million	~14 million to ~28 million
18-64 years	~35 million	~25 million to ~52 million
65 years and older	~6 million	~4 million to ~9 million
<b>Cases Total</b>	~61 million	~43 million to ~89 million
<b>Hospitalizations</b>		
0-17 years	~87,000	~62,000 to ~128,000
18-64 years	~160,000	~114,000 to ~235,000
65 years and older	~27,000	~19,000 to ~40,000
<b>Hospitalizations Total</b>	~274,000	~195,000 to ~403,000
<b>Deaths</b>		
0-17 years	~1,280	~910 to ~1,880
18-64 years	~9,570	~6,800 to ~14,040
65 years and older	~1,620	~1,160 to ~2,380
<b>Deaths Total</b>	~12,470	~8,870 to ~18,300

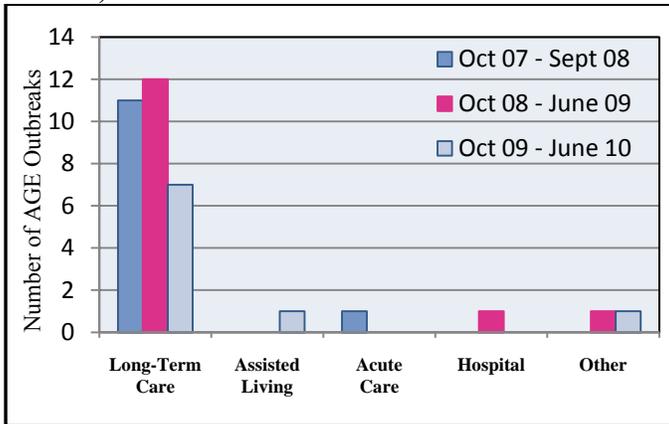
\*deaths rounded to nearest ten/hospitalizations to the nearest thousand/cases to the nearest million. 1. CDC. 2009-2010 Influenza Season Week 20 ending May 22, 2010. Accessed August 2, 2010. [www.cdc.gov/flu/weekly/fluactivity.htm](http://www.cdc.gov/flu/weekly/fluactivity.htm) 2. CDC. Estimates of 2009 H1N1 Influenza Cases, Hospitalizations and Deaths in the United States, April 2009 – April 10, 2010. Accessed August 2, 2010. [www.cdc.gov/h1n1flu/estimates\\_2009\\_h1n1.htm](http://www.cdc.gov/h1n1flu/estimates_2009_h1n1.htm)

**DID you know?** In July 2010 the Advisory Committee on Immunization Practices recommended that everyone over the age of 6 months be vaccinated for influenza (excluding those with contraindications)!!

**Acute Viral Gastroenteritis**

Between October 2009 and June 2010, nine acute viral gastroenteritis (AGE) outbreaks were reported to the NDDoH from health-care settings in seven counties, including Grand Forks, Mountrail, Pierce, Ransom, Renville, Stutsman and Ward. The majority of AGE outbreaks reported in North Dakota since 2007 have occurred in long-term care facilities (Figure 7).

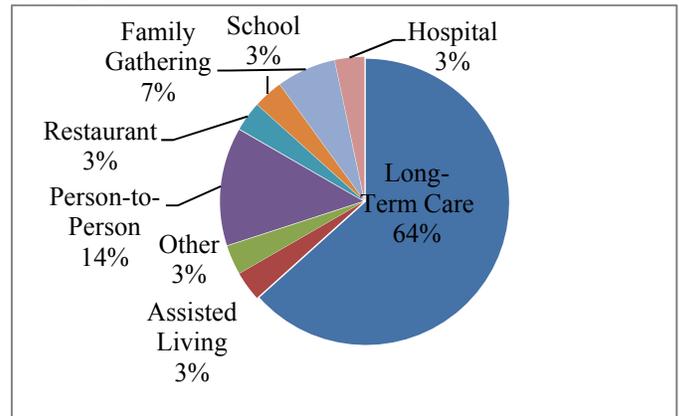
**Figure 7. Number of AGE outbreaks reported from health-care settings in North Dakota, Oct. 1, 2007, to June 30, 2010.**



A viral gastroenteritis outbreak is defined as two or more people associated with a common venue having acute vomiting and/or diarrhea lasting 24 to 48 hours. In 2009/2010, more than 210 residents and 230 staff of health-care settings were ill at the time the outbreaks were reported. Ten stool specimens collected from five facilities reporting outbreaks tested positive for norovirus.

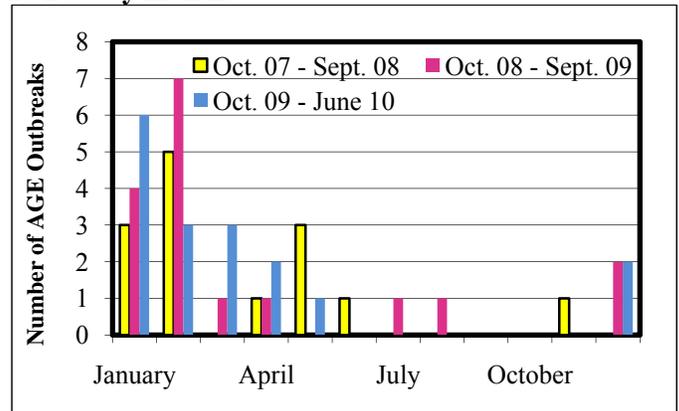
Outbreaks of gastroenteritis often are reported in long-term care facilities but also can occur in non-institutional settings (Figure 8). In 2009/2010, eight AGE outbreaks have been reported to the NDDoH from non-institutional settings. Seven of the eight were confirmed norovirus outbreaks. Four of these outbreaks were likely person-to-person transmission in the community and four were probable foodborne outbreaks. Foodborne outbreaks of AGE often are associated with ill food handlers. These outbreaks occurred in various settings including restaurants, a school, a wedding and family gatherings.

**Figure 8. AGE outbreaks by setting in North Dakota, 2009-2010.**

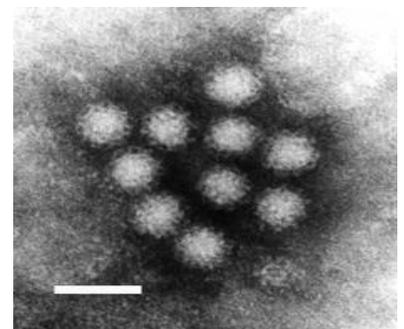


More than half of the AGE outbreaks as of October 2007 had occurred in January and February. The number of AGE outbreaks between October 2009 and June 2010 is consistent with the number of outbreaks reported in the previous year (Figure 9). The number of AGE outbreaks from non-institutional settings almost tripled in 2009/2010 compared to 2008/2009.

**Figure 9. Number of AGE outbreaks reported in North Dakota by month.**



Norovirus is the most common cause of viral gastroenteritis outbreaks and often is called the “winter vomiting disease” or “stomach flu.” Although it is commonly referred to as the stomach flu, it has no relationship to the influenza virus that causes respiratory infections. The CDC estimates noroviruses cause 23 million cases of acute gastroenteritis each year and about 50 percent of all foodborne outbreaks.



Prevention and control of norovirus outbreaks may be challenging, as the agent is resistant to common disinfectants, offers no long-lasting immunity and is highly contagious. According to the CDC MMWR publication *Norovirus Activity—United States, 2006-2007* (Aug. 24, 2007), control of norovirus outbreaks depends on consistent enforcement of measures such as strict hand hygiene and use of the effective environmental disinfectants listed in Box 1.

**Box 1. Recommended measures for the prevention and control of norovirus infection.**

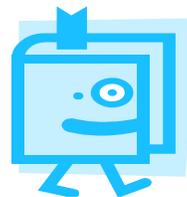
- Practice good hand hygiene. Wash hands frequently with soap and water. Alcohol-based sanitizing hand gels (≥62% ethanol content) may be used to complement hand washing.
- Disinfect contaminated surfaces with either of the following methods:
  - Use a chlorine bleach solution with a concentration of 1,000 – 5,000 ppm (1:50-1:10 dilution of household bleach [5.25%]) for hard, nonporous surfaces.
  - Use disinfectants registered as effective against norovirus by the Environmental Protection Agency (EPA)\* in accordance with the manufacturers’ instructions.
- Do not return to work or school until 24 to 72 hours after symptoms resolve.
- Additional measures for outbreaks in health-care and long-term-care facilities include the following:
  - Use contact precautions for preventing gastroenteritis.
  - Avoid sharing staff members between units or facilities with affected patients and units and facilities that are not affected.
  - Group symptomatic patients and provide separate toilet facilities for ill and well people.
  - Instruct visitors about appropriate hand hygiene and monitor compliance with contact isolation precautions.
  - Close affected units to new admissions and transfers.

\*List of EPA-approved products is available at [www.epa.gov/oppad001/list\\_g\\_norovirus.pdf](http://www.epa.gov/oppad001/list_g_norovirus.pdf)

Source: [www.cdc.gov/mmwr/preview/mmwrhtml/mm5633a2.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5633a2.htm)

For more information about prevention of viral gastroenteritis or to report an outbreak, visit [www.ndhealth.gov/disease/GI/norovirus.aspx](http://www.ndhealth.gov/disease/GI/norovirus.aspx)

## Disease Control Educational Materials



**The following educational materials are available from the Division of Disease Control. Please visit [www.ndhealth.gov/disease](http://www.ndhealth.gov/disease) or call 800.472.2180 to order materials.**



- ❖ Handwashing brochures and posters
- ❖ Influenza posters, brochures and bookmarks
- ❖ Pneumonia posters
- ❖ Immunization activity books
- ❖ HIV/AIDS and STD materials
- ❖ Viral hepatitis pocket guides
- ❖ West Nile virus activity books, posters and brochures
- ❖ Tick identification card
- ❖ Rabies brochures
- ❖ Disease fact sheets
- ❖ And many more!

**Contributing Authors:**

Michelle Feist, influenza surveillance coordinator

Sarah Weninger, enteric disease surveillance coordinator

**Summary of Selected Reportable Conditions**

**North Dakota, 2009-2010**

<b>Reportable Condition</b>	<b>April-June 2010*</b>	<b>January-June 2010*</b>	<b>April-June 2009</b>	<b>January-June 2009</b>
Campylobacteriosis	46	53	52	57
Chickenpox	11	29	20	114
Chlamydia	589	1043	426	817
Cryptosporidiosis	12	14	16	18
E. coli, shiga toxin positive (non-O157)	3	6	3	5
E. coli O157:H7	1	1	2	3
Enterococcus, Vancomycin-resistant (VRE)	97	172	154	358
Giardiasis	5	12	7	15
Gonorrhea	39	73	37	55
Haemophilus influenzae (invasive)	4	9	4	12
Acute Hepatitis A	1	2	0	0
Acute Hepatitis B	0	0	0	0
Acute Hepatitis C	0	0	0	0
HIV/AIDS <sup>1</sup>	7	14	10	16
Influenza	7	30	324	1640
Legionellosis	1	3	0	2
Listeria	0	0	1	1
Lyme Disease	2	2	0	2
Malaria	0	0	0	0
Meningococcal disease <sup>2</sup>	1	1	0	0
Mumps	0	0	0	0
Pertussis	19	22	12	36
Q fever	0	0	0	0
Rabies (animal)	4	6	6	12
Rocky Mountain spotted fever	0	0	0	0
Salmonellosis	8	18	50	63
Shigellosis	0	0	6	7
Staphylococcus aureus, Methicillin-resistant (MRSA)	16	34	62	132
Streptococcal pneumoniae <sup>3</sup> , (invasive, children < 5 years of age)	22	40	2	8
Syphilis, Primary and Secondary	0	0	2	3
Trichinosis	0	0	0	0
Tuberculosis	4	7	0	1
Tularemia	0	0	0	0
Typhoid fever	0	0	0	0
West Nile Virus Infection	1	1	0	0

\*Provisional data

<sup>1</sup> Includes newly diagnosed cases and cases diagnosed previously in other states that moved to North Dakota.

<sup>2</sup> Includes confirmed, probable and suspect meningococcal meningitis cases.

<sup>3</sup> Includes invasive infections caused by streptococcal disease not including those classified as meningitis.