

- 2009 Year In Review
- Reportable Conditions Summary

2009 Year in Review

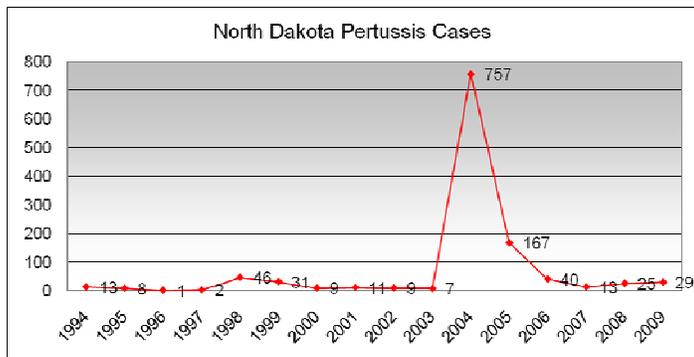
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Selected Vaccine-Preventable Disease Surveillance 2008

Pertussis

Preliminary data indicates that 29 cases of pertussis were reported from 17 North Dakota counties in 2009. Four of the cases was hospitalized. In comparison, 24 cases of pertussis were reported in 2008, 14 cases in 2007 and 40 cases in 2006. (Figure 1)

Figure 1. Pertussis Cases by Year, North Dakota, 1994-2009.*



*Preliminary data. Data may change pending investigation.

Mumps

In 2009, two suspect cases of mumps were reported in North Dakota in two counties; 2008 also had two cases of mumps reported. This is compared to three cases reported

in 2007 and 14 cases in 2006. The cases were not epidemiologically linked.

Chickenpox

Preliminary data for 2009 indicates 86 cases of chickenpox were reported in North Dakota, compared to 106 reported in 2008. Although health-care providers, schools, day cares and local public health units are mandated to report all cases of chickenpox to the North Dakota Department of Health (NDDoH), chickenpox continues to be under-reported in North Dakota.

Neisseria meningitidis

In 2009, two cases of meningococcal disease were reported and laboratory confirmed in North Dakota, compared to six cases reported in 2008. Of cases reported in 2009, both were serogroup C. Among isolates tested, one was reported as intermediately resistant to penicillin. The other case was susceptible to all antibiotics.

West Nile Virus Summary

On June 1, 2009, the NDDoH West Nile virus (WNV) surveillance program initiated its eighth season of human arboviral surveillance. In 2009, the Division of Laboratory Services conducted WNV testing on 470 human samples. One positive human case was identified. (Figure 2)

Figure 2. WNV Positive Human, Cases by County, North Dakota, 2009.



Terry Dwelle, MD, MPHTM
State Health Officer

Kirby Kruger
Chief, Medical Services Section

Kirby Kruger
Director, Disease Control

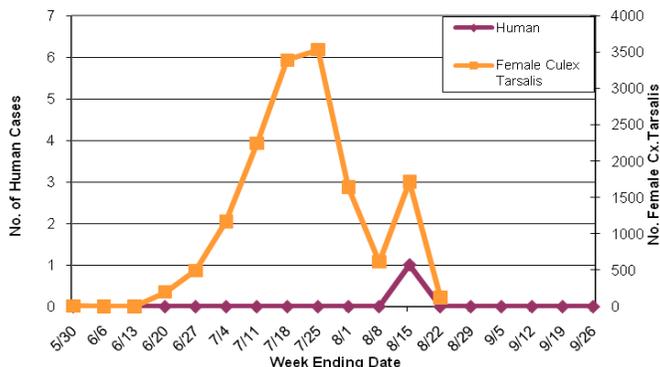
Tracy Miller, MPH
Epidemiologist, Editor

Julie Wagendorf, MS
Epidemiologist, Editor

No cases of West Nile encephalitis/meningitis were reported. The one human case met the case definition and was classified as West Nile fever. There were no cases hospitalized and no deaths associated with WNV in 2009. No asymptomatic North Dakota blood donors with WNV were reported to the NDDoH in 2009. Illness onset occurred during the week ending Aug. 15, 2009. This is the same week as the peak illness in 2008 which occurred during the week ending Aug. 16, 2008.

The North Dakota Veterinary Diagnostic Laboratory (NDVDL) tested 10 horses for WNV infection. Of the 10 samples submitted, one from Rolette County (10 percent) tested positive for WNV. In addition, two canines which tested positive for WNV were reported to the NDDoH from Burleigh and Nelson counties. In 2009, three dead birds were collected and sent to the NDVDL for WNV testing. Of those, none tested positive.

Figure 3. Human West Nile Cases by Date of Onset and No. of Female Culex Tarsalis Mosquitoes by Week of Collection, North Dakota, 2009.



Statewide mosquito monitoring was conducted weekly from June through August using 92 New Jersey light traps stationed around the state. Female *Culex tarsalis* counts peaked the third week in July, three weeks prior to the peak of human WNV illness onset. (Figure 3)

For additional information about WNV and surveillance, visit the NDDoH website at www.ndhealth.gov/wnv.

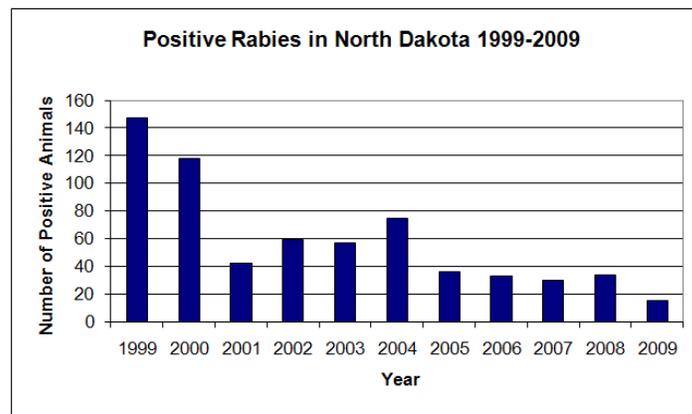
Rabies

Preliminary numbers for 2009 indicate that 417 animals were tested for rabies in North Dakota, with 15 (3.6 percent) testing positive. This is a slight decrease in both testing and positive animals from 2008. (Table 1) The skunk rabies virus is the major variant seen in North Dakota. The number of animals that tested positive for rabies in North Dakota in 2009 was the lowest it has been in the past 10 years (Figure 4). The NDDoH reports only laboratory-confirmed cases of rabies. Many cases of rabies may occur and be unobserved and therefore untested, particularly in wild populations.

Table 1. Positive Rabies Cases by Animal, North Dakota, 2008-2009.

Animal Type	Number Positive	
	2009	2008
Bat	1	1
Cat	0	5
Cow	1	4
Dog	1	4
Horse	0	1
Raccoon	0	1
Skunk	12	18
Total	15	34

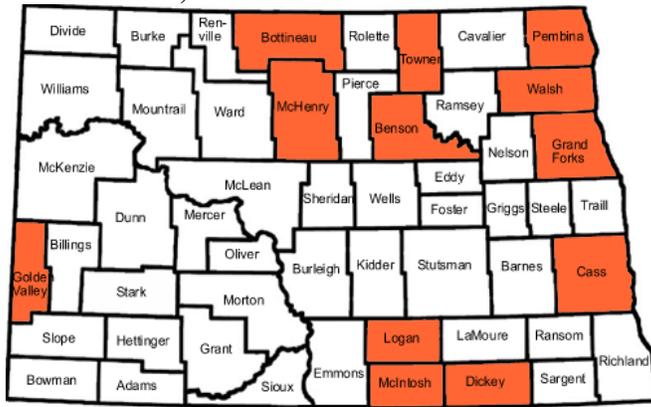
Figure 4. Positive Animals Rabies Cases by Year, North Dakota, 1999-2009.



During the 2009 legislative session, the legislature passed House Bill 1386, which amended the North Dakota Century Code. The amendment allows for the testing of animals for rabies at either the North Dakota Department of Health's Division of Laboratory Services in Bismarck or the North Dakota State University Veterinary Diagnostic Laboratory in Fargo. Rabies testing can be done at either laboratory regardless of whether there is a human exposure or not. An exposure is defined as a bite that breaks the skin or saliva that comes into contact with an open cut, sore or wound, or to a mucous membrane such as the mouth, nose or eyes. Call the NDDoH at 701.328.2378 or 800.472.2180 for consultation about animal exposure.

Animals tested positive for rabies from the following counties; Benson, Bottineau, Cass, Dickey, Golden Valley, Grand Forks, Logan, McHenry, McIntosh, Pembina, Towner and Walsh. (Figure 5) Animals were submitted for rabies testing from all counties except Billings, Grant and McKenzie.

Figure 5. Positive Animals Rabies Cases by County, North Dakota, 2009.



New ACIP Recommendations for Rabies Post-Exposure Prophylaxis

In June 2009, the Advisory Committee on Immunization Practices (ACIP) voted to change the recommended number of doses of rabies vaccine needed for post-exposure prophylaxis (PEP).

The regimen change is for previously unvaccinated people. Four doses of vaccine are now recommended instead of five. Human rabies immune globulin is still needed for PEP and should be administered concurrently with the first dose of vaccine. A regimen of four 1-ml vaccine doses of rabies vaccine (either human diploid cell vaccine [HDCV] or purified chick embryo cell vaccine [PCECV] should be administered intramuscularly to previously unvaccinated individuals with no immunosuppression. The first dose is administered on day zero followed by doses given on days three, seven and 14 after the first dose.

Potentially immunocompromised people requiring rabies PEP should consult with a physician. For people with broadly defined immunosuppression, PEP should be administered using all five doses of vaccine, with the awareness that the immune response still may be inadequate. When administered to an immunosuppressed person, one or more serum samples should be tested for rabies virus neutralizing antibody to ensure an acceptable antibody response.

The recommendations for rabies PEP on previously vaccinated individuals remain the same.

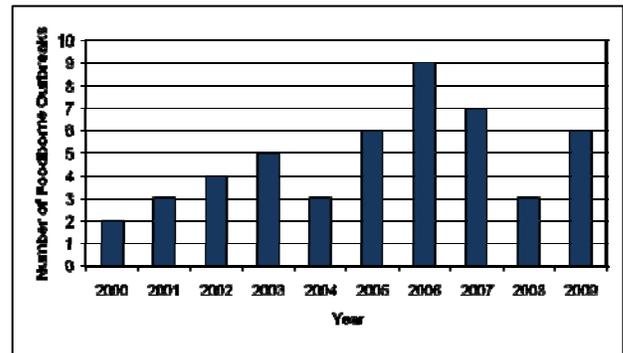
The 2008 ACIP recommendations for the prevention of human rabies are otherwise unchanged, and are available at www.cdc.gov/mmwr/preview/mmwrhtml/rr57e507a1.htm.

Foodborne Gastroenteritis Outbreaks

In 2009, the NDDoH investigated six foodborne gastroenteritis outbreaks. All outbreaks were laboratory-confirmed (two norovirus, three salmonella and one *clostridium perfringens*). **Table 2**

The number of foodborne gastroenteritis outbreaks investigated by the NDDoH each year of the past 10 years range from one to nine (five-year mean = six). **(Figure 6)** More than 50 percent of laboratory-confirmed outbreaks in North Dakota are caused by norovirus, most often associated with cross contamination by sick food handlers.

Figure 6. Number of Foodborne Gastroenteritis Outbreaks, North Dakota, 2000-2009.



Collecting stool specimens and timely reporting to public health authorities are important in identifying and preventing further spread of illness. To report gastroenteritis outbreaks, call the NDDoH at 701.328.2378 or toll free at 800.472.2180.

Significant Disease Control Investigations

Salmonella Montevideo Outbreak in June 2009

On June 15, 2009, the NDDoH received a call from an emergency room physician in Bismarck, N.D., who reported seeing patients with diarrheal illness who spoke of attending a family reunion in Wilton, N.D., on June 13, 2009. An investigation was initiated, and the caterer was instructed by state and local officials to cease serving food at any future events pending this investigation. That same day, only a few hours later, the same physician reported seeing additional patients with diarrheal illness who spoke of attending a wedding in Washburn, N.D., on June 13, 2009. Upon investigation, it was determined that the meals served at the two events were provided by the same caterer. On June 23, 2009, the NDDoH received further complaints of illness associated with attending a wedding in McClusky, N.D., on June 20, 2009. After this event, a cease and desist order was issued by the local public health unit conducting the environmental investigation.

Of the people who attended these events and became ill, a total of 180 people met the case definition of vomiting or diarrhea within seven days of attending an outbreak event. Thirty-eight individuals had culture-confirmed salmonellosis, serotype *Salmonella* Montevideo with indistinguishable pulse field gel electrophoresis (PFGE) patterns. Seventy-six ill individuals sought medical care and 10 individuals were hospitalized.

Four food samples from the various events tested positive for *S. Montevideo* with a matching PFGE pattern to the outbreak strain. The food items that tested positive involved some type of preparation in the caterer's home prior to being served at the events. During the environmental investigation, it was noted that the caterer had baby chicks living at the farm. Environmental samples from the caterer's home, including cloacal swabs and chick feces samples, were negative for *Salmonella*.

Although environmental sampling from this outbreak yielded negative *Salmonella* results, the outbreak strain matched DNA of *S. Montevideo* isolated from previous investigations associated with baby chicks in 2007. An MMWR detailing this investigation can be found at www.cdc.gov/mmwr/preview/mmwrhtml/mm5802a1.htm. The chicks, on the caterer's farm were purchased from the same hatchery in Iowa with which *S. Montevideo* cases were associated in 2007.

The NDDoH continues to work with the Centers for Disease Control and Prevention (CDC) and the United States Department of Agriculture (USDA) to ensure chick hatcheries and retail stores at which chicks may be purchased are educating customers of the risk of *Salmonella* infection when handling baby chicks.

2009 Flood Surveillance

In response to the flooding in 2009, the NDDoH Division of Disease Control implemented an ad hoc surveillance system looking for injuries and illnesses related to flooding in North Dakota emergency rooms starting March 23, 2009.

Emergency rooms (ER) reported the total number of visits to their facilities daily/weekly by fax or e-mail as directed by NDDoH depending on the extent of flood damage to that area with demographic information about each injury or illness and the reason for the visit to the ER. Some of the injuries the facilities were asked to look for ranged from sore wrists and ankles to motor vehicle accidents and other serious traumas. Illnesses could include carbon monoxide poisoning, exhaustion, hypothermia, mental health issues and cardiac-related events.

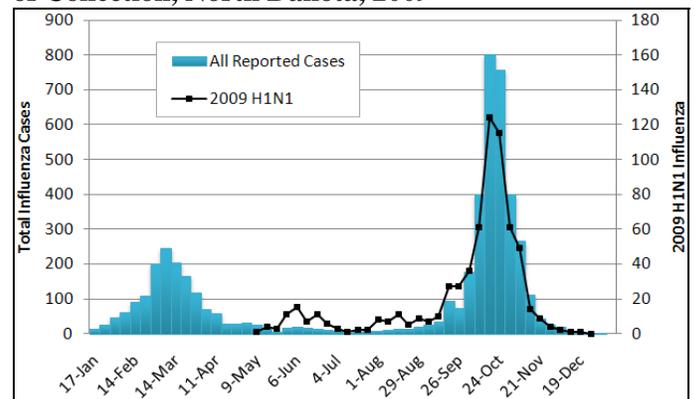
A total of 205 injuries, 58 illnesses and two deaths related to the flood were reported. The response and effort put forth by those in the facilities that participated was greatly appreciated.

Influenza 2009 H1N1 – A Pandemic Is Declared!

In March and April of 2009, a novel flu virus caused illness in the United States and Mexico. On April 15, 2009, the CDC confirmed the first novel H1N1 virus infection in a U.S. patient. On April 29, 2009, the North Dakota state Emergency Operations Center was activated. Since then, the 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 announced May 9, 2009. The first wave of illness occurred in the spring of 2009 and was followed by a much larger second wave of illness in the fall. (**Figure 1**) Almost all influenza PCR-subtyped was identified as 2009 H1N1 influenza.

Figure 1. No. of Laboratory Identified Influenza Cases and No. of PCR Confirmed 2009 H1N1 Cases by Week of Collection, North Dakota, 2009



Risk of developing serious complications from 2009 H1N1 influenza infection are similar to that of seasonal flu and includes children, people age 65 and older, pregnant women and people with certain chronic health conditions. However, 2009 H1N1 influenza has caused greater disease burden in people age 24 and younger than in older people when compared to seasonal influenza.

A peak in 2009 H1N1 influenza activity occurred during mid-October. It is uncertain if we can expect another increase in H1N1 activity or an increase in seasonal influenza activity. Influenza activity is updated weekly and is available on the NDDoH influenza website at www.ndflu.com.

Contributing Authors

Sarah Weninger, surveillance epidemiologist
 Michelle Feist, surveillance epidemiologist
 Abbi Pierce, immunization surveillance coordinator
 Lindsey VanderBusch, surveillance epidemiologist

Table 2. Foodborne Gastroenteritis Outbreaks in North Dakota, 2005 – 2009.

Date	County	Facility	Number Ill	Number Exposed	Suspected Food	Suspected Agent	Contributing Factors
5/2005	Stark	High school	52	249	Lettuce	Norovirus	Cross contamination from ill food handler
6/2005	Williams	Grocery deli	15	Unknown	Rotisserie chicken/	Salmonella Typhimurium	Unknown
6/2005	Cass	Hotel restaurant	14	235	Unknown	Unknown	Unknown
7/2005	Ramsey	Rivate home	5	14	Unknown	Unknown	Unknown
8/2005	Burleigh	Unknown	11	Unknown	Unknown	<i>E.coli</i> O157:H7	Unknown
1/2006	Ward	Hotel restaurant	48	73	Unknown	Norovirus	Ill food handlers
4/2006	Cass	Golf course restaurant	27	62	Chicken	Norovirus	Possible environmental contamination
4/2006	Morton	Restaurant	10	25	Unknown	Unknown	Unknown
6/2006	Burleigh	Restaurant and catering	36	Unknown	Fresh fruit	Norovirus	Ill food handlers
6/2006	Out-of-state	Hotel restaurant	(4 ND) 25	Unknown	Unknown	Norovirus	Possible ill food handlers
8/2006	Bowman	Construction worksite	11	60	Possible water	Unknown	Suspect contamination of water coolers
9//2006	Burleigh	Private picnic	21	65	Unknown	Unknown	Unknown
10/2006	Ward	Private home	16	20	Unknown	Norovirus	Unknown
10//2006	Nelson	Restaurant	26	100	Unknown	Norovirus	Ill food handlers
1/2007	Multi-state	Private home	3	Unknown	Peanut butter	Salmonella Tennessee	Environmental contamination at production plant
3/2007	Grand Forks	Church	Unknown	Unknown	Suspected ground beef	Possible toxin	Temp abuse and improper reheating of ground beef
3//2007	Dickey	Restaurant	16	Unknown	Unknown	Norovirus	Unknown
6/2007	Stutsman	Picnic/Park	7	70	Unknown	Salmonella Newport	Unknown
6/2007	Ward	Private home	23	50	Suspected ground beef	STEC O111:nonmotile	Temp abuse and improper reheating of ground beef
9/2007	Cass	School	7	11	Homemade cookies	Norovirus	Cross-contamination at home from ill food handlers
9/2007	Burleigh	Restaurant/Wedding	29	63	Unknown	Norovirus	Unknown
2/2008	Burleigh	Restaurant/Wedding	7	9	Unknown	Norovirus	Unknown
4/2008	McLean	Potluck at Hospital	12	55	Unknown	Campylobacter jejuni	Unknown
6/2008	McHenry	Fair/Food Vendors/	33	475	Unknown	Unknown	Unknown
6/2009	McLean	Family reunion	55	69	Multiple	Salmonella Montevideo	Baby chick pattern
6/2009	McLean	Catered wedding reception	36	250	Multiple	Salmonella Montevideo	Baby chick pattern
6/2009	McLean	Catered wedding reception	89	250	Multiple	Salmonella Montevideo	Baby chick pattern
8/2009	Morton	Restaurant	8	Unknown	Unknown	Norovirus	Ill food handler
10/2009	Walsh	Catered meal at business	36	Unknown	Unknown	<i>Clostridium perfringens</i>	Power failure and temperature abuse
12/2009	Grand Forks	Hotel/Wedding	24	39	Unknown	Norovirus	Unknown

Summary of Selected Reportable Conditions

North Dakota, 2008-2009

Reportable Condition	October- Dec 2009*	January -Dec 2009*	October- Dec 2008	January -Dec 2008
Campylobacteriosis	7	97	13	91
Chickenpox	12	84	35	108
Chlamydia	621	1898	567	1879
Cryptosporidiosis	4	29	1	15
<i>E. coli</i> , shiga toxin positive (non-O157)	0	10	4	23
<i>E. coli</i> O157:H7	2	7	1	7
Enterococcus, Vancomycin-resistant (VRE)	54	304	75	257
Giardiasis	8	33	13	36
Gonorrhea	38	117	53	142
Haemophilus influenzae (invasive)	2	8	4	16
Acute Hepatitis A	1	4	1	2
Acute Hepatitis B	0	0	0	1
Acute Hepatitis C	1	2	0	0
HIV/AIDS ¹	13	39	5	28
Influenza	2926	4977	19	3797
Legionellosis	1	2	0	3
Listeria	0	3	0	0
Lyme Disease	3	18	2	11
Malaria	1	1	0	0
Meningococcal disease ²	1	2	1	6
Mumps	0	0	0	2
Pertussis	2	29	22	29
Q fever	0	0	0	0
Rabies (animal)	3	11	8	34
Rocky Mountain spotted fever	0	0	0	1
Salmonellosis	13	126	22	79
Shigellosis	0	10	2	42
Staphylococcus aureus, Methicillin-resisitant (MRSA)	20	105	20	79
Streptococcal pneumoniae ³ , (invasive, children < 5 years of age)	0	2	3	12
Syphilis, Primary and Secondary	1	4	0	0
Trichinosis	0	0	0	0
Tuberculosis	2	5	2	3
Tularemia	0	0	0	3
Typhoid fever	0	0	0	3
West Nile Virus Infection	0	1	0	37

*Provisional data

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

² Includes confirmed, probable and suspect meningococcal meningitis cases.

³ Includes invasive infections caused by streptococcal disease not including those classified as meningitis.