

- 2008 Year In Review
- Reportable Conditions Summary

2008 Year in Review

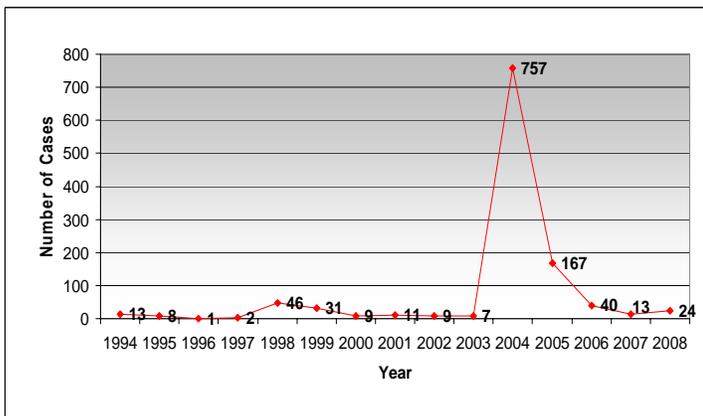
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Selected Vaccine-Preventable Disease Surveillance 2008

Pertussis

Preliminary data indicates that 24 cases of pertussis were reported from nine counties in 2008. One of the cases was hospitalized. In comparison, 14 cases of pertussis were reported in 2007, 40 cases in 2006 and 167 cases in 2005. (Figure 1)

Figure 1. Pertussis Cases by Year, North Dakota, 1994-2008.*



*Preliminary data. Data may change pending investigation.

Mumps

In 2008, two probable cases of mumps were reported in North Dakota in two counties, compared to three cases reported in 2007 and 14 cases in 2006. The cases were not epidemiologically linked.

Chickenpox

Preliminary data for 2008 indicates 106 cases of chickenpox were reported in North Dakota, compared to 141 reported in 2007. 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 2008, six cases of meningococcal disease were reported and laboratory confirmed in North Dakota, compared to two cases reported in 2007. Of cases reported in 2008, three were serogroup B and three serogroup Y. Among isolates tested, no antibiotic resistance was found.

West Nile Virus Summary

On June 1, 2008, the NDDoH West Nile virus (WNV) surveillance program initiated its seventh season of human arboviral surveillance. In 2008, the Division of Laboratory Services conducted WNV testing on 1,149 human samples. Thirty-seven positive human cases from 21 counties were reported. (Figure 2)

Figure 2. WNV Positive Human, Cases by County, North Dakota, 2008.

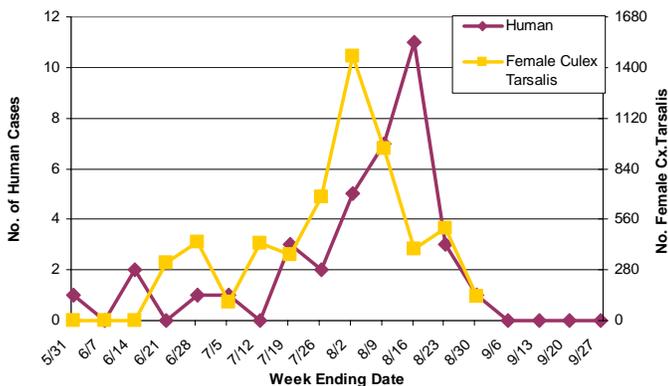


Of the 37 reported cases, two (5.4%) met the case definition of West Nile encephalitis/meningitis, with the remaining 35 (94.6%) cases classified as West Nile fever. Nine of the 37 cases were hospitalized, and no deaths associated with WNV in 2008 were reported to the NDDoH. Six asymptomatic North Dakota blood donors were identified with WNV in 2008. The peak of illness onset occurred during the week ending Aug. 16, 2008. This peak is the same week as the peak illness in 2007, which occurred during the week ending Aug. 18, 2007.

During the 2008 WNV season, an increase in false-positive test results from a commercial test kit was detected. A specific lot of this test kit was distributed to four laboratories in the United States from July to September. It was found that this lot produced a high number of false positive WNV test results and was recalled. The NDDoH and the Centers for Disease Control and Prevention (CDC) retested the samples or patients who were positive for WNV using the recalled commercial kit. As a result of further testing and investigation, the number of human WNV cases in North Dakota was adjusted to 37 cases from the preliminary count of 43 cases in 2008.

The North Dakota Veterinary Diagnostic Laboratory (NDVDL) tested 13 horses for WNV infection. Of the 13 samples submitted, one (8%) from Grand Forks County tested positive for WNV. In addition, four dogs that tested positive for WNV were reported to the NDDoH from Grand Forks (1), Ramsey (1) and Walsh (2) counties. In 2008, five 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, 2008.



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 last week in July, two weeks prior to the peak of human WNV illness onset. (Figure 3)

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

Thank YOU!

The NDDoH, Division of Disease Control, West Nile virus program would like to **THANK** the following health units for their willingness to assist the state health department and North Dakota's small communities with mosquito control activities during the 2008 summer:

- City-County Health Department
- Fargo-Cass Public Health
- Cavalier County Health District
- Foster County Health Department
- LaMoure County Public Health
- McIntosh District Health Unit
- Pembina County Health Department
- Richland County Health Department
- Sargent County Public Health District
- Southwestern District Health Unit
- Steele County Public Health Department
- Central Valley Health District
- Walsh County Health District
- Upper Missouri District Health Unit
- Emmons County Public Health
- Kidder County District Health Unit
- Nelson-Griggs District Health Unit

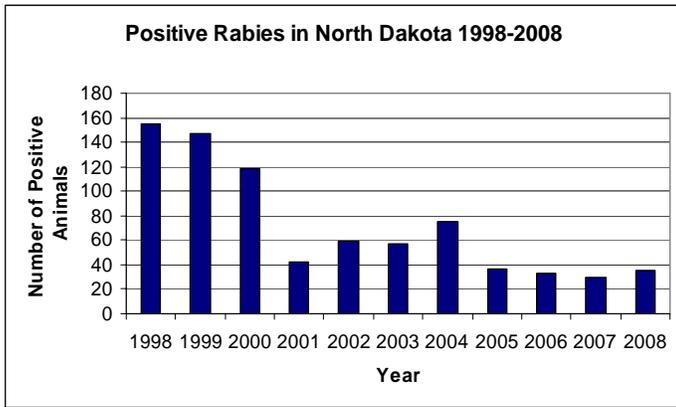
Rabies

Preliminary numbers for 2008 indicate that 451 animals were tested for rabies in North Dakota, with 35 (7.8 percent) testing positive. This is an increase in both testing and positive animals from 2007. (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 2008 was slightly higher than in the past two years (Figure 4). The NDDoH only reports 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, 2007-2008.

Animal Type	Number Positive	
	2008	2007
Bat	1	2
Cat	5	4
Cow	4	2
Dog	4	7
Goat	0	1
Horse	1	2
Raccoon	1	1
Skunk	19	11
Total	35	30

Figure 4. Positive Animals Rabies Cases by Year, North Dakota, 1998-2008.



The NDDoH Division of Laboratory Services provides free animal rabies testing if human exposure to the animal has occurred. Charges may apply if more than one animal needs to be tested for a single exposure. 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. If the animal has not caused a potential human exposure and testing is desired, the animal must be submitted to the North Dakota State University Veterinary Diagnostic Laboratory for testing. A fee will be charged.

Animals tested positive for rabies from the following counties; Adams, Barnes, Benson, Bottineau, Burleigh, Cass, Dickey, Eddy, Foster, Grand Forks, McHenry, McKenzie, Mountrail, Ramsey, Ransom, Richland, Sargent, Stutsman, Towner, Traill, Ward and Wells. (Figure 5) Animals were submitted for rabies testing from all counties except Billings, Divide, LaMoure, Slope and Steele.

Figure 5. Positive Animals Rabies Cases by County, North Dakota, 2008.



Rabies Vaccine Supply

In June 2007, Sanofi Pasteur began renovating its IMOVAX Rabies vaccine production facility in France. Prior to these renovations, Sanofi Pasteur established an inventory based on historical levels of sales and projected market demand, which meant that Sanofi Pasteur had only a set amount of vaccine available during the renovation.

During this time, Novartis, the other rabies vaccine supplier, was unable to meet rabies vaccine demand, and a shortage of rabies vaccine became evident. For most of 2008, rabies vaccine was used strictly for post-exposure prophylaxis and was accessible only after consultation with state health departments.

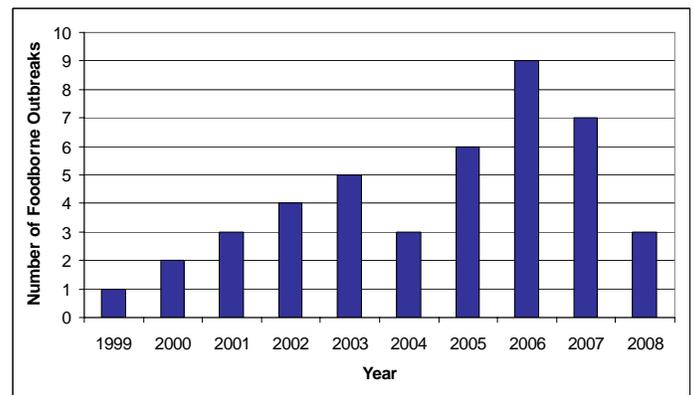
By late 2008, Novartis supplies had increased and the need for passwords was no longer necessary; however, Sanofi Pasteur still uses the password system. Novartis has also been able to offer pre-exposure prophylaxis to high risk individuals.

Foodborne Gastroenteritis Outbreaks

In 2008, the NDDoH investigated three foodborne gastroenteritis outbreaks. Two of the three outbreaks were laboratory-confirmed (one norovirus and one *Campylobacter jejuni*). **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, 1999-2008.



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

Rubella Cases in North Dakota

The NDDoH reported the first case of rubella, also known as German measles, in North Dakota since 1991. The NDDoH was notified of a rash-like illness in an adult male Cass County resident on the afternoon of June 6, 2008. Laboratory tests confirmed rubella. The case had recently traveled to India, which is where the case likely contracted the illness. This individual had an unknown history of vaccination.

The NDDoH contacted North Dakota residents who were potentially exposed to the rubella case via air travel or identified by the case as a close contact while the case was contagious to ensure that they all had a history of rubella vaccination or immunity due to past infection and that no other contacts had developed a rash. Because of the limited data on transmission of cases due to airline exposure, the NDDoH collaborated with the CDC in collecting vaccination histories and signs or symptoms for all flight contacts, looking for underlying cases of rubella.

Rubella is usually a mild disease, but can be severe in some cases. Rubella during pregnancy, congenital rubella syndrome (CRS), can cause severe complications to the fetus, such as miscarriage, fetal death or birth defects. In 1964-1965, before rubella immunization was used routinely in the U.S., there was an epidemic of rubella that resulted in an estimated 20,000 infants born with CRS, with 2,100 neonatal deaths and 11,250 miscarriages. Of the 20,000 infants born with CRS, 11,600 were deaf, 3,580 were blind, and 1,800 were mentally retarded.

The immunization for rubella is contained in MMR vaccine, which is required for all children attending day cares, schools and colleges in North Dakota. Immunity, whether by natural infection or vaccination, is especially important in pregnant women or people in close contact with pregnant individuals because of the serious effect the rubella virus can have on an unborn child. Vaccination of susceptible pregnant women should be done post-partum, as rubella-containing vaccines cannot be given during pregnancy.

For more information about rubella, visit www.ndhealth.gov/Immunize/Disease/rubella1.htm.

**Be on the look out for the
MMWR about the
rubella study!**



North Dakota Residents Exposed to Tuberculosis on International Flights

Two international flights were reported to the NDDoH in which North Dakota residents were exposed to tuberculosis (TB).

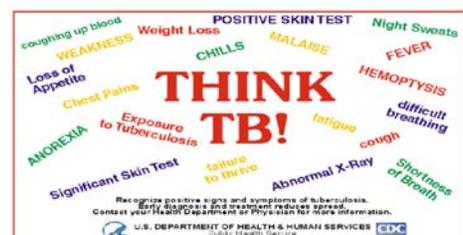
In June 2008, the NDDoH was notified of two North Dakota residents who were exposed to TB on a March 14, 2008, flight to Japan. The Maine Department of Health reported a case of TB in an international traveler in May 2008. The individual experienced coughing, fatigue, weakness, weight loss, night sweats and shortness of breath. The patient immediately was started on the standard four-drug treatment for TB, and TB was confirmed by an abnormal chest x-ray and positive laboratory results.

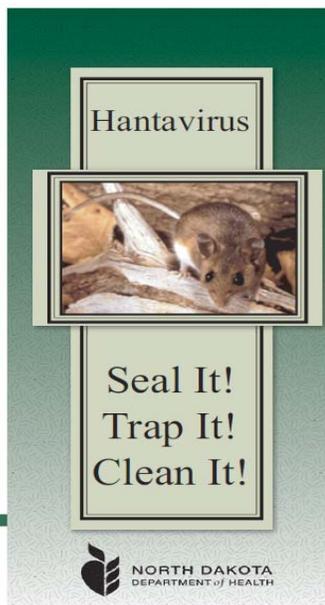
In August 2008, the NDDoH was notified of two North Dakota residents who were exposed to TB on a March 13, 2008, flight from Amsterdam, Netherlands. In July 2008, the Nebraska Department of Health reported a case of TB in an individual who had flown on seven international flights since January 2008. This individual had been coughing and experiencing night sweats since December 2007. TB disease was confirmed by an abnormal chest x-ray and positive laboratory results. The patient started the standard four-drug treatment in July 2008.

None of the exposures among North Dakota residents on these flights resulted in TB infection. Two residents did report positive TB skin tests, but infection likely did not result from flight exposure. One resident was a previous latent TB infection and the other resident was born in a high-risk country.

TB is contracted through inhalation of respiratory droplets containing the TB bacteria. Passengers sitting in the same row and two rows in front and behind the infected individual are at highest risk of becoming infected. The risk of becoming infected with TB also increases when the flight is more than eight hours long.

Symptoms of TB disease include coughing for more than three weeks, fatigue, fever, night sweats and weight loss. People experiencing these symptoms should contact their medical provider immediately. Confirmed and suspected cases of TB disease should be reported to the NDDoH by calling 701.328.2378 or 800.472.2180. More information about TB can be found on the program website at www.ndhealth.gov/disease/tb.





Hantavirus Pulmonary Syndrome Death Reported

On Aug. 5, 2008, a young, previously healthy adult died as result of hantavirus pulmonary syndrome (HPS). This is the 10th case and sixth death to be reported to the NDDoH since the virus was discovered in the southwestern part of the United States in 1993.

The case had exposures to outbuildings and spent time outdoors. Onset of illness was July 30, 2008. The

case was admitted to a local hospital August 3 and transferred to a regional medical center Aug. 4, 2008. On Aug. 14, the Division of Laboratory Services reported the presence of IgM antibody to hantavirus.

In North Dakota, HPS is caused by the SinNombre virus, and the rodent vector is the deer mouse *Peromyscus maniculatus*. The virus is shed in the stool, urine and saliva of infected rodents. Infection usually results from inhalation of the virus when droppings and urine are disturbed. People infected with the virus develop a rapidly progressing illness. Early symptoms are “flu-like,” with fever, headache, muscle ache and malaise. Vomiting and diarrhea also have been reported. Pulmonary signs and symptoms develop shortly, with shortness of breath and low blood oxygen levels. Treatment is supportive, with careful attention to fluids, electrolytes and blood pressure management. Additional information regarding the clinical management of HPS can be found at the CDC website at

www.cdc.gov/ncidod/diseases/hanta/hps/index.htm.

Lead in Venison Study

In late March 2008, the North Dakota departments of Health, Agriculture, and Game and Fish advised food pantries across the state not to distribute or use donated ground venison because of the discovery of contamination with lead fragments. At that time, the North Dakota Department of Health asked the CDC for assistance in conducting a blood lead level study.

The study was designed to determine whether people who eat wild game harvested with lead bullets have higher blood lead levels than people who don't. A total of 738 North Dakotans volunteered to have their blood tested for the presence of lead.

The study indicated that people who eat wild game harvested with lead bullets appear to have higher levels of lead in their blood than people who don't. The study also showed that participants with a more recent consumption of wild game harvested with lead bullets had higher levels of lead in the blood.

As a result of the study, NDDoH has developed the following recommendations to minimize the risk of harm to people who are most vulnerable to the effects of lead:

- ❖ Pregnant women and children younger than 6 should not eat any venison harvested with lead bullets.
- ❖ Older children and other adults should take steps to minimize their potential exposure to lead.
- ❖ The most certain way of avoiding lead bullet fragments in wild game is to hunt with non-lead bullets.
- ❖ Hunters and processors should follow the processing recommendations developed by the North Dakota Department of Agriculture.
- ❖ If food pantries choose to accept donated venison or other wild game, they should follow these recommendations:
 - Shot with lead bullets – Accept only whole cuts rather than ground meat.
 - Shot with bows – Accept whole cuts or ground meat.

The lead levels among study participants ranged from none detectable to 9.82 micrograms per deciliter. Wild game consumption among study participants ranged from zero to heavy consumption.

Blood lead levels higher than 10 micrograms per deciliter for children and 25 micrograms per deciliter for adults are considered elevated. However, even lead levels below 10 can cause health problems, including high blood pressure and reduced kidney function among adults and permanent brain injury among infants and preschool children. In young children, lead exposure can cause lower IQs, learning disabilities, kidney damage and attention deficit disorder (ADD). In pregnant women, high lead exposure can cause low birth-weight babies, premature births, miscarriage and stillbirth. In adults, lead can cause high blood pressure, hearing loss and infertility.

More information about the lead-in-venison issue is available on the NDDoH website at

www.ndhealth.gov/lead/venison.

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Table 2. Foodborne Gastroenteritis Outbreaks in North Dakota, 2004 – 2008.

Date	County	Facility	Number Ill	Number Exposed	Suspected Food	Suspected Agent	Contributing Factors
11/2004	Ward	Hotel Restaurant	15	43	Unknown	Unknown	Possible sick food handler
11/2004	Bottineau	Restaurant	11	32	Unknown	Unknown	Unknown
12/2004	Stark	Local meat store	2	12	Smoked turkey	Salmonella Newport	Inadequate cooking instructions/ under cooked
4/2005	Burleigh	Private Home	14	71	Unknown	Unknown	Unknown
5/2005	Stark	High School	52	249	Lettuce	Norovirus	Cross contamination from ill food handler
6/2005	Williams	Grocery Deli	15	Unknown	Rotisserie chicken/ Unknown	Salmonella Typhimurium	Unknown
6/2005	Cass	Hotel Restaurant	14	235	Unknown	Unknown	Unknown
7/2005	Ramsey	private 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 work site	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 reception	29	63	Unknown	Norovirus	Unknown
2/2008	Burleigh	Restaurant/ Wedding reception	7	9	Unknown	Norovirus	Unknown
4/2008	McLean	Potluck at Hospital for Employees	12	55	Unknown	Campylobacter jejuni	Unknown
6/2008	McHenry	Fair/Food Vendors/ Restaurant	33	475	Unknown	Unknown	Unknown

Summary of Selected Reportable Conditions

North Dakota, 2007-2008

Reportable Condition	Oct-Dec 2008*	January -Dec 2008*	Oct-Dec 2007	January -Dec 2007
Campylobacteriosis	12	89	13	91
Chlamydia	557	1888	583	1810
Cryptosporidiosis	1	16	8	78
<i>E. coli</i> , shiga toxin positive (non-O157)	5	24	1	18
<i>E. coli</i> O157:H7	1	6	2	13
Enterococcus, Vancomycin-resistant (VRE)	65	230	64	276
Giardiasis	16	44	17	60
Gonorrhea	49	137	30	114
Haemophilus influenzae (invasive)	5	15	3	6
Hantavirus	0	1	0	0
Acute Hepatitis A	2	3	0	2
Acute Hepatitis B	2	4	1	2
Acute Hepatitis C	0	0	0	0
HIV/AIDS ¹	5	28	9	26
Legionellosis	0	4	0	2
Listeria	0	0	0	0
Lyme Disease	5	15	1	12
Malaria	0	0	4	5
Meningitis, bacterial ² (non meningococcal)	1	5	1	2
Meningococcal disease ³	2	6	0	2
Mumps	0	0	0	3
Pertussis	17	25	4	12
Q fever	0	0	0	0
Rabies (animal)	9	35	6	30
Salmonellosis	26	83	26	81
Shigellosis	3	42	13	21
Staphylococcus aureus, Methicillin-resistant (MRSA)	29	123	32	412
Streptococcal disease, Group A ⁴ (invasive)	5	14	2	24
Streptococcal disease, Group B ⁴ (infant < 3 months of age)	0	1	0	4
Streptococcal disease, Group B ⁴ (invasive ⁵)	10	14	11	49
Streptococcal pneumoniae ⁴ , (invasive, children < 5 years of age)	3	9	0	1
Streptococcal pneumoniae ⁴ (invasive ⁶)	13	53	16	75
Streptococcus pneumoniae ⁴ , drug-resistant	0	1	0	0
Syphilis, Primary and Secondary	0	0	1	1
Tuberculosis	2	3	5	7
Tularemia	0	3	0	0
West Nile Virus Infection	0	37	5	369

*Provisional data

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

² Meningitis caused by *Staphylococcus aureus* and *Streptococcus pneumoniae*.

³ Includes confirmed, probable and suspect meningococcal meningitis cases.

⁴ Includes invasive infections caused by streptococcal disease not including those classified as meningitis.

⁵ Includes invasive infections of streptococcal, Group B, disease in persons \geq 3 months of age.

⁶ Includes invasive infections caused by *Streptococcus pneumoniae* in persons \geq 5 years of age.