Epidemiology Report

NORTH DAKOTA DEPARTMENT of HEALTH

October-November-December 2012

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2012 Year In Review

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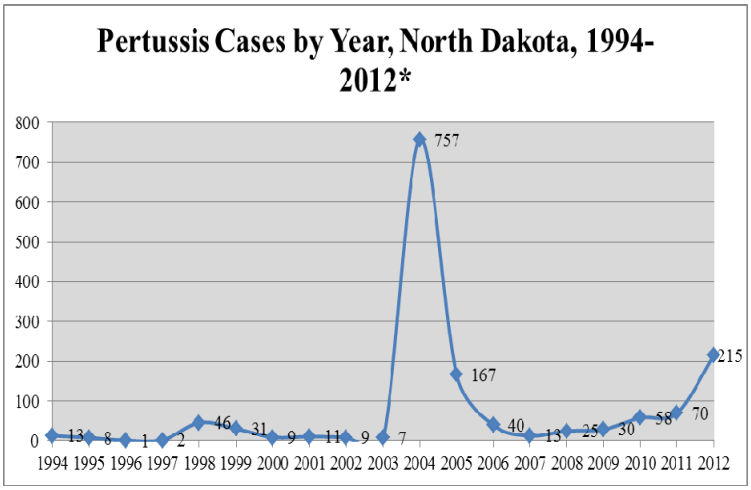
Selected Vaccine-Preventable Disease Surveillance 2012

Pertussis

Preliminary data indicates that 215 cases of pertussis were reported from 27 North Dakota counties in 2012. Ten of the cases were hospitalized. In comparison, 70 cases of pertussis were reported in 2011, 58 cases in 2010, 30 cases in 2009 and 25 cases in 2008.

Chart 1. Pertussis Cases by Year, North Dakota, 1994-2012.*



*Preliminary data. Data may change pending investigation.

Mumps

In 2012, two suspected cases of mumps were reported. The cases were from different counties and were not linked. Seven cases of mumps were reported in 2011, 4 confirmed and 3 suspect. Three cases of suspect mumps were reported in 2010.

Meningococcal Disease

In 2012, a confirmed case of meningococcal disease (serogroup B) was reported in North Dakota, compared to two confirmed cases (serogroup Y) in 2011 and 1 probable case in 2010. The serogroup was not able to be confirmed in the probable case.

Chickenpox

Preliminary data indicates that 19 confirmed cases and 21 probable cases of chickenpox were reported in 2012. Sixty-five cases of chickenpox were reported in 2011, 40 confirmed and 25 probable.

No cases of measles, rubella, diphtheria or tetanus were reported in 2012.

Rabies

Preliminary numbers for 2012 indicate that a total of 730 animals were tested for rabies in North Dakota, with 75 (10 %) testing positive. All 53 North Dakota counties submitted at least one animal for rabies testing. Twenty-seven counties had an animal that tested positive (**Figure 1**). Burleigh, Cass and Morton submitted the highest number of animals (n=105, n=66 and n=41, respectively). Bowman and Slope counties had the highest number of animals that tested positive with 10 each, and Renville had the highest proportion of submitted animals that tested positive (50%), followed by Kidder (40%).

Terry Dwelle
State Health Officer

Kirby Kruger
Chief, Medical Services Section

Tracy Miller
State Epidemiologist

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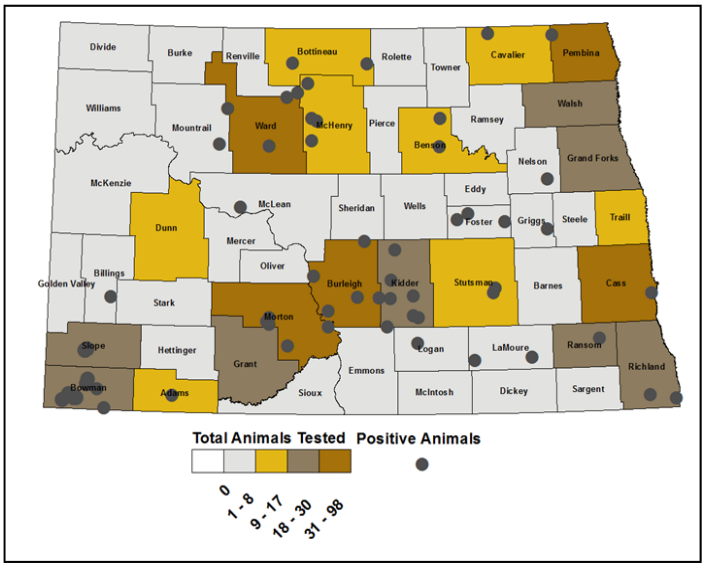
Figure 1. Animals Submitted and Positive Animals by County, North Dakota, 2012*.



Cats were the most submitted species (n=168, 20% of all submissions). The highest rates of positive tests were in skunks (51%), followed by horses (27%) (**Table 1**).

Table 1. Positive Rabies Cases by Animal, North Dakota, 2012*.

Species	Number Positive	Percent Positivity
Bat	2	5%
Bovine	12	15%
Cat	6	4%
Equine	4	27%
Sheep	1	20%
Skunk	50	51%
Grand Total	**75**	**10%**

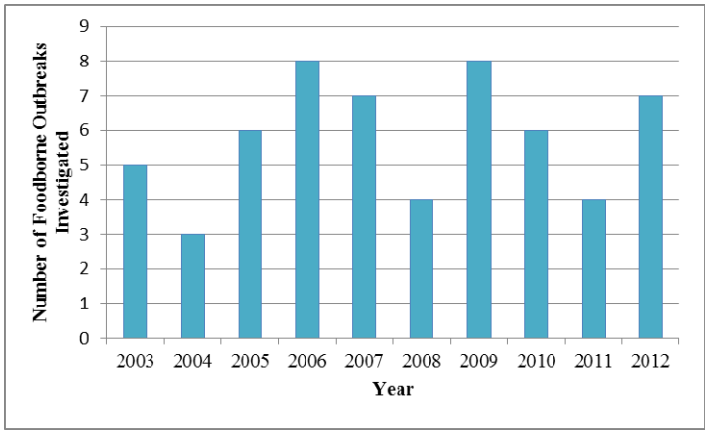
In addition to passive rabies surveillance, testing of animals that have exposed a person or domestic animal, the North Dakota Department of Health (NDDoH), North Dakota Game and Fish Department and USDA Wildlife Services conducted active surveillance in which coyotes, skunks, raccoons, badgers, foxes or other carnivores were collected through surveillance activities, hunter-harvested animals or road kill. The surveillance area included the entire state of North Dakota. In 2012, 226 of the 730 (31%) of the animals that were submitted for rabies testing were part of this active surveillance. Twenty-three (10%) of the animals tested positive for rabies. All were skunks with the majority sampled from Bowman and Slope counties between February and March 2012.

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. Rabies testing can be done 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. Consultation on an exposure to rabies, 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, can be given by the NDDoH at 701.328.2378 or 800.472.2180.

Foodborne Gastroenteritis Outbreaks

In 2012, the North Dakota Department of Health (NDDoH) investigated a total of seven outbreaks of gastroenteritis involving at least 137 cases of illness. The seven outbreaks were classified as follows: one confirmed foodborne, four probable foodborne, one waterborne and one undetermined cause. During the past 10 years, the median number of outbreaks investigated by the NDDoH per year was six (range, 3 to 8) (**Chart 2**).

Chart 2. Foodborne Outbreaks Investigated, North Dakota, 2003-2012.



A specific pathogen was laboratory confirmed in 29 percent of the outbreaks investigated (norovirus was implicated in one foodborne outbreak associated with cross contamination by ill food workers and *Giardia* was implicated in the waterborne outbreak where a number of individuals became symptomatic roughly 20 days following recreational water activities at a North Dakota dam). The etiologic agent was undetermined in five (71%) of the outbreaks.
Laboratory testing was conducted in three of the seven outbreaks (43%). Reasons for no laboratory testing include lack of cooperation (n=2) and delayed notification (n=2).
A food vehicle was epidemiologically implicated in 29 percent of the outbreak investigations.

Foodborne outbreaks are caused by a variety of enteric bacterial, viral, parasitic and chemical agents. A foodborne outbreak is an incident in which two or more people experience a similar illness after ingesting a common food and epidemiologic analysis implicates the food as the source of illness or an unexplained, unexpected increase of similar illness and food is a likely source.

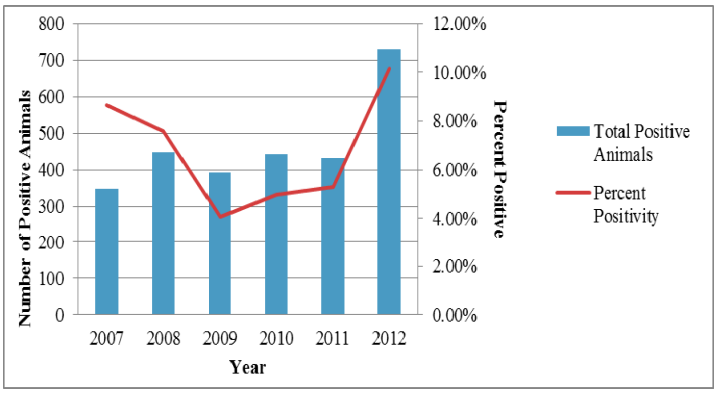
Collecting stool specimens and timely reporting to public health authorities is important in identifying the etiology and preventing further spread of illness. To report gastroenteritis outbreaks, call the NDDoH at 701.328.2378 or 800.742.2180.

The Year of the Increase

1. Increase in Rabies Surveillance Numbers

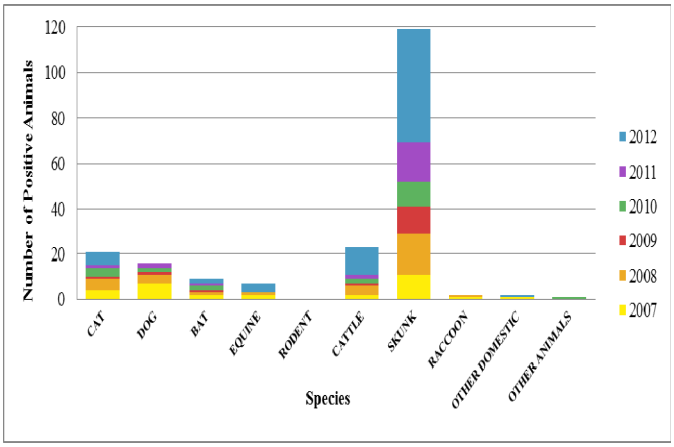
In 2012, 730 animals were tested for rabies and 75 (10%) tested positive. This is a significant increase in the numbers of animals tested for rabies and the percent that tested positive in 2012 compared to the previous five years. The average animal submissions each year from 2007-2011 was 412.6 and the average that tested positive was 25 (**Chart 3**).

Chart 3. Total Animals Positive and Percent Positive for Rabies, North Dakota, 2007-2012.



The skunk rabies virus is the major variant seen in North Dakota. Fifty skunks tested positive in North Dakota in 2012, compared to the average of 14 that tested positive each year from 2007-2011. Cattle also saw a significant increase in 2012, with 12 testing positive for rabies compared to the average of two that tested positive each year in the past five years (**Chart 4**).

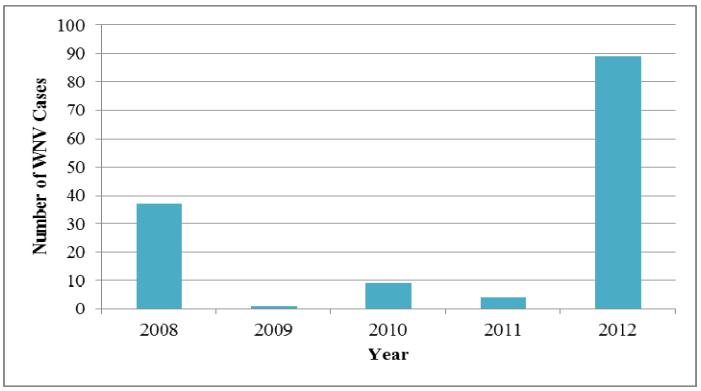
Chart 4. Total Rabies Positives by Species, North Dakota, 2007-2012.



2. Increase in West Nile Virus Cases

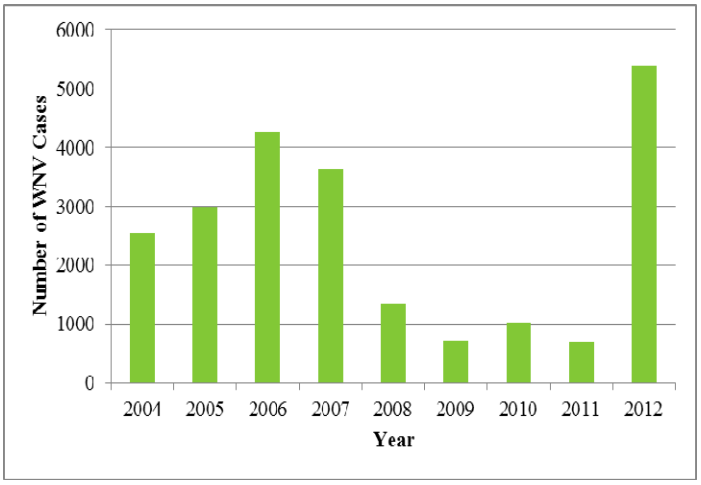
In 2012 there was an increase in WNV cases compared to the past four years (**Chart 5**). North Dakota had a total of 89 WNV cases reported. Of those, 39 (44%) were considered neuroinvasive cases, the more severe form of WNV. Thirty-eight cases were hospitalized and there was one death. North Dakota only had four cases of WNV reported in 2011 and one was considered a neuroinvasive case. One case has hospitalized and no deaths occurred.

Chart 5. Number of WNV Cases, North Dakota, 2008-2012.



The increase in WNV cases was not only seen in North Dakota, but also across the United States. The 5,387 WNV cases reported to the CDC as of December 11, 2012, is the highest number reported since 2003 (**Chart 6**).

Chart 6. Number of WNV Cases, United States, 2004-2012.



3. Increase in Pertussis Cases

Preliminary data from 2012 indicates there was more than a three-fold increase in pertussis cases in comparison to 2011. There were 215 cases of pertussis in 2012; compared to 70 cases in 2011, 58 cases in 2010, and 30 cases in 2009. This trend was present in the rest of the country as well, with the United States experiencing 41,880 pertussis cases, the most since 1955.

Twenty-seven counties in North Dakota had at least one case of pertussis.

Ward County had the highest rate of pertussis in North Dakota with 92.1 people contracting pertussis for every 100,000. North Dakota's rate of pertussis was 31.4 cases per 100,000 people, much higher than the national rate of 13.4 cases /100,000 people.

Pertussis or "whooping cough" is a coughing illness that is caused by the bacteria *Bordetella pertussis*. Pertussis usually begins with cold-like symptoms and a persistent cough which becomes worse over one to two weeks. Whooping cough can be serious in young children and is very contagious. All children, adolescents and adults are recommended to be vaccinated against pertussis. It is especially important for those in close contact with infants to be vaccinated. The DTaP vaccine is available for children 2 months to 6 years of age. The series consists of 4 doses with a booster at 4 to 6 years of age. The Tdap vaccine is available for children and teens older than 7 and adults. A new recommendation, as of October 2012, is for pregnant women to receive Tdap vaccine during each pregnancy, with optimal timing for vaccination between 27 and 36 weeks gestation.

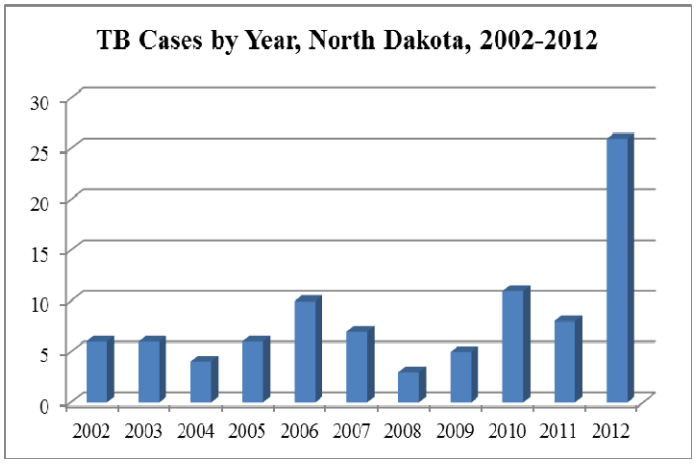
4. Increase in Tuberculosis Cases

Tuberculosis Outbreak in Grand Forks

Between 2007 and 2011, there were 34 cases of TB disease reported in North Dakota. The number of annual TB cases ranged from three to 12, resulting in incidence rates between 0.5 and 1.8 per 100,000. This is below the national average of 3.4 to 4.4 per 100,000 during the same time period.

An outbreak of tuberculosis in Grand Forks County in 2012 resulted in a record breaking number of cases seen for one year in North Dakota.

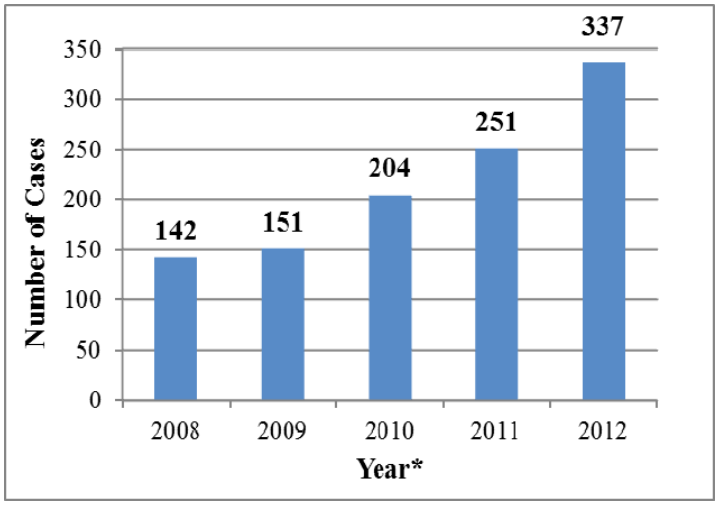
Nineteen of the 26 TB cases were located in Grand Forks County with the remaining cases spread out throughout the state.



5. Highest Number of Gonorrhea Cases in Decades

Preliminary 2012 data indicates that there was a significant increase in gonorrhea cases compared to 2011. A 34.3 percent increase was seen in gonorrhea from 2011 in 2012 (**Chart 7**). Increases in Cass and Rolette counties accounted for the majority of rise of cases seen in 2012. In 2012, 91 gonorrhea cases were reported from Cass County and 38 cases were reported in 2011. In Rolette County, 44 cases were reported in 2012 and 16 cases in 2011. The four counties with the highest gonorrhea rates include Sioux, Rolette, Benson and Mountrail counties with rates of 674.2, 315.7, 180.2 and 143.4 per 100,000 respectively. The overall rate of gonorrhea in North Dakota for 2012 was 50.1 per 100,000 population.

Chart 7. Gonorrhea Cases in North Dakota, 2008-2012



*2012 data is preliminary

Increasing gonorrhea rates highlights the importance of partner services and proper treatment. The 2010 STD treatment guidelines have been updated to state the recommended treatment for gonorrhea to be 250 mg IM ceftriaxone and 1 g azithromycin or doxycycline 100 mg orally twice a day for seven days.

Cefixime 400 mg is no longer a recommended treatment and should be only used as a last resort in expedited partner therapy (EPT). Along with effective treatment of diagnosed cases, providers are encouraged to play an active role in partner management. Timely treatment of sex partners is essential for decreasing the risk for reinfecting the index patient. Utilizing EPT can be an option for providers to engage in partner management. More information on EPT can be found at www.ndhealth.gov/STD/Expedited/. For additional information on partner management or STDs in North Dakota, please contact the STD Program at 701.328.2378.

Summary of Selected Reportable Conditions					
North Dakota, 2011-2012					
Reportable Condition	**Oct.-Dec. 2012***	**Jan.-Dec. 2012***		**Oct.-Dec. 2011**	**Jan.-Dec. 2011**
Campylobacteriosis	19	103		18	132
Chickenpox	14	40		20	65
Chlamydia	721	2903		620	2450
Cryptosporidiosis	5	36		4	32
E. coli, shiga toxin positive (non-O157)	4	28		2	18
E. coli O157:H7	3	9		1	4
Enterococcus, Vancomycin-resistant (VRE)	67	432		107	432
Giardiasis	14	62		8	54
Gonorrhea	115	338		66	257
Haemophilus influenzae (invasive)	3	16		4	16
Acute Hepatitis A	0	5		0	0
Acute Hepatitis B	0	0		0	0
Acute Hepatitis C	0	0		0	0
HIV/AIDS[1]	11	44		14	37
Influenza	1630	3106		11	2049
Legionellosis	1	3		1	3
Listeria	0	0		4	6
Lyme Disease	2	15		2	26
Malaria	1	2		0	0
Meningococcal disease[2]	0	1		0	1
Mumps	0	0		0	4
Pertussis	41	216		25	72
Q fever	0	0		0	0
Rabies (animal)	10	75		8	23
Rocky Mountain spotted fever	0	1		0	2
Salmonellosis	16	66		13	59
Shigellosis	2	8		1	2
Staphylococcus aureus, Methicillin-resisitant (MRSA)	26	110		26	89
Streptococcal pneumoniae[3], (invasive, children < 5 years of age)	0	1		0	4
Syphilis, Primary and Secondary	0	2		2	2
Trichinosis	0	0		0	0
Tuberculosis	14	26		2	8
Tularemia	0	3		0	2
Typhoid fever	1	1		0	0
West Nile Virus Infection	1	89		0	4

*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.