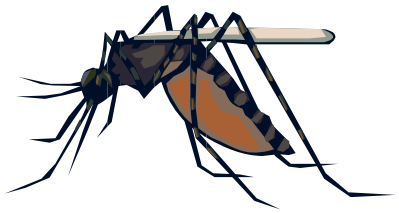
ALBERTA

WEST NILE VIRUS

2009 Summary Report



Government of Alberta

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1. Introduction

West Nile virus Interdepartmental Committee

The purpose of this report is to summarize Alberta's response to West Nile virus (WNv) in 2009. An interdepartmental committee has met each year since 2003 to prepare a provincial response plan to address potential WNv risks in Alberta. The interdepartmental committee in 2009 included the following members:

Kristy Madsen	WNv Provincial Co-ordinator (Chair) Alberta Health and Wellness
Lisa Lachance	Communicable Disease Nurse Consultant Alberta Health and Wellness
Pamela Steppan	Epidemiologist Alberta Health and Wellness
Edi Skoropad	Information Officer Alberta Health and Wellness
Dr. Julie Fox	Clinical Virologist Provincial Laboratory for Public Health
Dr. Raymond Tellier	Medical Microbiologist Provincial Laboratory for Public Health
Brett Oliver-Lyons	Data and Research Analyst Alberta Agriculture and Rural Development
Dr. Mark Ball	Wildlife Disease Specialist Alberta Sustainable Resource Development
Jock McIntosh	Pesticide Specialist Alberta Environment

West Nile virus Plan

The WNv plan in 2009 was comprised of two primary components:

Surveillance: The provincial surveillance program focused on human testing for WNv. Birds and horses were not targeted as part of the active surveillance program in 2009. However, any outbreak situations involving clusters of dead birds continued to be reported to a Fish and Wildlife office in Alberta. In addition, veterinarians were asked to report suspected or confirmed WNv infections in horses as WNv became a provincially notifiable disease under the *Animal Health Act* and regulations.

Mosquito surveillance was not included as part of the provincial program in 2009 because extensive data collected over the past six summers provided sufficient evidence to confirm when and where Albertans would be most at risk for contracting West Nile virus.

Communication: A public awareness campaign, *Fight the Bite,* provided information for the public and health professionals through news releases, radio, newspaper and magazine ads, brochures, posters, and on the following Alberta government websites:

Alberta Health and Wellness:
fightthebite.info
health.alberta.ca/health-info/WNv-fight-the-bite.html
health.alberta.ca/health-info/WNv-professionals.html

Alberta Agriculture and Rural Development:
1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex5455

Fish and Wildlife Division of Alberta Sustainable Resource Development:
srd.alberta.ca/BioDiversityStewardship/WildlifeDiseases/WestNileVirusWildlife/Default.aspx

2. Epizootiology of West Nile virus

Overview

The transmission cycle of WNv is complex, requiring several hosts to complete its lifecycle. The cycle begins when an infected adult *Culex tarsalis* mosquito takes a blood meal from a bird and at the same time injects virus-containing saliva, thus infecting the bird. Within the bird, WNv multiplies in various tissues and circulates in the blood. When a second mosquito feeds on the infected bird, the mosquito becomes infected and after a period of days to weeks, depending on the weather, is able to transmit WNv to another host. The bird to mosquito cycle continues, and may or may not lead to disease in the bird, depending on the species of bird. Most birds are not affected by WNv.

The lifecycle of WNv is influenced by the complex interaction of biological and non-biological factors. The species, distribution, migration, immune response and previous exposure to WNv all affect its success in birds. Similarly, mosquito species distribution and life stage affect its success in mosquitoes. WNv infected birds and mosquitoes must also survive in sufficient numbers to establish and maintain the transmission cycle.

Humans, horses and other small mammals and pets act as dead-end, incidental hosts for WNv. When a mosquito feeds on and infects a human or a horse, WNv may cause disease; however WNv does not circulate in the blood of these hosts and therefore cannot be transferred to a mosquito, thus ending the cycle.

There is no evidence to suggest that humans can transmit WNv by coming into contact with someone who is infected, or has treated an infected person. Likewise, there is no evidence to date to show that WNv can spread from infected animals to people[1].

In a very small number of cases, there has been evidence of WNv being transmitted via blood transfusions, organ transplants, breastfeeding and during pregnancy from mother to baby[2].

WNv first appeared in Alberta in the summer of 2003. WNv came into the province by way of migrating birds and established local viral populations in *Culex tarsalis* mosquitoes. By the end of summer 2003, there was evidence of extensive viral activity in birds, mosquitoes, horses and humans throughout the southern and central areas of Alberta.

[1] Public Health Agency of Canada: phac-aspc.gc.ca/wn-no/transmission-eng.php

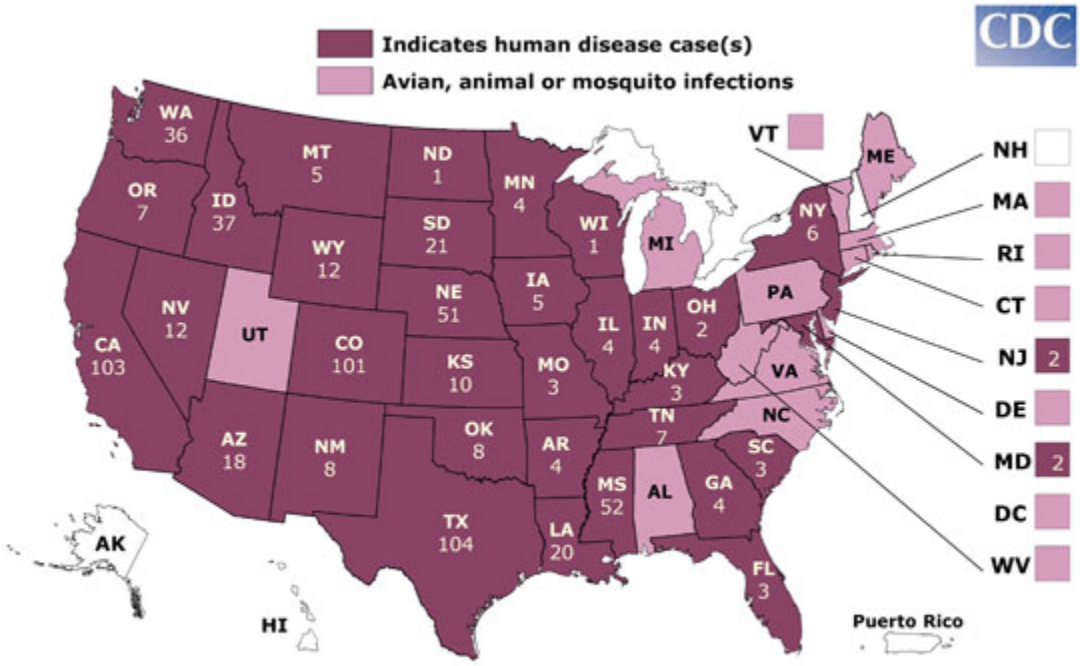
[2] U.S. Centers for Disease Control: cdc.gov/ncidod/dvbid/westnile/wnv_factsheet.htm

Surveillance in the United States and Canada

WNv was first detected in North America in 1999 in the northeastern United States (U.S.). To date, WNv in humans, birds, horses or mosquitoes has been reported in all states except Hawaii and Alaska.

In many areas of the southern U.S., *Culex* species do not go dormant during the winter months and thus year-round transmission of WNv occurs from the Atlantic and Gulf Coast regions of the U.S. westward to southern California. In northern areas, WNv can overwinter in a few dormant, individual mosquitoes. WNv is still extending its continental range and establishing populations within Mexico, as well as Central and South America.

Figure 1: West Nile virus Activity in the United States in 2009[3]



Map shows the distribution of avian, animal, or mosquito infection occurring during 2009 with number of human cases if any, by state. If West Nile virus infection is reported to CDC from any area of a state, that entire state is shaded.

In Canada, WNv has spread south and east of the Rocky Mountains. Virus activity in northern areas is limited to summer months when environmental and biological conditions support amplification of WNv in suitable birds and mosquitoes.

The 2009 surveillance information on human cases of WNv throughout Canada shows a low number of cases with no human cases reported in the Territories, Maritimes or

[3] Source: U.S. Centers for Disease Control: http://www.cdc.gov/ncidod/dvbid/westnile/Mapsactivity/surv&control09Maps.htm

Quebec (Table 1). Cooler weather dampened the amplification of WNv across the country (Table 2).

Table 1: 2009 Human West Nile Virus Cases and Asymptomatic Infections (Canada)

Province/Territory	Neurological Syndrome	Non-Neurological Syndrome	Unclassified/ Unspecified	Total *	Asymptomatic Infection**
Newfoundland and Labrador	0	0	0	0	0
Prince Edward Island	0	0	0	0	0
Nova Scotia	0	0	0	0	0
New Brunswick	0	0	0	0	0
Quebec	0	0	0	0	0
Ontario	1	0	0	1	0
Manitoba	0	1	0	1	0
Saskatchewan	0	1	0	1	0
Alberta	1	1	0	2	0
British Columbia	0	3	0	3	0
Yukon	0	0	0	0	0
Northwest Territories	0	0	0	0	0
Nunavut	0	0	0	0	0
TOTAL	**2**	**6**	**0**	**8**	**0**

* *Total probable and confirmed clinical cases is the sum of WNV Neurological Syndrome + WNV Non-Neurological Syndrome + WNV Unclassified/Unspecified*

** *Most asymptomatic infections reported to PHAC are identified through testing blood donors. Asymptomatic infections will not be included in the total*

Source: Public Health Agency of Canada, 2009

Table 2: West Nile virus Human Cases Reported Across Canada 2002 - 2009

Province	2002	2003	2004	2005	2006	2007	2008	2009
British Columbia	0	20*	0	0	0	19*	1*	3**
Alberta	2*	275**	1*	10**	40**	320**	1*	2
Saskatchewan	0	947**	5*	61**	20**	1,456**	17	1
Manitoba	0	143**	3	58	51	587	12	1*
Ontario	394	89**	14*	101**	42**	15**	3	1
Quebec	20	17	3*	5	1	2*	2	0
Maritimes	0	3*	0	3*	0	1*	0	0
Territories	0	1*	0	0	0	0	0	0
Canada***	416	1,495	26	238	154	2,401	36	8

* *All travel-related cases*

** *One or more travel-related case included in total*

*** *Total includes West Nile virus Asymptomatic Infection*

Source: Public Health Agency of Canada, 2009

3. Communications

Introduction

The primary objectives of Alberta's West Nile virus (WNv) communication plan were to inform Albertans and travellers to the province, especially in the medium and high-risk zones in southern Alberta, about the annual risks and consequences associated with WNv infection, and the steps individuals could take to prevent being bitten by mosquitoes.

The 2009 media campaign's messaging reminded the public to use what continues to be the best personal protective measures of wearing long-sleeved shirts and pants when outdoors during peak periods of mosquito activity and to wear insect repellent containing DEET.

Under Alberta Health and Wellness' leadership, a provincial WNv plan was developed with support from the following Alberta government departments:

- Agriculture and Rural Development;
- Environment;
- Sustainable Resource Development; and
- Health and Wellness

Alberta's Interdepartmental Committee evaluated Alberta's WNv plan within the context of what was happening in the province, as well as nationally and internationally.

Goals for the 2009 communication strategy included the following:

- Inform Albertans across the province about the potential consequences of a WNv infection and the appropriate personal precautions an individual could take to protect their health, particularly in active seniors aged 50+ and outdoor enthusiasts.
- Provide links to government ministries websites with reliable up-to-date information on WNv surveillance. The information was reported on a regular basis.
- Maintain, or heighten if required, public awareness during summer months about the risk and consequences of WNv infection.
- Inform stakeholders about specific WNv strategies and responses.
- Distribute a planning document, *West Nile virus: Alberta's Response Plan 2009*, to government MLAs and constituency offices, medical officers of health and health zone contacts, and post a copy on the Alberta Health and Wellness public website.

Communication Strategy

The 2009 communication strategy was targeted at visitors to the province and Albertans, who have received WNv information since 2003.

Minor updates were made to the radio advertising campaign called, *Let's Go Outdoors,* a paid series of interview questions and answers that are about two minutes in length. These ads aired in August and September. Two additional personal testimony radio ads, about 30-second in length, were aired province-wide during August.

Insertions in magazines and in daily and weekly newspapers were purchased and distributed in the high-risk month of August. This part of the campaign was reduced significantly from previous years.

WNv mosquito surveillance was not conducted in Alberta in 2009. Mosquito surveillance from 2003 to 2008 provided an understanding that the period of greatest risk of WNv transmission to humans from mosquitoes is between mid-July and mid-August, and is attributed to activity of *Culex tarsalis* mosquitoes. The weather through the 2009 summer was cool and dry, thus the presence of mosquitoes was not significant in numbers.

Alberta did not conduct WNv bird surveillance as this provincial program was discontinued in 2008 when it was determined that bird species exposed to the virus adapted to the presence of WNv and had likely developed protective immunity. Bird surveillance is thus no longer effective in measuring the risk of WNv and the risk of infection to humans.

Fight the Bite Public Awareness Campaign

The *Fight the Bite* public awareness campaign, which included radio, magazines, and daily and weekly newspapers was targeted to Albertans and included travellers within the province, outdoor enthusiasts and active seniors who are known to be at a higher risk of more severe health consequences from WNv infection.

The 2009 campaign began in June and ended in the middle of September, informing Albertans of the potentially high health risks and consequences of contracting the virus. The campaign also provided information on the measures Albertans needed to take to protect their health.

This public campaign included:

- newspaper ads co-ordinated through the government's Public Affairs Bureau and an ad agency. Ads appeared in daily, weekly and community newspapers province-wide during August and September.
- magazine ads published in senior and sport-enthusiast publications like the Calgary and Edmonton Seniors, Alberta Caregiver, Western Grandparent and Sportfishing Regulations 2009. Ads were placed in prominent positions for readability.
- radio interviews aired in August and September. A series of five, two-minute radio spots called *Let's Go Outdoors* with Michael Short, involved a dialogue on various WNv topics such as infection and symptoms, protecting yourself, children's and adult's use of insect repellants with DEET, immunity and vaccine, as well as nursing, pregnancy, transplants and blood transfusion. Responses were provided by the Medical Officer of Health, Alberta Health Services for Calgary and area.

- two 30-second personal testimonial radio ads ran throughout the province, with a greater frequency of play in the southern, high-risk zones.
- print materials were not produced in 2009. However, products remaining from 2008 were distributed and those stakeholders with products from the previous years were instructed to continue using these materials, as the information on WNv was still appropriate.
- a two-page fact-filled brochure, posters and a warning sign were available for public on the website at fightthebite.info

News releases

Two releases were distributed province-wide in 2009.

- An information bulletin was sent out on June 19 titled, *Reminder for outdoor enthusiasts to prepare for WNv season*. This release promoted general awareness that WNv season was starting and covered information on what WNv precautionary measures Albertans should take to prevent mosquito bites, the symptoms of WNv infection, and that mosquitoes would no longer be monitored in Alberta.
- A news release on August 31 titled *Alberta confirms first 2009 human case of West Nile virus – Southern Alberta resident infected,* identified the first adult (male) for 2009 infected with WNv neurological syndrome, which was likely acquired while in Alberta.

Website

Information regarding positive human WNv cases was posted on fightthebite.info that is linked directly to the Alberta Health and Wellness WNv website health.alberta.ca.

Public had access throughout the 2009 WNv season to cumulative numbers of cases of humans infected with WNv. The site also provided responses to commonly asked questions, and public had access to printable materials like posters and brochures used in the public awareness campaign.

Other online links provided the public with up-to-date WNv information to reputable websites such as Health Canada and the U.S. Communicable Disease Control Centre, as well as ministry partners.

Sustainable Resource Development provided information on the discontinued practice of bird collection and Agriculture and Rural Development provided a livestock fact sheet specifically related to horses. Passive surveillance of horse WNv cases was based on reporting from veterinarians and laboratories. Information about positive horse WNv cases was also linked from the Health and Wellness homepage to the office of the Chief Provincial Veterinarian website at 1.agric.gov.ab.ca/$department/deptdocs.nsf/all/cpv4264

Call Centre

The government's Service Alberta telephone operators and Health Link Alberta operators provided general WNv information, as well as specific information on personal protective measures.

Service Alberta:	310-4455 throughout Alberta
Health Link Alberta:	780-408-5465 in Edmonton
	403-943-5465 in Calgary
	1-866-408-5465 elsewhere in Alberta

Media Relations

Media inquiries regarding WNv information were handled by the communications branch at Alberta Health and Wellness. Inquiries were requests for general information because there were no serious issues during the 2009 WNv season. Media requesting WNv case numbers or any other information were directed to the WNv website after the first human case was reported.

Evaluation

Two human cases of WNv were reported in 2009.

The milder form of the infection, West Nile Non-Neurological Syndrome and the more serious form of the disease known as West Nile Neurological Syndrome were both reported to regional Medical Officers of Health, Alberta Health and Wellness, Public Health Agency of Canada and if necessary, to Canadian Blood Services.

Due to the low incidence of WNv in 2009, it was determined that a public survey was not required at the end of the 2009 WNv season. The last public opinion survey on WNv was conducted in November 2007.

Measures evaluating the 2009 public awareness campaign included the following:

- Media Calls: about 10 calls between April to August were handled by Alberta Health and Wellness' communication branch.
- Newspaper articles: There were about 125 newspaper articles covering WNv from April to September.
- Radio: 30-second personal testimonial ads aired about 900 times in August. Let's Go Outdoors paid informational two-minute radio interviews aired about 360 times during August and September.
- Website: The WNv Fight the Bite website received 13,419 visits from June 1 to September 30, 2009. The top five WNv web pages visited out of 46 available pages were:
  - West Nile virus Home Page: 2,522
  - Symptoms and Treatment: 1,045
  - Fight the Bite Tips: 863
  - Response Plan 2009: 693
  - Evidence in Alberta: 657

4. Human Surveillance

The surveillance of WNv in humans continued in 2009 via physician requests for blood testing, blood donor screening, and organ/tissue testing. All positive laboratory results were reported to AHW by the Provincial Laboratory of Public Health (PLPH).

The 2009 WNv season had two confirmed cases of WNv reported in Alberta: one West Nile Non-Neurological Syndrome (WN Non-NS) and one West Nile Neurological Syndrome (WNNS). Both WNv cases were believed to have been acquired in Alberta.

Cooler weather throughout the summer resulted in extremely low numbers of *Culex* mosquitoes with low WNv infection rates. This limited the spread of WNv from birds to mosquitoes and ultimately, there were few infected mosquitoes to bite humans.

West Nile Virus Cases in Alberta

A probable case of WNNS with evidence of recent IgG seroconversion and locally acquired, was reported to AHW. Symptoms began early in August 2009 with fever, joint pain, weakness and rash progressing to polyradiculopathy and acute flaccid paralysis. The individual has since recovered.

A probable case of WN Non-NS was also reported to AHW. Symptoms began the end of August 2009 with slight fever, headache, fatigue, weakness and GI symptoms. The individual has since recovered.

Canadian Blood Services (CBS) Screening

There were no WNv positive blood donors detected by CBS in 2009. There have not been any Canadian transfusion-transmitted WNv infections detected since CBS began testing blood donors in July 2003.

5. Mosquito Surveillance

Introduction

The surveillance of mosquitoes assists in understanding the relationships between the success of WNv as a vector-borne disease and how it is influenced by mosquito species and numbers, and how they are both influenced by climatic conditions. The past six seasons of mosquito surveillance established evidence and confirmed the expected time period when and where Albertans would be at most risk for contracting WNv infection; therefore the WNv mosquito surveillance program component of the *West Nile virus in Alberta: Response Plan for 2009* was not implemented.

Objectives of Surveillance (2003 to 2008)

The overall objectives of the mosquito surveillance program were to:

- alert the public when WNv had built up to the point of detection in the mosquito species that competently transmit WNv.
- perform WNv testing of *Culex* mosquito pools in different geographical areas of the province. Other species were to be monitored for WNv in the event that it became active in *Culex* populations.

Methods of Mosquito Surveillance

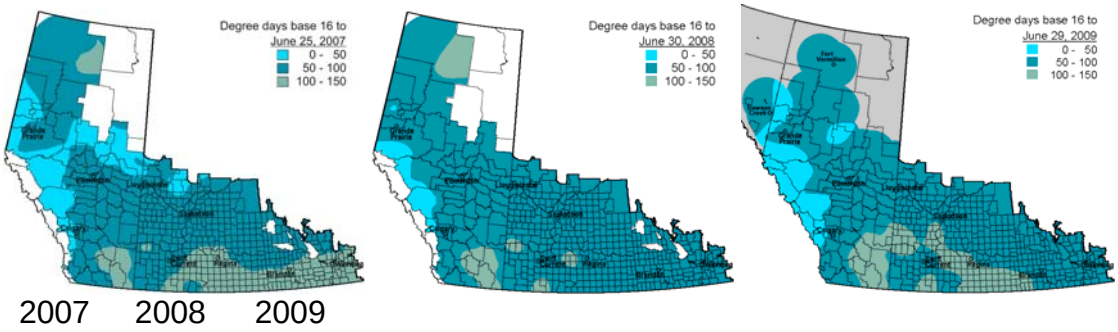
Details regarding mosquito surveillance programs conducted from 2003 to 2008, including the location of traps and the operational and testing procedures for WNv detection in mosquito specimens, can be obtained from any of the previous *West Nile Virus in Alberta: Response Plans* or by contacting the Alberta Environment Information Centre (780-427-2700 or env.infocent@gov.ab.ca).

Weather Monitoring

Each year the accumulations of average daily temperatures for the Prairie Provinces are monitored by the Saskatchewan Research Centre of Agriculture and Agri-Food Canada. Accumulated degree-days[4] above 16°C are the optimal developmental temperature for *Culex tarsalis.* In past years, virus activity in mosquitoes appears to commence when the accumulated degree-days reach the range of 150 to 250. Figures 2 and 3 demonstrate the pattern of accumulated degree-days that contributed to *Culex* development. A comparison is provided for late June and early August (when *Culex* populations peak in number) for 2008 and 2009 in relation to 2007, when the mosquito-virus activity was the highest it has been in the past six years. The number of warm weather days accumulated by August did not lead to significant population development in the last two years.

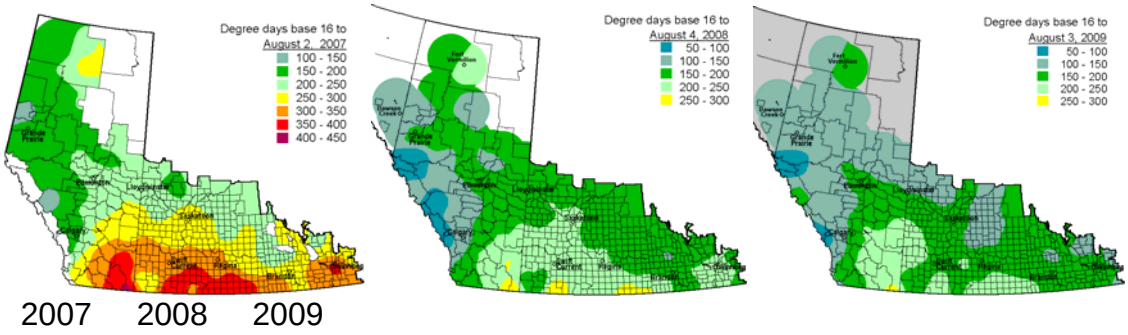
[4] Accumulated degree days are a seasonal accumulated number of mean daily degrees above a base temperature determined for insect development.

Figure 2: Late June



Source: Agriculture and Agri-Food Canada

Figure 3: Early August



Source: Agriculture and Agri-Food Canada

Culex Population Trends and Forecasting

In the years from 2003 to 2008, mosquito surveillance conducted through the *West Nile virus in Alberta: Response Plan* has provided confirmation of the primary vector for WNv, the period of host-seeking activity for this mosquito species, and the contributing factors for mosquito-virus interaction.

Forecasting WNv activity in Alberta can be achieved through monitoring for consistent warm summer weather that contributes to *Culex tarsalis* population increases. A successive number of good weather days and evenings will shorten the time between *Culex tarsalis* becoming infected with WNv and being capable of transmitting the virus. The likelihood of humans acquiring WNv by mosquito bites can be expected to be greatest starting in early June through mid-August, particularly if weather conditions each spring (June) are favourable for *Culex tarsalis* mosquitoes to successfully establish their first post-winter generation.

It can be further expected that virus activity will be detected first in the southeast corner of the province and extend north and westward as environmental and climatic conditions favour *Culex tarsalis* mosquitoes.

6. Provincial Laboratory for Public Health

Diagnostic Testing

The same combined serology/molecular approach implemented in 2007 and 2008 was used in 2009. Nucleic acid amplification testing (NAAT) of plasma or cerebrospinal fluid (CSF) was undertaken on acute cases. WNv Immunoglobulin M (IgM) was the main screening serological test, and was always confirmed by background subtraction to rule out non-specific binding. Immunoglobulin G (IgG) testing was performed to document rising antibody levels and to show low-avidity (recently formed) antibody. PLPH have had to validate new serological tests for IgM confirmation and IgG avidity because of the discontinuation of the PanBios kits. PLPH now use the Focus IgM kit in subtraction mode for IgM confirmation and had to validate avidity testing methodology using the Focus IgG kit. The WNv mosquito season was considerably less active this year, which translated into reduced testing of humans.

Transplantation

NAAT testing on plasma specimens continued for 2009 on organ donors and recipients, as requested by the individual transplant programs. Testing was performed from June 1 until November 1, 2009. In addition, transplant screening was undertaken outside of this time if requested for out-of-country donors or those with a travel history.

Beginning September 8, 2008 tissue and eye bank screening for WNv was transferred to Mount Sinai for testing using the Health Canada and FDA approved GenProbe assay. PLPH have also now transferred all the serological testing for tissue donors to Mount Sinai Hospital which uses the kits and procedures approved for donor screening. This new modality of screening for donors of tissue, stem cells and bone marrow is now mandatory, as per regulations of Health Canada. Solid organ donors continued to be screened at PLPH using kits validated for diagnostic testing, given the more urgent nature of the testing.

Mosquito Testing

Mosquito pool testing was discontinued at PLPH in 2009.

Table 3: WNv human testing summary for January 1 to December 31, 2009

Test	Population	Specimens tested	Specimens / Patients Positive
Serology (IgM screen with followup IgM extraction, IgG and avidity testing as required)	human diagnostic	525	8 confirmed IgM positive samples after background subtraction, from 8 patients **1 IgG seroconversion**
CSF NAAT	human diagnostic	123	0
Plasma NAAT	human diagnostic	349	0
Plasma NAAT	transplant screen	228	0
Total tests		**1,225**	

NAAT: Nucleic Acid Amplification Test (= PCR or NASBA)

Source: Provincial Laboratory for Public Health, 2009

7. Wild Bird Surveillance

Overview

When WNv arrived in Alberta in 2003, local bird populations had not been previously exposed and they had no natural immunity or resistance to infection. Members of the crow family (Corvidae: crows, magpies, jays, and ravens) were particularly susceptible and many died as a result of WNv infection. These dead birds became an early warning system to show where and when WNv was active in the province. Health professionals, veterinarians, and the public used the information to assess the risk of possible infection.

However, since dead bird surveillance was initiated in Alberta, a great deal has been learned on WNv activity. We now know that suitable conditions for WNv are limited largely to the Grassland Natural Region of southeastern Alberta where conditions are most favourable for development of *Culex tarsalis* mosquitoes. In addition, the number of dead corvids each summer has declined significantly since WNv first appeared, although the populations of crows and magpies did not decline. It is likely that crows and magpies, as well as all the other birds species exposed to WNv, adapted to the presence of WNv in the ecosystem and developed protective immunity.

The monitoring of dead birds was discontinued in 2007 because it no longer provided new information about WNv; however testing is conducted on suspect cases as a response to public concern.

Specimen Information

Table 4: Summary information of birds submitted in 2009 to Alberta Fish and Wildlife for WNv testing

Species	Location	Date Collected	Test Result
1 American crow (*Corvus brachyrhynchos*)	Edmonton, Alberta	August 15, 2009	Test Negative

Source: Alberta Sustainable Resource Development, 2009

Bird specimen collected from Edmonton, Alberta

An adult crow was delivered to the Alberta Fish and Wildlife Disease Unit to determine cause of death. The crow was found dead in the collector's backyard within the city limits of Edmonton and was tested for WNv as part of routine diagnostics. The crow tested negative for WNv.

Summary

In 2009, one bird, an American crow (*Corvus brachyrhynchos*) was tested for WNv as a response to public concern. This bird tested negative for WNv.

8. Horse Surveillance

Introduction

Horses become infected with WNv when they are bitten by mosquitoes carrying WNv. Research suggests that most horses bitten by infected mosquitoes will not develop clinical disease, but instead eliminate WNv asymptomatically. Symptoms of WNv in horses can include weakness, depression, muscle tremors, and an inability to rise. There is no specific treatment for horses affected with WNv. Up to 35 per cent of horses that develop clinical signs may die or have to be euthanized due to complications from the illness.

WNv in horses became a provincially reportable disease in Alberta in 2003, meaning all suspected or confirmed cases must be reported to the Office of the Chief Provincial Veterinarian (OCPV).

From 2003 to 2005, Alberta Agriculture and Rural Development asked Alberta veterinary practitioners to complete surveys on each horse suspected of having WNv. In 2003 and 2004, the surveys focused on horse location, clinical signs and vaccination information. Potential environmental and age/sex/breed risk factors were also queried in order to gain some insight into what factors may contribute to a horse becoming infected. Surveys in 2005 were shortened to only include location, clinical signs and vaccination history. In 2006 and 2007, veterinarians were asked to provide additional information only on horses that tested positive for WNv, not suspect cases. In 2008, a new one-page form was developed that included location, vaccination and travel information, as well as a request for clinical symptoms. The same form was used for the 2009 WNv season.

WNv in all species of animals is immediately notifiable under Canada's Health of Animals Act, which means veterinary laboratories are required to contact the Canadian Food Inspection Agency (CFIA) when diagnosing the disease.

Table 5: Summary of WNv in horses in Alberta from 2003 to 2009

Year	Positives	Deaths (%)
2009	1	0
2008	0	0
2007	46	19 (41.3%)
2006	9	unknown
2005	3	1 (33.3%)
2004	4	1 (25.0%)
2003	170	59 (34.7%)

Source: Alberta Agriculture and Rural Development, 2009

Objectives

The objectives of the 2009 WNv horse surveillance program were to determine the:

- number of horses tested as positive for WNv in Alberta,
- location of positive horses in the province, and
- vaccine usage and clinical signs of positive cases.

Methods

Because WNv in horses is a reportable disease in Alberta, all veterinary practitioners examining a horse with clinical symptoms suggestive of WNv must report it to the OCPV. Veterinarians and/or private diagnostic laboratories are to notify the OCPV of positive cases and the results of laboratory tests (IgM Elisa serology), to confirm the disease.

Results

The first suspected case of WNv in horses was reported in late May, with reporting continuing until late December 2009. Nineteen horses were suspected of having WNv in the 2009 season; and one was confirmed positive for WNv by lab testing from the County of Stettler.

Summary

In 2009, one horse was confirmed positive for WNv by an out-of-province laboratory.

9. Acknowledgements

Thank you to the members of the Interdepartmental WNv Working Committee and the Provincial Laboratory of Public Health who collected and analyzed the data for this report. Thank you to Alberta Health Services and government agencies and departments who provided their support and expertise in monitoring and responding to WNv in Alberta in 2009.

Thank you to members of the public for providing information regarding dead birds found, and to Fish and Wildlife staff who fielded public phone calls and took appropriate action.

The Office of the Chief Provincial Veterinarian extends a thank you to the veterinary practitioners in Alberta and horse owners for their cooperation. Thanks are also extended to the Alberta Veterinary Medical Association (AVMA) for publicizing WNv information.

