

West Nile Virus (WNV) Program Update

Update: New

Date: February 20, 2008

Issue:

The purpose of this report is to provide an update to the Board of Health related to the West Nile Virus Program, to provide a summary of program directions for 2008 and share information regarding provincial funding uncertainties.

Recommendation:

That the Board of Health receives this briefing note as information and endorses the accompanying resolution 08-02 re continued financial support for WNV control and surveillance.

Current Facts:

Update to West Nile virus Surveillance Program Activities

Bird Surveillance

Direction regarding bird surveillance for WNV in 2008 will be forthcoming from the Ministry of Health and Long-Term Care (MOHLTC). In the interim, planning for the bird surveillance will be based on the program directions from previous years. As a component of our response to the MOHLTC's evaluation survey on the WNV Program, we have recommended a review of relevant literature and best practices to guide decision-making about bird surveillance for WNV.

Larvae Surveillance

Larvae surveillance is conducted to establish the presence and abundance of mosquito larvae in mosquito breeding sites. This information is used, in conjunction with other variables, to determine the need for and timing of interventions.

The level of WNV continues to remain low locally, and throughout most of the province, resulting in the opportunity to review program activities. The larvae surveillance program in Simcoe Muskoka is extensive, with 250 sites monitored weekly. The larvae surveillance program has been successfully used as a tool to alleviate public concerns about particular sites and has been a key component of the building of municipal partnerships in the WNV Program.

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A significant portion of the sites monitored have consistently ranked low for the presence of larvae over several seasons, and discontinuing surveillance at these sites is warranted without jeopardizing the information needed to support risk assessment. Surveillance will be discontinued at natural and storm water management pond surveillance sites ranked low (>25 larvae found) for the past two seasons, reducing the number of these monitoring sites by about 50 per cent. As catch basin surveillance is recommended as a component of the Ministry of Environment (MOE) larviciding permit process prior to application of larvicide, a small number of catch basins will be included in the larvae surveillance program in municipalities where larviciding programs are anticipated.

Mosquito Surveillance

The adult mosquito surveillance program will be maintained at 2007 levels, to provide the necessary critical information to human risk assessment processes during the WNV season. In addition, the information collected will be essential in supporting the analytical evaluation of the impacts of program changes.

Update to Mosquito Control Planning Process

When the mosquito control program was initiated in 2003, there was a very limited data set available, both locally and provincially, to guide decision-making and risk assessment. In addition, public anxiety was extremely high. At that time the decision to issue notices to larvicide were primarily based on population densities and available information about the epidemiology of WNV. As more surveillance data was gathered, it became possible to apply this information more effectively in the risk assessment process. In 2006, the Health Unit was able to conduct a critical review and evaluation of the WNV program, and developed a mosquito control decision-making framework which included local surveillance data in determining areas for larviciding. As a result, the number of areas identified for larviciding was reduced.

Continued low levels of viral activity in Simcoe Muskoka, combined with a robust data set, support a re-evaluation of the areas identified for larviciding. Local surveillance data was reviewed with the MOHLTC Vector-Borne Disease Unit. As a result of this review the MOHLTC entomologist provided statistical analysis of mosquito vector trap index values to determine variance between larviciding years and non-larviciding years. This analysis shows no significant variation in the vector population between larviciding years and non-larviciding years.

A study by Andreadis et al. found the incidence of human cases to be closely correlated with the number of viral isolations from mosquitoes. The same study found that the majority of human cases were identified in areas with multiple positive mosquito isolations. This evidence, when considered in relation to the infrequent and random level of detection of WNV in Simcoe Muskoka, indicates low risk of human infection. Single isolated positive mosquito pools are not considered an indication of increased risk of human outbreaks.

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The mosquito control risk assessment and decision-making process will be revised to provide direction for municipalities with low amplification vector trap indices and a low frequency of positive indicators.

Mosquito surveillance activities will be maintained at current levels to provide the needed data for an ongoing risk assessment process. The risk assessment process will be enhanced with the inclusion of statistical analysis and interpretation of variance in mosquito populations and application of weather variables.

In 2008, the expected outcome of this review and continued analysis of surveillance information is a reduction in larviciding and larval surveillance in municipalities. This will result in a cost savings for the affected municipalities and the Health Unit.

Within the proposed Ontario Public Health Standards (OPHS), responsibility for development of a local vector borne management strategy based on surveillance data and emerging trends is required in accordance with a proposed protocol entitled “ Measures to Control, Prepare for and Prevent Emerging and Established Vector Borne Diseases Protocol”, unfortunately this protocol has not yet been shared with health units.

It has been brought to our attention very recently that the five year committed provincial funding for the WNV Program will continue until March 2008. The WNV Program will then be replaced by the Vector Borne Disease (VBD) Program. This has resulted in some uncertainty about future provincial funding commitments. Coincidental to this, Windsor-Essex County Health Unit passed a resolution in October 2007, requesting that the MOHLTC continue to financially support the West Nile Virus Control and Surveillance program. Included is a modified version of this resolution for the consideration of the Board.

Background:

West Nile virus was introduced to North America in 1999. The virus was first identified in Ontario in 2001, and has now been detected in Canada from Nova Scotia to Alberta.

Ontario Regulation 199/03 made under the Health Protection and Promotion Act for the Control of West Nile virus was filed in May 2003. The regulation provides specific authority to the medical officer of health to require action by municipalities in the control of West Nile virus. Table 1 of the regulation specifies triggers for action for larviciding and adulticiding.

The MOE has completed studies to monitor for methoprene, the most common larvicide, in drinking water and receiving waters of storm water systems.

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Methoprene has not been detected in drinking water or in the receiving water. A study has also been completed, in conjunction with Ministry of Natural Resources and University of Guelph to evaluate the effect of methoprene on amphibians. No adverse effects have been identified.

The West Nile virus control program in Simcoe Muskoka has consisted of public education, surveillance activities and mosquito control strategies.

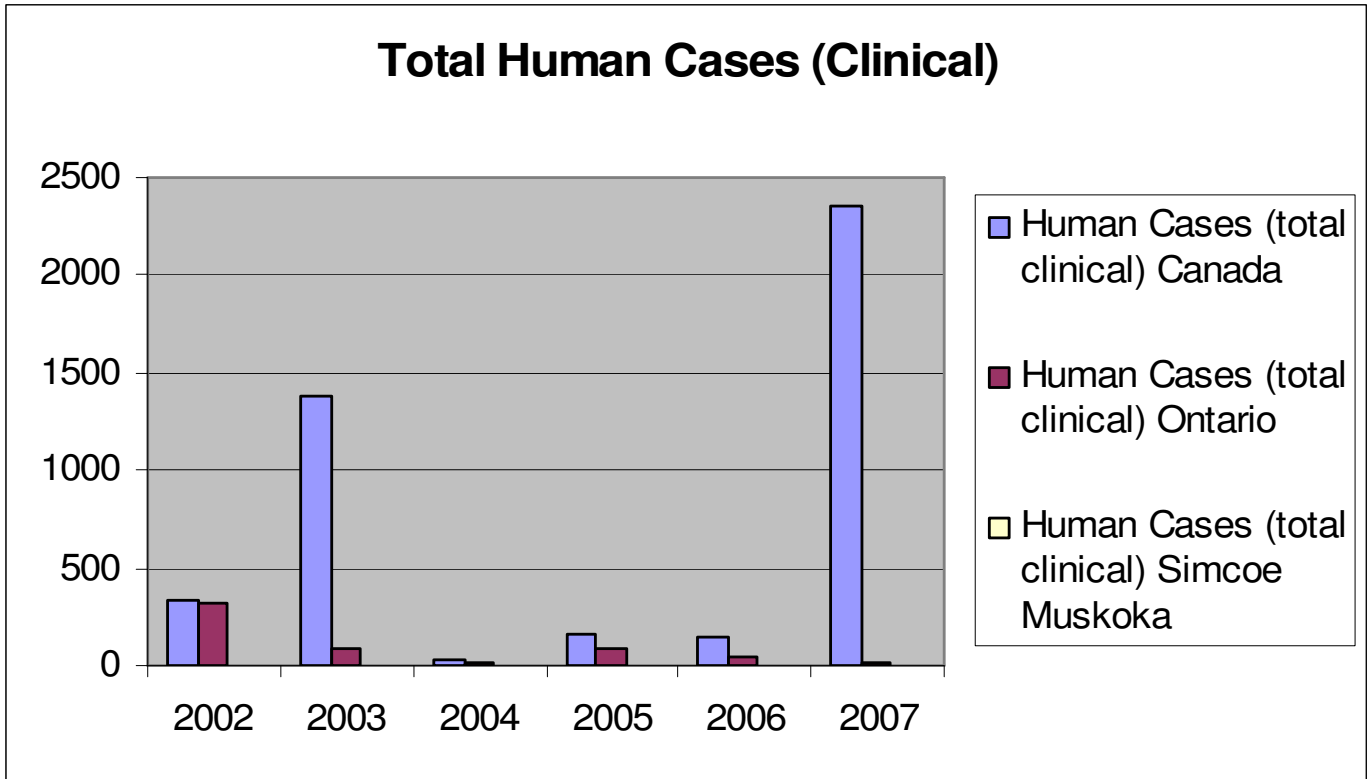
Larviciding, as a mosquito control measure, was initiated in 9 municipalities in 2003, 2004 and 2005 following direction from the Medical Officer of Health as per Ontario Regulation 199/03. The larviciding is completed by properly licensed staff, in compliance with MOE requirements.

In 2006 and 2007 the number of municipalities which were issued notice to larvicide was reduced to four and five respectively, following application of the decision-making framework utilizing mosquito vector indices and positive indicators.

Surveillance programs have included bird, larvae mosquitoes, adult mosquitoes and humans. Simcoe Muskoka surveillance findings from 2005 include: 64 birds submitted for WNV testing – 11 were positive for WNV; approximately 220 sites were monitored weekly for larvae; larvae were submitted for enumeration and speciation; over 38,000 adult mosquitoes were trapped and submitted for speciation and viral testing – two pools tested positive for the virus in Bradford and Orillia.

Human cases of WNV in Simcoe Muskoka were identified in October, 2003 in a Barrie resident and in September 2006 in a resident of Adjala-Tosorontio. Both individuals have recovered fully. (see chart on the next page for comparisons to Province of Ontario and Canadian cases

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Resolution 08-02

Continued financial support for WNV control and surveillance

WHEREAS West Nile virus presents a risk to the residents of Simcoe Muskoka;

AND WHEREAS a control and surveillance program is required to reduce the threat of West Nile virus;

AND WHEREAS the surveillance program is a crucial component of the risk assessment process for West Nile virus;

AND WHEREAS the financial support of the Province is required to maintain this program;

AND WHEREAS the Province has communicated the replacement of the West Nile Virus Control and Surveillance Program with a new Vector Borne Disease Program;

AND WHEREAS details on the new Vector Borne Disease Program have yet to be communicated to boards of health;

THEREFORE BE IT RESOLVED that the Board of the Simcoe Muskoka District Health Unit requests the Ministry of Health and Long-Term Care to continue to financially support the West Nile virus control and surveillance activities.

AND FURTHER BE IT RESOLVED that this resolution be forwarded to the Minister of Health and copied to local MPs, and MPPs and municipal offices, the Acting Chief Medical Officer of Health, the Association of Local Public Health Agencies, and to the boards of health throughout Ontario.

Chair, Board of Health

Date