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**WEST NILE VIRUS CONTROL ACTIVITIES 2008/2009**

**The Health and Emergency Medical Services Committee recommends to Regional Council acting as the Board of Health, the adoption of the recommendation contained in the following report dated March 26, 2009, from the Commissioner of Community and Health Services.**

**1. RECOMMENDATION**

It is recommended that:

1. The Regional Clerk circulate this report to local municipalities.

**2. PURPOSE**

This report is prepared for Regional Council in order for it to carry out its legislative duties and responsibilities as the Board of Health under the *Health Protection and Promotion Act*. It summarizes the Public Health Branch's West Nile virus control actions in 2008 and outlines West Nile virus control activities planned for 2009, including an update on the removal of the dead bird surveillance strategy as a component of the Provincial West Nile virus control strategy effective Spring 2009. Larviciding activities will continue at current levels in 2009.

**3. BACKGROUND**

**West Nile virus has been detected in North America since 1999**

West Nile virus is a potentially fatal virus that spreads to humans through the bite of an infected mosquito. It has been detected in North America since 1999, resulting in the implementation of programs to mitigate and respond to West Nile virus activity. With the subsequent spread and continued presence of West Nile virus, the Ministry of Health and Long Term Care (MOHLTC) has acknowledged it is established in Ontario, as have many jurisdictions across North America.

**Human cases of West Nile virus reported in Canada and Ontario significantly decreased in 2008**

As of October 18, 2008, there were 38 human cases of West Nile virus in Canada compared to 2,355 in 2007. There were four cases in Ontario, 19 in Saskatchewan, 13 in Manitoba, one in Alberta and one reported case in British Columbia.

In Ontario, as of December 31, 2008, there were four human cases of West Nile virus compared to 15 in 2007. Human cases were reported in Chatham-Kent, Durham Region, Ottawa and York Region with one positive case in each jurisdiction.

### **Weather plays a role in the variation of West Nile virus each year**

Weather plays a role in the variation of the number of West Nile virus cases from year to year in southern Ontario as it influences mosquito breeding conditions. According to a study published in the *Journal of Vector Ecology*, higher temperatures and precipitation levels are linked to mosquito population increases and the spread of West Nile virus in mosquitoes. When temperatures are high but levels of precipitation are low, mosquito breeding sites may dry up, leading to a lower number of infectious mosquitoes.

## **4. ANALYSIS AND OPTIONS**

### **York Region recorded the third lowest year of West Nile virus activity in 2008**

In 2008, there was no increase in positive human cases of West Nile virus within York Region compared to 2007. Table 1 summarizes West Nile virus detected in York Region from 2002 to 2008.

**Table 1**  
York Region West Nile Virus Summary 2002—2008

|                                  | <b>2002</b>       | <b>2003</b> | <b>2004</b> | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> |
|----------------------------------|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Positive human cases             | 7<br>(4 probable) | 2           | 0           | 5           | 3           | 1           | 1           |
| Suspect human cases investigated | 29                | 81          | 0           | 44          | 3           | 2           | 1           |
| Positive mosquito pools*         | 14                | 5           | 1           | 14          | 10          | 0           | 2           |
| Number of mosquito trap sites    | 10                | 41          | 30          | 40          | 40          | 38          | 37          |
| Dead bird sightings (calls)      | 2,286             | 3,533       | 2,014       | 1,372       | 1,604       | 763         | 889         |
| Birds picked up                  | 127               | 813         | 1,647       | 1,098       | 1,328       | 968         | 757         |
| Birds sent                       | 55                | 48          | 64          | 53          | 34          | 24          | 14          |
| Positive birds**                 | 8                 | 8           | 11          | 22          | 10          | 1           | 2           |
| Complaints and Investigations*   | 25                | 992         | 379         | 222         | 232         | 106         | 111         |

\* York Region Public Health Branch Balanced Scorecard Indicator

\*\* Number of positive birds does not reflect the intensity of the virus. Once a municipality has positive results, submission of specimens from that municipality ceases.

## **York Region West Nile virus program continues to incorporate a multifaceted approach to planning and response**

York Region's Public Health Branch has played an active role in managing the incidence of West Nile virus since it was first detected in 2002, including public awareness, surveillance and mosquito population control. To ensure a standardized and measured response to West Nile virus activity is achieved, the *York Region West Nile Virus Contingency Plan* is reviewed annually and updated to outline current program specifications and response in accordance with the *Health Protection and Promotion Act*, *Ontario Regulation 199/03*, the *Ontario Public Health Standard* and guidelines set out in the *MOHLTC West Nile Virus Preparedness and Prevention Plan*.

Planning and response efforts are enhanced through various committees and working groups to communicate and coordinate program objectives, West Nile virus activity updates and mosquito control activities on a scheduled basis. This includes the West Nile Virus Operations Committee with representatives from local municipalities, and the Central East West Nile Virus Working Group whose membership consists of health unit representatives from Central East Ontario and the Greater Toronto Area (GTA).

## **Personal protection from West Nile virus is enhanced through education and communication**

Public awareness on West Nile virus has been raised through education and communication initiatives, focusing on personal protection (including use of insect repellent and proper clothing) and reduction of mosquito breeding sites through removal of stagnant water. In 2008, this was achieved through press releases, local newspaper ads, pamphlets, information posted on the York Region website and investigation of complaints.

## **Surveillance provides information for informed decision-making and communication**

Ongoing surveillance in mosquito, bird and human populations are conducted through the collection of data based on suspected and positive West Nile virus activity. The 2008 data was used to delineate areas of interest and track emerging trends for localized response delivery according the *York Region West Nile Virus Contingency Plan*, as well as general program delivery.

## **Mosquito populations are controlled through application of larvicide**

Larvicide product approved by the Ontario Ministry of the Environment is applied on a scheduled basis to control mosquito populations in target areas. The following highlights larviciding activities in 2008:

- Municipal and regional catch basins were treated with methoprene pellets four times during the mosquito season. Methoprene prevents mosquito larvae from developing into adult mosquitoes, with no identified risk to wildlife, people or the environment.
- Private rear yard catch basins were larvicided upon request.
- Catch basins in parks, grounds of long term care and residential facilities, and municipally-owned properties were treated once a season with long lasting methoprene briquettes (with the exception of the Town of Markham, which provided screens for public park catch basins).
- Standing surface water such as road side ditches and sewage treatment lagoons were treated as required, using *Bacillus thuringiensis israelensis* (Bti). Bti is a naturally occurring bacterium found in soil and water that targets and kills mosquito larvae. It has been found to have no effect on other aquatic organisms or the environment.
- Catch basins in environmentally-sensitive areas were larvicided twice a season using *Bacillus sphaericus* (B. sphaericus). B. sphaericus is a naturally occurring bacterium found in soil and water which targets and kills mosquito larvae with no impact on other aquatic organisms or the environment.

**In conjunction with municipalities in the Greater Toronto Area (GTA), York Region will no longer pick up dead birds or ask residents to report dead bird sightings in 2009**

The MOHLTC has identified dead bird surveillance and testing as an ineffective early risk indicator of West Nile virus for the province. As a result, the MOHLTC is discontinuing funding to local health units for the pick-up and testing of dead birds in 2009. Additionally, the Centres for Disease Control and Prevention has made it publicly known that a number of states and jurisdictions in the United States (including New York City) have discontinued their dead bird collection programs due to the limited value of bird testing data as an early warning system and have sufficiently established that the virus is in their area. There would be no net positive value associated with continuing bird surveillance and testing. In conjunction with municipalities in the GTA, York Region will no longer pick up dead birds or ask residents to report dead bird sightings.

A cost-shared coordinated communications strategy, with GTA jurisdictions will be launched in spring 2009 to advise residents why the bird surveillance program is discontinued and what to do if they find a dead bird.

Once the issue regarding the disposal of dead birds has been confirmed with York Region's Environmental Services Department, we will begin communicating to local municipalities and the general public about the changes to this year's West Nile virus program.

Through the Medical Officer of Health's office, each local area municipality will be contacted and notified of the change to dead bird pick up program. Sample Questions & Answers will also be provided to area municipalities for use in their call centres and customer service departments.

As in the past years, the West Nile virus communications strategy for the general public will have a proactive approach. York Region residents will be advised of this year's changes and program objectives through updated promotional material including brochures, website copy, newspaper advertisements and all media material. Automated messaging on the York Region *Health Connection* information line will also be revised to reflect that dead bird reporting and pick up is not part of the 2009 surveillance program.

Earned media opportunities, such as the weekly Rogers' *daytime* health segment, will also assist reaching approximately 20,000 York Region residents with this program change. This segment is scheduled for June 10, 2009. Additional media opportunities may also be considered.

**Program objectives for 2009 will focus on public awareness, mosquito and human surveillance, and mosquito population control**

The Public Health Branch has a continued commitment to the protection of residents' health and the administration of an effective and relevant West Nile virus program. Further to the delivery of core program elements, a collaborative evaluation of the West Nile virus program will be conducted with the MOHLTC and Central East West Nile Virus Working Group to guide planning efforts for future initiatives and resources.

Public awareness will continue to be a fundamental component of York Region's West Nile virus program. Key messages in 2009 will focus on personal protection and reduction of mosquito breeding sites.

Surveillance activities (mosquito and human) prescribed by the MOHLTC will be continued in 2009. Mosquito-based surveillance remains the primary tool for quantifying the intensity of virus transmission in an area.

Experience to date suggests that larviciding activities are likely to continue for the foreseeable future. A variety of studies, including *Mosquito Management Programs and West Nile Virus in Michigan 2002*, support the effectiveness of larviciding, indicating there is a significant increase in the risk of West Nile virus transmission to humans in jurisdictions with no larviciding programs. York Region's neighbouring health units (Peel, Durham, Toronto and Halton) plan to carry out a larviciding program for 2009. It is important that a consistent approach is taken by neighbouring municipalities.

## **Future West Nile virus activities will be reported under the Vector-Borne Diseases Program**

West Nile virus and Lyme disease are examples of vector-borne diseases that are transmitted by vectors such as mosquitoes and ticks from one host to another. The *Ontario Public Health Standards*, which came into effect in January 2009, identified West Nile virus related standards in the Infectious Disease Protocol through *Prevention and Management of Vector-Borne Diseases*. To ensure York Region's West Nile virus program is consistent with the *Ontario Public Health Standards*, it will be addressed as the York Region Vector-Borne Disease Program in future reporting mechanisms.

### **5. FINANCIAL IMPLICATIONS**

Regional expenditures in 2008 for the West Nile virus program were \$740,523 offset by 75% provincial subsidy of \$555,392. The Province advised that the 2009 funding for this program will be reduced. Program delivery will be managed within the approved provincial and regional funding levels.

### **6. LOCAL MUNICIPAL IMPACT**

The Region and local municipalities will continue to work collaboratively through the West Nile Virus Operations Committee. Meetings will be held throughout the West Nile virus season in 2009 and municipalities plan to continue participation in West Nile virus control measures through enforcement of local standing water by-laws.

### **7. CONCLUSION**

West Nile virus is established throughout the majority of provinces and states across North America. It is important to continue the West Nile virus program in 2009 utilizing the three components of education, surveillance, and mosquito population control. It is also essential that the Public Health Branch work collaboratively with local municipalities.

For more information on this report, please contact Dr. Karim Kurji, Medical Officer of Health at Ext. 4012.

The Senior Management Group has reviewed this report.