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PROPOSED WEST NILE VIRUS (WNV) CONTROL ACTIVITIES FOR 2004

The Health and Emergency Medical Services Committee recommends the adoption of the recommendations contained in the following report, January 21, 2004, from the Commissioner of Health Services:

1. RECOMMENDATIONS

It is recommended that:

1. Health and Emergency Medical Services Committee and Regional Council receive and adopt the planned West Nile virus (WNV) activities for 2004 contained in this report, subject to the approval of the 2004 Health Services Business Plan and Budget.
2. The Regional Chair write a letter to the Minister of Health and Long-Term Care requesting increased funding of West Nile virus (WNV) control activities to 100% in 2004.

2. PURPOSE

The purpose of this report is to provide Health and Emergency Medical Services Committee and Regional Council with the proposed activities and budget for the West Nile virus (WNV) control program 2004.

3. BACKGROUND

As referenced in the 2003 West Nile Virus (WNV) Control Activities report tabled at the January 8, 2004, meeting of the Health and Emergency Medical Services Committee, WNV is a potentially fatal mosquito-borne arbovirus that spreads in nature primarily through a bird-mosquito-bird cycle. The virus spills over into other species such as humans when there is a significant increase in the infected mosquito population. Most people who contract the disease will experience mild flu-like symptoms; however WNV can cause severe illness or death.

Until recently, WNV was an imported virus; however it is now endemic in Ontario. In 2003, the virus was found in mosquitoes, crows and human cases throughout the province indicating that the virus is becoming well established in Ontario.

Knowledge of the virus and its' behaviour in Canada is still too limited to predict how the disease will manifest itself in the coming spring and summer. Some research has shown that there is a correlation between ambient temperature and the level of WNV activities within the mosquito; the warmer the weather, the more infectious the mosquito becomes. Therefore a hot summer in 2004, unlike the cool summer of 2003, could result in an increase in the number of human cases in York Region.

York Region Health Services is a member of the Central East West Nile Virus Task Group. This group, which consists of Toronto, Durham, Simcoe, Peel, Halton, Hamilton, Niagara and York Region health units, has been meeting to ensure that there is a consistent and comprehensive approach to combat WNV. Both the task group and the Ministry of Health and Long-Term Care (MOHLTC) have indicated that continued surveillance and mosquito control is necessary in 2004 in order to mitigate WNV. In addition, continued collection of data will assist in the determination of disease trends in future years.

4. ANALYSIS AND OPTIONS

In order to control the spread of WNV in York Region, there are several initiatives that will be undertaken and expanded from the 2003 WNV Control Activities program.

4.1 Education and Communication

Education remains one of the most important components of York Region's WNV program. It is vital that residents understand their part in preventing family members and themselves from contracting the virus.

In 2004, the two key messages will continue to focus on source reduction (standing water that can act as the breeding ground for mosquitoes) and personal protection (using insect repellent and wearing appropriate clothing).

Public forums will continue to be venues for sharing information with the public. It is proposed that three public forums be held in June; one in the north, one in the south and one in the central area of the Region.

An educational program will be developed and made available to teachers for children in Grades 3, 4 and 5, as children can be instrumental in changing behaviour. Again this year, WNV activities will be included in York Region's Children's Water Festival which targets approximately 4,000 children.

The Health Services Department will continue to offer educational workshops to the public, long term care facilities and other interested organizations upon request.

Pamphlets will be distributed to the public through libraries, municipal centres, garden centres and mailed out on request.

Press releases will be done throughout the WNV season beginning in April and ending mid-October.

Letters will be sent to construction companies, nurseries and golf courses advising them of steps they can take to reduce outdoor employees' exposure to the virus and to reduce the amount of standing water on their properties.

The Health Services Department's website will be updated with information about WNV and kept current as the summer progresses. In addition, external bus ads will be put on York Region Transit buses as a visual reminder to residents to take precautionary measures.

4.2 Surveillance

Three types of surveillance (bird, mosquito and human) are prescribed by the MOHLTC to detect the presence and spread of WNV. The bird, mosquito and human populations are studied to determine the presence of the virus and this information is used to determine which actions will be taken to mitigate the disease.

The Geomatics Division of the York Region Planning and Development Services Department will be asked to continue to provide technical support to the development of the WNV database, and provide mapping of the positive WNV locations.

4.2.1 Bird Surveillance

Bird surveillance is an important part of the overall surveillance program in the detection of WNV within a geographical area. Although all birds can contract the virus, crows die within a short period of being bitten by an infected mosquito. Therefore, crows act as the best sentinels for the presence of WNV and are collected for analysis. In 2004, the surveillance will begin in mid-April when York Region residents will again be asked to report all dead bird sightings to the Health Services' Health Protection Division.

Again this year the Canadian Cooperative Wildlife Health Centre (CCWHC), funded through Health Canada, will be testing submitted crows for the virus. Historically, health units have been asked to stop the submission of crows once the virus has been detected within the health unit's jurisdiction. This year, the Central East West Nile Virus Task Group will be asking CCWHC to continue testing selected birds throughout the summer in order to provide additional surveillance data.

In 2003, a private company was contracted to pick up all dead birds reported to the Health Services' Health Protection Division. It is anticipated that again this function will be tendered out. Currently, no by-laws exist in any of the nine area municipalities that allow for the discarding of animal carcasses for garbage collection.

4.2.2 Mosquito Surveillance

The mosquito surveillance program will consist of four major components: response to standing water complaints, trapping adult mosquitoes, a storm water retention pond survey, and routine surveillance (dipping for mosquito larvae) of pre-determined standing surface water.

Since mosquitoes are the carriers (vectors) of the disease, it is important to detect the presence/absence of the virus in adult mosquitoes. Traps designed to attract adult mosquitoes will be set up weekly throughout the Region from the third week in May until mid-October. Forty-one traps were set up on a weekly basis in 2003. It is anticipated

that 50 traps will be set up in 2004. It is imperative to determine the location of positive mosquitoes in order that appropriate action can be taken and the year to year data collection can be used to map the trends of the virus.

Health Protection Division staff will continue to respond to complaints made by the public about standing water issues as part of the mosquito surveillance program and work with local municipal by-law officers to mitigate the complaints as they arise. In addition, the Health Protection Division staff will be routinely dipping for mosquito larvae in standing water areas identified as mosquito-breeding sites in 2002/2003.

In 2003, a storm water retention pond survey was conducted to begin to assess these water bodies as breeding sites for mosquitoes. In 2004, the surveillance of these sites will continue. Based on findings and proximity to populated areas, ponds will be treated to prevent larval growth.

4.2.3 Human Surveillance

WNV is detected by blood specimens drawn from humans exhibiting symptoms. A seroprevalence study undertaken early in 2003 by Halton Regional Health Unit and the MOHLTC shows that only 3.1% of the Halton Region population has already been exposed to the disease without becoming ill.

In 2004, physicians will again be asked to actively look for the virus in patients presenting symptoms consistent with the virus. Letters and routine communications with the infection control practitioners in health care institutions, such as hospitals and family doctors, will continue throughout 2004.

4.3 Mosquito Control

On May 16, 2003 Ontario Regulation 199/03 to the *Health Protection and Promotion Act* was filed. Ontario Regulation 199/03 requires a Medical Officer of Health to make a determination, based on a local risk assessment, of whether action, including the use of larvicides or adulticides, is required to decrease the risk of WNV. The local risk assessment weighs the level of risk to the public from WNV based on the most current evidence of local WNV activity including WNV in the human population and in non-human species.

In Ontario, there are approximately 57 different species of mosquitoes. However not all of them are presently capable of transmitting the virus. The number of mosquito species known to carry the virus in Ontario is 10, up from 8 in 2003. However, in the United States, the Centre for Disease Control has identified 43 species capable of transmitting the virus.

Mosquito Control remains an important component of the WNV control program and must be considered a vital measure to stop the spread of the virus to the human and animal populations. It is proposed that in 2004 a pest control company again be contracted to provide larviciding services to York Region. It is also proposed that a pest

control company be retained to provide adulticiding services in the event that the Medical Officer of Health determines subsequent to a local risk assessment that adulticiding is required to reduce the risk of WNV.

4.3.1 Larviciding

The optimum time to start a mosquito control program is before the mosquitoes emerge as adults (larviciding). Controlling mosquitoes during their larval stage is preferred to adult mosquito control because of its greater efficacy and more limited impact on the environment.

During the 2003 mosquito season, catch basins on public and municipal properties were treated up to three times with methoprene, a larvicide designed to stop the growth of the larvae there by killing it. This product has minimal impact on the environment.

In 2004, larviciding of catch basins with methoprene will again be carried out, but the product application may be up to four times instead of three. The Ministry of the Environment performed product efficacy tests on methoprene in 2003 and found that the residual effect of the product was only 21 days, not the 30 days that the product was originally rated at. Therefore, this product will need to be applied more frequently in order to be most effective. Other larviciding methods have been researched but have not been approved by the Pest Management Regulatory Agency for use to date.

In addition to treating the catch basins on public properties in 2004, York Region will also require the contracting of a pest control company to respond to residents' requests to have rear yard catch basins treated. This would be done with consent and subject to the stipulation that there be no obstructions to the pest control company on private properties.

Since standing surface water has been identified as a breeding source for mosquitoes carrying the WNV, York Region Health Services will expand the surveillance of this type of breeding source to include routine surveillance of known breeding sites identified in 2003. This will ensure that these sites are treated with Bti as needed. Bti is a larvicide with little residual effect that targets only mosquito larvae and does not impact other species of insects or mammals.

4.3.2 Adulticiding

It may become necessary to use an adulticide if there is an outbreak of WNV in the human population or local risk factors are such that the Medical Officer of Health deems it necessary. In 2003 York Region Health Services drafted an adulticiding plan, *York Region Health Services West Nile Virus Adulticiding Plan, September 2003*, which outline the steps that would be taken in the event adulticiding is required.

The adulticiding plan includes a registry for residents to advise York Region Health Services if they have existing health conditions that would be exacerbated by adulticiding. In the event that adulticiding is necessary, people on the registry living in the affected area would be notified by telephone 48 hours in advance so that they have time to take any precautions they deem necessary and/or make alternative living

arrangements. The plan also included provisions for the homeless population. York Region Health Services met with member agencies of the York Alliance on Homelessness and Isolation on a plan to inform the homeless population in advance of adulticiding and relocate individuals temporarily if they preferred. This plan was formalized in the *York Region Health Services West Nile Virus Adulticiding Plan, September 2003*, which was not activated in 2003.

Throughout the summer of 2003, the MOHLTC worked on obtaining contracts with pest control companies in the event that adulticiding was needed. Unfortunately, the MOHLTC does not have the capacity needed to address multiple outbreaks in different jurisdictions throughout the province should they happen simultaneously. Therefore, York Region Health Services proposes to have a stand-by contract with a pest control company should adulticiding become necessary in York Region.

4.4 Relationship to Vision 2026

The proposed WNV control activities for 2004 are consistent with the Vision 2026 goals Responding to the Needs of our Residents, Engaged Communities and a Responsive Region.

5. FINANCIAL IMPLICATIONS

In 2003, WNV control activities were 50% cost shared with the MOHLTC, with the cost of the larviciding product being fully funded by the MOHLTC (less than \$15,000 in 2003). The staffing costs for 2003 (estimated at \$388,000) were absorbed in the 50% cost shared programs for Public Health.

For the 2004 proposed budget (Table 1), the net tax levy impact was based on receiving the same cost sharing subsidy from the MOHLTC. The MOHLTC has not made any funding commitments for 2004. Staffing costs for 2004 will also be absorbed in the 50% cost shared programs.

Table 1
Summary of WNV Expenditures for 2003 and Proposed Budget for 2004

	2003 Budget	2004 Proposed Budget
Larviciding & Other Purchase of Service	\$1,928,000	\$1,644,949
GIS Mapping & Database	0	70,000
Additional Traps	0	150,000
Program Costs	267,000	273,000
Total Gross Expenditures	\$2,195,000	\$2,137,949
Provincial Funding (50%)	1,097,500	1,068,975
Contribution from Reserves	997,500	0
Net Tax Levy	\$ 100,000	\$1,068,975

Note: Cost of 15 traps was included in larviciding for 2003; cost of all traps and analysis at Brock included separately in 2004

In 2003 the majority of the tax levy component of the WNV budget was funded through a York Region Contingency Reserve Fund, as directed by Regional Council. As noted in the above table, in 2004 the Region's share of the WNV budget in the amount of \$1,068,975 will be fully funded through tax levy which results in a net tax levy increase of \$968,975 over 2003.

6. LOCAL MUNICIPAL IMPACT

Although the Region will continue to carry out surveillance, to co-ordinate the mosquito control program, and to provide educational services, it is expected that the local municipalities will continue to participate in other control measures, such as enforcing local standing water by-laws, to reduce mosquito breeding sites. The roles of the municipalities are defined in the *West Nile Virus: York Region Contingency Plan* which was distributed to and discussed with the local municipalities in the spring of 2003. York Region Health Services has enjoyed a collaborative working relationship with all local municipalities throughout 2003 and look forward to continued partnering in 2004 for effective WNV programming.

7. CONCLUSION

The MOHLTC has emphasized the importance of WNV control activities and in 2003 has legislated mosquito control measures. In 2004, the impact of these activities on the tax levy is substantial. Therefore, it is proposed that the Regional Chair write a letter to the Minister of Health and Long-Term Care requesting 100% funding for WNV activities in 2004.

Continued positive WNV results in the bird, mosquito and human populations throughout Ontario indicate that the virus is well established within the province. Since WNV is still considered a newly emerging virus with significant health implications, the York Region WNV control activities plan for 2004 proposes to continue the surveillance program, educate the public, and use mosquito control to limit the spread of the virus in York Region.

The approach taken by York Region Health Services will be consistent with the plans of the eight health units involved in the Central East West Nile virus Task Group and the guidelines and regulations set forth by the MOHLTC.

The Senior Management Group has reviewed this report.