INFORMATION REPORT

TO: Mayor and Members Board of Health	**WARD(S) AFFECTED:** CITY WIDE
COMMITTEE DATE: April 22, 2013	
SUBJECT/REPORT NO: 2013 West Nile Virus Program (BOH13017) (City Wide)	
SUBMITTED BY: Elizabeth Richardson, MD, MHSc, FRCPC Medical Officer of Health Public Health Services Department	**PREPARED BY:** Susan Harding-Cruz (905) 546-2424 Ext. 3576
SIGNATURE:	

Council Direction:

Not Applicable

Information:

The purpose of this report is to provide an update of the West Nile Virus (WNV) program activities in light of the recent increase in WNV activity in humans and mosquitos.

In 2012, the City of Hamilton experienced the worst season for West Nile Virus (WNV) activity since 2002. Last year resulted in 20 reported human cases (including one death), 33 adult mosquito batches positive for WNV and one positive WNV horse. In 2011, there were 31 positive adult mosquito batches but only 2 human cases. This level of activity was higher than the previous 7 years. See Appendix A to review the WNV statistics for Hamilton, neighbouring health units and the Greater Toronto Area (GTA).

In order to respond to WNV activity and reduce the risk to humans, the Vector Borne Disease (VBD) program continues to monitor and implement control measures for WNV. Program activities are outlined below and further details are available in Appendix B.

In order to control WNV, PHS must understand and assess the local risk to the community. In Regulation 199/03, The Control of West Nile Virus, under the *Health Protection and Promotion Act*, the local medical officer of health (MOH), "shall make a determination whether action is required by a municipality to decrease the risk of West Nile Virus to persons either inside or outside the health unit served by the medical officer of health, based upon a local risk assessment". From May to October, the PHS WNV risk assessment committee reviews information gathered about WNV on a regular basis. Based on the assessment, the MOH or Associate Medical Officer of Health (AMOH) makes the decision about the risk level to the community.

Risk levels are described as low, moderate and high. The level indicates the risk to people of getting WNV from mosquitoes. The risk assessment involves a review of:

- Mosquito surveillance information from Hamilton, health units surrounding Hamilton, the State of New York and other States in close vicinity to Ontario.
- Human case surveillance, including local or nearby human cases.
- Equine (horse) surveillance.
- Temperature and weather information analysis in Hamilton and Ontario.

Once the MOH or AMOH decides the local risk level, the corresponding response by the VBD program at PHS can include one or more of the following:

- Checking for additional areas of standing water around mosquito traps, human case locations, or other areas that may have increased standing water.
- Referring water sites on City land to Public Works for potential remediation or source reduction.
- Treating more catch basins.
- Increasing public messaging about prevention and protection against WNV via radio or newspapers ads, magazine ads, billboards or attending more public events (e.g. festivals).
- Adulticiding which refers to using a spray in the air to kill adult mosquitoes that may be carrying WNV. This option is considered a 'last resort' control option and would only happen if there were extreme levels of WNV activity locally. Hamilton has never used adulticiding to control mosquitoes.

In the October 29, 2012 General Issues Committee (GIC) Information Report, "Corporate Service Delivery Review - Opportunities for Service Improvement (CM11009B/FCS110569(b)) - City Wide", Appendix C of the report provided a list of opportunities beyond the top 34 identified. Opportunity number 115, with a score of 1.9/5, listed the opportunity description as, "Reduce West Nile Virus program based on current needs". While this opportunity was not on the list of 34 opportunities to be reviewed by GIC, the WNV program was reviewed in 2012 through an internal audit process for the Health Protection Division at PHS.

The audit recommended an evaluation of the WNV program. Based on this recommendation, the Applied Research and Evaluation program within PHS' Planning and Business Improvement Division conducted a two part evaluation of the WNV program with input from Infectious Disease program staff and by VBD program staff. The team worked to develop a VBD program logic model and a detailed evaluation framework. These will be used to regularly evaluate the effectiveness of the local VBD program. The second part of the evaluation included a comparative analysis of the 2004 and 2011 WNV benchmarking data for Hamilton, along with an environmental scan of comparable health units in Ontario. The evaluation recommended that, "Hamilton's WNV program should continue to operate as it did during the 2012 season". Given the higher levels of WNV activity in Hamilton over the last two seasons, the program will remain comprehensive to monitor and control for WNV in our community.

Table 1. City of Hamilton West Nile Virus Statistics, 2002 to 2012

Surveillance Data	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Population* 519,949											
Positive Dead Birds	19	7	7	15	6	6	14	0	N/A[1]	N/A[1]	N/A[1]
Positive Mosquito Pools[2]	11	2	8	2	14	3	4	0	1	31	33
Human Cases[3]	11	1	0	1	3	1	1	0	1	2	20
Deaths Related to WNV	1	0	0	0	0	0	0	0	0	0	1
Equine (Horse) Cases	3	0	0	0	0	0	0	0	0	0	1

Table 2. WNV Human Cases, Neighbouring and GTA Health Units, 2006 to 2012[4]

Public Health Unit	2006	2007	2008	2009	2010	2011	2012
Neighbouring (Population*)							
Brant County Health Unit (136,035)	2	0	0	0	0	4	**2**
Haldimand-Norfolk Health Unit (109,118)	0	0	0	0	0	0	**4**
Halton Region Health Department (501,669)	1	2	0	0	1	9	**23**
Niagara Region Public Health Department (431,346))	3	0	0	0	0	6	**9**
Waterloo Public Health (507,096)	0	0	0	0	0	2	**2**
Wellington-Dufferin-Guelph Public Health (265,241)	0	0	0	0	0	1	**1**
Greater Toronto Area- GTA (Population*)							
Durham Region Health Department (608,124)	0	1	1	0	1	2	**7**
Peel Public Health (1,296,814)	2	1	0	0	0	3	**18**
Toronto Public Health (2,615,060)	6	4	0	0	1	28	**90**
York Region Public Health Services (1,032,524)	3	1	1	0	0	1	**13**
Ontario (13,505,900)	**42**	**15**	**4**	**4**	**1**	**78**	**260**

Data sources:

http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E

http://www.oahpp.ca/resources/documents/2012_12_PHO_Monthly_Report.pdf. Reported up to November 1, 2012

[1] The province ended funding for dead bird testing in 2009.

[2] Positive Mosquito 'Pools' (A pool is a group of female mosquitoes belonging to the same species. The number of mosquitoes in a pool can be anywhere between 1 and 50. There can be several pools in one trap.)

[3] Consists of confirmed and probable cases and reflects values following data cleansing activities completed in July 2012. Data extracted January 30, 2013. Data source: Ontario MOHLTC integrated Public Health Information System (iPHIS) database.

[4] Counts displayed in the above table (2006-2011) were obtained from surveillance archive reports available from the Ontario MOHLTC website. Counts for 2012 were obtained from the Public Health Ontario website.

Appendix B: Summary of Routine 2013 WNV Program Activities

Standing Water By-law

In effect from April 1st to October 31st. Complaints can be reported by phone or by email to the Customer Contact Centre which logs all calls:

- Call directly to 905-546-City (2489)
- Send an email to info@hamilton.ca with the contact details of the complainant and the address or location of the complaint

Mosquito Trap Surveillance

Between June and October, each week 30 mosquito traps are set one day and collected the next to capture adult mosquitoes across all Wards. The adult mosquitoes are sent to a contractor to be identified by species and to be tested for West Nile virus.

Monitoring and Treatment

Catch Basins

- Monitoring in June. Expected treatment rounds in June, July and August to treat >38,000 catch basins along City streets. Fourth treatment or more to be determined by risk assessment.
- Single treatments for season in City parks, cemeteries, Macassa Lodge, Wentworth Lodge, Sewage Treatment Plants, and other City lands as deemed necessary.

Surface water monitoring May to October on City lands of over 400 water sites (ditches, outfalls, artificial containers, etc.). Treatment occurs when necessary throughout the season.

Public Communication, Education, and Outreach

Print, Radio, In Person (at events such as festivals), and information provided on the WNV website (www.hamilton.ca/westnile) to share messages of:

- The importance of reducing and controlling standing water
- How to protect against or avoid mosquito bites
- Facts about West Nile virus and other Vector Borne Diseases