



TO: Chair and Members of the Board of Health
FROM: Bryna Warshawsky, Acting Medical Officer of Health
DATE: 2013 March 21

2012 VECTOR-BORNE DISEASE SEASON

Recommendation

It is recommended that Report No. 040-13 re “2012 Vector-Borne Disease Season” be received for information.

Key Points

- Comprehensive monitoring, control and education efforts help prevent diseases that spread from mosquitoes, such as West Nile Virus and Eastern Equine Encephalitis. Monitoring and education programs will also help prevent Lyme disease, which spreads from ticks.
- 2012 was the busiest season for human West Nile Virus activity in a decade, with seven confirmed human cases identified in Middlesex-London. As well, an increase was noted in the number of birds and mosquitoes that tested positive for the virus compared to 2011.

2012 Vector-Borne Disease Program

The Vector-Borne Disease (VBD) program is a comprehensive program to closely monitor and control West Nile Virus (WNV) and Eastern Equine Encephalitis (EEE), which are spread by mosquitoes, and Lyme disease (LD), which is spread from ticks. This comprehensive surveillance and control program consists of larval mosquito surveillance and identification, larviciding, adult mosquito trapping, dead bird collection, human surveillance, source reduction, public education, responding to public inquiries, and tick surveillance.

The 2012 season was the busiest in a decade for the VBD Team. The details of the 2012 season are reviewed in this Board of Health report, with further details provided in the report entitled, “2012 Vector-Borne Disease Report: West Nile Virus, Lyme Disease and Eastern Equine Encephalitis Surveillance and Control Activities for 2012”. At the time of writing this report, the “2012 Vector-Borne Disease Report” had not been received; however, it is expected by the March 2013 Board of Health meeting. It will be provided to the Board of Health as soon as it is available.

Human Health

In 2012, the Health Unit had seven reported human cases of WNV. At the provincial level, there were 252 confirmed cases of WNV in 2012. This was the largest number of human cases of WNV since 2002. In 2012, there was one travel-related human case of LD reported in Middlesex-London. There has not been any human EEE in Middlesex-London or Ontario.

Mosquito Identification, Control and Viral Testing for West Nile Virus and Eastern Equine Encephalitis

Mosquito Testing: In 2012, the VBD Team collected approximately 18,464 mosquitoes by conducting weekly trapping at various locations throughout the City of London and Middlesex County. Further analysis identified 10,057 adult mosquitoes; 830 viral tests for WNV and EEE were performed. Ninety-four percent (94%) of the adult mosquitoes identified were species that are able to spread WNV (vectors), and only 6% were non-vectors. There were 17 WNV-positive pools identified in Middlesex-London, which compares to 11 in 2011. In Ontario, 464 positive mosquito pools were identified, which is a significant increase over the 278 positive pools that were identified in 2011.

There were not any EEE-positive mosquito traps in Middlesex-London or Ontario. However, trapping did show that mosquitoes capable of transmitting EEE were present in Middlesex-London.

Larviciding: As in previous years, approximately 88,000 roadside catch basins were treated three times with a larvicide to decrease the number of mosquitoes that grow there. An additional 933 non-roadside catch basins located in rear yards of residential properties, in municipal green-spaces and catch basins located on sites such as hospitals, government buildings, social housing units, and long-term care facilities were also treated. As well, the VBD Team performed 1047 treatments at 229 standing water sites using a biological larvicide.

Dead Bird Testing for West Nile Virus

In 2012, 205 dead bird sightings were made in Middlesex-London. Of the 205 sightings, only 41 birds were in a condition to be tested at the Health Unit laboratory, where results yielded 23 WNV-positive crows. This compares to only nine positives of the 26 birds tested in 2011. The positive tests were confirmed by the Canadian Cooperative Wildlife Health Centre.

Tick testing for Lyme Disease

Eighty-seven (87) ticks were submitted to the Health Unit in 2012. These ticks were analyzed at the Health Unit laboratory and 10 were determined to be blacklegged ticks, the ticks capable of transmitting LD. These 10 ticks were then forwarded to the National Microbiology Laboratory in Winnipeg to determine if they carry the bacteria that causes LD (*Borrelia burgdorferi*); three ticks were found to be positive for the bacteria. However, all the positive ticks and six of the seven negative blacklegged ticks were acquired outside of the Middlesex-London area.

Public Education and Promotion

In 2012, the VBD Team distributed WNV and LD brochures, attended community events, developed print advertisements and also engaged the public through social media. The VBD Team also worked closely with stakeholders to continue efforts to reduce mosquitoes in the Town of Parkhill.

The VBD Team worked with Environmental Health's Epidemiologist and Program Evaluator to analyze Lyme disease data collected from the Rapid Risk Factor Surveillance System, a telephone survey of residents in Middlesex-London and elsewhere in the province. The survey provides baseline data regarding the awareness of and use of protective measures related to LD. These results will assist with 2013 VBD program planning.

2013 Vector-Borne Disease Program Plans

With the confirmation of service providers for the VBD program for 2013 (see Board of Health [Report No. 022-13](#)), the program will continue to utilize an Integrated Pest Management approach to reduce the risk of WNV and EEE. Public education also remains vital to reducing mosquito breeding sites and promoting personal protective measures to prevent WNV and LD and their associated complications.

Conclusion

There was an increase in West Nile activity in 2012. The Vector Borne Disease Team works to reduce the risk of diseases spread by mosquitoes and ticks by monitoring and controlling mosquitoes, testing for the diseases in mosquitoes and ticks and providing education to the public. These efforts will continue in 2013.

This report was prepared by Mr. Jeremy Hogeveen, Vector-Borne Disease Coordinator and Mr. Iqbal Kalsi, Manager, Environmental Health.



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This report addresses the following requirements of the Ontario Public Health Standards:

Section 7(c)(i) of the *Infectious Diseases Protocol* requiring the Board of Health to develop an integrated vector-borne management plan which shall be comprised of vector surveillance.

Section 8 of the *Health Hazard Prevention and Management Standard* requiring the Board of Health to develop a local vector-borne management strategy based on surveillance data and emerging trends in accordance with the *Infectious Diseases Protocol*, 2009.