Community and Health Services Department
Public Health Branch

Memorandum

TO: Members of Regional Council

FROM: Dr. Karim Kurji, Medical Officer of Health

DATE: February 18, 2016

RE: **Zika Virus Infection**

Purpose

This memorandum is prepared for 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*, and at the request of members of the Board of Health.

Background

Zika virus is a mosquito-borne virus discovered in 1947 in the Zika forest of Uganda. It is a *Flavivirus* which is related to other mosquito-borne viruses such as dengue and West Nile Virus. The virus is transmitted by the mosquito species *Aedes aegypti and Aedes albopictus* which are not native to Ontario.

The virus has been reported in a number of countries in Central and South America and Mexico for the first time in 2015; however outbreaks have been reported in the past in Africa, Asia and the Oceanic Pacific region.

Virus Transmission

Zika virus is primarily a mosquito-borne disease. During the first week of infection, the Centres for Disease Control and Prevention states the virus can be found in the blood and passed from an infected person to another through mosquito bites. Public Health Ontario reports transmission is potential from a pregnant mother to her fetus and in rare cases, transmission can occur through blood transfusion and sexual contact. Further investigation is currently underway regarding the transmission of the virus through sexual contact and the length of time the virus remains in semen.

Symptoms of the virus may surface 3-12 days after the bite of an infected mosquito and may include fever, headache, conjunctivitis (pink eye), rash and joint and muscle pain.

The virus is considered to be a mild illness lasting only 2 to 7 days. Most people recover fully without complications. Hospitalization rates are low and 75-80% of individuals infected with the virus will not display any symptoms.

Currently there is no vaccine or cure for the virus. Treatment aims to relieve symptoms.

Investigation of Virus Infection Complications

Public Health Ontario reports that public health officials in Brazil are currently investigating an increased number of children born with microcephaly and the occurrence of Guillain-Barré syndrome in relation to the Zika virus.

Microcephaly results in incomplete brain development, a condition where a baby's head is smaller than expected and may occur when a baby's head does not develop properly during pregnancy or stops growing after birth. Babies with microcephaly may experience health problems such as seizures, developmental delays in speech or developmental milestones of sitting, standing and walking and intellectual disability. The degree of health problems is dependent upon the severity of the microcephaly. Causes of microcephaly may also include severe malnutrition, exposure to harmful substances, such as alcohol, certain drugs, toxic chemicals, or exposure during pregnancy to infections such as rubella, toxoplasmosis, or cytomegalovirus. Vaccine is readily available for rubella and pregnant women are advised on prevention measures for toxoplasmosis.

Guillain-Barré syndrome is a rare disorder where an individual's immune system damages nerves resulting in muscle weakness or sometimes paralysis. There is no known cure for the syndrome however treatment is available to lessen the symptoms and most people recover from the syndrome.

Researchers are studying the possible links between these two complications and the Zika virus; however a direct relationship between the virus infection and microcephaly or Guillain-Barré syndrome has not yet been determined.

Advisories

On January 15, 2016, the Public Health Agency of Canada (PHAC) issued a Public Health Notice and a Travel Health Advisory Notice recommending all travellers to protect themselves from mosquito bites when travelling to areas where the Zika virus is circulating. PHAC Travel Health Notices are posted on the PHAC website, PHAC Travel Health Notices and are regularly updated. PHAC recommends pregnant women and those considering becoming pregnant; discuss their travel plans with their health care provider to assess their risk and to consider postponing travel to areas where the virus is circulating in the Americas. In addition if travel cannot be postponed strict mosquito bite prevention measures should be followed to protect against bites.

On February 1, 2016, the World Health Organization (WHO) Emergency Committee declared the spread of the Zika virus in the Americas a Public Health Emergency of International Concern. The WHO Emergency Committee has indicated a coordinated international response is needed to improve surveillance, the detection of infection, congenital malformations and neurological complication, to intensify control of the mosquito populations, the expedition of the development of diagnostic tests and vaccines to protect those who are at risk.

Local Impact

There are no reports of local transmission of Zika virus in Canada. Imported cases of Zika virus infection may arise in Ontarians returning from travel to countries where the Zika virus is circulating. Currently, four confirmed travel related Zika virus cases have reported in Canada.

Mosquito surveillance in Ontario monitors the mosquito population for West Nile virus and Eastern Equine Encephalitis as well as detecting the presence of invasive mosquito species. The *Aedes aegypti* and *Aedes albopictus* mosquitoes that can transmit the Zika virus are not currently found in Canada and the province's *Aedes* species are not known to transmit the virus. Therefore, the risk of Zika virus transmission from mosquitoes in Canada is very low. However, the science around the expansion of mosquito species habitat due to climate change is evolving and more research is needed.

Next Steps

Personal protection information for mosquito bite prevention has been provided through social media and on the York Region Travel Health webpage, York Region Travel Health for residents who may travel to Zika affected areas. York Region Public Health will continue to conduct surveillance, human case investigations, vector-borne disease awareness, and local mosquito population control for vectors of public health importance in Ontario.

_____

Dr. Karim Kurji, Medical Officer of Health

KK/mw

6543907