BC PUBLIC HEALTH MICROBIOLOGY & REFERENCE LABORATORY

LABORATORY TRENDS

Vancouver, BC

August 27, 2014

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Ebola Virus Disease Preparedness

Ebola virus disease (EVD) is an acute viral infection found in Africa that causes haemorrhagic fever in humans and animals. Ebola infection is transmitted by contact with infected animals, infected blood and bodily fluids, and equipment contaminated with infected material.

The infection has a median incubation period of about 8-10 days with a range of 2-21 days. Symptoms are similar to those of other viral haemorrhagic fevers and of infectious diseases like malaria or typhoid. In our setting diagnosis requires travel to affected areas with risk exposures, ruling out common illnesses and ruling in EVD.

Ebola virus is generally detected in a patient's blood specimen by RT-PCR by the third day of symptoms. Testing too early could result in a false negative test. Therefore, repeat testing of a patient suspected of Ebola virus early in their infection may be indicated. As it is very unlikely for a patient coming with a history of recent travel to West Africa to be infected with Ebola, it will be essential for the laboratories to rule out other, much more common infectious causes, specifically, malaria, hepatitis, measles and arboviruses, as clinically directed. Rule in testing requires consultation with the BC Public Health Microbiology & Reference Laboratory (BCPHMRL) Medical Microbiologist On Call (604-661-7033) and the local Medical Health Officer.

BC may receive patients with febrile illness with a history of recent travel to West Africa and having had a potential Ebola virus risk exposure. Although it is very unlikely that such patients will have a viral hemorrhagic fever, guidance at the local and national levels have been developed for personnel in contact with patients with suspected EVD cases including handling specimens and managing these patients in a manner that minimizes risk.

A flowchart for risk assessment and communications for patients in BC is available on the website for the BC Provincial Health Officer (PHO) which will be used to maintain the most up to date documents including laboratory biosafety, communications, infection prevention and contact tracing guidelines.

Guidelines for laboratory biosafety (handling, testing and transport for suspect EVD specimens) are available from the Public Health Agency of Canada (PHAC). The biosafety guidelines describe that specimens shipped to the National Microbiology Laboratory for EVD PCR require the activation of the Emergency Response Assistance Plan (ERAP) which in BC is coordinated with the Provincial Response Team located at the BCPHMRL and contacted through the BCPHMRL Medical Microbiologist On Call.

A Lower Mainland Laboratories (LML) EVD toolkit has also been developed containing various resources for planning for suspect cases of EVD. (For more information on documents that are currently housed in the LML intranet site, please contact yin.chang@bccdc.ca).

This current outbreak also serves as a reminder of the importance of universal precautions for all laboratory staff who routinely handle infectious materials.

Some of the guidelines mentioned are interim and may change as better information becomes available. For more information about Ebola virus, please visit the PHAC webpage for Ebola Virus Disease.

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Preparing for the Human Pathogens and Toxins Act

The purpose of the *Human Pathogens and Toxins Act* (HPTA) is to establish a comprehensive national safety and security regime for human pathogens and toxins whether imported or domestically acquired. The proposed HPTA regulatory program and framework has been developed by the Public Health Agency of Canada (PHAC) and is available for public comment through the *Canada Gazette* until September 4th.

Implementation of HPTA has also necessitated an update to the *Canadian Biosafety Standards and Guidelines* (CBSG) through PHAC and the Canadian Food Inspection Agency (CFIA). In preparation for the new rules and regulations decreed by HPTA as well as for the upcoming new requirements of the CBSG, the BCPHMRL has worked to standardize the inventory of Risk Group 2 and Risk Group 3 pathogens and infectious material in its possession. Decades of paper inventories have now merged with electronic databases to produce a seamless bioinventory of current and historical isolates and samples. This work has also provided the opportunity to develop standards for sample retention.

Recent Outbreaks and Clusters

Cyclosporiasis

As an update to the cyclosporiasis cluster reported in the July issue, the number of cases has now risen to 23 in BC. The source of this locally-acquired cluster remains unknown and investigations are ongoing. Cases have also been detected in Ontario and Quebec.

The US is also experiencing an increase in lab-confirmed cyclosporiasis with more than 175 cases reported from 19 states. Thirty-five of these cases have not reported any travel prior to their illness while the remaining await follow up interviews. A common exposure source has not yet been identified either.

Salmonella Linked to Recalled Chia Products

The recent outbreak of *Salmonella* infection linked to the consumption of chia products has caused illness in 59 cases in Canada from BC (13), Ontario (33), Alberta (10), and Quebec (3). Four strains have been associated with this outbreak including *Salmonella* Newport, Hartford, Oranienburg, and Saintpaul. The investigation is ongoing but over 84% of cases interviewed have reported consumption of chia seeds or sprouted chia seed powder (PHAC, Jun 24, 2014). Multiple recalls have been issued by the Canadian Food Inspection Agency.

Similar cases of *Salmonella* associated with these contaminated products are also being investigated by the United States Centers for Disease Control and Prevention (CDC) and Food and Drug Administration. Twenty-five cases infected with the outbreak strains have been reported from 14 states (CDC, Jul 17, 2014).

Measles and Mumps

Following the large scale outbreak of measles in the Fraser Health Authority linked to communities in the Netherlands, the more recent cases of measles over the last several months have been due to a different genotype. Nine cases of measles since May have been due to genotype B3, a strain that has previously been detected in cases imported from the Philippines. The B3 strain has been reported globally from several other countries including the UK, Netherlands, New Zealand, China, USA, Australia, Sweden and Ireland.

In 2014 so far there have been 19 cases of mumps from 3 health authorities. All cases with genotyping results available have been genotype G, a strain that has been circulating in BC for several years.

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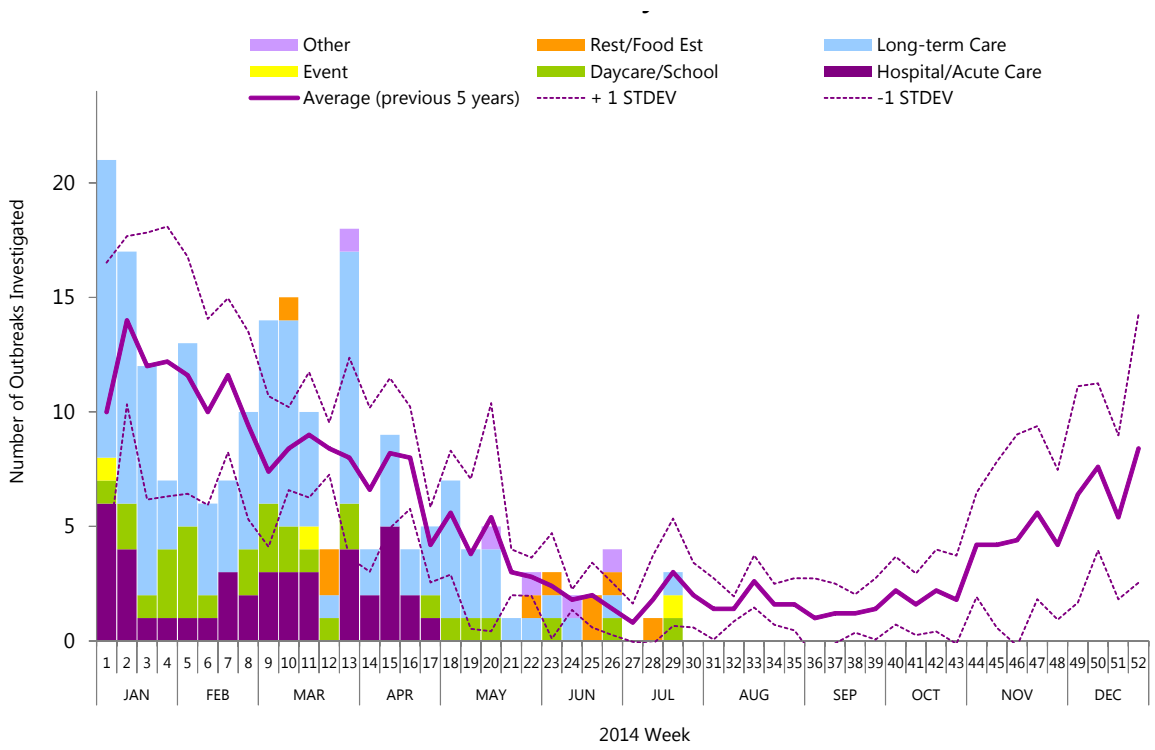
Gastrointestinal Outbreaks

In July, the BCPHMRL investigated 4 gastrointestinal (GI) outbreaks, consistent with what is expected at this time of the year (Figure 1). Outbreaks were identified each from a food service establishment, longterm care facility, daycare and event. Samples for laboratory testing were submitted for 3 (75%) of these outbreaks with norovirus confirmed in the daycare outbreak. *Salmonella* Stanley was also identified from samples from the outbreak at the food service establishment.

Figure 1
Gastrointestinal outbreaks investigated* in 2014, Environmental Microbiology, Public Health Advanced Bacteriology & Mycology, Parasitology and Virology Programs, BCPHMRL.



* The data available are from outbreaks in which the BCPHMRL has been notified. Some acute care microbiology laboratories are also testing for norovirus in the province and these data may not include outbreaks from all Health Authorities. Given the nature of GI outbreaks, samples are not always available for testing.

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A Report of the BC Public Health Microbiology & Reference Laboratory, Vancouver, BC

The BC Public Health Microbiology Reference Laboratory (BCPHMRL) at the BCCDC site provides consultative, interpretative testing and analyses for clinical and environmental infectious diseases in partnership with other microbiology labs and public health workers across the province and nationally. The PHMRL is the provincial communicable disease detection, fingerprinting and molecular epidemiology centre providing advanced and specialized services along with international defined laboratory core functions province-wide.

This report may be freely distributed to your colleagues. If you would like more specific information or would like to include any figures for other reporting purposes, please contact us.

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