



LABORATORY TRENDS



December 12, 2014

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Parasitology Update

Tele-Parasitology At Work

The use of telepathology is increasing. This technical enabling of image sharing allows clinicians, pathologists and medical microbiologists to connect at a distance with medical diagnostic labs. In the reference laboratory network parasitologists also connect to share images and review them for Quality Assurance and educational purposes. The BC Public Health Microbiology and Reference Laboratory (BCPHMRL) Parasitology Program has set up and is using to good advantage a BC Tele-Parasitology Service enabling sharing images of human parasites across the province and connecting diagnostic information into the Laboratory Information System. This improved service has resulted in very short diagnostic Turn Around Times (TAT) and better patient care.

One example of the use of this service for fast TAT was a case of anisakiasis following ingestion of parasite contaminated food. Photoimages of this nematode worm seen during the endoscopic procedure were sent to the Parasitology experts here and an immediate diagnosis was made and communicated.

For further information on our services including those of telepathology please see our [Guide to Programs and Services](#). Images and a completed [Parasitology requisition form](#) with pertinent patient history can be emailed to _BCCDC_TeleParasitology@ehcnet.phsa.ca or faxed to (604) 707-2654.

STAT Malaria Testing for EVD Response

Studies on the most recent outbreak of Ebola has shown that when a patient from the impacted area in Africa presents with a febrile illness, nine out of ten cases are malaria. Malaria is an acute life-threatening parasitic infection of the blood and is a major cause of mortality particularly of children, world-wide. The infection can be caused by any of five *Plasmodium* species (*falciparum*, *vivax*, *malariae*, *ovale* and rarely *knowlesi*); different species will cause more harm than others and some have more anti-therapeutic resistance than others. Two species also require additional treatment (to that given for the acute malaria) as dormant hepatic forms can cause relapsing disease unless eradicated using additional medications.

This team is the provincial reference centre for parasites including malaria. As *Plasmodium* speciation directly impacts treatment and case management and since immediate identification of *P. falciparum* is critical for patient safety, the Parasitology Program is available by pager 24/7 applying its highly tuned expertise for thin and thick smears as well as confirmation using Rapid Antigen Detection and, in more challenging cases, speciation by polymerase chain reaction (PCR) methods.

continued...





Parasitology Update

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As part of our Ebola preparedness work, the Parasitology Program Section Head, Ms. Quantine Wong, an expert parasitologist at BCPHMRL, was asked to be a member of the National Ebola (EVD) Working Group chaired by the Canadian Public Health Laboratory Network (CPHLN). She assisted with developing national guidelines for malaria testing in a variety of settings and continues in this advisory capacity. The BC Parasitology Program has established a protocol using formalin for preparing and examining thin blood smears for safe, rapid and urgently needed rule-out diagnosis in cases of suspect EVD in BC (Figure 1).

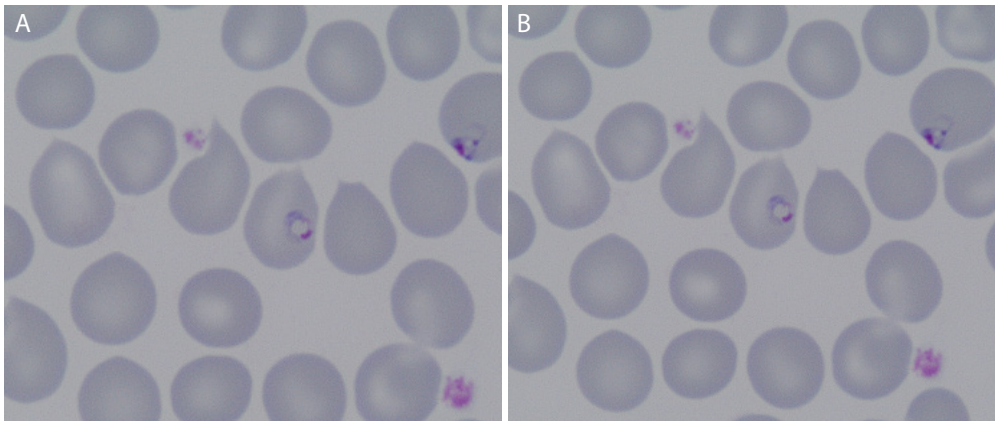


Figure 1
A. Giemsa-stained thin smears (non-EVD protocol) with *P. falciparum* parasites visible. B. Formalin-treated giemsa-stained thin smears (EVD protocol) with *P. falciparum* parasites still visible.



Influenza Surveillance

BC has seen an early start to the influenza season with influenza A and B detections as early as September this year (Figure 2). Weekly influenza A detection rates have been from 0-18% while influenza B rates have been 0-3% (Figure 2). Influenza A(H3) has been the dominant subtype detected so far (73% of influenza A samples); 26% of influenza A samples remain to be typed while 1% has been typed as influenza A(H1N1)pdm09.

As is typical of years when influenza A(H3) dominates, seniors and the elderly are disproportionately affected (Figure 3). About 66% of cases with influenza A(H3) have been over 60 years in age; those in the 50-59 years are the next age group affected (10% of total).

Nationally, BC had slightly higher influenza A detection rates compared to the other provinces in September and October (0-10% percent positivity); the other provinces started seeing increasing rates of influenza A starting in November (Figure 4). The Prairies in particular have seen increased rates since the last week of October with detection rates now close to 30% (Figure 4).

Figure 2
Respiratory testing volumes and influenza detection rates, Virology Program, BCPHML.

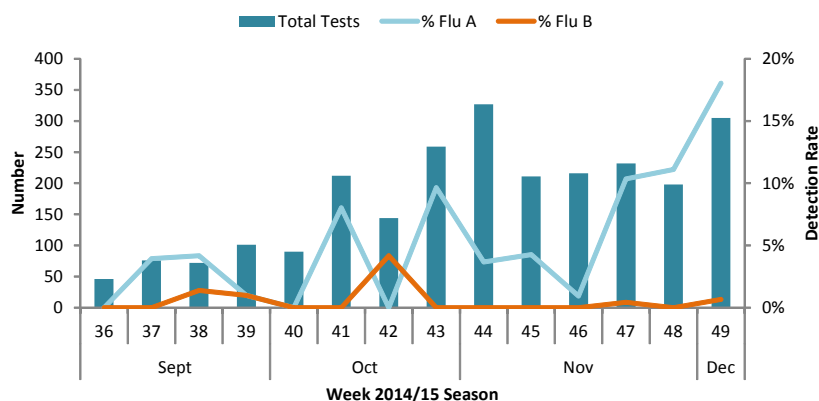


Figure 3
Age distribution of influenza A(H3) cases, Virology Program, BCPHML.

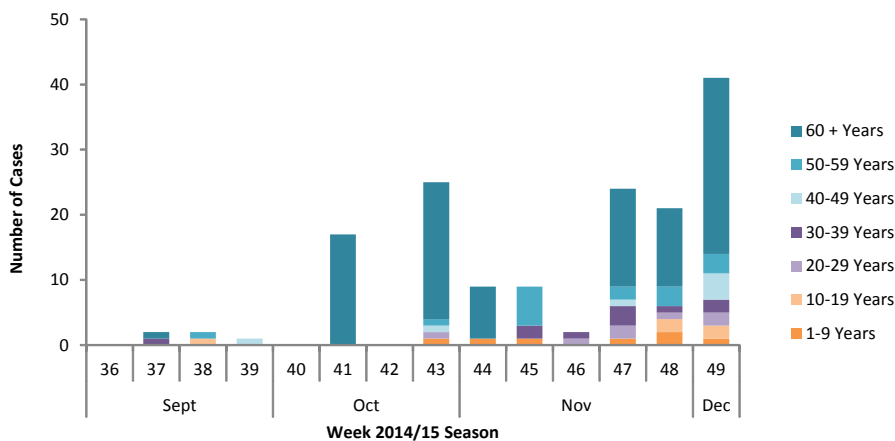
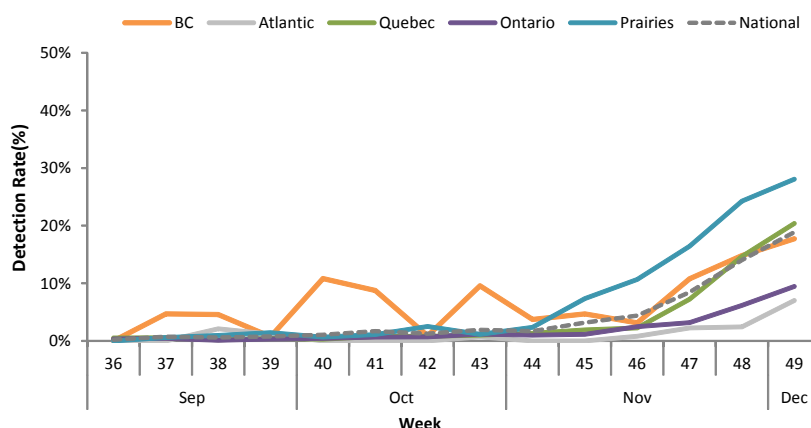


Figure 4
Influenza A detection rates across Canada, September 2014 to present. Data derived from FluWatch reports.

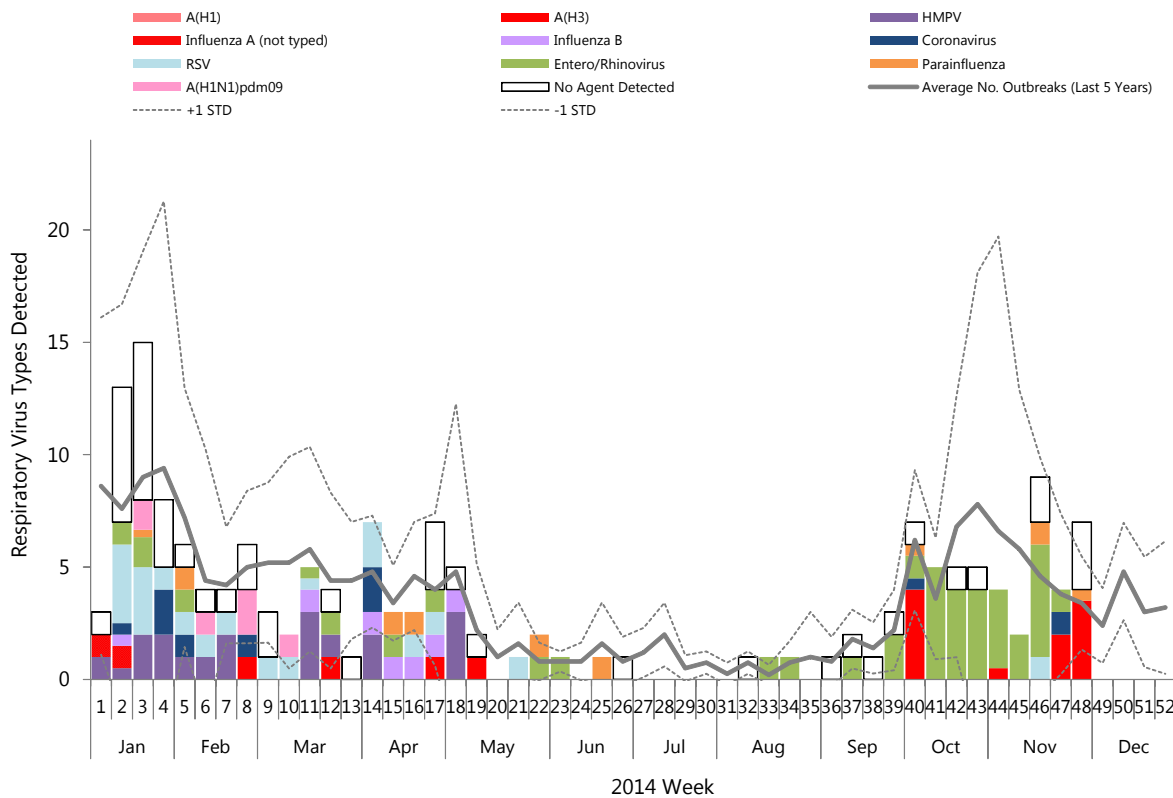




Influenza-Like Illness Outbreaks

In November there were 22 influenza-like illness outbreaks investigated. This has been on the higher end of what has been seen historically at this time of the year (Figure 5). Samples were submitted from 20 (91%) long-term care facilities and two (9%) hospitals. Enterovirus was detected from samples from eight (36%) of these outbreaks while influenza A(H3) was detected in five (23%) of these outbreaks. Separate facility outbreaks also revealed coronavirus, parainfluenza virus and respiratory syncytial virus, respectively, from patient samples. One facility also had patients with mixed infections of influenza A(H3) and parainfluenza virus.

Figure 5
Influenza-like illness outbreaks investigated* in 2014, Virology Program, BCPHMRL.



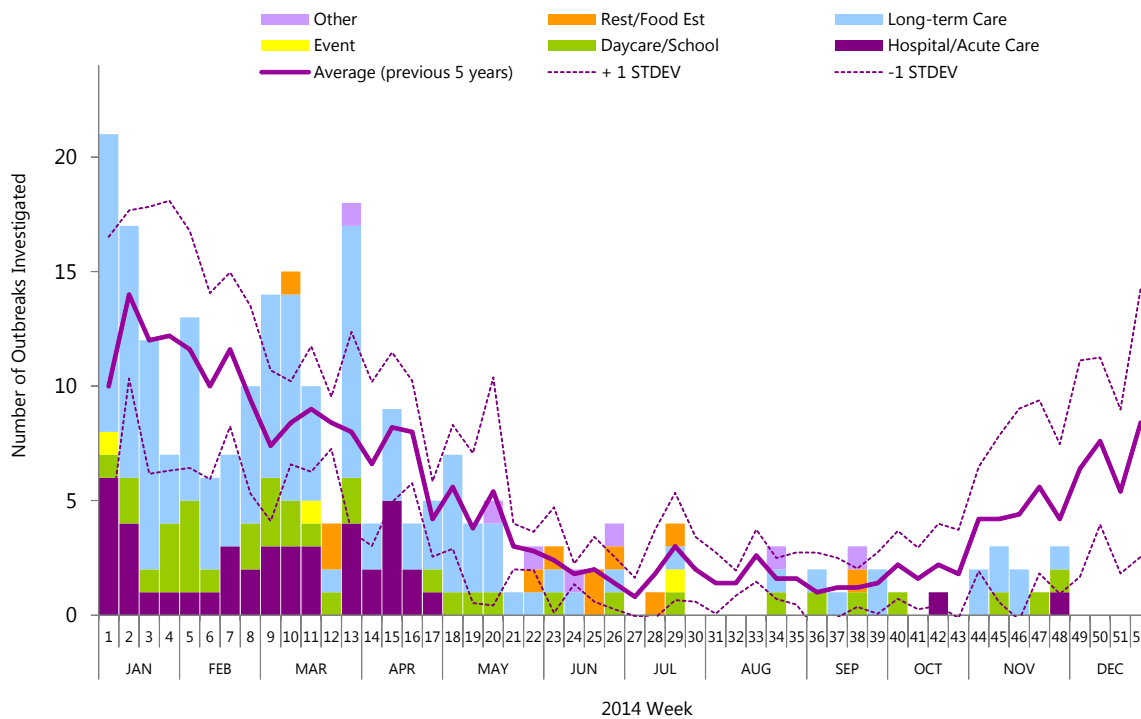
* The data available are from outbreaks in which the BCPHMRL has been notified. Some acute care microbiology laboratories are also testing for influenza in the province.



Gastrointestinal Outbreaks

In November, the BCPHMRL investigated nine gastrointestinal (GI) outbreaks, consistent with what is expected at this time of the year (Figure 6). Outbreaks were identified from five (56%) long-term care facilities, three (33%) daycares and one (11%) hospital. Samples were submitted for five (56%) of these outbreaks with norovirus detected in one long-term care facility.

Figure 6
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.



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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