

# LABORATORY TRENDS



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## Laboratory News

### Dr. Isaac-Renton Receives Prestigious 2013 ASM Society Award

Dr. Judith Isaac-Renton, Public Health Laboratory Director of the BC Public Health Microbiology & Reference Laboratory (BCPHMRL) recently received the highly prestigious American Society for Microbiology (ASM) Gen-Probe Joseph Public Health Award. This award has been established in memory of Dr. J. Mehsen Joseph, who dedicated his life toward the advancement of both microbiology and public health and honours a distinguished microbiologist who has exhibited exemplary leadership and service in the field of public health.

Dr. Isaac-Renton was presented with this award at the May 2013 ASM Meeting in Denver, Colorado where she attended the President's dinner and gave the Award Laureate Lecture. She is the first Canadian Microbiologist to receive this prestigious award.

### Successful 2013 Accreditation Award

The BCPHMRL has officially been awarded with accredited status from the College of American Pathologists (CAP). Following a two-day onsite inspection in March, inspectors comprehensively reviewed policies, procedures and made observations against the CAP checklists.

This is the third time that the BCPHMRL has achieved this distinction from CAP and is a testament to the hard work and dedication of the entire team.

### New Parasitology Telepathology Service

The Parasitology Program now offers parasitic telepathology services as another means to aid in the diagnosis of parasitic infections. Telepathology uses telecommunications technology to facilitate the transfer of image-rich pathology data between distant sites for the purposes of diagnosis, education and research. This new service will improve the level of patient care and timeliness of results by enhancing access to parasitology expertise within British Columbia.

Images can be emailed to [TeleParasitology@phsa.ca](mailto:TeleParasitology@phsa.ca). A completed Parasitology requisition (<http://www.bccdc.ca/NR/rdonlyres/87B08108-2C98-40C2-91B1-DCBAE149E988/0/ParaReq.pdf>) including pertinent patient history, sample information and patient/client demographics should be faxed (604-707-2654) or scanned and emailed to the Parasitology Program. A report with results can then be generated and sent back to the client. For further information on this new service, Parasitology staff can be contacted at (604) 707-2629.



## Parasitology Telepathology Service

BC Public Health Microbiology and Reference Laboratory





## Tuberculosis Susceptibility Testing Trends

The TB/Mycobacteriology Program of the BCPHMRL participates in the Canadian Tuberculosis Laboratory Surveillance System (CTBLSS) by reporting *Mycobacterium tuberculosis* complex (MTBC) drug susceptibility testing results for every patient for whom a culture grows or a bacterial isolate is received from another laboratory.

First-line anti-tuberculosis drug testing is performed routinely using the BACTEC® 960 fluorometric proportion method. Isolates are tested against critical concentration levels of isoniazid (INH), rifampin (RMP) and ethambutol (EMB); pyrazinamide (PZA) is performed on isolates showing resistance to isoniazid and/or rifampin and also when requested.

Resistance profiles are defined as: mono-resistance, resistance to one of the first-line drugs (INH, RMP, EMB or PZA); poly-resistance, resistance to two or more first-line drugs not including the combination of isoniazid and rifampin; and multidrug-resistance (MDR-TB), resistance to at least the two best first-line anti-tuberculosis drugs, isoniazid and rifampin, but which does not meet the definition of extensively drug-resistant TB.

Figure 1 demonstrates the resistance patterns of MTBC patient isolates from 2005 to 2012. Mono-resistance has been on the rise from 5.8% in 2006 to 11.3% of isolates in 2011. The proportion of mono-resistance has decreased to 9.1% in 2012. Poly-resistance has varied from 0% to 0.9% while multi-resistance has varied from 0% to 2% during this period. In 2012, 9.1% of isolates were resistant to at least one of the first-line drugs (Figure 2); this has been driven by INH resistance over the 8 years reported. Since 2008, the level of mono-resistance has been greater than that of the Canadian average as reported by the CTBLSS (data up to 2010). Data for MDR-TB rates in BC have either been consistent or below what CTBLSS reports for national rates from 2005-2010.

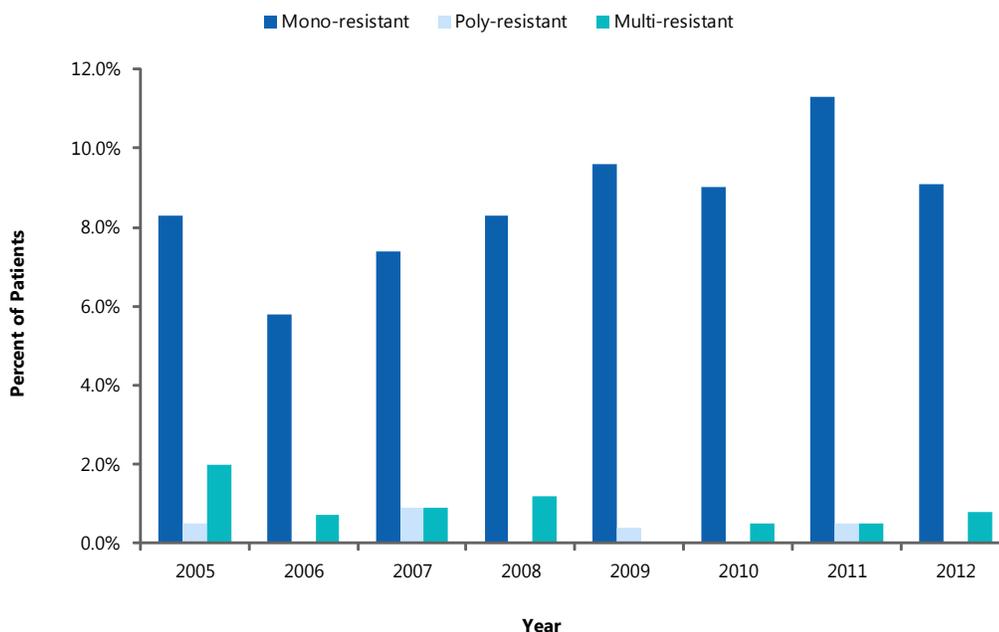
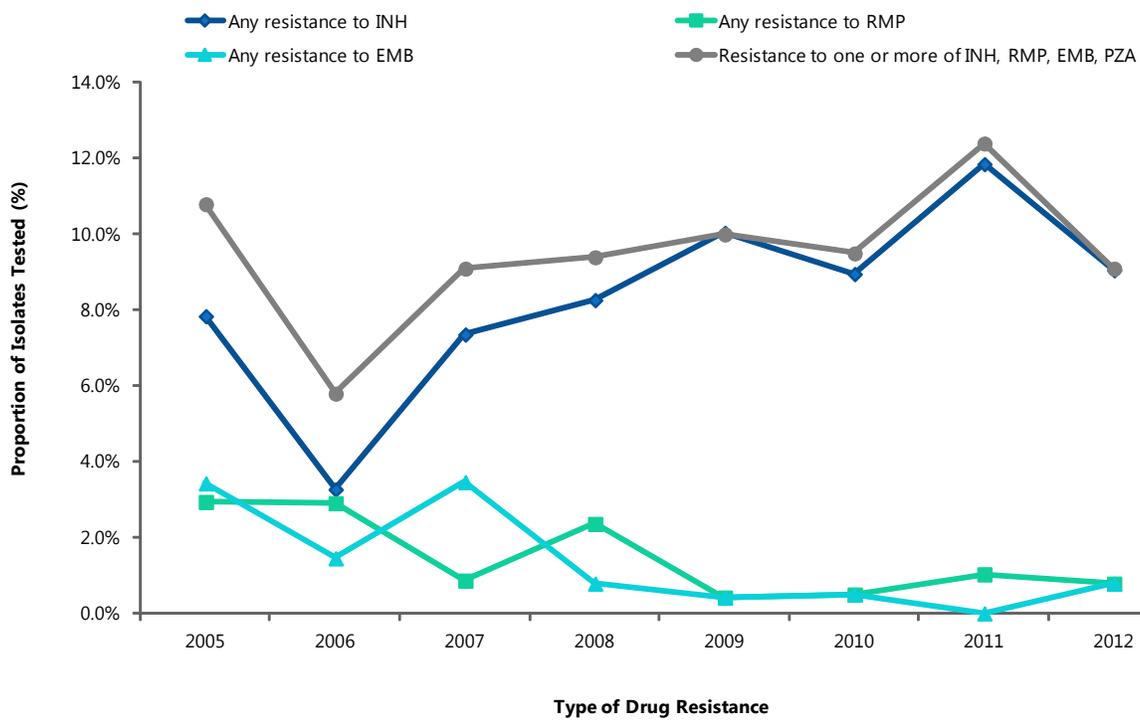


Figure 1  
Percent and number of *M. tuberculosis* Complex patients that are mono-resistant, poly-resistant and multi-resistant in British Columbia, 2005-2012.



## Tuberculosis Susceptibility Testing Trends

Figure 2  
TB drug resistance by type of first-line drug, 2005-2012.



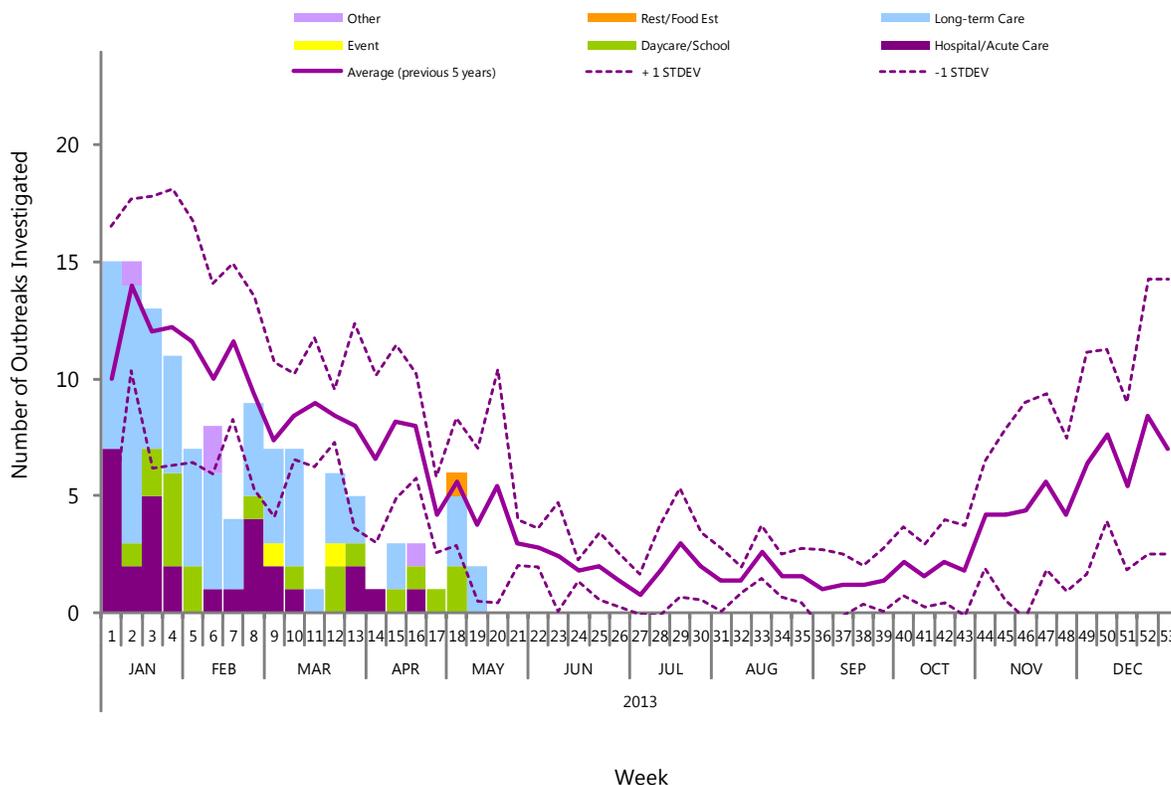


## Gastrointestinal Outbreaks

In May, the Environmental Microbiology Program at the BCPHMRL investigated 6 gastrointestinal (GI) outbreaks at the beginning of the month (Figure 3). Outbreaks were identified from 4 long-term care facilities and 2 daycares/schools. Samples for laboratory testing were submitted for 2 (33%) of these outbreaks with norovirus confirmed in both outbreaks.

The BCPHMRL along with Health Authority and BCCDC partners are also investigating a multi-jurisdictional *E. coli* O157:H7 cluster with similar Pulsed-Field Gel Electrophoresis patterns. Cases have been identified in Ontario, Quebec and some US States. The investigation is ongoing as to the common source of exposure.

Figure 3  
Gastrointestinal outbreaks investigated\* since January, 2013, Environmental Microbiology, Bacteriology & Mycology, Parasitology and Virology Programs, BCPHMRL.



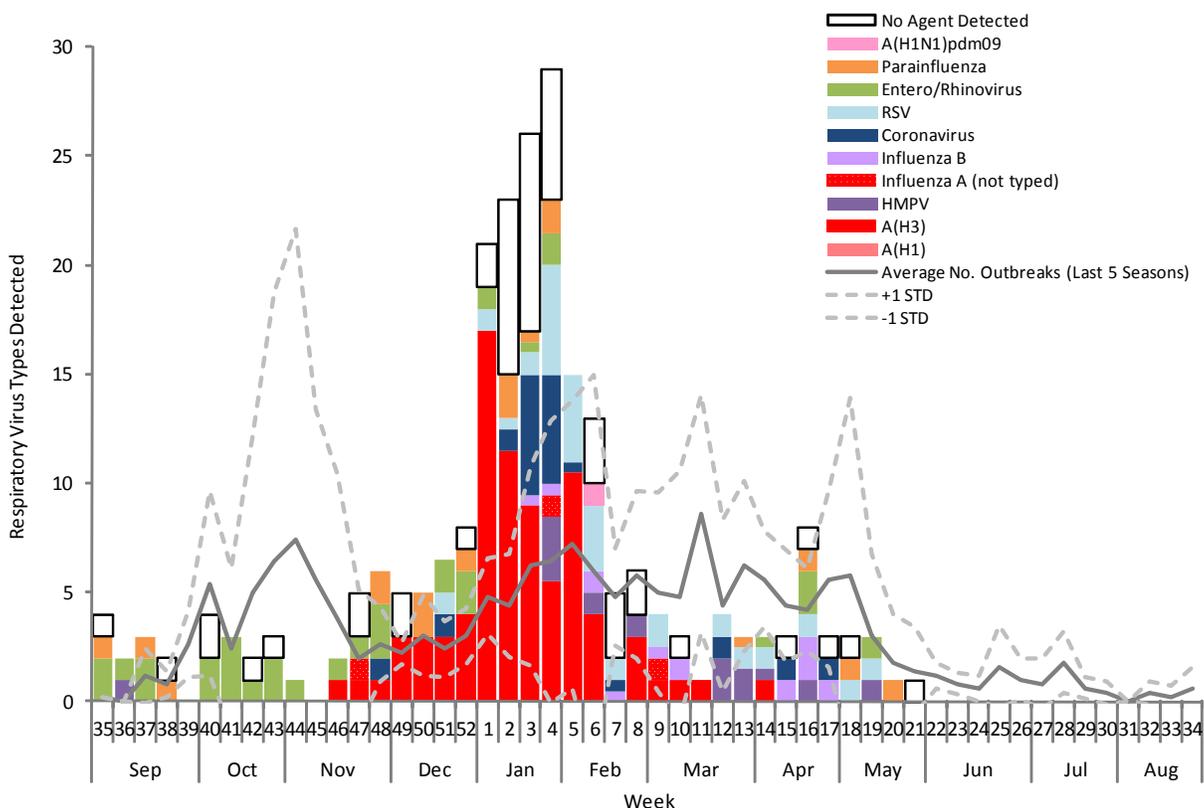
\* The data available are from outbreaks in which the BCPHMRL has been notified. Some acute care microbiology laboratories are also testing for norovirus in the province and these data may not include outbreaks from all Health Authorities. Given the nature of GI outbreaks, samples are not always available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



## Respiratory Outbreaks

In May, samples were submitted to the BCPHMRL for 7 respiratory outbreak investigations from long-term care facilities. The number of outbreaks investigated is consistent with what has been historically observed at this time of the year (Figure 4). RSV was detected in 2 (29%) of these outbreaks, entero/rhinovirus detected in another and HMPV in a third outbreak.

Figure 4  
Respiratory outbreaks investigated\* by respiratory season, Virology Program, BCPHMRL.



\* Figure 4 reflects respiratory sample results submitted for investigation to the PHMRL and may not be representative of respiratory outbreaks in the entire BC community.



## Respiratory Surveillance

Requests for respiratory testing in the BCPHMRL Virology Laboratory have decreased during May and were consistent with those in the 2011/12 season (Figure 5). Influenza A virus was only detected in only 1-4% of the specimens which is considerably less than 7-26% detected during this period last season (Figure 5). Likewise, Influenza B virus was detected in 1-7% of the specimens, compared to 6-17% in the 2011/12 season (Figure 5). As well RSV was detected in 0-9%.

Nationally, influenza A activity decreased in all provinces in May with detection rates generally below the national rate from the previous season (Figure 6). Influenza B rates continued to fluctuate above and below the national rate from the previous season in May in various provinces but have generally decreased as well (Figure 7).

Figure 5  
Respiratory testing volumes and influenza percent positivity, Virology Program, BCPHMRL.

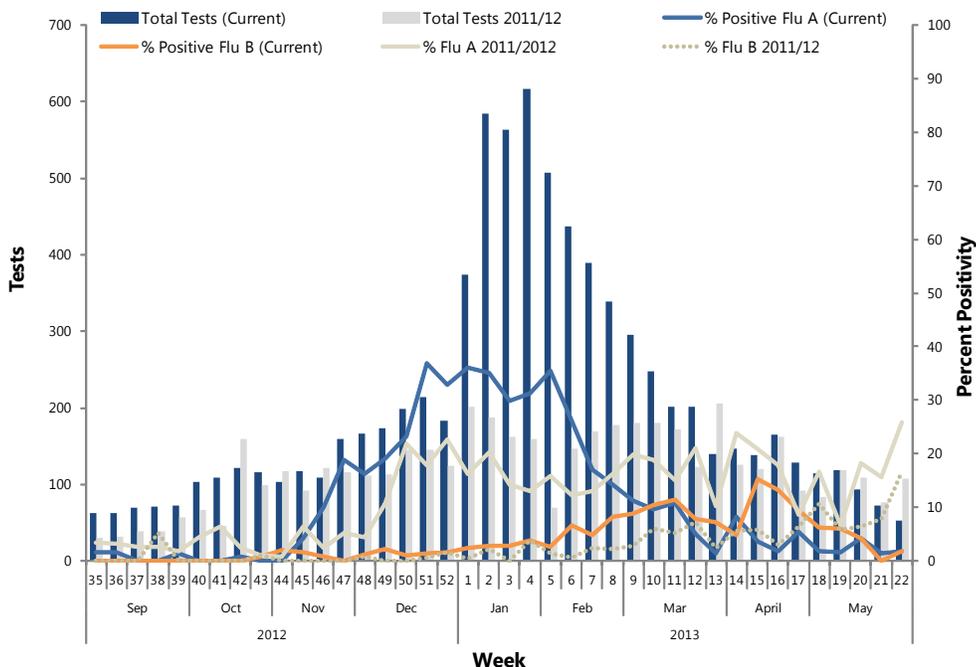


Figure 6  
Influenza A percent positivity across Canada, 2012/2013 season.  
Source: FluWatch, Public Health Agency of Canada

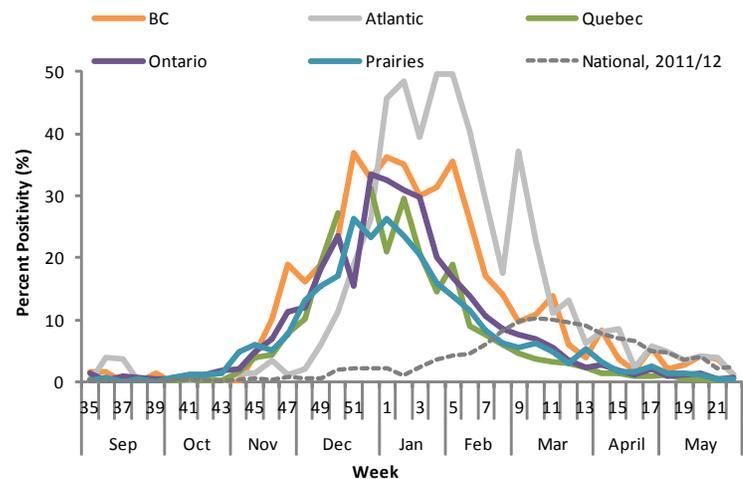
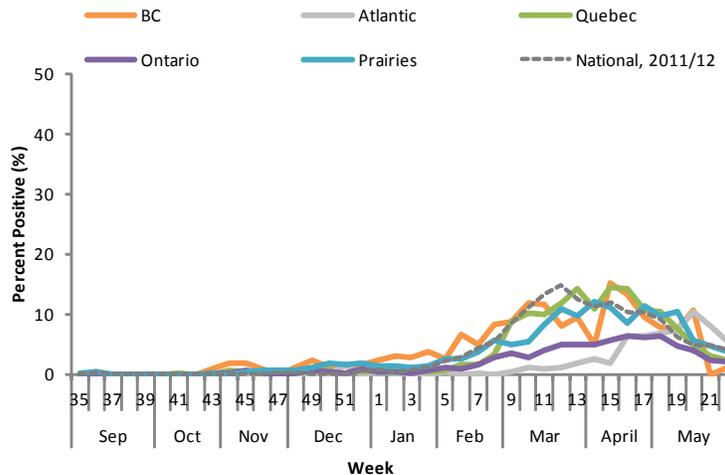


Figure 7  
Influenza B percent positivity across Canada, 2012/2013 season.  
Source: FluWatch, Public Health Agency of Canada





## 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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