TARRANT

The **A**lberta **R**ecording and **R**ese**A**rch **N**e**T**work

Tracking Influenza in Alberta

NEWSLETTER December 2005

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Dear Colleagues,

Season's greetings from TARRANT group!

Alberta Influenza Activity Update

As you may have noted, a few weeks ago there was an outbreak of a mystery disease in a Calgary high school that affected 400 students.

Samples proved that it was due to an influenza mini-epidemic: caused by influenza B. Five samples were sent to the National influenza reference laboratory, who has now reported that it is a B/Hong Kong/330/01 like type. The provincial Lab confirmed 36 influenza cases in Alberta up to December 10, 2005. All of them were influenza B. Seven of them were reported by TARRANT recorders.

Every year, the vaccine contains two different A types, and one B type. This year, the vaccine contained B/Shanghai/361/2992, and this is rather different in lineage, so there may not be good protection from this year's vaccine. It is similar to the type in last year's vaccine, which contained B/Victoria/02/87. So we could have an interesting year, or there may be some residual effect from last year's vaccine.

You can find the details of epidemic progress on our website: http://www.ucalgary.ca/tarrant/ .

Vaccine Effectiveness Study

This event raises issues about how much protection the vaccine provides. While trials were done originally to demonstrate the efficacy of the vaccine, we now change the vaccine each year, and assume it will be effective. Clearly this is not always correct, depending in part on how closely the vaccine strain resembles the circulating virus that year, and the patient's state of health.

In BC last year, the flu surveillance network ran a small project to assess this. One hundred and thirty four swabs of patients presenting with influenza-like illness (ILI) were sent to the laboratory for influenza testing. Sentinels were asked to complete a lab requisition form with some extra questions regarding patient's clinical and vaccination status. The study compared lab-confirmed influenza cases in vaccinated patients against those in non-vaccinated patients. They found that protection for immunised people was probably around 70-75% for influenza A and 40-45% for influenza B, after adjusting for age. Protection seemed to be lower for older patients than for the young[1].

[1] Skowronski DM, Gilbert M, Tweed Sa, Petric M, McNabb G, De Serres G. Effectiveness of vaccine against medical consultation due to laboratory-confirmed influenza: results from a sentinel physician pilot project in British Columbia, 2004-2005. Canada Communicable Disease Report. 2005; 31(18): 181-91. http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/05vol31/dr3118ea.html

Although these findings showed an interesting trend, the study suffered from small sample size. The numbers from one province are not enough to give clear results, so we in the TARRANT network have been asked to consider how we can participate in this project, to produce better information. Our team will be discussing and negotiating over the next few months to see what can be done. We are aware that we must not overload recorders with tasks, especially extra information.

What's New in Influenza Testing at the ProvLab

Kevin Fonseca, virologist, Provincial Laboratory for Public Health.

Many of you will notice (or may have already noticed) the changes of the laboratory reports, with strange virus names and new tests. This short article introduces the new technology.

Methods used in virology laboratories now are very different from a few years ago. About a year ago we introduced molecular assays into routine lab tests. Essentially these assays are akin to a molecular photocopier, which amplifies virus-specific genes using a judicious combination of primers (DNA pieces that are complementary to the virus gene target in question) and probes (also pieces of DNA that recognize the specific viral gene target products) all in a biochemical soup ! These assays are referred to as PCR (polymerase chain reaction) or NASBA (nucleic acid sequence base amplification). PCR is more suited to the DNA viruses, such as adenovirus, whereas NASBA is better for the RNA viruses, such as influenza.

The Provincial Lab has now switched from cell culture to molecular technology for routine respiratory virus tests. Compared to rapid culture methods, which rely upon the viability of the virus, molecular assays do not require viable viruses. Therefore, the results are less likely to be affected by the sample storage and transportation. Molecular assays are also much more sensitive. Patients presenting influenza-like illness a few days after they were infected usually have low viral titres. With the new molecular technology, they might still have positive results.

The threat of a possible pandemic has made influenza A a "level 3 agent." This means that viral culture is restricted to a high containment facility located in Edmonton. However, molecular assays, which can be performed in a level 2 laboratory, make it possible to further test influenza A in Calgary.

A new respiratory virus (human metapneumovirus) is included in routine respiratory virus test. It is in the same family as RSV (respiratory syncytial virus). This agent cannot easily be cultured, and if so would take at least 3 to 4 weeks, whereas molecular assay are complete at about 24 to 36 hours after the sample arrives at the lab. Our current panel of respiratory viruses now comprises influenza A & B, RSV, parainfluenza group 1 to 4, adenovirus and human metapneumovirus.

These technology changes could improve the quality and timeliness of surveillance. We hope to be able to better monitor severe respiratory infections and the occasional "bird flu" case from returning travelers. I look forward to talking more about these changes and their implications to your clinical practice as well as the flu surveillance at the 2006 TARRANT meeting.

Annual meeting 2006

If you plan to attend the meeting and/or to send one of your staff to attend the meeting, please get back to us as soon as you can with your preferences, if you haven't done so.

(See our included reply form)

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We will send out more information including date, location, and topics of the meeting early next year. Hope to see you at the meeting!