September 2019

TARRANT VIRAL WATCH

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We hope that all of our sentinels had a great summer and are getting prepared for the upcoming influenza season. A new influenza season will begin on October 1st , 2019.We will continue both the influenza Vaccine Effectiveness (VE) study and the TARRANT weekly ILI surveillance program in the upcoming year.

Last season we collected over 950 samples for the VE study and screened over 185000 patients for ILI/LRTI. Alberta was one of the largest contributors to the national VE study and our data played an important role in determining the composition of this season's vaccine.

This work would not be possible without our extensive sentinel network and we thank you all for your ongoing contributions to the TARRANT program. We look forward to our continued collaboration in the upcoming season.

News and Updates

In August, we said good bye to Kim Le who had been our Administrative Assistant for over seven years. We wish her success in all her future endeavours. We welcomed Zoltan Kovacs as our new Administrative Assistant. He has been with the University of Calgary for 14 years on several research projects and brings along his expertise.

This September, we welcomed Sara Orenstein as one of our research assistants She begins her MSc in Population/Public Health at the University of Calgary. Yvonne Efegoma and Samiha Mohsen remain as our Research Assistants leading into the new season.

Update:

Swab kits and requisition forms for the new 2019-2020 season will be sent out shortly and can be expected to arrive at your clinic for the start of the flu season. This year we will be using **GREEN** requisition forms and we ask that only the new forms are used when submitting samples. Incomplete forms prevent us from using your data in our studies. We are also sending the 2020 TARRANT calendar for you and one for your staff as a token of our appreciation for your help with our program

As a gentle reminder for the Tarrant weekly reporters, please submit the report every Monday or Tuesday before noon. The report has to be submitted every Tuesday by noon to Alberta Health. When there is a Monday holiday, the report is submitted on Wednesday.

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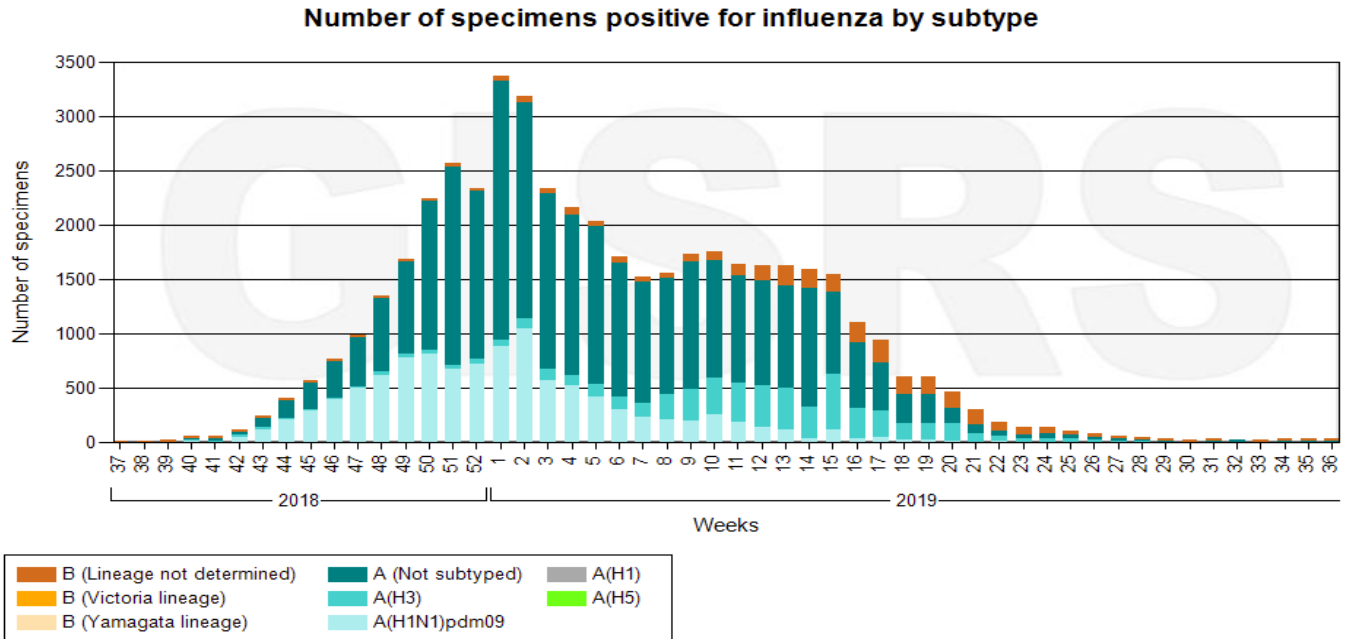
Update for the 2018-2019 Influenza Season

The total number of influenza cases in Alberta for the 2018-2019 season was 7,632 with 1,962 hospitalizations and 52 hospital deaths. Influenza A (H1N1)pdm09 was the dominant subtype with 3,848 laboratory confirmed cases while Influenza B was low this season with 363 cases.
Majority of the regions in Canada and the Northern hemisphere are reporting no influenza activity as influenza reaches interseasonal levels. In temperate zones of the Southern hemisphere, influenza activity seems to have peaked and is now on the decline. The influenza vaccine effectiveness was about 69% (95% CI: 60 to 76) for A(H1N1)pdm09 but had little or no protection against medically-attended outpatient A(H3N2) illness (VE of 23%; 95% CI: -9 to 46).

The following graph shows the influenza laboratory surveillance information for Canada over the past year's influenza season.



Source: WHO

Vaccine for next season

Quadrivalent vaccines in the 2019-2020 northern hemisphere influenza season contain the following:

- An A/Brisbane/02/2018 (H1N1)pdm09-like virus;
- An A/Kansas/14/2017 (H3N2)-like virus;
- A B/Colorado/06/2017-like virus (B/Victoria/2/87 lineage); and
- A B/Phuket/3073/2013-like virus (B/Yamagata/16/88 lineage)

FluMist® live intranasal vaccine is not available in Canada for the 2019-2020 influenza season.

Alberta will be providing the quadrivalent inactivated influenza vaccine again this year. Unfortunately, the vaccine availability is slightly delayed, so the public health campaign will start the week of October 21, 2019.

Does knowing Vaccine Effectiveness assist the decision to be immunised? *By Dr. James Dickinson*

How should we respond when someone – our patient, family or staff -– asks: "So what do you advise about getting vaccinated?" Or even more blunt: "Is there any point in getting the vaccine?"

As a Tarrant participant, you have been helping to provide the answer. Our sentinel program has been measuring community vaccine effectiveness for many years now. The effectiveness varies year by year, and within each year according to which of the (usually 3) epidemic types: AH1N1, AH3N2, or B. Some years it is high (>70%) for one or two of the epidemics, and low for another, some years it may be mid-level (40 to 50%), others at least one may be zero or even slightly negative (that is, gives a higher risk of being affected by influenza). In any given year, we cannot predict the effectiveness, yet decisions about vaccination must be made before the epidemic occurs.

A recent paper[1] gives an approach to using this information. The answer depends on the risk of getting influenza, which is maybe 5% in a mild year, maybe 12 to 15% in a bad year. This is the risk of getting clinical influenza. That usually means a few days of fever, myalgia and cough. Most of us would prefer to avoid that. Serological studies show that many other people get an inapparent infection, only detectable by rising antibodies.

The vaccine reduces the relative risk of clinical influenza. But most years, there are three epidemics, of varying intensity: usually there is one dominant Influenza A peak (either H1N1 or H3N2), and two smaller epidemics including a type B, usually peaking at different times with the influenza B in the spring.

For ease of mathematics, let us assume a risk of influenza of 10%. In a good year the reduction in risk may be around 70%, so the vaccine prevents 7%(10%x 0.7) leaving 3% residual risk. In an ordinary year, it would prevent 5%, and a bad year, maybe not at all. If there is 3% benefit that means about one in 33 people will be helped in any given year: if 5%, one in 20 people can benefit in that year. Only a small proportion of vaccinated people will benefit. So each must make their own choice about whether that is worth the discomfort of a slightly sore arm.

When a very new variant of influenza arises, to which few are immune, such as occurs in pandemic years, the attack rate is much higher. If there is time to develop a specific vaccine, as happened in 2009, the vaccine effectiveness is likely to be high. In 2009, it was around 90%. Coupled with the much higher attack rate, the benefit of the vaccine will likely be much greater than usual. For example, if 40% of unimmunised would be infected, then 90% efficacy would reduce the attack rate of immunised people to 4%: a risk reduction of 36%. One in 3 will be helped.

Certain groups[2] are high-risk for influenza infection. Their attack rate may be higher, and/or when they get infected their risk of serious disease and death may also be higher. But we are uncertain how much the vaccine helps those people.

It may help more to immunise the people around, hoping that reducing their acquisition of disease reduces the risk of transmitting influenza to their Immuno-compromised family, friends or colleagues. This is the reasoning behind immunising health care staff: the potential for benefit to others, not just the recipient.

It can also be argued that the vaccine, though imperfect, may reduce the severity of disease, or the duration of illness, or even the risk of being hospitalised among those with severe disease. These are thought-provoking hypotheses, but at present we have inadequate data to test them.

So how to answer the question? These are all probability statements, based on populations. We cannot know the benefit for each individual. Its probability is small, but the harms are minimal. On balance, I consider it is worthwhile getting the shot, especially to avoid spreading infection to others. When I have had influenza, it has put me to bed, aching and sleeping for 3 days, barely aware of my surroundings – I prefer to avoid that. But in a free country each person can make their own choice.

1. Zhao L, Stirling R, Young K. Should individuals use influenza vaccine effectiveness studies to inform their decision to get vaccinated? Can Commun Dis Rep 2019;45(6):156–8. https://doi.org/10.14745/ccdr.v45i06a02
2. https://www.canada.ca/en/public-health/services/diseases/flu-influenza/health-professionals.html

Influenza season in Australia

The flu season in Australia can be used as a guide to what the flu season might be in the Northern hemisphere. The season got off to an early start in Australia with influenza and influenza-like illness rising from early March and reaching its peak in July and it's currently on the decline. As at August 25, 2019, the season has had 247,277 laboratory confirmed cases 3,119 hospitalizations and 590 deaths which may be worse than the 2017 season which had 229,579 laboratory confirmed cases, 3,969 hospitalizations and 598 deaths at end of season.

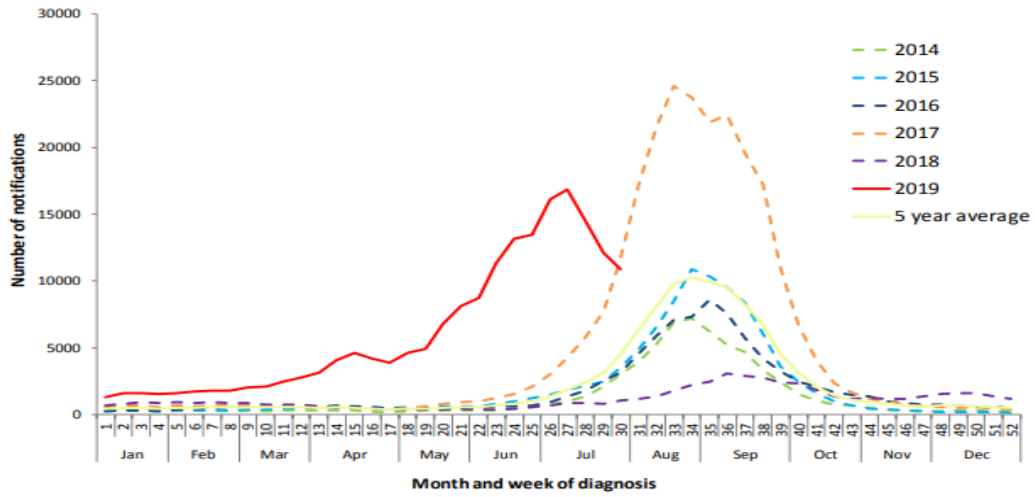


Fig: Notification of laboratory confirmed influenza from Jan 01, 2013 to Aug 225, 2019

The introduction of rapid testing in 2017 may have also contributed to the large numbers reported then.

Majority (74%) of the cases this season have been Influenza A (unsubtyped).

In June 2019 alone, there where over 30,000 people diagnosed with the fluwhich is much more compared to June 2018 (only 1,984). This outbreak could potentially be bad news as Canada's flu seasons can sometimes be similar to Australian flu seasons.

Source: Australian Government Department of Health. Australian influenza surveillance report. No. 9, 2019. available online at https://www1.health.gov.au/internet/main/publishing.nsf/Content/cda-surveil-ozflu-flucurr.htm/$File/flu-09-2019.pdf