Science for Communities

2019 ANNUAL INFLUENZA SUMMARY

This report provides an overview of the influenza season in New Zealand in 2019.

Further information and figures are available here.

Information on the influenza surveillance systems in New Zealand is available here.

SUMMARY OF 2019 SEASON

- Influenza A(H3N2) and influenza B/Victoria co-circulated in New Zealand during the 2019 influenza season. Influenza A(H3N2) viruses often cause relatively more illness in elderly populations, whereas Influenza B viruses often affect younger and school aged children relatively more. In the 2019 season influenza A viruses were more frequently detected in hospitalised patients and influenza B/Victoria was more frequently detected in the community.
- Community influenza related activity started and peaked earlier in 2019 than in recent seasons, but remained at a low level overall.
- Severe acute respiratory infection (SARI) hospitalisation rates also increased earlier than in recent years, with similar levels of SARI hospitalisation to other recent years.
- Over the influenza season (weeks 18–39), over 50% of samples tested in the community and just under 30% of samples tested in hospitals were influenza positive, this is one of the highest positivity rates observed in recent years and indicates that a higher proportion of viral respiratory illnesses during the 2019 winter were due to influenza than usually detected.
- The severity of illness as measured by the ratio of influenza associated intensive care unit (ICU) admissions compared with influenza associated hospitalisations was low, which is similar to other influenza A(H3N2) predominant years.
- The 2019 publically funded influenza vaccines available in New Zealand were a good match for the circulating strains. There was a genetic mutation in the influenza B/Victoria virus circulating during the season. However, this change had no discernible impact on vaccine effectiveness.

NATIONAL INFLUENZA SURVEILLANCE OBJECTIVES AND SYSTEMS

Influenza surveillance systems are in place to detect influenza epidemics/pandemics, inform vaccination policy and vaccine strain selection and guide public health control measures in New Zealand and globally.

New Zealand conducts surveillance in community and hospital settings to capture disease presentations at different levels of severity. Due to differences in healthcare access, the combination of these systems allows for a better representation of the burden of influenza in

New Zealand. For example, the very young (under five years old), older adults (65 years or older), and those of Māori or Pacific ethnicities are more likely to be admitted in hospital than other age and ethnic groups.

For further details on the design of each system, please click here. Data collected from each system is collated, analysed, interpreted and presented weekly throughout the winter surveillance period (roughly May to October) by ESR on behalf of the Ministry of Health.

INFLUENZA-LIKE ILLNESS (ILI) IN THE COMMUNITY

During the 2019 respiratory virus season, national influenza like illness (ILI) activity, as measured by rates of ILI consultations at GPs and calls to HealthLine, was at low seasonal levels.

The influenza season started early with both the rates for GP ILI consultations and GP visits in which influenza was detected, increasing from early May. GP ILI consultation levels returned to below the seasonal baseline from mid-July, while GP visits in which influenza was detected remained above the seasonal baseline until mid-August.

In the Community, throughout the season there were higher levels of influenza positivity compared with recent years. This indicates that a higher proportion of viral respiratory illnesses in the community this winter were due to influenza.

ILI activity measured by calls to HealthLine, increased early but remained at expected levels throughout the season. Call rates did not vary greatly among DHBs throughout the season.

HOSPITAL ADMISSIONS FOR SEVERE ACUTE RESPIRATORY INFECTIONS (SARI)

During the 2019 respiratory virus season, severe acute respiratory infection (SARI) hospitalisation rates increased earlier than in recent years but remained at expected levels overall. Influenza-positive SARI hospitalisation rates crossed the seasonal baseline around two months earlier than in typical seasons and remained above the baseline level from May until late August.

(Note: SARI data is reported from Auckland and Counties Manukau DHBs only)

CIRCULATING RESPIRATORY VIRUSES IN 2019

Two viruses co-circulated in the 2019 influenza season. Influenza A(H3N2) and influenza B/Victoria. Influenza A(H3N2) viruses often cause relatively more illness in elderly populations, whereas Influenza B viruses often affect younger and school aged children relatively more.

Throughout the season influenza A viruses were more frequently detected in hospitalised patients and influenza B/Victoria virus tended to be more frequently detected in the community.

Rhinovirus and Respiratory Syncytial Virus (RSV) were the most frequently detected non-influenza respiratory viruses circulating in 2019. Monitoring of these non-influenza respiratory viruses not only provides a more accurate understanding of when influenza is not responsible for GP ILI visits or SARI hospitalisations trends, but also helps to identify clusters of these viruses and could help inform decisions on the potential use of new vaccines and treatments in New Zealand as these become available.

SEVERITY OF INFLUENZA ILLNESS AND POPULATIONS AT INCREASED RISK

Severity represents the extent to which individuals get sick when infected with the influenza virus. While in the 2019 season influenza associated hospitalisation rates remained between a low and moderate level, the severity (as measured by the ratio of influenza associated intensive care unit admissions compared with influenza associated hospitalisations) only reached low levels, with very few cases admitted to ICU. Lower levels of severity have also been observed in previous seasons (2013, 2015 and 2017) when the predominant influenza strain in hospitalised patients was influenza A(H3N2).

INFLUENZA IN POPULATIONS AT ELEVATED RISK

Groups at increased risk for Influenza infection or poor outcomes with Influenza infection are a particular focus of Influenza surveillance and public health interventions. In New Zealand, pregnant women, adults with specific underlying medical conditions, and children under five years old who have been hospitalised for respiratory illness or have a history of significant respiratory illness are all eligible for free seasonal influenza vaccine.

Around one third of those hospitalised with Influenza associated SARI and close to two thirds of those admitted to ICU with influenza associated SARI, had no reported pre-existing medical risk factor. In 2019, ICU admission rates were very low which makes trends more difficult to interpret.

VACCINE COVERAGE, VACCINE EFFECTIVENESS AND ANTIVIRAL RESISTANCE

Influenza viruses are continually changing, making the selection and development of an effective vaccine a challenge each year. For the 2019 influenza season a quadrivalent vaccine was funded for those eligible for free seasonal influenza vaccine.

The 2019 publically funded vaccine contained the following four components:

- A(H1N1): an A/Michigan/45/2015 (H1N1)pdm09-like virus
- A(H3N2): an A/Switzerland/8060/2017 (H3N2)-like virus
- B: a B/Phuket/3073/2013-like virus (belonging to B/Yamagata lineage)
- B: a B/Colorado/06/2017-like virus (belonging to B/Victoria lineage)

In 2019, 1.356 million doses of influenza vaccine were distributed in New Zealand.

Annual influenza vaccination remains the most effective way to prevent influenza illness and even in seasons with only moderate vaccine effectiveness, influenza vaccine can still attenuate disease symptoms and therefore reduce the likelihood of severe outcomes, including influenza associated hospitalisation and death. Influenza vaccination not only helps protect those who are vaccinated but can also help protect their close contacts from getting ill with influenza (http://www.cdc.gov/flu/about/qa/vaccineeffect.htm).

In 2019, the vaccine was 53% (95% CI: 31–69) effective at preventing influenza-associated hospitalisations and 29% (95% CI: 9–44) effective at preventing influenza-related ILI GP consultations. For influenza A(H3N2), the vaccine effectiveness was higher for hospitalisations (57 [95% CI: 21–76] and for influenza B the vaccine effectiveness was higher for ILI general practice visits: 56 [95% CI: 38–69]). There was a genetic mutation in the influenza B/Victoria virus circulating during the 2019 season. However, this change had

no discernible impact on vaccine effectiveness. It should be noted that estimates of vaccine effectiveness depend on several factors, including the amount of information collected for the calculations, the age group most affected by the predominant circulating strain (in 2019 younger age groups were most affected by influenza B) and the match between the vaccine and the circulating influenza strains.

No resistance to oseltamivir or zanamivir was detected in influenza viruses tested in 2019.

VACCINE COMPOSITION FOR NEXT SEASON (2020)

The 2020 publically funded seasonal influenza vaccine will contain the following four components (a quadrivalent vaccine):

- A(H1N1): an A/Brisbane/02/2018 (H1N1)pdm09-like virus
- A(H3N2): an A/South Australia/34/2019 (H3N2)-like virus
- B: a B/Washington/02/2019-like virus (belonging to B/Victoria lineage)
- B: a B/Phuket/3073/2013-like virus (belonging to B/Yamagata lineage)