Science for Communities
He Pūtaiao, He Tāngata

# 2024 ACUTE RESPIRATORY ILLNESS SURVEILLANCE REPORT


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**CLIENT REPORT No:** FW25013



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Client Report FW25013

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## Disclaimer

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# EXECUTIVE SUMMARY

ESR conducts surveillance of viral respiratory illness in New Zealand to support public health planning, policy-related activities and to inform clinical practice, all with the aim of reducing the respiratory disease burden. This report provides a summary of priority viral respiratory illness in New Zealand in 2024[1], including influenza, respiratory syncytial virus (RSV) and COVID-19. Although COVID-19 is a notifiable disease, most viral respiratory illnesses are not legally notifiable in New Zealand.

There are references to influenza-like illness (ILI) and severe acute respiratory infection (SARI) in different sections of this report. New Zealand surveillance systems use the World Health Organisation (WHO) definitions for ILI[2] and SARI[3], unless otherwise stated in the text.

The COVID-19 pandemic has had significant impacts on respiratory disease dynamics and acute respiratory illness (ARI) surveillance systems, this should be taken into consideration when interpreting these data and making comparisons to pre-pandemic years. Most of the annual trend data presented in tables and figures in this report exclude the early pandemic years (2020 and 2021).

The main findings from this report include the following:

- Overall, information from the surveillance system suggests 2024 was a moderate year for ILI. Community-based ILI activity was similar to activity levels in 2023, but lower than that observed in 2022. Most of the 2024 ILI activity was due to influenza, followed by rhinovirus/enterovirus and RSV. SARI activity was higher than in 2023 and was elevated from the outset, with high winter peaks and sustained activity through to the end of October. The higher SARI hospitalisation rates were associated with waves of multiple viruses peaking at different time points during the year, and co-circulation of both seasonal influenza A subtypes.
- Laboratory-based surveillance showed that influenza A(H3N2) and influenza A(H1N1) were the two main influenza subtypes co-circulating throughout 2024 (Institute of Environmental Science and Research Ltd., 2024a). Influenza A(H1N1) was predominant initially, before influenza A(H3N2) became predominant from early July onwards. This differs from 2023 where influenza A(H1N1) and influenza B/Victoria were co-circulating throughout the year and there was very little influenza A(H3N2) detected (Institute of Environmental Science and Research Ltd., 2024b).
- FluTracking survey data show a decrease in general practitioner (GP) consultation rates for adults with ILI symptoms, between 2019 and 2024. Survey data also indicate that about three quarters of adults with ILI symptoms take time off work, or normal duties each week because of their symptoms.
- Hospital-based surveillance in the Auckland region showed that severe acute respiratory infection (SARI) (any cause) admissions were higher in 2024 than previous years, going back to 2018, with rates peaking between early-to-mid July and early August. Those under 5 years of age, those 65 years or older, Pacific peoples and Māori were hospitalised for SARI at higher rates than people of other age groups and ethnicities.
- The higher number of SARI admissions observed in 2024 was driven by the detection of multiple viruses at different times throughout the year. Most of the influenza was detected during the cooler months, from June through to August. Both Rhinovirus and RSV were detected from the beginning of the year, with RSV peaking at the end of April and mid-July and

1. Further information about the surveillance of viral respiratory illness in New Zealand can be found here: esr.cri.nz/expertise/public-health/infectious-disease-intelligence-surveillance/#About
2. The WHO (2013) define ILI as an acute respiratory infection with measured fever ≥38 °C and cough; with onset within the last 10 days.
3. The WHO (2013) define SARI as an acute respiratory infection with a history of fever or measured fever 38 °C and cough; with onset within the last 10 days, requiring hospitalisation.

rhinovirus peaking in early April and again at the end of October. Human metapneumovirus and Parainfluenza virus peaked in October, whilst SARS-CoV-2 detections were low but consistent throughout 2024.

- Among the 564 influenza-positive specimens from SARI patients in 2024, 552 (97.9%) were influenza A (Institute of Environmental Science and Research Ltd., 2024a). Of the influenza A-positive specimens, 229 were further subtyped (41.5%), of which 93 were A(H1N1)pdm09 (40.6%) and 136 were A(H3N2) (59.4%).
- Influenza-positive SARI rates were generally higher than previous years during winter 2024, with peaks in early and late July.
- Asian peoples experienced the lowest SARI hospitalisation rates of all ethnic groups, in contrast to Pacific peoples and Māori with the highest SARI hospitalisation rates. These two ethnicities experienced the highest influenza and RSV rates. SARI hospitalisation rates for SARS-CoV-2 were higher for Pacific peoples. SARI hospitalisation rates for 'Other' ethnicities were generally lower than the rates for Pacific and Māori peoples, especially in relation to influenza and RSV, but higher than the rates for Asian peoples.
- The cumulative incidence of influenza-positive SARI hospitalisations was higher in 2024 than previous years, going back to 2018. Relative to pre-COVID pandemic years, the severity of influenza illness (measured by the ratio of influenza-associated ICU SARI admissions to influenza-associated SARI hospitalisations) was lower than or similar to most pre-pandemic years.
- The GP ILI data yielded an overall influenza vaccine effectiveness (VE) estimate of 50.7%, which indicates good VE against illness in 2024. The SARI hospital surveillance influenza VE estimates ranged between 29.3% for older adults aged 65 years or older, and 70.2% for children aged 0-17 years.
- Most of the COVID-19 indicators, through the ESR acute respiratory surveillance system, show low activity in 2024. There were two peaks during the year, with the first at the very beginning of the year, driven by the XBB and JN.1 variants. The second peak occurred in mid-June, driven by the JN.1, KP.2, KP.3 and KP.3.1 variants. These three variants - KP.2, KP.3 and KP.3.1 - were all descendants of JN.1. Please note that this surveillance generally excludes non-febrile presentations of COVID-19. More information on COVID-19 trends is published here: https://tewhatuora.shinyapps.io/covid19/.

# NATIONAL ACUTE RESPIRATORY ILLNESS SURVEILLANCE OBJECTIVES

The overarching goal of ARI surveillance is to minimise the impact and health inequities of these illnesses, by providing useful information to public health authorities and communities, so that they may better plan appropriate health promotion, disease protection and control measures.

The specific objectives of acute respiratory illness surveillance are to:

1. Actively monitor and better understand the patterns of activity (eg, seasonality, severity) of influenza, SARS-CoV-2 and other respiratory viruses.
2. Describe the burden of ILI and SARI-associated influenza, SARS-CoV-2 and other respiratory viruses in New Zealand, including among priority populations.
3. Describe characteristics of locally circulating influenza, SARS-CoV-2 and other respiratory viruses.
4. Inform influenza and COVID-19 vaccination policy and treatment decisions to reduce the burden of disease and support equitable outcomes.
5. Facilitate decision-making for pandemic influenza risk management, both nationally and globally.

# NATIONAL ACUTE RESPIRATORY ILLNESS SURVEILLANCE SYSTEMS

ARI surveillance systems collect information that together build a picture of the burden of disease from influenza and other acute respiratory illnesses in New Zealand. They allow us to assess how well important public health protective measures, such as vaccination, are working. These surveillance systems operate in the community, primary care, hospitals and laboratories to capture disease presentations at different levels of severity and are detailed below:

**HealthLine** – This system monitors the number and characteristics of people calling HealthLine (the free, national, 24-hour telephone health service) for ARI advice each week. Calls are triaged using electronic clinical decision support software. Those coded as cold/flu, cough, croup, fever, general aches, headache and/or sore throat are counted as ILI. Non-symptomatic calls (30% of HealthLine calls) are excluded.

**FluTracking** – This system relies on voluntary participation by the public to self-report illness in an online weekly survey. It was launched in New Zealand in 2018 and is used to monitor community-level ILI trends. In 2024, there were just over 45,000 people who completed at least one FluTracking survey, and an average of 30,300 responses were received each week. Participants are given the option to opt-out outside of the influenza season (October to April); accordingly, the sample size is smaller at this time. Those who record experiencing a fever and cough are counted as having an ILI. More information about FluTracking is available here: https://info.flutracking.net/about/.

**Sentinel GP virological surveillance** – ESR works with a network of sentinel GP clinics around the country that take a respiratory swab from a subset of patients presenting to clinics each week with ILI symptoms. These patients are tested for a range of respiratory viruses at the ESR laboratory. This system provides information on the different viruses that are circulating and causing illness in the community.

**Sentinel hospital surveillance** – This system monitors patients admitted to hospital overnight who meet the WHO (2013) case definition for SARI in the four public hospitals in Counties Manukau and Auckland districts. The case definition is an ARI with a history of fever or measured fever of ≥38°C, a cough, and onset within the past 10 days, requiring inpatient hospitalisation. Research nurses collect information on SARI patients in general wards and intensive care units (ICUs). Nasopharyngeal swabs are taken as part of clinical care, and they are tested for influenza and other respiratory viruses. The viruses that are tested for vary and are dependent on several factors, including clinical decision making, laboratory capacity and patient characteristics. However, they usually include influenza, RSV and COVID-19.

**COVID-19 notifiable disease reporting** – COVID-19 is a notifiable disease with cases reported through EpiSurv, New Zealand's notifiable disease reporting system. ESR receives viruses sampled from COVID patients from around the country that undergo whole genome sequencing to monitor new strains/variants (changes in the circulating viruses). Since 25 February 2022, most testing has been through self-administered rapid antigen test (RAT), which requires self-reporting of results and funding for RAT testing ended on 30 September 2024. Therefore, it is likely that many infections are not detected or reported, and case ascertainment may differ by age, ethnicity, deprivation, or other demographic factors. Health New Zealand reports COVID-19 trends here: https://tewhatuora.shinyapps.io/covid19/.

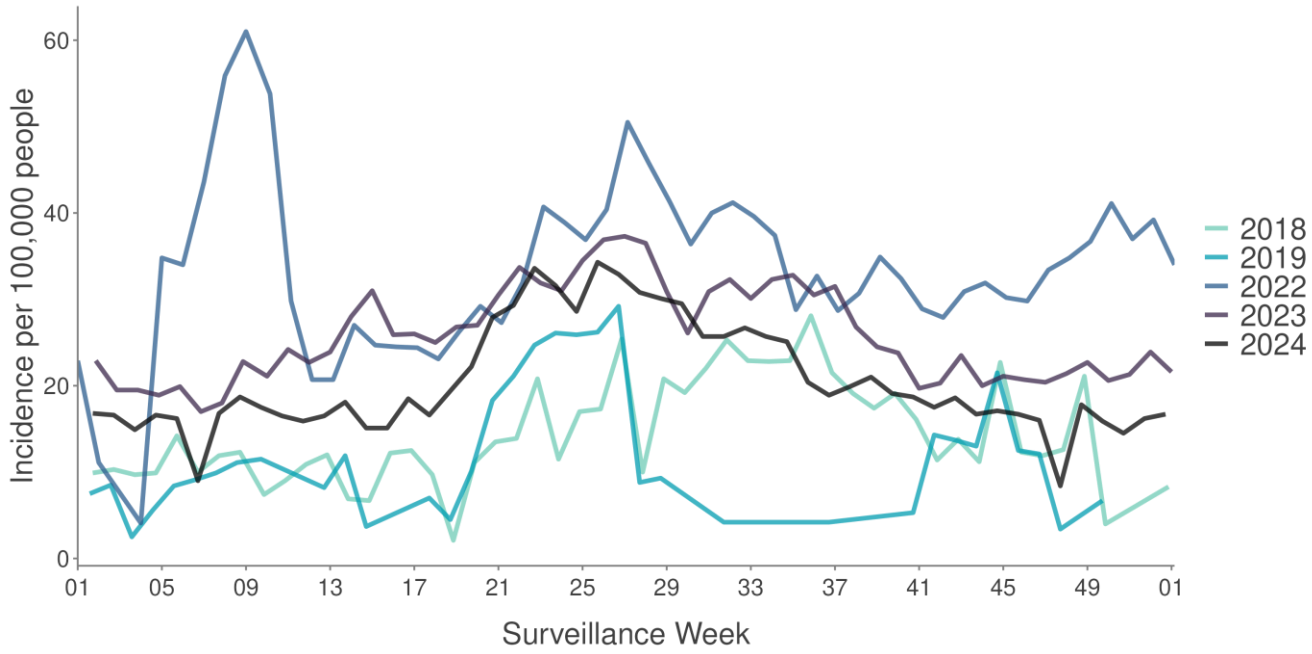
# COMMUNITY-BASED SURVEILLANCE

## HealthLine ILI-related calls

In contrast to the WHO (2013) definition of ILI that is used in most national surveillance systems, the presence of fever is not required for categorisation as an ILI-related call by HealthLine. The HealthLine definition is therefore broader, and with the capture of less severe symptoms, results in a large volume of ILI-related calls each year. Trends in HealthLine may also be influenced by increased public awareness of particular illnesses, including through media reporting.

There were 57,230 ILI-related calls to HealthLine in 2024, with an average of 1,100 calls a week. ILI-related call rates were markedly lower than for most of 2022, but higher than in pre-pandemic years (Figure 1). Call rates to HealthLine increased over the first half of 2024 to peaks in mid-June and early July, before decreasing gradually through to December. The higher call rates observed in the post-pandemic period (2022–2024) may reflect an increased awareness and use of telehealth services, which began during the pandemic (note the figure excludes the pandemic years 2020 and 2021) (Institute of Environmental Science and Research Ltd., 2024b).

**Figure 1: Weekly HealthLine ILI-related call rates**

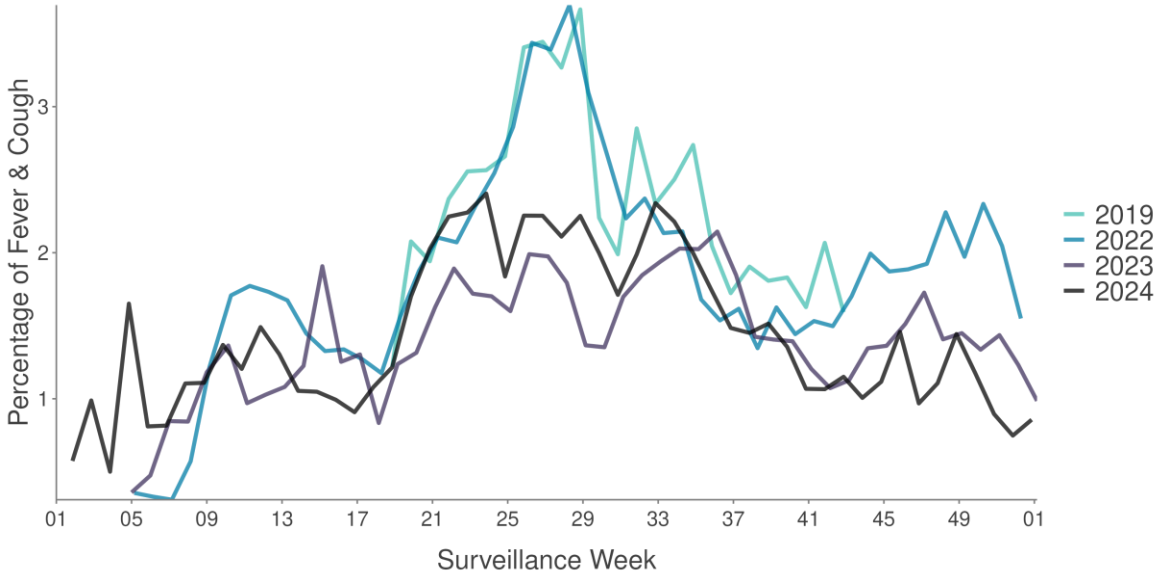



Source: HealthLine as of 30 January 2025.

## FluTracking

There was a decrease in participation in the weekly FluTracking survey between 2022 and 2024. The percentages of FluTracking participants reporting both fever and cough symptoms in the previous week in 2024 were similar to the percentages reported in 2023, but lower than the percentages reported in 2019 and 2022 (Figure 2). The percentages for 2024 increased gradually from January to a peak in mid-June. There were high percentages of ILI symptoms reported from mid-June through to mid-August. Although the percentages were lower, the pattern of activity towards the end of 2024 was similar to the pattern observed towards the end of 2022 and 2023.

**Figure 2: Percentage of FluTracking participants with ILI symptoms in the previous week**




Source: FluTracking as of 09 January 2025.

Survey participants with ILI symptoms in the previous week, who reported having sought medical attention, were asked which health professional they had contacted. About one in five (18.9%) survey participants in 2024 reported seeking medical attention from a general practitioner (Table 1). There was a steady decline in the percentage seeking medical attention from a general practitioner between 2018 (30.4%) and 2024. This is similar to results from the New Zealand Health Survey (Ministry of Health 2024) that indicate a decrease in GP visits (any cause) by participants in recent years. The time taken to get an appointment and financial barriers were reported by participants in the survey as the main barriers to visiting a GP.

In 2024, about three-quarters (74.7%) of survey participants with ILI symptoms in the previous week reported taking time off work or normal duties due to their symptoms. This was consistent with the rates observed pre-pandemic (2018–2019) and in 2023. The rate for 2022 was slightly higher and may reflect COVID-19 related recommendations and measures in place at the time, these included recommendations to self-isolate and pandemic supports such as the Leave Support Scheme[4].

**Table 1: Actions taken in the previous week by FluTracking participants with ILI symptoms**

| | 2018 | 2019 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|
| Contacted a GP due to symptoms | 30.4% | 26.2% | 20.7% | 21.3% | 18.9% |
| Took time off work/normal duties due to symptoms | 74.2% | 75.0% | 81.2% | 75.5% | 74.7% |

Source: FluTracking as of 09 January 2025.

## Community-based virologic surveillance

Virological surveillance at sentinel GP sites provides insight into the prevalence of respiratory viruses circulating in the community at any one time. GPs that participate in virological ILI surveillance take a nasopharyngeal or throat swab of some of the ILI patients they see each week. The samples are sent to ESR and tested for influenza, SARS-CoV-2, RSV and other respiratory viruses.

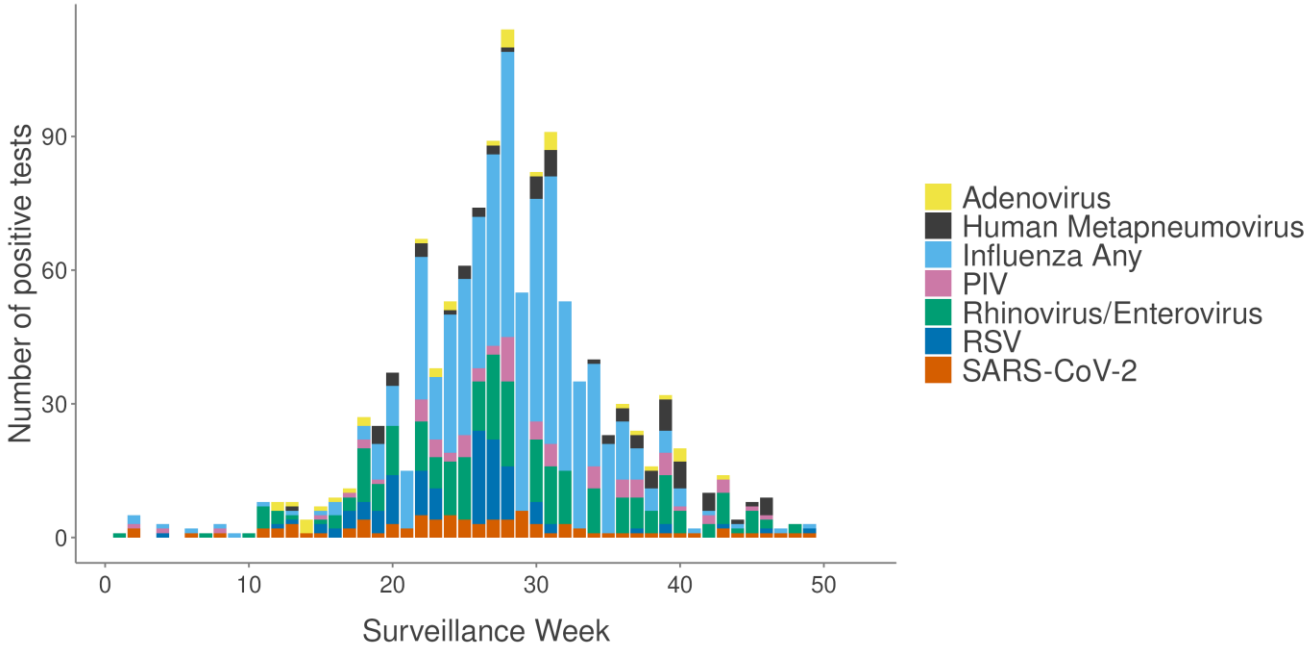
[4] The COVID-19 Leave Support Scheme was designed to help employers (and self-employed people), pay employees who had to self-isolate due to COVID-19. It was available between 6 April 2020 and 15 August 2023.

Influenza detections (Figure 3) increased from mid-May through to a peak in mid-July, remaining high into early September, before decreasing gradually through to October and tailing off to the end of the year. Influenza test-positivity (Figure 4) also increased from early-May through to a peak in early August, before decreasing rapidly thereafter.

Almost all (98%) of the influenza A samples were subtyped. Just over half (52%) of the subtyped viruses were A/H3 and 48% were A/H1. Influenza B was detected in 1% of influenza-positive samples. Influenza A/H1 was predominant initially in 2024, before A/H3 became predominant from early July onwards.

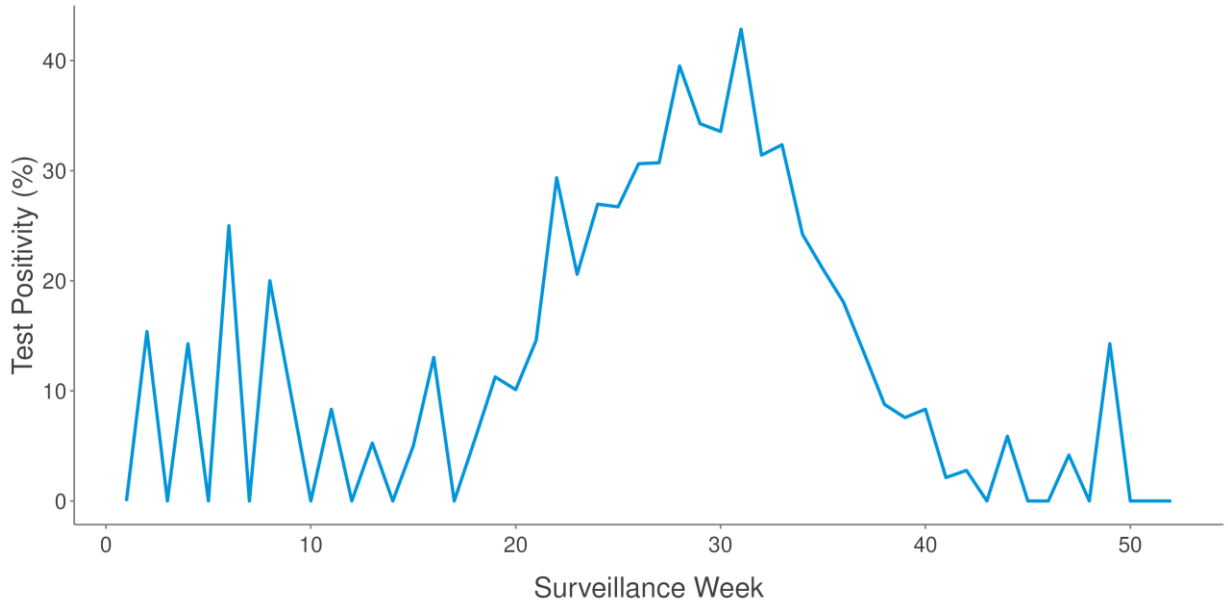
Rhinovirus/enterovirus was detected from mid-March through to late November, with a peak in detections in mid-July. RSV was detected from early April through to early-August, with a peak at the end of June, whereas adenovirus and parainfluenza viruses (PIV) were sporadically detected in ILI patients throughout the season. Human metapneumovirus was the most common virus detected in the first weeks of October. SARS-CoV-2 was detected in small numbers throughout 2024.

**Figure 3: Weekly viruses detected through sentinel GP sampling**




Source: STARLIMS and HealthLink as of 02 February 2025.

## Figure 4: Weekly influenza test positivity at sentinel GP sites



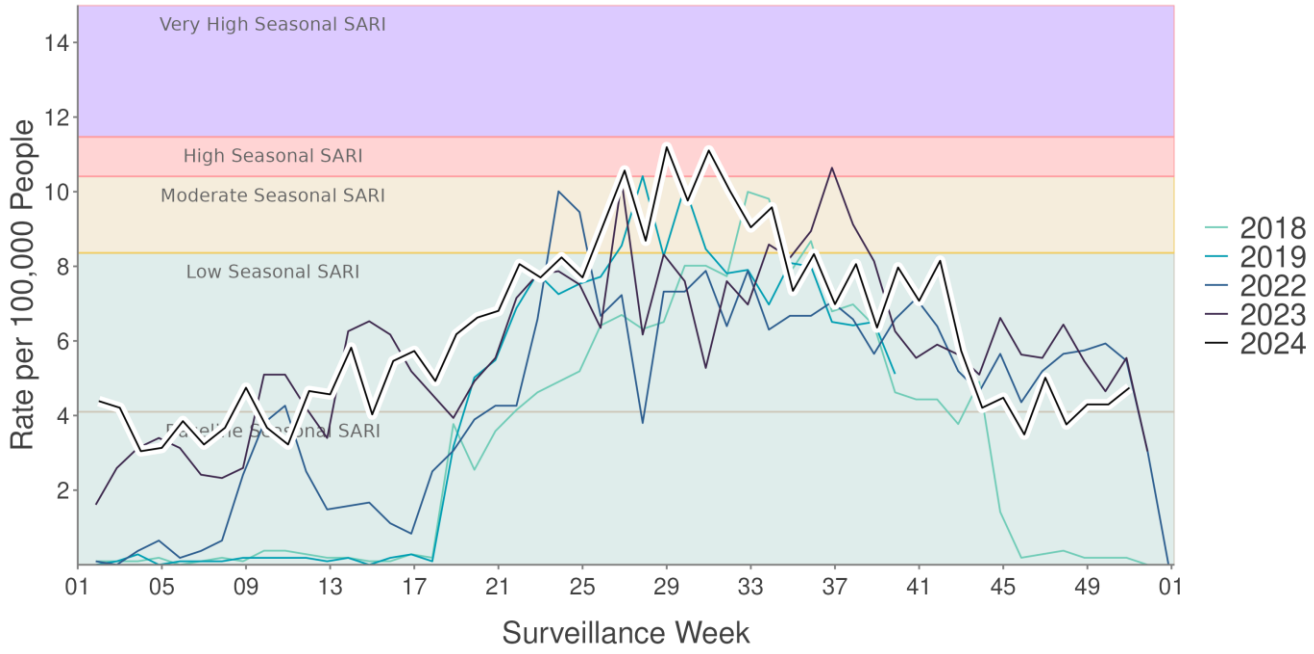

Source: STARLIMS and HealthLink, as of 02 February 2025.
Note that the spike at the end of December was due to a low number of swabs.

# HOSPITAL-BASED SARI SURVEILLANCE

The WHO (2013) definition for SARI that is used for surveillance purposes in New Zealand is a broad definition that captures a range of respiratory viruses and bacterial infections. SARI surveillance is conducted at Kidz First, Starship, Middlemore and Auckland City hospitals, providing insight into more severe respiratory illness in the Auckland region.

Auckland regional hospital SARI rates in 2024 were slightly higher than previous years, peaking in the high seasonal range when both seasonal influenza A subtypes were widely co-circulating, in early - mid July and again in early August (Figure 5). Rhinovirus and RSV were the predominant viruses early on contributing to the higher level of activity through to early July, with influenza predominant thereafter to the end of August, boosted by rhinovirus and RSV.

**Figure 5: Weekly SARI (any cause) hospitalisation rates**




Source: Redcap SARI Surveillance as of 30 January 2025.
Data include SARI hospitalisations from Kidz First, Starship, Middlemore and Auckland City hospitals.

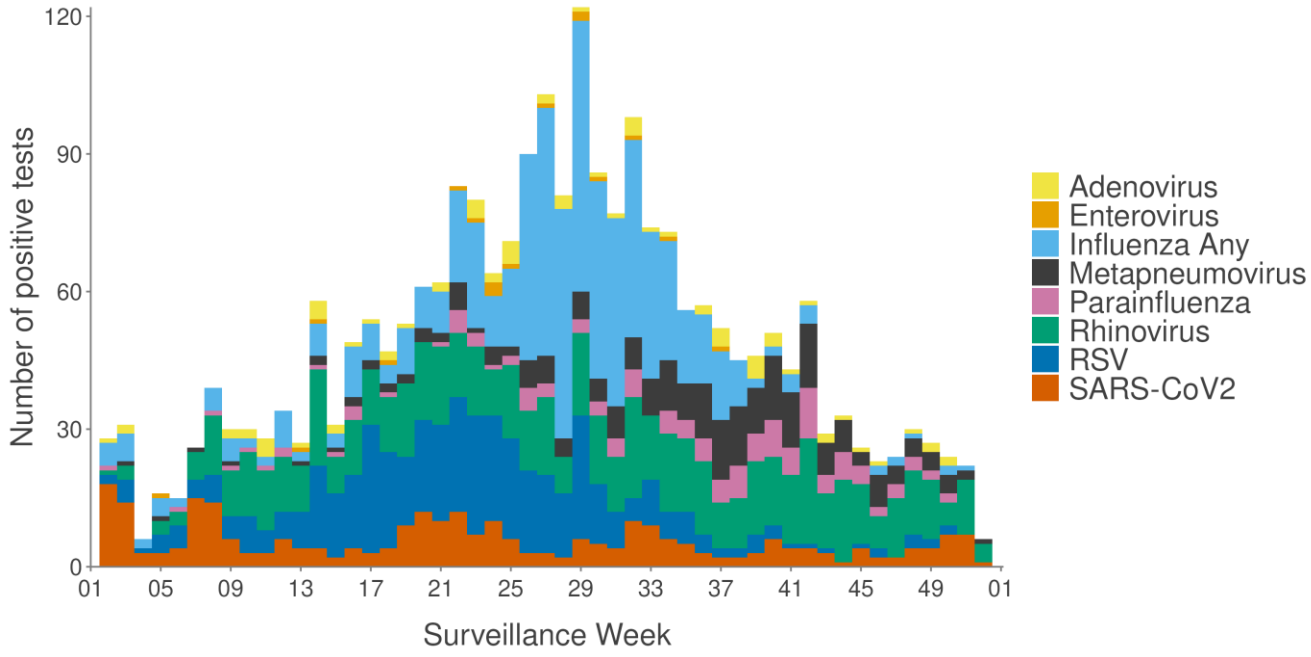
## SARI virology

SARI patients are swabbed for respiratory viruses either as a part of their routine care, or by SARI surveillance nurses while in hospital. The swabs are tested for respiratory viruses including influenza, RSV and SARS-CoV-2. The swabs are also tested for rhinovirus, enterovirus, adenovirus, human metapneumovirus and parainfluenza virus (PIV).

High SARI hospitalisation rates were driven by the detection of multiple viruses throughout 2024 (Figure 6). Influenza was detected throughout 2024, beginning with influenza A(H1N1) predominance and then changing to influenza A(H3N2) predominance, with most detections occurring in the cooler months, from the beginning of June through to the end of August. This differs from 2023 where laboratory-based surveillance showed that influenza A(H1N1) and influenza B/Victoria were the two main influenza subtypes co-circulating throughout the year, with very little influenza A(H3N2) detected (Institute of Environmental Science and Research Ltd., 2024b).

RSV was detected and increased from the outset of 2024, with a peak observed at the end of April and another in mid-July, before decreasing gradually to the end of October. Rhinovirus was also detected early on, increasing to a peak in early April and another peak at the end of October. Human metapneumovirus and parainfluenza virus (PIV) were detected sporadically in SARI patients until the end of July when detections began to increase, peaking in October and tailing off thereafter. SARS-CoV-2 detections were low but relatively stable throughout the 2024 winter season.

**Figure 6: Weekly viruses detected through sentinel hospital SARI sampling**



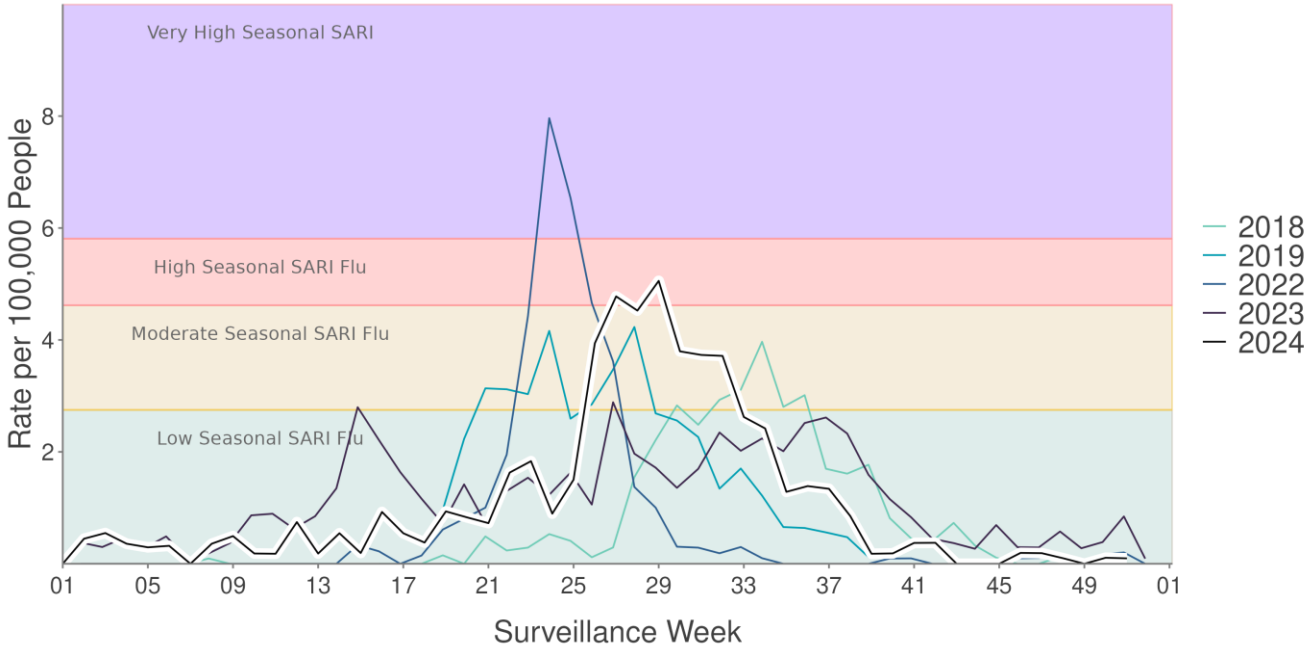

Source: Auckland City and Middlemore Hospital virology as of 30 January 2025.

Influenza-positive SARI hospitalisation rates peaked in the high seasonal range in early and late July 2024 (Figure 7). Thereafter, influenza-positive SARI rates rapidly decreased, and by October, the rate had fallen below one case per 100,000 people.

Influenza A was frequently detected among influenza-positive SARI patients throughout 2024. Among the 564 influenza-positive specimens, 552 (97.9%) were influenza A (Institute of Environmental Science and Research Ltd., 2024a). Among the influenza A-positive specimens, 229 (41.5%) were further subtyped, of which 93 (40.6%) were A(H1N1)pdm09 and 136 (59.4%) were A(H3N2). Influenza B was detected in 3% of influenza-positive SARI patients.

Neither of the peaks in influenza-positive rates during 2024 were as high as the peak observed in June 2022, which is thought to have been due to reduced baseline immunity following an absence in circulation of respiratory viruses during the pandemic (Institute of Environmental Science and Research Ltd., 2023).

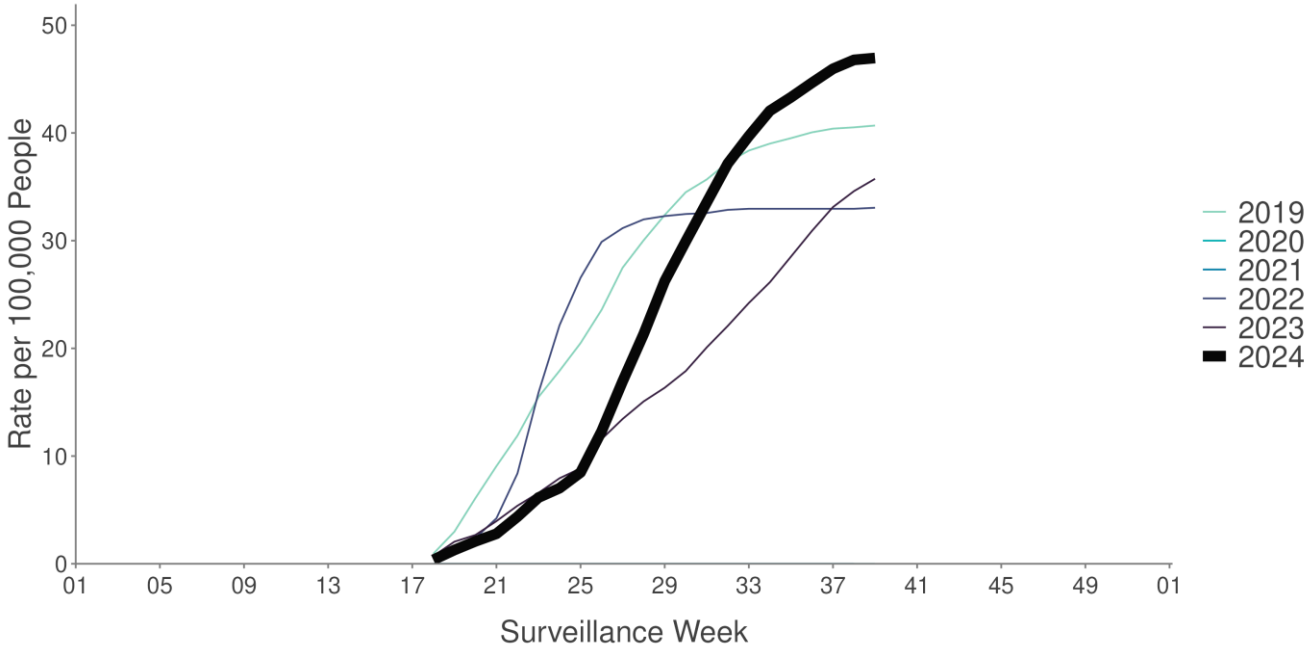
## Figure 7: Weekly influenza-positive SARI hospitalisation rates




Sources: Auckland City and Middlemore Hospital virology as of 30 January 2025.
There were no influenza-positive SARI hospitalisations in 2020 and 2021.

The cumulative incidence rate for influenza-positive SARI hospitalisations in 2024 was higher than any of the previous five years (Figure 8), which were considered moderately severe seasons (Institute of Environmental Science and Research Ltd., 2023).

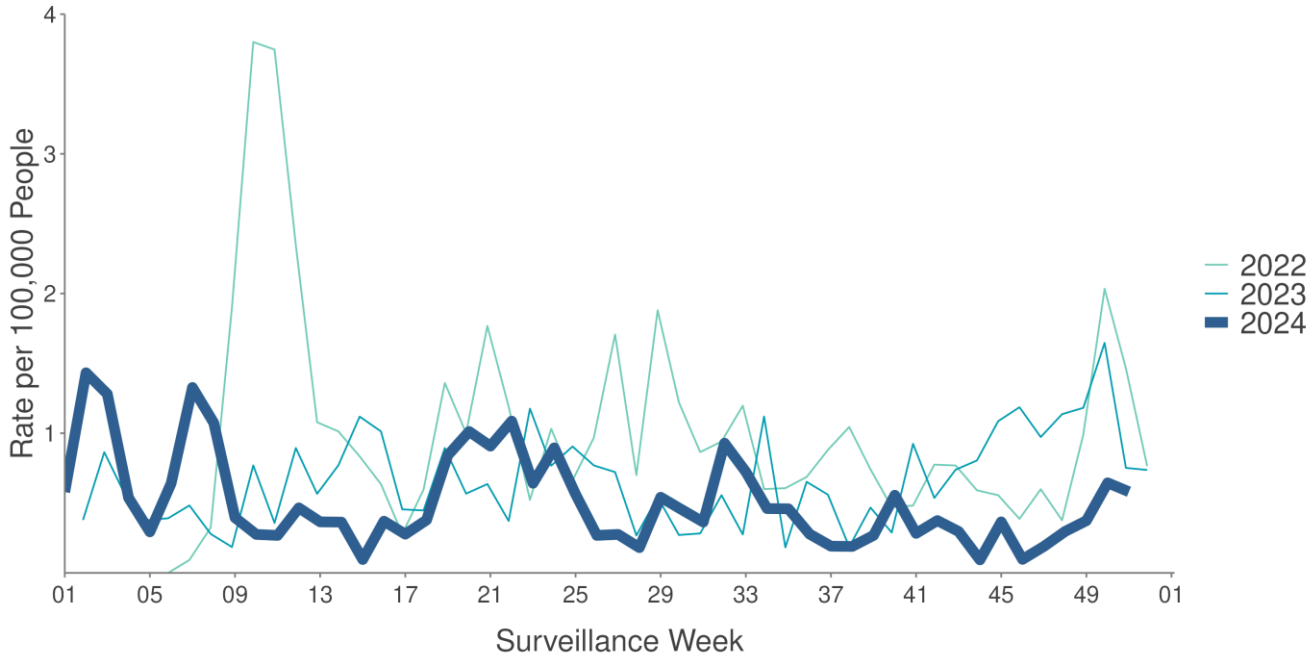
## Figure 8: Cumulative rate of influenza-positive SARI hospitalisations




Sources: Auckland City and Middlemore Hospital virology as of 30 January 2025. Redcap SARI Surveillance Lite Project as of 30 January 2025.
There were no influenza-positive SARI hospitalisations in 2020 and 2021.

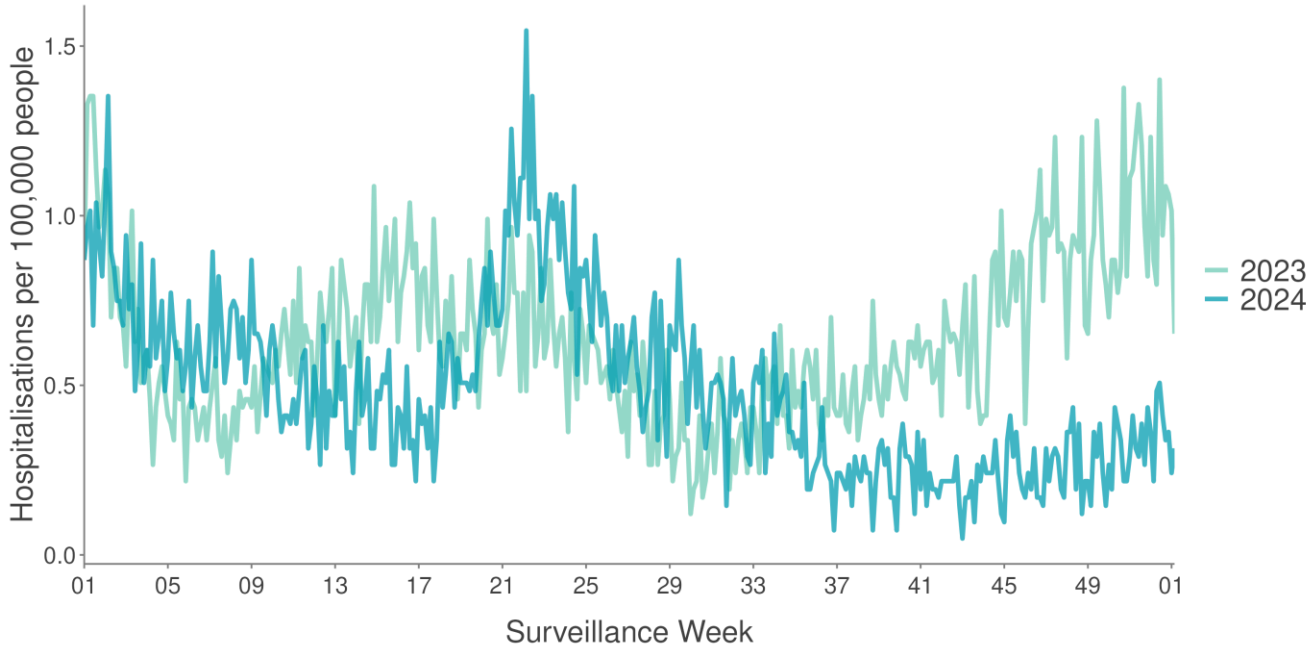
SARS-CoV-2-positive SARI hospitalisation rates were relatively low in 2024, when compared to the rates in 2022 (Figure 9). The large peak observed around late February in 2022 was due to the Omicron variant (Institute of Environmental Science and Research Ltd., 2023). After late March the rate decreased and remained below two cases per 100,000 for the rest of 2022. Figure 10 shows the national weekly COVID-19 hospitalisation rate which peaked in early June 2024. This figure includes all hospitalisations due to COVID-19.

**Figure 9: Weekly SARS-CoV-2-positive SARI hospitalisation rates**




Sources: Auckland City and Middlemore Hospital virology as of 30 January 2025. Redcap SARI Surveillance Lite Project as of 30 January 2025.

**Figure 10: Weekly hospital admissions for COVID-19**




Data source: (Health New Zealand - Te Whatu Ora, 2025).

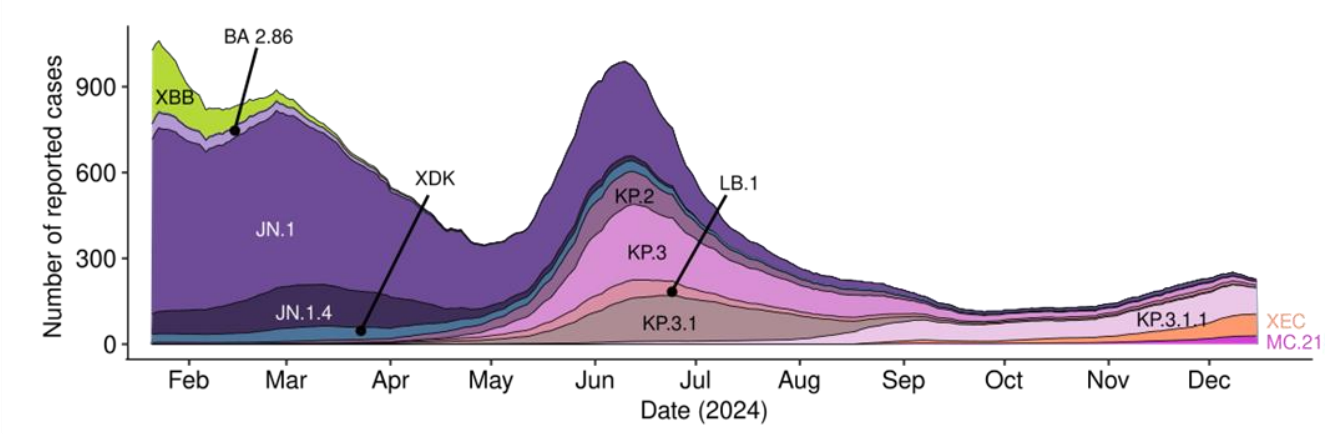
The data include all admissions with a COVID-19 diagnosis from hospitals in the Northland, Waitemata, Auckland, Counties Manukau, Waikato, Capital & Coast, Hutt, Nelson Marlborough, Canterbury, West Coast and Southern DHB areas.

## COVID-19 virology

ESR undertakes SARS-CoV-2 genomic surveillance across New Zealand. A proportion of swabs taken by health professionals for SARS-CoV-2 diagnostic testing are sent to ESR for testing. Note that this excludes rapid antigen tests or 'RATs'. Due to the voluntary reporting process for positive RAT results, official COVID-19 cases recorded by Health New Zealand are likely to underestimate true case numbers.

Figure 11 shows the number of COVID-19 cases reported to Health New Zealand[5] in 2024 and the distribution of genomic variants, by month. The figure shows that there were two peaks during the year with the first at the very beginning of the year, driven by the XBB and JN.1 variants. The XBB variant was rapidly replaced thereafter by the JN.1 variant, a descendent of the Omicron lineage. The JN.1 variant dominated the first six months of 2024, peaking in March before dropping off, increasing again in June, and then decreasing gradually thereafter. The second peak occurred in mid-June, driven by the JN.1, KP.2, KP.3 and KP.3.1 variants. These three new variants - KP.2, KP.3 and KP.3.1 - were all descendants of JN.1. They appeared in New Zealand simultaneously, increasing rapidly from April to peak concurrently in mid-June 2024, before decreasing gradually to the end of the year. By the end of 2024, KP.3.1.1 had become predominant in New Zealand, having overtaken its parent KP.3.1, and the previous KP.3 and KP.2 variants. A new variant – XEC – emerged in the final weeks of 2024 and began to grow rapidly. This variant is also a descendent of the Omicron lineage and would become the dominant variant in New Zealand by February 2025.

**Figure 11: COVID-19 cases by genomic variant 2024**




Source: (Genomics and Bioinformatics, Institute of Environmental Science and Research Ltd., 2025).
Genomic variants were modelled for cases identified via a positive RAT and all data were subject to smoothing techniques.

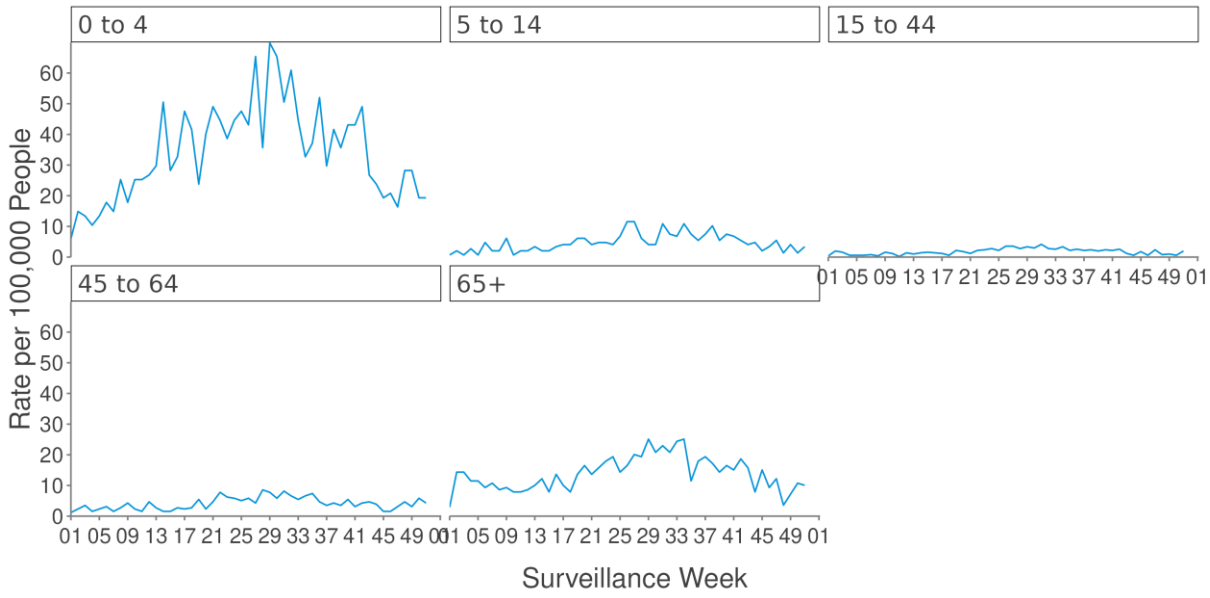
## SARI cases by age

Children under 5 years of age experienced high SARI hospitalisation rates throughout 2024, with a peak in the rates observed in July when the rates for this age group were at least twice as high as any other age group (Figure 12). These rates were fuelled primarily by influenza, with sizeable contributions from other respiratory viruses. Influenza A was dominant during the peak (Figure 13).

[5] The data in the figure includes positive cases from RATs in the total numbers of COVID-19 cases. The distribution of variants across positive cases from RATs were modelled based on the existing frequencies of variants in circulation at a given point in time.

Although the SARI hospitalisation rates for people 65 years or older were markedly lower than the rates observed for young children, the rates were consistently higher than for other age groups throughout the year.

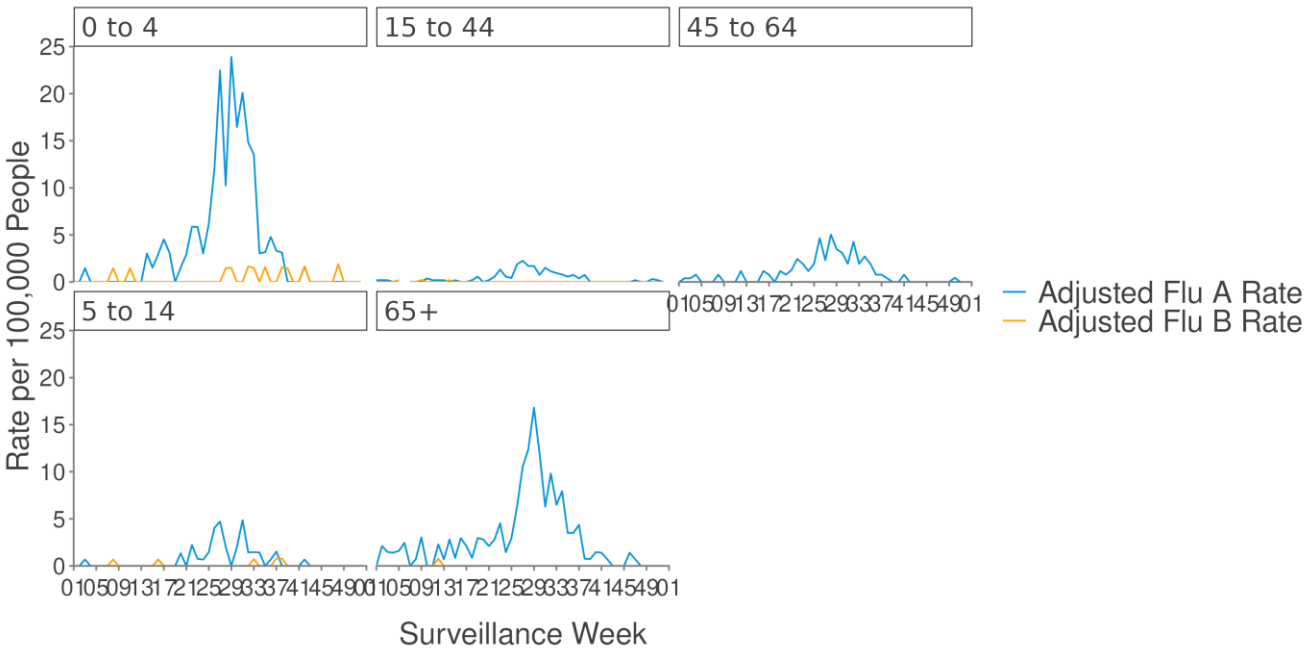
**Figure 12: Weekly SARI (any cause) hospitalisation rates, by age group**




Source: Redcap SARI Surveillance Lite Project as of 30 January 2025.

Most of the influenza detected in SARI patients was influenza A, with high rates observed among young children 0–4 years and adults 65 years or older (Figure 13). Influenza A/H3 was the predominant influenza A strain detected for all age groups in 2024.

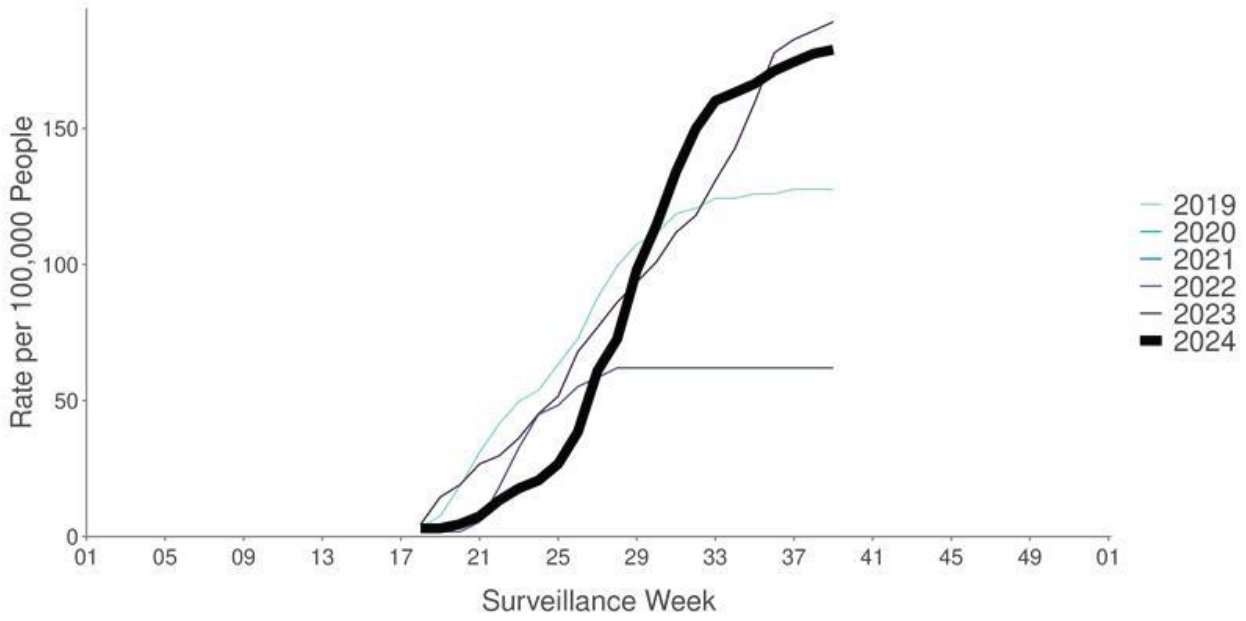
**Figure 13: Weekly influenza-positive SARI hospitalisation rates, by age group & influenza sub-type**




Source: Auckland City and Middlemore Hospital virology as of 30 January 2025. Redcap SARI Surveillance Lite Project as of 30 January 2025.
Patient records without test results were adjusted based on test positivity.

The cumulative incidence rate for influenza-positive SARI hospitalisations among young children 0–4 years was high in 2024, but similar to the rate observed in 2023 (Figure 14). Cumulative incidence was lower in 2019 and 2022, which were considered moderately severe seasons (Institute of Environmental Science and Research Ltd., 2023). There were no influenza-positive SARI hospitalisations for young children in 2020 and 2021.

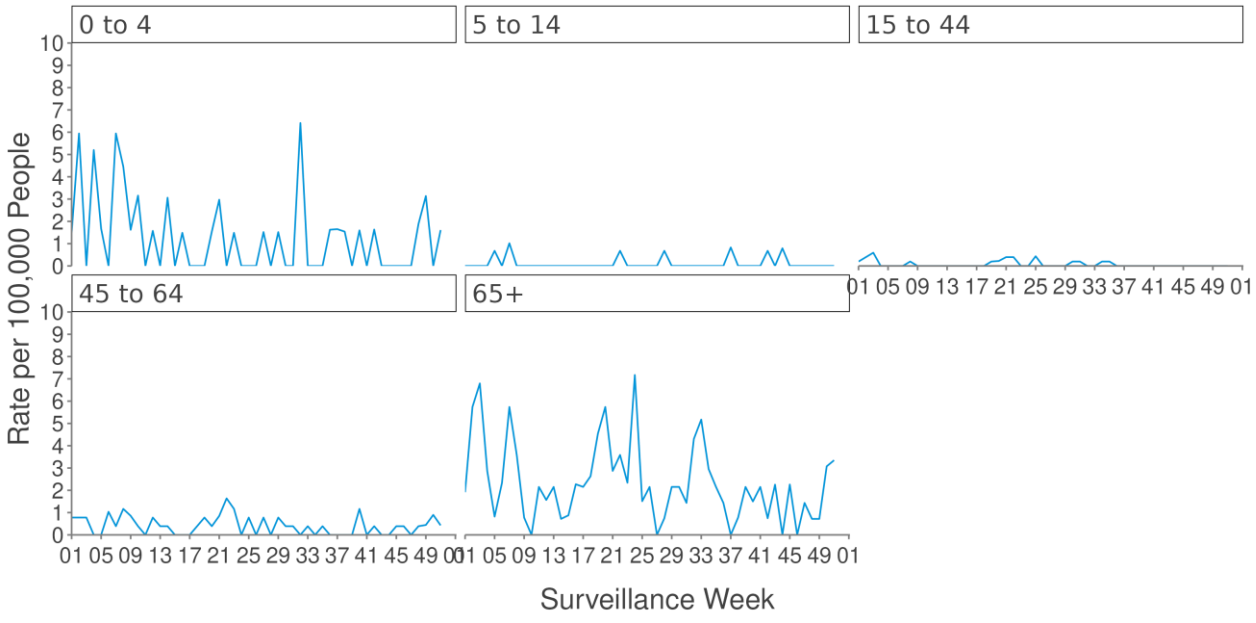
**Figure 14: Weekly influenza-positive SARI hospitalisation rates, children 0–4 years**




Sources: Auckland City and Middlemore Hospital virology as of 30 January 2025. Redcap SARI Surveillance Lite Project as of 30 January 2025.
There were no influenza-positive SARI hospitalisations in 2020 and 2021 for children 0–4 years.

The highest rates of SARS-CoV-2-positive SARI throughout the year were observed among those 65 years or older, followed by those under 5 years (Figure 15). SARS-CoV-2-positive SARI rates for children 5–14 years and adults 15–44 years were very low throughout the year.

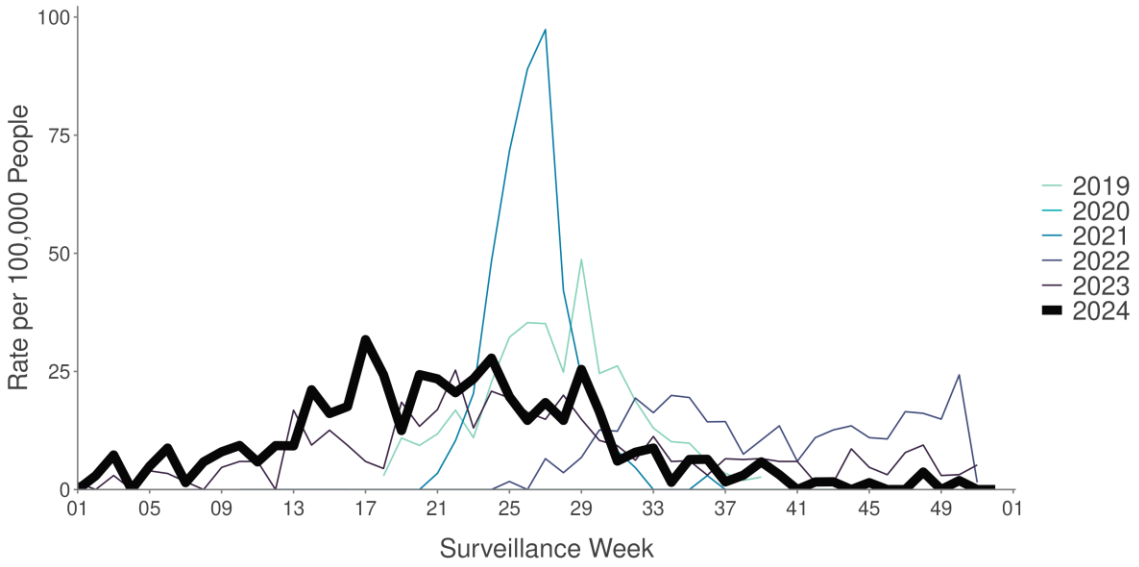
**Figure 15: Weekly SARS-CoV-2-positive SARI hospitalisation rates, by age group**




Source: Auckland City and Middlemore Hospital virology as of 30 January 2025. Redcap SARI Surveillance Lite Project as of 30 January 2025.

Sustained, moderate rates of RSV were observed for SARI patients aged 0–4 years in 2024 (Figure 16). There were peaks in RSV around the winter months, but these were very modest in comparison to the peaks observed in 2019 and 2021. There was a particularly severe RSV season in 2021, with a very high peak between June and August, after which very little RSV was detected in this age group.

**Figure 16: Weekly RSV-positive SARI hospitalisation rates, children 0–4 years**

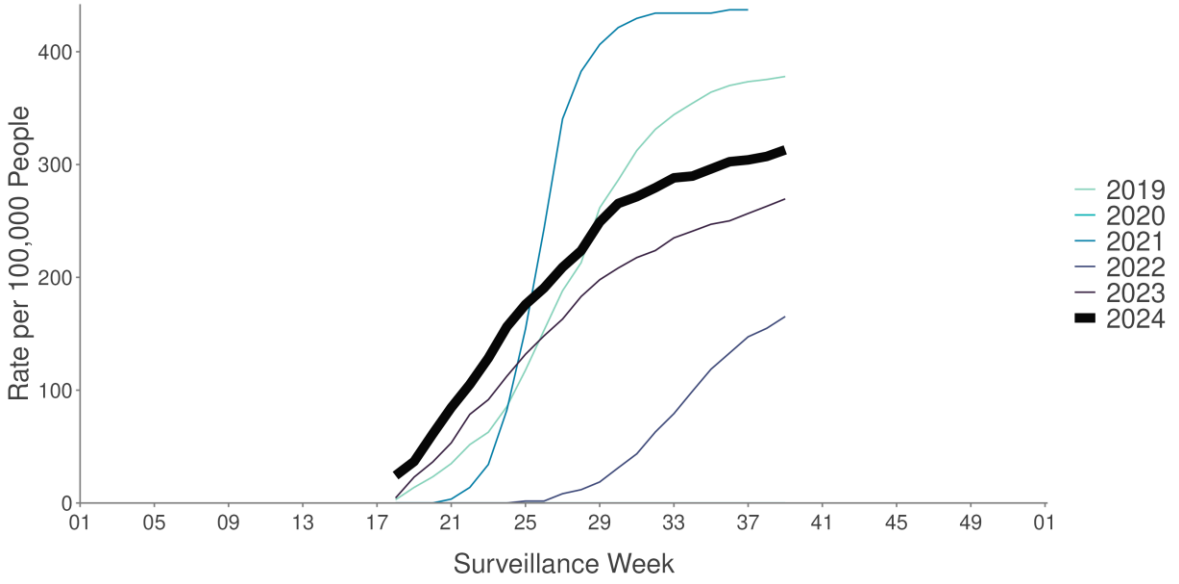



Source: Auckland City and Middlemore Hospital virology as of 30 January 2025. Redcap SARI Surveillance Lite Project as of 30 January 2025.

There were no RSV-positive SARI hospitalisations in 2020 for children 0–4 years.

The cumulative incidence of RSV-positive SARI hospitalisations for young children (0–4 years) in 2024 was between 2019 and 2022 levels, well below the cumulative rates recorded for 2021, which included case numbers from the peak observed during the winter months (Figure 17). Although the cumulative rate for 2024 was similar to the rate for 2019 in the first half of the year, the cumulative rate for 2024 did not increase as rapidly as the rate for 2019 in the latter half of the year.

**Figure 17: Cumulative rates of RSV-positive SARI hospitalisations, children 0–4 years**



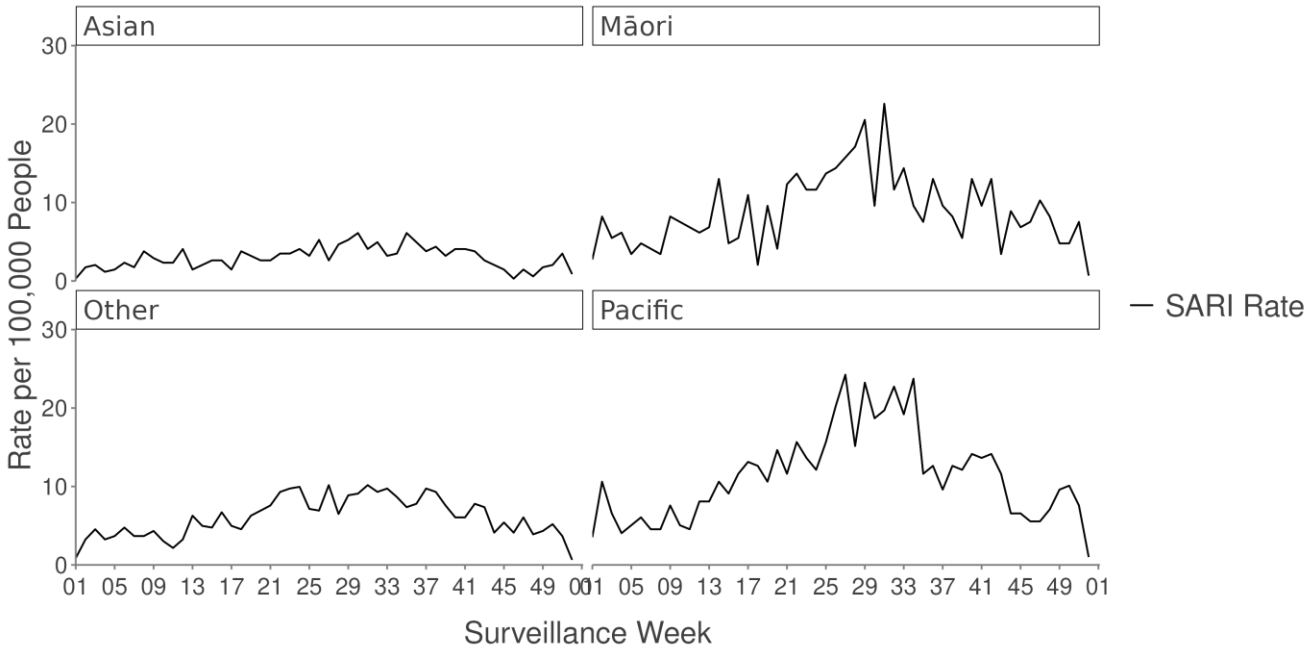

Sources: Auckland City and Middlemore Hospital virology as of 30 January 2025. Redcap SARI Surveillance Lite Project as of 30 January 2025.

There were no RSV-positive SARI hospitalisations in 2020 for children 0–4 years.

## SARI cases by ethnicity

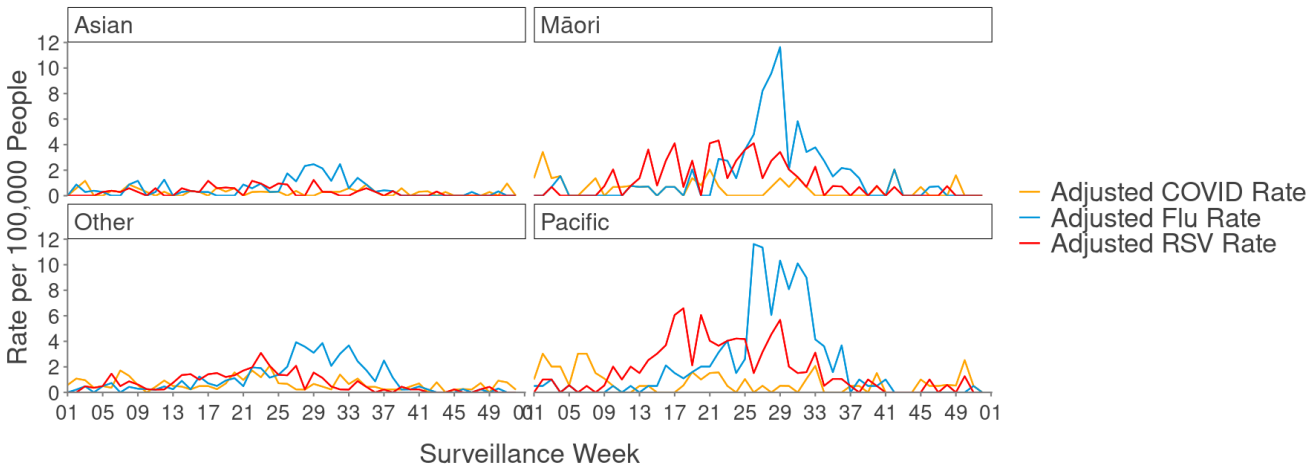
In 2024, Auckland-based SARI (any cause) hospitalisation crude rates for Asian peoples were low in comparison to all other ethnic groups, whilst Pacific and Māori peoples had the highest SARI hospitalisation rates (Figure 18). Pacific and Māori peoples experienced consistently higher SARI hospitalisation rates for influenza and RSV in 2024 (Figure 19). Pacific peoples also experienced higher rates of SARS-CoV-2 infection. Influenza-positive SARI hospitalisation rates for 'Other' ethnic groups were lower than the rates for Pacific and Māori peoples in 2024 but were higher than the rates for the Asian ethnic group. RSV SARI hospitalisation rates for 'Other' ethnic groups were also lower than the rates for Pacific and Māori peoples, but higher than the rates for Asian peoples.

**Figure 18: Weekly SARI hospitalisation rates (any cause), by ethnicity**




Source: Redcap SARI Surveillance Lite Project as of 30 January 2025.

**Figure 19: Weekly SARI hospitalisation rates, by respiratory virus and ethnic group**



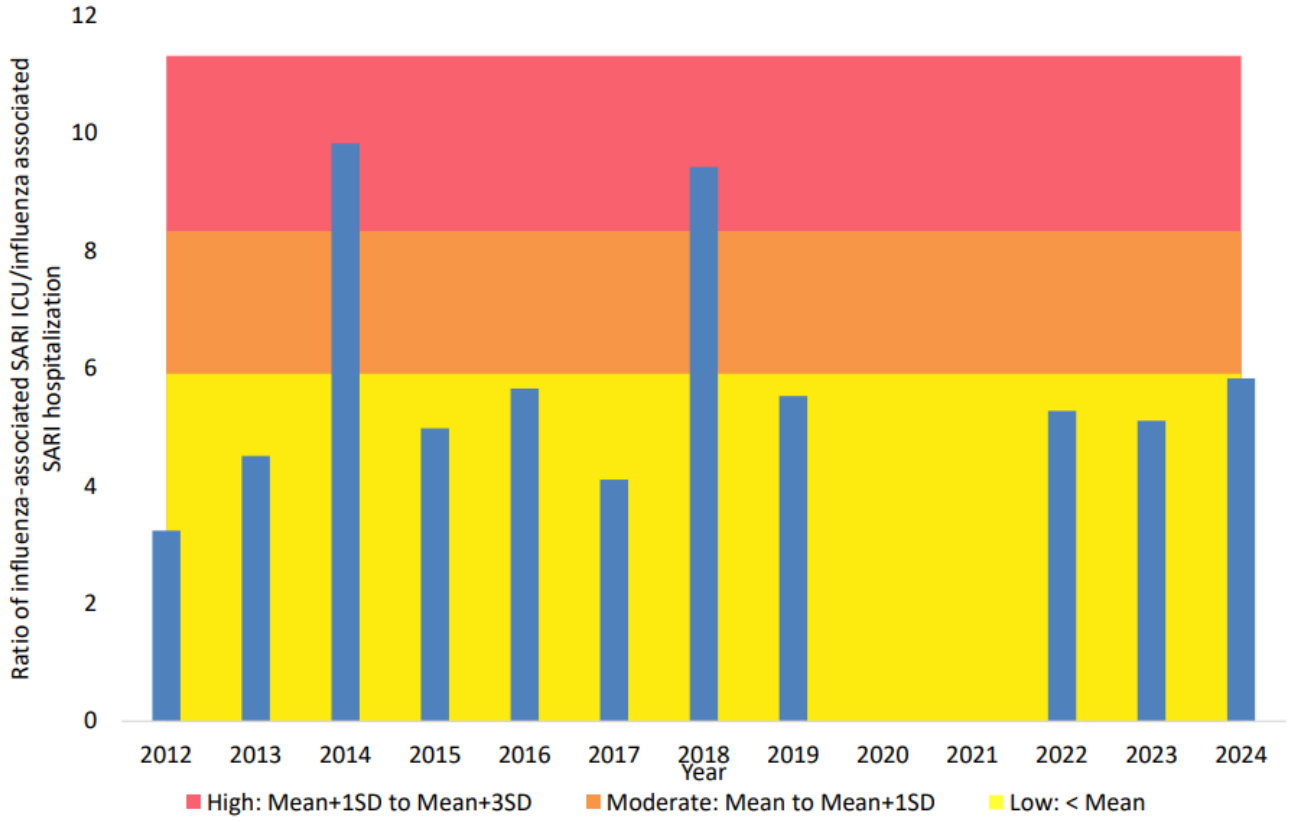

Source: Redcap SARI Surveillance Lite Project as of 30 January 2025.
Patient records without test results were adjusted based on test positivity.

## Severity of illness among influenza positive SARI patients

The severity of influenza illness can be inferred by comparing the proportion of influenza-positive SARI patients in ICU relative to all influenza-positive SARI patients admitted to hospital. Changes in the indicator over time should be interpreted with caution as factors other than patient severity, such as access to other health services and changing hospital care practice may impact results.

Figure 20 shows the ratio of influenza-associated ICU SARI admissions to influenza-associated SARI hospitalisations, expressed as a percentage, between 2012 and 2024. The figure indicates that the severity of influenza illness in 2024 was lower than or similar to most pre-pandemic years.

**Figure 20: Seriousness of disease indicator in 2024 compared to 2012-2023**




Source: Auckland City and Middlemore Hospital virology as of 30 January 2025. Redcap SARI Surveillance Lite Project as of 30 January 2025.

# INFLUENZA VACCINE COVERAGE AND VACCINE EFFECTIVENESS

## Influenza vaccine coverage

The influenza vaccine is available from the beginning of April each year in New Zealand and is recommended for everyone over the age of 6 months. The vaccine is funded for vulnerable people at higher risk of becoming seriously ill, and in 2024 the following groups were eligible for free influenza vaccines:

- People aged 65 years or older.
- People aged 6 months or older with underlying health conditions, including heart disease, cancer, diabetes, and serious asthma.
- Pregnant women.
- Children aged 4 years and under who have been hospitalised for respiratory illness or have a history of significant respiratory illness.
- People with mental health conditions, including schizophrenia, major depressive disorder, bipolar disorder, or schizoaffective disorder.
- People who are currently accessing secondary or tertiary mental health and addiction services.

Additionally, some people may receive a voucher from their employer for a free influenza vaccine.

Table 2 provides estimates for free vaccine uptake by eligible people, aged 65 and over, in 2024. Approximately two-thirds (66.7%) of adults 65 years or older received a vaccine in 2024.

**Table 2: Influenza vaccination coverage data for people aged 65 and over**

| Measure | 65 years+ |
|---|---|
| People who received a vaccine | 531,456 |
| Number of eligible people | 797,042 |
| HSU coverage rate | 66.7% |

Source: Aotearoa Immunisation Register (AIR) as of March 8, 2025.
Coverage statistics are based on the Ministry of Health's Health Service User (HSU) data for the 2023/24 financial year.
Data may exclude some privately funded influenza vaccinations.

## Vaccine effectiveness estimates

Studies of vaccine effectiveness (VE) assess or measure how well a vaccine protects a population from disease. Although vaccines are assessed for efficacy during the clinical trial phase of development, trials do not replicate real world populations and real-life situations, which can vary considerably from a study group environment.

VE for the 2024 seasonal quadrivalent influenza vaccine was assessed from GP ILI surveillance data, using a Kaplan-Meier estimator and the Cox model for proportional hazards (hazard ratio=HR), (VE=1- HR). The model was matched on sex and age. VE was 50.7% (95% CI 17.4–70.6%) for all ages and 53.4% (95% CI 11.5–75.5%) for 18–64-year-olds, representing good VE for a seasonal vaccine (Table 3). For other age groups, small sample sizes yielded poor statistical precision. Patients were determined to be vaccinated if they had received the seasonal influenza vaccine at least two weeks before consultation date.

**Table 3: GP ILI-based seasonal influenza vaccine effectiveness estimates**

| | Influenza positive | | Influenza negative | | VE (%) |
|---|---|---|---|---|---|
| | Vaccinated-Yes | Vaccinated-No | Vaccinated-Yes | Vaccinated-No | VE % (95% CI) |
| All ages | 22 | 588 | 226 | 1856 | **50.7 (95% CI 17.4–70.6)** |
| 0–17 years | 3 | 207 | 56 | 589 | **68.3 (95% CI -17.2–91.4)** |
| 18–64 years | 14 | 348 | 141 | 1062 | **53.4 (95% CI 11.5–75.5)** |
| 65 years+ | 5 | 33 | 29 | 205 | **6.4 (95% CI -224–72.9)** |

Source: (Institute of Environmental Science and Research Ltd., 2024a).
With few observations in some strata, VE estimates will provide unreliable and non-significant estimates.

VE was also assessed using SARI hospital surveillance data. The model was matched on sex and age. VE was 23.7% (95% CI 4.2–39.3%) across all ages (Table 4), 70.2% (95% CI 8.7–90.3%) for patients 0–17 years, and 29.3% (95% CI 0.0–50.0%) for patients 65 years or older. The results indicate good VE for younger people. Patients were determined to be vaccinated if they had received the seasonal influenza vaccine at least two weeks before their hospital admission date.

**Table 4: Hospital SARI-related seasonal influenza vaccine effectiveness estimates**

| | Influenza positive | | Influenza negative | | VE (%) |
|---|---|---|---|---|---|
| | Vaccinated-Yes | Vaccinated-No | Vaccinated-Yes | Vaccinated-No | VE % (95% CI) |
| All ages | 133 | 458 | 586 | 1452 | **23.7 (95% CI 4.2–39.3)** |
| 0–17 years | 4 | 186 | 113 | 916 | **70.2 (95% CI 8.7–90.3)** |
| 18–64 years | 37 | 178 | 153 | 341 | **30.9 (95% CI -5.5–54.8)** |
| 65 years+ | 92 | 94 | 320 | 195 | **29.3 (95% CI 0.0–50.0)** |

Source: (Institute of Environmental Science and Research Ltd., 2024a).
With few observations in some strata, VE estimates will provide unreliable and non-significant estimates.

# INFLUENZA VIRUS CHARACTERISATION

Laboratory-based surveillance for influenza is conducted all-year-around by the New Zealand virus laboratory network, consisting of the WHO National Influenza Centre (NIC) at ESR and six hospital laboratories at Auckland, Waikato, Wellington, Christchurch, and Dunedin, serving 70% of the population. This laboratory network tests specimens ordered by clinicians for hospital in-patients and outpatients during routine viral diagnosis. In addition, the network conducts testing for public health surveillance including hospital-based SARI and sentinel GP-based surveillance.

The WHO NIC at ESR receives samples from local hospital laboratories for further typing from active surveillance (sentinel ILI and SARI) as well as passive surveillance (i.e. mainly hospital in-patients and outpatients during routine viral diagnosis).

Surveillance activities include antigenic typing of influenza virus isolates and vaccine matching to provide recommendations to the Australian Influenza Vaccine Committee (AIVC) each year for the southern hemisphere seasonal influenza vaccine.

## Influenza virus identifications by subtype and lineage

During 1-Jan to 25-August-2024, a total of 10,276 influenza viruses were detected and reported through any surveillance system, with influenza A representing 98.8% (10,153/10,276) and influenza B 1.2% (123/10,276) of all influenza viruses. Among 2706 subtyped and lineage-typed viruses, 70% (1894/2706) were A(H3N2) viruses, 29.6% (802/2706) were A(H1N1)pdm09 viruses, and 0.4% (10/2706) were B/Victoria lineage viruses.

## Virus-vaccine matching

The vast majority of the A(H1N1)pdm09 viruses collected since February 2024 that were genetically characterized belonged to the 5a.2a and 5a.2a.1 clades and have further diversified. Post-infection ferret antisera raised against the SH 2024 and NH 2024-25 A(H1N1)pdm09 vaccine viruses (cell culture-propagated A/Wisconsin/67/2022 and egg-propagated A/Victoria/4897/2022) from the 5a.2a.1 clade recognized 5a.2a and 5a.2a.1 viruses well. Post-vaccination GMTs were not significantly reduced for recently circulating A(H1N1)pdm09 viruses when compared to the responses to cell culture-propagated A/Wisconsin/67/2022 (H1N1)pdm09-like vaccine reference viruses.

The majority of A(H3N2) viruses collected since February 2024 had HA genes derived from 2a.3a.1 subclade J.2 and have continued to diversify. Post-infection ferret antisera raised against recent J.2 viruses (including those with HA S145N substitution represented by A/District of Columbia/27/2023 and A/Croatia/10136RV/2023) showed improved recognition of AIVC vaccine strain selection 30 October 2024 recently circulating viruses compared to SH 2024 and NH 2024-25 A(H3N2) vaccine viruses (cell culture-propagated A/Massachusetts/18/2022 and egg-propagated A/Thailand/8/2022). Human serology assays showed that post-vaccination GMTs against A(H3N2) viruses with HA genes representing J.1 and J.2 subclades were significantly reduced in most serum panels compared to titres against cell culture-propagated A/Massachusetts/18/2022-like vaccine reference viruses.

All circulating influenza B viruses characterized since February 2024 were of the B/Victoria/2/87 lineage. All recent viruses expressed HA genes belonging to clade 3a.2. Circulating viruses were recognized well by post-infection ferret antisera raised against SH 2024 and NH 2024-25 B/Victoria lineage vaccine viruses (cell culture- and egg-propagated B/Austria/1359417/2021). Human serology assays showed that post-vaccination GMTs against nearly all representative B/Victoria lineage viruses expressing 3a.2 HA genes were not AIVC vaccine strain selection 31 October 2024 significantly reduced compared to titres against cell culture-propagated B/Austria/1359417/2021-like vaccine reference viruses.

## Antiviral resistance data

The WHO National Influenza Centre at ESR employed a phenotypic method (fluorometric neuraminidase inhibition assay) for the surveillance of anti-viral drug resistance in influenza viruses. In addition, NIC at ESR employed a molecular method (PCR and sequencing) to monitor the H275Y mutation (histidine-to-tyrosine mutation at the codon of 275 in N1 numbering) which is known to confer resistance to oseltamivir.

In 2024, fluorometric neuraminidase inhibition assay was used to test 228 influenza viruses against oseltamivir and zanamivir. The preliminary results showed that all were sensitive to both oseltamivir and zanamivir.

# INFLUENZA VACCINE COMPOSITION FOR 2025 SEASON

The Australian Influenza Vaccine Committee (AIVC) met with a New Zealand representative in Canberra on 9 October 2024 to consult on the influenza vaccine composition for 2025 for New Zealand, Australia and South Africa. The following vaccine composition was recommended for 2025:

Egg-based quadrivalent influenza vaccines:

- an A/Victoria/4897/2022 (H1N1)pdm09-like virus
- an A/Croatia/10136RV/2023 (H3N2)-like virus
- a B/Austria/1359417/2021 (B/Victoria lineage)-like virus.

Cell-based or recombinant-based quadrivalent influenza vaccines:

- an A/Wisconsin/67/2022 (H1N1)pdm09-like virus
- an A/District of Columbia/27/2023 (H3N2)-like virus
- a B/Austria/1359417/2021 (B/Victoria lineage)-like virus.

The recommendation for the B/Yamagata lineage component of quadrivalent influenza vaccines remained unchanged from previous recommendations:

- a B/Phuket/3073/2013 (B/Yamagata lineage)-like virus.

The continued absence of confirmed detection of naturally occurring B/Yamagata lineage viruses after March 2020 is indicative of a very low risk of infection by B/Yamagata lineage viruses. Consistent with previous recommendations, it remains the opinion of the WHO influenza vaccine composition advisory committee that inclusion of a B/Yamagata lineage antigen in quadrivalent influenza vaccines is no longer warranted, and every effort should be made to exclude this component as soon as possible. The AIVC noted this position and supports the WHO committee's views.

# FUTURE DIRECTIONS

## Improving GP virologic surveillance

The COVID-19 pandemic response impacted heavily on GPs and other frontline health workers. We experienced lower levels of GP participation in the voluntary sentinel respiratory virus surveillance system following the pandemic. In 2025, the GP virologic surveillance system will recruit a smaller but representative sample of practices and will focus on boosting weekly participation by these practices.

## Development of a GP syndromic surveillance system

During the COVID-19 pandemic, the syndromic monitoring component of the ESR sentinel GP ILI surveillance programme was paused due to major changes in patient management in primary care. This system relied on manual data entry of every ILI patient presenting to a participating GP practice. Currently, only the virological sampling component of this system is operating.

Until mid-2024, GP syndromic surveillance information was obtained from HealthStat, with an expanded network of about 400 practices. In the absence of HealthStat data in 2025 a syndromic surveillance pilot will be run with a sample of GPs from the sentinel GP ILI surveillance programme to identify an optimal data collection system. It is anticipated that syndromic surveillance by sentinel GPs will be re-introduced for the 2026 winter season.

## Passive laboratory surveillance enhancements

Work is ongoing to allow the provision of all positive and negative respiratory panel test results performed in hospital and community diagnostic laboratories to be shared with ESR through the Eclair clinical result repository. This will allow monitoring of test positivity rates as an indicator of the prevalence of different respiratory viruses. This passive surveillance is not anticipated to be in place until later in 2025 at the earliest.

## FluTracking

FluTracking survey enhancement for 2025 will include introducing additional questions about RSV and influenza vaccinations, as well as a question about whether survey participants received a COVID-19, influenza or RSV test (either RAT or PCR) in the previous week. Planned advancements in analyses will include age adjusting rates, compensating for positive response bias and trialling proportional resampling, with the goal of producing estimates for ILI incidence by ethnicity.

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