Trends and Insights Report

Updated 09 September 2022

Purpose of report

This report comments on trends in the New Zealand COVID-19 outbreak, including cases, hospitalisations and mortality. It also comments on international COVID-19 trends and the latest scientific insights related to outbreak management. The report relies on data that may be subject to change or are incomplete. An unknown proportion of infections are not reported as cases, this proportion may differ by characteristics such as ethnic or deprivation group. Therefore, any differences in reported case rates must be interpreted with caution.

Executive Summary

Overall, all key measures of the outbreak have been declining for the last two and a half months. Trends are tracking to levels seen in late February 2022. Reported case rates have continued to decrease nationally. Wastewater levels also continue to decline. The numbers of those who have been hospitalised and who have died have also continue to decrease.

BA.5 is the dominant subvariant accounting for an estimated 86% of cases; this is consistent with wastewater findings. In the two weeks to 02 September, variants BA.5, BA.4, BA.2, BA.4.6 and BA2.75 were detected in community samples. While we may see one of these sub-variants slowly predominate over the next few months, they are not expected to cause a distinct wave.

Over the next couple of weeks, it is probable that cases, hospitalisations and mortality will continue to decrease at a slower rate. However, as immunity decreases over time or if a substantially more transmissible variant emerges, there may be fluctuations in case rates in the future.

Key insights

National Trends

Cases	The 7-day rolling average of reported case rates was 35.8 per 100,000 population for the week ending 04 September. This was a 26.6% decrease from the previous week, which was 48.8 per 100,000.
Wastewater	Wastewater quantification indicates a decreasing trend nationally.
Hospitalisations	The COVID-19 hospital admissions rate has been decreasing since the mid-July 7-day rolling average peak of 2.5 per 100,000, to a 7-day rolling average of 0.9 per 100,000 at 28 August.
Mortality	As of 08 September, there were 1,941 deaths attributed to COVID-19. The number of deaths attributed to COVID-19 appears to be continuing with a decreasing trend.
Variants of Concern	BA.5 makes up 86% and BA.4 makes up 7% of sequenced community cases.
Border	In the week ending 28 August, 82% of air border arrivals uploaded a RAT. Test positivity decreased to 2.1%.

Māori

Cases	The 7-day rolling average of reported case rates was 28.7 per 100,000 population at 04 September, lower than for European or Other, however there may be case ascertainment biases.
Hospitalisations	The age-standardised Māori hospitalisation rate for COVID-19 is 2.4 times higher than European or Other.
Mortality	The age-standardised cumulative mortality rate for Māori is 2.0 times higher than European or Other.

Pacific peoples

Cases	The 7-day rolling average of reported case rates was 25.7 per 100,000 population at 04 September; there is likely ascertainment bias, but also to note that this rate is not age adjusted.
Hospitalisations	Pacific peoples have the highest cumulative rate of hospitalisation with COVID-19 which is approximately 3.1 times higher than European or Other.
Mortality	Pacific peoples have the highest age-standardised cumulative mortality risk of any ethnicity, 2.6 times that of European or Other.

International Insights

Globally, in the week ending 04 September 2022, the number of weekly cases decreased by 12%, with 4.2 million new cases reported. The number of new weekly deaths decreased by 5% compared to the previous week, with over 13,700 fatalities reported.
Globally, between 05 August to 05 September 2022, 118 028 SARS-CoV-2 sequences were submitted to GISAID, with Omicron accounting for 99.4% of sequences.

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Infection trends

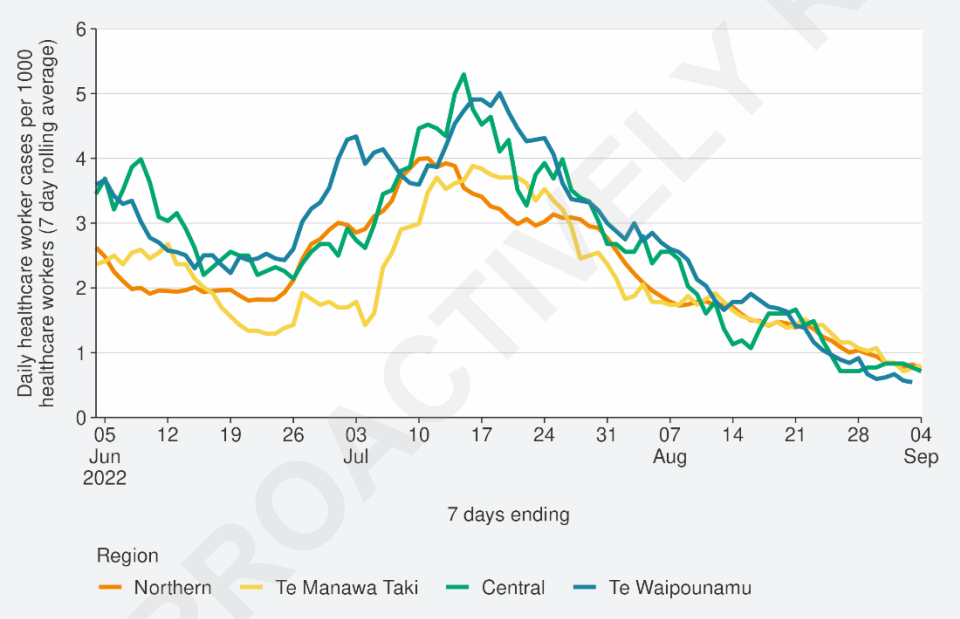
Summary of evidence for infection and case ascertainment trends

All evidence continues to support decline in incidence in the community: reported case rates in both healthcare workers and the general population have declined in the past two and a half months; inpatient COVID-19 test positivity at tertiary hospitals reduced during this period and levels of viral ribonucleic acid (RNA) in wastewater have also been declining in all regions for the past few weeks. The weekly healthcare workforce reported case rates in the week ending 04 September (70.1 per 100,000) remain higher than the general population (35.8 per 100,000).

Approximation of trends in underlying infection incidence

For the week ending 28 August, the 7-day rolling average case rate for healthcare workers was 0.7 per 1,000 **(Figure 1**). While the healthcare work force is not representative of the general population, they are required to routinely test and report infection, so their trends in reported cases are more likely to reflect their underlying infection incidence.

Figure 1: Regional reported 7-day rolling average case rates of health care workers for weeks 05 June – 04 September 2022

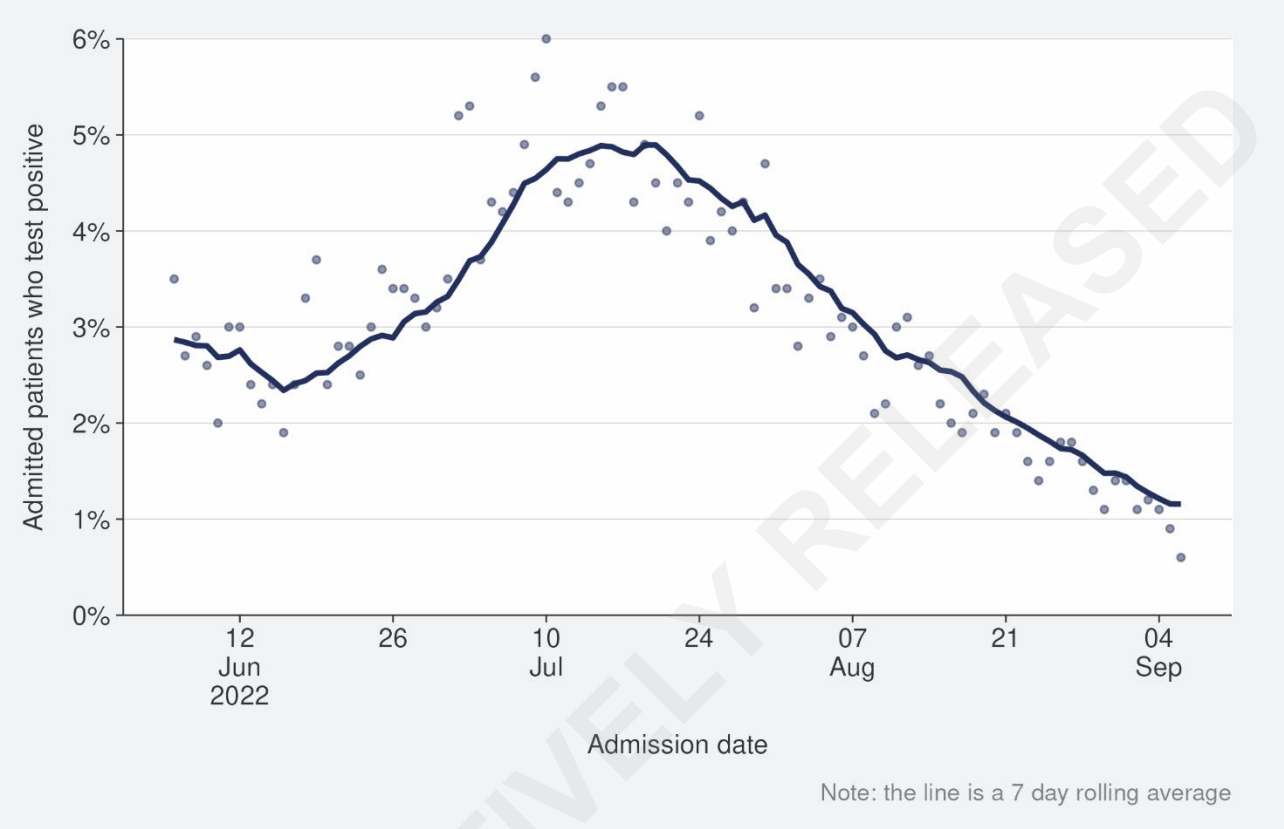


Source: Éclair/Episurv, 2359hrs 04 September 2022

Test positivity trends among tertiary hospital admissions

Inpatient test positivity trends for tertiary hospital admissions[1] is shown in Error! Reference source not found.. Tertiary hospital admission positivity is steadily declining with a 7-day rolling average[2] of 1.2% for the week ending 06 September

Figure 2: Percent of tests positive among tertiary hospital admissions.



Source: Tertiary hospitalisation data, NCTS and EpiSurv as at 2359hrs 06 September 2022

[1] These are hospital admissions who had COVID at the time of admission or while in hospital. These data are from Districts with tertiary hospitals; these Districts are Auckland, Canterbury, Southern, Counties Manukau, Waikato, Capital and Coast, Waitematā, and Northland.

[2] A 7-day rolling average is an average of the daily values over the past seven days inclusive. This report uses both 7-day rolling averages and weekly rates; these differ in that the 7-day rolling average rate is on a daily scale and the weekly rate is on a weekly scale – hence, weekly rates are higher as they cover a longer time period.

Wastewater quantification

Figure 3 provides an overview of wastewater results nationally. Note that wastewater levels cannot be used to predict numbers of cases reliably as yet, but does indicate trends in the underlying infection rates.

Wastewater quantification indicates a decreasing trend nationally and across all regions.

Figure 3: National weekly wastewater trends in SARS-CoV-2 genome copies per day

Source: ESR SARS-CoV-2 in wastewater update for week ending 04 September 2022

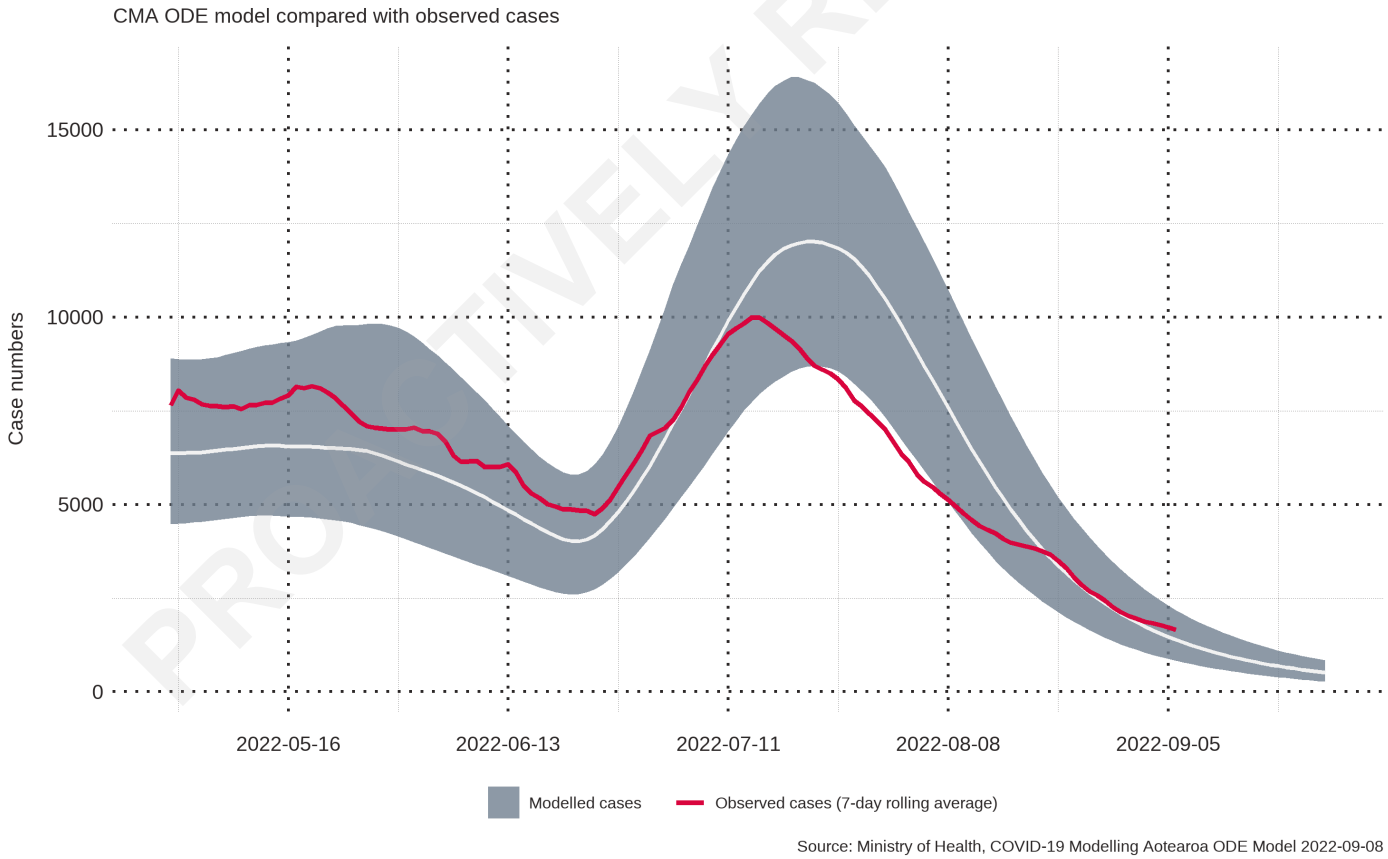
Modelled and observed trends in reported cases

Figure 4 compares the latest COVID-19 Modelling Aotearoa group's predictive model scenarios for the number of reported cases with the observed number of cases. The white line is the median prediction and grey areas indicate the upper and lower ranges of the prediction, and the red line indicates the observed cases.

The 'July' scenario assumes previous infection provides greater protection against reinfection and severe disease, consistent with emerging international evidence. It also incorporates updated data and future projections of uptake of second boosters, and an earlier transition to BA.5, consistent with the timing of cases and hospitalisations in New Zealand.

A peak was projected to occur in mid-July with daily cases rising to approximately 12,000 a day; however, the observed peak in reported cases was slightly earlier and lower than the median projection. Case numbers have continued to track near the lower bound of the model prediction. For the week ending 04 September there was an average of 1,778 cases reported daily, equivalent to a rate of 35.8 per 100,000 population. This is a 26.7% decrease from the previous week, which was 48.9 per 100,000.

Figure 4: COVID-19 Modelling Aotearoa scenarios compared with reported cases nationally (BA.5 scenarios)



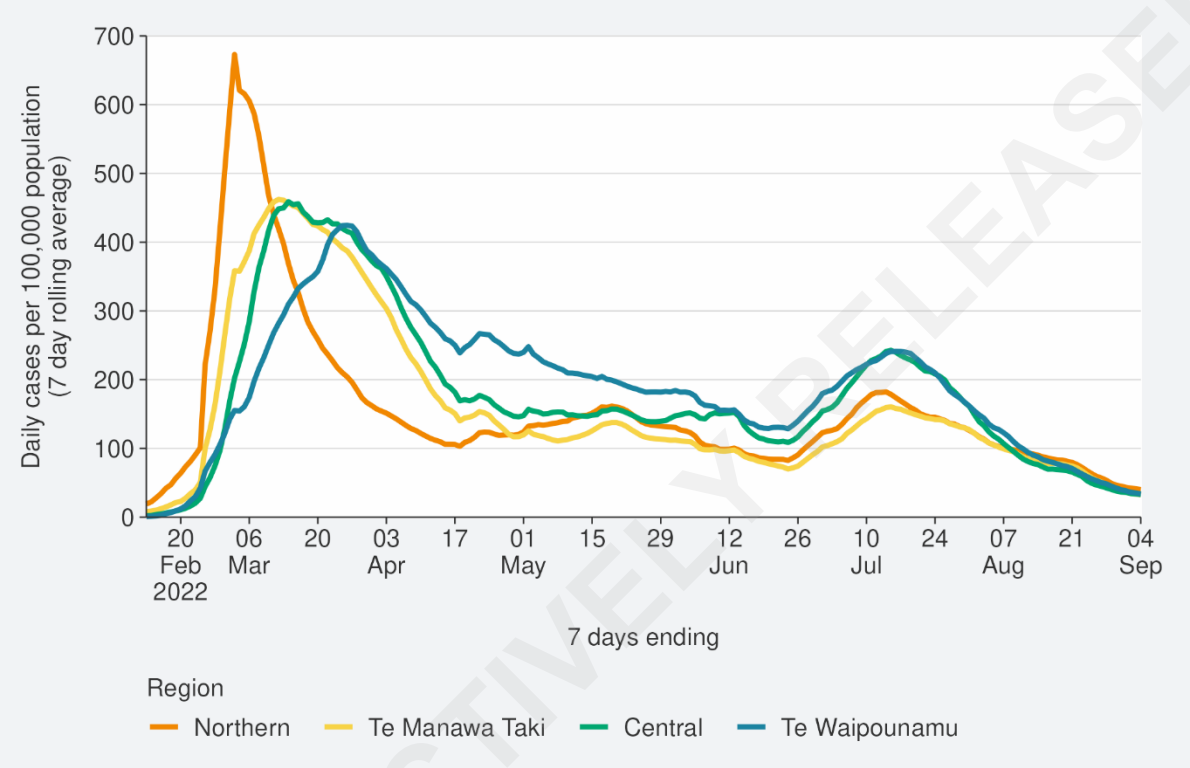
Sources: COVID-19 Modelling Aotearoa Branching Process Model August 2022, and Ministry of Health reported case data 08 September 2022

Regional trends in reported cases

Figure 5 shows that case rates have decreased across all regions in the past week. The 7-day rolling average rate of reported cases for the Northern region (40.2 per 100,000) decreased by 24.9% in the past week, Te Manawa Taki (32.5 per 100,000) decreased by 30.9%, Central region (32.8 per 100,000) decreased by 22.7% and Te Waipounamu (33.9 per 100,000) decreased by 29.8%.

All Districts experienced decreases, between 9.8% and 36.0%, in the past week. The highest rate was in the Tairāwhiti District (47.6 per 100,000) and the lowest rate was in the Hawke's Bay District (23.4 per 100,000).

Figure 5: Regional 7-day rolling average of reported case rates from February to 04 September 2022



Source: NCTS/EpiSurv as at 2359hrs 04 September 2022

Reinfection

Analysis and interpretation of reinfection data are being developed.

It is important to note that these data come with several significant limitations: (1) Reinfections can only be identified if the previous infection was also reported. (2) Guidance on when to test after first infection was changed on June 30 prior to which the guidance was not to test until 90 days after first infection. This is now 28 days and, consequently, early reinfections were under-reported prior to June 30. (3) Those who have already had a first infection may be less likely to test during their second infection. (4) Reinfections are possibly more likely to be mild or asymptomatic.

Demographic trends in reported case rates

Since New Zealand entered Phase 3 of the Omicron response on 24 February 2022, the majority of testing has been through self-administered rapid antigen tests (RATs) which also require the individual to self-report their results. *Therefore, it is likely that many infections are not detected or unreported, and the proportion of infections reported ('reported cases') may differ by age, ethnic and/or deprivation group. This means any difference must be interpreted with substantial caution.*

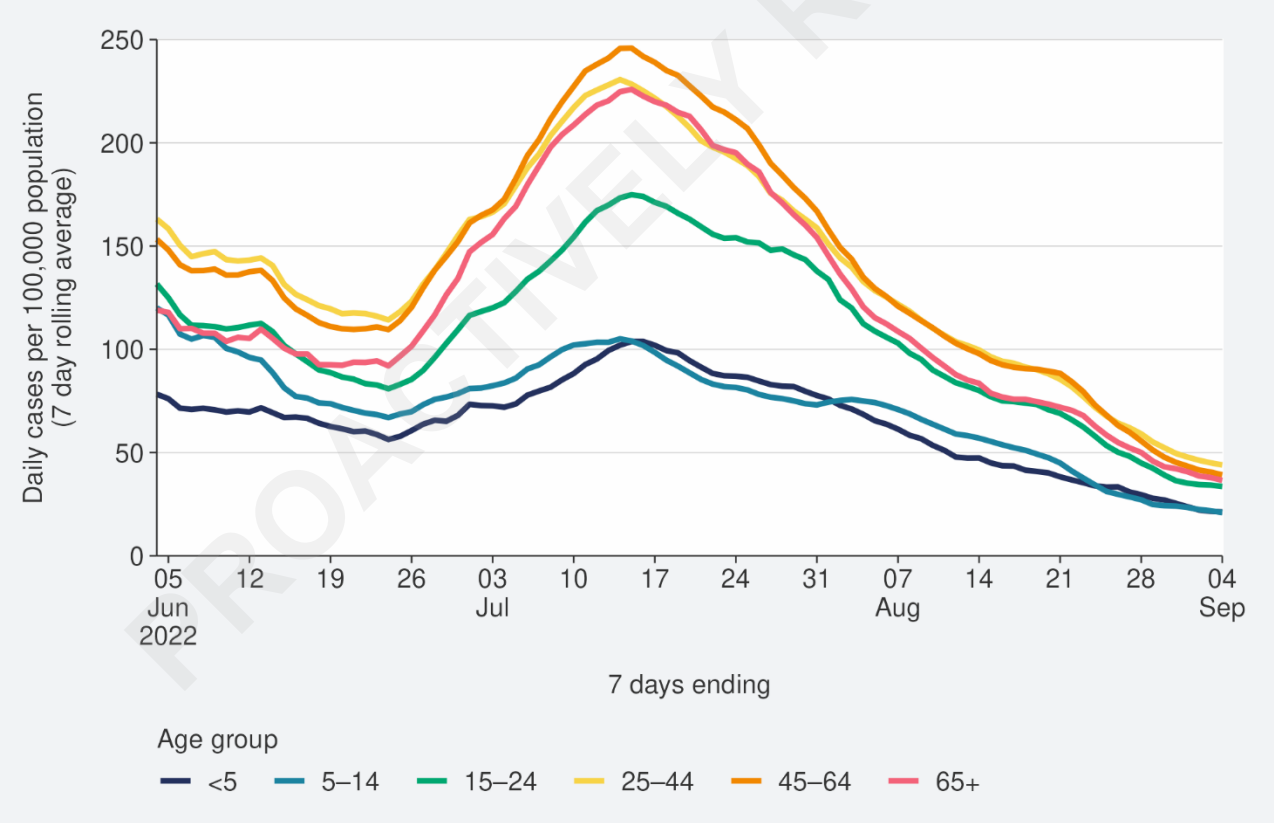
Age trends over time

Figure 6 shows the 7-day rolling average rate for reported cases by age.

Reported case rates have decreased across all age groups in the past week. Nationally, reported case rates in the 65+ age group, those most at risk of poor health outcomes after infection, decreased 27% from the previous week to 36.5 per 100,000 in the week ending 04 September.

Among the other age groups, rates in the past week were lowest in the <5 and 5-14 age groups (21.3 and 21.0 per 100,000, respectively). The rate for the 15-24 age group was 33.6 per 100,000. The 25-44 and 45-64 age groups had the highest rates, 44.0 and 39.2 per 100,000 respectively.

Figure 6: National reported case rates (7-day rolling average) by age for weeks 05 June – 04 September 2022



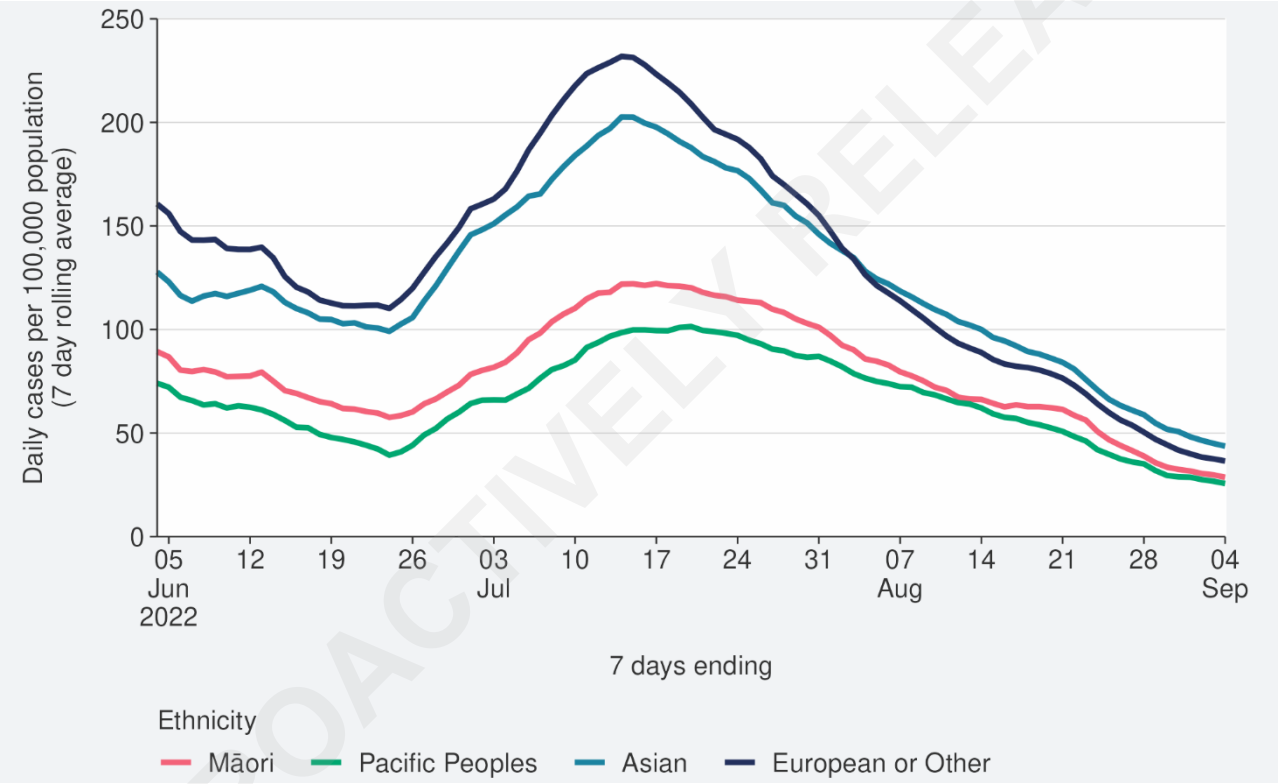
Source: NCTS/EpiSurv as at 2359hrs 04 September 2022

Ethnicity trends over time, by region and by age group

Figure 7 shows the national 7-day rolling average rate of reported cases by ethnicity.

In the past week, reported case rates decreased for all ethnicities. The largest decrease was seen in European or Other (27.6%) and the smallest decrease was seen in Asian peoples (25.7%). Rates in Asian (43.7 per 100,000) and European or Other (36.5 per 100,000) ethnicities remained higher than those for Māori (28.7 per 100,000) and Pacific peoples (25.7 per 100,000). But it should be noted that these rates are not adjusted for the differing age structures in the communities. The differences in reported rates by ethnicity were greatest during the most recent peak, but these differences have been reducing since late July.

Figure 7: National 7-day rolling average of reported daily case rates by ethnicity for weeks 05 June – 04 September 2022

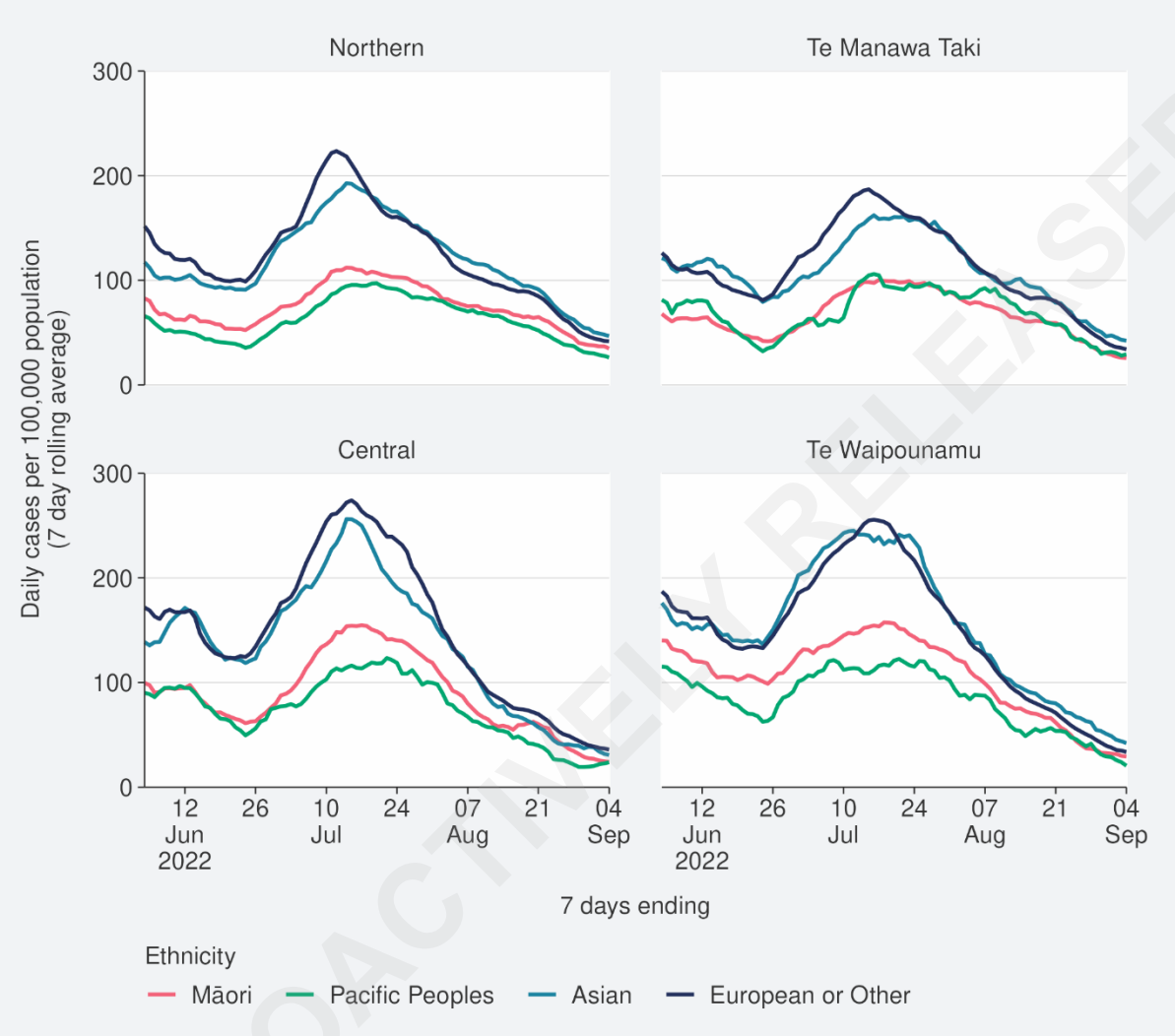


Source: NCTS/EpiSurv as at 2359hrs 04 September 2022

Figure 8 shows the regional 7-day rolling average rate of reported cases by ethnicity.

Trends in all regions continue to decrease, except for central; Pacific peoples increased by 10.6% in the past week. Rates were highest in Asian and European or Other ethnicities, and rates decreased across all ethnicities and regions, between 19.4% and 50.6%, in the past week.

Figure 8: Regional reported weekly case rates by ethnicity for weeks 12 June – 04 September 2022



Source: NCTS/EpiSurv as at 2359hrs 04 September 2022

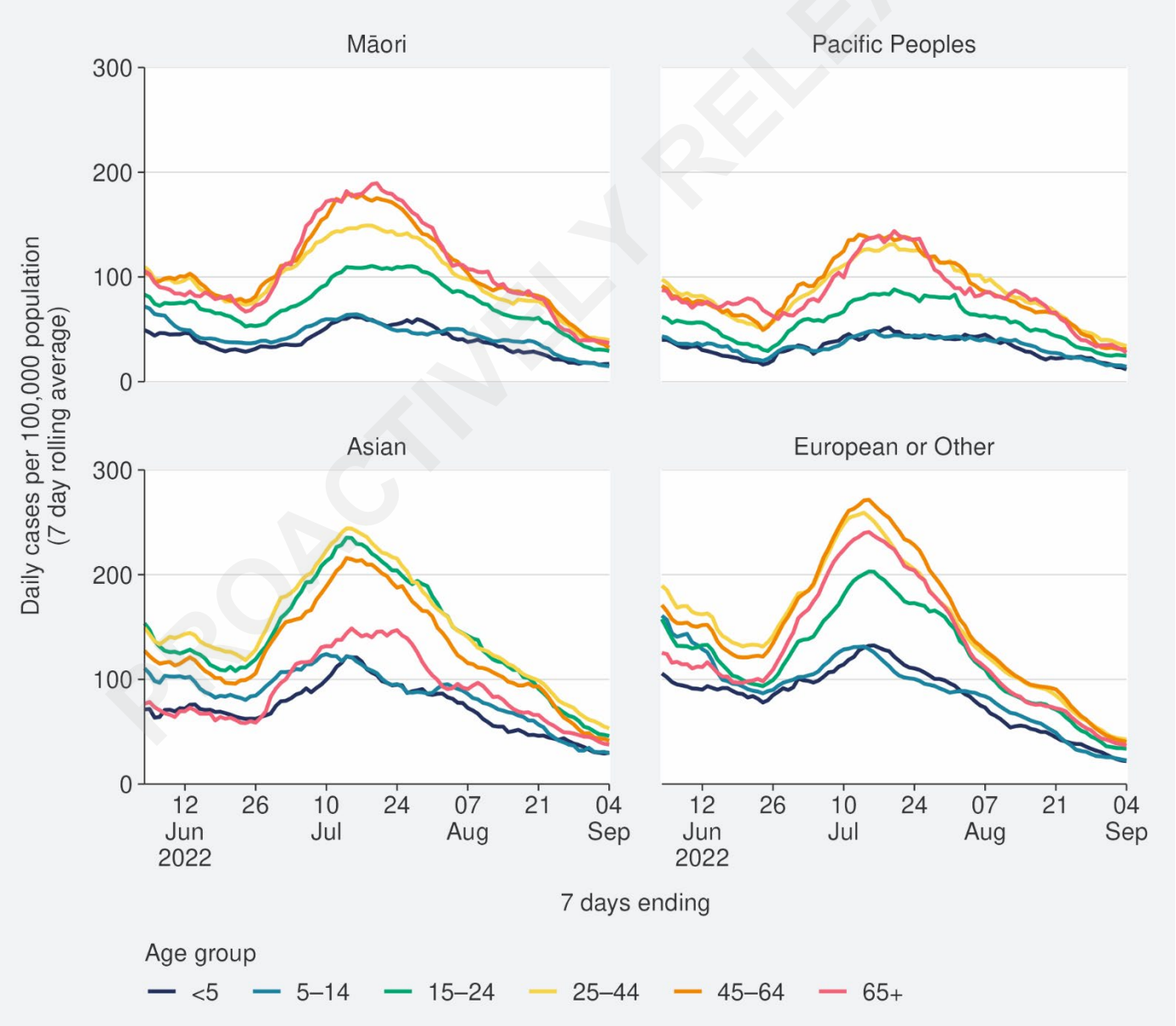
Figure 9 shows national reported weekly case rates by ethnicity and age group.

In all age groups, trends were similar across all ethnicities: all rates decreased, between 6.9% and 48.0%. The rate in Asian people aged 15-24 (45.8 per 100,000) was notably higher than all other ethnicities in this age group; with other ethnicities ranging between 24.7 and 33.7 per 100,000. The highest reported rate for any age group was also among Asian people (53.2 per 100,000 in 25-44 years olds). The lowest reported case rates were in Pacific peoples aged <5 (11.7 per 100,000).

In 65+ age groups, the highest rate was in Asian ethnicities at 37.8 per 100,000; followed by Māori at 36.9 per 100,000; the second lowest was in European or Other at 36.6 per 100,000 and the lowest was in Pacific peoples at 27.9 per 100,000.

As Māori and Pacific peoples have lower life expectancies than other ethnicities in Aotearoa New Zealand, they are likely to have a higher risk for COVID-19 complications at a younger age than other ethnicities.

Figure 9: National ethnicity-specific reported weekly case rates by age group for weeks 12 June – 04 September 2022



Source: NCTS/EpiSurv as at 2359hrs 04 September 2022

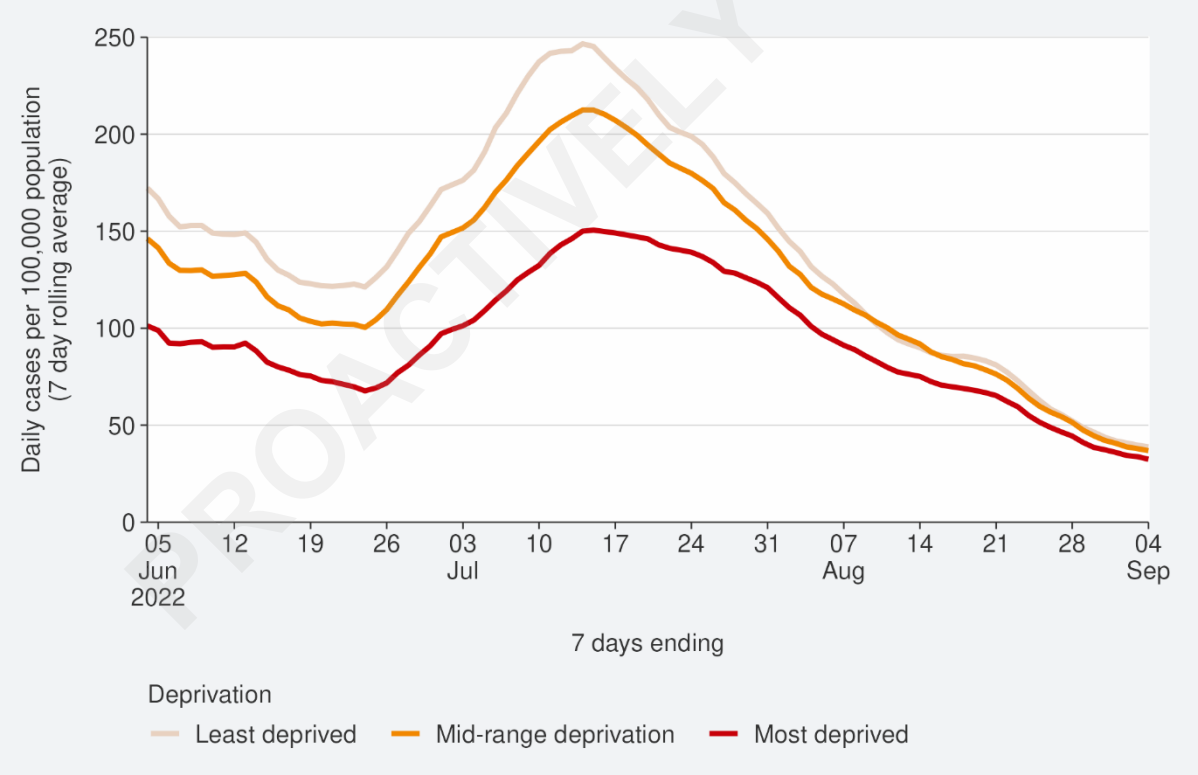
Deprivation trends over time

Figure 10 shows the 7-day rolling average for reported case rates by deprivation level (based on NZDep2018[3]). This is an area, not individual, based measure. Areas of high deprivation are ones where there is poor access to the internet, low incomes, higher number of welfare recipients, increased unemployment, single parent families and higher prevalence of people living in rented accommodation and/or in homes that are overcrowded and damp.

Reported case rates have been highest in the least deprived areas for the past few months, but have converged to similar rates since late July. Rates for all deprivation levels have continued to decrease; the 7-day rolling average to 04 September was highest in areas of least and mid-range deprivation (38.8 and 36.9 per 100,000 population respectively), followed by most deprived areas (32.4 per 100,000).

Behavioural insights evidence[4] indicates that not knowing where to report RAT results, financial issues from having to isolate, inability to take time off work and not having a place to isolate safely impact the registering of a positive test. These issues could be exacerbated in areas of higher deprivation. Thus, it could be that the trends are affected by deprivation-associated bias in case ascertainment and are not a true reflection of underlying infection rates by deprivation level; however, data to investigate this are not currently available. It is also feasible that lower reported case rates in areas of high deprivation could be partially explained by higher infection rates earlier in the year.

Figure 10: National reported 7-day rolling average COVID-19 case rates by deprivation status for weeks 05 June – 04 September 2022



Source: NCTS/EpiSurv as at 2359hrs 04 September 2022

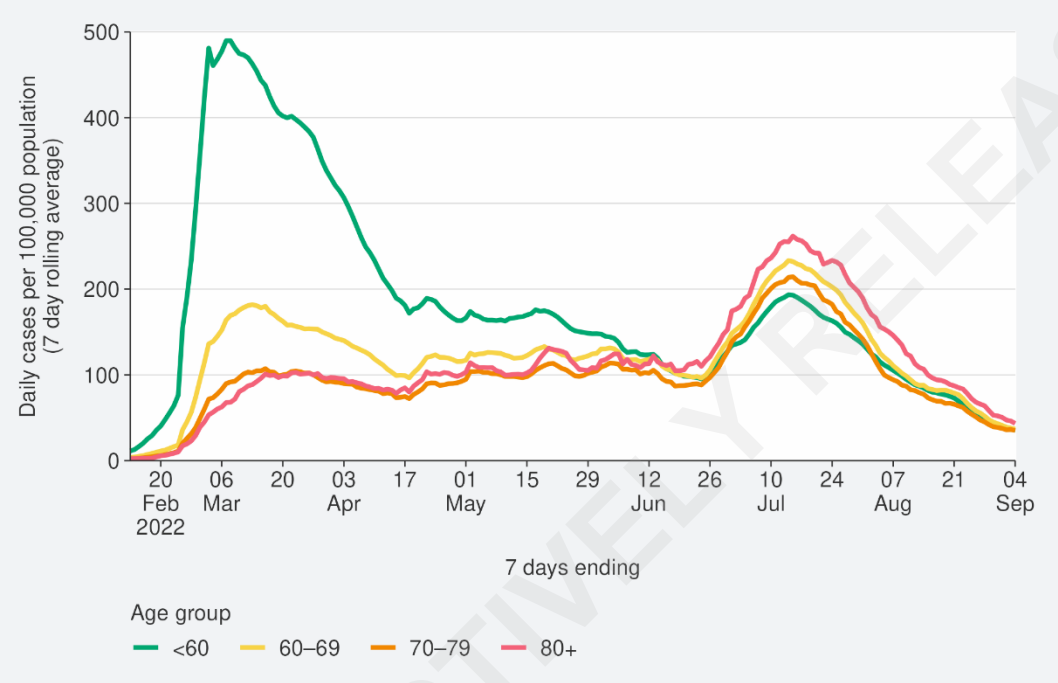
[3] Contents (otago.ac.nz)

[4] Information available on request

Trends in hospitalisation

Risk of hospitalisation (and mortality) is strongly linked with increasing age; since mid-June there have been decreases in reported case rates in those aged over 60 years, after substantial increases in early July, particularly in those aged 80+ (**Figure 11**). Reported case rates in over 60s continue to be lower in the past week than seen at any time since mid-March. Consequently, hospital occupancy and hospital admissions have continued to decrease over the past month (**Figure 12** and **Figure 13**). Preliminary analysis indicates that 56% of cases are only reported as a case on the day of their hospitalisation.

Figure 11: Reported case rates (per 100,000) with focus on those aged over 60 years, 13 February to 04 September 2022



Source: NCTS/EpiSurv as at 2359hrs 04 September 2022

Modelled and observed trends in hospital occupancy

Figure 12 compares the latest COVID-19 Modelling Aotearoa group's scenarios for hospital occupancy with observed occupancy. The white line is the median prediction and grey areas indicate the upper and lower ranges of the prediction, and the red line indicates the observed occupancy.

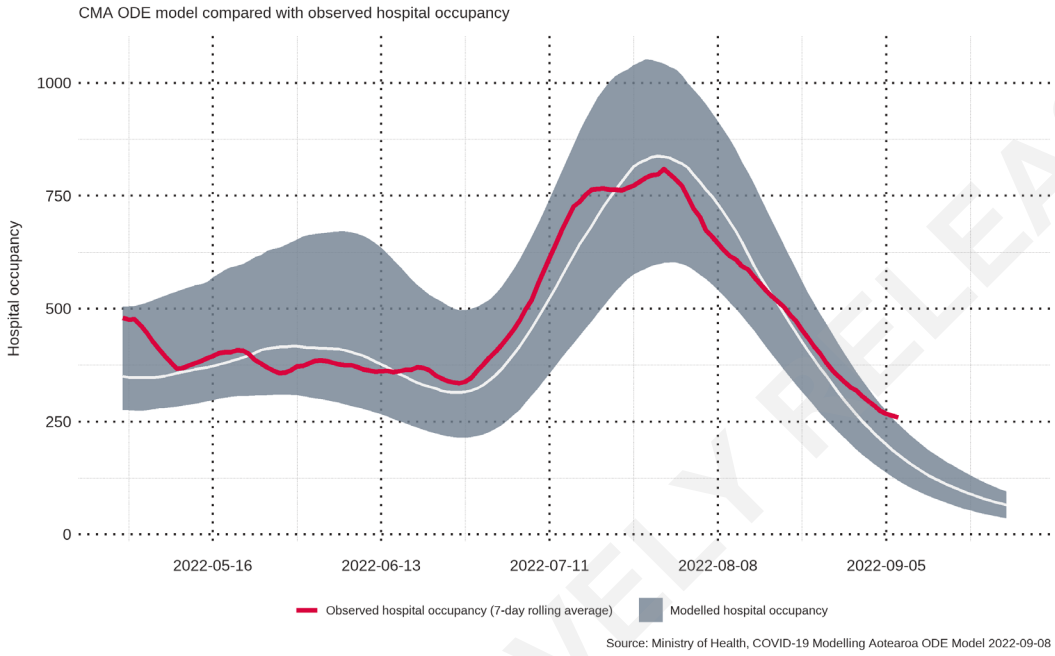
The 'July' scenario assumes previous infection provides greater protection against reinfection and severe disease, consistent with emerging international evidence. It also incorporates updated data and future projections of uptake of second boosters, and an earlier transition to BA.5, consistent with the timing of cases and hospitalisations in New Zealand.

The peak was projected to occur between late July and early August with daily hospitalisations rising to approximately 800 a day. The observed hospital occupancy rate has been similar to the median prediction, until recent weeks. Hospital occupancy is tracking near the upper band of the model; however, a decreasing trend continues to be observed; in the week ending 04 September the average daily occupancy was 264, equivalent to a rate of 5.6 per 100,000 population. This was a decrease of 20.1% from the week prior.

The occupancy measures include all people who have had COVID-19, this data does not take into account whether their admission was "For" COVID-19; or those admitted for other factors e.g., due to injury and present "with" COVID-19. Of those admitted to hospital with COVID-19 approximately 74.7% were probably due to COVID-19 in the week ending 04 September.

This proportion "For" COVID-19 is likely to reduce as more accurate data is made available. Therefore, in the past month the "For" estimate is likely to be slightly overestimated than actual rates "For" COVID-19.

Figure 12: COVID-19 Modelling Aotearoa hospital occupancy compared with observed occupancy



Sources: COVID-19 Modelling Aotearoa (CMA) Branching Process Model August 2022, hospital occupancy (all COVID-19 positive people admitted as inpatients) from Daily hospital questionnaire as of 08 September 2022.

Hospital admission trends over time

As seen in **Figure 13**, the COVID-19 hospital admissions rate for COVID-19[5] has been decreasing since mid-July, to a 7-day rolling average of 0.9 per 100,000 of population at 28 August.

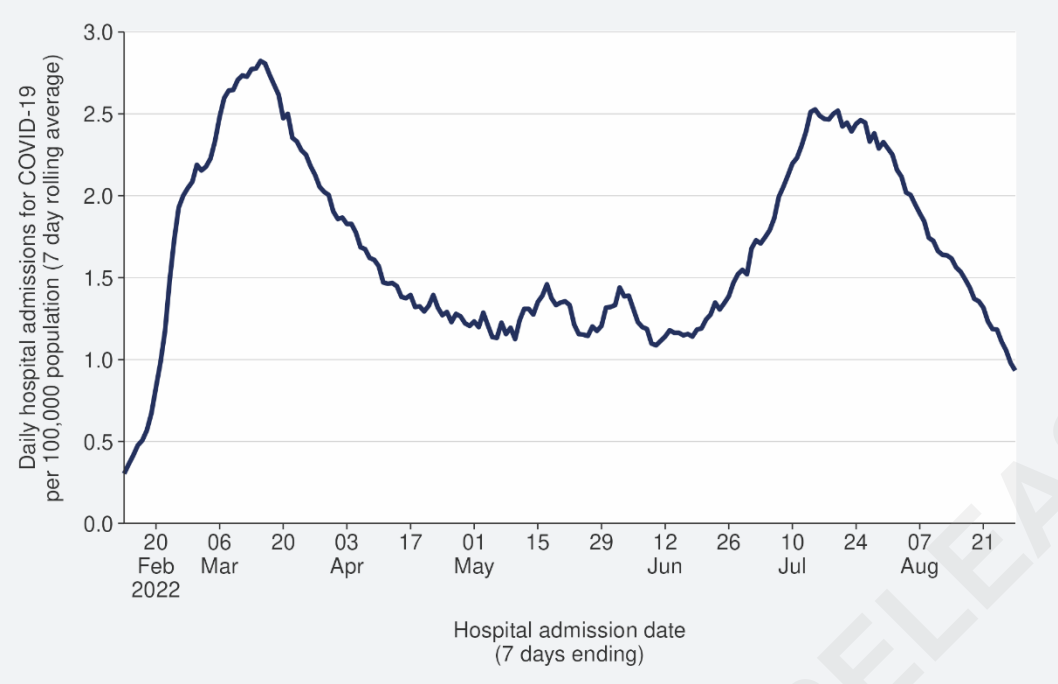
Hospital admission rates by age group (**Figure 14**) were highest for those who are 80 years and older (9.8 per 100,000 of population), followed by those who are 70-79 years old (3.1 per 100,000), those who are 60-69 years old (1.6 per 100,000) and were lowest for those who are <60 years old (0.3 per 100,000).

While those aged under 60 have the lowest admission rates, at 0.3 per 100,000, the trend remains important, as under 60's are a large population: for the week ending 04 September, under 60s accounted for 37.2% of all hospital admission "For" or "with" COVID-19; from 01 January to 04 September under 60s accounted for 44.2%.

Admission rates among these age groups have continued to decline or remained stable; aged 80+ decreased by 35.5%; aged 70-79 decreased by 36.1%, and those aged <60 decreased by 27.9%. 60-69 remained stable compared to the previous week ending 21 August.

[5]New hospital admissions who had COVID at the time of admission or while in hospital; excluding hospitalisations that were admitted and discharged within 24hrs. These data are from districts with tertiary hospitals, the districts are Auckland, Canterbury, Southern, Counties Manukau, Waikato, Capital and Coast, Waitematā and Northland.

Figure 13: COVID-19 hospital admissions[6] rate, 13 February to 28 August 2022

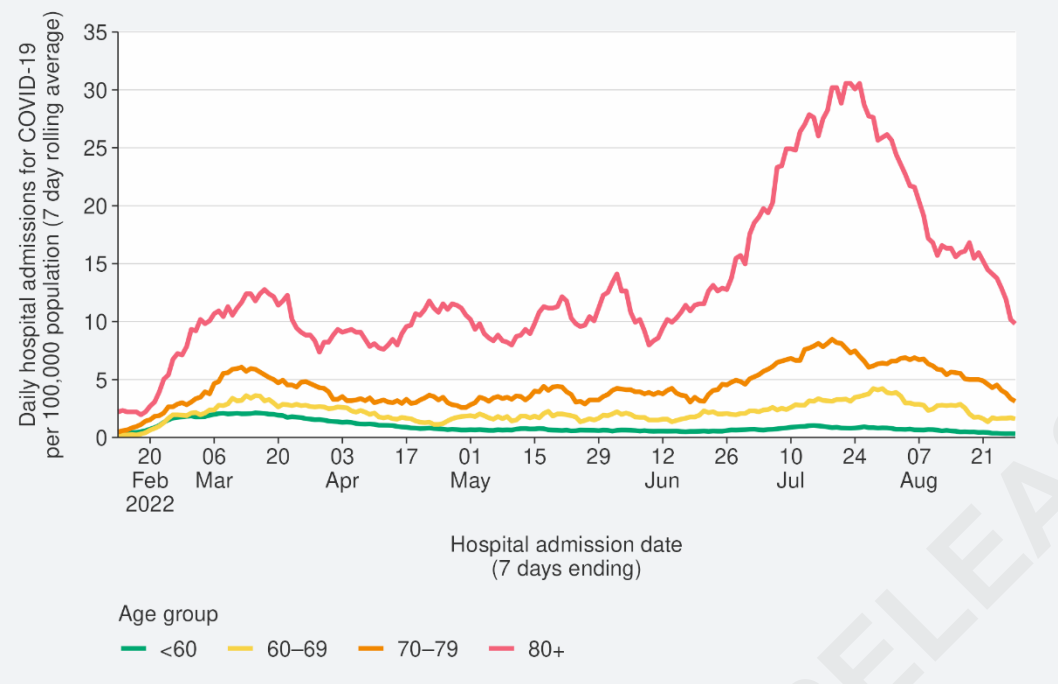


Source: NMDS/Inpatients admissions feed as of 05 September 2022 data up to 28 August 2022

[6] Hospital admission data comes from a combination of two data sources – the inpatient admission (IP) dataset (which only includes data from hospitals in certain districts) and the National Minimum Dataset (NMDS), which is a more comprehensive dataset, however, it is only available for two or more months after discharge. The IP records are provisional and overwritten by NMDS records as soon as the NMDS records become available. Please see Glossary for further details.

We can estimate the number of hospitalisations where COVID-19 could be the reason for the hospital admission. The 'For' measure excludes those who are identified as incidental. Recent trends are subject to revision. Please see glossary for further caveats. Coding of reasons for admission from the National Minimum dataset suggests that around 60% of people who were hospitalised with COVID-19 were hospitalised for a reason relating to their COVID-19 infection. These data are from districts with tertiary hospitals, the districts are Auckland, Canterbury, Southern, Counties Manukau, Waikato, Capital and Coast/Hutt, Waitematā and Northland.

Figure 14: Hospital admission rates by age group, 13 February to 28 August 2022



Source: NMDS/Inpatients admissions feed as of 05 September 2022 data up to 28 August 2022

Age is strongly associated with risk of hospitalisation with COVID-19, consequently it can mask other factors.

Figure 15 shows the 7-day rolling average for hospital admission rates by age and ethnicity, per 100,000. During the late-July, early August peak in COVID-19 hospital admissions, rates in Māori were highest in most age groups; Pacific peoples were second highest for under 60s-, 60-69- and 70–79-year-olds. European or Other had second highest rates in the 80 years and over and Asian people have consistently had the lowest rates across all age groups in that period.

For those aged 80+ Māori had the highest hospitalisation rates for the week ending 28 August, 27.9 per 100,000; more than twice that of any other ethnicity, and not declining, unlike all other ethnicities.

For the week ending 28 August of people aged 70-79, European and Other had the highest hospitalisation rates, 3.5 per 100,000; followed by Asian, at 1.8; Pacific peoples at 1.4 per 100,000. Māori people had the lowest hospitalisation rates, 1.2 per 100,000. Pacific Peoples in this age group have seen a very large decrease in hospital admissions in the short timeframe from mid to late August.

For the week ending 28 August of people aged 60-69, Māori had the highest hospitalisation rates, 6.7 per 100,000; however, over the past few weeks admissions have substantially deceased. Pacific peoples were tracking similar to Māori, but in recent weeks have decreased and are now similar to rates in European or Other and Asian; between 0.7-1.3 per 100,00.

In under 60's the general trend is similar to those of 60-69, with decreasing admission rates for all ethnicities; However at a significantly lower rate. For the week ending 28 August all ethnicities had similar admission rates between 0.2-0.4 per 100,000 respectively.

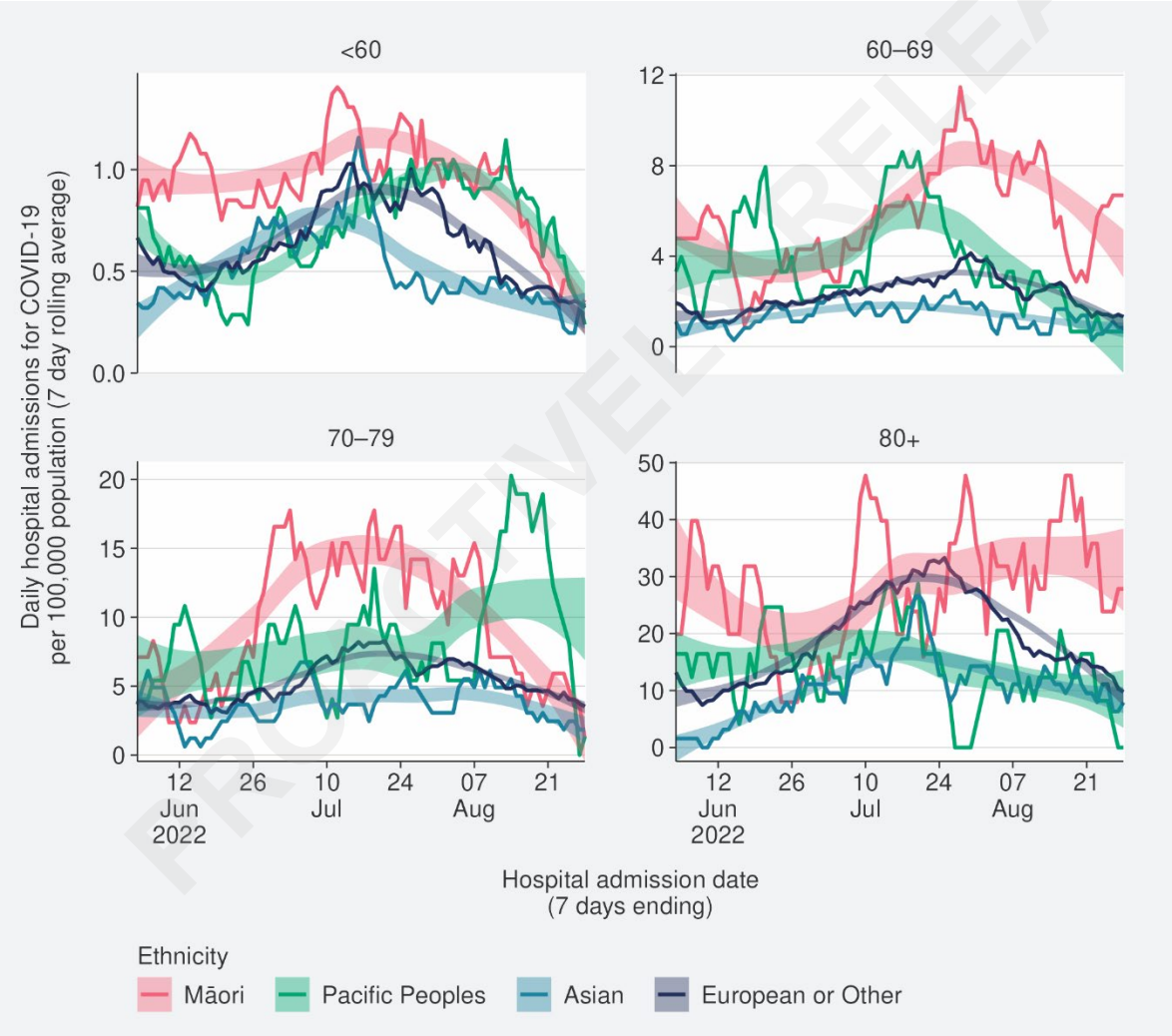
Figure 16 shows the 7-day rolling average for hospital admission rates by age and deprivation, per 100,000. Consistently those in the highest deprivation have had the highest admission rates across time in all four age groups, and those in the lowest deprivation have had the lowest rates.

For the week ending 28 August of those aged 80 or more, the highest hospitalisation rate was in the most deprived at 10.9 per 100,000; followed by least deprivation areas at 10.4 per 100,000 and mid-range deprived areas at 8.1 per 100,000. The next highest rate was in the most deprived 70-79 year olds at 4.0 per 100,000; less than half that for the least deprived 80+ year olds. Similarly, the highest rate in the 60-69 years olds (2.0 per 100,000) was still lower than the lowest rate in the 70-79 years olds (2.5 per 100,000 in the mid-range deprived).

These data reinforce that deprivation is a strong determinant of poor outcomes, but that age remains the most significant determinant.

Please note that the transparent bands are the result of Locally Weighted Scatterplot Smoothing (Loess)[7]; this creates a smooth trend line through the data points (**Figure 15 and 16).** The transparent band will not necessarily include the 7-day rolling average line, as its purpose is to capture a more general trend of the data.

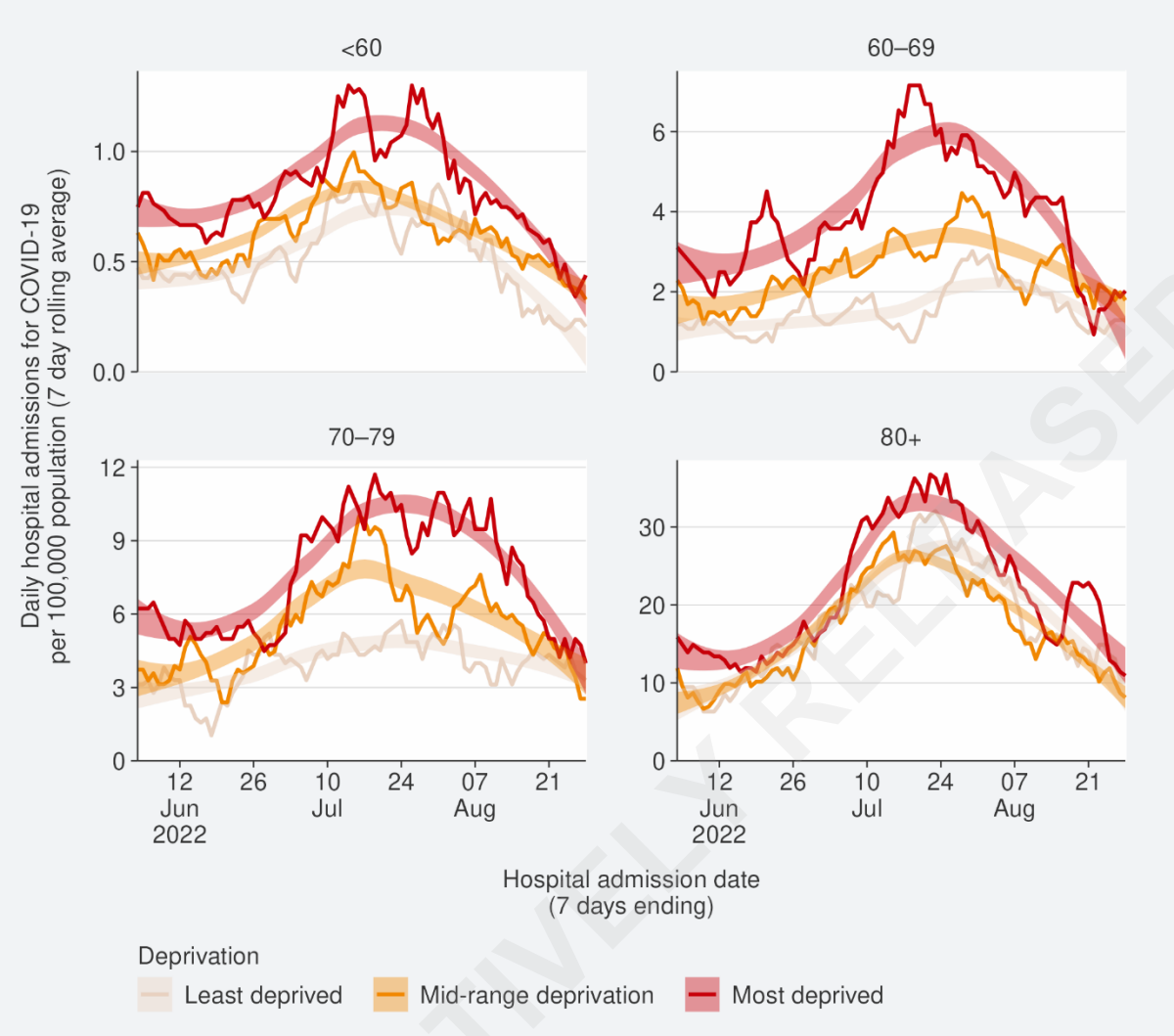
Figure 15: Hospital admission rates by age and ethnicity, 05 June to 28 August 2022



Source: NMDS/Inpatients admissions feed as of 05 September 2022 data up to 28 August 2022

[7] http://r-statistics.co/Loess-Regression-With-R.html

Figure 16: Hospital admission rates by age and deprivation, 05 June to 28 August 2022



Source: NMDS/Inpatients admissions feed as of 05 September 2022 data up to 28 August 2022

Age-standardised hospital admission risk for 01 January to 27 August 2022

Unadjusted and age-adjusted risk: disparities in hospitalisation risk by ethnicity and deprivation are more clearly observed after adjusting (age-standardising[8]) for differences in age demographics.

Priority populations (Pacific peoples, Māori and those living in areas of high deprivation) that are at higher risk of experiencing poor health outcomes also tend to be systematically younger on average. As older age is also a strong risk for poor outcomes, the risk by ethnicity and deprivation can be masked. Therefore, the hospitalisation risk for these communities must be adjusted for age in order to make a more accurate comparison.

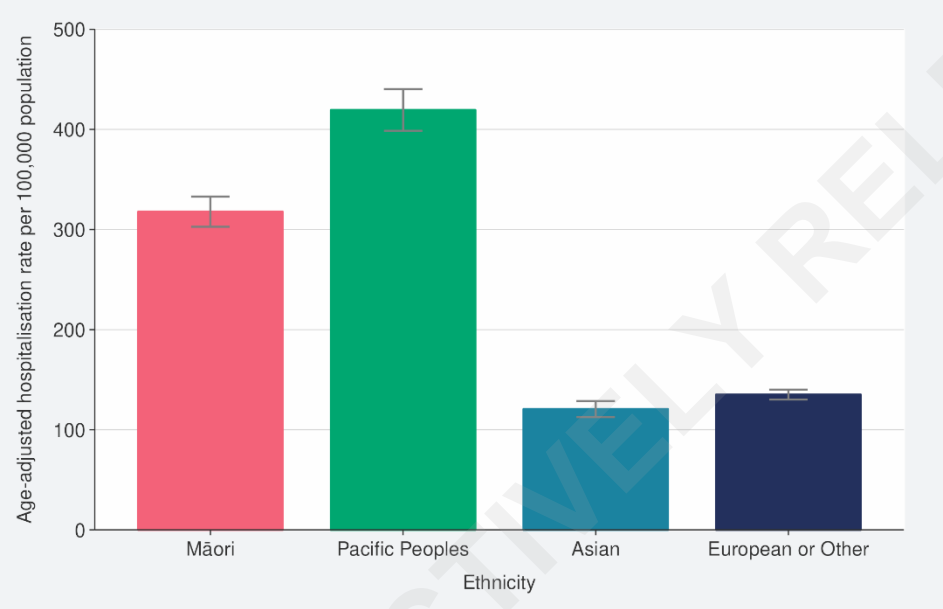
[8] An age-standardised rate is a weighted average of the age-specific rates per 100,000 persons, where the weights are the proportions of persons in the corresponding age groups of the Māori population.

Figure 17 and 18 show age-standardised rates of hospitalisation with COVID-19 by ethnicity and by deprivation, respectively, for the time period of 01 January 2022 to 04 September 2022. Rates are standardised to the Māori population age structure. Data are limited to districts with tertiary hospitals in the inpatient dataset and exclude incidental hospital admissions.

Pacific peoples had the highest age-standardised rate, 3.1 times higher than European or Other. Māori had a rate 2.4 times higher than European or Other (**Figure 17**). There was no significant difference between the hospitalisation rates of Asian compared with European or Other.

Those most deprived had the highest age-standardised rate of hospitalisation with COVID-19 (2.6 times that of the least deprived) followed by those of mid-range deprivation (1.4 times that of the least deprived) **(Figure 18**).

Figure 17: Age-standardised cumulative incidence (and 95% confidence intervals[9]) of non-incidental[10] hospitalisation with COVID-19 by ethnicity, 01 January 2022 to 04 September 2022

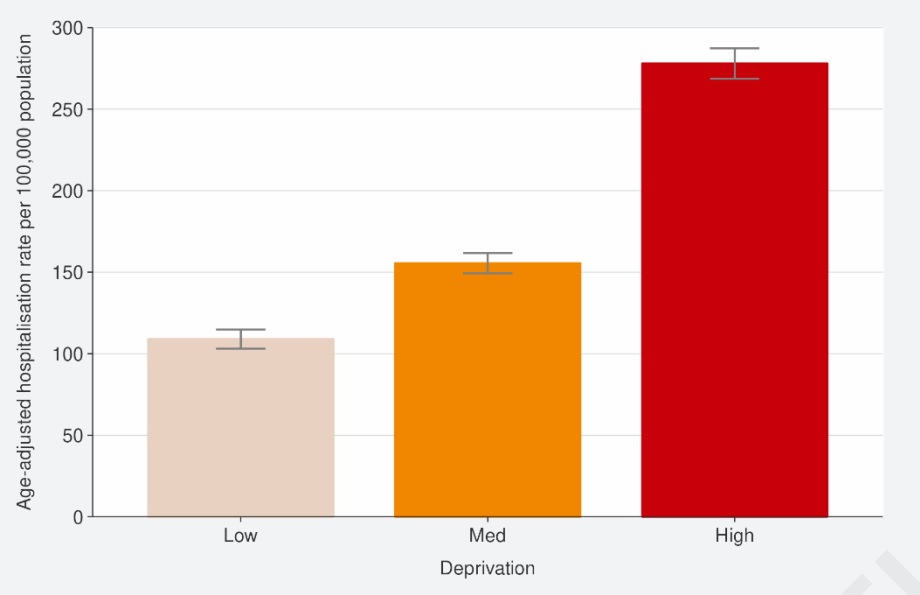


Source: NCTS/EpiSurv, NMDS, Inpatient Admissions dataset and CVIP population estimates, 01 January 2022 to 04 September 2022

[9] Hospitalisation and Mortality data, even based on complete counts, may be affected by random variation—hence, we use confidence intervals to account for the random variation inherent in these data. A 95% confidence interval means we are 95% confident that the rate would fall within the interval if we were to measure the number of hospitalisations/deaths again under the same circumstances.

[10] Non-incidental hospitalisations for COVID-19 refer to covid cases who have been hospitalised while an active covid case and have identified as like to be covid related. For further detail please refer to the glossary at the end of this report.

Figure 18: Age-standardised cumulative incidence (and 95% confidence intervals) of non-incidental hospitalisation with COVID-19 by deprivation, 01 January 2022 to 04 September 2022



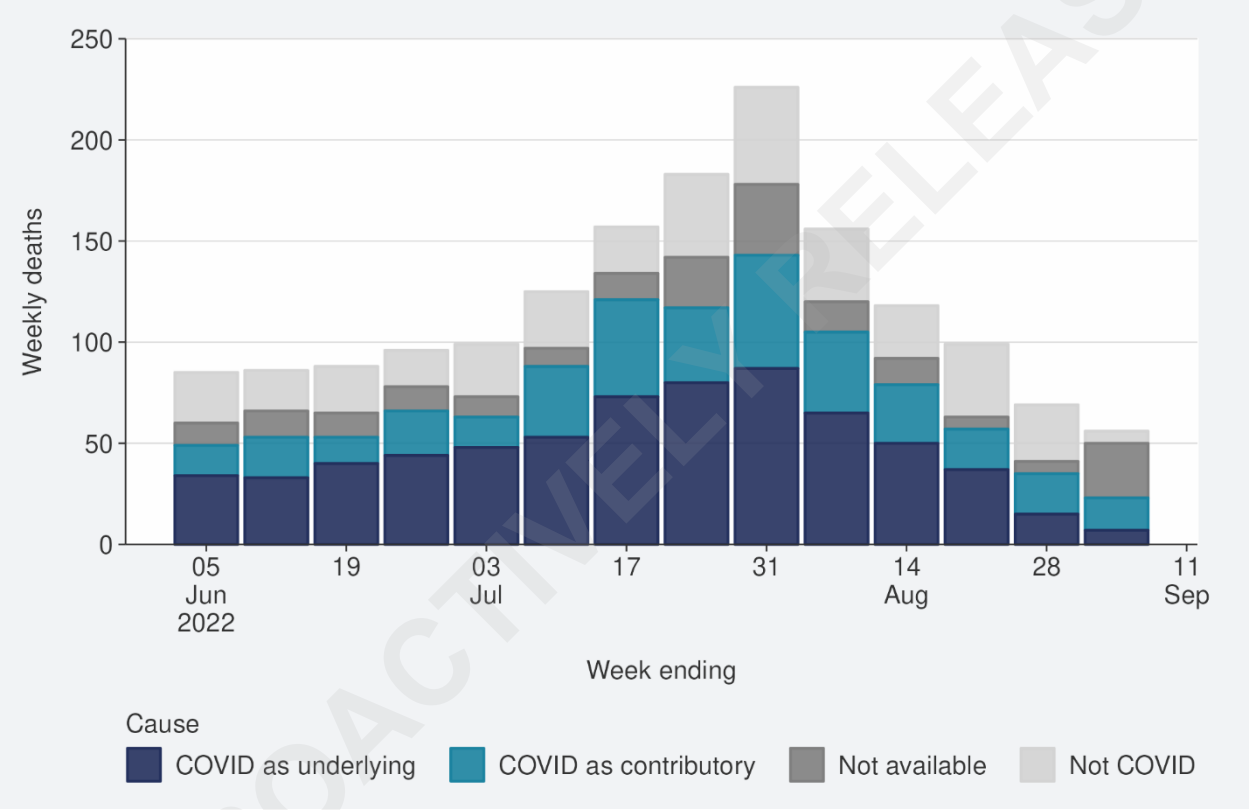
Source: NCTS/EpiSurv, NMDS, Inpatient Admissions dataset and CVIP population estimates 01 January 2022 to 04 september 2022

Trends in mortality

Time trends in the number of deaths

From March 2020 to 08 September 2022, there were 2,808 deaths among people who died within 28 days of being reported as a case and/or with the cause being attributable to COVID-19 (that is an underlying or contributory cause). Not all deaths have been formally coded by cause of death[11]; of the deaths that have been formally coded by cause of death, 1,230 (44%) were determined to have COVID-19 as the main underlying cause. COVID-19 contributed to a further 711 (25%) deaths, another 628 (22%) people died of an unrelated cause. Deaths have been declining after peaking in the last week of July, when almost 150 people died with COVID-19 as their underlying or a contributing cause.

Figure 19: Weekly death counts by cause of death[12], 05 June to 04 September 2022



Source: Ministry of Health. All deaths where someone has died within 28 days of being reported as having a positive test result for COVID-19 are reported. This approach aligns with countries such as the United Kingdom; it ensures that all cases of COVID-19 who die are formally recorded to help provide an accurate assessment of the impact of COVID-19.

[11] All of the deaths within 28 days of a positive test report are fast-tracked for clinical/mortality coding to determine whether the infection was the underlying cause of the death, contributed to the death, or was unrelated to the death. An example of an unrelated death is a car accident; an example of a COVID-19 contributing is a person who dies who also has a pre-existing health condition.

[12] Data are lagged and will be updated, interpretating with cautions of the most recent weeks.

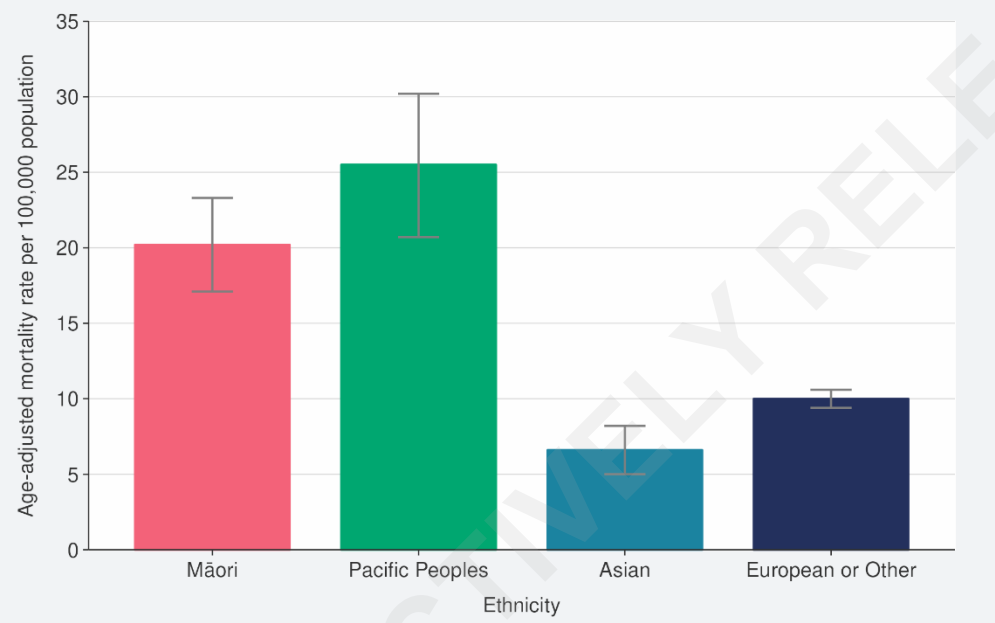
Age-standardised mortality risk for 01 January to 04 Septermber 2022

Figure 20 and 21 show age-standardised[13] cumulative rates of COVID-19 attributed mortality in the population by ethnicity and by deprivation, from 01 January 2022 to 04 September 2022.

Pacific peoples had the highest risk of any ethnicity, 2.6 times that of European or Other. Rates for Māori were 2.0 times higher than European or Other, while Asian rates were lower than European or Other (**Figure 20)**.

Those most deprived had the highest rate of COVID-19 attributed mortality (2.4 times that of the least deprived) followed by those of mid-range deprivation (1.7 times that of the least deprived) (**Figure 21)**.

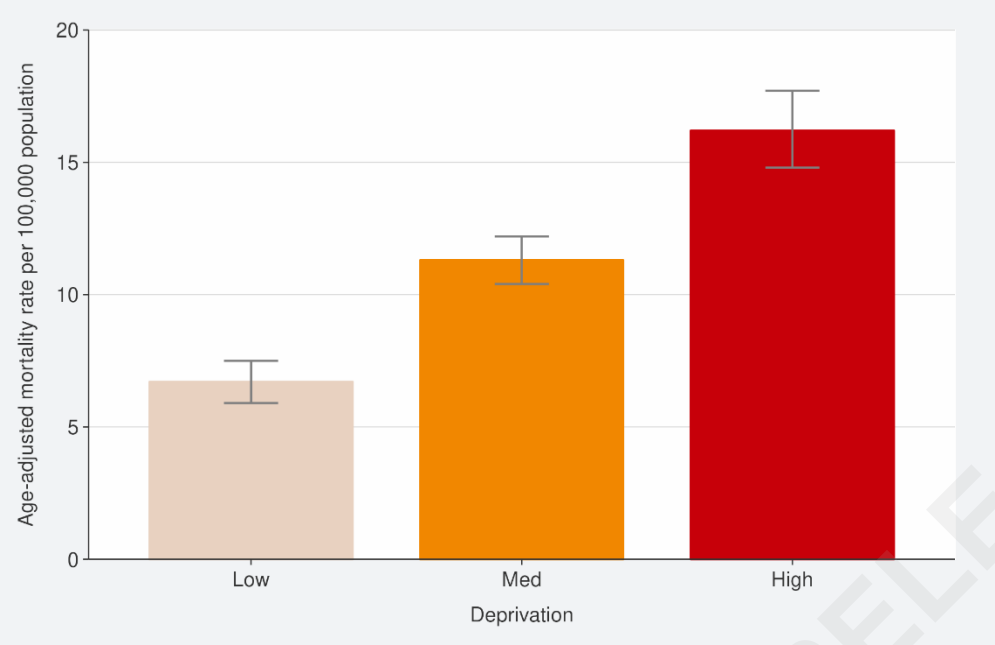
Figure 20: Age-standardised cumulative incidence (and 95% confidence intervals) of mortality attributed to COVID-19 by ethnicity, 01 January 2022 to 04 September 2022



Source: EpiSurv, Death Documents, The Healthcare User database, Mortality Collections database and CVIP population estimates, 01 January 2022 to 04 September 2022

[13] An age-standardised rate is a weighted average of the age-specific rates per 100,000 persons, where the weights are the proportions of persons in the corresponding age groups of the Māori population.

Figure 21: Age-standardised cumulative incidence (and 95% confidence intervals) of mortality attributed to COVID-19 by deprivation, 01 January 2022 to 04 September 2022



Source: EpiSurv, Death Documents, The Healthcare User database, Mortality Collections database and CVIP population estimates, 01 January 2020 to 04 September 2022

Whole Genomic Sequencing in community acquired cases

Whole Genomic Sequencing of community cases

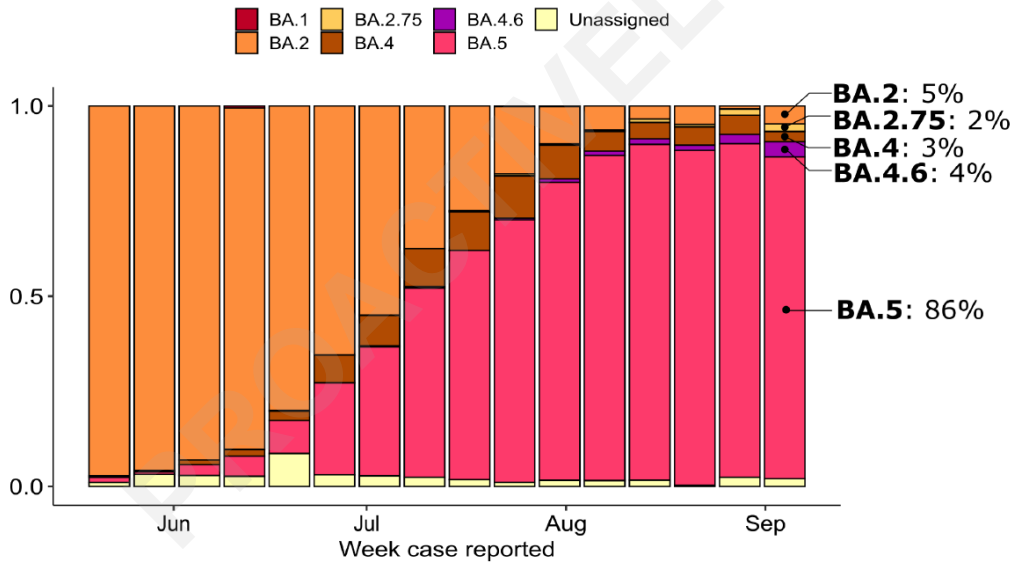
As of the 02 September, Whole Genomic Sequencing (WGS) for cases will be updated bi-weekly. This week's section is up to the weekending 02 September, as at the 07 September.

Omicron is the dominant variant in New Zealand having outcompeted Delta, which made up ~70% of all cases that had undergone WGS at the start of January 2022 and decreased to less than 10% of sequenced cases by the end of January.

In the two weeks to 02 September, variants BA.5, BA.4, BA.2, BA.4.6 and BA2.75 were detected in community samples (first detected in late May/early June). In the past week BA.4/5 was detected at all wastewater sites; these two data sources confirm that BA.4/5 variants are circulating within the wider population. A small number of variant BA.2.75 and BA.4.6 cases continue to be detected in the community with six and ten cases respectively reported in the two weeks to 02 September. It is probable that small numbers of these sub-variants are circulating in the community, but they are unlikely to have a growth advantage over BA.5.

There is high certainty that BA.5 was largely responsible for the recent surge in case numbers across the country (and internationally). **Figure 22** shows that BA.5 made up about 86% of sequenced community cases in the past week. **Figure 22** also shows the increasing frequency of BA.5 in community samples over the past few weeks. As expected, we see a (relative) growth advantage of BA.5 over other variants. BA.4 has remained steady this week, making up 4% of cases.

Figure 22: Frequency of Variants of Concern in community cases in New Zealand



Source: ESR COVID-19 Genomics Insights Report #22, EpiSurv/Microreact 0900hrs 02 September 2022

Whole Genomic Sequencing of hospitalised cases

As of 02 September, ESR received samples from and had successfully processed 105 of the 442 PCR positive hospital cases with a report date in the two weeks to 02 September 2022. Of these 105 samples **3% were BA.2, 9% were BA.4** (including BA4.6)**, BA.2.75 2% and 87% were BA.5.**

Please refer to the border surveillance section for information on WGS of imported cases.

Please see the caveats in the Glossary at the end of this document.

Border surveillance

Cases detected at the air border

Imported cases initially increased as travel volumes increased following the first stage of border reopening in March 2022. Detected cases then remained fairly constant through May and early to mid-June before rising again in late June. New Zealand's borders re-opened to all tourists and Visa holders on the 31st of July 2022. **Detected cases decreased below 100 for the first time since late June – Early July on 28 August; as of 05 September cases are between 100 – 200.**

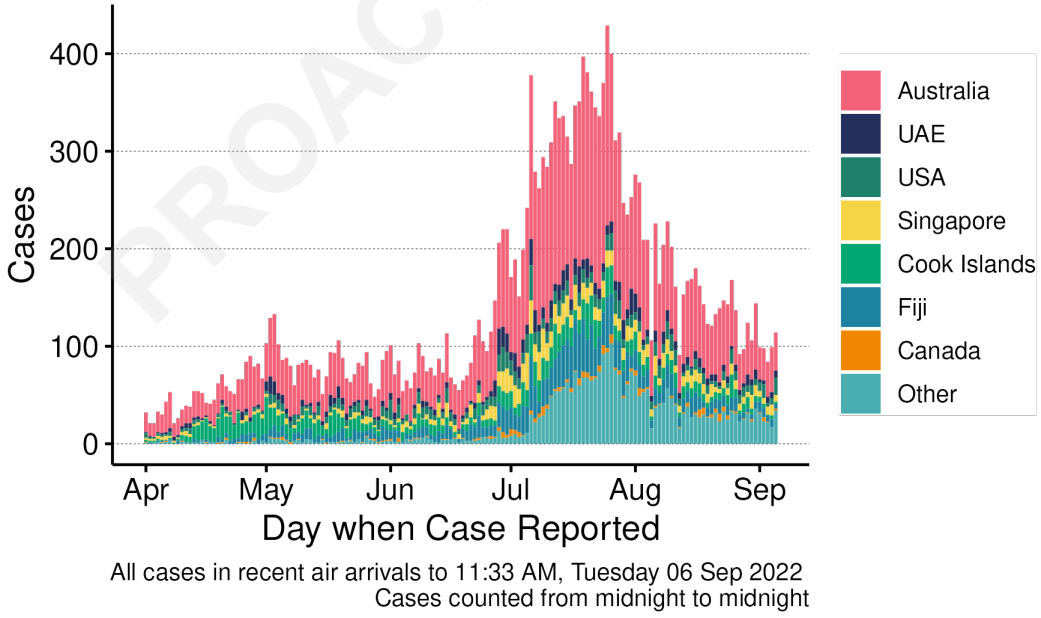
With the removal of pre-departure testing from 20 June, it appears that detected cases increased from most countries. The increase was consistent with expectations that pre-departure testing halves the number of infected people boarding aircraft, and with increasing Omicron BA.5 prevalence in many source countries. In the past month, 2% to 4% of recent arrivals were reporting a positive test.

Figure 23 shows the number of RAT-positive cases in arrivals since April 2022. While pre-departure tests were required (before 20 June), most cases arrived on flights from Australia followed by the Cook Islands and Fiji, and then the United States of America. Since 20 June, most cases have been detected on flights from Australia, the United States of America, the United Arab Emirates, Singapore, the Cook Islands and Fiji.

Flights from Australia include both short-haul trans-Tasman flights and long-haul flights that transit through an Australian airport. It is no longer possible to accurately track the first country in a multi-stage voyage, as arrival cards are no longer scanned and data in the New Zealand Traveller Declaration system only records countries visited in the weeks before the Declaration is filled in.

While the increase in imported cases after 20 June was rapid, it was in line with expectations from the removal of pre-departure testing. Even at the peak of this increase, the total number of cases detected at the border was much less than the number reported each day in the community.

Figure 23: Reported cases reported in post-arrival testing by country of flight departure, 01 April – 05 September 2022

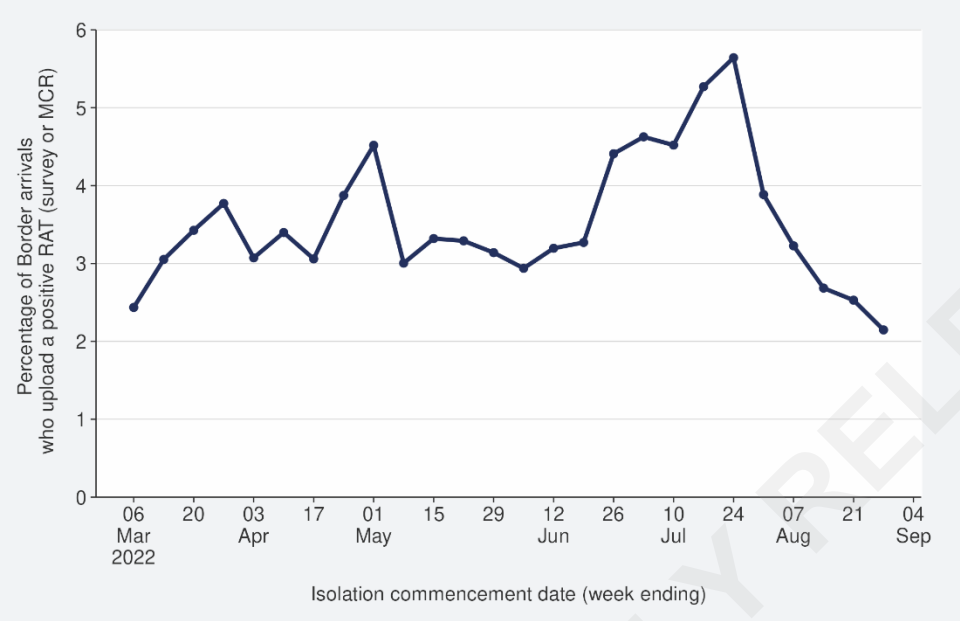


Source: NCTS/EpiSurv as at 2359hrs 05 September 2022

Testing of border arrivals

Figure 24 shows that the percentage of positive RATs in border arrivals who reported a test was between 2 – 6% for the period 6 March – 31 July 2022. The percentage of border arrivals returning positive RATs has decreased in recent weeks and was 2.1% (1,159 of 53,977 arrivals who uploaded a test result) for the week ending 28 August.

Figure 24: Percentage of positive tests in border arrivals who report RATs, 06 March – 28 August 2022



Sources: NCTS/EpiSurv/Éclair as at 2359hrs 28 August 2022

Whole Genomic Sequencing of imported cases

Genomic sequencing data are lagging by 1 or 2 weeks because of the time required for recent arrivals to report a positive RAT, seek a follow-up PCR and have processing completed by ESR.

Figure 25 shows the completion metrics for border returnee testing[14] and WGS from 06 March to 28 August 2022. The percentage of arrivals uploading a RAT has been steadily decreasing and was 82.0% (53,977 of 65,843 arrivals) in the week ending 28 August.

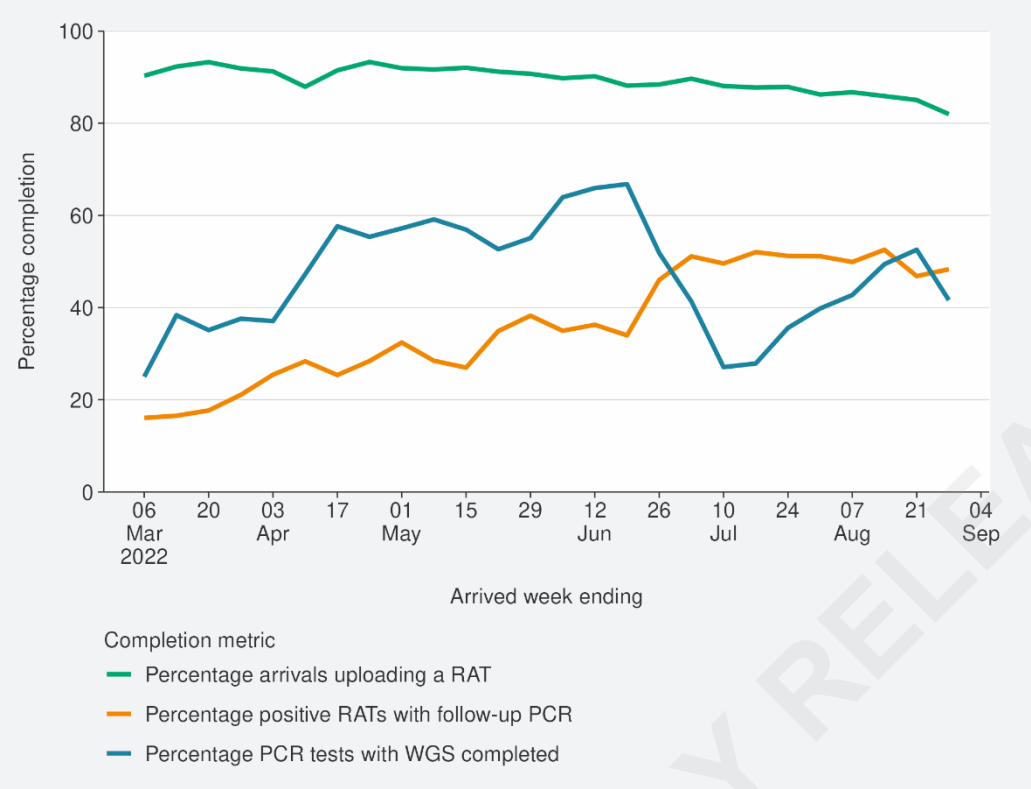
In the week ending 28 August, 48.3% of border arrivals who returned a positive RAT had a follow-up PCR test. This is an increase from the previous week, at 46.8%. A case can only be referred to ESR for WGS if the traveller is referred for PCR testing and the lab sends the PCR sample for sequencing. Recently, approximately half of the reported RAT positive border arrivals were having a follow-up PCR test, and less than half of those PCR samples are having WGS completed.

In the week ending 28 August, the percentage of PCR positive border arrivals with WGS complete was 41.6%. This figure is close to those seen from mid-April to late June; between 40%-70%. This figure is expected to rise, as more of the recent cases are processed.

[14] Testing and reporting at the border are a "high-trust" model and it is not expected that there will be 100% compliance with testing amongst travellers.

Labs are notified of all positive RAT results that are known to be from recent arrivals. However, some recent arrivals may not be reporting RAT results.

Figure 25: Completion metrics for border returnee testing and WGS for arrivals, 06 March – 28 August 2022



Sources: NCTS/EpiSurv/Éclair as at 2359hrs 28 August 2022, ESR WGS 28 August 2022[15]

Over 95% of the genomes sequenced at the border over the two-week period, ending 02 September, were BA.4/5 variants. These cases include reports of BA.2.75 and BA.4.6 in travellers to New Zealand. As at 9:00am 22 August, ESR had received samples from 478 of the 2,372 PCR-positive border cases with a report date in the two weeks to 19 August. Of the successfully sequenced samples, **86% were BA.5, 2% were BA.2, 3% were BA.4, 4% were BA.4.6 and 5% were BA.2.75.** These proportions are similar to those seen in the community; see the community WGS section on **page 26**. In this reporting window, 7 BA.2.75 cases and 15 BA.4.6 cases were detected at the border – these are similar to case proportions found in the community during the same reporting window, however, there tends to be more cases of BA.4.6 at the border compared to the community.

[15] Please note that WGS may not be completed/uploaded yet for more recent cases

International and scientific insights

Please note, global trends in cases and deaths should be interpreted with caution as several countries have been progressively changing COVID-19 testing strategies, resulting in lower overall numbers of tests performed and consequently lower numbers of cases detected.

Overseas waves and the likely impacts of new variants, policy changes, notifiable disease and waning immunity

Global

- Globally, in the week ending 4 September, the number of new weekly cases decreased by 12%, with just under 4.2 million new cases reported.
- The number of new weekly deaths decreased by 5% compared to the previous week, with over 13,700 fatalities reported.
- Globally, as of 4 September 2022, over 600 million confirmed cases and over 6.4 million deaths have been reported.
- At the regional level, the number of newly reported weekly cases decreased across all six regions: the Eastern Mediterranean Region (-29%), the South-East Asia Region (-22%), the European Region (-15%), the African Region (-10%), the Western Pacific Region (-10%) and the Region of the Americas (-9%).
- The number of new weekly deaths decreased across three of the six regions: the South-East Asia Region (-24%), the European Region (-22%) and the Eastern Mediterranean Region (-12%); while it increased in the African Region (+14%), the Region of the Americas (+6%) and the Western Pacific Region (+5%).
- Globally, from 5 August to 5 September 2022, 118 028 SARS-CoV-2 sequences were shared through GISAID. Among these, 117 317 sequences were the Omicron variant of concern (VOC), accounting for 99.4% of sequences reported globally in the past 30 days.
- The prevalence of BA.2 descendent lineages (BA.2.X) remained stable in week 34 compared to week 33 (2.6% in week 33 and 2.5% in week 34). BA.2.75, an Omicron descendent lineage under monitoring, still shows a relatively low (0.9% and 1.2% in weeks 33 and 34 respectively) prevalence globally, but a number of countries have observed recent increasing trends.
- BA.5 Omicron descendent lineages continue to be dominant globally, with an increase in weekly prevalence from 84.8% to 86.8%.

Sources: World Health Organisation: Weekly epidemiological update on COVID-19 - 07 September 2022

Australia

- In the 14 days up to 06 September 2022, there were 634 new cases per 100,000 population. This is a decrease from the week prior (14 days up to 30 August 2022) where there were 761 per 100,000 population.
- Most states and territories saw decreases in rates of new cases compared to the previous week.
- Cases in Aboriginal and Torres Strait Islanders continue to steadily decrease after increasing up to early August.

- As at 06 September 2022, there are 2,489 current cases in hospital with 76 in ICU. This is a decrease from when last reported (23 August 2022) where there were 2,933 hospitalised cases. The majority of these cases were in New South Wales (1,602), Queensland (257) and Victoria (219) All three states continue to steadily decrease with regards to hospitalised cases.
- All cause death rates were 16.6% higher than the baseline average as at 31 May 2022.

Sources: Australian Government: Coronavirus (COVID-19) common operating picture

Australian Bureau of Statistics

England

- Between 19 August 2022 and 26 August 2022 in England, 24,674 people had a confirmed positive test result. This shows a decrease of 19.6% compared to the previous 7 days.
- Between 23 August 2022 and 30 August 2022 in England, there have been 755,685 tests. This shows a decrease of 17.3% compared to the previous 7 days.
- Between 19 August 2022 and 26 August 2022, there have been 419 deaths within 28 days of a positive COVID-19 test. This shows a decrease of 38.2% compared to the previous 7 days.
- In the week up until and including 29 August, there were 4,124 COVID-19-related admissions to hospital, a decrease of 14.2% compared to the week prior.
- In the week up to an including 30 August, 13,542 received a first dose of vaccine, 33,618 received a second dose and 22,903 received a booster or third dose.
- No statistically significant excess all-cause mortality by week of death was observed.

Sources: Coronavirus (COVID-19) Data: UK

GOV.UK

Japan

- Japan continues to be the country with the highest number of new cases with a 7-day rolling average of 122,909 as at 06 September. Infections have been decreasing since late August.
- Deaths remain relatively constant with a 7-day rolling average of 291 deaths as of 06 September, compared to the previous week, at 284 deaths.
- The National Institute of Infectious Diseases has reported the occupancy rates of hospital beds for COVID-19 patients has risen and is affecting quality of care due to temporary closures of hospital wards and infected healthcare workers.
- Mass infections at facilities for the elderly may be responsible for the increase in deaths occurring alongside a decrease in infections generally.

Sources: Our World in Data: Japan

South Korea

- Following a peak in late March 2022, South Korea experienced a decline in cases. However, from late June onwards, cases have begun to rise again.

- The 7-day rolling average for confirmed cases is 77,938 as at 06 September, down from 93,965 as at 31 August.
- The 7-day rolling average for confirmed deaths has been relatively steady since late August, and as of 06 September is 69.3 per day.
- Reinfections continue to be driven by the immune-evasive BA.5 Omicron subvariant.

Sources: Our World in Data: South Korea

Primary evidence on effectiveness of public health and outbreak control measures

This section outlines some of the available literature about the effectiveness of public health and outbreak control measures. It is not intended to be a systematic review of all available evidence, but to provide an overview of available evidence.

Outbreak Management

- A investigation on concordance of testing results self collected swabs versus those done by a healthcare worker found that self-collection school-aged children and adolescents, following simple instructions, demonstrated high agreement with results following collection by health care workers.
- A behavioural study from New Zealand looking at the impact of Compliance with COVID-19 measures found that it is important to look at the strength of individuals' motivation and their beliefs about the advantages and disadvantages of policy outcomes and policy measures. They found this differentiation was useful in predicting an individual's possible behavioural responses to a measure.
- A review of Taiwan's mitigation and containment strategy found that non-pharmaceutical interventions, including public masking and social distancing, coupled with early and aggressive identification, isolation, and contact tracing to inhibit local transmission were optimal policies for public health management of COVID-19 and future emerging infectious diseases.
- A study on behavioural decisions and risk perception through monitoring the flows of information from both physical contact and social communication found that maintaining focus on awareness of risk among each individual's physical contacts promotes the greatest reduction in disease spread, but only when an individual is aware of the symptoms of a non-trivial proportion of their physical contacts.
- A commentary in the Lancet on face masks suggests that mass masking would be of particular importance for the protection of essential workers who cannot stay at home. As people return to work, mass masking might help to reduce a likely increase in transmission.
- A research article on the efficacy of non-pharmaceutical interventions for COVID-19 in Europe found that the population prevention and control measures implemented by the government had an impact on the change in the reproduction rate. Furthermore, that most effective factors in individual level prevention were a reduction of mobility/mixing.
- A survey of COVID-19 in public transportation looking at the risk of transmission and the impact of mitigation measures found that social distancing, density limits, masking and improving ventilation were effective at reducing the risk of transmission. Reff decreased by 20% after the introduction of targeted testing and by 18% after extension of face-mask rules, reducing Reff to 0.9 and suppressing the outbreak.

- A evidence brief on the properties of the Omicron variants and how it affects public health measures effectiveness found that the effects of early isolation, adult-focused reduction of interpersonal contact, and vaccination have different sites of action in infection spread dynamics and their combination can work synergistically.
- A Canadian wastewater research paper has noted that the lack of a quantitative framework to assess and interpret the wastewater data generated has been a major hurdle in translating wastewater data into public health action.
- An observational study on the impact of contact tracing and testing on controlling COVID-19 without lockdown in Hong Kong.

Economic, Social and Health Impacts

- A research article on COVID-19 testing and mortality outcomes between countries found that countries that developed stronger COVID-19 testing capacity at early timepoints, as measured by tests administered per case identified, experienced a slower increase of deaths per capita.
- A preprint study has noted that reinfections of COVID-19 are associated with an increase of risk of all-cause mortality, hospitalisation, and adverse health outcomes.
- A population study using a surveillance dataset that records all results of SARS-CoV-2 tests in France found a positive social gradient between deprivation and the risk of testing positive for SARS-CoV-2.
- An evaluation of COVID-19 policies in 50 different countries and territories considers both pharmaceutical and non-pharmaceutical interventions and assesses a jurisdiction's success at containing COVID-19 both prior to and after vaccination.
- Systematic review of economic evaluations of COVID-19 interventions
- A cross-sectional study comparing OECD countries in evaluating economic outcomes found that non-pharmaceutical interventions effectively contained the outbreaks and had positive impacts in lowering unemployment rates.
- An research article on the disease-economy trade-offs under different epidemic control strategies found that using targeted isolation would result in the best outcome for minimising both the risk of an epidemic and the economic downturn which accompanies (an epidemic).

Modelling

- A modelling study look at preventing a cluster from becoming a new wave in settings with zero community COVID-19 cases found that individual restriction or control strategy reduces the risk of an outbreak. They can be traded off against each other, but if too many are removed there is a danger of accumulating an unsafe level of risk. This has a particular impact on increasing downstream risks with increasing international travel.
- A modelling study looking at the impact of non-pharmaceutical interventions on controlling COVID-19 outbreak without lockdowns in Hong Kong found that delays in implementing control measures had significant impact on disease transmission.
- A mathematical modelling study assessing the impact of public compliance on non-pharmaceutical interventions with a cost-effectiveness analysis.
- A modelling study points to the role of super-spreader events in the contribution of novel variant predominance from a public health perspective, the results give weight to the need to focus NPIs on preventing large super-spreader events (10 or 20 secondary infections from single infected individual).

- A preprint study on social gatherings and transmission found that small gatherings, due to their frequency, can be important contributors to transmission dynamics.

Access to COVID-19 rapid antigen test kits

A summary of finding from the Evaluation Behavioural Science (EBS) team equitable access to COVID-19 healthcare report, released in August. The study is based on a sample populations response to COVID-19 healthcare access survey; in the field 27 June to 4 July 2022 - before improved access to antivirals, free masks and RAT tests was announced on 14 July 2022

Responses to "Have you use a RAT in the last 30 days?", were 67% "yes", of these respondents 87% noted access as being easy or very easy; While 4% found it difficult to access RAT's, this figure was higher for those in 5–6-person households and those with education up to NCEA level 2; 9% and 7% respectively.

While the majority of respondents who required a RAT found accessing them easy, 31% reported, at least one issue when attempting to access a RAT. For 18-24 age group, people with disability and those in 7+ household, the likelihood of experiencing at least one access issue increase significantly: 58%, 58% and 56%, respectively. The most common issues related to receiving and picking up RATs, with these issues being significantly more impactful to 18-24 age group.

Noting that this study was conducted with a relatively small sample size, which decreased significantly when sub-grouped.

Glossary

Data Sources

Community Cases

Data on community cases are sourced from a combination of the National Contact Tracing Service (NCTS) and EpiSurv (New Zealand's public health surveillance platform).

Whole Genome Sequencing (WGS)

All information on WGS is sourced from the ESR COVID-19 Genomics Insights (CGI) Report, a weekly overview of SARS-CoV-2 genomic surveillance across the country.

Prevalence Estimates

National estimates of underlying infection incidence are based on the weekly test positivity in routinely asymptomatically tested populations, assuming therefore that their positivity rates are indicative of their underlying infection rates. The populations identified for these estimates using surveillance codes provided for testing data are border, emergency and healthcare work forces, as well as hospital inpatients. Inpatient estimates are also produced based on a direct data feed from Tertiary hospitals rather than identifying inpatients in the national testing database; they are therefore more accurate than the national figures.

Wastewater quantification

Wastewater quantitation is a measure of the levels of virus circulating in the community. Because infectious individuals tend to shed vastly more viral particles than non-infectious individuals (particularly later on in the infection), the wastewater quantitation results are driven largely by infectious individuals, in the first 5-6 days of their infection. Although people can shed detectable virus for some weeks that can be detected by PCR testing, these individuals are unlikely to have a large impact on the quantitation curves.

Wastewater is analysed by ESR's Kenepuru and Christchurch Laboratories.

Data limitations

Prevalence estimates based on routinely tested populations

- The groups of routine testers that have been identified (healthcare, border and emergency workers, and hospital inpatients) are not a representative sample of New Zealanders, overall, they are higher risk of COVID-19 infection than the general population.
- The identification of these groups at a national level is based on surveillance codes, which may not be completed accurately, particularly since the introduction of RAT testing.
- The national estimate is for people who have uploaded at least one test result in the week, so will be an over-estimate if negative test results are not being recorded for these groups.
- National level estimates will be masking differing trends by region.
- Tertiary hospital inpatient data, while likely to be more accurate than the national level data, still reflect a higher-risk group, and neither the estimates nor the trends are generalisable to the rest of the population.
- The identification of these groups is based on surveillance codes, which may not be completed accurately, particularly since the introduction of RAT testing.
- The population has been identified based on ever having a surveillance code related to the respective workforce and having at least 2 tests (at least one of which was negative) in 2022. A sensitivity check was run using at least 3 tests and while these numbers reduced, the incidence estimates remained very similar.

Wastewater quantification

- Approximately 1 million people in New Zealand are not connected to reticulated wastewater systems.
- Samples may be either grab or 24-hour composite samples. Greater variability is expected with grab samples.
- While a standard method is being used, virus recovery can vary from sample to sample.
- SARS-CoV-2 RNA concentrations should not be compared between wastewater catchments.
- Day-to-day variability in SARS-CoV-2 RNA concentrations especially in smaller catchment is to be expected.

Hospital admissions data

- The Ministry will begin reporting COVID-19 hospitalisations using two datasets: the inpatient admission (IP) dataset – that only includes data from hospitals in certain regions – and the National Minimum Dataset (NMDS). Both of these datasets are patient-level, so they allow demographic and vaccination breakdowns to be calculated.
- Of the two databases, the IP is the more up-to-date data source for admissions. The data provided include a preliminary assessment of hospitalisations where COVID-19 may potentially play a role in the hospitalisation, based on the health specialty associated with the hospitalisation. The IP dataset does not have national coverage; it only covers hospitals in Auckland, Canterbury, Southern, Counties Manukau, Waikato, Capital and Coast, Waitematā and Northland. The IP dataset can be incomplete and provisional; it is subject to revision as the more comprehensive and more accurate NMDS data become available. One caveat is that the IP dataset does not have a reliable discharge date field. As such, it should only be used to report on admissions, not occupancy.
- The NMDS has several advantages: It provides national coverage and is a rich source of data, including data on demographics and an evaluation of the disease conditions associated with the hospital stay (including whether the admission was incidental, i.e., not related to COVID-19). However, the NMDS is only available after a significant data lag. The time lag for hospitalisation data can vary but can be approximately 60 days or more.
- Therefore, we are using a combination of these two databases for hospitalisation: the IP records are included as a provisional tally of more recent COVID-19 hospitalisations for a collection of hospitals, and then these records are overwritten by NMDS records, as soon as the NMDS records are available
- Note that the definition used for 'hospitalisation for COVID-19' in both the IP and NMDS tends to be inclusive. For the IP provisional data, the health specialty associated with the hospitalisation is used to estimate whether the hospital stay might be related COVID-19; hospitalisations that are highly unlikely to be related to COVID-19 are ruled out, as opposed to identifying hospitalisations that are likely to be COVID-related. As NMDS data become available, the clinical codes that retrospectively evaluate the reasons for the hospital stay are used to estimate if the stay was potentially related to COVID-19. The NMDS data are more robust estimation of hospitalisations 'for' COVID-19.

- This new method of data collection for COVID-19 has several advantages over the previous method, as it provides more robust data in a timely manner, using an automated method that is less burdensome and more reliable, and provides access to more detailed data. Most importantly, the new data method provides a timely and reliable way to estimate the number of hospitalisations where COVID-19 could be the reason for the hospital stay (admissions 'for' COVID-19, with some caveats). Moving forward, the majority of the reporting on hospitalisation will use the 'for COVID' definition as described above from the new databases.
- Nonetheless, we are also still able to estimate the number of hospitalisations 'with' COVID-19, i.e., an estimate of the number of hospitalisations that are associated with a positive test within 28 days of admission. Hence, in conjunction with the new hospitalisation data, we can also estimate the proportion of the total COVID-19 hospitalisations that are 'for' versus 'with'. Previous analysis has shown that the proportion of the total COVID-19 hospitalisations that are 'for' COVID-19 is about 68%.
- In addition, the new system also allows us to estimate the rate of COVID-19 hospital admissions per case or per capita.
- However, the new data feed cannot be used to estimate the proportion of all hospitalisations nationally that are associated with COVID-19. This is because we do not know the total number of patients that currently are in hospital in New Zealand for any reason at any given time (this information exists in NMDS, but only with a lag of a couple of months). Without this denominator data, we cannot calculate the proportion of all hospitalisations are associated with COVID-19.

Mortality Data

- Mortality data is lagged as to account for death coding delays and recent trends should be interpretated with caution.