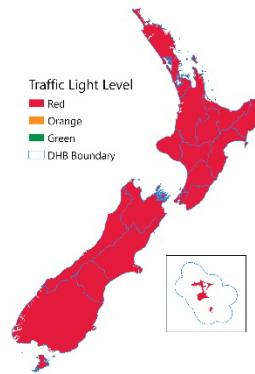


Trends and Insights Report

Updated 08 March 2022

Current State of Aotearoa

The whole of New Zealand is under the red traffic light, and the health sector response is in Phase 3.



Snapshot of the past 7 days

- Cases continue to rise as Omicron spreads, increasing by 16% from our last report with 120,905 cases reported for the week of 27 February – 5 March. The **weekly case rate was 2,418 new cases per 100,000, which equates to about 2% of the New Zealand population.**
- **56% of all new cases this week are in the Auckland region DHBs** (Waitemata, Auckland, Counties Manukau).
- **The case rate in those who had a booster vaccination was approximately 4% lower than those who were ‘fully-vaccinated’** compared to the 23% previously reported. It should be noted that this is not a full vaccine effectiveness estimate, as it does not account for differences in age and other factors that may affect the likelihood of becoming a case and/or being vaccinated.
- The greatest proportion of cases are in European or Other (41%) ethnicity, followed by Pacific People (22%) and Māori (19%); with Asian continuing to have the lowest proportion (16%). **Rates are still highest in Pacific People** (7,356/100,000); followed by Māori (3,056/100,000) and Asian (2,651/100,000). The lowest rate is in European or Other ethnicities (1,610/100,000).
- **Ethnicity patterns continue to vary markedly by region:** The Northern Region has the highest proportion of cases for Pacific Peoples and Asian. Te Manawa Taki (Midlands) has the largest proportion of cases who are Māori compared to any region. Nationally, the largest number of cases are of European and Other ethnicities. In Southern region, European and Other ethnicities account for almost all cases.
- **42% of cases live in areas with high housing deprivation** (7-10 IMD score). 21% of cases are from areas of low housing deprivation.
- “Nowcasting” to 4 March estimates the effective reproduction number (R_{eff}) **has markedly dropped to 0.6** (95% Credible Interval [CI]: 0.2-1.3) nationally, down from 2.7 estimated from cases to 28 February 2022.
- The number of COVID-19 cases in hospital is still rising rapidly. By 8 March, there were **743 confirmed COVID-19 positive cases in hospital** (sixteen times the peak level during the 2021 Delta outbreak).

- Hospitalisations are still aligned with the COVID Modelling Aotearoa group’s “medium” scenario that peaks in the **second half of March with around 1000 people hospitalised with COVID-19**. However Australian data suggests that hospitalisations will remain high for longer than predicted by the models.
- **As at 7 March 2022, there have been 65 deaths since the beginning of the pandemic**. Mortality will be reported in more detail when it rises to a level where reporting by demographics can still protect privacy.

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Exposure Events and Clusters of Concern

Please refer to daily SitReps for recent exposure events.

Future versions of this report may use National Contact Tracing System data to evaluate patterns and risks of contacts by location.

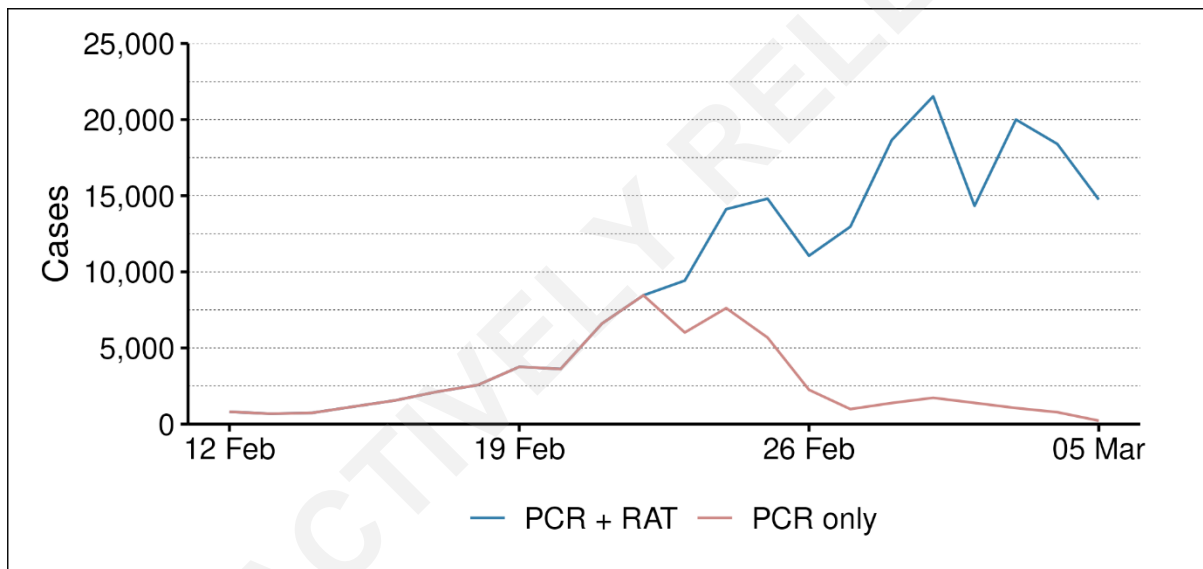
Data and Testing Issues

This section outlines recent changes in testing and hospitalisation data.

Self-Reported Rapid Antigen Tests

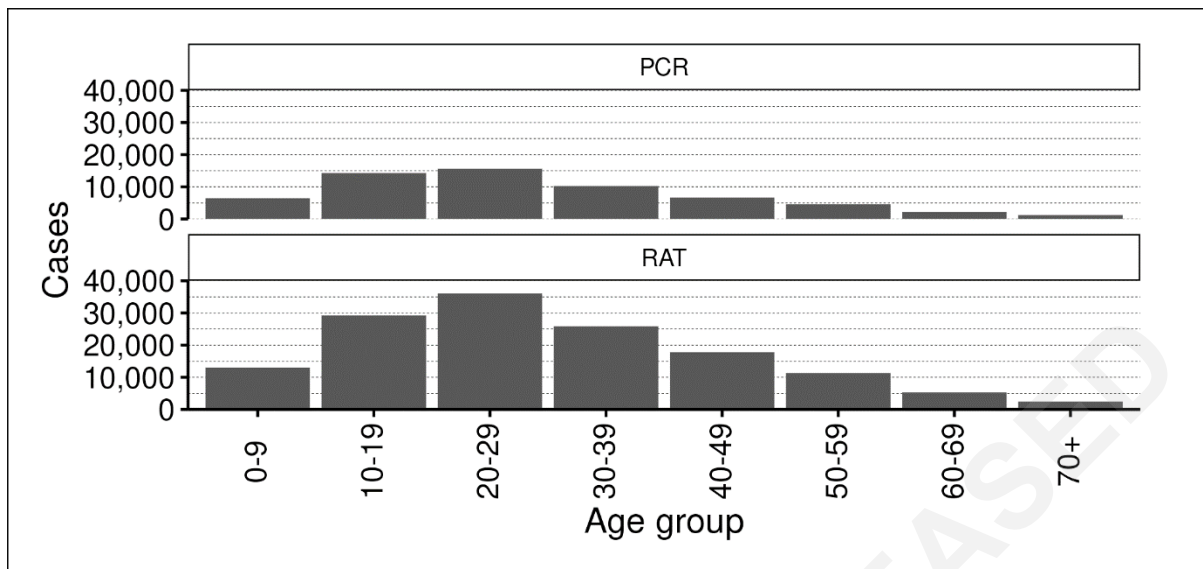
Only approximately 10% of cases are due to PCR testing with the rest coming from self-reported Rapid Antigen Tests. Self-reported results should not be considered as a complete picture of the current outbreak as we expect that there is systematic underreporting in some demographic groups.

Figure 1: Cases confirmed by report date, by Rapid Antigen Test (RAT) and PCR



The age distributions of Rapid Antigen Tests and PCR tests are similar (Figure 2), with RATs having relatively more use in the 20-29 age group. However, all age groups are reporting RAT results, which is reflective of the move from PCR-based testing to widespread RAT usage.

Figure 2: Age profile of PCR and RATs, 12 February to 05 March 2022



Hospitalisation data

There are two different sources of hospitalisation data.

National figures are taken from a daily questionnaire returned by all hospitals. The questionnaire asks for the number of COVID-19 positive people who are in hospital each day and the number of people in intensive care or on ventilation, compared to the hospital's daily capacity.

Demographic data is now routinely available from hospitals in the Northern Region. These admissions can be analysed by ethnicity and age, and linked to vaccination and previous community test status. Admissions and length of stay can be analysed separately from daily bed occupancy.

The hospitalisation data recorded in EpiSurv is incomplete. It records only some of the cases flagged in the direct hospital data and is not up-to-date with discharges. The Ministry of Health is working with all District Health Boards to set up regular, automated feeds of data on recent hospitalisations.

Recent cases

Table 1 to Table 4 show new cases reported in the week to 05 March 2022 by DHB, age, sex and ethnicity.

Reported cases have begun to plateau with just over 53,000 new cases reported in the three days to 05 March. This is similar to the previous 3 days, which reported just over 54,000 new cases.

- The DHBs with the highest number of new cases were Counties Manukau, Auckland and Waitemata (
- Table 1). Cases in these DHBs accounted for 56% of all cases reported in the week (25%, 16% and 15% respectively), down from 61% the previous report. These DHBs also have the highest case rates (cases per population).
- Pacific People continue to be disproportionately affected with the highest case rate, at least two times higher than any other ethnicity at 7,356 per 100,000.
- “European & Other” account for the largest proportion of cases (41%) but have the lowest rate per person, with a case rate of 1,610 per 100,000.
- Case numbers in the past month have been rising in all ethnicities. Māori continue to represent 19% of new cases, and Asian 16% of new cases.
- New cases remain evenly distributed between sexes (
- Table 3).
- Cases numbers continue to be highest in 20–29-year-olds (25% of all cases), then 10-19-year-olds (20%) and 30-39-year-olds (18%) (Table 4).

Table 1: Community cases by DHB from 27 February to 05 March 2022

| DHB | Community cases reported since 27 February | Rate per 100,000 |
|--------------------|--|------------------|
| Northland | 2692 | 1391 |
| Waitemata | 17790 | 2828 |
| Auckland | 18941 | 3849 |
| Counties Manukau | 30032 | 5069 |
| Bay of Plenty | 7740 | 2987 |
| Waikato | 10291 | 2392 |
| Tairāwhiti | 866 | 1684 |
| Lakes | 2824 | 2468 |
| Taranaki | 1517 | 1233 |
| Hawke's Bay | 1834 | 1051 |
| Whanganui | 437 | 640 |
| MidCentral | 2286 | 1258 |
| Hutt Valley | 3267 | 2102 |
| Capital and Coast | 7527 | 2388 |
| Wairarapa | 494 | 1016 |
| Nelson Marlborough | 1613 | 1024 |
| West Coast | 99 | 306 |
| Canterbury | 6651 | 1175 |
| South Canterbury | 308 | 503 |
| Southern | 3625 | 1081 |
| Unknown | 71 | - |
| Total | 120905 | 2418 |

Source: NCTS/EpiSurv 2359hrs 05 March 2022

Table 2: Community cases by ethnicity from 27 February to 05 March 2022

| Ethnicity | New community cases since 27 February | Rate per 100,000 |
|-------------------|---------------------------------------|------------------|
| Māori | 23430 | 3056 |
| Pacific Peoples | 27062 | 7356 |
| Asian | 19476 | 2651 |
| European or Other | 50035 | 1610 |
| Unknown | 902 | - |
| Total | 120905 | 2418 |

Source: NCTS/EpiSurv 2359hrs 05 March 2022

Table 3: Community cases by sex from 27 February to 05 March 2022

| Sex | New community cases since 27 February | Rate per 100,000 |
|--------------|---------------------------------------|------------------|
| Female | 62790 | 2462 |
| Male | 57932 | 2366 |
| Unknown | 183 | - |
| Total | 120905 | 2418 |

Source: NCTS/EpiSurv 2359hrs 05 March 2022

Table 4: Community cases by age from 27 February to 05 March 2022

| Age | New community cases since 27 February | Rate per 100,000 |
|--------------|---------------------------------------|------------------|
| 0-9 | 11821 | 1810 |
| 10-19 | 24204 | 3778 |
| 20-29 | 30129 | 4469 |
| 30-39 | 22113 | 3209 |
| 40-49 | 15366 | 2449 |
| 50-59 | 10069 | 1574 |
| 60-69 | 4847 | 906 |
| 70+ | 2355 | 435 |
| Unknown | 1 | - |
| Total | 120905 | 2418 |

Source: NCTS/EpiSurv 2359hrs 05 March 2022

Epidemic Curves

Figure 3 and Figure 4 below show the number of new cases reported in the three weeks from 12 February 2022 to 05 March 2022 nationally and by DHB.

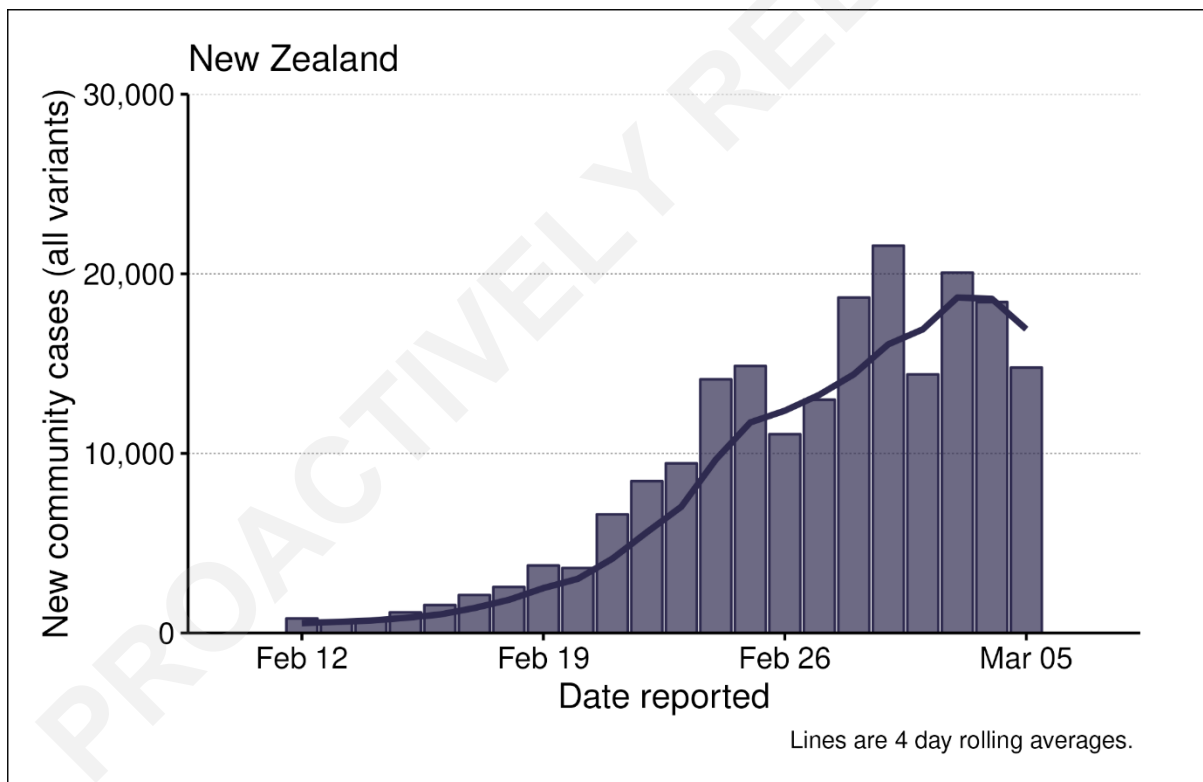
There has been a rapid rise in national case numbers since 09 February. The fluctuations from day to day may reflect changes in testing volumes, processing times and when cases are reported by laboratories through the National Contact Tracing System (NCTS) to EpiSurv. **The inclusion of positive Rapid Antigen Tests (RATs) in case counts started on 23 February 2022.** The effect on timing of reported cases is discussed above in the *Data and Testing Issues* section.

The rolling average of case counts is a more reliable measure of trends in diagnoses than the daily case counts. **The dip on the last day in the series is due to lags in reporting of results.**

Cases are fluctuating consistently between 14,000 to 21,000 daily cases since 28 February 2022, peaking at 21,565 on 03 March 2022.

Over the past month, the Omicron outbreak has been mostly in the Northern Region (excluding Northland) and the Midland Region (Figure 4). Cases in the Southern Region, in particular Southern DHB, began to rise in late February (Figure 5), then were overtaken by Central Region (Figure 4).

Figure 3: Daily community cases nationally from 12 February to 05 March 2022



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

Figure 4: Daily community cases by region from 12 February to 05 March 2022

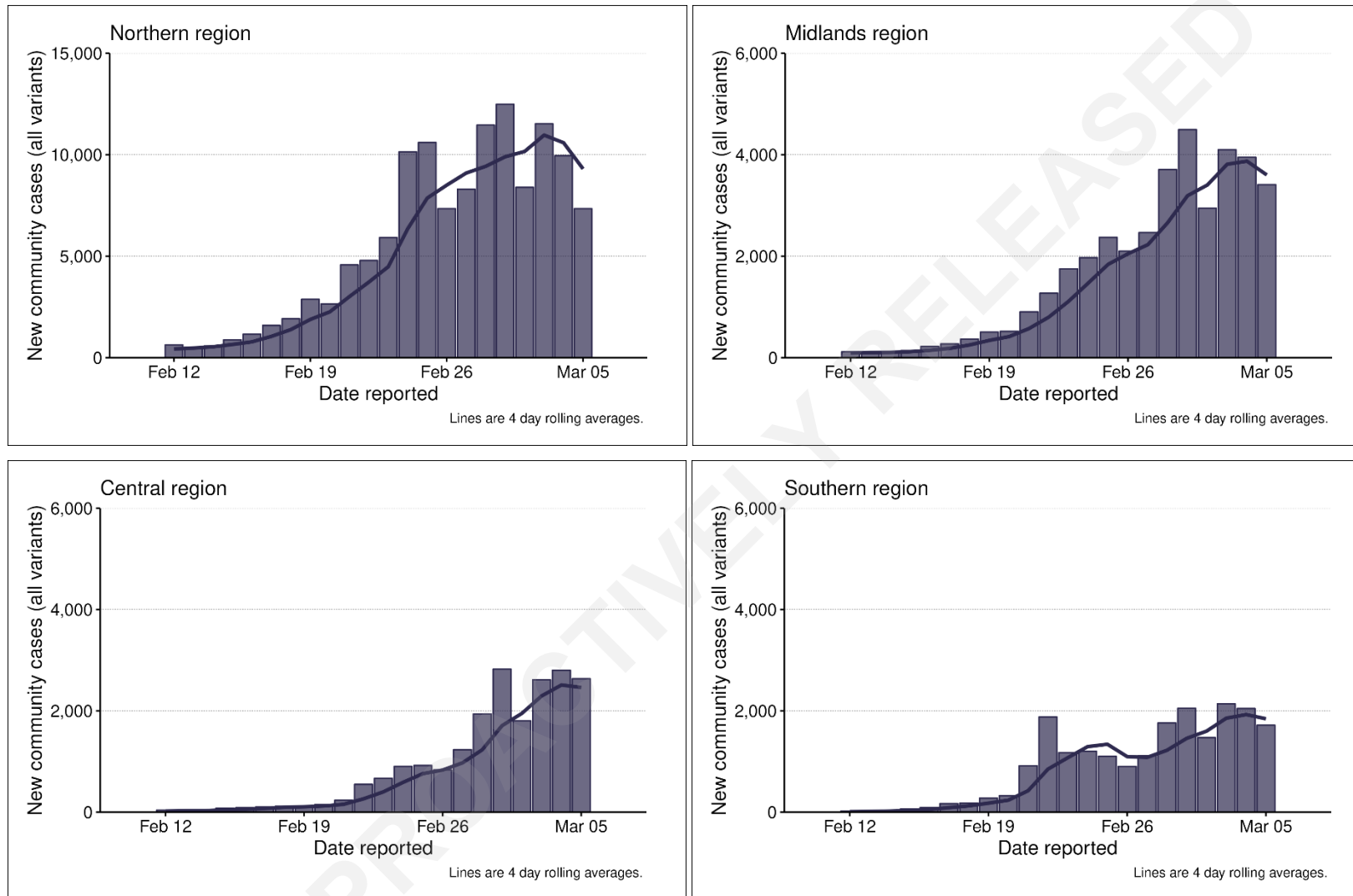
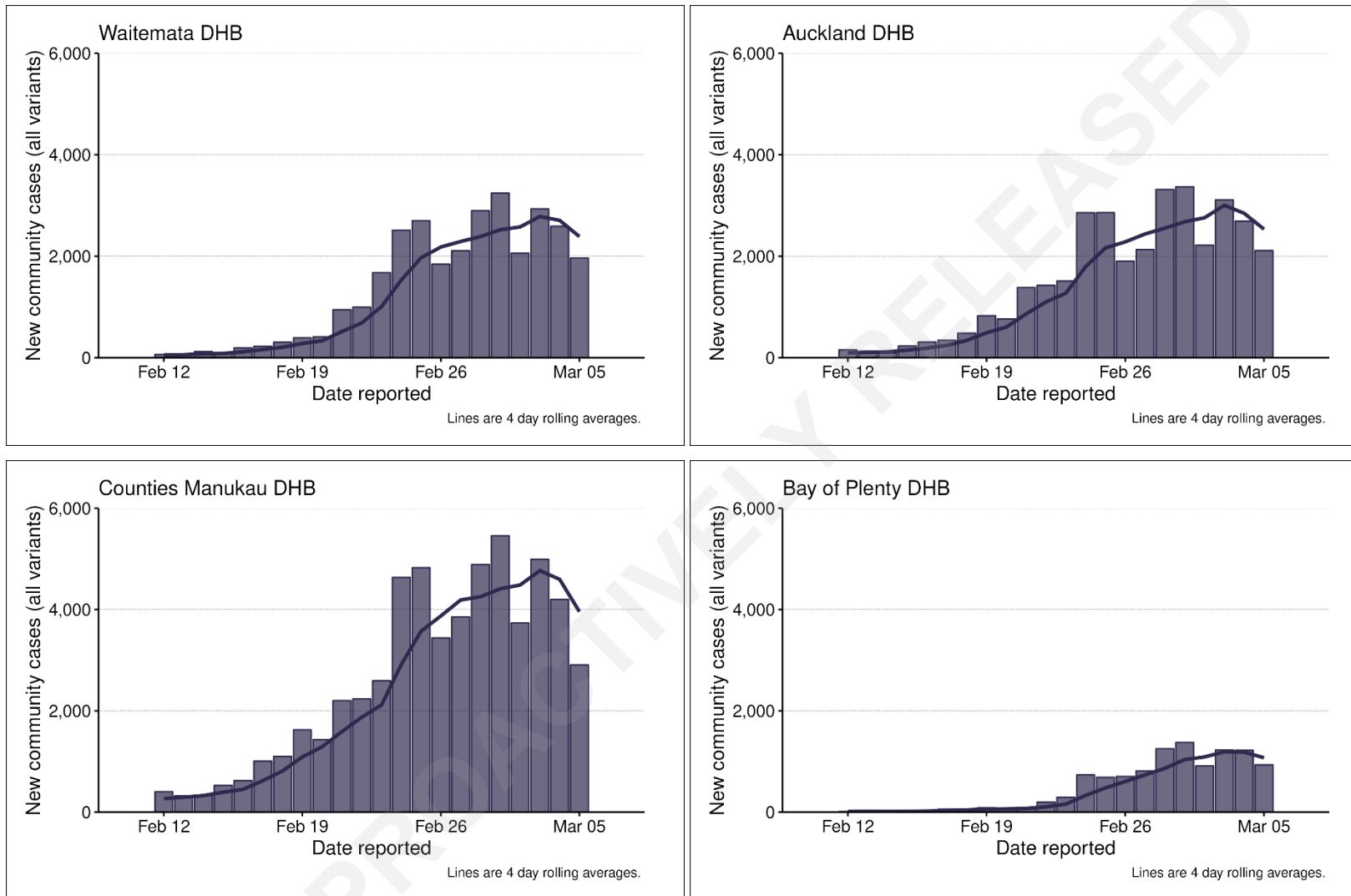
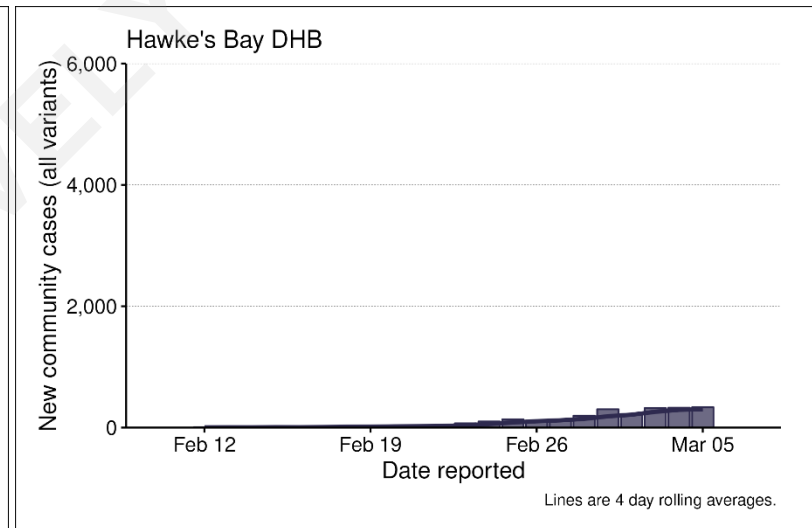
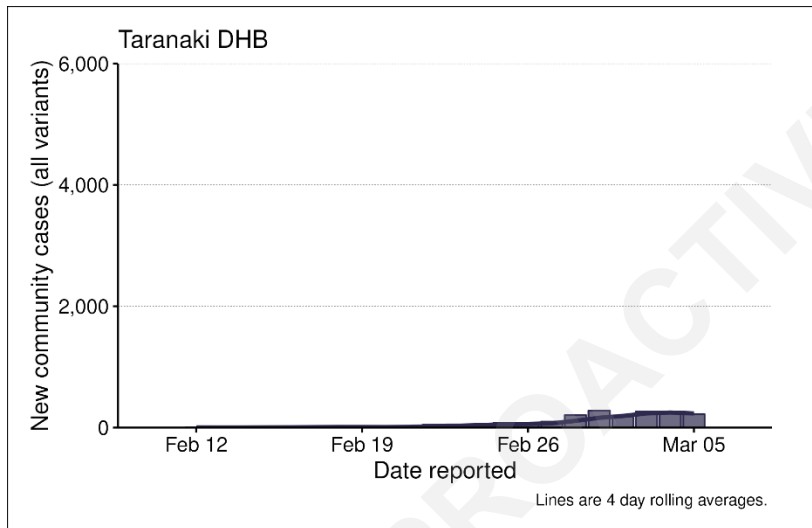
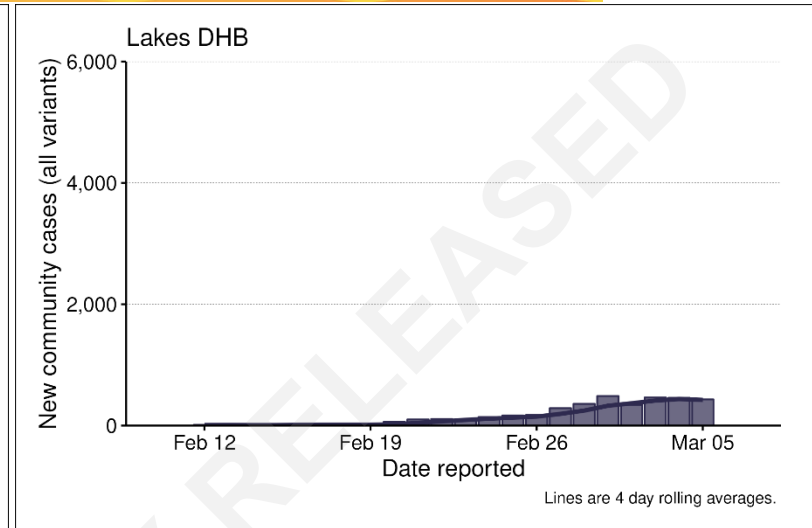
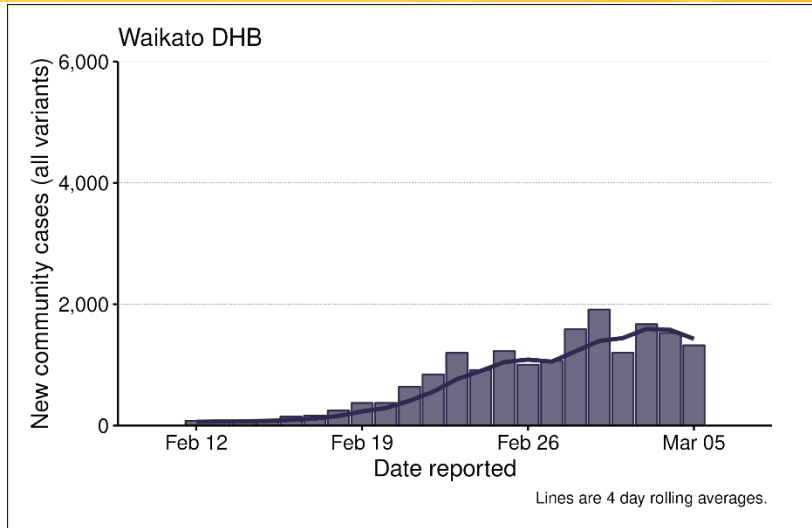


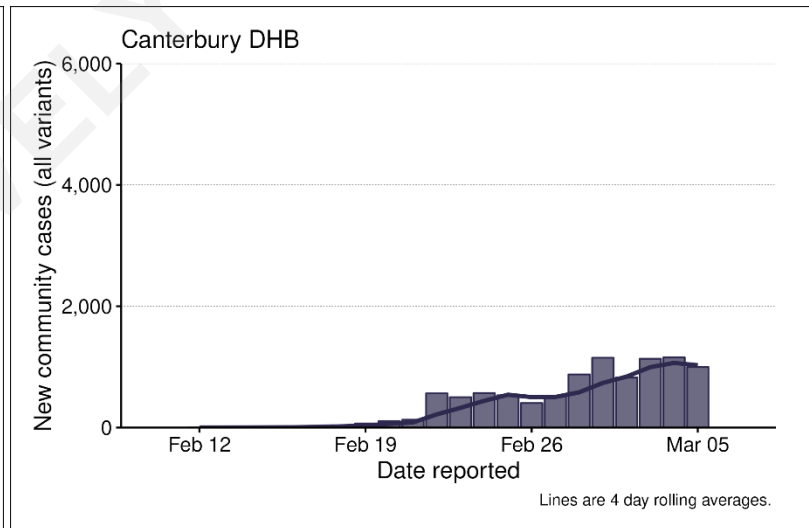
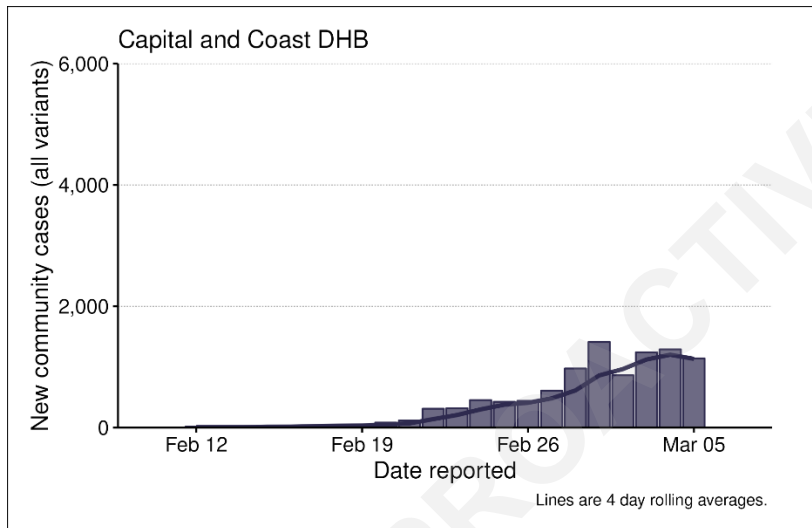
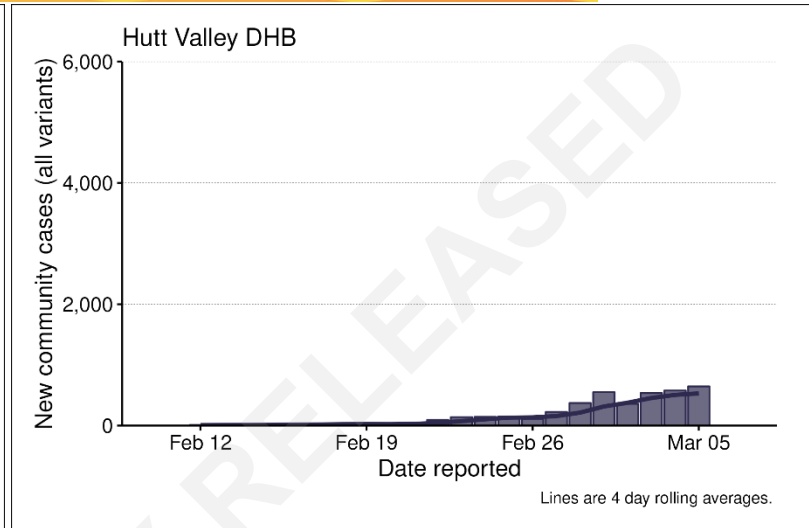
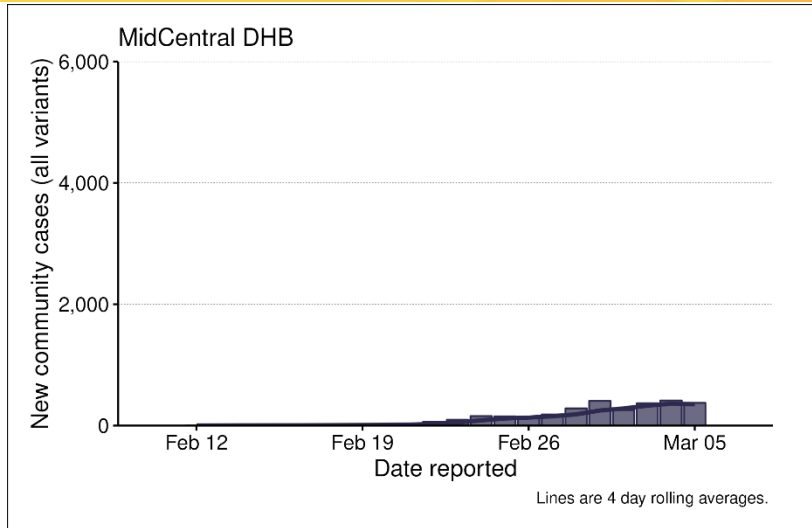
Figure 5: Daily community cases 12 February to 05 March 2022, selected DHBs



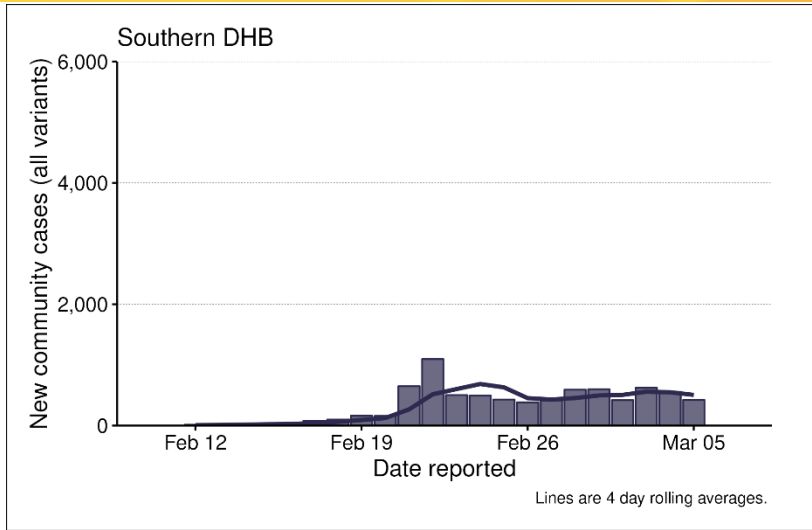
COVID-19



COVID-19



COVID-19



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

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Cases by Ethnicity

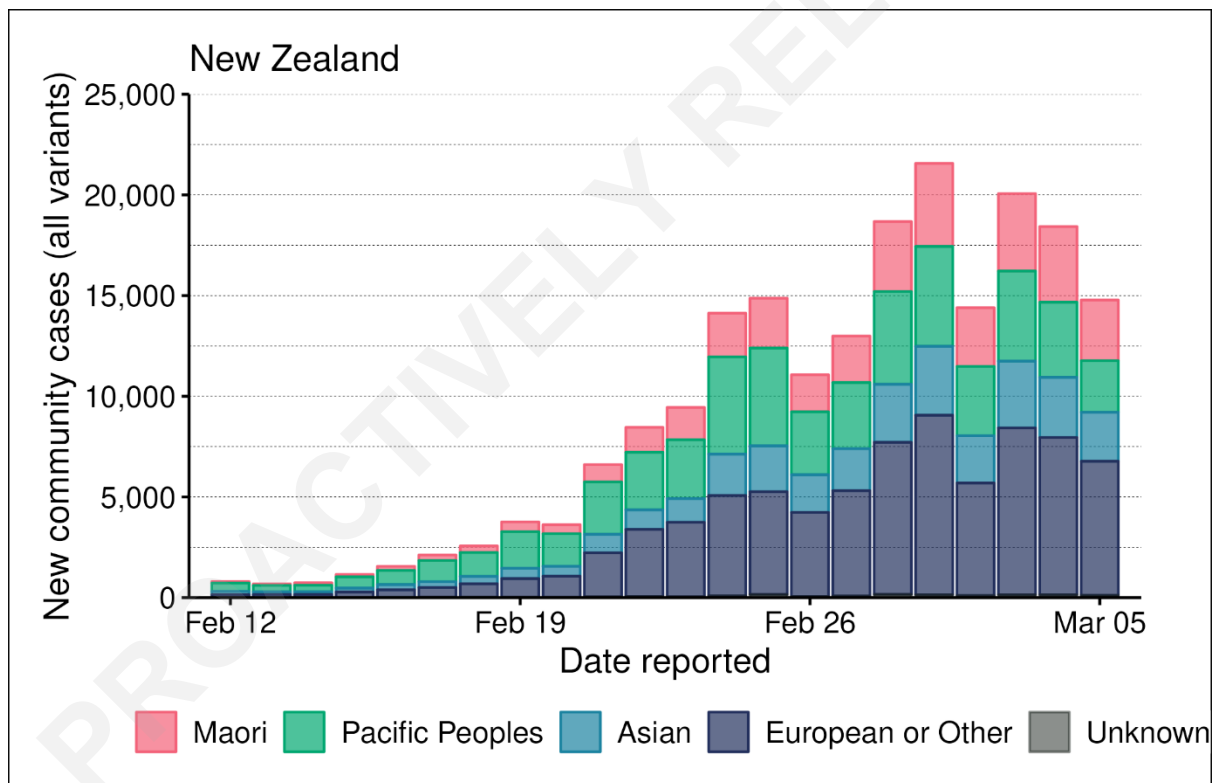
Figure 6 to Figure 10 show the ethnicity of new cases reported in the three weeks from 12 February 2022 to 05 March 2022.

At the beginning of the Omicron outbreak¹, a high proportion of cases were reported to have Asian ethnicity, consistent with known early exposure events. Since 09 February, Asian case numbers have been overtaken by Pacific People and European or Other ethnicities. However, while **case numbers are higher in European or Other** ethnicities, they have the **lowest case rates** (Figure 7). **Pacific Peoples are the most overrepresented ethnicity with the highest case rates**, showing the continued inequity of exposure to COVID-19 infection.

The number of cases with European or Other ethnicity has risen rapidly as the outbreak spreads down the motu and into the Central and Southern regions, particularly Capital and Coast, Canterbury, Nelson Marlborough and Southern DHBs.

The number of cases in Māori is also now gradually rising in the Te Manawa Taki (Midlands) and Central regions (Figure 9), particularly Bay of Plenty, Waikato, Tairāwhiti and Lakes DHBs (Figure 10).

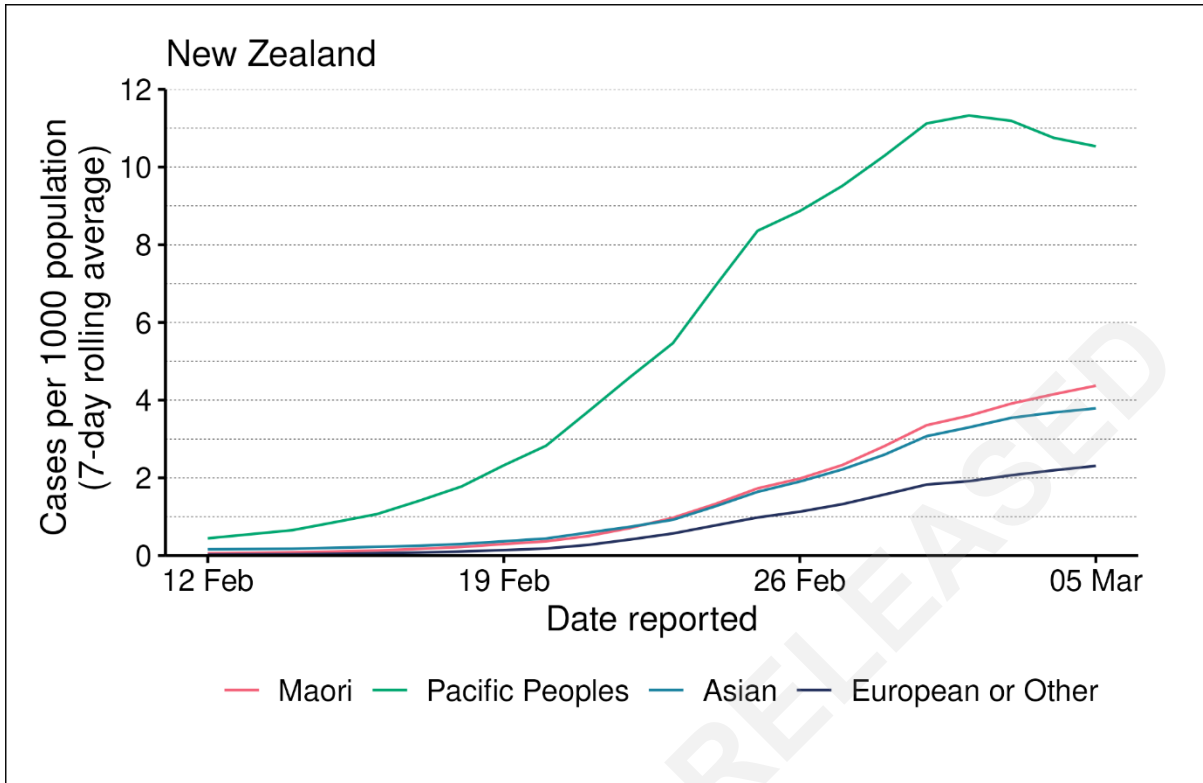
Figure 6: Daily community cases across New Zealand by ethnicity from 12 February to 05 March 2022



Source: NCTS/EpiSurv 2359hrs 05 March 2022

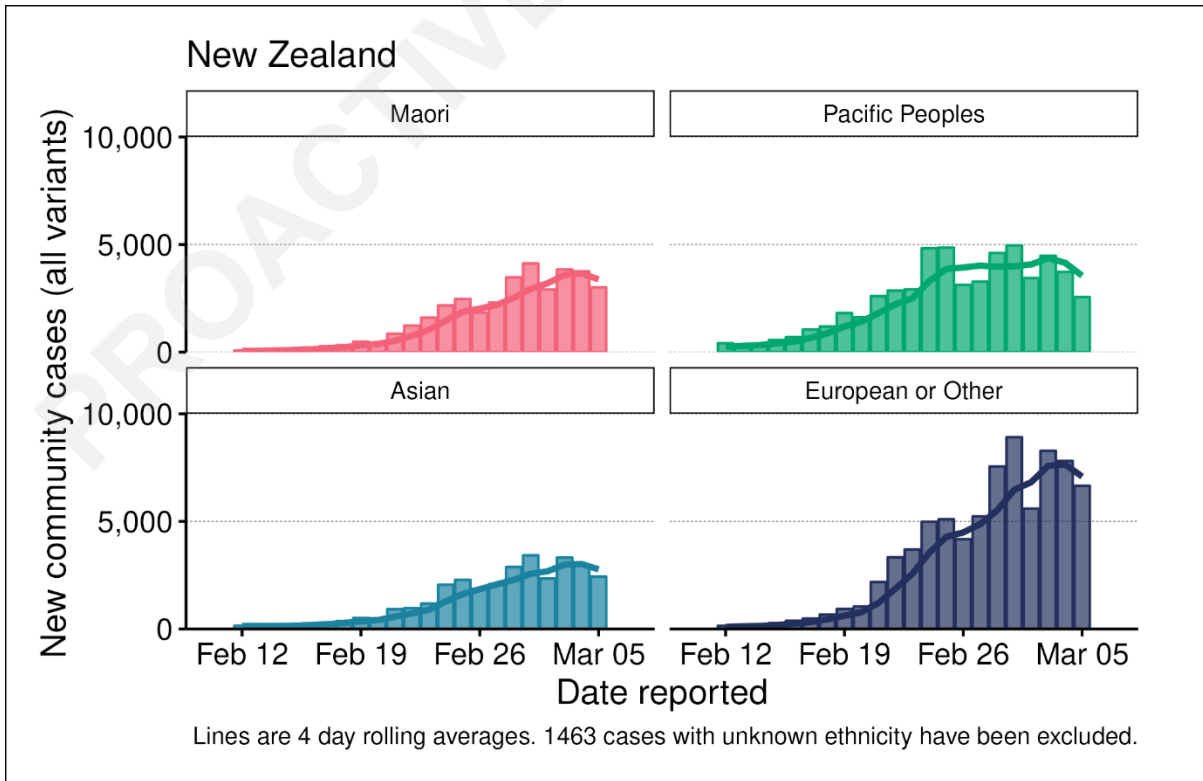
¹ Assumed to be 19 January 2022. The Delta variant has been identified after that date. Case numbers include all confirmed COVID-19 cases, regardless of variant.

Figure 7: Daily case rate per 1,000 population by ethnicity from 12 February to 05 March 2022



Source: NCTS/EpiSurv 2359hrs 05 March 2022

Figure 8: Daily and rolling 4 day of average community cases across New Zealand, by ethnicity from 12 February to 05 March 2022



Source: NCTS/EpiSurv 2359hrs 05 March 2022

Figure 9: Daily cases by ethnicity and region from 12 February to 05 March 2022

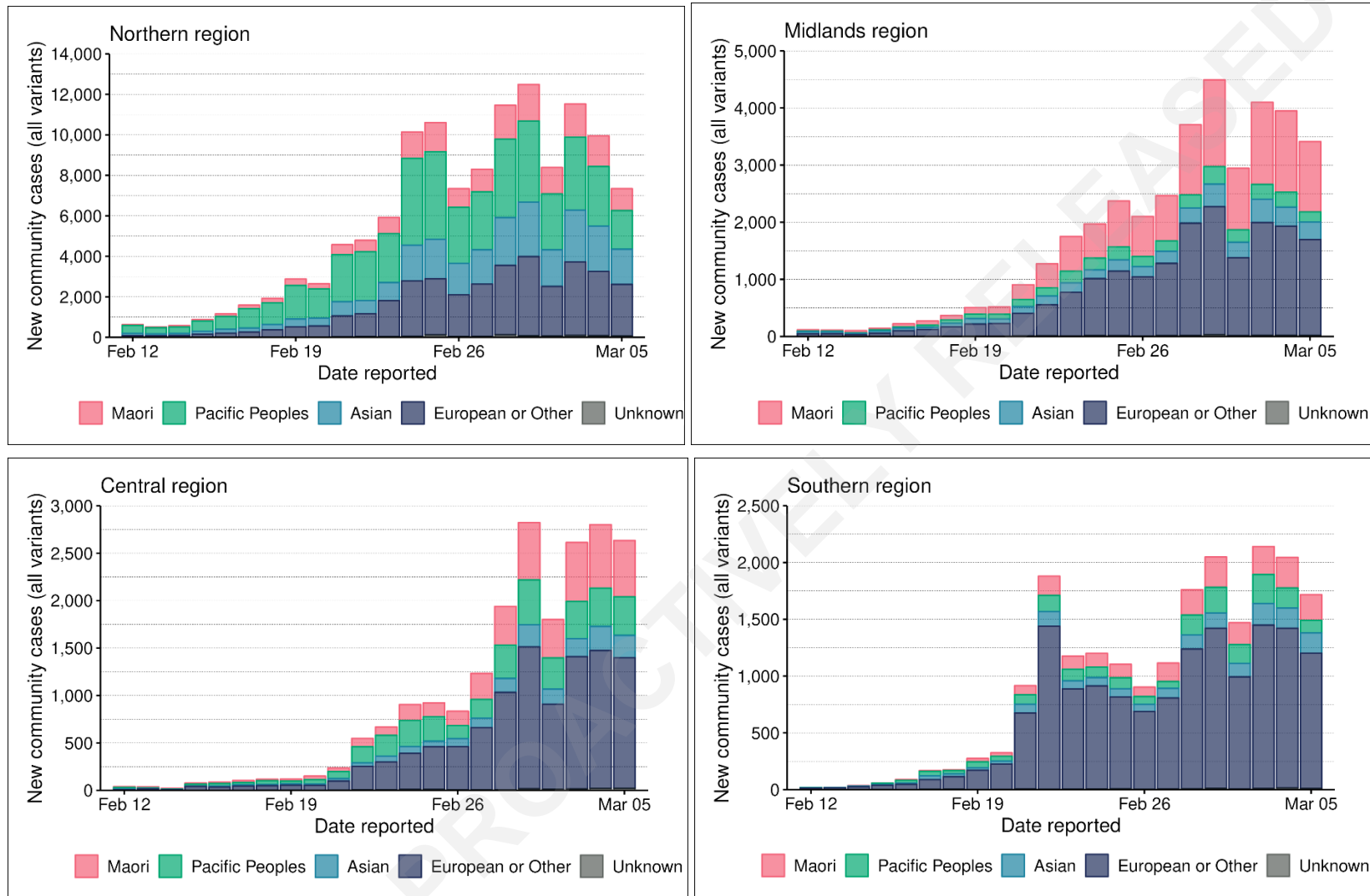
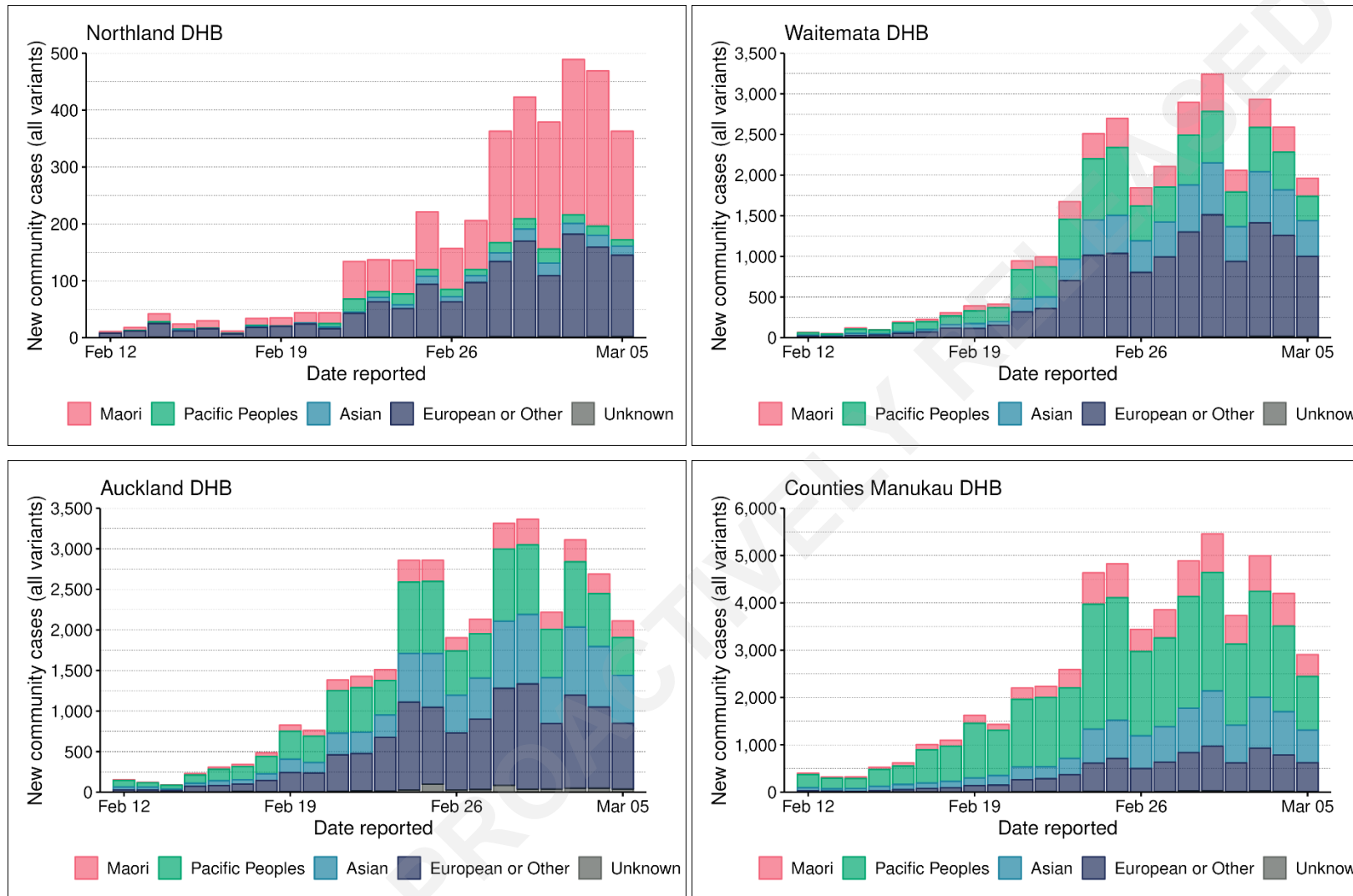
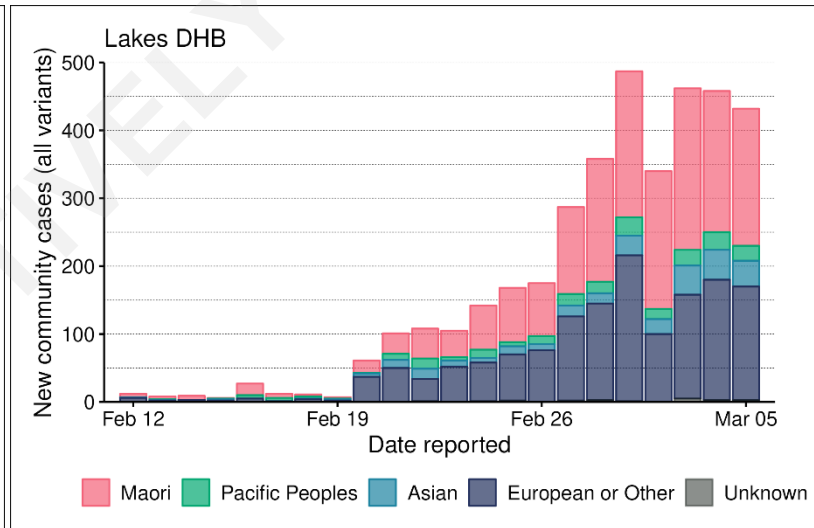
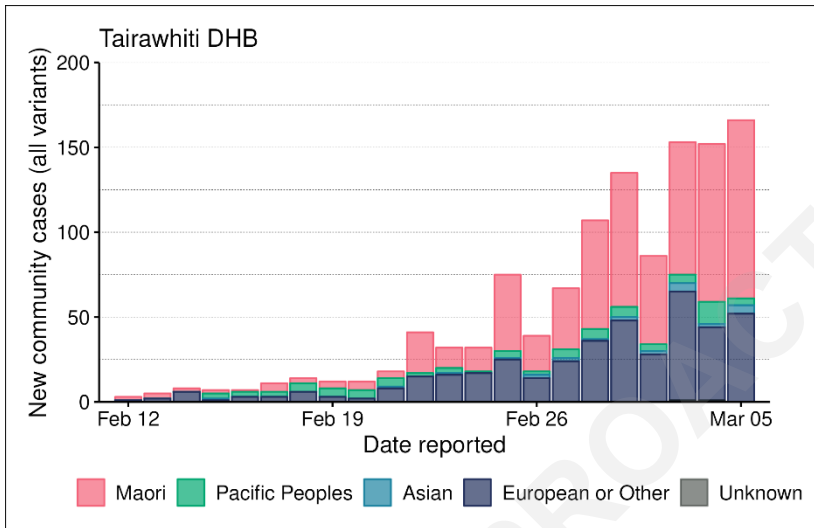
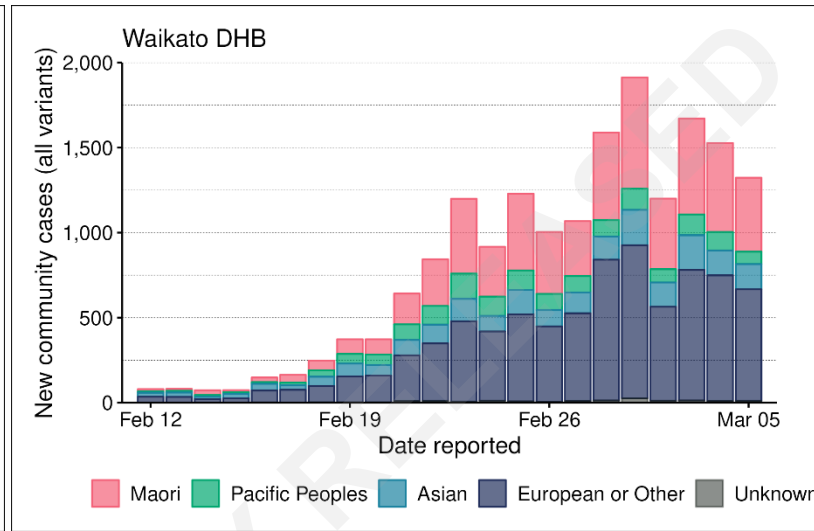
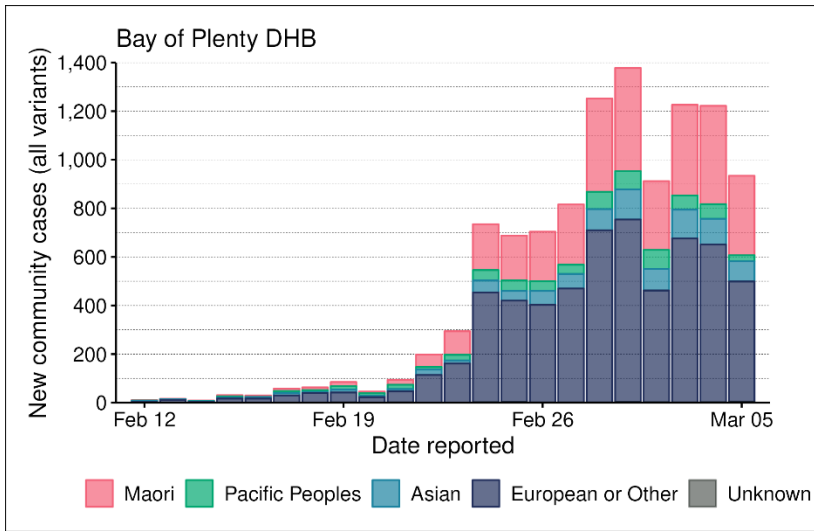


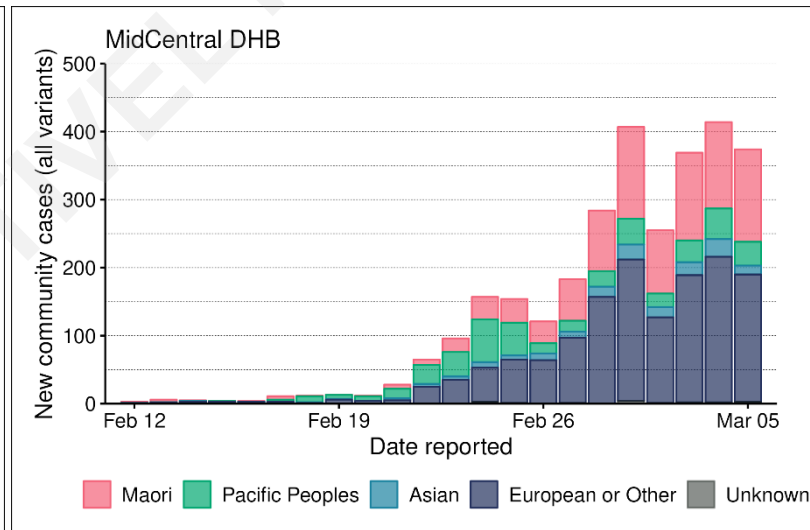
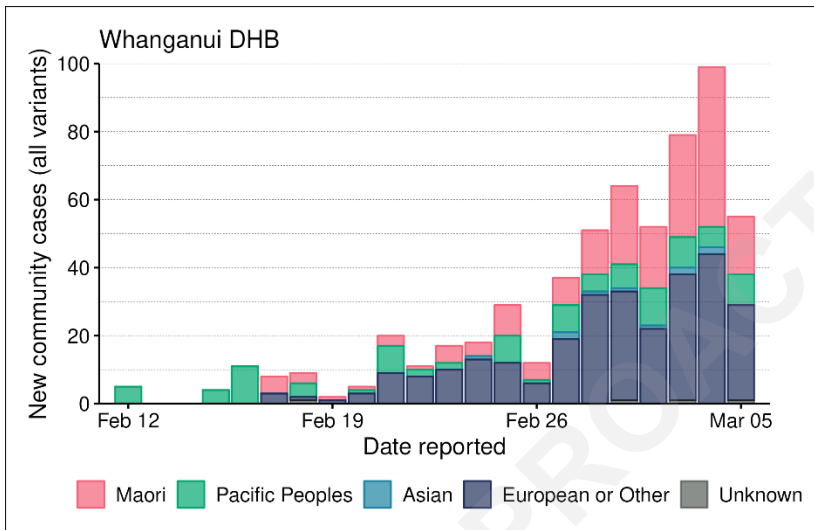
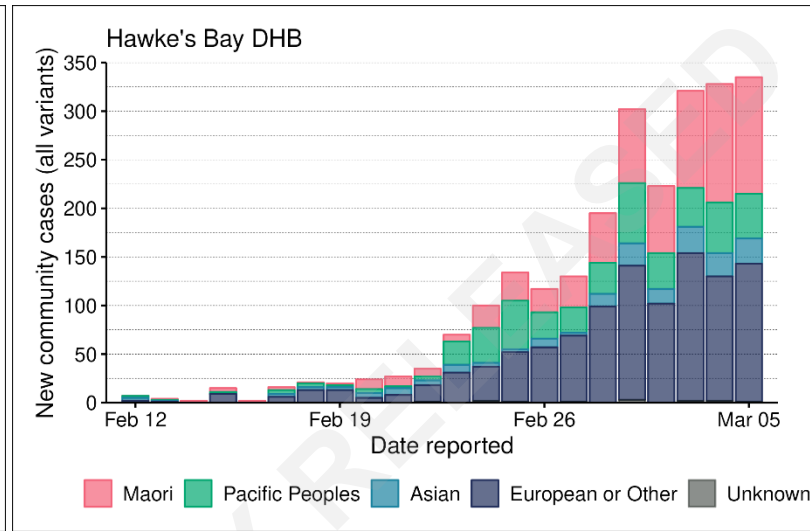
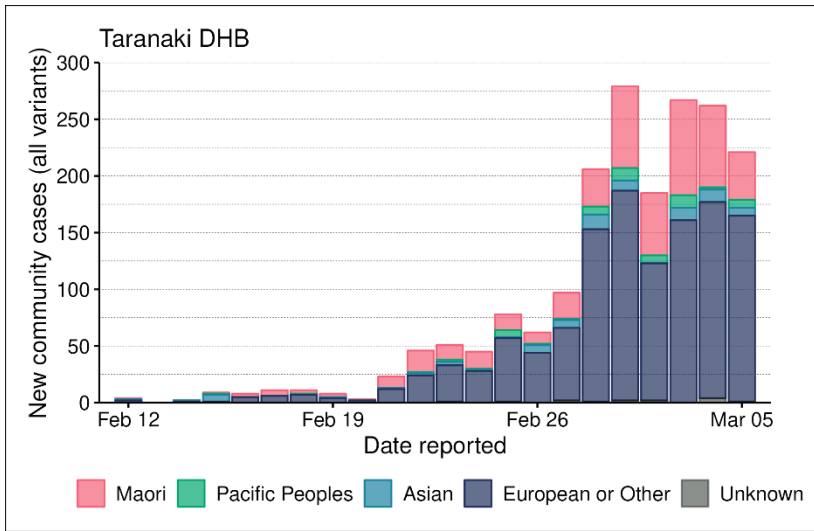
Figure 10: Daily cases by ethnicity from 12 February to 05 March 2022 by selected DHB



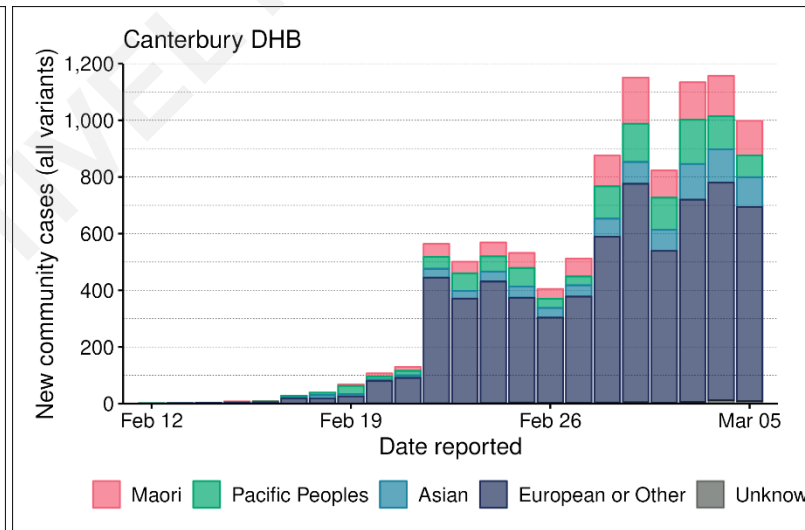
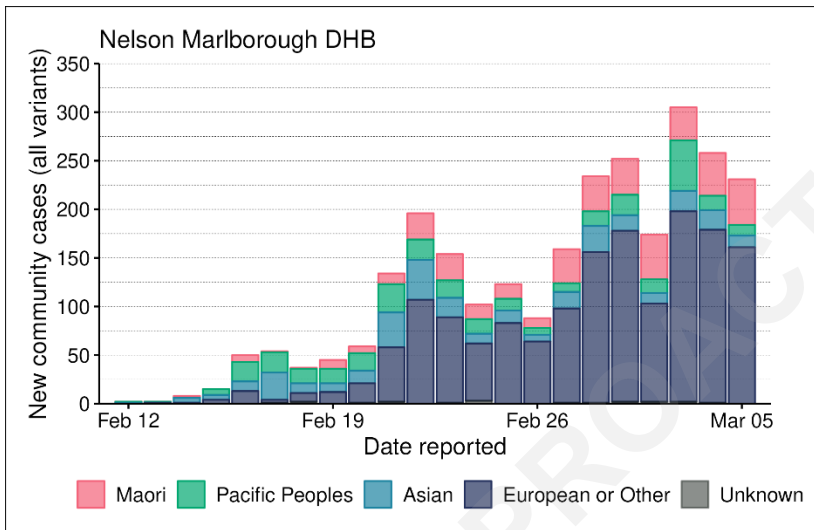
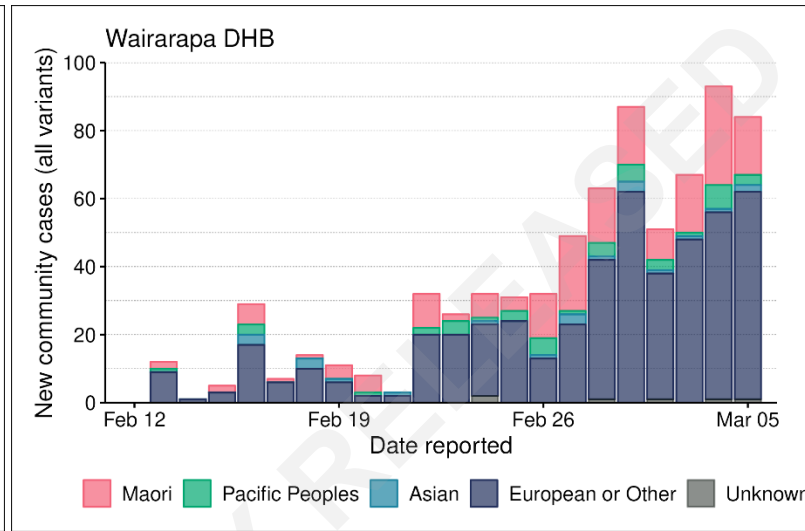
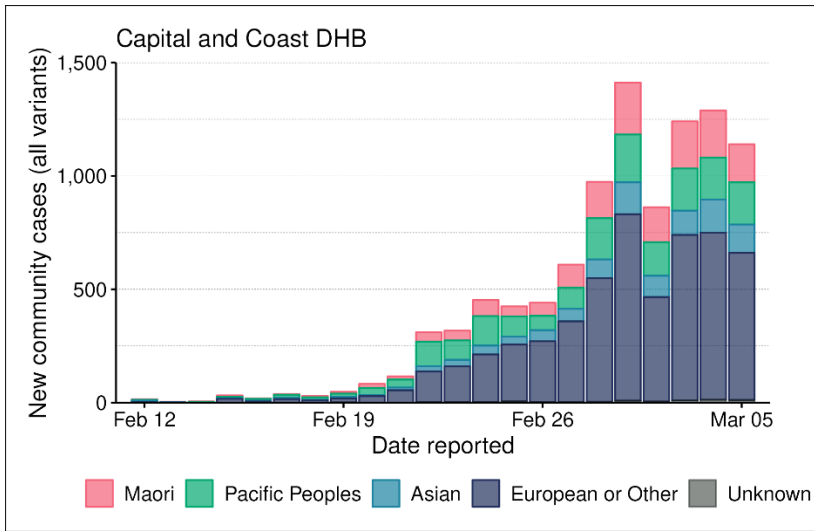
COVID-19



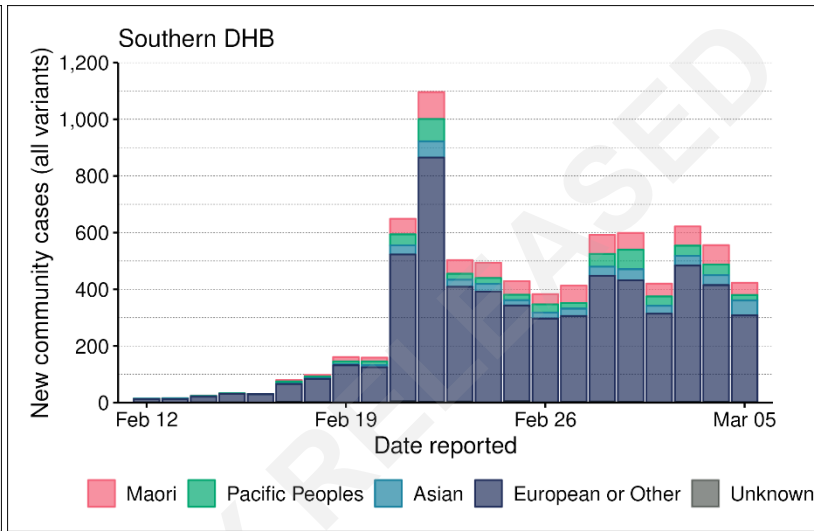
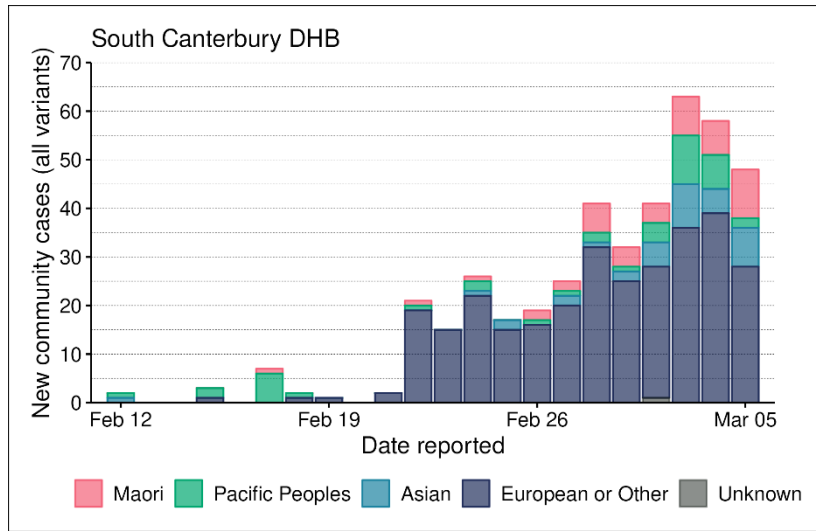
COVID-19



COVID-19



COVID-19



Source: NCTS/EpiSurv 2359hrs 05 March 2022

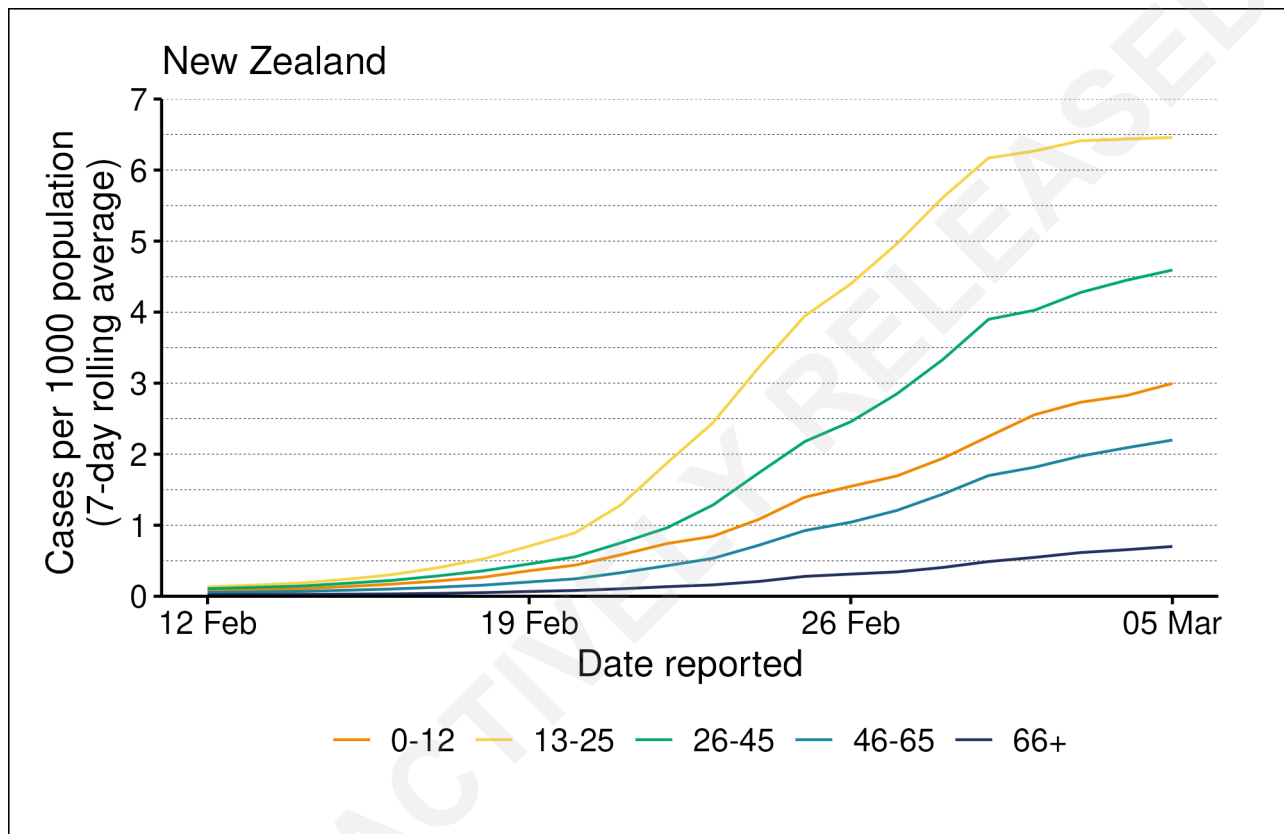
Cases by Age

Figure 11 and Figure 12 show new cases by age group from 12 February to 05 March 2022.

Case rates continue to be highest in the 13-25 and 26-45 age groups (Figure 11). Case rates are rising across the board but are rising at a lower rate in 66+ age group.

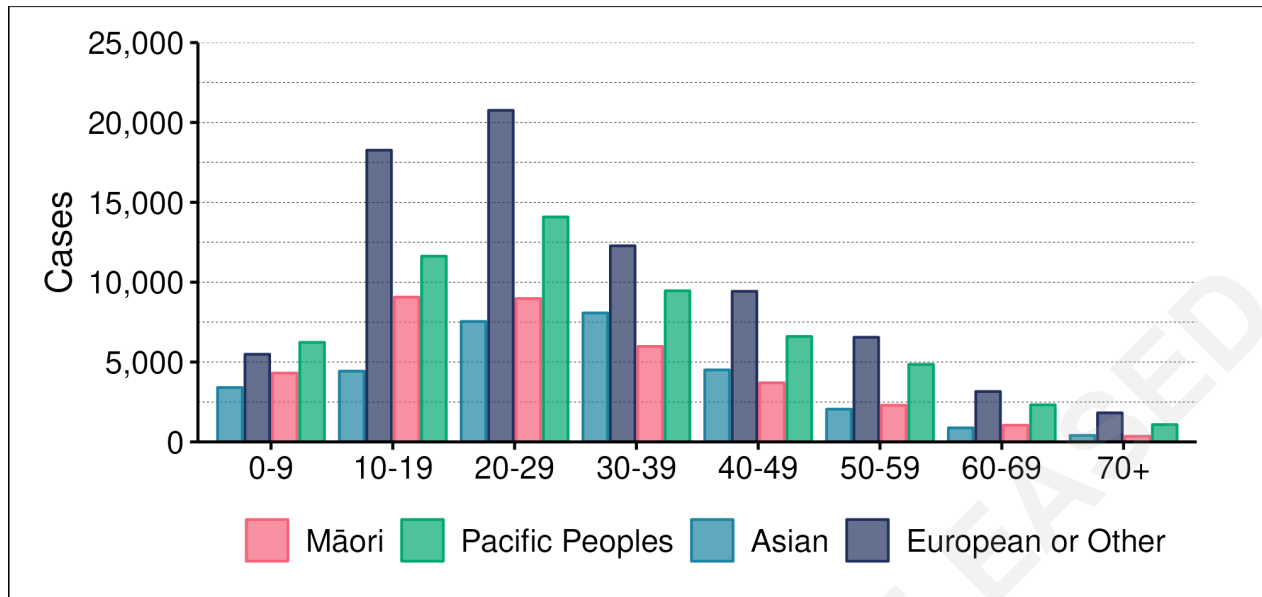
The breakdown of cases by age and ethnicity (Figure 12) shows that the age distribution of cases is broadly similar across ethnicities. Asian cases skew slightly older and Pacific cases slightly younger. Case numbers in European or other stand out as being higher in the youth and young adult age range 10-19 and 20-29.

Figure 11: COVID-19 community case rates per 1000 population by age, 12 February to 05 March 2022



Source: NCTS/EpiSurv 2359hrs 05 March 2022

Figure 12: COVID-19 community case rates by prioritised ethnic group and age group, 12 February to 05 March 2022



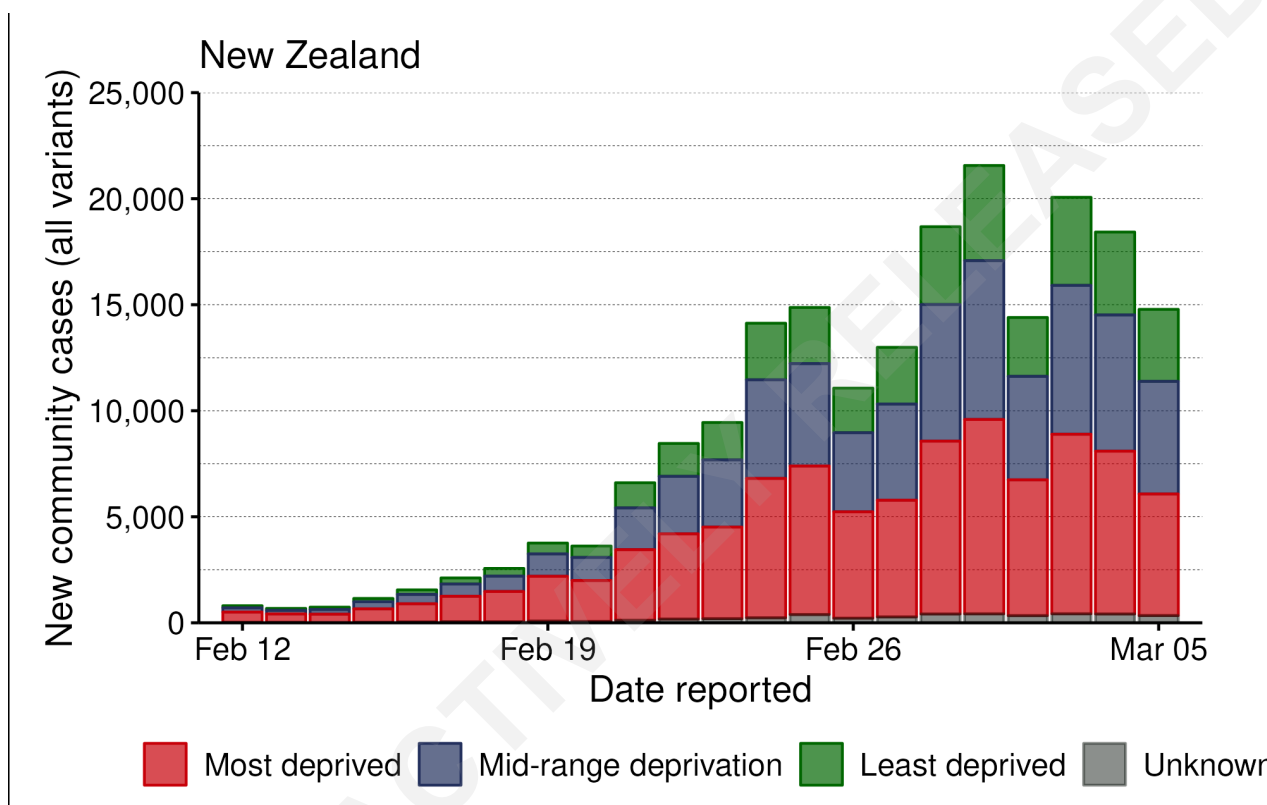
Source: NCTS/EpiSurv 2359hrs 05 March 2022

Cases by socio-economic indicators

Figure 13 shows cases based on the Index of Multiple Deprivation 2018 housing deprivation scores. The increase in cases observed from 09 February 2022 first affected people living in the most deprived areas. However, as case numbers have increased, there has been an increasing proportion of cases in mid- and least-deprived areas.

For the week ending 05 March 2022, the proportion of cases that were least deprived, mid-range deprived and most deprived remained stable at 21%, 35% and 42%. Comparison of case rates of least deprived (1,800 per 100K), mid-range deprived (2,993 per 100K) and most deprived (2,679 per 100K) reveals that **mid-range deprived are now the most overrepresented in cases.**

Figure 13: COVID-19 community cases between 12 February 2022 and 05 March 2022 by housing deprivation level



Source: EpiSurv/NCTS/ 2359hrs 05 March 2022

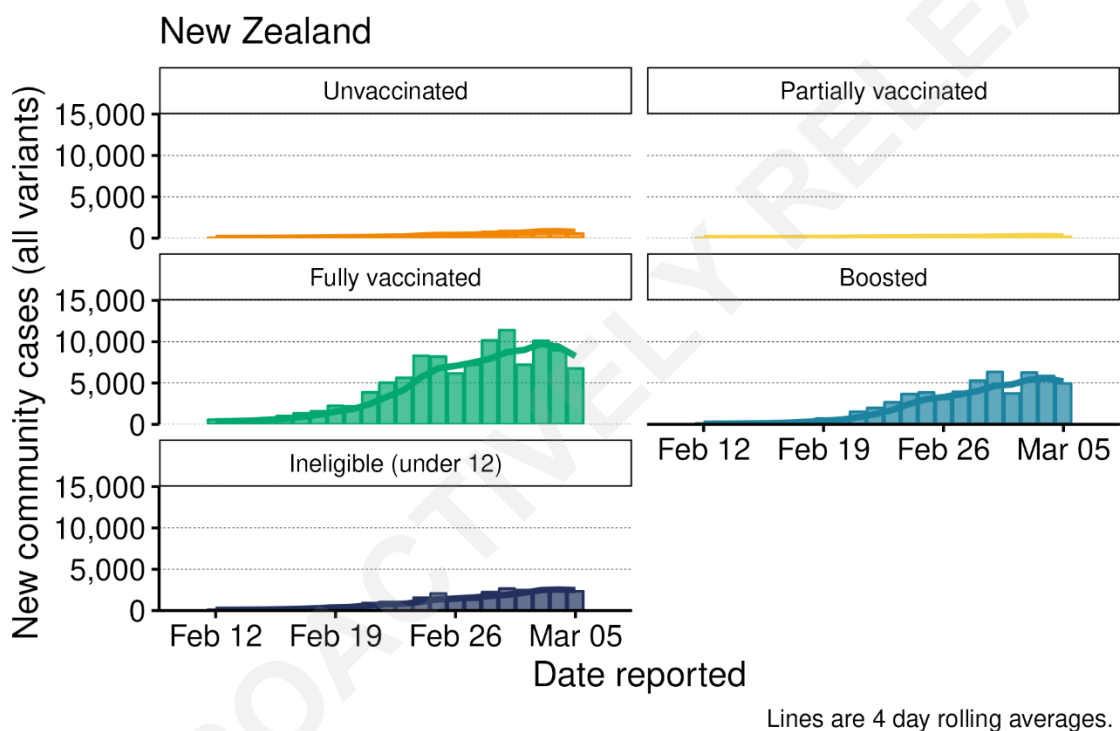
Cases by vaccination status

Cases by vaccination status are shown in Figure 14. Vaccinated case numbers are consistently substantially higher than the number of non-vaccinated cases. This is expected due to the high level of vaccination across New Zealand, with over 95% of people aged 12+ now having at least two vaccination doses. Cases are steadily increasing in children under 12, classified as ineligible for COVID-19 vaccination.

The number of cases who have received a booster is increasing. Between 12 February and 05 March 2022, boosted cases accounted for 30% of total cases while those fully vaccinated account for 51% and those ineligible (under-12s), just 14%. Case rates of those who are fully vaccinated and those who are boosted are similar with a boosted case rate of 1,481 per 100K compared to fully vaccinated with 1,543 per 100K. Only a 4% difference exists between case rates compared to the 23% reported previously.

It should be noted that **this is not a vaccine effectiveness estimate** and does not account for differences in age and other factors that may affect the likelihood of becoming a case and/or being vaccinated.

Figure 14: COVID-19 community cases between 12 February 2022 to 05 March 2022 by vaccination status



Source: EpiSurv/NCTS/CVIP 2359hrs 05 March 2022

In the graph above, “unvaccinated” refers to people who have had no doses prior to becoming a case. “Fully vaccinated” are people who received their second dose at least 7 days before being reported as a case. “Boosted” refers to people who have received a total of 3 doses of an approved COVID-19 vaccine, one week prior to their report date as a case.

Community Testing

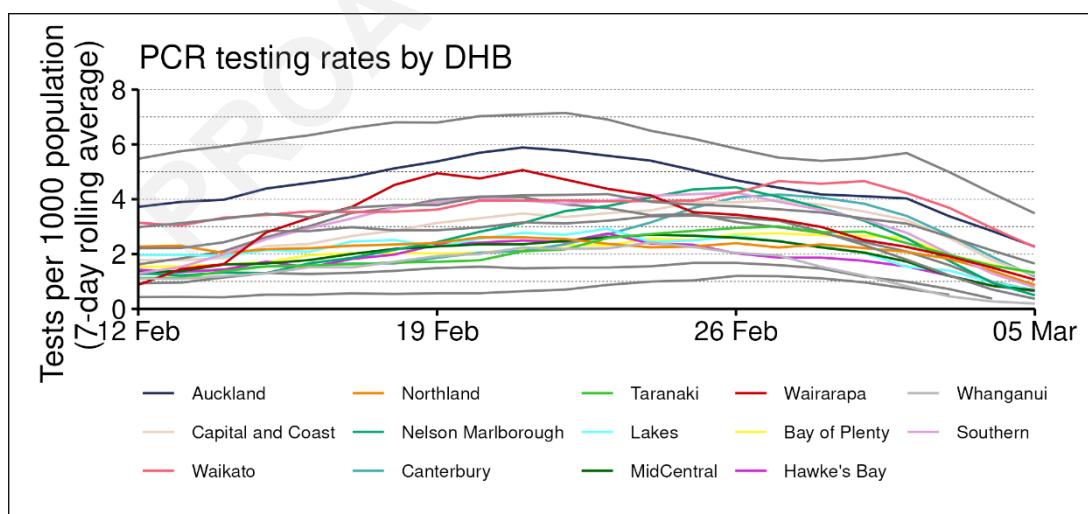
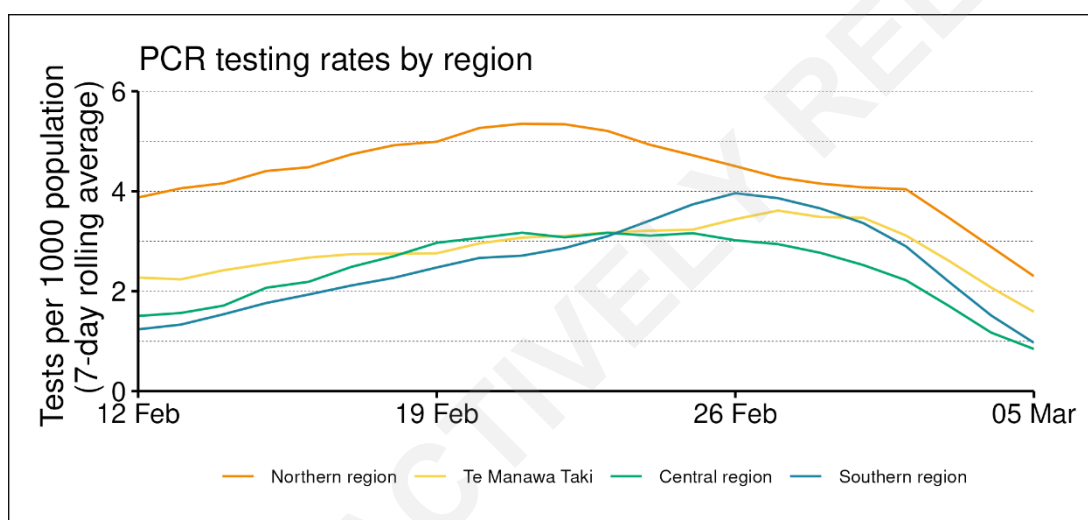
As New Zealand has entered Phase 3 of the Omicron response², an increased proportion of testing is carried out through rapid antigen tests (RATs) rather than PCR tests. RATs are self-administered and therefore require the individual to report their results using My Covid Record or through calling the helpline, which may result in under-reporting. In addition to this, RATs carry a larger risk of registering a false-negative (especially if used during early periods of infections) or false-positive result compared to PCR-based testing and as such, RAT results are likely to give a less accurate reflection of COVID-19 prevalence in New Zealand.

Testing rates and test positivity are shown for PCR testing only. At this time, it is not possible to provide the same for RATs due to the lack of information on total RATs (especially negative results). Please note that as PCR testing is only used to monitor priority populations and confirm positive RATs in specific situations, this testing data is not representative of the current testing state of New Zealand. New analyses will be constructed to assess test positivity from PCR tests and also assess the demographics of cases who self-upload their RAT results.

The figures in this section show the rates of community testing from 12 February to 05 March 2022.

Tests per 1,000 are between 1 and 5 in all regions. Testing rates remain highest in the Northern Region DHBs.

Figure 15: Testing rate by region (seven day rolling average) by region and DHB from 12 February to 05 March 2022



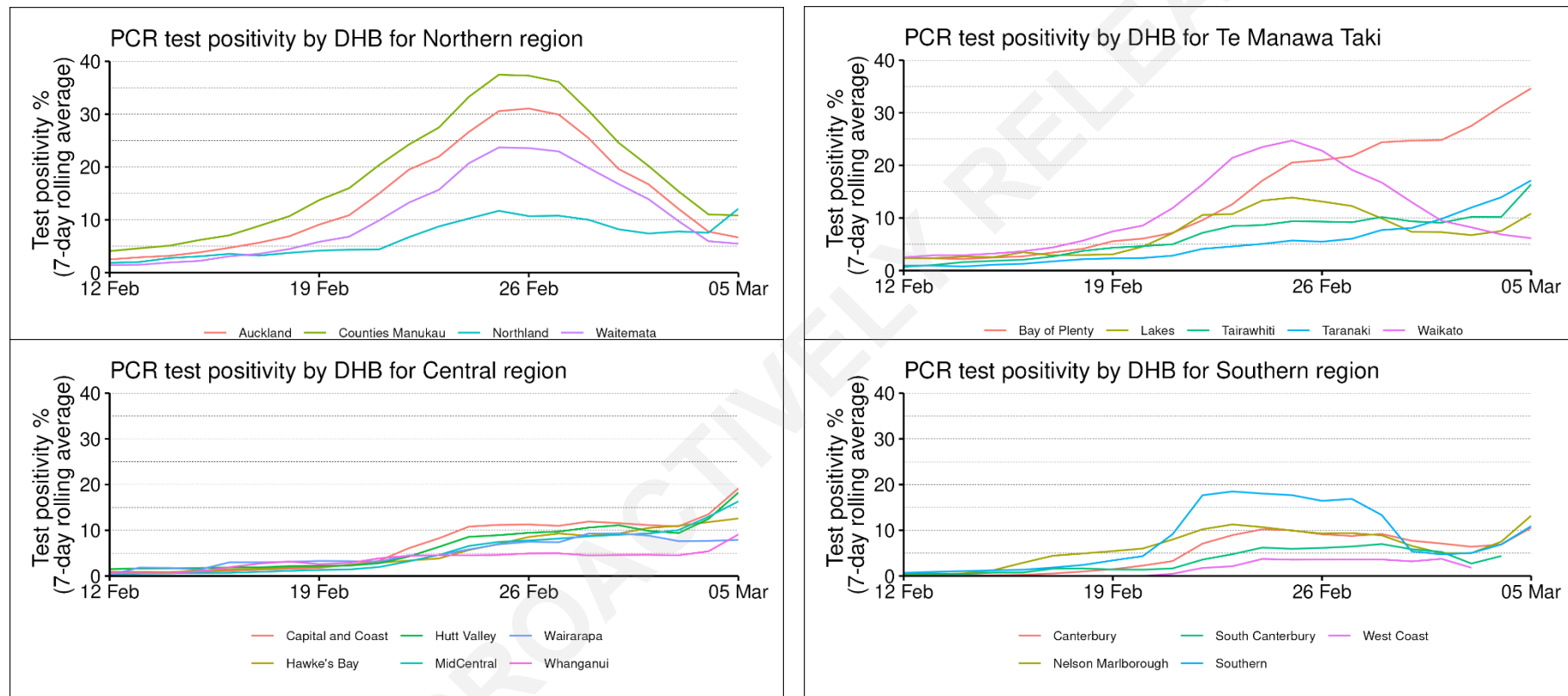
² [Our response to Omicron | Unite against COVID-19 \(covid19.govt.nz\)](https://www.covid19.govt.nz/our-response-to-omicron-unite-against-covid-19/)

COVID-19

PCR test positivity for the Northern region reached a peak in late February and has since decreased significantly, likely due to testing changes under Phase 3. Test positivity in the Te Manawa Taki (Midlands) region has slowly increased since early February with all DHBs except for Waikato now between 10% and 20% positivity. Test positivity in Bay of Plenty DHB is markedly higher than in others, while Waikato DHB has declined from its peak around 23-25 February.

PCR test positivity for the Central and Southern regions is increasing with most DHBs now between 10% and 20%. Southern DHB rose to nearly 20% test positivity in late February at the time that university students moved into halls of residence and shared living facilities.

Figure 16: Test positivity (seven day rolling average) by region and DHB from 12 February to 05 March 2022

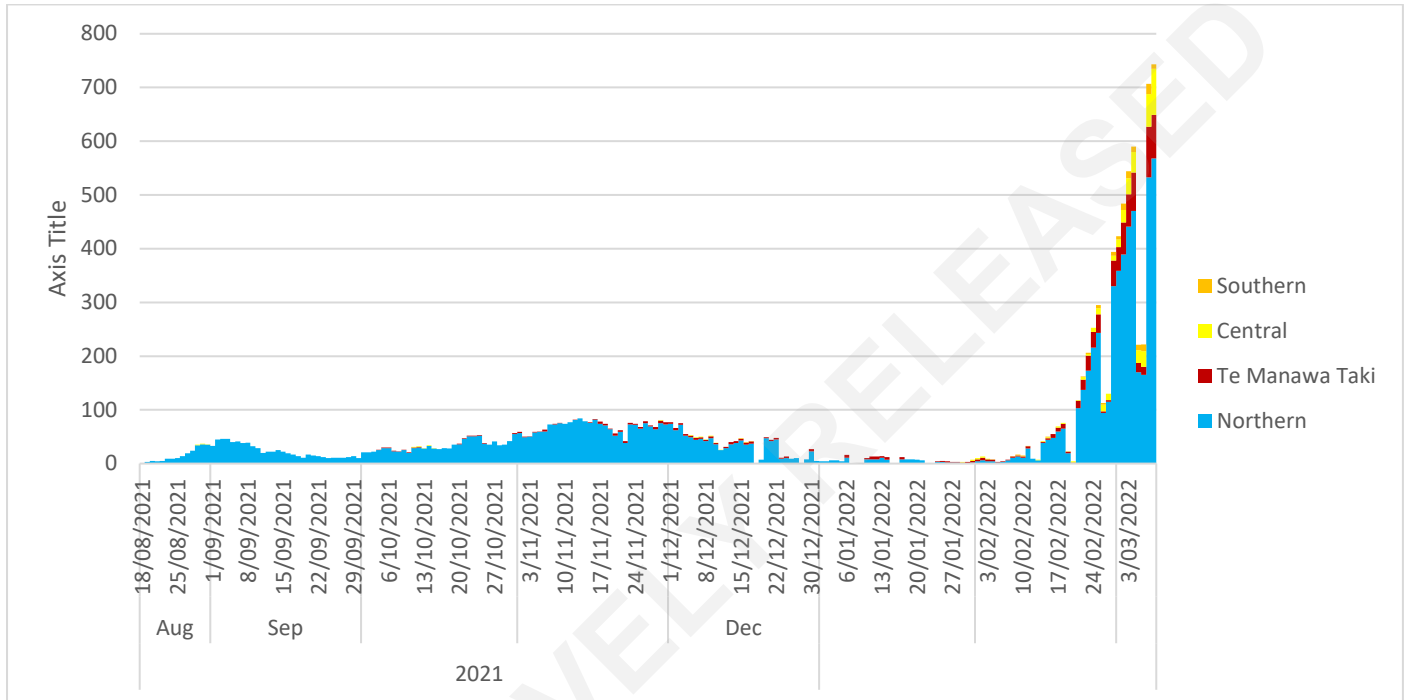


Hospitalisation

The number of COVID-19 positive cases in hospital is based on reports that DHBs file on most days to the Ministry of Health.

The number of hospitalised people confirmed as being COVID-19 positive was only 3 at the end of January 2022. On 8 March, there were **743 confirmed COVID-19 positive cases recovering in hospital** (Figure 17), 16-fold of the Delta peak level, and more than double the level a week earlier.

Figure 17: COVID-19 cases in hospital, by region and day



Source: DHB daily reports to MoH, 7 March 2022. Hospitalisation data are reported manually by DHBs. Data may be incomplete on some days, especially weekends. DHBs are grouped by region.

Mortality

As cases increase, it is expected that reported deaths will increase too. As numbers increase, *Trends & Insights* will analyse patterns in the location, age, ethnicity, sex, vaccination status and socioeconomic status of deaths due to or associated with COVID-19.

Variants of Concern

Most hospitalised cases are Omicron

The majority of hospitalised cases have been identified with the Omicron variant (Table 5), but there are still more samples to be sequenced. As community cases increase, sequencing resources will be prioritised to gathering genomic data on the most serious cases.

Hospitalised cases from 01 January to 07 March 2022 include both Delta and Omicron, with BA.1 and BA.2 Omicron variant being the most common. 236 out of 293 hospitalisations in this period have no available sequencing data yet and as such, there is no full picture of the distribution of variants and subvariants in hospitalised COVID-19 cases.

Table 5: Hospitalised cases reported from 01 January to 07 March 2022

| DHB | Delta | Omicron BA.1-like | Omicron BA.2 | To be received | Total |
|-------------------|-----------|-------------------|--------------|----------------|------------|
| Auckland | 0 | 7 | 3 | 11 | 21 |
| Bay of Plenty | 2 | 1 | 5 | 58 | 66 |
| Canterbury | 1 | 0 | 0 | 0 | 1 |
| Capital and Coast | 1 | 2 | 1 | 45 | 49 |
| Counties Manukau | 1 | 5 | 2 | 26 | 34 |
| Hawke's Bay | 2 | 0 | 0 | 1 | 3 |
| Hutt Valley | 0 | 1 | 0 | 10 | 11 |
| Lakes | 1 | 0 | 0 | 20 | 21 |
| MidCentral | 0 | 1 | 1 | 14 | 16 |
| Southern | 0 | 1 | 0 | 0 | 1 |
| Tairāwhiti | 0 | 0 | 0 | 4 | 4 |
| Taranaki | 0 | 0 | 1 | 0 | 1 |
| Waikato | 1 | 2 | 1 | 40 | 44 |
| Waitemata | 3 | 6 | 5 | 4 | 18 |
| West Coast | 0 | 0 | 0 | 2 | 2 |
| Whanganui | 0 | 0 | 0 | 1 | 1 |
| Total | 12 | 26 | 19 | 236 | 293 |

Note: This includes cases reported as hospitalised in EpiSurv and may include cases hospitalised for reasons other than their COVID-19 infection.

Source: ESR Whole Genomic Sequencing data, 07 March 2022. EpiSurv and Microreact 12pm 07 March 2022

No recent community sequences are Delta variant

305 community cases were identified as Omicron in the past fortnight (Table 6).

In the past fortnight, there have been no Delta cases found. Whether this marks the complete transition to severe cases being exclusively caused by the Omicron variant will only be clear as and when more sequencing is carried out on future priority cases.

Among Omicron cases, the BA.1-like and BA.2-like variants previously had similar representation but now BA.2 has become the dominant subvariant (Figure 18). This has been the experience internationally where BA.2 Omicron has become the dominant lineage due to slight advantages in growth/transmission.

As case numbers grow, only a minority of positive cases are being referred for sequencing, the sequences reported here reflect biases in the capacity of testing labs to refer samples, the severity of disease, and the cases referred for urgent sequencing.

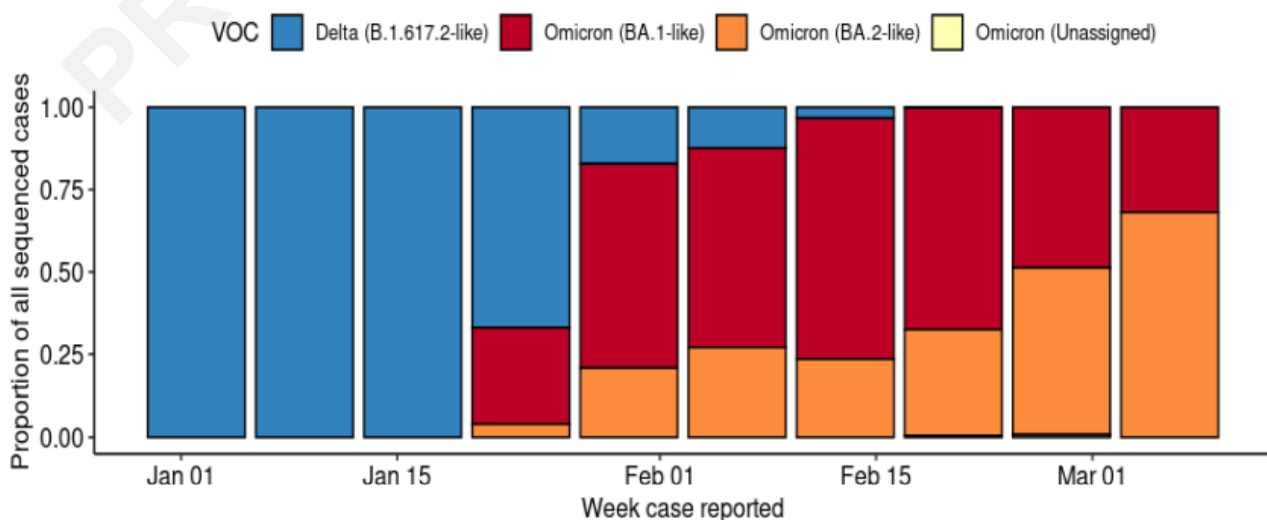
Table 6: Community cases based on variant in the past 14 days to 07 March 2022

| DHB | Delta | Omicron BA.1-like | Omicron BA.2-like | Omicron (Unassigned) | Total |
|--------------------|----------|-------------------|-------------------|----------------------|------------|
| Northland | 0 | 2 | 1 | 0 | 3 |
| Waitemata | 0 | 6 | 21 | 0 | 27 |
| Auckland | 0 | 8 | 8 | 0 | 16 |
| Counties Manukau | 0 | 17 | 23 | 0 | 40 |
| Waikato | 0 | 12 | 10 | 0 | 22 |
| Lakes | 0 | 0 | 0 | 0 | 0 |
| Bay of Plenty | 0 | 2 | 3 | 0 | 5 |
| Tairāwhiti | 0 | 0 | 1 | 0 | 1 |
| Taranaki | 0 | 2 | 7 | 0 | 9 |
| Hawke's Bay | 0 | 1 | 0 | 0 | 1 |
| Whanganui | 0 | 0 | 0 | 0 | 0 |
| MidCentral | 0 | 1 | 2 | 0 | 3 |
| Wairarapa | 0 | 0 | 2 | 0 | 2 |
| Hutt Valley | 0 | 10 | 3 | 0 | 13 |
| Capital and Coast | 0 | 15 | 11 | 0 | 26 |
| Nelson Marlborough | 0 | 1 | 20 | 0 | 21 |
| West Coast | 0 | 0 | 0 | 0 | 0 |
| Canterbury | 0 | 13 | 29 | 1 | 43 |
| South Canterbury | 0 | 0 | 1 | 0 | 1 |
| Southern | 0 | 37 | 34 | 1 | 72 |
| Total | 0 | 127 | 176 | 2 | 305 |

Source: ESR Whole Genomic Sequencing data, 07 March 2022. EpiSurv and Microreact 12pm 07 March 2022

Sequencing data may be two or more weeks after infection date. These cases are not a representative sample of all COVID-19 cases in the community.

Figure 18: Frequency of variants of concern among all community cases sequenced in New Zealand



Short-term projections

Scenario modelling versus actual cases

Predicted scenarios were updated by Te Pūnaha Matatini on 8 March

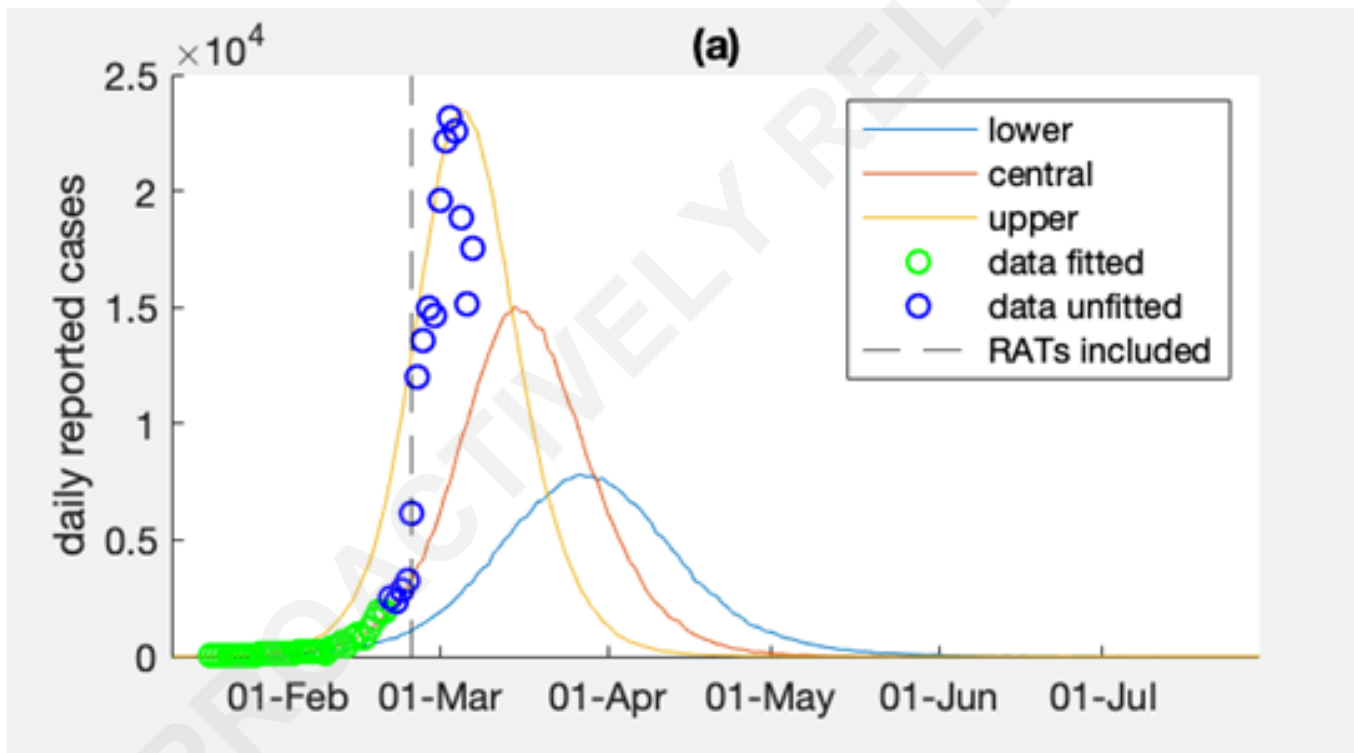
As before, the scenarios are based on international transmission rates and the peak cases seen in **South Australia** (“low”), **London** (“middle”) and **New York** (“high”). Compared to previous reports, these scenarios now:

- Align the start date of outbreak with NZ surveillance data
- Adjust the “contact matrix” to match recent actual distributions of cases by age
- Predict fewer hospitalisations, because of the younger age distribution than previously expected

On balance, the modelling team is cautiously advising that overall, after adjusting for the move from PCR tests to RATs, New Zealand is closer to the “medium” scenario than the “high”.

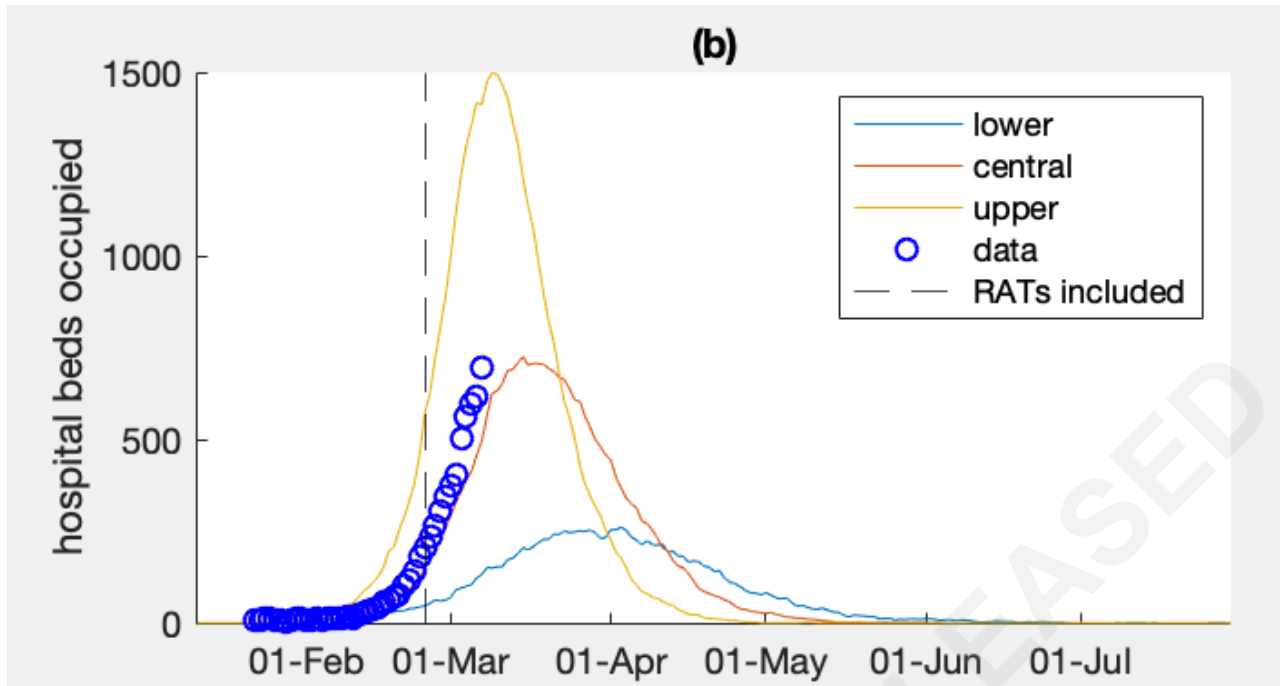
The wave is probably close to its peak in the Auckland Region, but will at least double again in most other regions.

Figure 19: COVID-19 Modelling Aotearoa predictions compared to actual cases



Source: COVID-19 Modelling Aotearoa group (Te Pūnaha Matatini), 8 March 2022; Actual cases MoH to 08 March 2022.

Figure 20: COVID-19 Modelling Aotearoa TPM hospitalisation scenarios compared to actuals



Source: COVID-19 Modelling Aotearoa group (Te Pūnaha Matatini), 8 March 2022; Actual cases MoH to 08 March 2022.

Effective reproduction rate

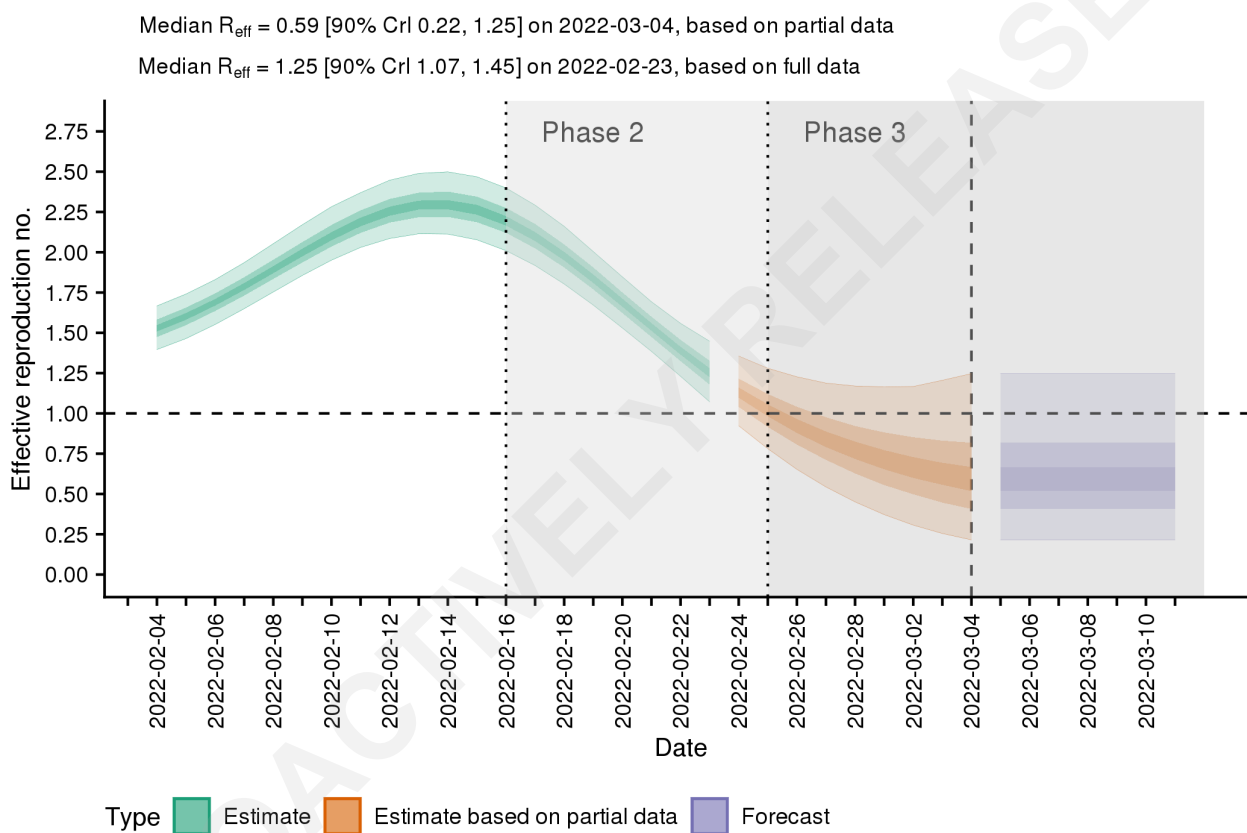
These estimates used the *EpiNow2* package on 7 March using data to 4 March.³

- The median estimate of **effective R (R_{eff}) nationally has dropped markedly to 0.6 with narrowed confidence intervals** (90% Credible Interval [CI]: 0.2–1.3) for cases to 04 March, after adjusting for data lags (Figure 21). This is compared to 2.7 (90% Credible Interval [CI]: 1.9–4.0) for cases to 28 February. The decrease is due to the slowing in the growth of reported cases.
- Estimates for R_{eff} for additional regions have been generated this week, however these should be treated as preliminary estimates with greater uncertainty as the model only has a relatively short time-series of cases for these regions compared to the Auckland and Waikato outbreaks.
- For some regions, the model is estimating an R number less than 1. This could reflect a decrease in transmission as we reach a peak due to increased immunity in the population or could be due to changes in behaviour of the population (e.g., people being more cautious), or due to under-reporting of cases as a result of testing backlogs, or a combination of these factors.
- Median doubling times are negative, indicating that transmission is slowing for New Zealand as a whole and in Auckland, Waikato, Waitemata, Bay of Plenty, Canterbury, Counties Manukau, Nelson Marlborough. Negative doubling times should be interpreted as “halving times”.
- Estimated median doubling time does not always fall in the interval implied by the 90% credible interval. Doubling times are discontinuous at 0 so, for example, for the national doubling time estimate on 4 March, the [90% CrI -2.7, 10.68] days should be interpreted as all numbers that are less than -2.7 and all numbers that are more than 10.68, so the median doubling time (“halving time” when values are negative) of -5.7 does actually fall in this interval.
 - The median estimate R_{eff} for the Auckland PHU region is 0.7 (90% CI: 0.3–1.4).
 - The median estimate R_{eff} for the Waikato PHU region is 0.9 (90% CI: 0.3, 1.9).
 - The median estimate R_{eff} for the Bay of Plenty PHU region is 0.6 (90% CI: 0.1, 1.9).

³ The EpiNow package ‘now-casts’ and forecasts cases to measure current, past and future transmission nationally by calculating and then extrapolating the effective reproduction number, R_{eff} . The model does not consider several factors that may impact transmission, such as rapid changes in public health measures, population behaviour, mobility, or school holidays. This model requires sustained daily cases before it can make predictions. It only counts cases that become confirmed at some stage.

- The median estimate R_{eff} for the Canterbury PHU region is 0.8 (90% CI: 0.2, 2.4).
- The median estimate R_{eff} for the Counties Manukau PHU region is 0.6 (90% CI: 0.2, 1.4).
- The median estimate R_{eff} for the Hutt Valley PHU region is 1.8 (90% CI: 1.2, 2.7) and median doubling time is 3.3 (90% CI: 15.4, 1.8).
- The median estimate R_{eff} for the Nelson Marlborough PHU region is 0.7 (90% CI: 0.2, 2.8).
- The median estimate R_{eff} for the Northland PHU region is 1.8 (90% CI: 0.8, 2.8) and median doubling time is 3.4 (90% CI: -15.0, 1.6).
- The median estimate R_{eff} for the Tairāwhiti PHU region is 1.7 (90% CI: 0.9, 2.6) and median doubling time is 4.0 (90% CI: -17.2, 1.9).
- The median estimate R_{eff} for the Waitemata PHU region is 0.7 (90% CI: 0.3, 1.5).

Figure 21: Effective R for all regions



Forecasts of cases and infections

Forecasting assumes that the Effective R will be constant over the next week at its most recent value, and that testing lags are constant. As the most recent case data are likely still affected by lags in reporting, a 7-day forecast is only included for the national estimates.

Estimates of the number of new confirmed cases by their date of infection are in Figure 22.

Assuming that the current level of transmission stays constant:

- The model's median estimate is that national reported positive tests could fall to 11,770 cases per day by 11 March (50% CI: 7,860–18,700). The credible intervals for the projected cases would be even wider if the possibility of continuing trend changes in Effective R were included.
- The model estimated that 20,300 cases per day would be reported by 4 March, whereas 22,535 actual cases were reported.

Figure 22: Projected cases for all regions

