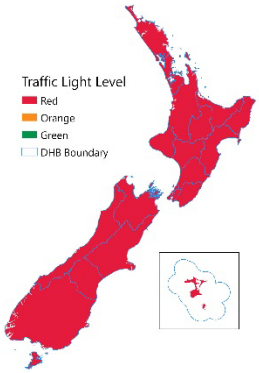
COVID-19

Trends and Insights Report

Updated 02 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 rapidly as Omicron spreads, increasing by 135% from the previous week with **58,788 cases reported for the week of 21-27 February; that is over 1% of the New Zealand population**. Since 23 February, when RATs were introduced 82% (54,902 of 66,661) of cases were detected with RATs to 27 February.
- A dip in case numbers over the past 2 days (26 and 27 February) may be related to testing and reporting delays rather than a plateauing or decrease in transmission/diagnoses.
- **The case rate in those who had a booster vaccination was approximately 3-fold lower than those who were 'fully-vaccinated'**. 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.
- Cases in people who are **'boosted' are beginning to climb with 31% of cases reported in the past week.** This compares to cases in people who are **'fully-vaccinated' which make up 65%** of cases in this period.
- **Auckland region DHBs** (Waitemata, Auckland, Counties Manukau) cases continue to climb substantially, with **the weekly rate of *diagnosed* infection over 1 in 50 of population (2,127 per 100,000 population).** Auckland region DHBs have **62% of cases nationally, compared with 72% a week ago. Nationally, the weekly rate is 1,167 per 100,000 (around 1 in 100 of population).**
- Cases continue to grow in other DHBs including more notably in Waikato and Bay of Plenty. Smaller, but quickly accelerating case numbers have been seen in Capital & Coast, Canterbury and Southern.
- The greatest proportion of cases are in **European or Other** (40%) ethnicity, followed by Pacific People (29%), with Asian now having the lowest proportion. **However, rates are highest in Pacific People (4,608/100,000);** followed by Maori (1,263/100,000) and Asian (1,158/100,000), with the lowest rate seen in European or Other (749/100,000).

- **Ethnicity patterns vary strongly by region:** In the Northern Region the highest proportion of cases are in Pacific People followed by European. Midlands has the largest proportion of Maori cases for any region; however, the largest overall proportion of cases are in European and Other, which is true also for the Central and Southern regions. In Southern, European and Other make up almost all cases.
- Similar patterns by housing deprivation continue, with **49% of cases from areas with high housing deprivation** (7-10 IMD score) at a rate of 1,354 cases per 100,000 and only 20% of cases from areas of low housing deprivation at a rate of 839 cases per 100,000.
- The number of covid cases in hospital is rising rapidly**.** As of 28 February, there were **394 COVID-19 positive cases in hospital**, nearly five times the peak level from the 2021 Delta outbreak. This is a **net increase of 276** positive cases in hospital in the previous 7 days.
- **"Nowcasting" to 21 February** estimates the effective reproduction number **R_{eff} at 1.9** (95% Credible Interval [CI]: 1.3–2.7) both nationally and in the Auckland region. The **modelled doubling time is 3.0 days** (95% CI: 1.7–8.2).

Contents

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.

Recent cases

Table 1 to Table 4 show new cases reported in the week to 27 February 2022 by DHB, age, sex and ethnicity.

Cases have continued to significantly increase in the week to 27 February with over 58,000 new cases reported (over double that reported in previous report); **over 18,000 of these cases were reported in the past two days (26 and 27 February)**. In the previous week 25,012 cases were reported.

- The DHBs with the highest number of new cases were Counties Manukau, Auckland, Waitemata and Waikato (Table 1). **Cases in these DHBs account for 70% of all cases** reported in the week (27%, 18% 17%, and 9% respectively). The highest case rates are in the Auckland Metro region (Counties Manukau, Auckland and Waitemata).
- **Pacific Peoples make up 29% of recent cases and are disproportionately affected with a case rate 4 times higher than any other ethnicity (4,608 cases per 100,000)**. 40% of recent cases were European & Other, however, based on population size, they are the least affected with 749 cases per 100,000**.** Māori (16% of new cases) and then Asians (14% of new cases) have similar case rates.
- New cases remain evenly distributed between sexes (Table 3).
- **Cases continue to be highest for 20–29-year-olds (27%)** then 10-19-year-olds (24%) (Table 4). Case numbers in other age groups are increasing but are still low in their case rate relative to population.

Table 1: Community cases by DHB from 21 February to 27 February 2022

DHB	Community cases reported since 21 February	Rate per 100,000
Northland	910	470
Waitemata	9865	1568
Auckland	10581	2150
Counties Manukau	15999	2701
Bay of Plenty	3266	1260
Waikato	5263	1223
Tairawhiti	267	519
Lakes	909	794
Taranaki	342	278
Hawke's Bay	563	323
Whanganui	125	183
MidCentral	738	406
Hutt Valley	821	528
Capital and Coast	2234	709
Wairarapa	161	331
Nelson Marlborough	771	489
West Coast	28	87
Canterbury	2857	505
South Canterbury	117	191
Southern	2944	878
Unknown	27	-
Total	58788	1176

Source: NCTS/EpiSurv 2359hrs 27 February 2022

Table 2: Community cases by ethnicity from 21 February to 27 February 2022

Ethnicity	New community cases since 21 February	Rate per 100,000
Māori	9682	1263
Pacific Peoples	16952	4608
Asian	8511	1158
European or Other	23291	749
Unknown	352	-
Total	58788	1176

Source: NCTS/EpiSurv 2359hrs 27 February 2022

Table 3: Community cases by sex from 21 February to 27 February 2022

Sex	New community cases since 21 February	Rate per 100,000
Female	30638	1201
Male	28050	1146
Unknown	100	-
Total	58788	1176

Source: NCTS/EpiSurv 2359hrs 27 February 2022

Table 4: Community cases by age from 21 February to 27 February 2022

Age	New community cases since 21 February	Rate per 100,000
0-9	4773	731
10-19	14036	2191
20-29	16044	2380
30-39	10453	1517
40-49	6689	1066
50-59	4040	631
60-69	1846	345
70+	907	168
Total	58788	1176

Source: NCTS/EpiSurv 2359hrs 27 February 2022

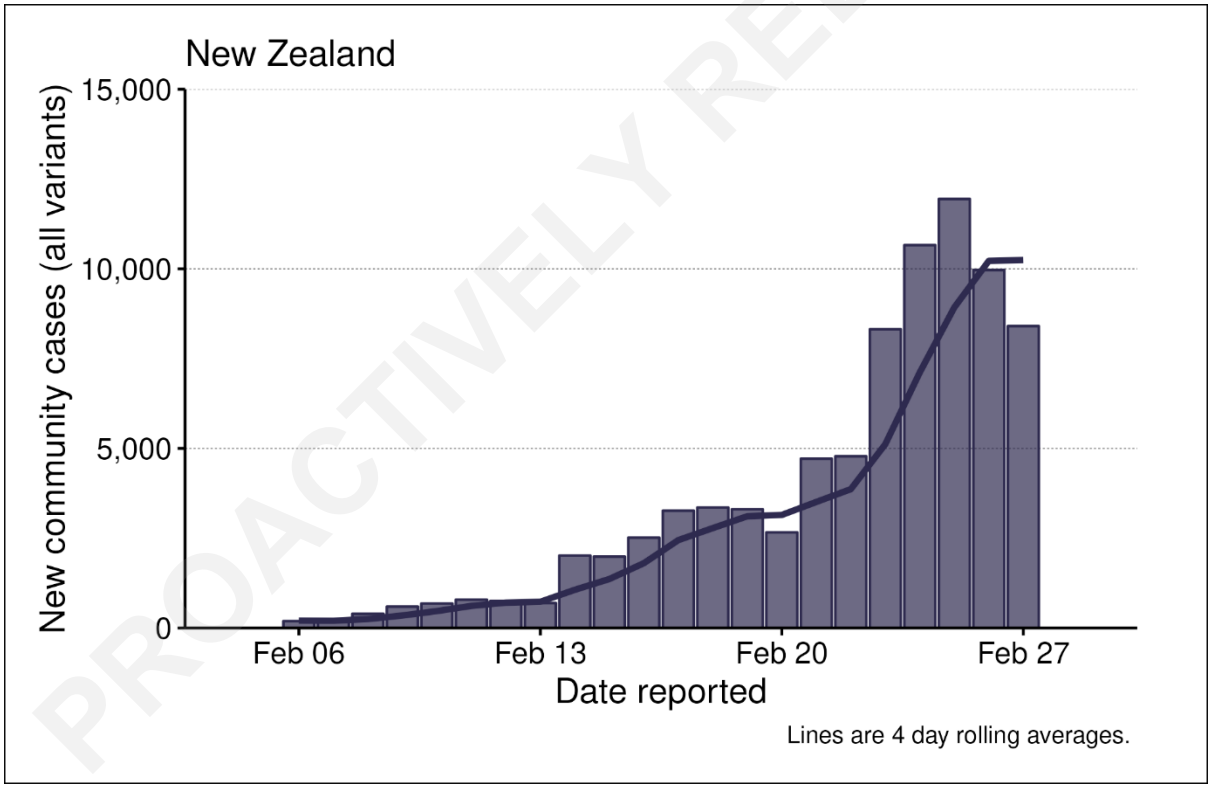
Epidemic Curves

Figure 1 and Figure 2 below show the number of new cases reported in the three weeks from 06 February 2022 to 27 February 2022 nationally and by DHB, respectively.

There has been a rapid rise in national case numbers since 9 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,** this probably contributed to the increase in detected case numbers from 23 February. Due to a backlog of positive RATs, there has been a delay for reporting of some cases, thus inflating case counts; subsequently, we would expect this effect to dissipate in the future. The rolling-average of case counts, therefore, reflects trends in diagnoses more accurately than daily case counts.

Over the past month, the Omicron outbreak has been mostly located in the Northern and Midlands Regions (Figure 2). Cases in the Southern Region, in particular Southern DHB, began to rise in late February (Figure 3). Central Region is also beginning to rise to similar levels as the Southern Region, coinciding with the movement of university students into residential accommodation on the 20 February (Figure 2).

Figure 1: Daily community cases nationally from 06 February to 27 February 2022



Source: NCTS/EpiSurv as at 2359hrs 27 February 2022

Figure 2: Daily community cases by region from 06 February to 27 February 2022

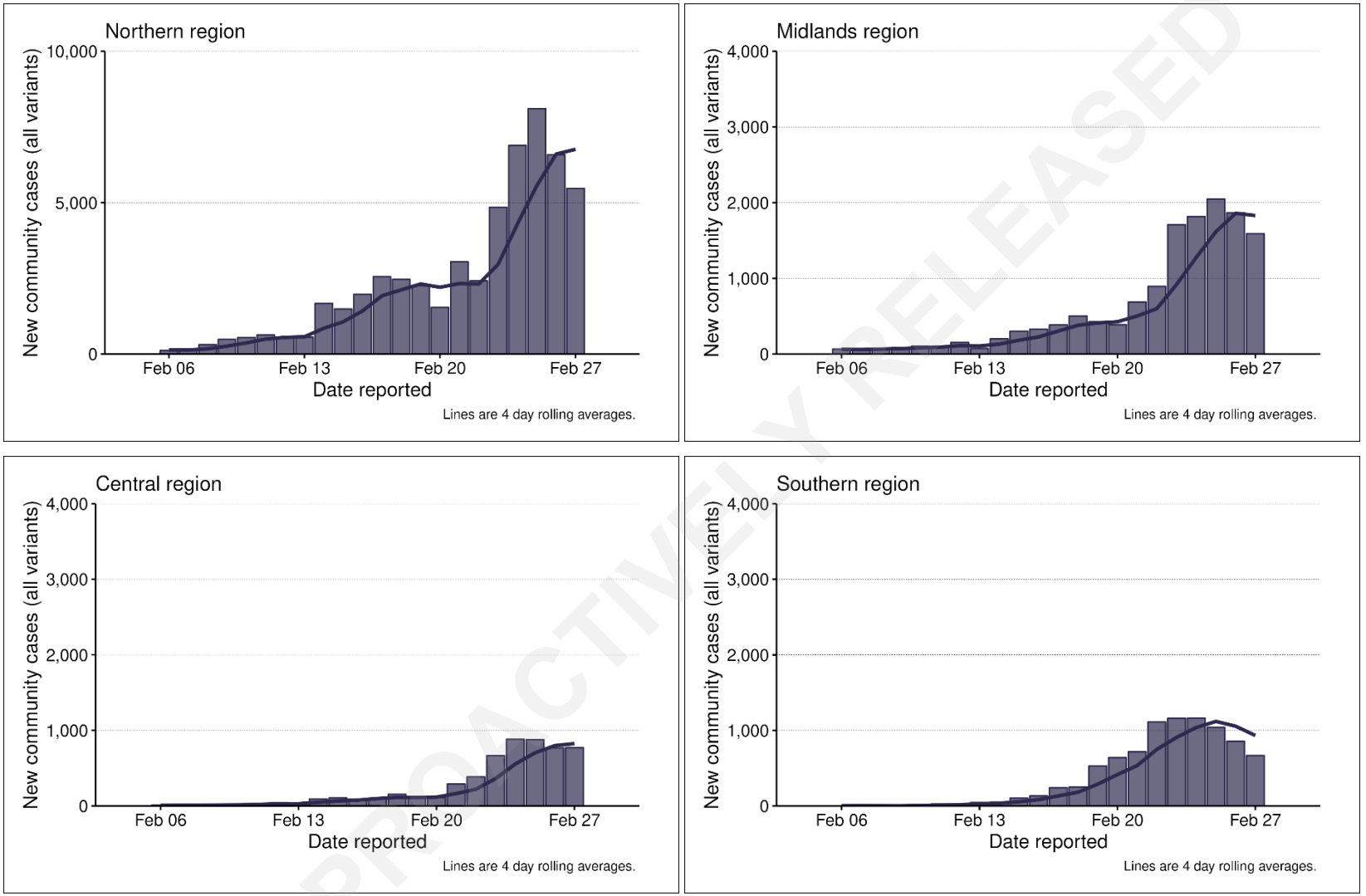
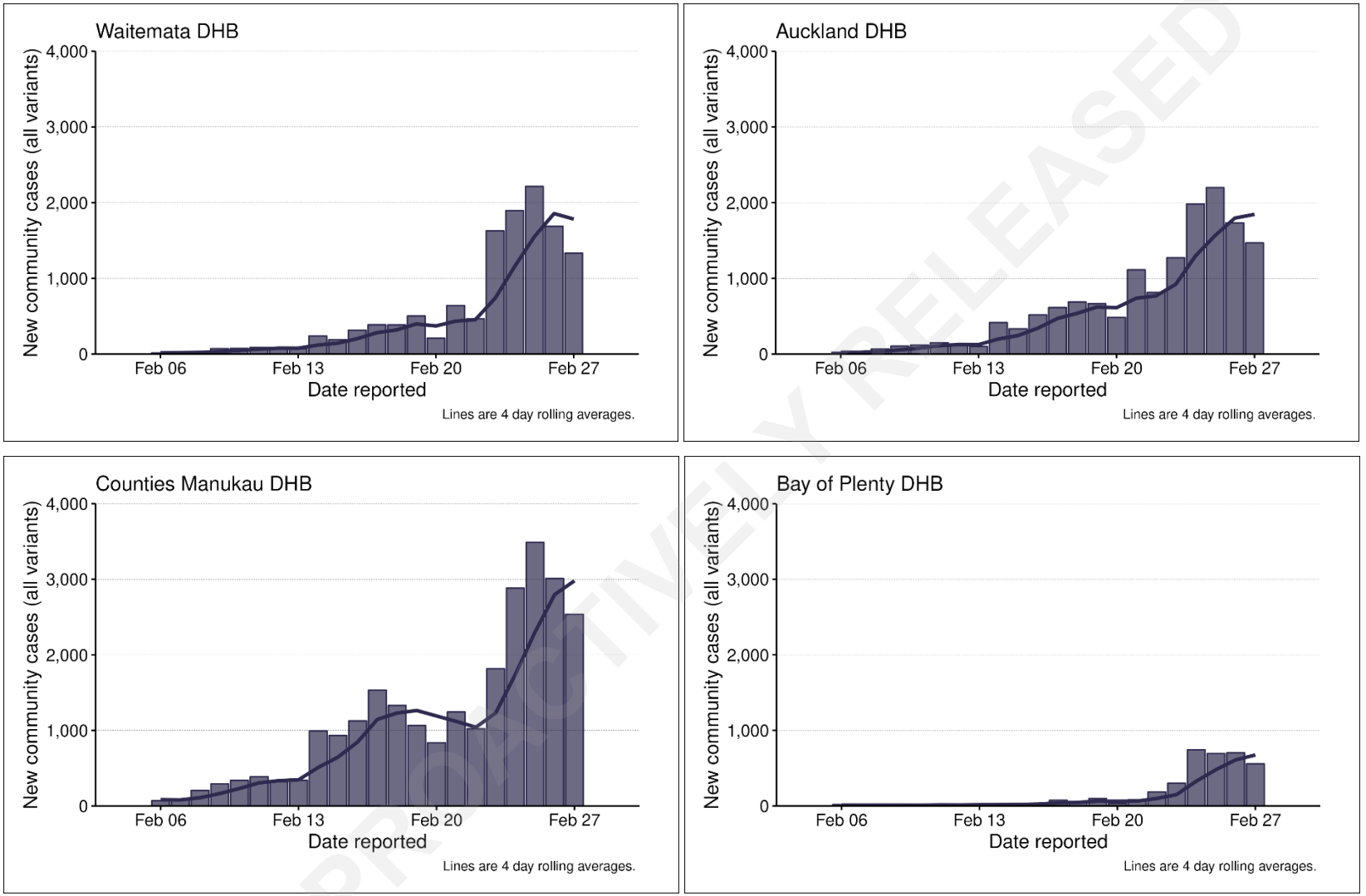
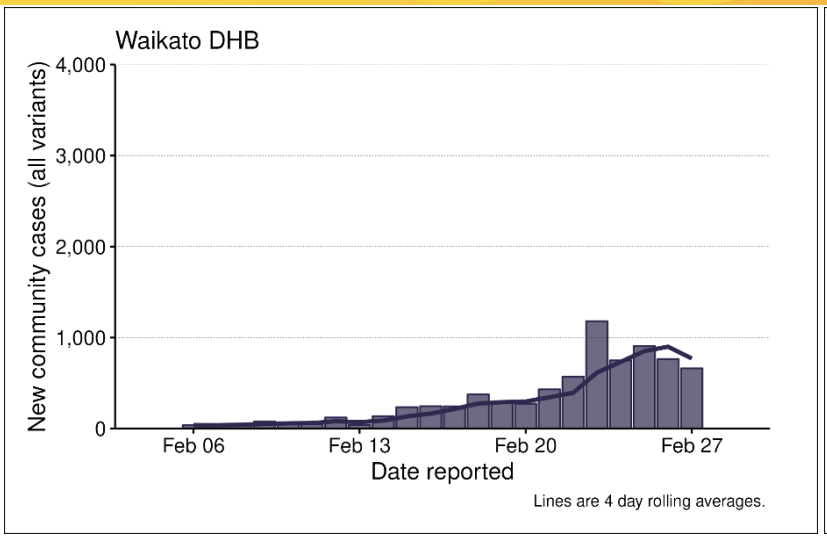
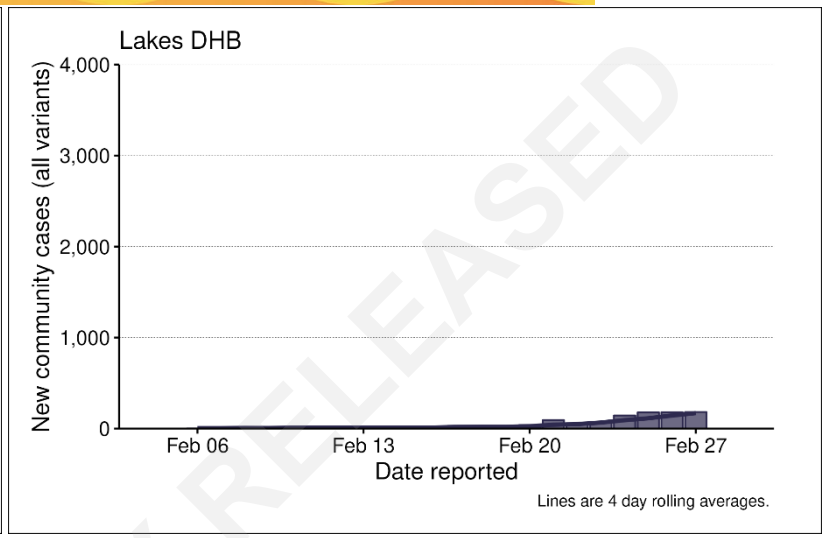
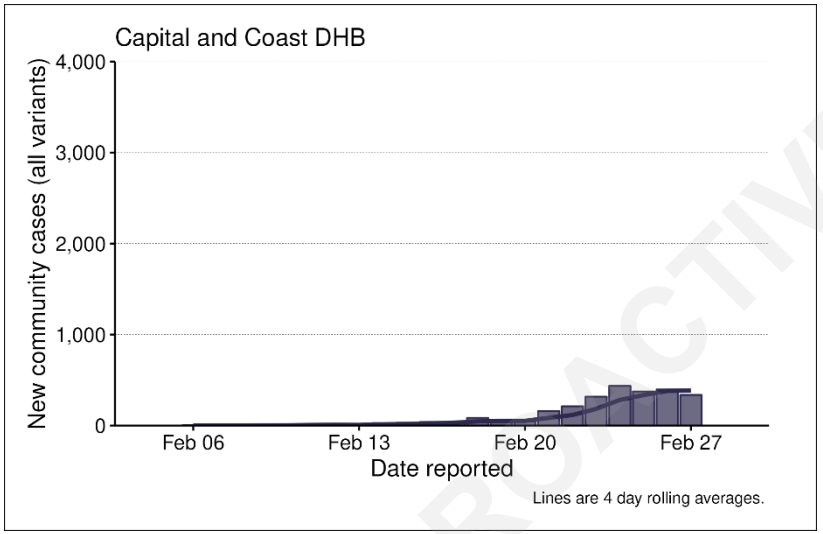


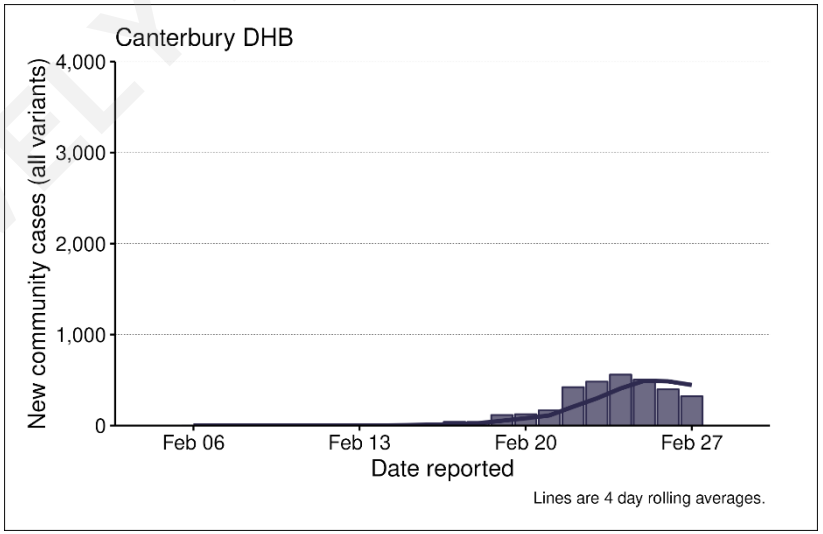
Figure 3: Daily community cases 06 February to 27 February 2022, selected DHBs

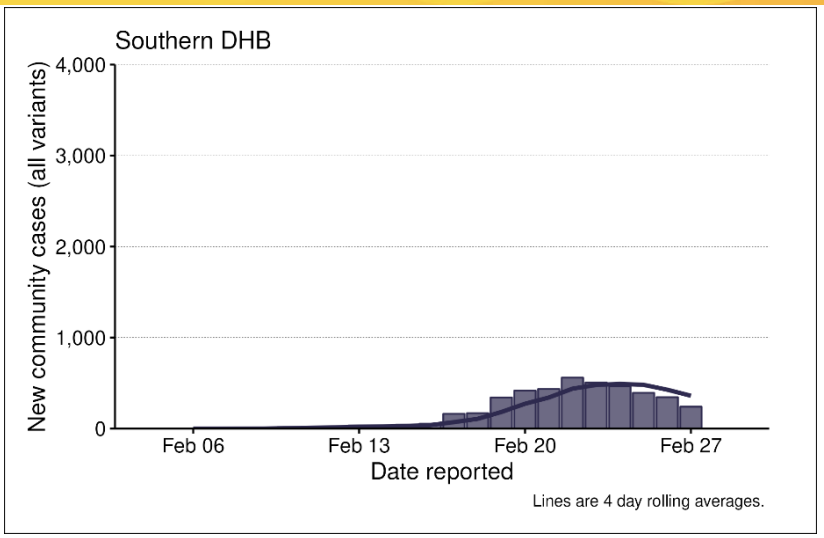












Source: NCTS/EpiSurv as at 2359hrs 27 February 2022

Cases by Ethnicity

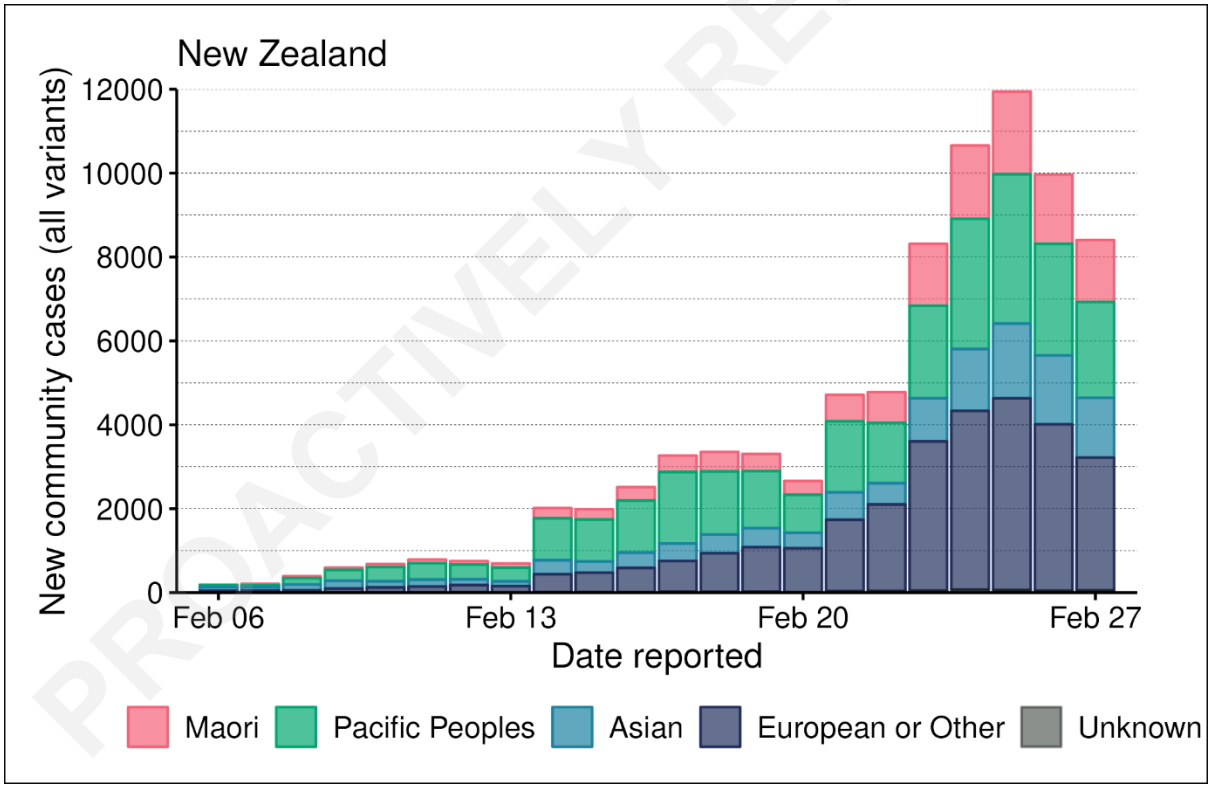
Figure 4 to Figure 6 show the ethnicity of new cases reported in the three weeks from 06 February 2022 to 27 February 2022.

At the beginning of the Omicron outbreak[1], which was identified on 19 January, a high proportion of cases were reported to have Asian ethnicity, consistent with known early exposure events. Since 9 February, Asian case numbers have been overtaken by people of Pacific and then European or Other ethnicities. Noting that while **case numbers are higher in European or Other** ethnicities, this ethnic group is also at the **lowest risk if comparing case rates** (Figure 5). Pacific Peoples have the second highest case numbers but have the highest case rate compared to any other ethnicity, showing the continued inequity of the COVID-19 pandemic.

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 as the outbreak spreads beyond the Auckland Metro Region into Bay of Plenty, Waikato and Lakes DHBs.

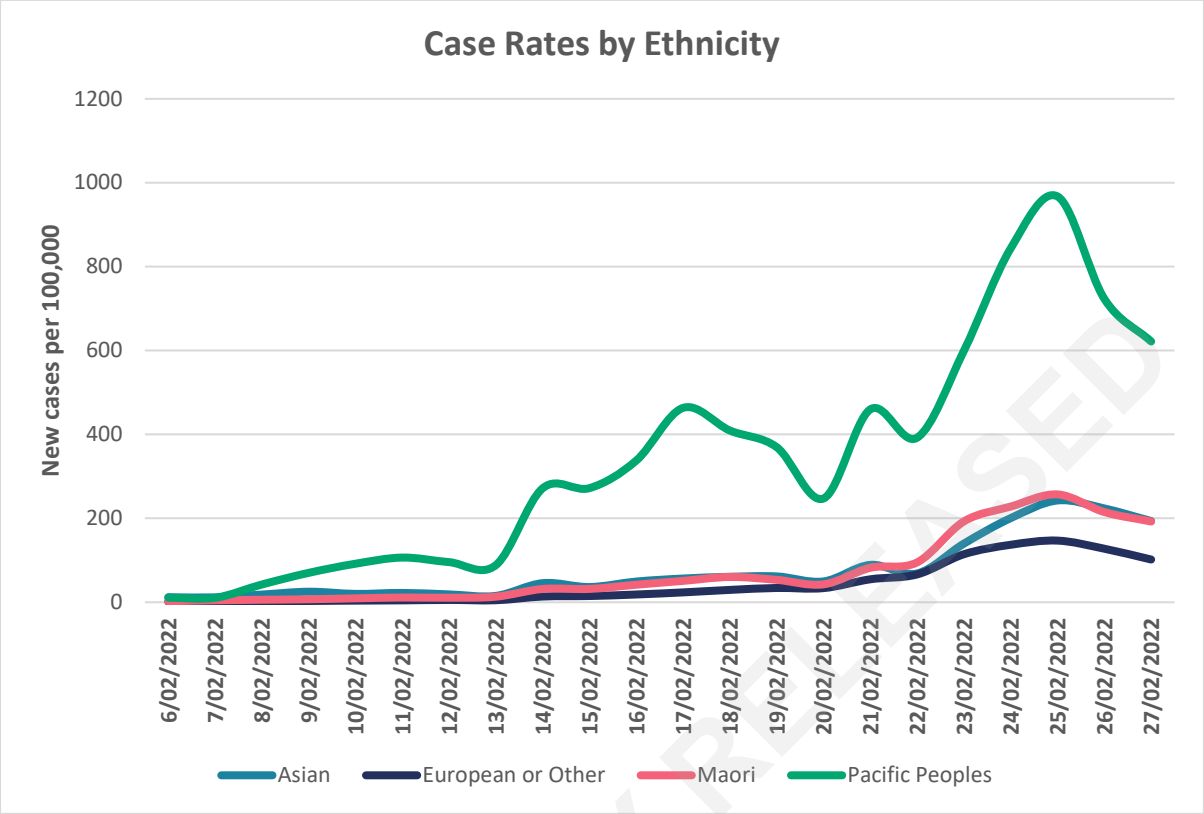
Figure 4: Daily community cases across New Zealand by ethnicity from 06 February to 27 February 2022



Source: NCTS/EpiSurv 2359hrs 27 February 2022

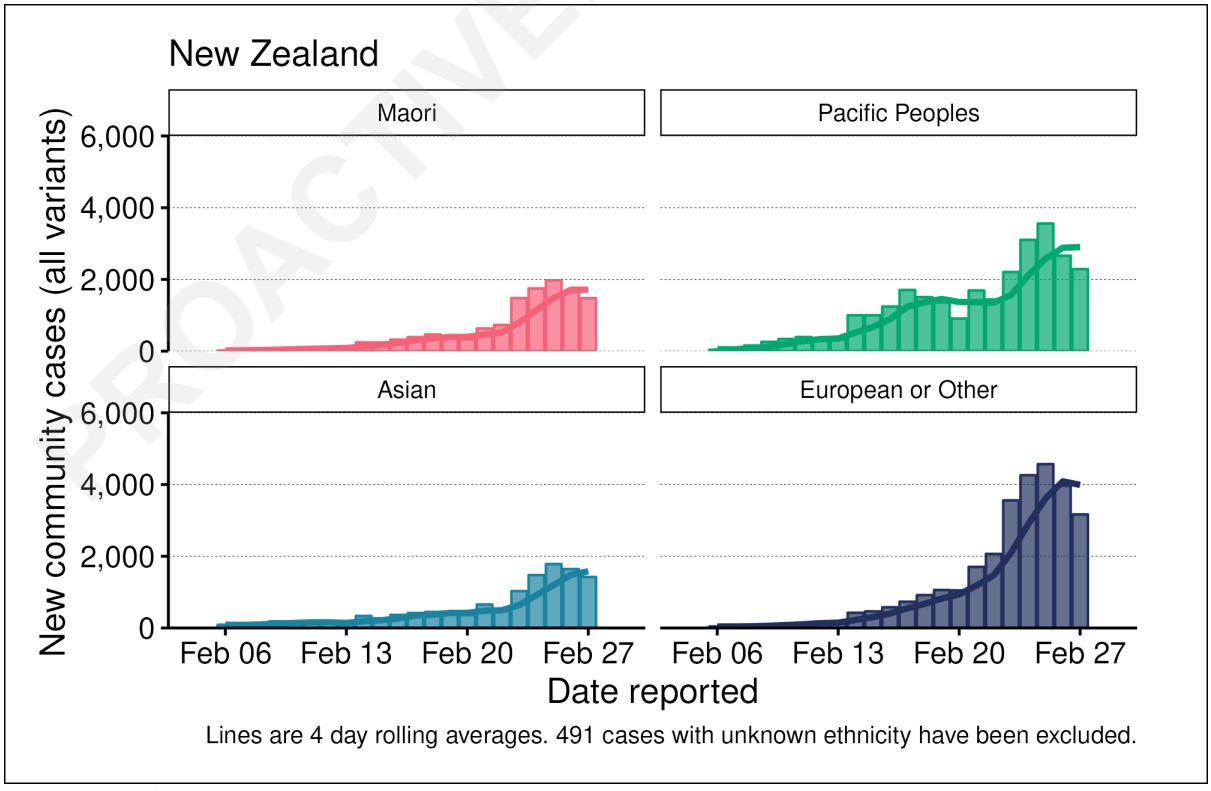
[1] The Delta variant is likely to still be in circulation after 19 January 2022. Case numbers include all confirmed COVID-19 cases, regardless of variant.

Figure 5: Daily case rate per 100,000 population by ethnicity from 06 February to 27 February 2022



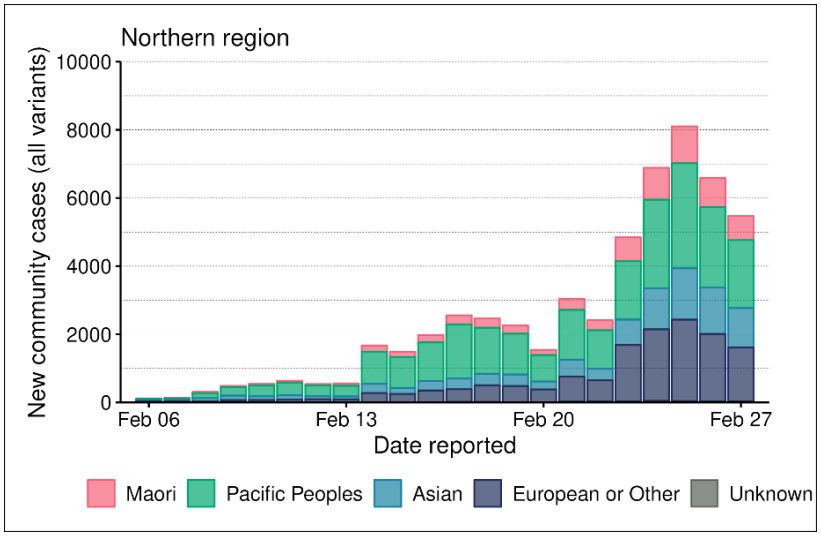
Source: NCTS/EpiSurv 2359hrs 27 February 2022

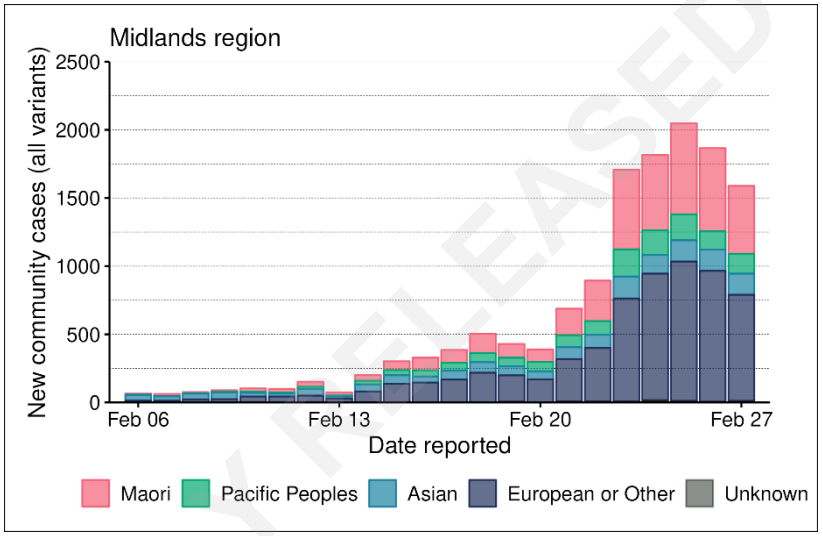
Figure 6: Daily and rolling 4 day of average community cases across New Zealand, by ethnicity from 06 February to 27 February 2022

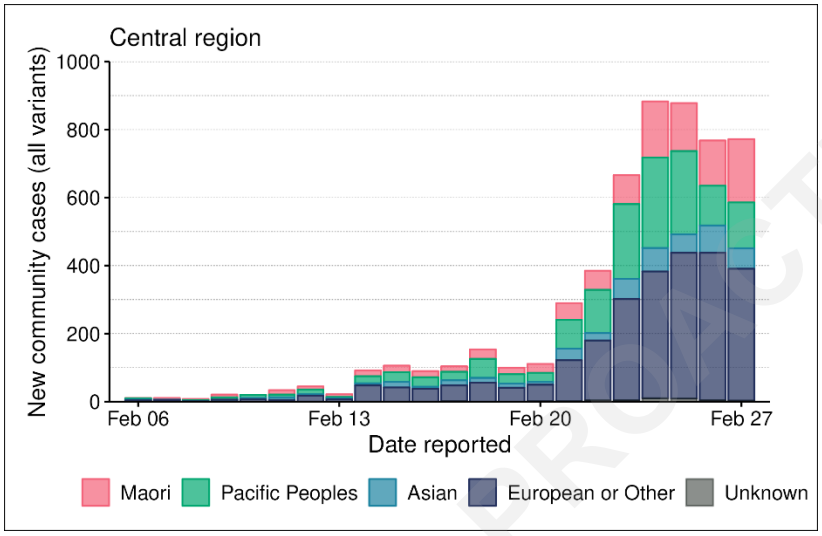


Source: NCTS/EpiSurv 2359hrs 27 February 2022

Figure 7: Daily cases by ethnicity and region from 06 February to 27 February 2022







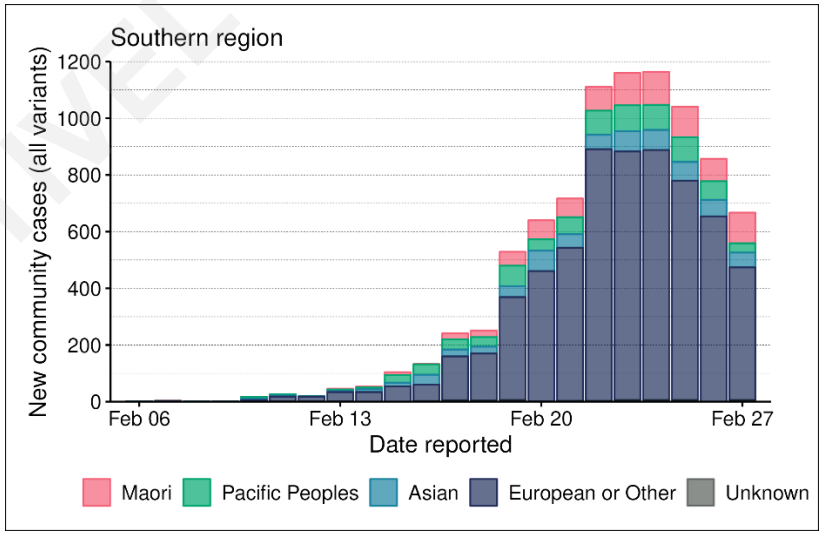
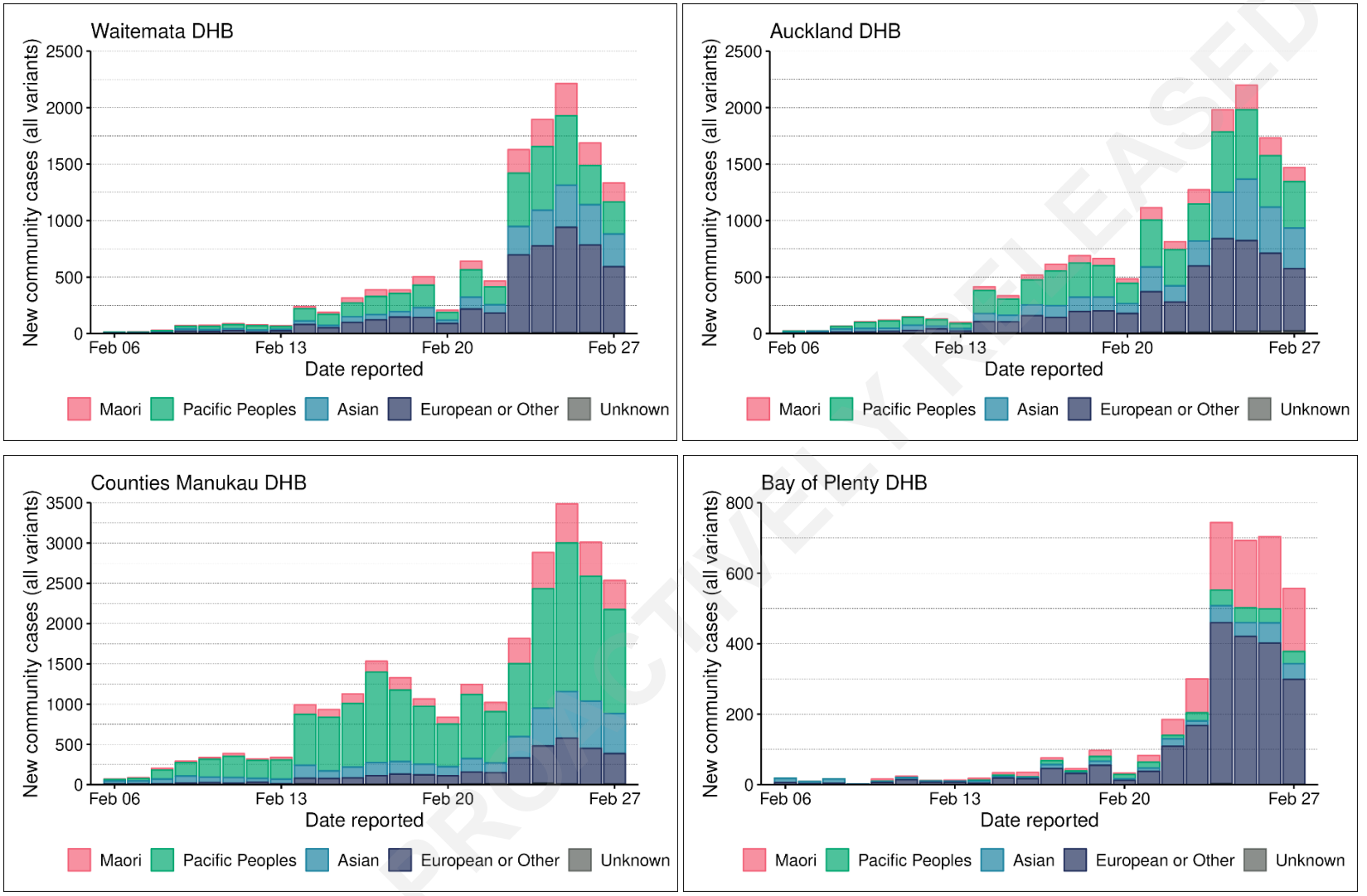
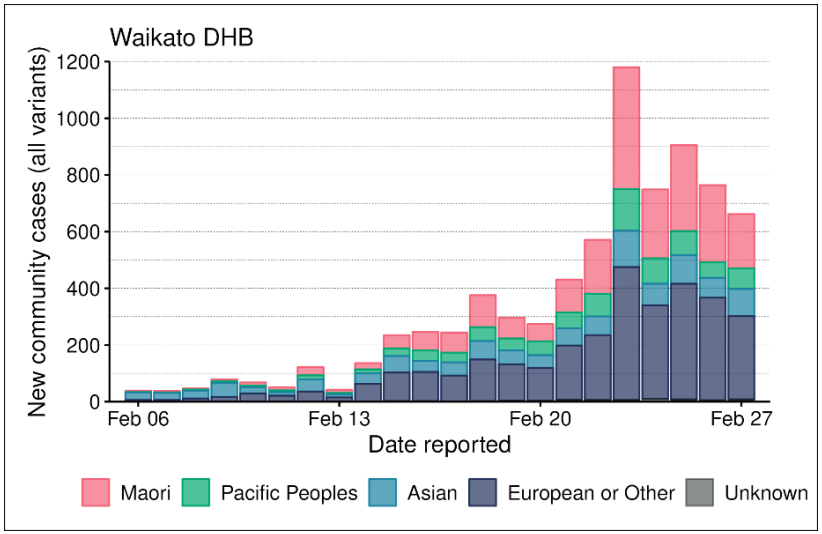
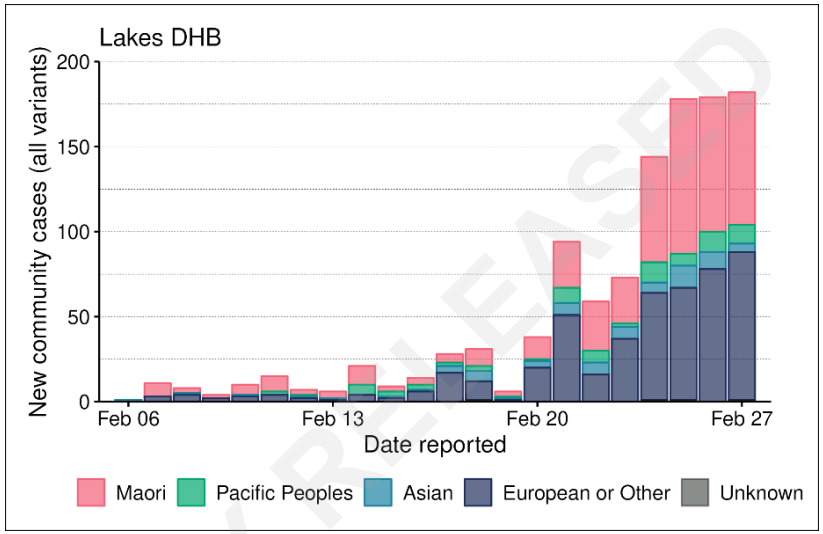
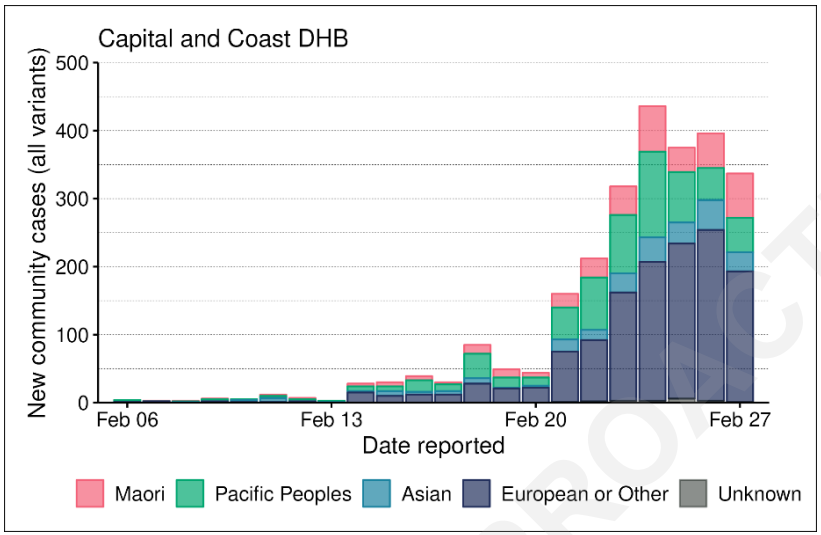


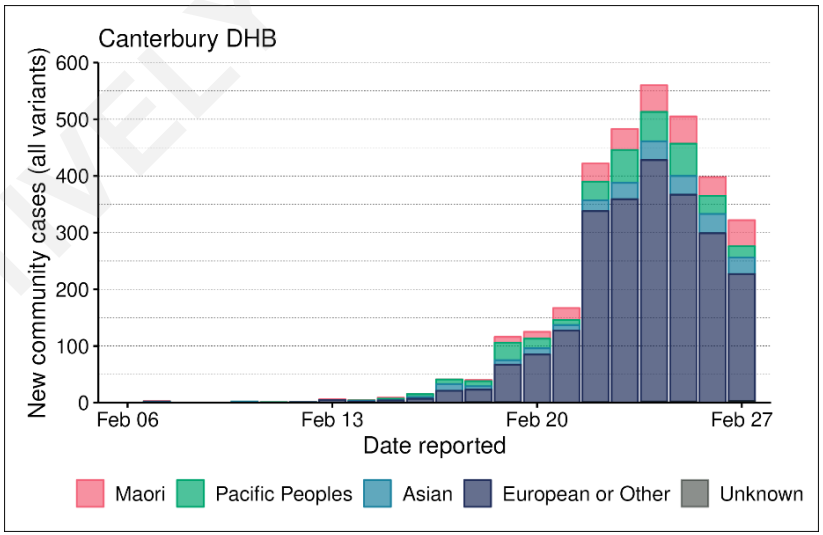
Figure 6: Daily cases by ethnicity from 06 February to 27 February 2022 by selected DHB

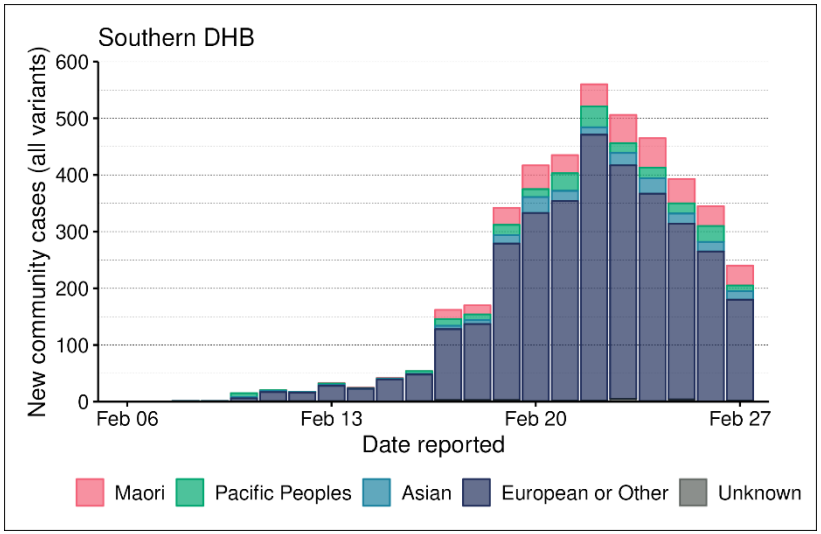












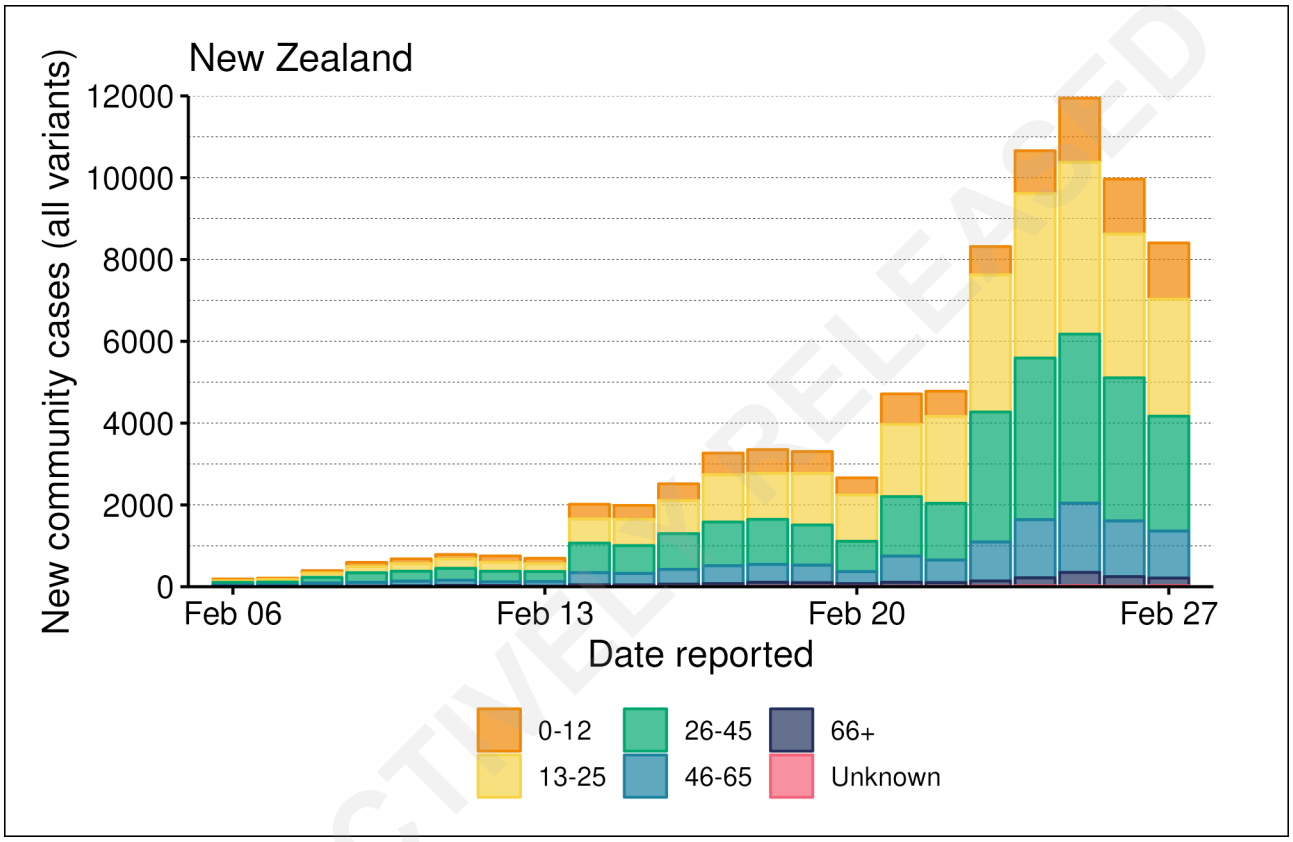
Source: NCTS/EpiSurv 2359hrs 27 February 2022

Cases by Age

Figure 7 and Figure 8 show new cases by age group from 06 February to 27 February 2022.

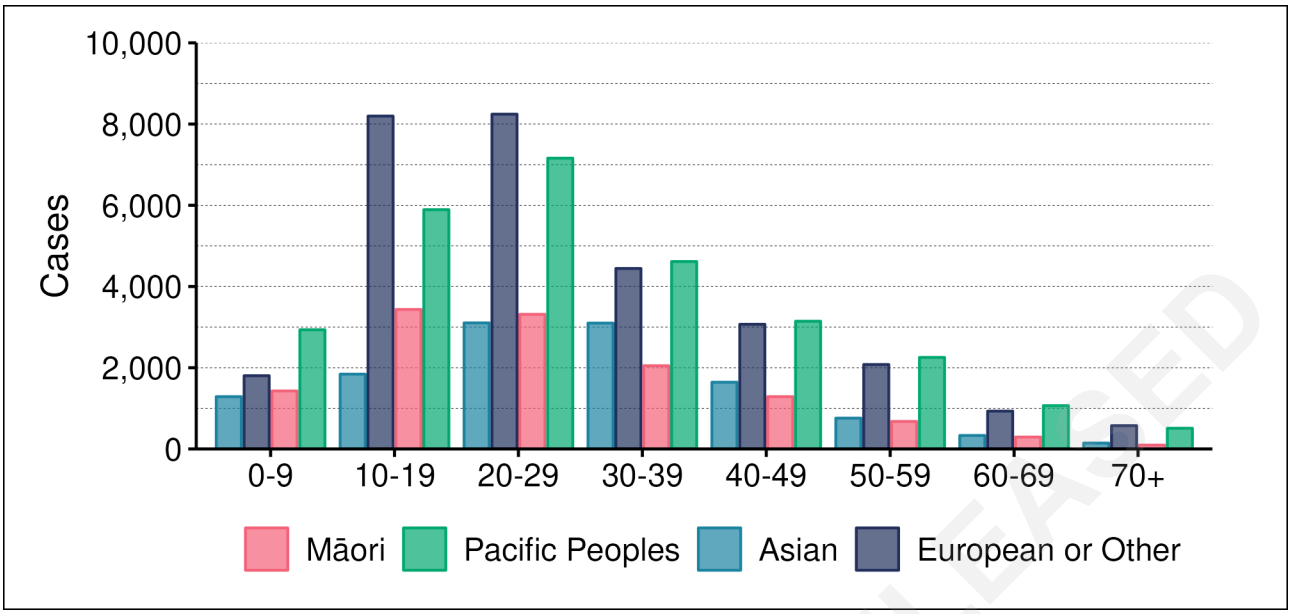
Cases continue to be predominantly in the 13-25 and 26-45 age groups (Figure 7). The breakdown of ages by ethnicity shows the large proportion of cases in Pacific Peoples and European or Other is most apparent in the 10-19 and 20-29 age brackets (Figure 8). The proportion of cases in Pacific Peoples is also highest in the 30-39, 40-49, 50,59 and 60-69 age brackets, with European or Other being the ethnicity of next highest proportion.

Figure 7: COVID-19 community case numbers by age from 06 February to 27 February 2022



Source: NCTS/EpiSurv 2359hrs 27 February 2022

Figure 8: COVID-19 community case numbers by prioritised ethnic group and age group 06 February to 27 February 2022



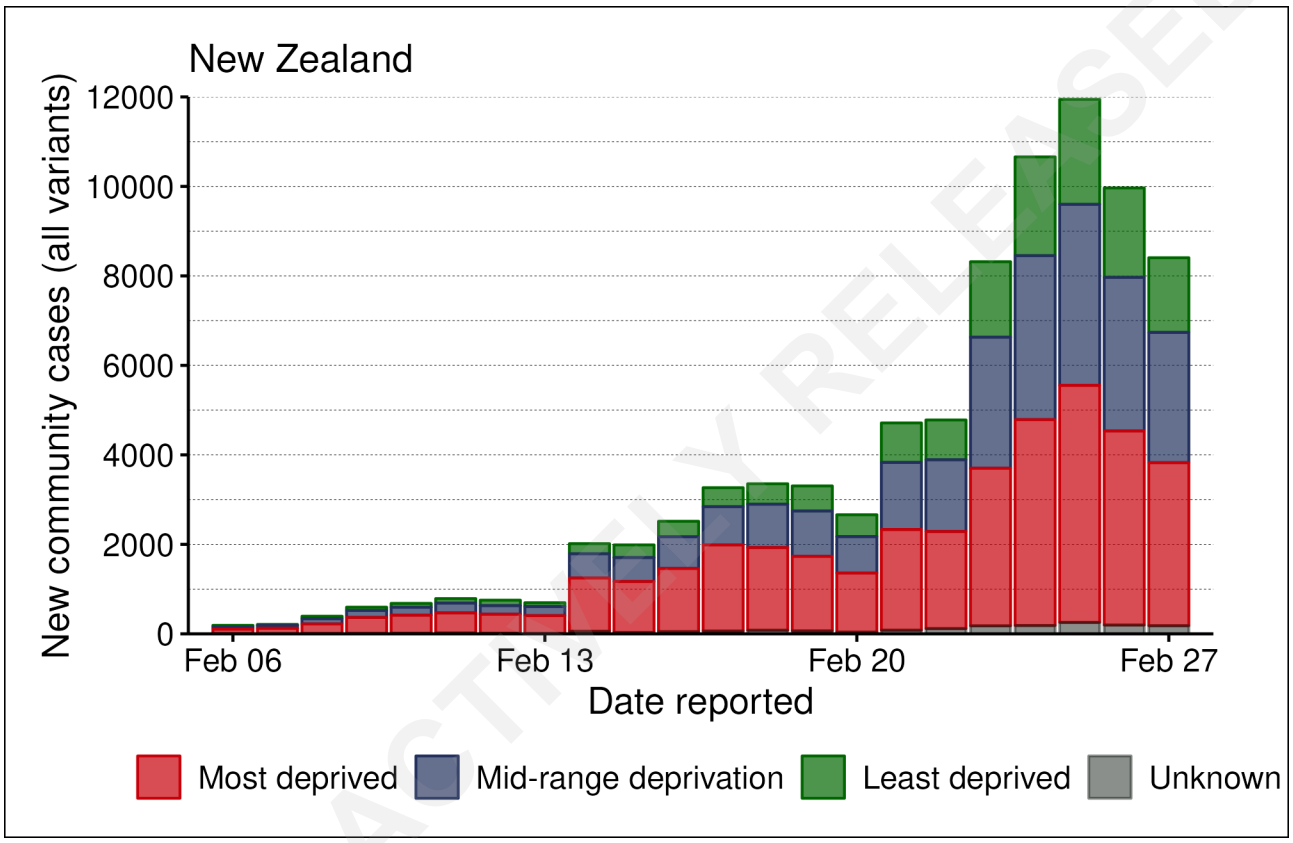
Source: NCTS/EpiSurv 2359hrs 27 February 2022

Cases by socio-economic indicators

Figure 9 shows cases based on the Index of Multiple Deprivation 2018, housing deprivation scores. The increase in cases observed from 9 February 2022 onwards has largely affected people living in the most deprived areas. However, as case numbers increase, there is an increasing proportion of cases in mid- and least-deprived areas.

For the week ending 27 February compared with the week prior, the proportion of cases that were least deprived increased from 14.9% to 20.3% and mid-range deprived rose from 29% to 35%. Therefore, there was a corresponding drop in the proportion of cases from the most deprived areas from 56.1% to 44.8%.

Figure 9: COVID-19 community cases between 06 February 2022 and 27 February 2022 by housing deprivation level



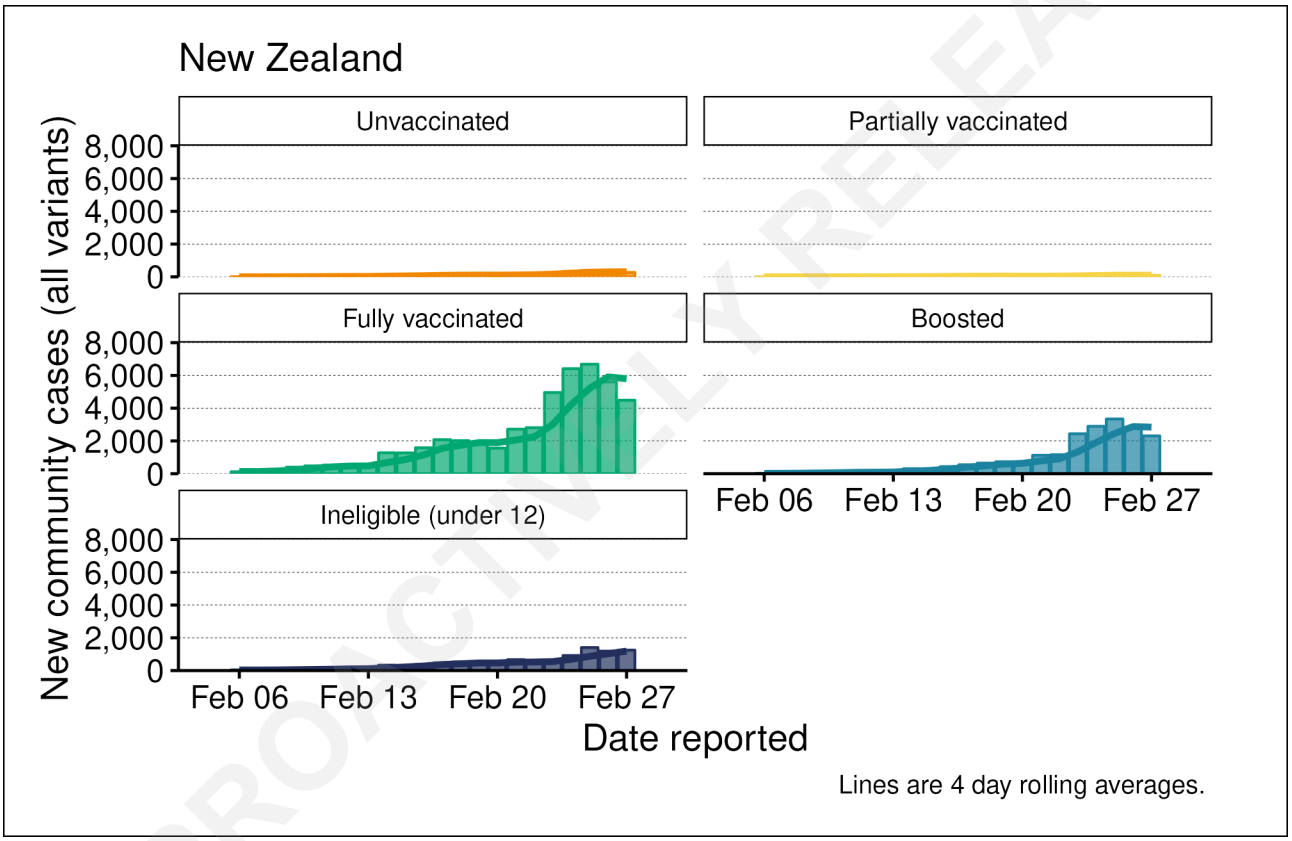
Source: EpiSurv/NCTS/ 2359hrs 27 February 2022

Cases by vaccination status

Cases by vaccination status are shown in Figure 10. 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 rising in children under 12, classified as ineligible for COVID-19 vaccination.

Cases are also increasing in those that have had their booster; the number of cases that are boosted is a third of that in the fully vaccinated. Cases in people who are 'boosted' are beginning to climb with 25% of cases reported in the past 3 weeks. This compares to cases in people who are 'fully-vaccinated' which make up 59% of cases in this period. However, when accounting for population vaccination rates, the case rate in those who had a booster vaccination was approximately 3 times less than those who were 'fully-vaccinated'. 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 10: COVID-19 community cases between 06 February 2022 to 27 February 2022 by vaccination status



Source: EpiSurv/NCTS/CVIP 2359hrs 27 February 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

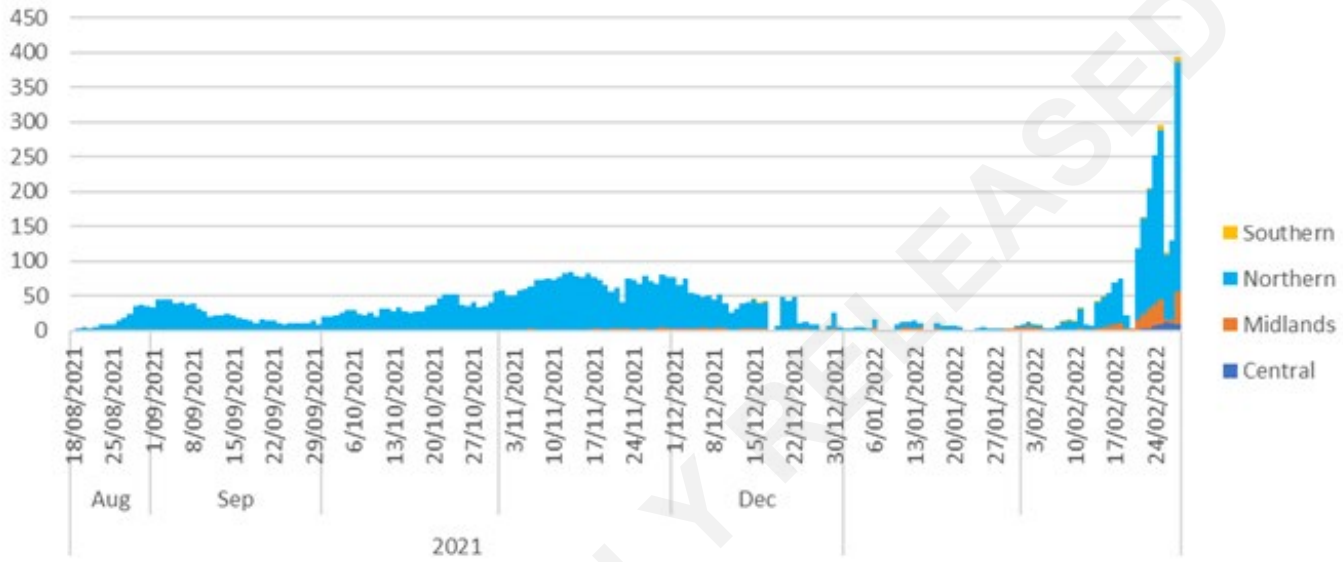
Testing and test positivity rates will be included in future Trends & Insights report. The decision to transition New Zealand into phase 3 of our Omicron plan means RATs play a greater role in testing and we cannot provide the number of negative RATs due to positive rates only being reported to the Ministry of Health. PCR testing will be utilised to monitor priority populations and as such is not representative of the current testing state of New Zealand. As such, new analyses will be constructed to assess test positivity from PCR tests and also assess the demographics of cases that self-upload their RAT result.

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. By 28 February, there were **394 confirmed COVID-19 positive cases in hospital** (Figure 11). This is an increase from 118 confirmed COVID-19 positive cases in hospital the week prior on 21 February 2022.

Figure 11: COVID-19 cases in hospital, by region and day



Source: DHB daily reports to MoH, 28 February 2022. Hospitalisation data are reported manually by DHBs. Data may be incomplete on some days, especially weekends. DHBs are grouped by region.

Variants of Concern

Most hospitalised cases are Omicron

The majority of hospitalised cases who have been sequenced are Omicron (Table 5) but there are a number of unsequenced hospitalised cases. As community cases increase, sequencing resources will be managed on a priority basis and directed towards gathering genomic data on the most serious cases.

Since last report, 6 hospitalised samples have been sequenced and were found to be an even split of 3 cases of Omicron BA.1-like and 3 cases of Omicron BA.2., with no further Delta variant at this stage (Table 6).

Table 5: Hospitalised cases reported from 1 January to 28 February 2022

DHB	Delta	Omicron BA.1-like	Omicron BA.2	To be received	Total
Auckland	0	7	3	7	**17**
Bay of Plenty	2	0	2	35	**37**
Canterbury	1	0	0	0	**0**
Capital and Coast	1	1	1	4	**6**
Counties Manukau	1	4	2	23	**29**
Hawke's Bay	2	0	0	1	**1**
Hutt Valley	0	0	0	1	**1**
Lakes	1	0	0	19	**19**
Southern	0	1	0	0	**1**
Tairāwhiti	0	0	0	1	**1**
Waikato	1	2	1	26	**29**
Waitemata	3	6	5	2	**13**
West Coast	0	0	0	1	**1**
Total	**12**	**21**	**15**	**120**	**156**

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, 28 February 2022. EpiSurv and Microreact 12pm 28 February 2022

Few community WGS are Delta variant

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

While all most all community cases sequenced in the two weeks to 28 February 2022 have been Omicron cases, there was one Delta case identified from Capital and Coast DHB.

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 those cases referred for urgent sequencing (Figure 12).

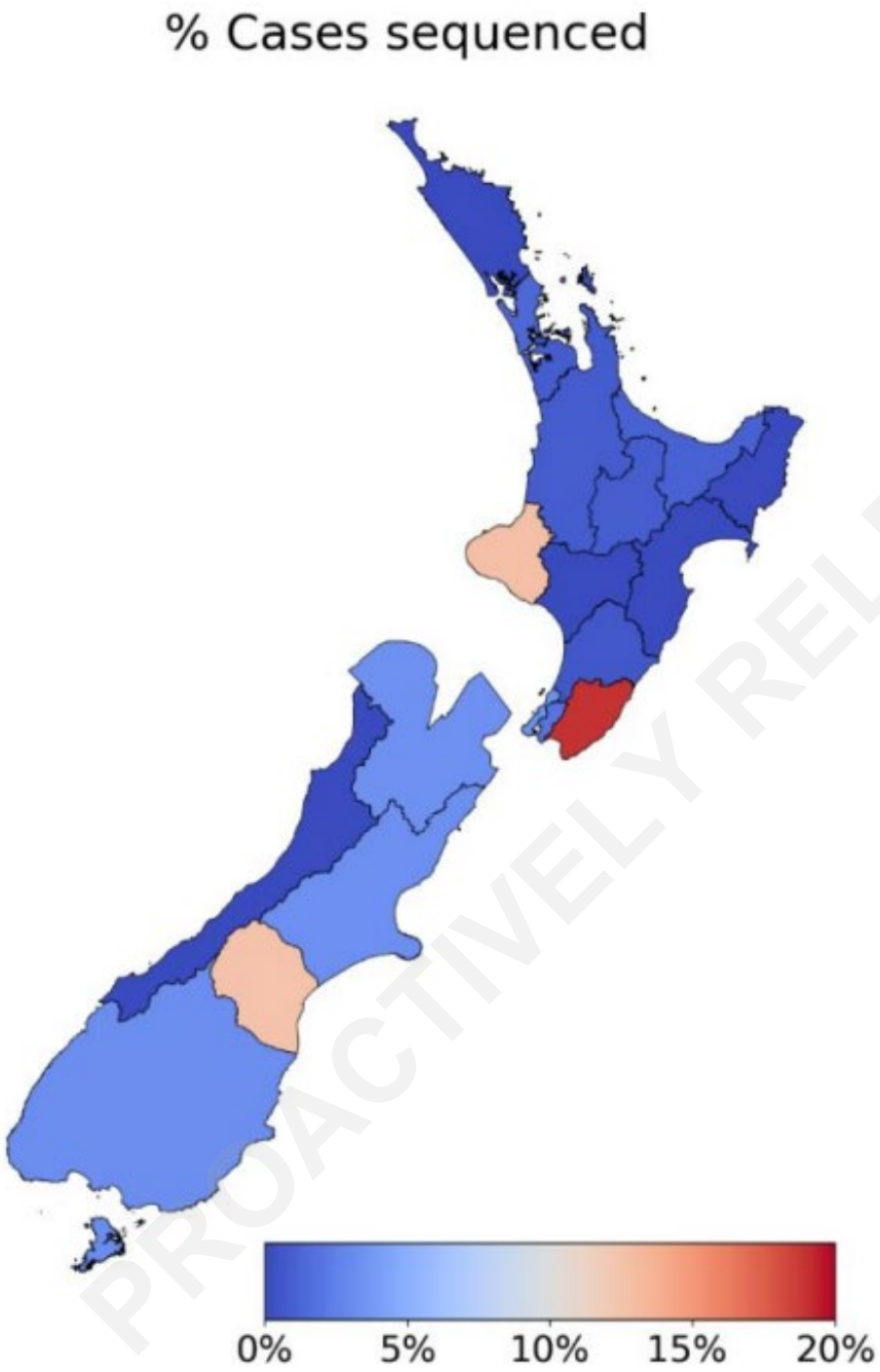
Table 6: Variants of Concern, Community Cases

DHB	Delta	Omicron	Total
Northland	0	1	1
Waitemata	0	83	83
Auckland	0	36	36
Counties Manukau	0	58	58
Waikato	0	43	43
Lakes	0	2	2
Bay of Plenty	0	18	18
Tairawhiti	0	1	1
Taranaki	0	40	40
Hawke's Bay	0	2	2
Whanganui	0	0	0
MidCentral	0	3	3
Wairarapa	0	25	25
Hutt Valley	0	18	18
Capital and Coast	1	40	41
Nelson Marlborough	0	28	28
West Coast	0	0	0
Canterbury	0	69	69
South Canterbury	0	5	5
Southern	0	75	75
Total	**1**	**547**	**548**

Source: ESR Whole Genomic Sequencing data, 28 February 2022. EpiSurv and Microreact 12pm 28 February 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 12: National distribution of cases referred for WGS by DHB



Source: ESR Whole Genomic Sequencing data, 28 February 2022. EpiSurv and Microreact 12pm 28 February 2022

Short-term projections

Scenario modelling versus actual cases

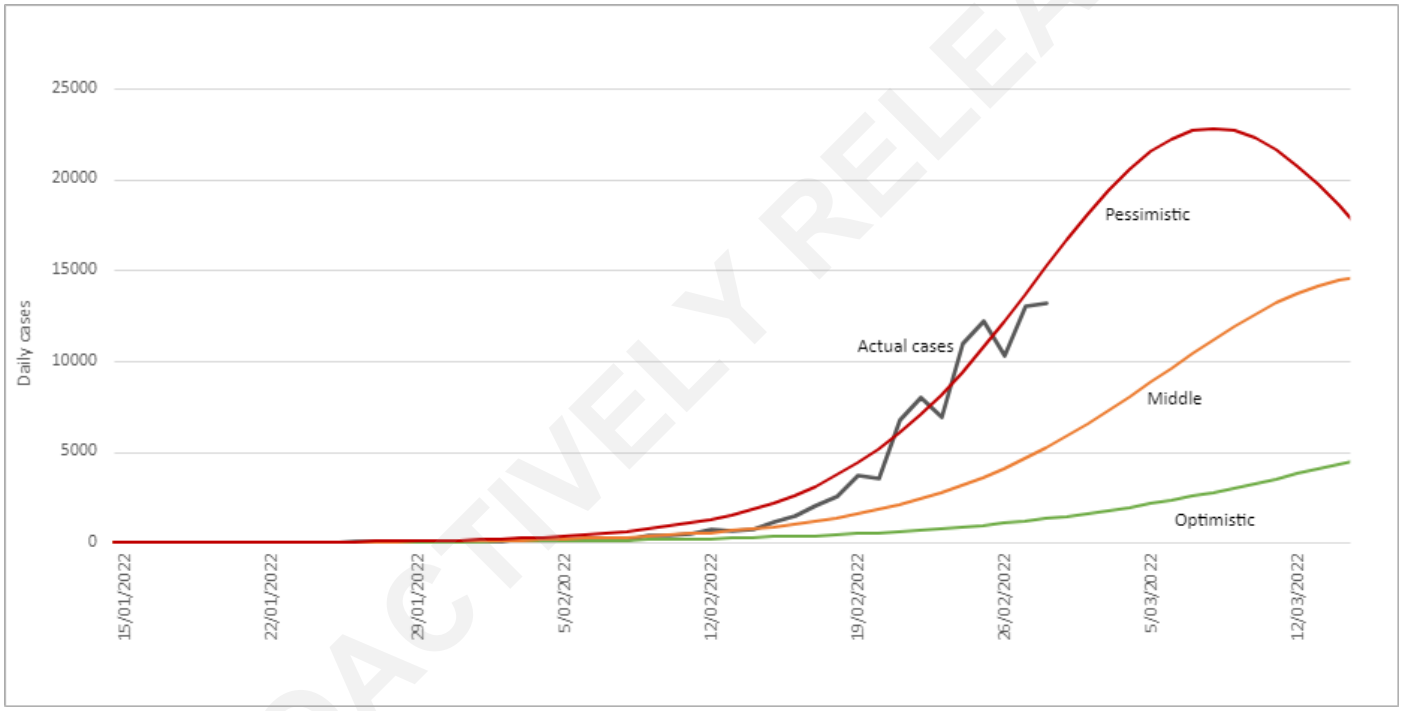
Predicted scenarios were updated by Te Pūnaha Matatini on 27 February.

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

The outbreak is tracking above the "middle" scenario and more towards the "pessimistic" scenario at a national level (Figure 13) and is consistent with peak hospital bed occupation being reached in the second half of March.

Figure 13: COVID-19 Modelling Aotearoa predictions compared to actual cases



Source: COVID-19 Modelling Aotearoa group (Te Pūnaha Matatini), 27 February 2022; Actual cases MoH to 27 February 2022.

Effective reproduction rate

The following sections were produced using the EpiNow package on 28 February using data to 26 February.[2]

- The median estimate of **effective R (R_{eff}) nationally is 1.7** (90% Credible Interval [CI]: 1.1–2.7) for cases to 25 February, after adjusting for data lags.
- The median **estimate of doubling time** has reduced from 3.0 to around **4.2 days**, but with wider confidence intervals than 3 days earlier (90% CI: 1.8–53.8 days).
- The R_{eff} for the Auckland region is 1.6 (90% CI: 1.1–2.9), and the doubling time is 4.4 days (90% CI: 1.6–38.8).

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. **The forecasts in this report should be interpreted as extrapolation of PCR tests only.**

Estimates of the number of new confirmed cases by their date of infection are in Figure 14.

Assuming that the current level of transmission stays constant:

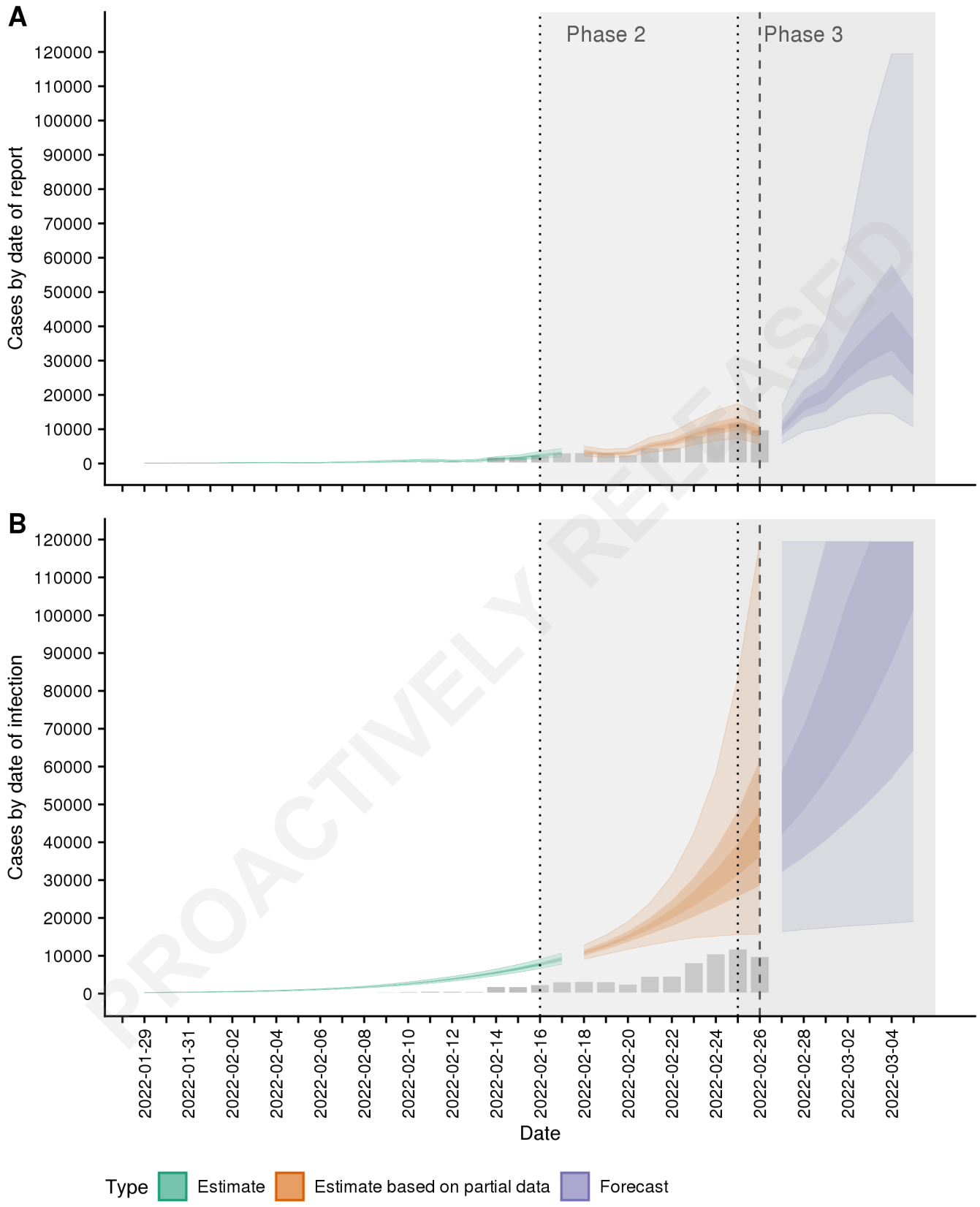
- The model's median estimate is that **national reported positive tests could rise to 31,000 cases per day by 4 March** (50% CI: 20,000 –36,500). Reported positive tests in the Auckland region could rise to 5,640 cases per day by 28 February (50% CI: 3,270–8,740). The credible intervals for the projected cases would be even wider if the possibility of continuing trend increases in Effective R were included.
- The model estimated that 10,000 cases per day would be reported by 27 February, whereas 14,941 actual cases were reported – which suggests that the short-term predictions are affected by the changes in timing of test results as RATs replace PCRs.
- The model estimated that **there were already 29,000 infections per day by 25 February nationally** (50% CI: 10,600–34,000)[3].

Projections for Waikato region are included for the first time (Figure 15). Projections for other regions will be possible when case numbers have risen further.

[2] 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.

[3] "Infections" are defined as cases that will be reported in the next few days; asymptomatic cases are not included.

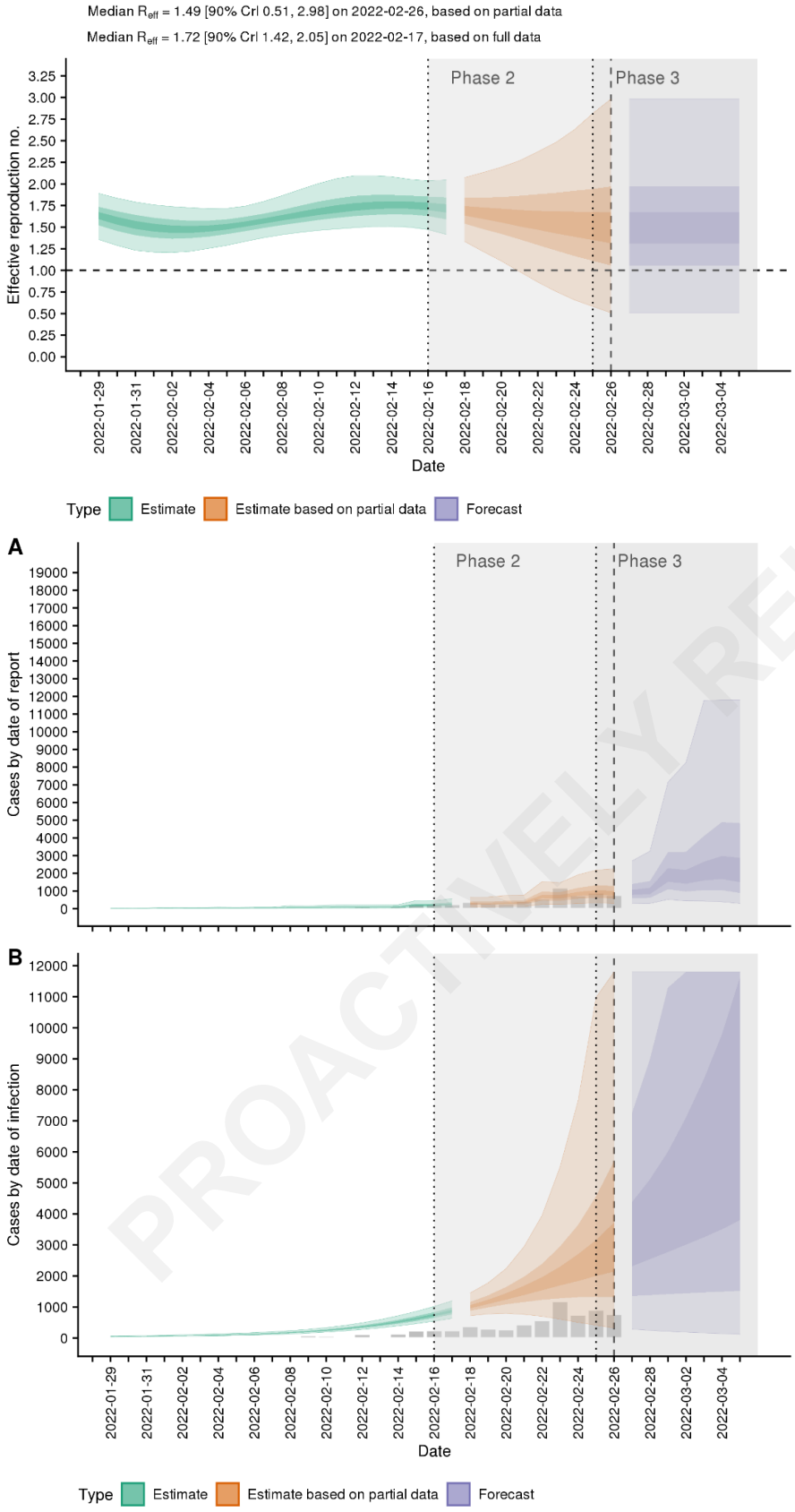
Figure 14: Community case numbers by date of report and date of infection for New Zealand



Source: Te Pūnaha Matatini, 28 February 2022. EpiNow2 projections based on Ministry of Health case data to 26 February 2022.

The smoothed estimates in green are based on complete data; estimates in orange allow for reporting delays in recent cases. Future estimates are in purple. All of the EpiNow package's estimates are shown with credible intervals of 20%, then 50%, and 90%.

Figure 15: Effective R and projected cases, Waikato DHB



Waikato DHB is included for the first time in the EpiNow estimates. R_{eff} is 1.5 [95%CI: 0.5 – 3.0], and cases may reach 2,500 per day by 4 March.