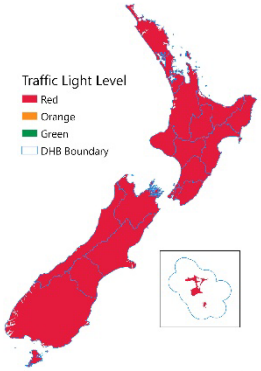
COVID-19

Trends and Insights Report

Updated 24 February 2022

Current State of Aotearoa

The whole of New Zealand is under the red traffic light, and the health sector response is in Phase 2.



Snapshot of the past 7 days

- **Incident community cases are still on the upward trend.** Cases rose from **8,621** for the week of 12-18 February 2022 to **13,759** for the week of 15-21 February 2022.
- Cases have been increasing in a linear manner, as opposed to the exponential growth that we expected. A possible reason for this is because of the constraints around testing impacting the time the cases are confirmed in the system as well as issues surrounding testing capacity.
- **Counties Manukau still had the largest proportion of cases at 37%,** down from 42% of cases in the last report. **77% of cases are in four DHBs:** CMDHB, Auckland, Waitemata, and Waikato, down from 81% in the last report due to cases rising in many other DHBs.
- **Pacific Peoples remained the ethnic group most affected**, making up **44%** of cases in the past week. The proportion of cases reported as Asian (14%) **has been overtaken by European or Other** (28%) however, cases in **Māori are accelerating but are still low at just 13%**. The majority of European or Other cases have been in the South Island.
- **Half of cases are in 10-39 years old** (50%) which is a drop from 64% from the previous report. Age appears to be a key driver in cases with cases primarily in teenagers and young adults.
- **There was a small but noticeable increase in the number of cases with low and mid-range deprivation scores. Nevertheless, the outbreak continues to have an inequitable impact**, with 53% of cases in the high housing deprivation group (7-10 score).
- **Hospitalisations are rising rapidly and are now exceeding the peak of the 2021 Delta outbreak by more than double.**
- **Testing rates and test positivity continue to be highest in the Northern Region at just below 7 tests per 1,000 and test positivity rates ranging from 6.1% to 13.9%.** Ten DHBs are above the WHO target of 5%. The highest test positivity is in Counties Manukau (14%); Auckland has 7% and Waitemata 5%. Test positivity for Midlands and Central Regions is increasing with Bay of Plenty now at 11% and Waikato at 8%. It remains low in Southern Region apart from **Nelson Marlborough and Southern DHBs which have increased rapidly to 7%** test positivity.

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- "Nowcasting" to 21 February estimates the effective reproduction number **R_{eff} at 1.9** both nationally and in the Auckland region (95% Credible Interval: 1.3-2.7 for NZ). The **modelled doubling time is 3.0 days** (95%CI 1.7 – 8.2 for NZ).

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Contents

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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.

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Recent cases

Table 1 to Table 4 show new cases reported in the week to 21 February 2022 by DHB, age, sex and ethnicity.

Cases have continued to significantly increase in the week to 21 February with 13,759 new cases reported; **almost 5,000 of these cases were reported in the past two days (19- 21 February)**.

- The DHBs with the most cases were Counties Manukau, Auckland, Waitemata and Waikato (Table 1**). Cases in these regions account for 77% of all cases** reported in the week (37%, 19%, 12%, and 8% respectively). DHBs that are increasing in their proportion of the case numbers across the motu since last report are Auckland, Canterbury, Southern, Waitemata and Capital and Coast.
- The **spread of the outbreak beyond Counties Manukau** is shown in its share of all reported cases decreasing slightly to 37% of all cases, down from 42% in the previous report (Table 1).
- **44% of recent cases were in Pacific peoples**, followed by European & Other (28%), Asian (14%), and then Māori (13%). While were still relatively low in absolute terms Māori, they continue to accelerate in that population, with an increase of about 70% (+702) since the last report (Table 2)
- There is little difference in the number of cases by sex (Table 3).
- **Cases continue to be highest for 20–29-year-olds** (26%), with 10-19 (23%), and 30-39 (17%) age bands also having high case numbers (Table 4). **Of particular note, cases in the 10–19-year age band have doubled, from 1,701 to 3,243 since the last report** (Table 4).

Table 1: Community cases by DHB from 15 February to 21 February 2022

DHB	Community cases reported since 15 February
Northland	224
Waitemata	1670
Auckland	2652
Counties Manukau	5155
Bay of Plenty	394
Waikato	1223
Tairawhiti	76
Lakes	109
Taranaki	77
Hawke's Bay	124
Whanganui	58
MidCentral	81
Hutt Valley	162
Capital and Coast	352
Wairarapa	79
Nelson Marlborough	344
West Coast	3
Canterbury	364
South Canterbury	18
Southern	587
Unknown	7
Total	13759

Source: NCTS/EpiSurv 2359hrs 21 February 2022

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Table 2: Community cases by ethnicity from 15 February to 21 February 2022

Ethnicity	New community cases since 15 February
Māori	1780
Pacific Peoples	6073
Asian	1933
European or Other	3877
Unknown	96
Total	13759

Source: NCTS/EpiSurv 2359hrs 21 February 2022

Table 3: Community cases by sex from 15 February to 21 February 2022

Sex	New community cases since 15 February
Female	6857
Male	6869
Unknown	33
Total	13759

Source: NCTS/EpiSurv 2359hrs 21 February 2022

Table 4: Community cases by age from 15 February to 21 February 2022

Age	New community cases since 15 February
0-9	1512
10-19	3243
20-29	3583
30-39	2331
40-49	1425
50-59	974
60-69	454
70+	237
Total	13759

Source: NCTS/EpiSurv 2359hrs 21 February 2022

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Epidemic Curves

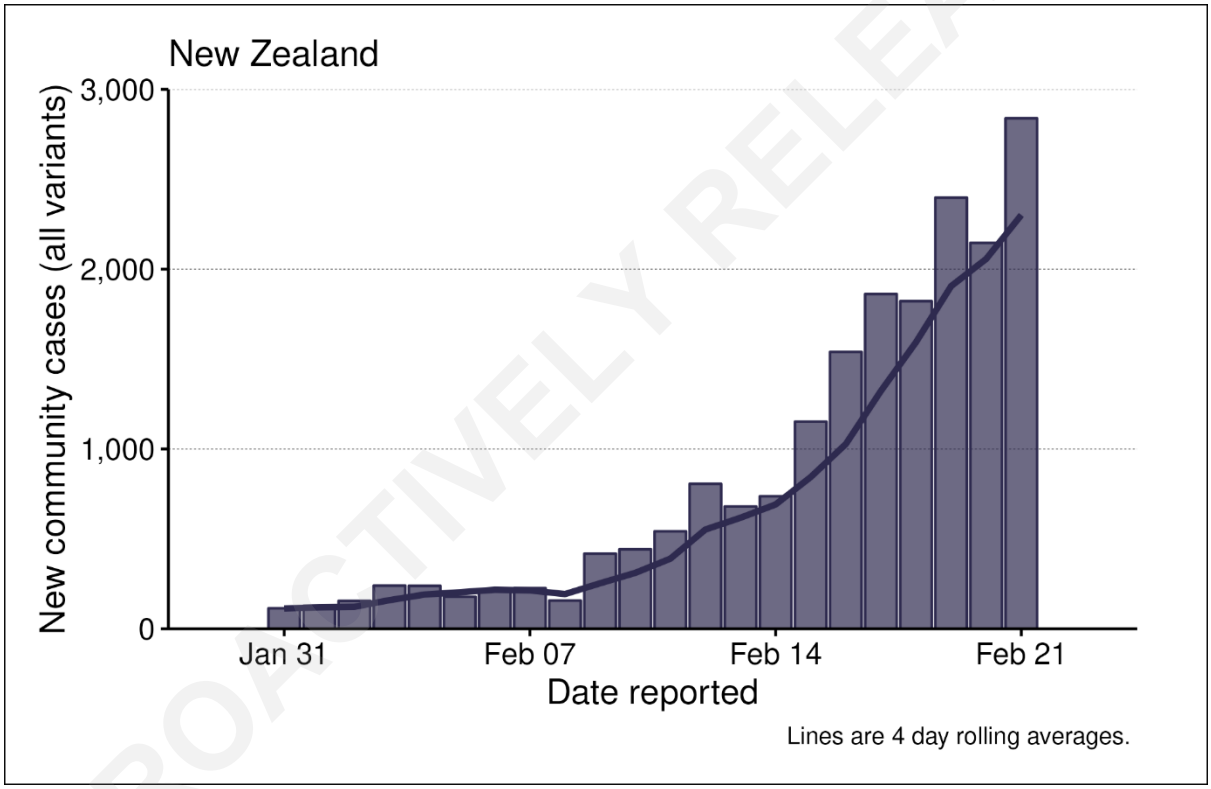
Figure 1 and Figure 2 below show the number of new cases reported in the three weeks from 28 January 2022 to 21 February 2022 nationally and by DHB respectively.

There has been a rapid rise in national case numbers since 9 February. The fluctuations from day to day may reflect changes in how and when cases are reported by laboratories through the National Contact Tracing System (NCTS) to EpiSurv. Case numbers appear to be increasing in a mostly linear trend.

The outbreak is most established in the three large DHBs in the Northern Region (excluding Northland); followed by the Midland region, especially the **Waikato DHB** (Figure 2).

After a period of low reported cases numbers, the outbreak appears to be taking off in Southern DHB, while cases are growing slowly in Nelson Marlborough, Capital & Coast, and Canterbury DHBs (Figure 3).

Figure 1: Daily community cases nationally from 31 January to 21 February 2022



Source: NCTS/EpiSurv as at 2359hrs 21 February 2022

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Figure 2: Daily community cases by region from 31 January to 21 February 2022

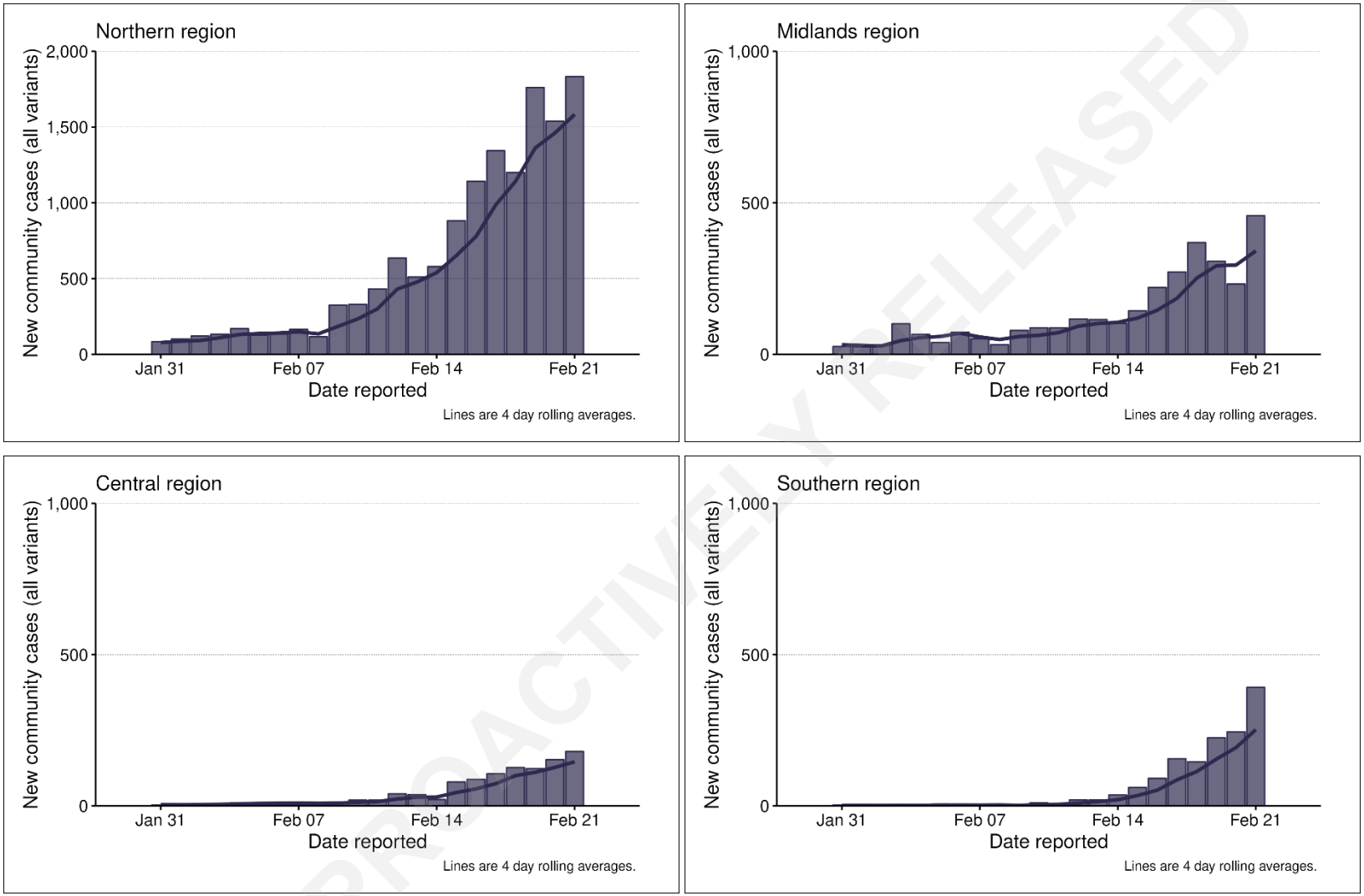

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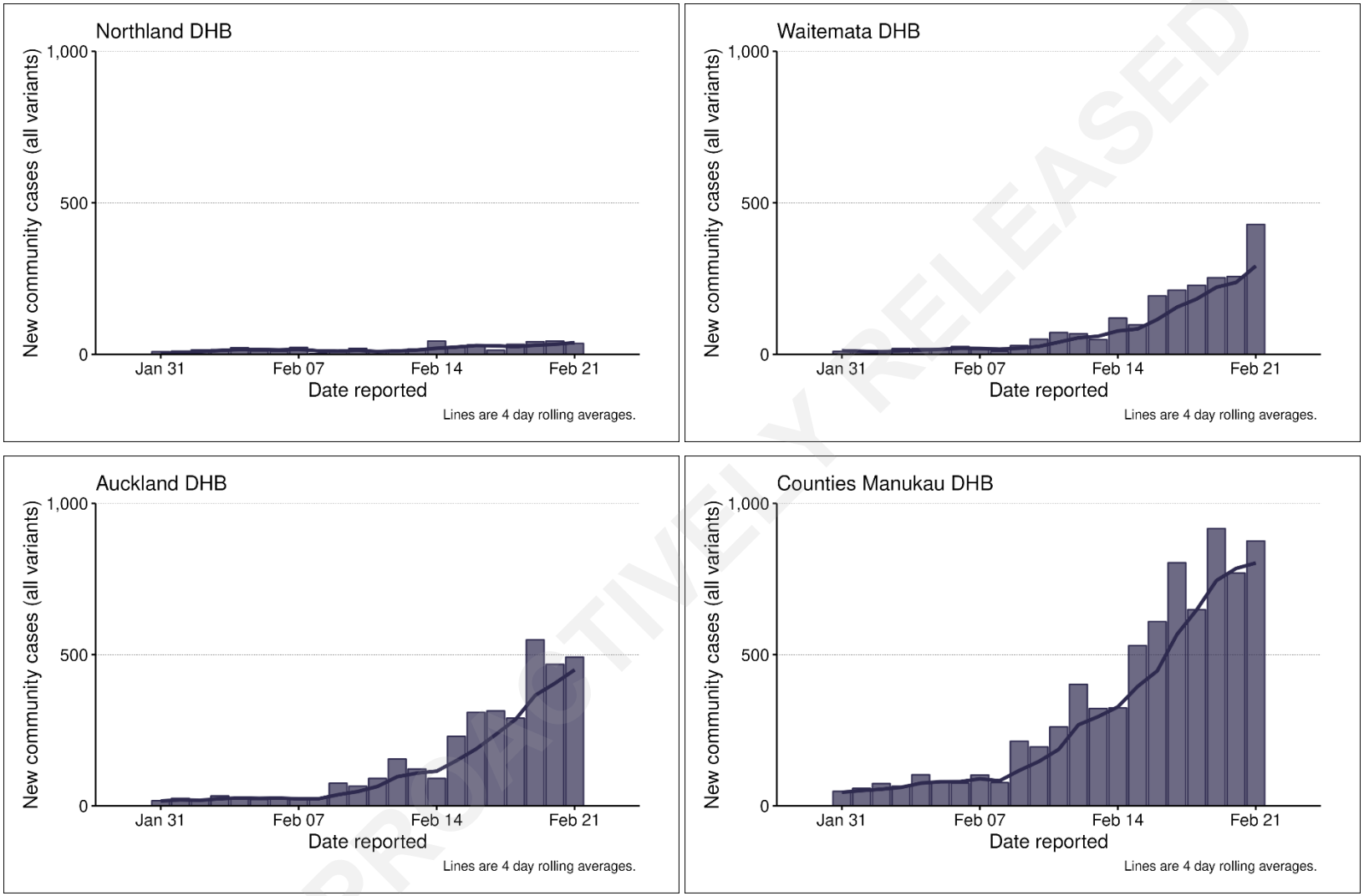
Figure 3: Daily community cases 31 January to 21 February 2022, selected DHBs



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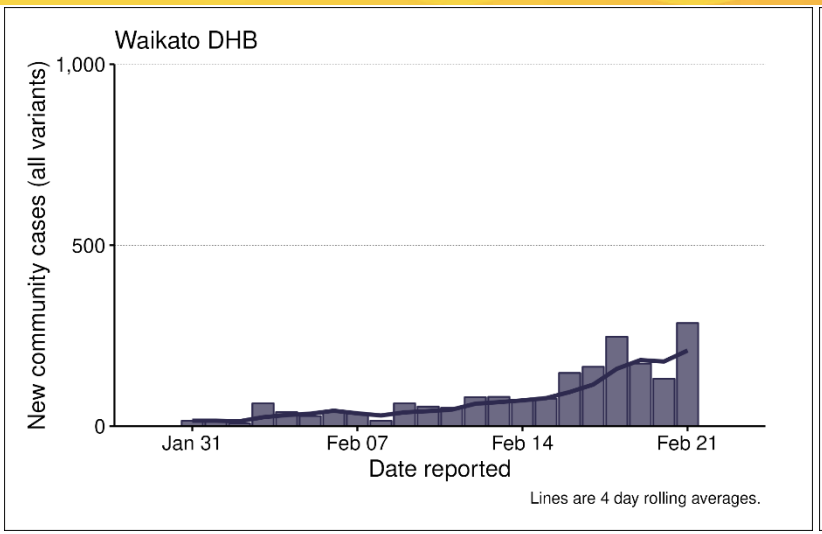

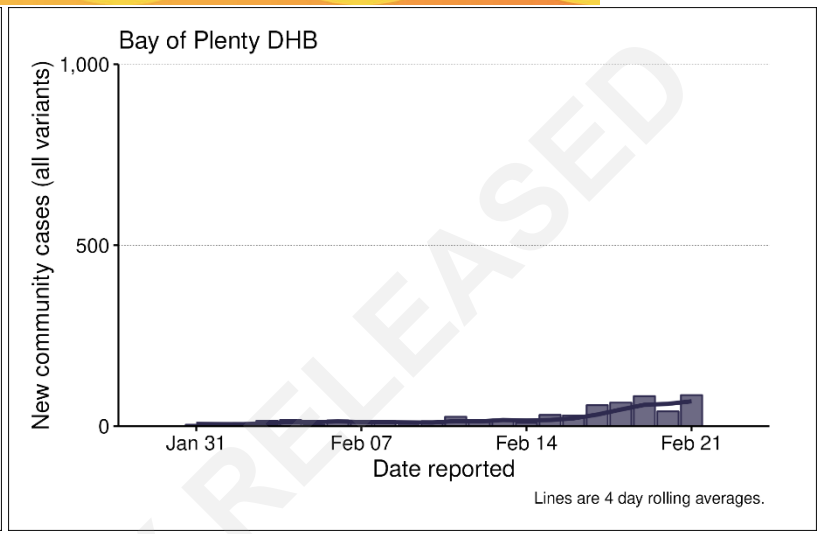

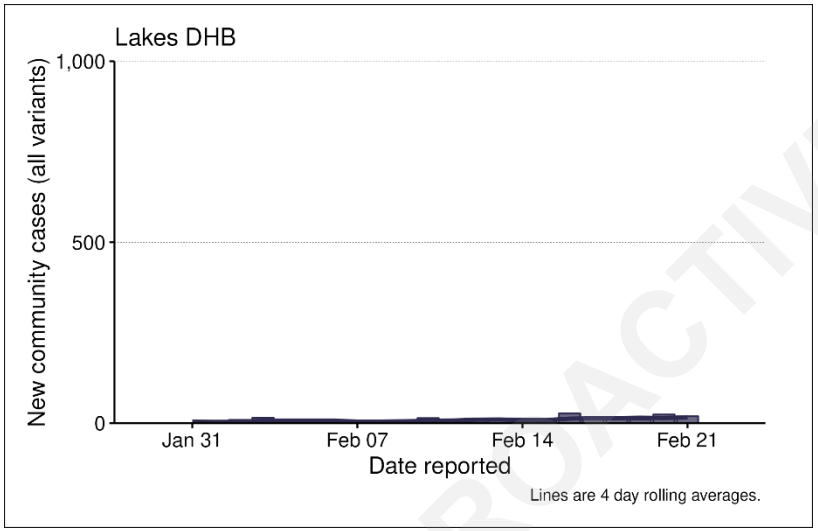

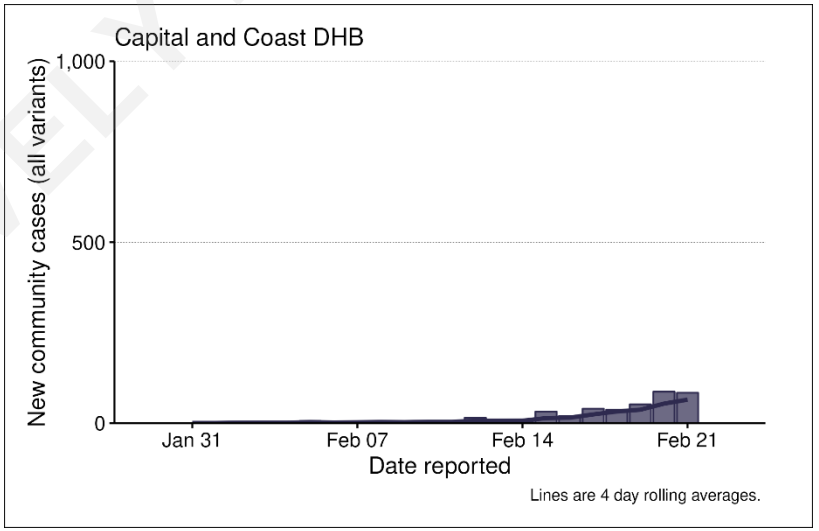

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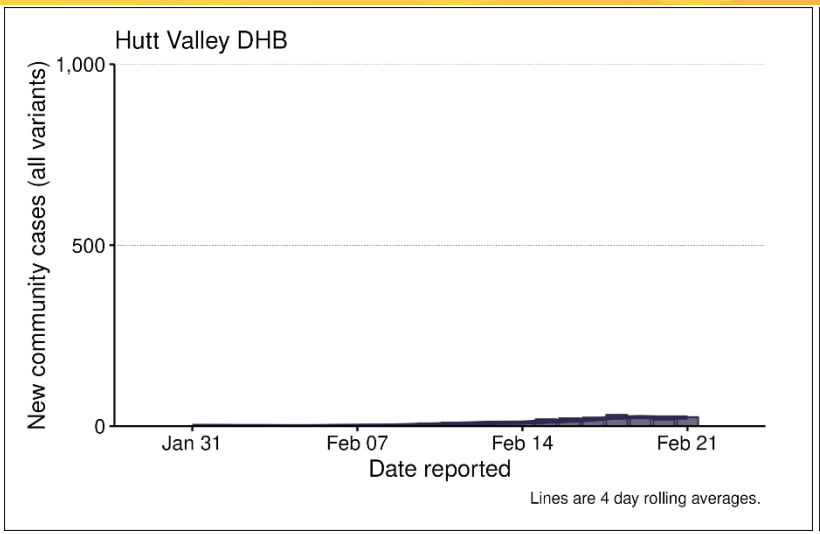

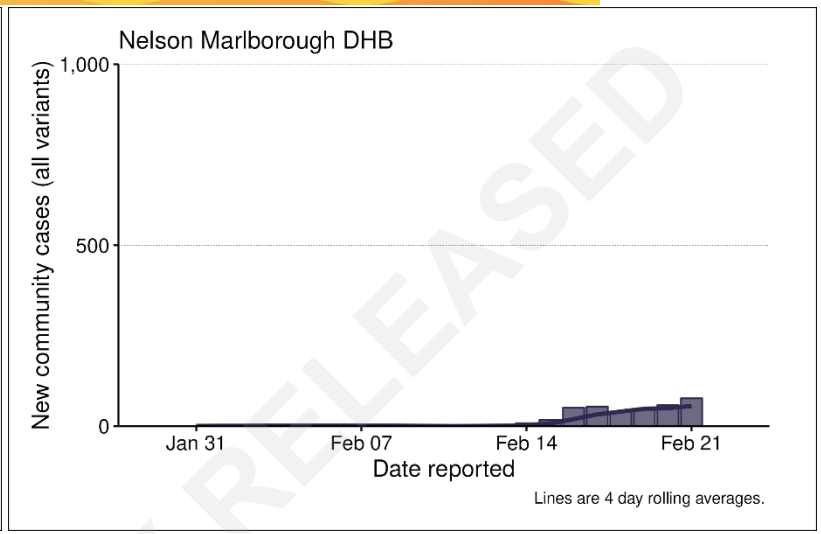

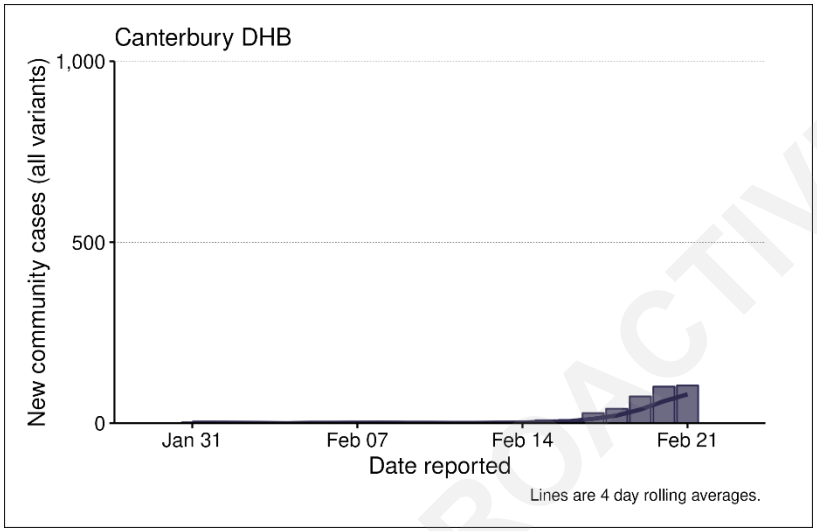

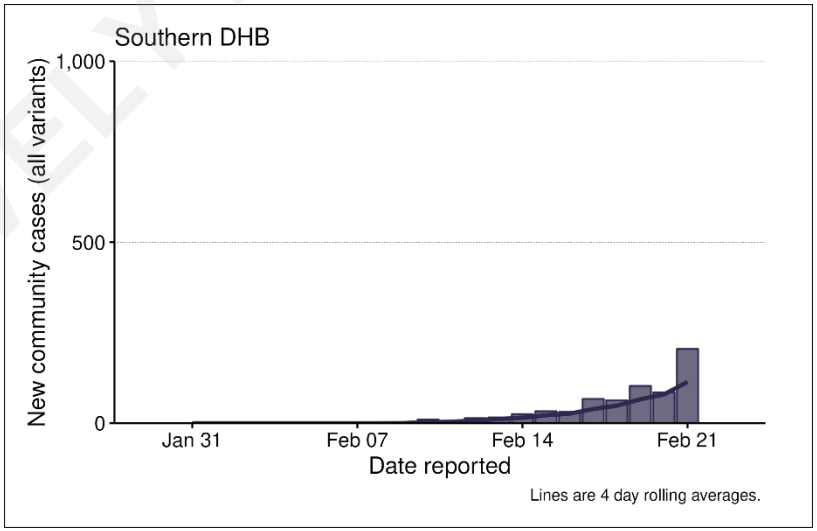

Source: NCTS/EpiSurv as at 2359hrs 21 February 2022

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Cases by Ethnicity

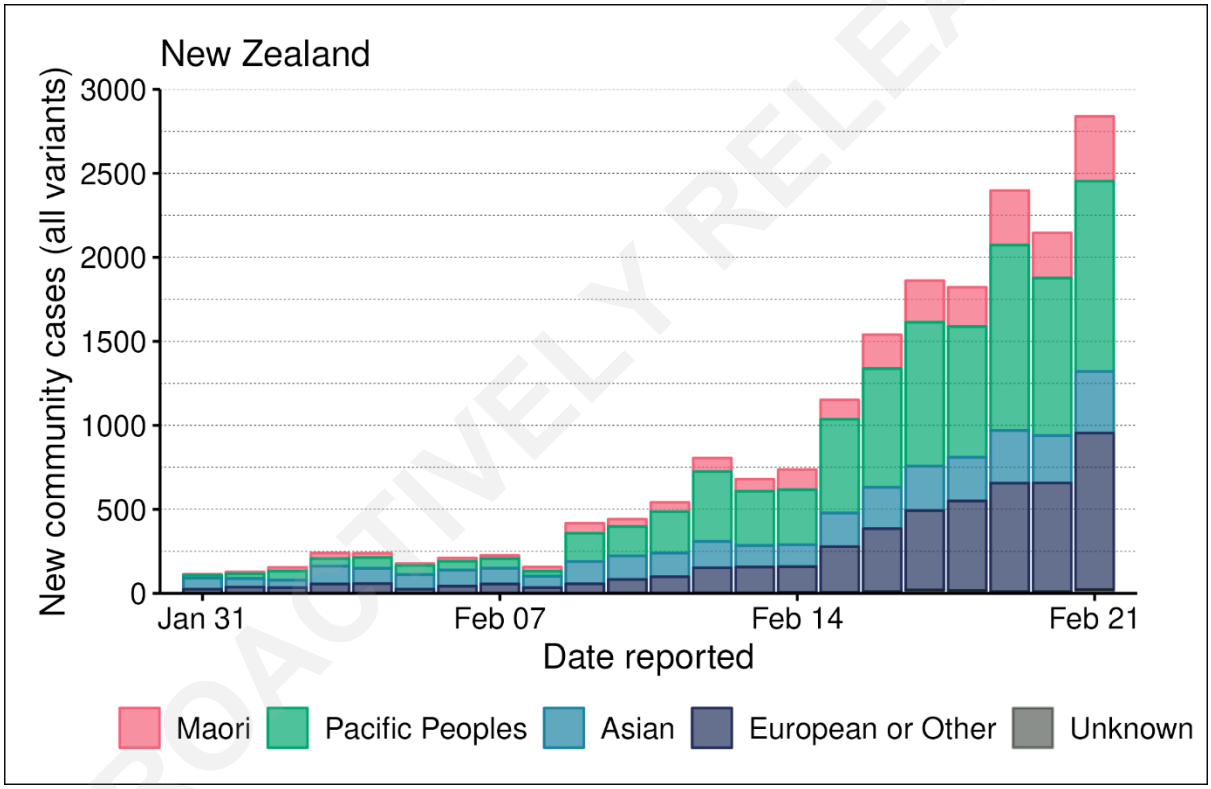
Figure 4 to Figure 7 show the ethnicity of new cases reported in the three weeks from 28 January 2022 to 21 February 2022.

At the beginning of the Omicron outbreak[1], which was identified around 19 January, a high proportion of cases were reported to have Asian ethnicity, consistent with known early exposure events. Since 9 February, that group's case numbers have been overtaken by people of Pacific and then European or Other ethnicities.

The number of cases with European or Other ethnicities have begun to rise rapidly as the outbreak spreads into the Southern region DHBs.

The number of cases in Māori, while still low, is now gradually rising as the outbreak spreads beyond Counties-Manukau into the Waikato and the Central Region DHBs.

Figure 4: Daily community cases across New Zealand by ethnicity from 31 January to 21 February 2022



Source: NCTS/EpiSurv 2359hrs 21 February 2022

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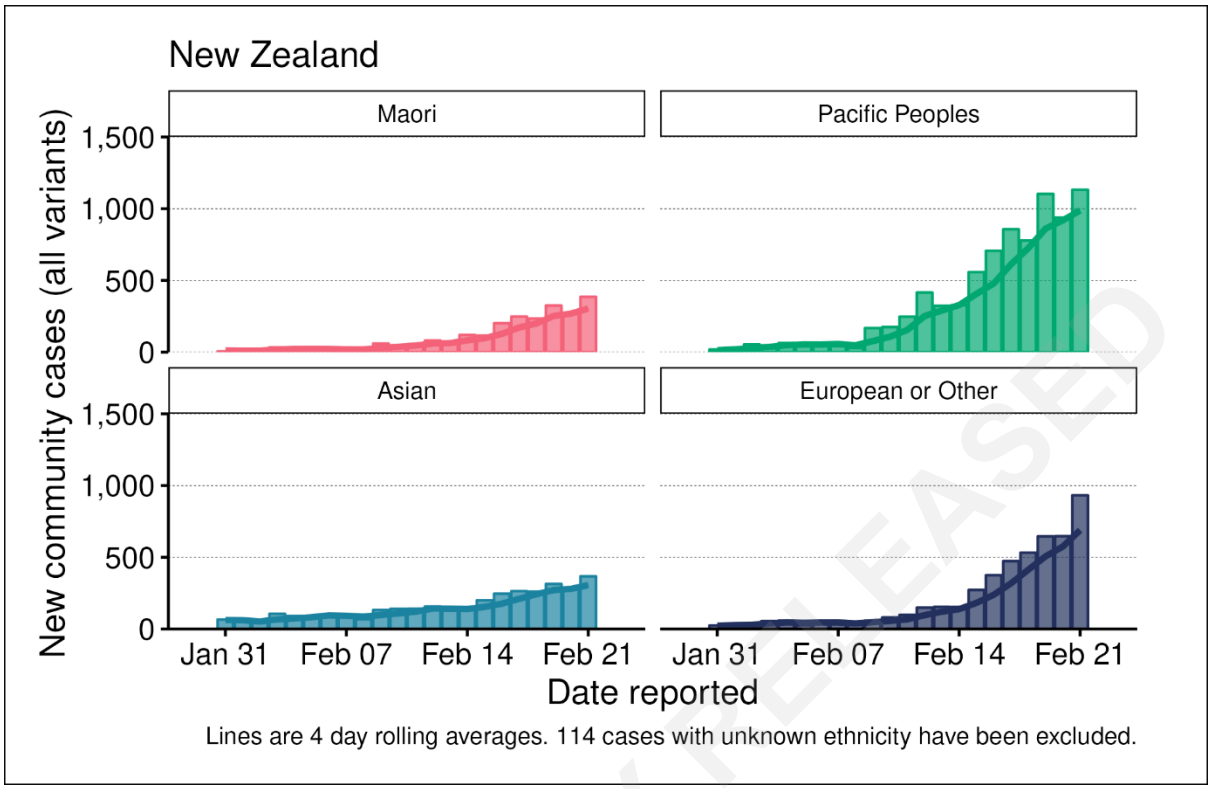
[1] The Delta variant is likely to still be in circulation after 19 January 2022. Case numbers include all confirmed COVID-19 cases, regardless of variant.

Figure 5: Daily and rolling 4 day of average community cases across New Zealand, by ethnicity from 31 January to 21 February 2022



Source: NCTS/EpiSurv 2359hrs 21 February 2022

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Figure 6: Daily cases by ethnicity and region from 31 January to 21 February 2022

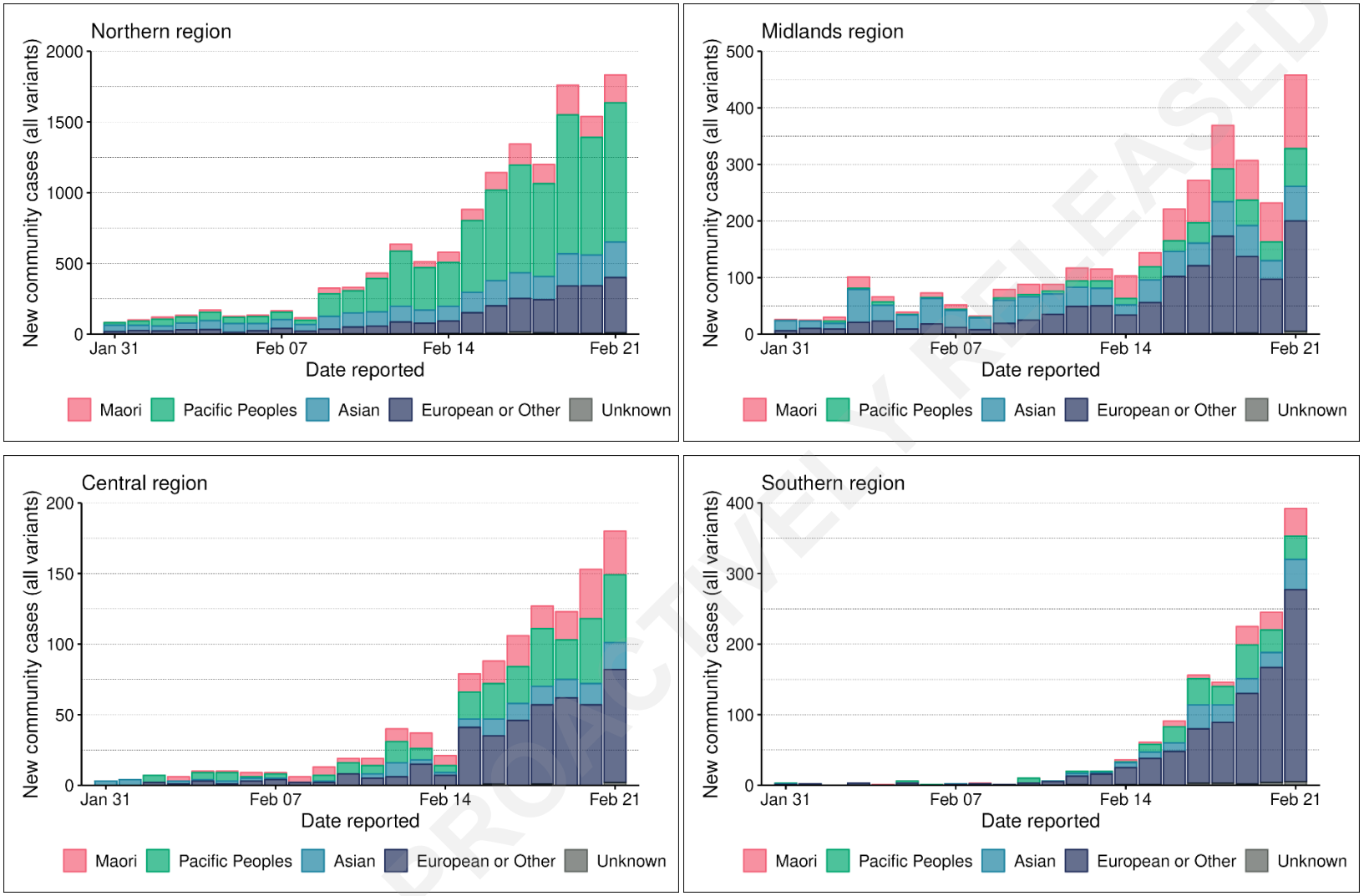

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Figure 7: Daily cases by ethnicity from 31 January to 21 February 2022 by selected DHB

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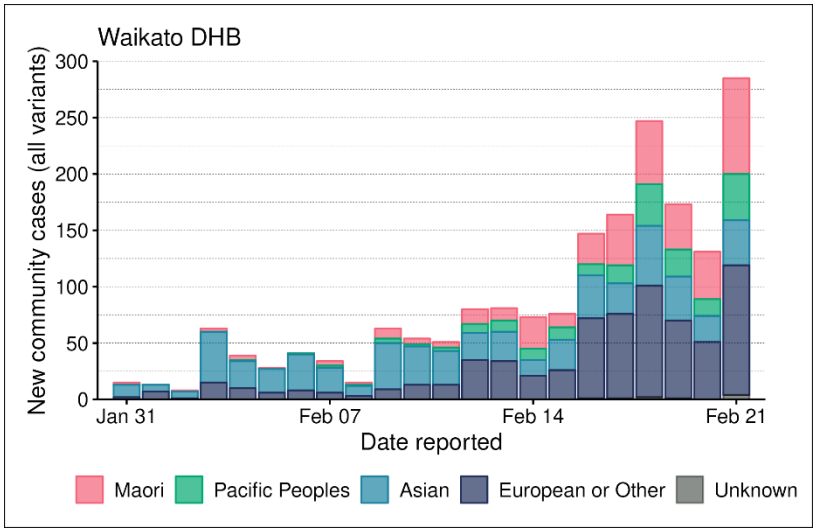

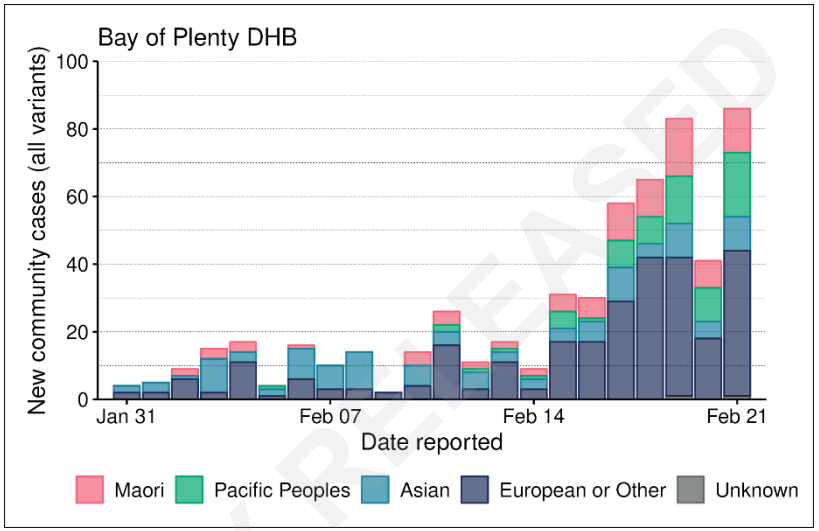

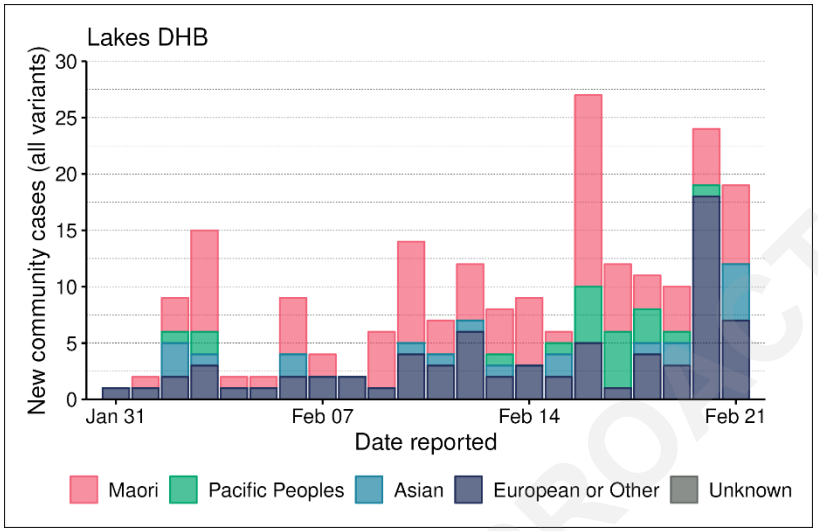

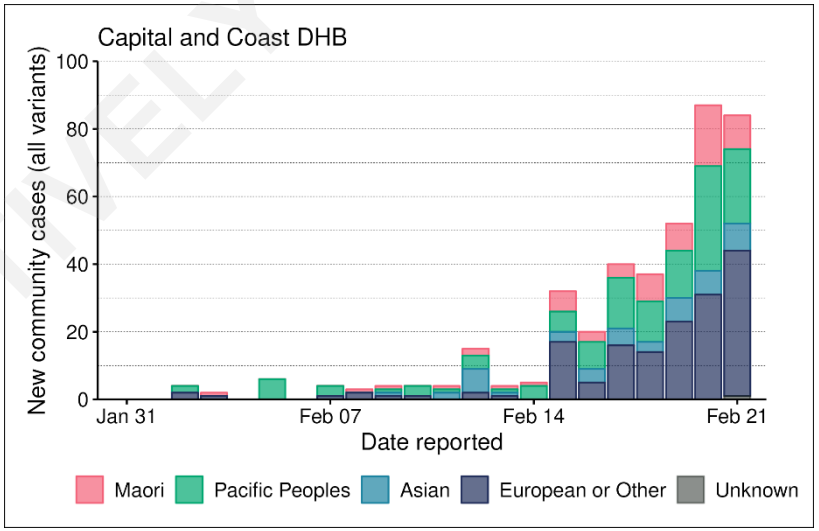

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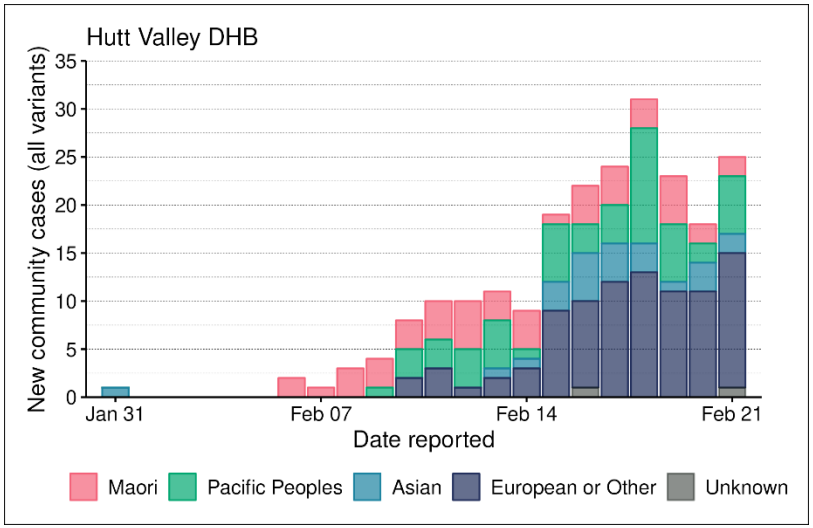

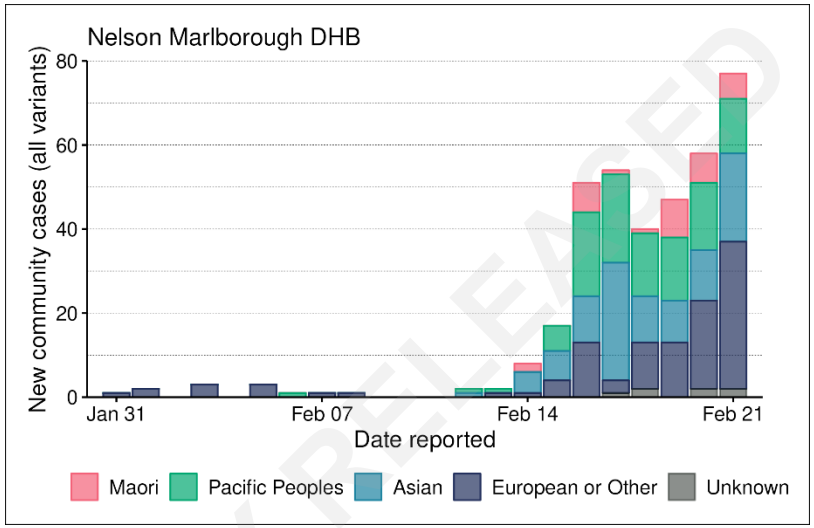

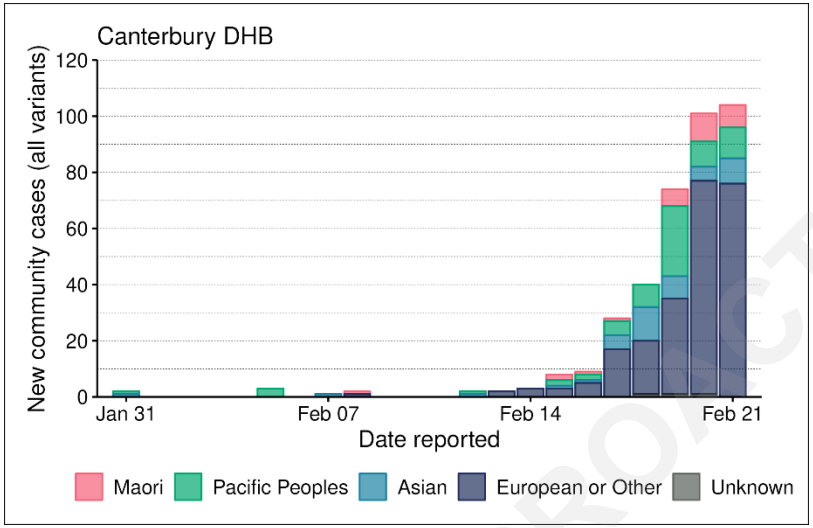

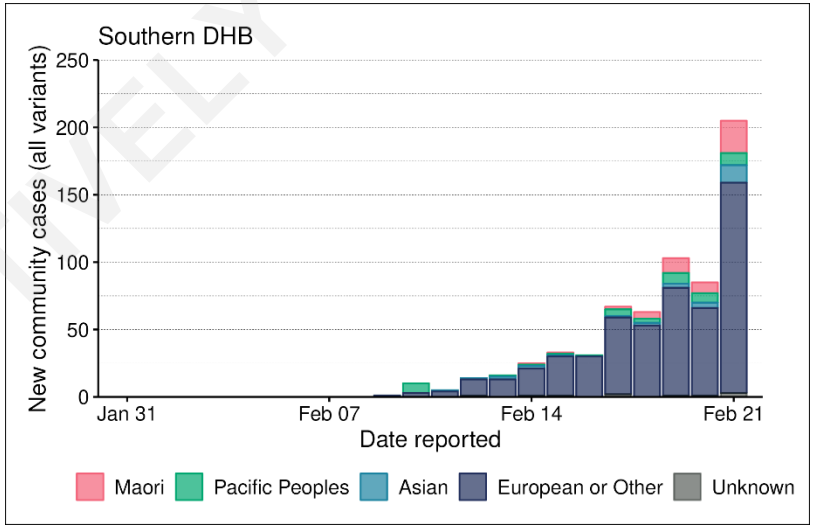

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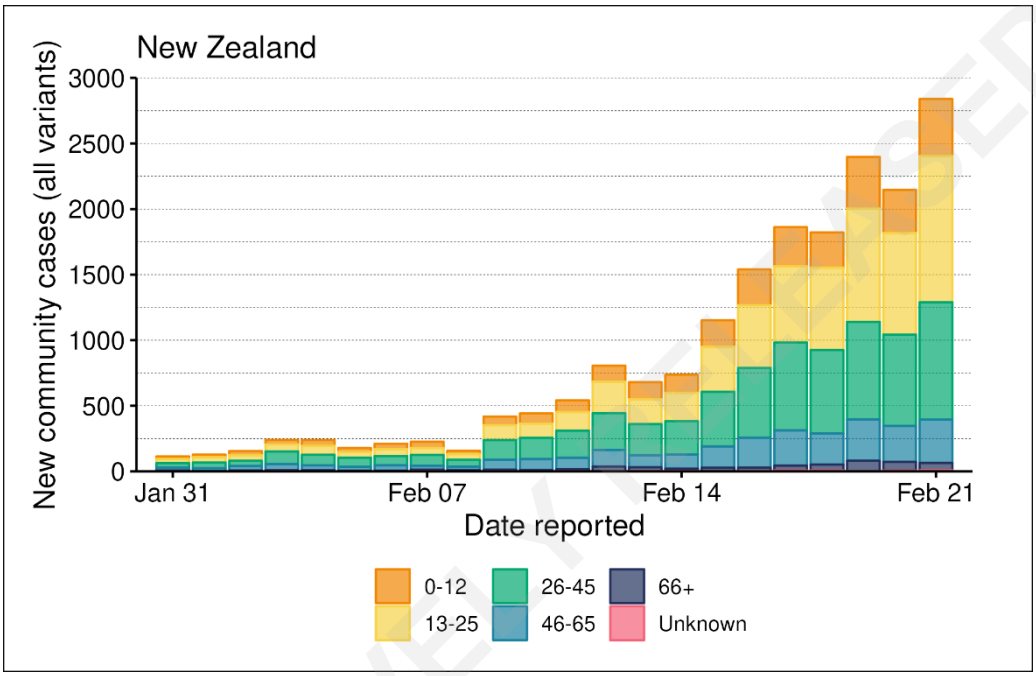
Source: NCTS/EpiSurv 2359hrs 21 February 2022

Cases by Age

Figure 8 and Figure 9 shows new cases by age group from 28 January to 21 February 2022.

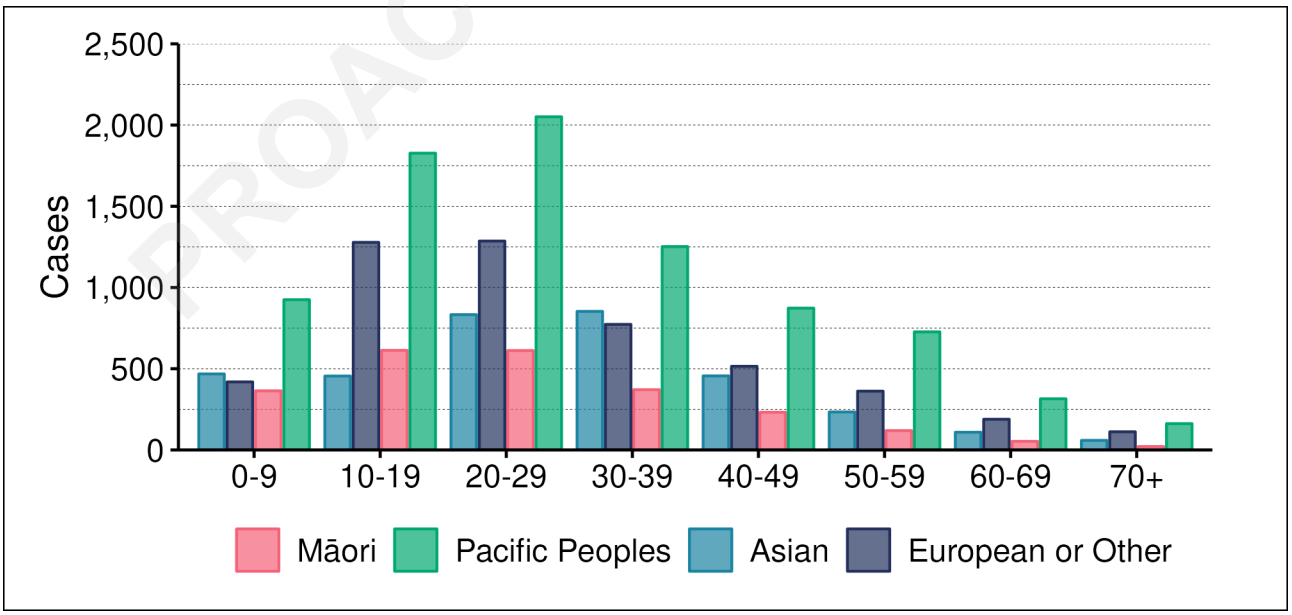
In the four days to 21 February, cases in the 13 to 45 age range increased more than in children 0-12 or in older adults 46+ but this remains a consistent trend in the past week (Figure 8). A further breakdown of ages by ethnicity, shows an increase in cases of European or Other ethnicity in the 10-19 age group compared to the previous report (Figure 9).

Figure 8: COVID-19 community case numbers by age from 31 January to 21 February 2022



Source: NCTS/EpiSurv 2359hrs 21 February 2022

Figure 9: COVID-19 community case numbers by prioritised ethnic group and age group 31 January to 21 February 2022



Source: NCTS/EpiSurv 2359hrs 21 February 2022

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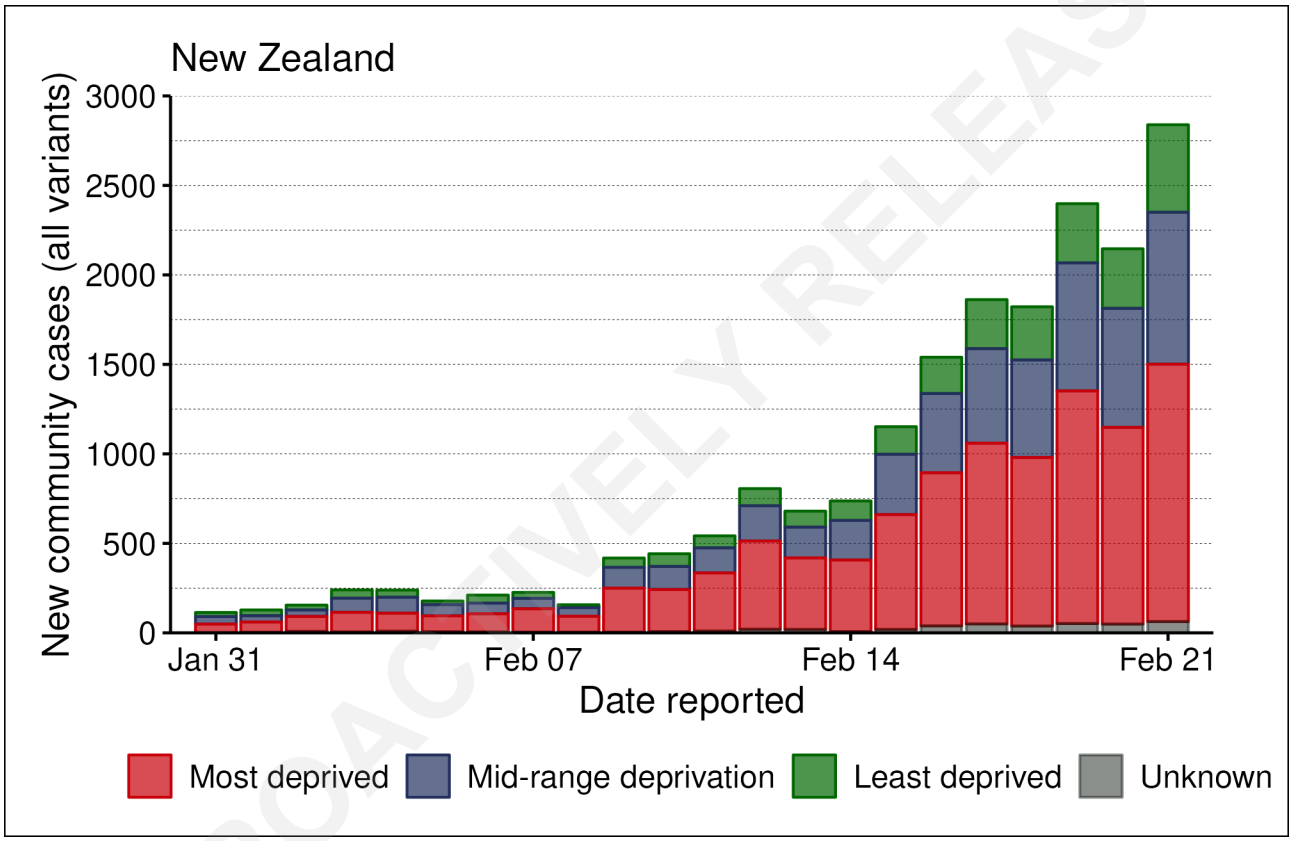
Cases by socio-economic indicators

Figure 10 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, cases are being more represented by people in mid-and least-deprived areas.

Cases by vaccination status are shown in Figure 11. As cases have steadily risen from late January onwards, the fully vaccinated are the most represented in case numbers. 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 those that are under 12, classed as ineligible for COVID-19 vaccination.

Figure 10: COVID-19 community cases between 31 January 2022 and 21 February 2022 by housing deprivation level



Source: EpiSurv/NCTS/CVIP 2359hrs 21 February 2022

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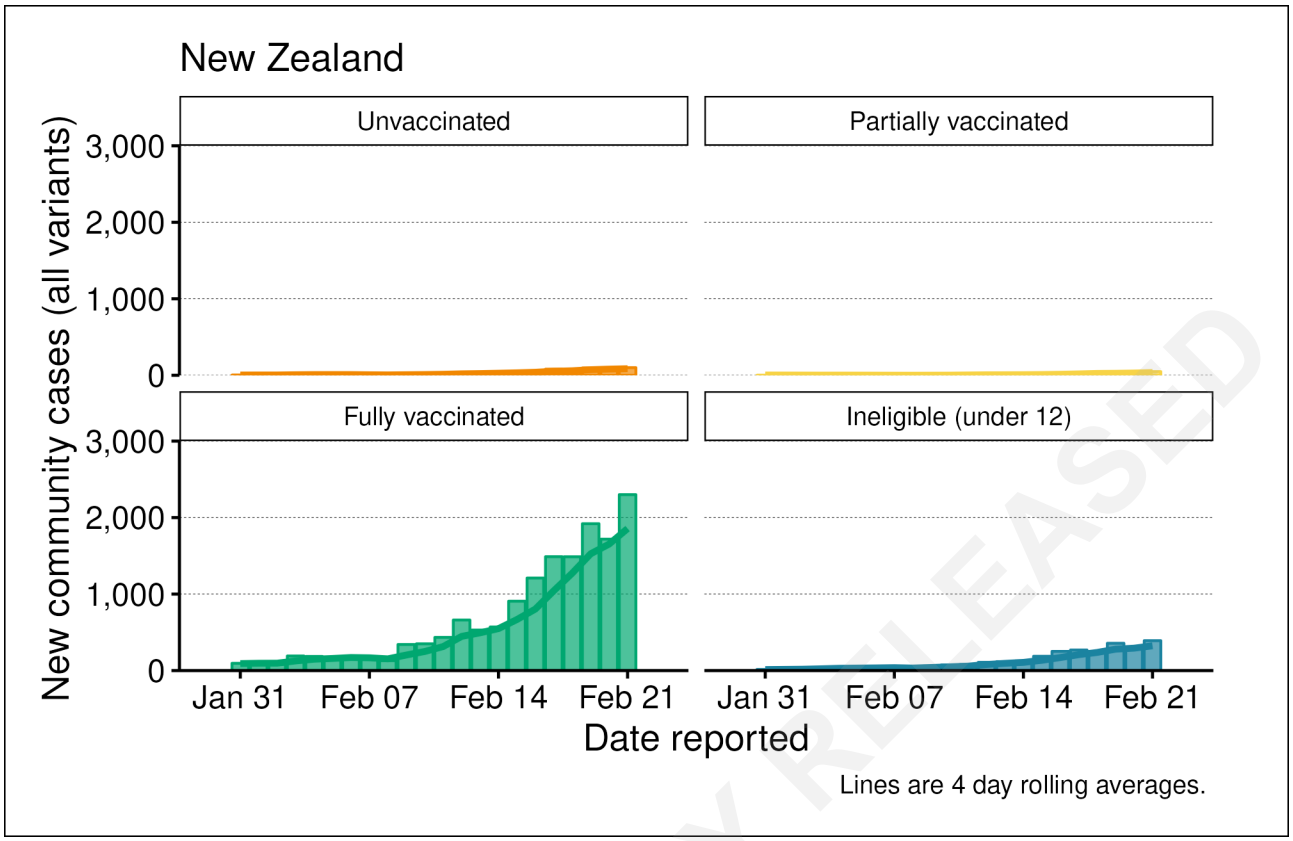
Figure 11: COVID-19 community cases between 31 January 2022 to 21 February 2022 by vaccination status



Source: EpiSurv/NCTS/CVIP 2359hrs 21 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.

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Community Testing

The figures in this section show the rates of community testing from 28 January 2022 to 21 February 2022.

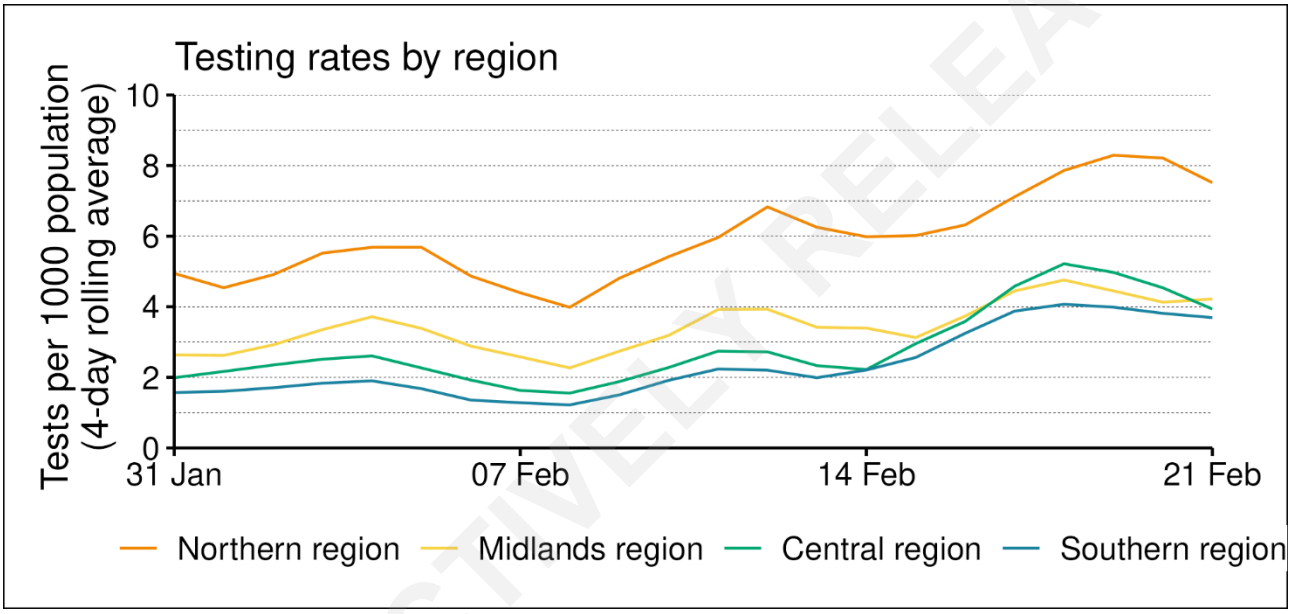
Tests per 1,000 population are *stable* across the Northern / Central regions / Midlands / Southern regions. Though tests still remain highest in the northern region DHBs (Figure 12).

Test positivity increased since 11 February. **10 DHBs are now above the WHO target of 5%:** Counties-Manukau has the highest test positivity rate, of 14% (Figure 13).

Positivity rose to around 7% in Nelson-Marlborough and Southern DHBs.

Test positivity worsened in Northland, rising above below 5% in recent days.

Figure 12: Testing rate by region[2] (four day rolling average) by region and DHB from 31 January to 21 February 2022



Source: Éclair testing database 21 February 2022; Excludes tests in returnees and border workers.

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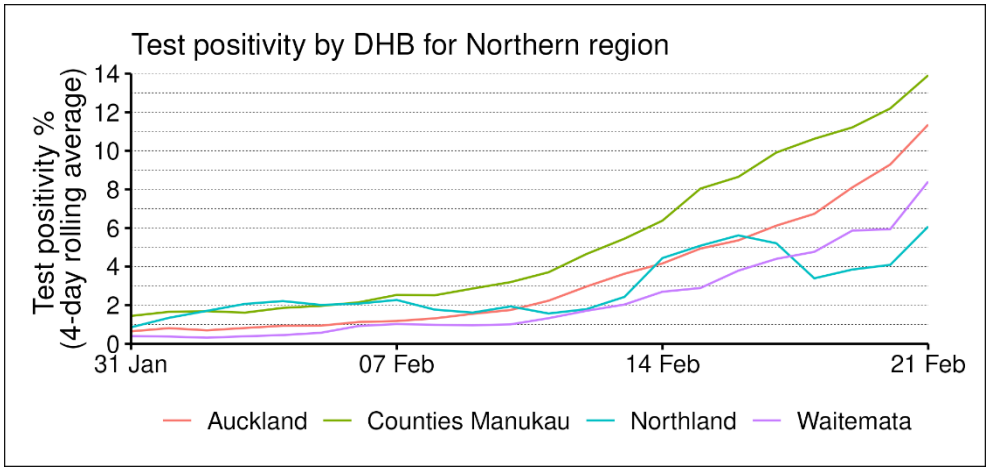
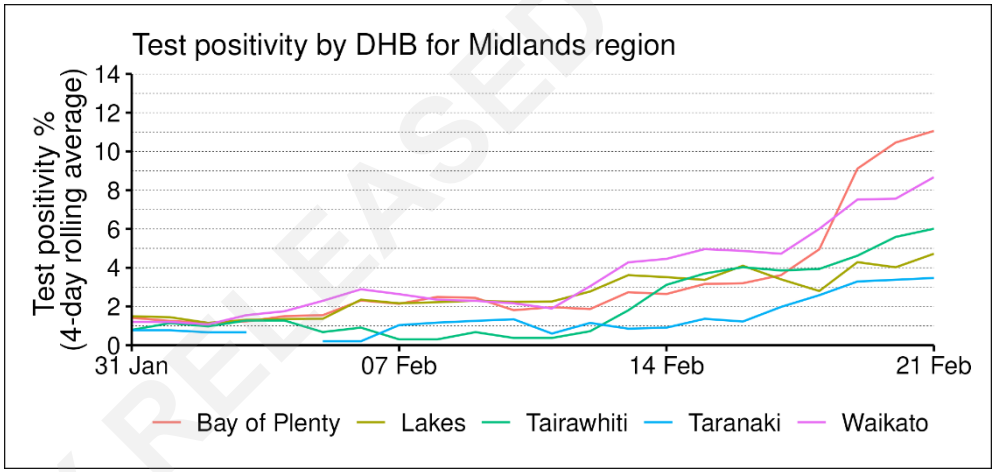
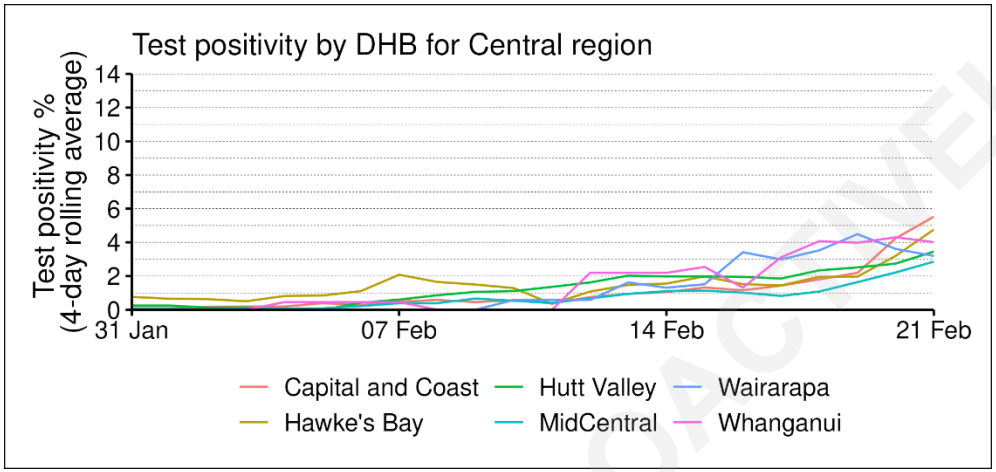
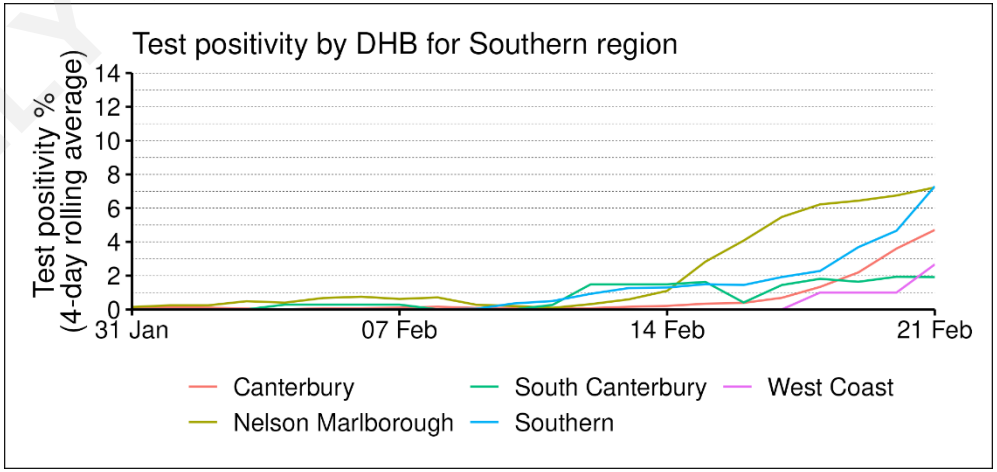
[2] **Northern Region**: Auckland, Counties Manukau, Northland & Waitemata DHBs. **Midlands Region**: Bay of Plenty, Lakes, Tarawhiti, Taranaki & Waikato DHBs. **Central Region**: Capital and Coast, Hutt Valley, Wairarapa, Hawke's Bay, Midcentral & Whanganui DHBs. **Southern Region**: Canterbury, Southern Canterbury, West Coast, Nelson Marlborough & Southern DHBs.

Figure 13: Test positivity (four day rolling average) by region and DHB from 31 January to 21 February 2022









Source: Éclair testing database 15 February 2022, EpiSurv 21 February 2022

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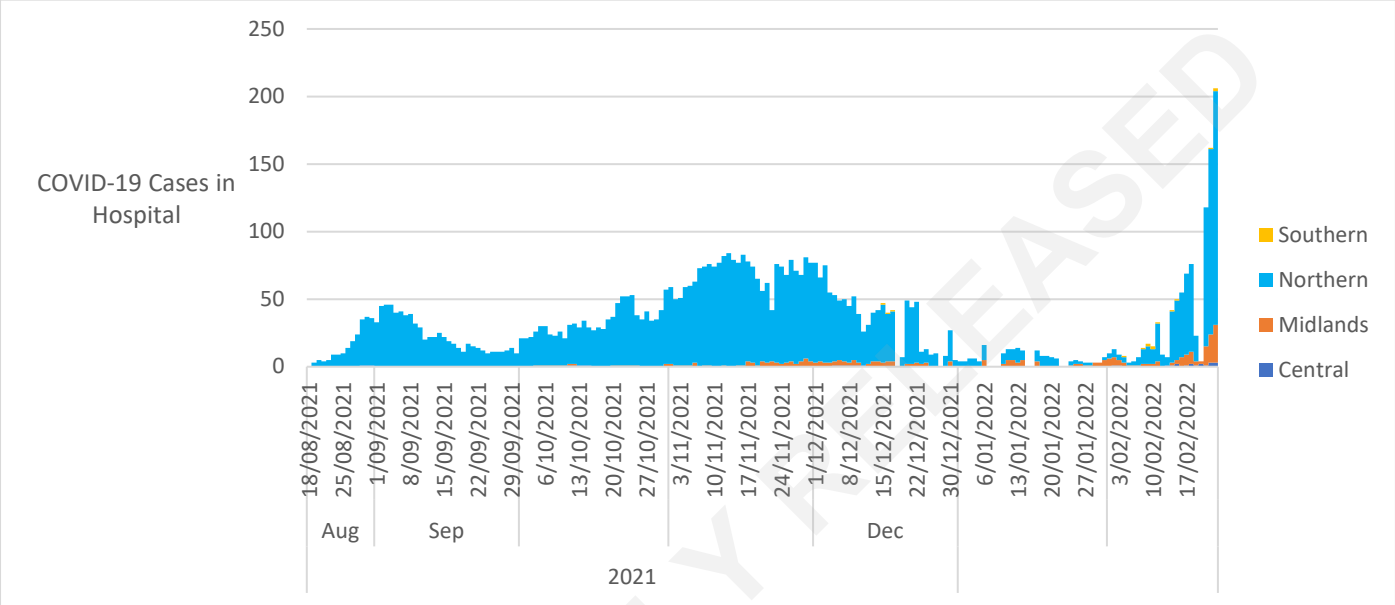
Hospitalisation

The number of COVID-19 positive cases in hospital is based on DHB daily reports to the Ministry of Health. Due to high pressure from increases in caseloads, there were some gaps in DHBs reporting hence, the data is incomplete.

The number of hospitalised people confirmed as being COVID-19 positive was 3 at the end of January 2022. By 23 February, there were 206 confirmed COVID-19 positive cases in hospital (Figure 14).

Figure 14: COVID-19 cases in hospital, by region and day



Source: DHB daily reports to MoH, 23 February 2022. Hospitalisation data are reported manually by DHBs. Data may be incomplete on some days. DHBs are grouped by region.

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Variants of Concern

No recent Delta cases identified in hospital

Whole genomic sequencing (WGS) identifies the variant of all confirmed cases that were hospitalised. Data may be incomplete due to delays in samples being sent for sequencing.

The last known WGS hospitalised Delta case was a Wellington case sequenced on 2 February 2022. All hospitalised cases sequenced since then were confirmed to be the Omicron variant. As of 21 February 2022, 56 samples are still awaiting WGS.

Table 5: Hospitalised cases reported from 1 January to 21 February 2022

DHB	Delta	Omicron	To be received	Total
Auckland	0	1	8	**9**
Bay of Plenty	2	2	11	**15**
Canterbury	0	0	1	**1**
Capital and Coast	1	1	1	**3**
Counties Manukau	0	6	16	**22**
Hawke's Bay	2	0	0	**2**
Lakes	1	0	11	**12**
Waikato	1	2	7	**8**
Waitemata	3	4	0	**7**
West Coast	0	0	1	**1**
Total	**10**	**16**	**56**	**82**

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, 21 February 2022. EpiSurv and Microreact 12pm 21 February 2022

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Few community WGS are Delta variant

The last sequenced Delta case in the community was reported on 16 February in Capital and Coast DHB.

416 community cases were identified as Omicron up to 21 February 2022.

Table 6: Variants of Concern, Community Cases

DHB	Delta	Omicron	Total
Northland	0	0	0
Waitemata	1	50	51
Auckland	4	26	30
Counties Manukau	3	104	107
Waikato	0	14	14
Lakes	1	5	6
Bay of Plenty	0	19	19
Tairawhiti	0	1	1
Taranaki	0	17	17
Hawke's Bay	0	2	2
Whanganui	0	0	0
MidCentral	0	2	2
Wairarapa	0	26	26
Hutt Valley	0	13	13
Capital and Coast	2	20	22
Nelson Marlborough	0	16	16
West Coast	0	0	0
Canterbury	0	22	22
South Canterbury	0	5	5
Southern	1	74	75
Total	**12**	**416**	**428**

Source: ESR Whole Genomic Sequencing data, 21 February 2022. EpiSurv and Microreact 12pm 21 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.

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Short-term projections

Scenario modelling versus actual cases

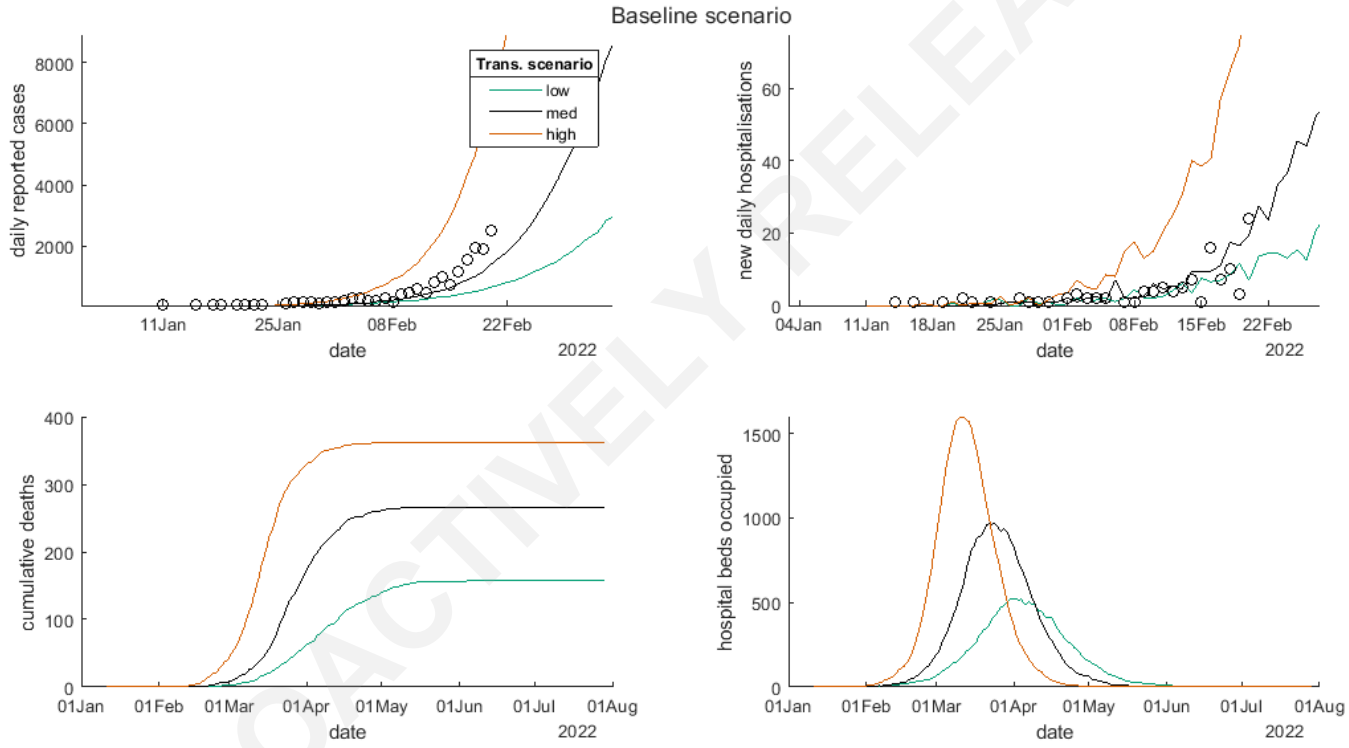
Predicted scenarios were updated by Te Pūnaha Matatini on 22 February.

As before, the scenarios are based on international transmission rates and the peak cases seen in **South Australia** ("Low"), **London** ("medium") 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 "medium" scenario at a national level (Figure 15) and is consistent with peak hospital bed occupation being reached in the second half of March.

Figure 15: COVID-19 Modelling Aotearoa predictions compared to actual cases



Source: COVID-19 Modelling Aotearoa group (Te Pūnaha Matatini), 22 February 2022

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Effective reproduction rate

The following sections were produced using the EpiNow package.[3] The underlying growth in case numbers may be increasing over the last week, but not significantly.

- The median estimate of **effective R (R_{eff}) nationally is 1.9** [90% Credible Interval 1.3-2.7] for cases to 21 February, after adjusting for data lags.
- The median **estimate of doubling time** is around **3.0 days** [90% Credible Interval 1.7 – 8.2 days].
- The R_{eff} for the Auckland region is 1.8 [90% Credible Interval 1.2, 2.5], and the doubling time is 3.6 days [90% Credible Interval: 1.9 – 13.6].

Forecasts of cases and infections

Forecasting assumes that the Effective R will be constant over the next week at its most recent value.

Estimates of the number of new confirmed cases by their date infection are given for New Zealand in Figure 16.

Assuming that the current level of transmission stays constant:

- The model's median estimate is that **national reported cases could rise to 10,834 cases per day by 28 February** (50% credible interval: 7,122 to 16,553). Reported cases in the Auckland region could rise to 5,671 cases per day by 28 February (50% CI: 3,655 – 8,703). 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 2,524 cases per day would be reported by 21 February, whereas 2,846 actual cases were reported – which suggests that the short-term predictions are robust.
- The model estimated that **there were already 15,046 infections per day by 21 February nationally** (50% CI: 10,751 – 21,286)[4].

Projections for other regions will be possible when case numbers there have risen further.

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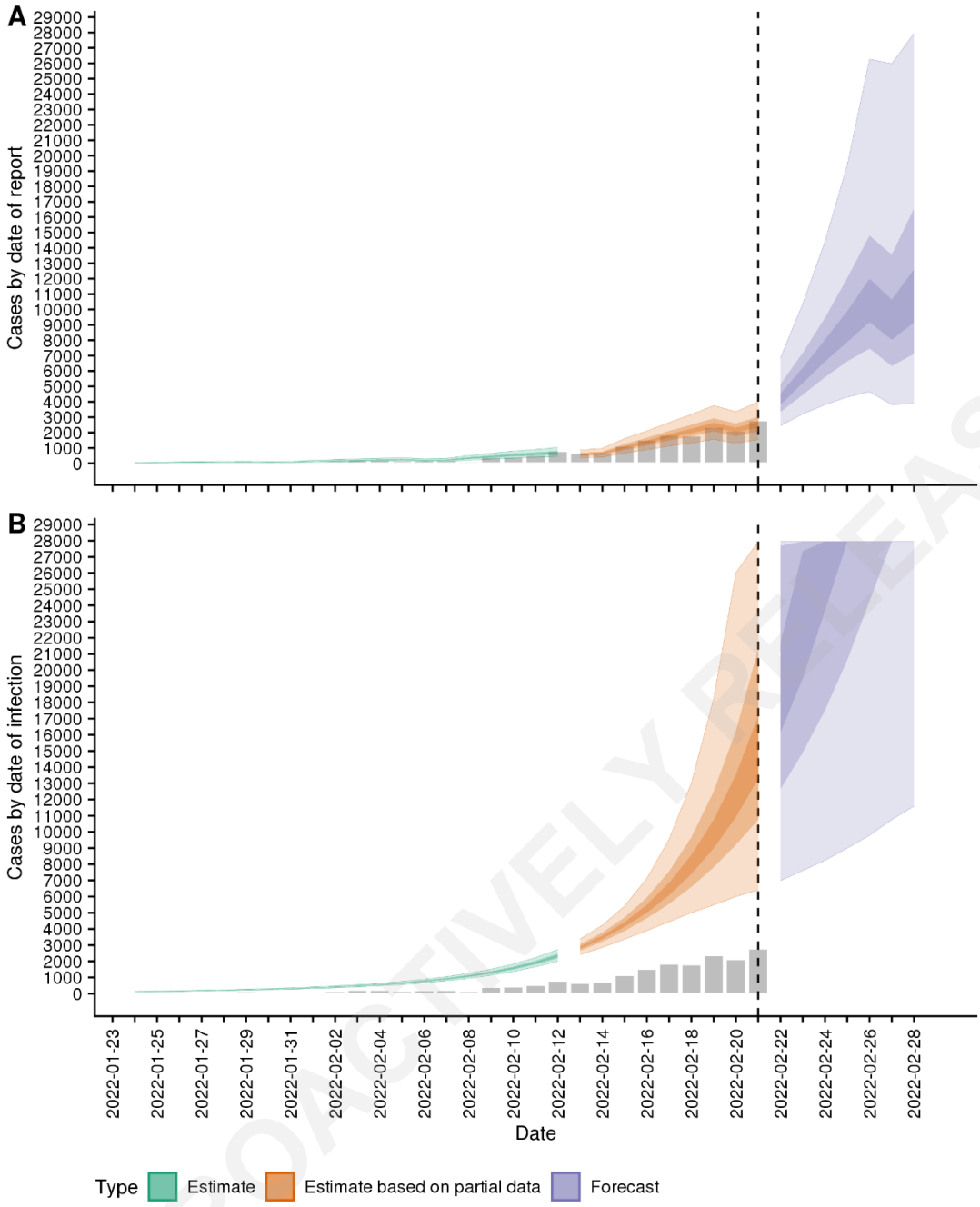
[3] The EpiNow package 'now-casts' and forecasts cases to measure current, past and future transmission nationally by calculating and then extrapolating the effective reproduction number, R_{eff}. The model does not consider several factors that may impact transmission, such as rapid changes in public 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.

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

Figure 16: Community case numbers by date of report and date of infection for New Zealand



Source: Te Pūnaha Matatini, 23 February 2022. EpiNow2 projections based on Ministry of Health case data to 21 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%.

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