

COVID-19 Case Investigation and Contact Tracing System Performance

Quarterly Report

16 February - 31 March 2022

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Executive Summary

This report summarises COVID-19 case investigation and contact tracing system performance for the period 16 February to 31 March 2022.

The emergence of the Omicron variant in the community, in tandem with the move to the COVID-19 Protection Framework, required the case investigation and contact tracing system to scale to manage an unprecedented volume of cases and contacts. This has required a shift to a case investigation and contact tracing model that relies on self-identification and self-management for those who are comfortable using digital tools, while retaining direct contact via phone for priority populations.

As such, existing metrics have been revised to measure case investigation and contact tracing system performance in a practical and meaningful way that aligns with the Omicron response.

Overall, metric performance throughout this quarter has improved due to further system and technology enhancements enacted to support operations throughout this time. In particular, the deployment of the simplified online contact tracing form and introduction of reminder text messages in early March appeared to significantly increase form response rates (from 48% in the week ending 6 March to 63% in the week ending 13 March).

The percentage of cases successfully informed (notified via call or text) is high throughout the period, with comparable rates across ethnicity groups. The percentages of Māori and Pacific cases notified via text message are lower than for other ethnicity groups, however the overall percentage informed shows a considerable proportion of these cases were able to be successfully reached via phone call by the National Case Investigation Service (NCIS). Similarly, online contact tracing form response rates are lower for Māori and Pacific cases than for other ethnicity groups, however looking at Māori and Pacific cases aged 35 years or over we can see that the overall percentage reached for an interview is notably higher than for all other cases (76% compared to 66%). This data highlights the value added by the NCIS phone-based pathway in facilitating more equitable access to health advice, care, and welfare support where needed.

Introduction

The case investigation and contact tracing system consists of 12 Public Health Units (PHUs) and the National Investigation and Tracing Centre (NITC) within the Ministry of Health which, through its contracted providers, delivers case investigation and contact management.

The system has continually adapted throughout the course of the COVID-19 pandemic, adjusting from supporting an elimination strategy to working within the COVID-19 Protection Framework and managing multiple outbreaks guided by evolving public health evidence and advice.

The unprecedented volume of cases and contacts associated with the Omicron variant has necessitated the shift away from a high-touch individual management model which actively followed all cases and contacts, to a differentiated management model employing digital tools. The differentiated model allows a low-touch service for those who are comfortable using digital tools, while retaining direct contact via phone for priority populations. This ensures the system's resources are used to reach and protect individuals and communities at the most risk. As such, existing metrics have been revised to measure case investigation and contact tracing system performance in a practical and meaningful way that aligns with the current operational context.

Under the current management model, people who test positive for COVID-19 are formally informed they are a case via automated text message or if appropriate, a phone call from case investigators. While many COVID-19 positive people are already aware they are cases through their RAT results, receiving formal notification and being provided information is important to ensure public health advice is well understood and any additional clinical or welfare/manaaki needs are identified.

Positive individuals also provide information, either through the online contact tracing form or a phone-based interview, about their household contacts, and any high-risk exposure events where they may have been infectious. This process also records relevant clinical information including COVID-19 symptoms and comorbidities which can indicate the clinical acuity of an individual who has tested positive, and inform decision making regarding access to therapeutics by clinicians.

The National Case Investigation Service (NCIS) follows up via phone call with all cases who were PCR tested who have not been informed via the automated text, and those from priority populations who have not completed the online contact tracing form within 12 hours. In addition, an inbound phone number has been established for people who need support to complete the online contact tracing form.

Performance Measures

These case investigation and contact tracing system performance measures are focussed on the service's performance in reaching positive COVID-19 cases and collecting the relevant information, during the Omicron response. These measures are described in Table 1 below.

Table 1: List of current case investigation and contact tracing system performance measures

Measure	Description
Cases informed (notified via call or text) <i>The proportion of cases who have been informed they are a case, via automated text message or a phone call from case investigators.</i>	This metric allows us to monitor system performance in relation to case notification – a high proportion of cases successfully informed indicates that the case investigation service is delivering official notification and advice to COVID-19 cases, to support the reduction of onwards transmission.
Cases who successfully received the automated text message <i>The proportion of cases that have successfully received the case notification text message including a link to the online contact tracing form.</i>	This metric is used to monitor the number of cases being reached via the digital pathway of the contact tracing system. A high proportion indicates the digital communication channel is successfully reaching the majority of cases. The impact of this is a reduction in the proportion of cases requiring a phone call from case investigators to inform them of their result which introduces system efficiencies and enables scalability and prioritisation of resources to support our priority populations.
Cases who have responded to the online contact tracing form, of those that have received a link via SMS <i>The proportion of cases that have completed the online contact tracing form, out of the cases who successfully received a link via SMS.</i>	This metric is used to monitor case investigation completion via the digital pathway specifically – a high proportion indicates a high completion rate of the form. The impact of this is a reduction in the proportion of cases requiring a phone-based interview by case investigators. Low completion rates can be utilised to inform system improvement including a review and refinement of form content to meet the needs of those groups not completing it.

Measure	Description
<p>Cases interviewed via phone call or submission of online contact tracing form</p> <p><i>The proportion of cases who have been interviewed by case investigators via phone call or have completed the online contact tracing form.</i></p>	<p>This metric allows us to monitor overall case investigation coverage via phone call or the online service tool – a high proportion indicates that the majority of cases have been reached to provide information. The online contact tracing form or phone-based interview collects initial information about a case, their household contacts, and any high-risk exposure events where they may have been infectious. This information enabled the system to support the health and wellbeing of the individual, their whānau, and their community.</p>
<p>Cases who have recorded contacts via the online contact tracing form, of those that have responded</p> <p><i>Proportion of cases that have recorded contacts via the online contact tracing form, out of the cases who have completed the form.</i></p>	<p>This metric is used to monitor the proportion of cases who provided information about their household contacts, of those completed the online contact tracing form. A high proportion indicates a high proportion of people filling out the form informed us of their household contacts. This indicates that there was good engagement with the online contact tracing form and that it has good usability.</p>

Overview of Performance

The table below shows the performance against the key case investigation measures by ethnicity, for the 647,880 community cases created in the NCTS between 4pm 16 February, when the contact tracing form went live, and 31 March 2022.

Table 2: Key performance measures for all cases between 4pm 16 February and 31 March 2022, by prioritised ethnicity

Measure	Māori	Pacific	Other	Overall
Cases informed (notified via call or text)	93%	93%	97%	96%
Cases who successfully received the case self-survey text message	88%	86%	94%	91%
Cases who have responded to the online survey, of those that have received a link via SMS	54%	43%	65%	59%
Cases interviewed via phone call or submission of online survey	64%	60%	70%	67%
Cases who have recorded contacts via the online survey, of those that have responded	74%	70%	74%	73%

The percentage of cases informed (notified via call or text) is high during this period, across ethnicity groups. Cases who do not receive the automated notification text message are followed up by the NCIS if they were tested by PCR, or if they fall into a priority group. Those who self-tested via RAT are assumed to be informed already as they conducted their own test. In addition, in some instances, people are unable to be contacted, for example, where all phone calls are unanswered, or a valid phone number is unable to be found, despite efforts.

The percentage of Māori and Pacific cases informed is slightly lower than for other ethnicity groups, which may be influenced by the lower proportion of Māori and Pacific cases successfully notified via text message. However, the overall percentage of Māori and Pacific cases informed indicates a considerable proportion of those who did not receive the automated text message were able to be successfully reached via phone call by the NCIS.

Online contact tracing form response rates are moderate during this period. The NCIS phone-based interview pathway for priority populations has successfully increased the system's reach, as highlighted by the higher percentage interviewed overall compared to online form response rates (67% compared to 59%). The added value of this prioritised pathway is particularly evident when comparing interview

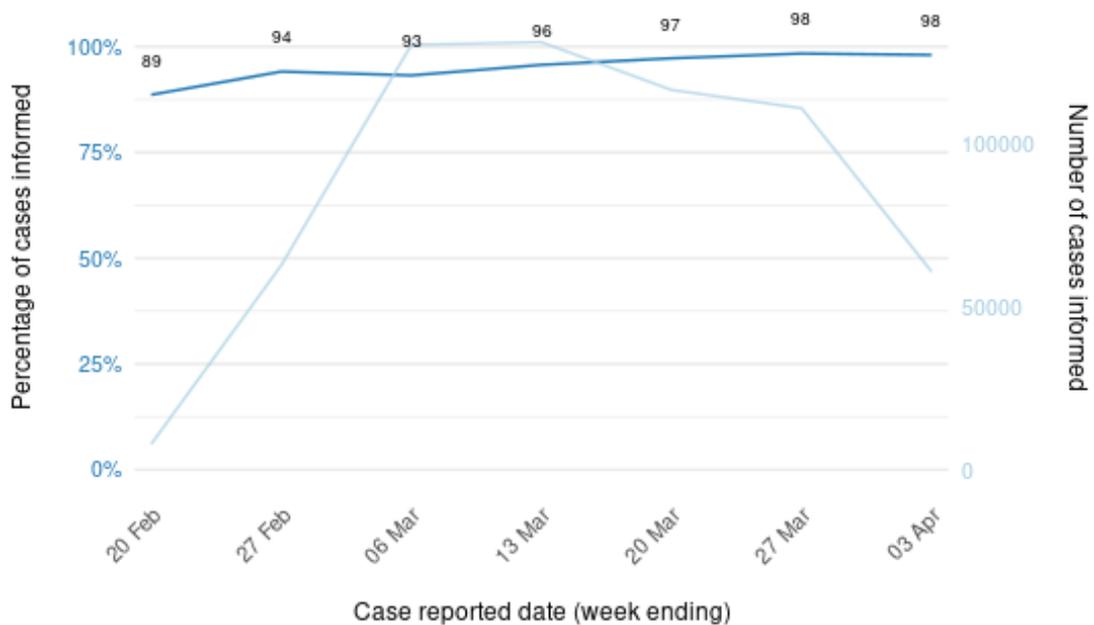
reach for Māori and Pacific cases (64% compared to 54% and 60% compared to 43%, respectively).

The percentage of successfully interviewed cases who recorded contacts was also high throughout the period, at 73% overall, with comparable rates across the ethnicity groups. Note that during Phase three of the Omicron response, which was implemented from 25 February 2022, only household contacts are recorded in the National Contact Tracing Solution. As such there are some instances where we would not expect a case to provide details of their contacts via the online form, for example where a case lives alone.

Reaching cases

The percentage of cases informed by a call or text has increased week-on-week, largely due to technology enhancements following initial implementation of the automated text message system. Figure 1 below shows the percentage and number of cases informed each week throughout the reporting period.

Figure 1: Percentage and number of cases informed, by week case reported.

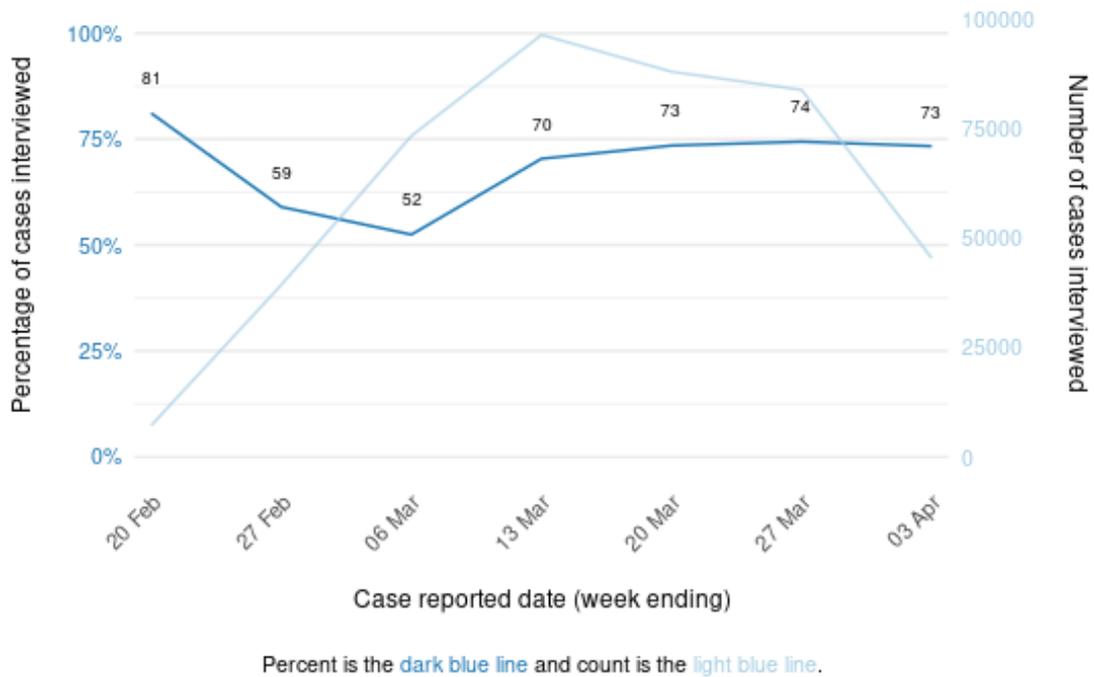


Percent is the dark blue line and count is the light blue line.

The percentage of cases interviewed (online or by phone) has increased throughout the period due to simplification of the online contact tracing form, the introduction of reminder text messages, and scaling of NCIS resources to deliver the phone-

based pathway in response to unprecedented case volumes. Figure 2 below shows the percentage and number of cases interviewed each week throughout the reporting period.

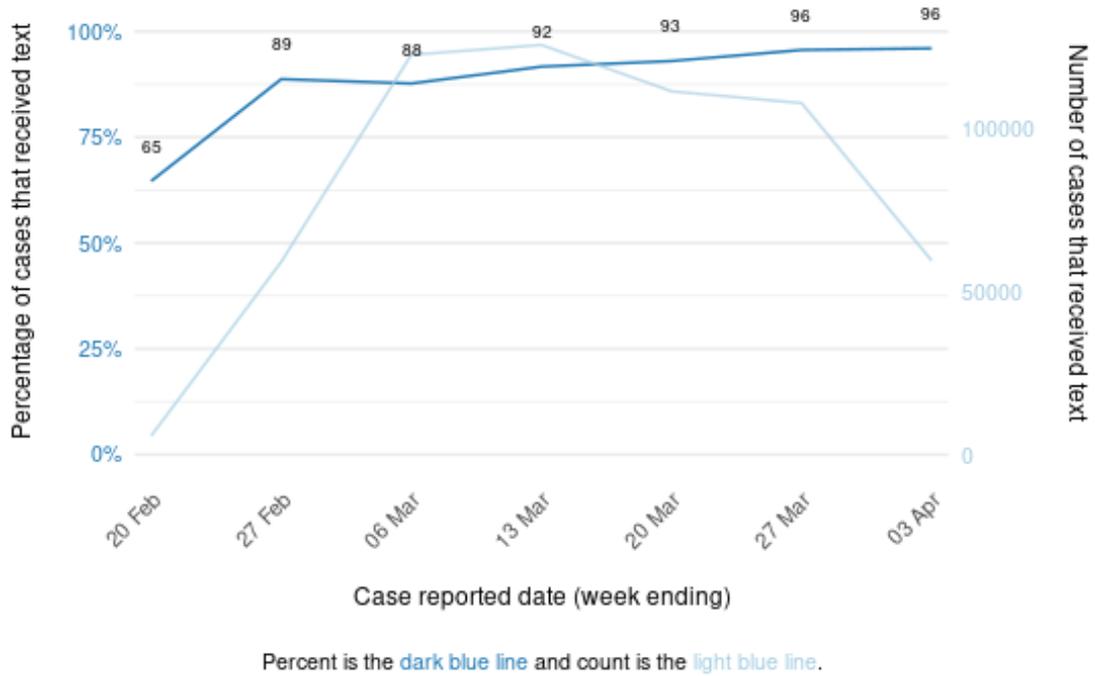
Figure 2: Percentage and number of cases interviewed, by week case reported.



Digital pathway

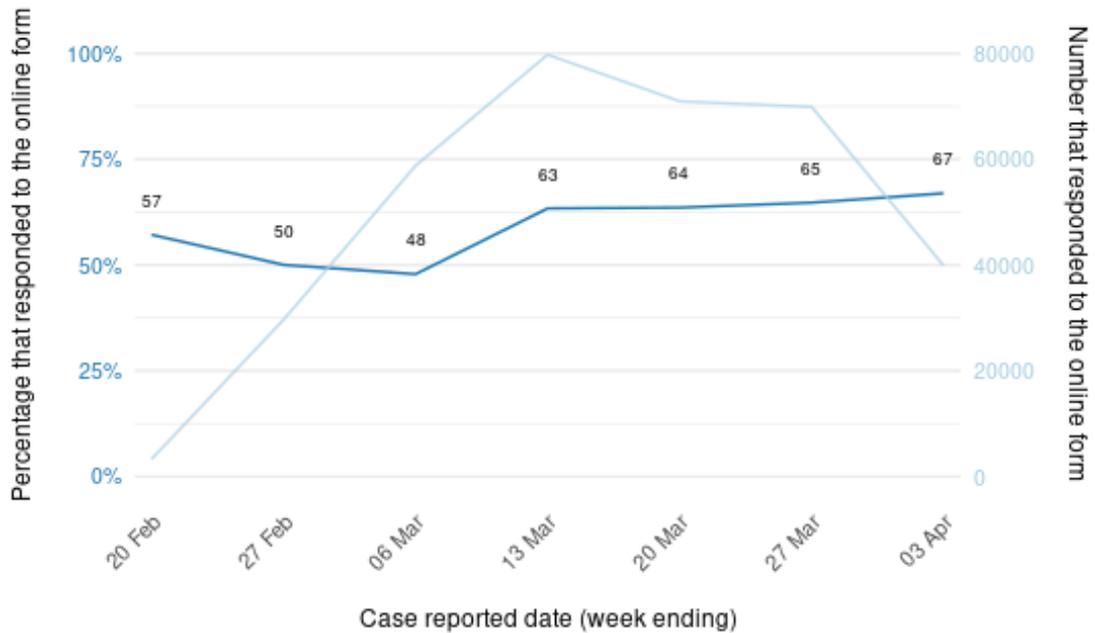
Following the move to Phase three of the Omicron response, the automated case notification text message and online contact tracing form went live at 4pm on 16 February 2022. Overall uptake of this pathway has steadily increased week-on-week during this period as digital tools were continuously enhanced. Figure 3 below shows the percentage and number of cases who successfully received the automated text message each week throughout the reporting period.

Figure 3: Percentage and number of cases who received the automated text, by week case reported



In early March, the simplified online form was deployed, and reminder text messages were introduced. Response rates in the weeks following these developments strongly suggest that the improvements have increased case engagement with the digital case investigation tool – increasing from 48% in the week ending 6 March to 63% the following week. Figure 4 below shows the percentage and number of cases who submitted the online contact tracing form, of those who received the automated text message, each week throughout the reporting period.

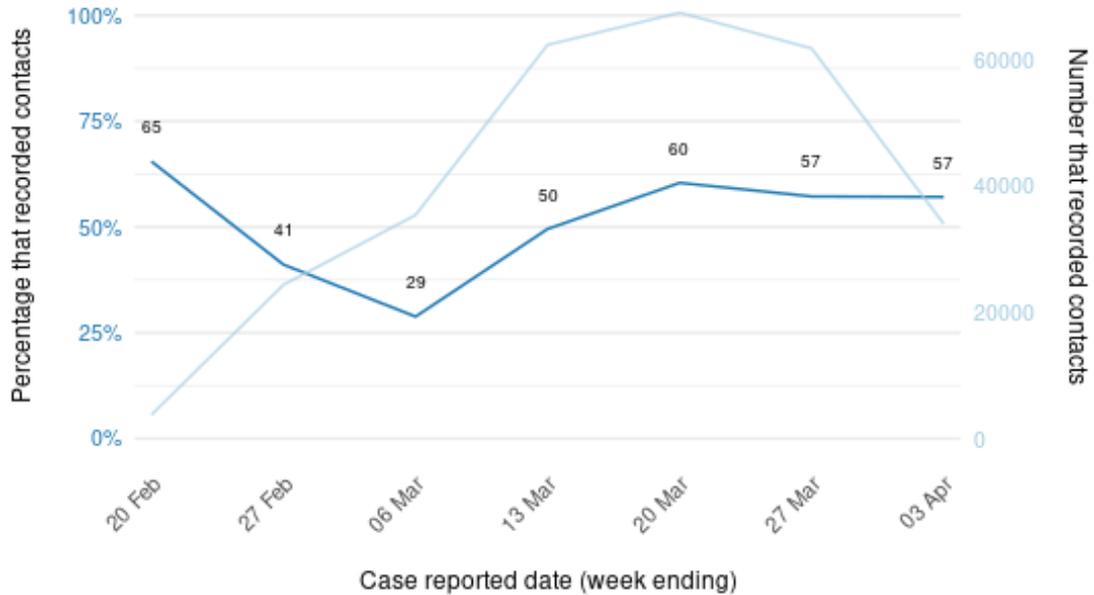
Figure 4: Percentage and number of cases who responded to the online form (of those that received a link), by week case reported



Percent is the dark blue line and count is the light blue line.

Similarly, the proportion of successfully interviewed cases who recorded contacts appears to have significantly improved following deployment of the simplified online contact tracing form in early March – increasing from 29% in the week ending 6 March to 50% the following week. The percentage of cases providing details of their contacts via the online form appears to have stabilised around 60% for the last few weeks of the period. Figure 5 below percentage and number of cases who provided details of their contacts, of those who submitted the online contact tracing form, each week throughout the reporting period.

Figure 5: Percentage and number of cases that have recorded contacts via the online form (of those that have responded), by week case reported



Percent is the dark blue line and count is the light blue line.

Prioritised populations

As case numbers have increased over the course of the Omicron outbreak, the NCIS has needed to prioritise who they follow up with based on the public health and potential clinical risk for individuals. As a result, priority populations are prioritised for a phone call if they (or their guardian or caregiver) have not completed the online contact tracing form. This might be because they do not have access to the internet to complete the form, or they may not feel confident in providing information in this way. The NCIS also follows up with people who have tested positive for COVID-19 via PCR test but have not been informed they are a case via the automated text.

The below table details performance against system measures for prioritised and other cases reported during the period. The success of the digital pathway is lower for the prioritised population than for other cases, however the percentage of the prioritised population reached for a case interview is higher than for all other cases (73% compared to 66%).

Table 3: Key performance measures for cases reported between 16 February 2022 and 31 March 2022, by prioritised and other cases

Measure	Prioritised	Other	Overall
Cases informed (notified via call or text)	94%	96%	96%
Cases who successfully received the case self-survey text message	87%	92%	91%
Cases who have responded to the online survey, of those that have received a link via SMS	48%	61%	59%
Cases interviewed via phone call or submission of online survey	73%	66%	67%
Cases who have recorded contacts via the online survey, of those that have responded	71%	74%	73%

The below table details performance against system measures by ethnicity, for the 98,116 prioritised cases reported during the period. Performance for prioritised Māori and Pacific cases is comparable across all measures and the overall percentages informed and interviewed are higher than for other ethnic groups.

Online contact tracing form response rates are lower for prioritised Māori and Pacific cases than other ethnic groups, with a higher proportion of prioritised Māori cases completing the online form than prioritised Pacific cases during this period (51% compared to 40%).

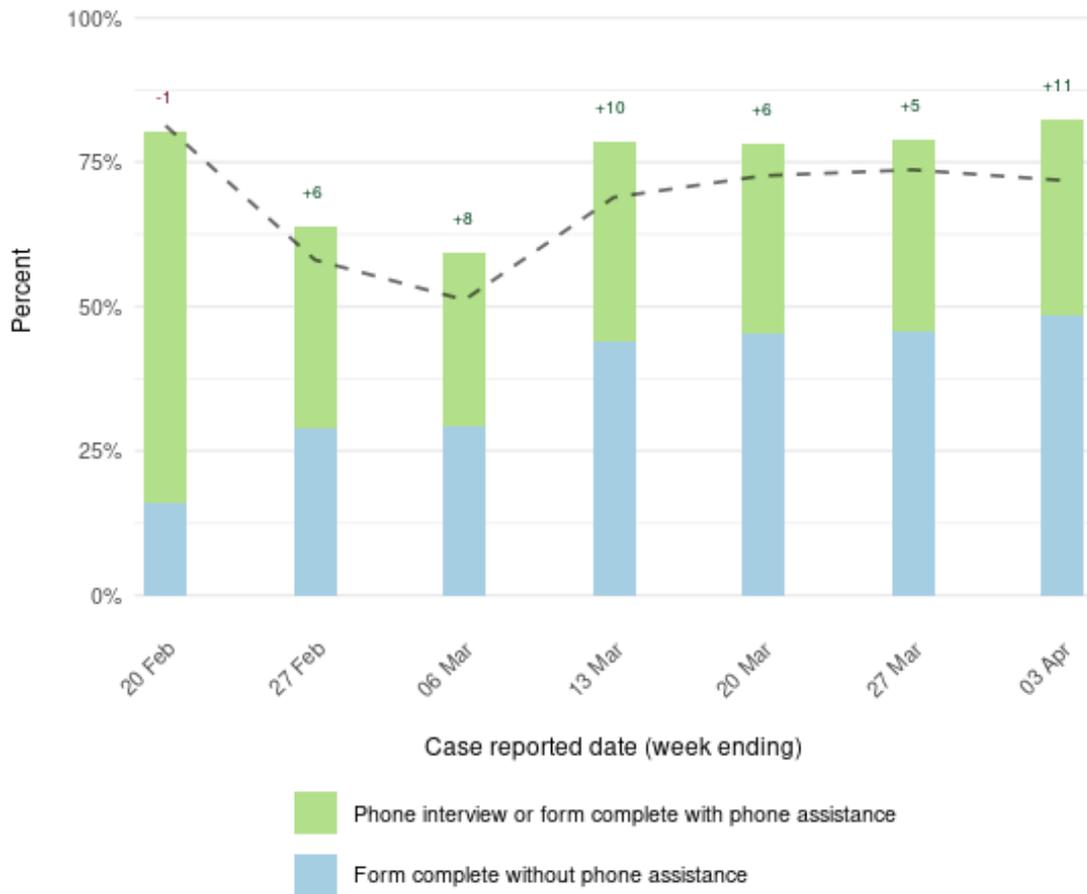
Table 4: Key performance measures for prioritised cases reported between 16 February 2022 and 31 March 2022, by ethnicity

Measure	Māori	Pacific	Other	Overall
Cases informed (notified via call or text)	94%	94%	92%	94%
Cases who successfully received the case self-survey text message	89%	87%	85%	87%
Cases who have responded to the online survey, of those that have received a link via SMS	51%	40%	53%	48%
Cases interviewed via phone call or submission of online survey	77%	74%	65%	73%
Cases who have recorded contacts via the online survey, of those that have responded	74%	71%	63%	71%

Figure 6 below shows interview completion by channel, either online form completion or phone-based interview completion, for prioritised cases (bars). It also shows online form completion for other cases (dashed line).

Figure 6: Interview completion for prioritised cases (stacked bars) and non-prioritised cases (dashed line), by date case created

The numbers above each bar show the percentage difference of cases interviewed from the prioritised group compared to the non-prioritised group. A green positive number indicates the service is reaching more of the prioritised population, while a red negative number indicates the system is underperforming for the prioritised population.



The data presented in this section demonstrates the value added by the phone-based pathway for cases from prioritised populations who do not complete the online contact tracing form. Without this equity-centred approach for prioritised populations the interview completion rate among priority populations would be approximately 20% below that of the non-prioritised populations. While case interview completion is not a direct measure of health outcomes, the measure does provide some insight into the engagement that a COVID-19 case has with the health and disability system. This engagement increases the opportunity for the system to provide support to ensure cases can isolate with the resources they need, and that they have access to any care they require if unwell.

Equity monitoring

This section presents case investigation performance for Māori and Pacific cases aged 35 or over compared to all other cases. The service is focussed on continued system improvement to ensure Māori and Pacific communities can access any health care and support they need after a positive result, and how to improve the uptake of digital tools.

The below table details performance against system measures for the Māori and Pacific priority group compared to all other cases.

As noted in the previous section, despite lower online form response rates the overall percentage interviewed is higher for prioritised Māori and Pacific cases than for all other cases – indicating the value added by the NCIS phone-based pathway in reaching Māori and Pacific cases for an interview.

Table 5: Key performance measures for cases reported between 16 February 2022 and 31 March 2022, by prioritised (Māori and Pacific cases aged 35 or over) and other cases

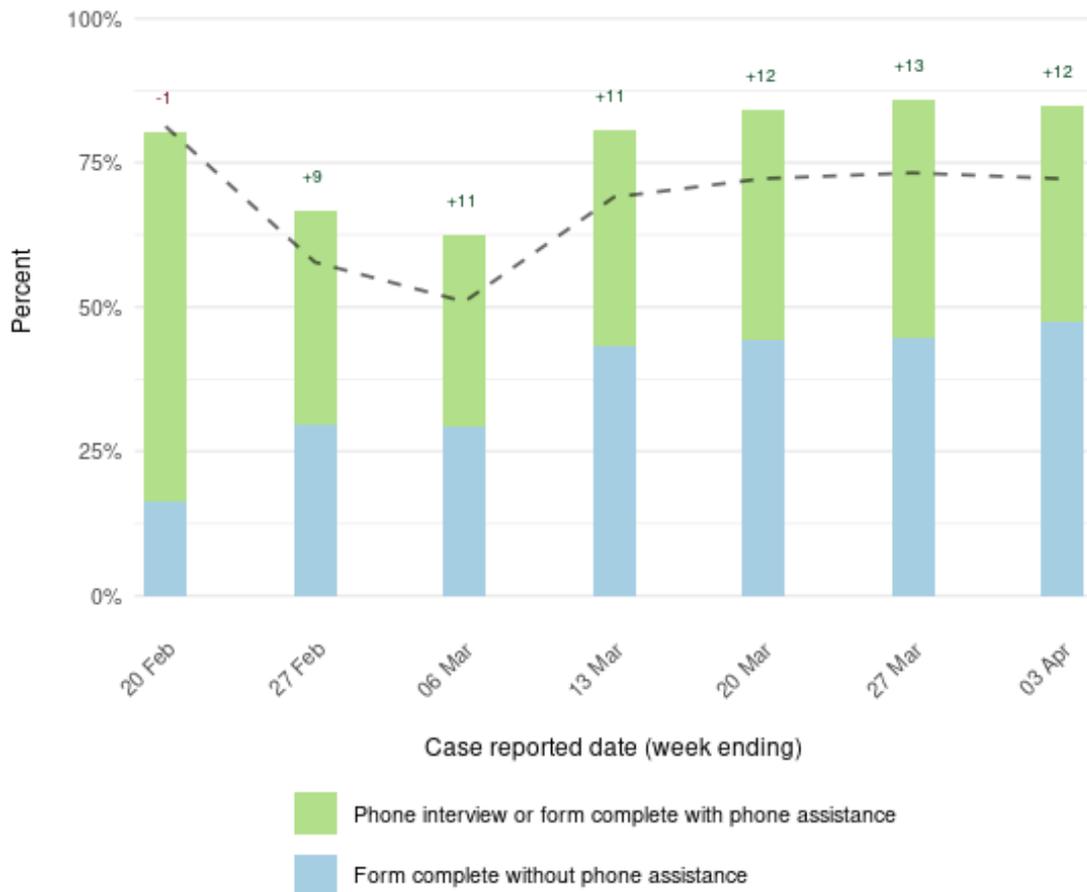
Measure	Prioritised	Other	Overall
Cases informed (notified via call or text)	94%	96%	96%
Cases who successfully received the case self-survey text message	88%	92%	91%
Cases who have responded to the online survey, of those that have received a link via SMS	46%	61%	59%
Cases interviewed via phone call or submission of online survey	76%	66%	67%
Cases who have recorded contacts via the online survey, of those that have responded	73%	73%	73%

Figure 7 below shows interview completion by channel, either online form completion or phone-based interview completion, for Māori and Pacific cases aged over 35 (bars). It also shows form and interview completion for other cases (dashed line).

Figure 7: Interview completion for Māori and Pacific cases aged 35 or over (stacked bars) and other cases (dashed line), by date case created

The numbers above each bar show the percentage difference of Māori and Pacific cases aged over 35 interviewed compared to all other cases. A green positive number indicates the service

is reaching more Māori and Pacific cases over 35, while a red negative number indicates the system is underperforming for this group.



Again, the data presented in this section indicates the significant value added by the NCIS phone-based pathway for prioritised populations. Without this approach, the interview completion rate for Māori and Pacific cases aged 35 or over would be approximately 20% lower than for all other cases. However, by continuing to have a phone-based pathway available for this group, we instead successfully reach approximately 10% more of this group than all other cases for a case interview. This enables the collection of information critical to the provision of wraparound support by the health and disability system.