

Aotearoa New Zealand's COVID-19 Testing Plan

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Executive summary

Aotearoa New Zealand is aiming to eliminate COVID-19 and is pursuing this through a range of control measures to stop the transmission in the community. The elimination strategy aims to:

- eliminate transmission in Aotearoa New Zealand
- prevent the emergence of new cases and ongoing transmission from new arrivals.

Achieving the goal of elimination is underpinned by the key objectives outlined in the Surveillance Strategy (*Aotearoa New Zealand's COVID-19 Surveillance Strategy*), rapid identification of cases of COVID-19 and effective public health management and response to prevent further transmission of COVID-19 within the community in New Zealand. A robust testing plan to detect cases early forms a key pillar of surveillance.

The purpose of the Testing Plan is to provide clear and flexible guidance for a sensitive detection system under different scenarios. The Testing Plan takes a systematic risk-based approach to testing focused on having the most sensitive detection system. Three settings for testing are identified:

- at the border (ongoing)
- in the community (ongoing)
- testing for contact tracing and cluster management (when required).

This plan includes a suite of testing methodologies applied in a way that maximises our chances of early detection.

- Benchtop reverse transcription polymerase chain reaction (RT-PCR) is the gold standard for detecting SARS-CoV-2 viral ribonucleic acid from the nasopharynx.
- Whole genome sequencing (for all cases that reach New Zealand) to support case investigation, source attribution and understanding of changes in the viral genome over time.
- Serological testing for detection of antibodies to SARS-CoV-2, where appropriate (eg, for suspected 'historical' cases that are weakly positive by PCR), to differentiate current and historical infections and guide management.

Context

Aotearoa New Zealand is aiming to eliminate COVID-19 and is pursuing this through a range of control measures to stop the transmission in the community. The elimination strategy aims to:

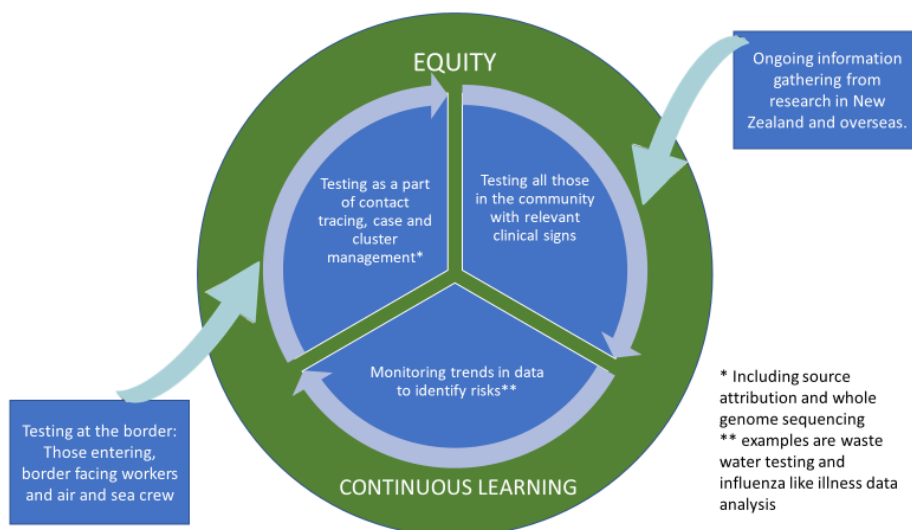
- eliminate transmission in Aotearoa New Zealand
- prevent the emergence of new cases and ongoing transmission from new arrivals.

Achieving the goal of elimination is underpinned by the key objectives outlined in the Surveillance Strategy (*Aotearoa New Zealand's COVID-19 Surveillance Strategy*), rapid identification of cases of COVID-19 and effective public health management and response to prevent further transmission of COVID-19 within the community in New Zealand. A robust testing plan to detect cases early forms a key pillar of surveillance.

The Testing Plan is subsidiary to the Surveillance Strategy. Detailed testing guidance for the health sector will be provided on a periodic basis in the *COVID-19 Testing Guidance for the health sector* document.

Figure 1 provide a conceptual model of the role of testing with the broader elimination strategy.

Figure 1 Conceptual model of the role testing plays in pursuing the elimination



Purpose

The purpose of the Testing Plan is to provide clear and flexible guidance for a sensitive detection system of COVID-19 under different scenarios. This plan is a key component in Aotearoa New Zealand's pandemic response. It must remain fit for purpose and agile enough to incorporate new technologies and manage emerging risks.

This plan also provides a mechanism for iterative review by a suitably qualified group and operational guidance about any targeted coverage at the local level.

A systematic risk-based approach to testing for early case detection

The Testing Plan takes a systematic risk-based testing approach to testing focused on having the most sensitive detection system that will detect cases early and minimise the risk of any further transmission (key objectives of the Surveillance Strategy).

The rationale underpinning risk-based strategies is that those individuals at higher risk (of exposure, transmitting or impact) merit higher priority for surveillance resource as testing these individuals will be more likely to identify positive cases. This is compared with sampling a random subset of the entire population, which is not part of the Surveillance Strategy.

The overall approach of this testing plan is to identify the high-risk groups and provide systematic guidance on the frequency of testing (where appropriate). It is essential the approach acknowledges that Māori disproportionately experience poorer health comes. Meeting our obligations under Te Tiriti o Waitangi is necessary to realise our overall aim of equitable outcomes.¹

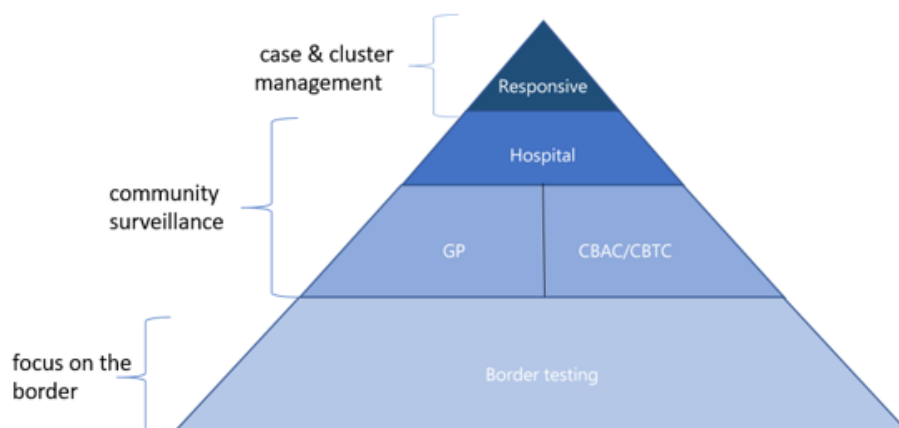
This plan includes a suite of testing methodologies applied in a way that maximises our chances of early detection.

- Benchtop reverse transcription polymerase chain reaction (RT-PCR) is the gold standard for detecting SARS-CoV-2 viral ribonucleic acid (RNA) using the nasopharyngeal swab.
- Whole genome sequencing for all positive isolates must be attempted to ensure that a full library of genomes is available for source attribution in both community and border settings. This will support case investigation, source attribution and understanding of changes in the viral genome over time. As we seek to maintain our elimination position, source attribution is extremely important. This is because it is possible to have undetected chains of transmission in the population and so finding the origin of an infection will allow additional forward contact tracing and complete identification of the infectious network.
- Serological testing for detection of antibodies to SARS-CoV-2, where appropriate (eg, for suspected 'historical' cases that are weakly positive by PCR), to differentiate current and historical infections and guide management. The use of serological testing for detection of antibodies should be considered as part of case investigation and source attribution to establish the timelines of infection and to investigate potential sources of disease. That said, serology is not used to identify infectious cases. In the same way, using the testing of wastewater to screen the population is not a way to identify infectious cases without significant additional investigation.
- Research into wastewater testing is being undertaken to assess its value and may give an early warning of new cases within a specific catchment and high-risk settings.
- Rapid point-of-care tests are reported in the international literature and media on an ongoing basis, our unique position and low pre-test probability means that our focus must remain on having the most sensitive detection system and each new test must be assessed for what it brings to our New Zealand specific plan and goal. The value and use of rapid point-of-care tests will continue to be assessed as New Zealand's response continues.

This plan (Table 1) identifies three settings. Of these settings, the testing at border and in the community are ongoing, whereas testing for contact tracing and cluster management is deployed as required (Figure 2).

¹ The principles that shape how we will achieve this goal are the guarantee of tino rangatiratanga, equity, active protection, options and partnership. These principles must be central to our decision making during this pandemic response and offer a guide as we plan and embed our ongoing testing approach.

Figure 2 Schematic of different testing settings and the delivery location of those



Border

The focus on testing at the border is to decrease the risk that COVID-19 enters New Zealand communities where it may spread undetected. The focus is on arrivals into New Zealand international air and maritime crew and border facing workers.

People entering New Zealand from overseas present a different risk to New Zealand's elimination goal when compared with those people working at the border. People entering New Zealand are a higher risk group because they may be coming from countries with high transmission rates of COVID-19 and hence have a higher risk of exposure and thus infection.

Those working at the border are tested at a frequency determined by a risk-based assessment, which has been documented in the border orders (Table 1). Any person who starts to exhibit clinical symptoms that could be COVID-19 must be tested regardless of where in their scheduled test cycle they are.

Community

The challenge in the community is to identify and test those people who are most likely to have COVID-19 should it be present. To this end we recommend testing all those who present with clinical symptoms consistent with COVID-19. This approach will be a key pillar of the Testing Plan over the longer term.

Symptoms consistent with COVID-19 include any person with any acute respiratory infection with at least one of the following symptoms (with or without fever): new or worsening cough, sore throat, shortness of breath, coryza and anosmia.

Further to this, those who have a higher risk of exposure if there is disease within the community, those with a higher risk of transmitting the disease and those who are likely to have poor health outcomes if disease is contracted should be prioritised, should prioritisation of testing be required (eg, testing capacity is reached).

People in settings with a higher risk of exposure or disease transmission include:

- health workers including aged residential care workers
- hospitality workers
- public facing tourism workers
- public facing transport workers
- communal living situations (eg, aged residential care, barracks, halls of residence, corrections facilities).

People at higher risk of poor outcomes include:

- Māori
- Pacific
- over 70 years olds
- pregnant and recently pregnant women
- those with known co-morbidities (including immune compromised)
- those with less access to health services (eg, lower socioeconomic status, rural, former refugees and recent migrants)

Asymptomatic testing in the community

The Ministry of Health and/or public health units may consider undertaking targeted asymptomatic testing should a community outbreak occur. This will be advised to the sector depending on the current situation.

Contact tracing and cluster management

The investigation and management of cases, contacts and clusters is guided by the Medical Officer of Health and public health units utilising the *National Case Investigation Quality Framework* and *COVID-19 Cluster Investigation and Control Guidelines*. These guidelines reflect the national approach but allow for flexibility to follow local guidance from the Ministry of Health based on the principles of risk-based testing. In short, identification of a case triggers contact tracing both forwards and backwards from the exposure date, to identify the source and limit forward spread. Close contacts are isolated and tested on day 5 and day 12. Testing and initial isolation of asymptomatic casual contacts depends on the local context and must be considered (to help limit wider public health responses such as lockdowns) particularly where no source has been identified or the situation is high risk (either in terms of likelihood or impact).

Review of this plan

This plan will be reviewed as required or within at least six months to ensure it remains fit for purpose. Examples of triggers for reviewing this plan may include development of new testing methods or a change in risk profile.

The Ministry of Health will continue to review testing and surveillance data risk and assessments based on local conditions at a national level to provide up to date advice on a periodic basis via the operational guidance for the health sector (*COVID-19 Testing Guidance for the health sector*). This guidance identifies specific populations where testing rates are lagging behind expected coverage rates. For example, if analysis of testing data identifies gaps in testing, this analysis along with recommendations will be highlighted in the *COVID-19 testing guidance to the health sector*. In addition to the baseline testing plan, recommendations may advise on testing in areas where there have been recent cases, after large events or in higher risk groups not covered by the mandatory testing regimes (eg, tourism and service workers).

Ministry of Health's knowledge repository

The Ministry of Health has a role in evaluating the latest science and technical evidence in relation to COVID-19 and turning this into knowledge that is used to inform what we do. Our most recent science and technical knowledge relating to testing, and to COVID-19 in general, is collated in the Science and Technical Advisory Knowledge Repository.

Table 1 Testing approach by setting

Testing category		Testing approach
Contact tracing and cluster management	Guided by Medical Officer of Health and public health units utilising the <i>National Case Investigation Quality Framework</i> and <i>COVID-19 Cluster Investigation and Control Guidelines</i> . Includes both symptomatic and asymptomatic people.	
Border¹ For detailed guidance refer to: https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-response-planning/covid-19-epidemic-notice-and-orders#border	Residents at MIF/MIQ facilities	Test and isolate all people with symptoms of COVID-19 ^{2,3} Test at day 3 and 12
	Border workers – at MIF/MIQ facilities, airports and sea ports	Test and isolate all people with symptoms of COVID-19 ^{2,3} Frequency of asymptomatic testing as per risk-based schedule
	Air and Maritime crew	Test and isolate all people with symptoms of COVID-19 ^{2,3} Frequency of asymptomatic testing as per risk-based schedule
Community	Hospitals	Test all people with symptoms of COVID-19 ^{2,3}
		Test and notify to Medical Officer of Health all people with symptoms of COVID-19 who meet HIS criteria, and isolate until a negative test is obtained ^{2,3}
		Targeted asymptomatic testing – on advice from Ministry of Health and/or public health unit only
	Primary health provider (general practice, urgent care, pharmacy, Healthline)	Test/refer for testing all people with symptoms of COVID-19 ^{2,3}
		Test and notify to Medical Officer of Health all people with symptoms of COVID-19 who meet HIS criteria, and isolate until a negative test is obtained ^{2,3}
		Targeted asymptomatic testing – on advice from Ministry of Health and/or public health unit only
	Community Based Assessment/Testing Centre (CBAC/CBTC)/Mobile testing pop-up	Test/refer for testing all people with symptoms of COVID-19 ^{2,3}
		Test and notify to Medical Officer of Health all people with symptoms of COVID-19 who meet HIS criteria, and isolate until a negative test is obtained ^{2,3}
		Targeted asymptomatic testing – on advice from Ministry of Health and/or public health unit only

¹ Testing approach at the border will depend on current border orders and amendments. Any changes to the border orders supersede advice in this table.

² <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-information-health-professionals/case-definition-and-testing-guidance-covid-19#definition>

³ <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-information-health-professionals/case-definition-and-testing-guidance-covid-19/questions-and-answers-community-testing>