

16 July 2020

Hon Chris Hipkins
Minister of Health
Parliament Building
Wellington
New Zealand

Dear Minister

Contract Tracing Assurance Committee (CTAC)

The Contact Tracing Assurance Committee was appointed on 6 May 2020 to undertake a number of tasks with the objective of providing assurance to your predecessor that the recommendations of the Verrall Report had been implemented. We were also asked to identify any other emerging risks and/or issues that arose through our review.

The bulk of the work was undertaken in the period of late May and early June with an initial interim report prepared and presented, in draft, to your predecessor.

Given the then rapidly changing events as issues around the border quarantine processes arose together with the ongoing efforts of the Ministry regarding the Verrall Report recommendations, the Minister at the time asked that we update the recommendations and observations set out in the Interim Report. A further update on progress within the Ministry was undertaken on Thursday 9 July 2020. Given the time frames and other timing pressures three members of the Committee (Liz Read, Dr Marion Poore and Warren Moetara) were unable to attend the meetings. They have subsequently reviewed the work undertaken and contributed to the finalisation of the report.

As a result, the report has been completed in two parts:

- A Final Report dated 16 July 2020 (refer to Appendix A) which updates our earlier conclusions and recommendations; and
- An Interim Report and accompanying draft cover letter dated 12 June 2020 (refer to Appendix B) which sets out the observations that we thought required the attention of the Ministry of Health.

Set out in the attached appendices are a range of observations that the Committee believes merit the ongoing attention of the Ministry of Health and the wider Public Sector.

A key point to note is that considerable progress has been made by the Ministry of Health with respect to the implementation of the Verrall Report. New Zealand is in an increasingly strong position as a result of that effort. The Ministry is to be commended, given the multiple pressures the staff have been under.

Further optimisation is now the goal and it is clear that the systems adopted by the Ministry will continue to evolve as learnings occur within the New Zealand and global environments. New Zealand can have a highly effective and deployable contact tracing system that is capable of retaining the confidence and trust of key stakeholders.

The work undertaken by the Ministry to respond to and implement the Verrall Report has been largely completed. The foundations are in place and this represents a critical first step to support the preparedness to respond. Going forward, assurance and proof of the ability to deploy and respond will facilitate optimisation. This involves stress-testing and scenario planning of a range of probable outcomes. Once these have been completed, they will provide a high level of assurance to you as Minister as to the system's ability to be deployed and be successful.

A well-functioning, well-informed and integrated contact tracing process is a critical element of any response. This outcome will continue to be a core element of the ability to retain the confidence and trust of the general public and key stakeholders.

The contact tracing system is core to our level of preparedness. Its resourcing, leadership and ability to access high quality, accurate information with respect to the movements and contacts of individual members of the public is an ongoing challenge which must continue to be addressed.

In the view of the Committee there is an urgent need to focus on the following areas:

- **Scenario planning and stress-testing of the system** along with a full risk register are required. Having a newly designed and implemented system is encouraging but until it has been stressed-tested and amended/modified as required there are ongoing risks of failure. Scenario planning and stress-testing were recommended by the Allen + Clarke report and the Committee (through discussions) in May. The Ministry is planning to undertake this exercise in late July and again in August.

In keeping with the need for a whole of system approach to COVID-19, contact tracing capacity should be seen and framed within the context of the overall management of an outbreak, should one occur. As such, scenario planning will need to include an integrated approach to the use of the tools available – including clear leadership and role allocation, strategic testing, regional alert level changes, travel restrictions to and from the affected region/city and contact tracing.

Scenario planning, stress-testing and the development of a risk register as outlined above are normal within response-type systems such as Fire and Emergency, Bio-Security and Police operations. A response to a COVID-19 outbreak has many of the same characteristics.

- **Clarity of accountabilities and decision rights** within the three core interventions around border controls, testing and contact tracing require ongoing work. The operating environment is dynamic and the processes and associated accountabilities need to reflect that. Clarity on the command and control structure is critical. Recent events at the border have highlighted the need for clarity in this area.

Specifically with respect to an outbreak of COVID-19, it is important that the command and control structure and decision-making rights are transparent and understood by all those likely to be involved in a response. Management of a potentially fast-moving outbreak should be led by an appointed person with training in public health and outbreaks of infectious diseases who has the authority to act quickly using all the tools available, with the involvement and confidence of Cabinet and the Director-General of Health.

- **The role of technology to support contract tracing** is a fundamental enabler of a high quality and responsive system. Ongoing effort is required to simplify and make more useable the current App, together with clarifying the role of other technologies such as the Bluetooth Card and/or other improvements made by Google and Apple. Having readily accessible high-quality information is critical to success irrespective of its source. Making it easy for the public to record information is an ongoing task made more challenging by the lack of what many see as

a lack of an imminent threat. The complacency which is currently evident makes this a critical and ongoing issue.

- **Fit for purpose project structure** and response is a critical success factor. The recently adopted structural change for overall responsibility of the COVID-19 response within the Ministry is encouraging. It is critical that the project structure and those who work within it provide the connectivity, support and leadership to respond to any outbreak. It is a very significant challenge that will require ongoing effort and modification as and when circumstances change, especially as the response moves beyond the exclusive domain of the Ministry of Health.
- **A very active cross-Government approach** will be required to achieve success and to ensure that the Ministry can retain the confidence and understanding of others within the Government response. There would be merit in continuing to review where the response is best placed within the Public Sector to ensure the success of any response that arises.
- **A whole of system** view must continue to be taken within the adopted approach and strategy. The public health sector has historically suffered from fragmentation and at times, an unhealthy focus on institutional independence. The approach currently adopted by the Ministry, which the Committee supports, will challenge the historical operating model adopted within the sector. The associated cultural and operational challenges should not be underestimated.

The leadership role of the Ministry will be critical to an integrated and seamless approach to any response. While good progress has been made and an enviable position has been achieved to date, the system leadership approach adopted by the Ministry will need to continue and be focussed on overcoming any impediments to a system view and an end-to-end approach.

We are available to discuss and/or elaborate on any of the issues raised in both the interim and final reports.

Yours faithfully

Sir Brian Roche KNZM

Chair on behalf of the Contact Tracing Assurance Committee

FINAL REPORT ON THE CONTACT TRACING SYSTEM

CONTACT TRACING ASSURANCE COMMITTEE

Sir Brian Roche

Warren Moetara

Dr Marion Poore

Liz Read

Professor Philip Hill

16 JULY 2020

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1. Introduction

This report is presented as an update to the Interim Report on the Contact Tracing System (the Interim Report) of 12 June 2020.

The Interim Report recognised the progress that the Ministry of Health had made on the implementation of the Verrall Report. It further noted that while good progress had been made, there remained work to do to ensure that the system was strengthened and de-risked so as to be positioned to deliver rapid, effective contact tracing in the event of a sudden surge in cases.

Given the passage of time from the preparation of the Interim Report until its tabling to the Minister as well as the progress made in between by the Ministry of Health, the then Minister asked that the Committee provides an update to take account of further work undertaken by the Ministry and Public Health Units.

This work was undertaken on Thursday 9 July 2020 through a series of interviews, discussions and review of a range of materials/reports.

2. Observations and Recommendations

2.1 Structure of the Report

This report refers to a number of recommendations, including new recommendations and existing recommendations from both the Interim Report and the Verrall Report. Observations and recommendations are set out in the following manner:

1. Observations and recommendations from the visit of 9 July 2020: New observations and recommendations that arose from the Committee's visit to the Ministry on 9 July 2020 to understand what progress had been made by the Ministry and PHUs since the Interim Report had been written.
2. Updated comments on the recommendations of the Verrall Report: Commentary on progress to the recommendations made by Dr Verrall in her report.
3. Updated comments on the main recommendations of the Interim Report 12 June 2020: Commentary on progress to the main recommendations detailed in section 1.3 of the Interim Report.
4. Updated comments on the detailed recommendations of the Interim Report 12 June 2020: Commentary on progress to the detailed recommendations included in section 2.6 of the Interim Report.

2.2 Observations and Recommendations from the Visit of 9 July 2020

There are a number of areas where we consider further/ongoing effort will be required as issues emerge in the response to COVID-19. These observations and recommendations arose

from the visit to the Ministry of Health on 9 July 2020 and build on those from our earlier engagement with the Ministry of Health:

#	Observation	Recommendation
1	<p>The Ministry and the Public Health Units have continued to optimise the national capacity to conduct rapid case investigation and contact management. New Zealand is in an increasingly strong position to protect its population from COVID-19. This is important, as the expectation should be ‘when’ rather than ‘if’ there are cases that occur in the community again. New Zealanders will benefit from knowing that the systems are in place to be successful.</p>	<p>There would be merit in key stakeholders and the wider public having a clearer understanding of how the system would be deployed and what tools the Ministry and PHUs have created to support such a response. The ongoing messaging about what is required of the general public with respect to information on their movements and contacts is also core to supporting an effective contact tracing system.</p>
2	<p>The Ministry has adopted a new project operating structure to plan and deliver on the COVID-19 response. A new Deputy Chief Executive has been appointed to the overall COVID-19 response portfolio, providing a clear leader for the response. She has only just started in the position and her role is likely to have a significant public profile.</p>	<p>The Committee recommends that if the newly appointed lead is to be part of the “public face” of the response there would be value for them to begin building a public profile so New Zealanders know who is in charge of the COVID-19 response going forward.</p> <p>The Committee recommends that it be made clear, and the public are clear on, who will lead a specific outbreak response at the national level and be the go-to person for public engagement. This person should work in partnership with the PHU leadership in the region/s affected. The leader at national level should be trained in public health and infectious disease outbreaks and have authority, in consultation with Cabinet and Ministry leadership, to use the full range of tools available as quickly as needed.</p>
3	<p>Ministry and PHU staff have had a very heavy workload over the last few months and it will be important that staff workload is sustainable, including strategic active oversight over their</p>	<p>The Committee recommends that Ministry and PHU staff workload and staffing levels are actively managed to maintain a strong, healthy and highly motivated COVID-19 workforce.</p>

	stress and energy levels and holidays to maintain a fresh team.	
4	PHU staff have been involved, rightly, in establishing managed isolation facilities. In some places, we understand that they continue to work in these facilities. Many of these staff are earmarked for case management and contact tracing, while is therefore a risk.	The Committee recommends that the risk to the contact tracing capacity of PHU staff being involved in managed isolation facilities be assessed and addressed.
5	The system would be enhanced by identification and establishment of full planning documentation – included amongst these documents should be a full living risk register, scenario planning, and stress-testing the system.	<p>The Committee recommends that three key plans are an urgent priority and should be finalised as soon as possible:</p> <ol style="list-style-type: none"> 1. Outbreak scenario planning with specific scenarios identified at the border and in the community, including a holistic approach to outbreaks that include plans for regional alert level changes, travel restrictions, etc., and the provisional triggers for decisions on each to be made. The key responsibilities and decision rights together with who is allocated them should be clear. 2. Stress-testing. In addition to basic individual component stress-testing, starting with a relatively small ‘artificial outbreak’ the whole system response should be stress-tested. Creating an artificial outbreak may require expert input to optimise its design. Public communication will need to be a key component. 3. A full risk register containing risk identification and risk mitigation should be brought together and subjected to expert review across the range of disciplines involved.

2.3 Updated Comments on the Recommendations of the Verrall Report

On the basis of the interviews we undertook and the information we reviewed, all recommendations of the Verrall Report have been addressed and are now in place. Detailed comments for each recommendation are outlined below.

Rec #	Recommendation	Commentary on Progress to Date
1	<p>The Ministry of Health should expand the capacity of Public Health Units to isolate COVID-19 cases and trace their contacts three to four-fold for as long as COVID-19 remains a public health threat. Some of this additional capacity should include contact tracing teams that can move from one PHU to another according to need.</p>	<p>The Ministry states that as of 14 July 2020 New Zealand had a capacity to manage contact tracing for up to 289 cases/day, with the aim to have a Ready Capacity of up to 350 cases/day by the end of July. At that point PHUs will also be expected to have robust plans for Surge Capacity in place to enable them to scale up to 500 cases/day within 3 to 4 days.</p> <p>There is a plan for the Ministry to provide extra capacity to manage up to 500 extra cases/day, to achieve a case investigation Extended Capacity within the system of up to 1,000 cases/day. There is a current call capacity of 10,000 calls/day, with a plan to scale to 30,000 calls by the end of August.</p> <p>The introduction of national standard operating procedures across the PHUs, supported by a common technology platform further facilitate the ability to move people and/or cases between the PHUs and to the Ministry.</p>
2	<p>The Ministry of Health should develop a COVID-19 outbreak preparedness plan that includes how to rapidly scale case identification and contact tracing and regain control. The plan should specify the task-shifting arrangements between PHUs and NCCS ¹ and any additional resource required to deal with up to 1,000 cases per day while maintaining high performance.</p>	<p>The Ministry has strengthened its outbreak preparedness (Preparedness Plan), especially with respect to PHU capacity targets and plans for task-shifting and delegation of cases and close contacts. The aspiration to surge to tracing the contacts of 1,000 cases/day is in place.</p>
3	<p>The Ministry of Health should develop a system that monitors the case-isolation and contact tracing process from end-to-end in the NCCS and PHUs.</p>	<p>The National Contact Tracing Solution (NCTS) component of this process is largely in place. A dashboard for the indicators has been developed to</p>

¹ The National Close Contact Service (NCCS) has been renamed National Investigation and Tracing Centre (NITC) since the writing of the Verrall Report.

	Recommended key performance indicators are listed in the appendix (of Dr Verrall's report). Of these 17 indicators, 3 are critical, 3 are urgent, 10 are high priority and 1 is moderate priority. Ability to measure these indicators in real-time should be proven. [Dr Verrall has since discussed an update of the original indicators with the Ministry]	enable the Ministry, PHUs and other key stakeholders to monitor and compare performance. Three indicators have been prioritised in major documentation: time to seeking a test, time for a test result to be available and time until contact traced and in quarantine.
4	The NCCS and its providers must ensure close contacts in home quarantine are contacted every day to monitor for adherence to isolation and to assess for the development of symptoms.	The Ministry reports that this policy has been put in place as part of the protocols. It may be useful for the Minister to receive a report on compliance with the protocols.
5	The NCCS and Medical Officers of Health should collaborate to better define referral protocols and triage systems, especially with respect to more complex or high-risk contacts.	The Ministry reports that protocols and triage systems have been standardised nationally through a collaborative approach with Medical Officers of Health, Service Managers, other PHU experts and Ministry staff.
6	The Ministry of Health should give PHUs access to the NCTS in order to retain visibility of contacts traced by the NCCS.	The Ministry and PHUs confirm that this has been put in place, with the last PHU on track to join by the end of July.
7	The Ministry of Health should engage with PHUs to determine if the NCTS could be suitable, with modification, as a single national contact information system.	The NCTS has been improved considerably in collaboration with the PHUs and is now in place as the system of choice for COVID-19 case investigation and contact management in 11 of 12 PHUs, with the 12 th joining shortly.
8	The Ministry of Health should rapidly complete development of a smartphone app to assist contact tracing and pilot it in New Zealand. Evaluation of the app should include assessing the proportion of contacts identified by the app who develop COVID-19, as well as other relevant	The smartphone app (NZ COVID Tracer App) has been implemented but the current usage and uptake remains problematic. There is to be a further planned release/update by the end of July. There is capacity for it to evolve further. The potential for it and other potentially linked-in systems has not yet been

	parameters in the appendix (of the Verrall Report).	realised but does represent a key work stream within the Ministry’s work programme.
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2.4 Updated Comments on the Main Recommendations of the Interim Report 12 June 2020

The following table includes the main recommendations from the Interim Report of 12 June 2020, each supported by a comment on the progress to date.

Rec #	Main Recommendations (Section 1.3 Interim Report)	Commentary on Progress to Date
	Section 1.2 in the Interim Report stated that “circumstances and timing have changed as a result of the move to Alert Level 1 and the response to the Verrall Report should reflect that. It now requires an updated and agreed system-wide project plan with a delivery date established for a fully-integrated response that has been stress-tested.”	<p>The work undertaken by the Ministry has now addressed the recommendations of the Verrall Report. While recognising this as an important milestone, until such time as the scenario planning and stress testing take place it is difficult to form a view as to whether the system can be deployed and operated as planned.</p> <p>The Ministry is now entering a new phase with a focus on continuing to build on and maintain the systems as part of its overall readiness strategy, informed by stress-testing the system and modifying as required, based on learnings.</p>
1.3.1	The Committee recommends that the Ministry should take the role of system leader more clearly and be more assertive as to how the chain of command works – this is a sensitive area but it cannot be avoided. The balance should change to a national view/perspective with a regional/local flavour. The national coordination and leadership should continue to respond to the needs and views of the leaders of the PHUs.	Changes have been made by the Ministry around the COVID-19 response project structure with a view to further streamline its resources and system leadership (the Ministry’s COVID-19 Health System Response group). The group covers the full span of clinical and technical staff from within the Ministry. The group is also responsible for liaising with other Government agencies and key stakeholders. The NCCS has been renamed National Investigation and

		<p>Tracing Centre (NITC) and its aims and responsibilities clarified.</p> <p>While initial steps have been taken, the revised structure has not yet been fully tested. Ongoing attention will be required to ensure that it can perform and deliver to expectations within the health sector, the whole of Government and the wider community.</p>
1.3.1	<p>The Committee recommends that, as a matter of priority, the surge capacity of the system should be stress-tested. Novel assessment approaches may be needed in the context of zero case numbers.</p>	<p>The need for formal plans for scenario planning and system stress-testing remains urgent. On the Ministry’s response timeline a stress test is planned for July and another one for August. With the recent focus on optimising border controls, these may not have been able to be planned and/or prioritised as would have been expected. We note that scenario planning was a key recommendation of the Allen + Clarke report in early May.</p> <p>See commentary to recommendation 5 in section 2.2.</p>
1.3.1	<p>The Committee recommends that continued effort and focus should be given to the detailed preparedness plans being developed by individual PHUs.</p>	<p>PHUs have clear targets and requirements to update the Ministry as to their capacity to conduct case investigation and contact tracing for their allocated target numbers.</p>
1.3.2	<p>The Committee recommends that the Contact Tracing system more strongly reflects the needs of Māori, Pasifika and other vulnerable groups, including those in rurally isolated areas. There is more scope to employ and/or utilise staff and systems within already established Māori and Pasifika health and social service providers where these providers have existing links to their communities. The system should also identify and meet specific needs of Māori and Pasifika (e.g. alternative</p>	<p>There is ongoing work being undertaken by the Ministry’s Māori Health Directorate and Pacific Health team.</p> <p>The ongoing work of the NITC in implementing the Preparedness Plan is supported by these teams to ensure alignment to national strategies and maximising relationships with local providers, iwi and other key partners.</p> <p>This needs to continue to have a priority given the broader health issues faced by</p>

	isolation arrangements or more language options).	these groups and the potential impact any COVID-19 outbreak would have.
1.3.3	The Committee recommends that the Ministry should be instructed to clarify and, if necessary, tag the funding directly to PHUs so District Health Boards (DHBs) are just a pass through.	The Ministry reports that this has been actioned with immediate resource funding having been made available. However, there remain questions around the longer-term sustainability of baseline funding of PHUs to ensure they can deliver the non-COVID-19 aspects of their role. This remains part of ongoing Government Budget processes.
1.3.4	The Committee recommends that the Ministry should mandate the use of NCTS after testing it robustly. There may be merit in having an opt-out process for PHUs who do not wish to join (e.g. they need to make a case as to why they do not use it); however, the ultimate decision rights should sit with the Ministry.	The Ministry has made impressive gains on the NCTS functionality and on PHU buy-in nationally. An ongoing optimisation process is continuing. The system performed very well in relation to contact tracing of the recent border control breaches and is acting as a valuable catalyst to ensure that all participants can access the same case records. This actively supports the ability to redeploy resources across and between PHUs and the Ministry. It is a valuable case management tool.
1.3.4	The Committee recommends that the Ministry should continue to develop the NCTS to support other diseases that have an impact nationally (e.g. measles, whooping cough).	This is not a current priority and should be adopted as and when time permits.
1.3.5	The Committee recommends that the information recording systems used for contact tracing should be rationalised and further clarified nationally, with specific reference to the Bluetooth technology under development (COVID Card) by the Department of Internal Affairs. The user/customer experience should be enhanced to ensure compliance and the availability of high quality, accurate information for the contract tracing process.	An app or card solution or a combination of solutions remains problematic. It should be an urgent priority for the Ministry and the All of Government team to address this. This should address possible blockages at all levels across the Government. The goal of achieving an adoption rate of 60-80% of the population should remain, with a focus on multiple tools if necessary to achieve this.

		The ability to achieve ownership by the general public of whatever tools are mandated will require ongoing leadership and delivery.
1.3.6	The Committee recommends that the Minister should actively explore more options to strengthen and de-risk the system through direct deployment of resources to support the Ministry in the implementation of the Verrall Report recommendations.	<p>Further financial resources have been provided to the Ministry for the COVID-19 response, but there remains scope for action on this recommendation.</p> <p>The ability to deploy resources from across the Government sector should continue to be an active part of the COVID-19 response.</p>
1.3.7	The Committee recommends that an integrated view is taken of the relationship of contract tracing with other interventions part of the COVID-19 response and that the structure and governance of the project reflects that.	<p>This remains an urgent and ongoing need. The interdependencies are important and need to be seen as a system in themselves.</p> <p>For example, the recent change to the testing strategy in the community towards clinician discretionary testing of those without a travel link is problematic in relation to standardised surveillance and the ability to pick up an outbreak in a reasonable time frame consistently across the country. This has significant implications for the contact tracing strategy.</p> <p>More sophisticated thinking may be required to work out the best way to test in the community outside of high-risk groups, if ability to detect a community outbreak reasonably early is a priority.</p>
1.3.8	The Committee recommends that the Minister should adopt a broader perspective beyond the confines of the Ministry of Health and that while the project should remain in the Ministry (supported by a mandated Whole of Government governance group) in the short term, a review should be undertaken within six to eight weeks to	This remains relevant and should be a focus of monitoring of the restructuring that has been done.

	determine where it should be hosted/housed for the period the COVID-19 risks remain.	
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2.5 Updated Comments on the Detailed Recommendations of the Interim Report 12 June 2020

The following table includes the detailed recommendations from the Interim Report of 12 June 2020, supported by either comments on progress to date or references to comments made in section 2.4 around main recommendations which cover these.

Rec #	Detailed Recommendations (Section 2.6 Interim Report)	Commentary on Progress to Date
2.6.1	<p>As at today, while there is significant activity underway, the system and approach to be adopted for an agile, responsive and well-informed Contact Tracing system require further and ongoing work.</p> <p>Ongoing attention is required by the Ministry, as the system leader, to deliver on all aspects of the Verrall Report and to ensure that the system as envisaged is capable of deployment in a seamless way.</p>	<p>Detailed commentary on progress and completion of each of the recommendations included in the Verrall Report has been provided in section 2.3.</p> <p>Good progress has been made by the Ministry to position itself as the system leader.</p>
2.6.2	<p>The Committee considers that urgent attention should be given to clarifying the accountabilities and decision rights across the health system nationally. The system can ill afford confusion as to who is in charge and who does what in any given circumstance. It is acknowledged this is a very sensitive area, but it is one that must be confronted and clarified.</p> <p>That does not mean a takeover by the Ministry of Health. Rather, a more specific understanding of how the system harnesses the skills of the centre and the distributed PHU network recognising the criticality of local knowledge. Both elements are critical</p>	<p>See commentary to recommendation 1.3.1 in section 2.4.</p> <p>This has been and continues to be addressed by the Ministry. One of the key learnings from stress testing the system through a series of agreed scenarios would be to determine whether the accountabilities and decision rights deliver as intended.</p>

	to a successful Contact Tracing system and need to be addressed to strengthen and de-risk the process.	
2.6.3	Ongoing attention is required to ensure the Contact Tracing system adopted is reflective of the specific needs of Māori and Pasifika. In particular, we think there is considerable scope to employ or utilise staff and systems within already established Māori and Pasifika health and social service organisations, many of which have specialised knowledge, expertise and relationships essential for engaging their communities.	See commentary to recommendation 1.3.2 in section 2.4. Progress has been made with ongoing attention required to ensure that the system is responsive to the needs of Māori and Pasifika.
2.6.4	The Committee recommends further work should be undertaken by the Ministry to ensure there is clarity around the funding for the PHUs through the next 24 months. Certainty and clarity would benefit all involved. The Ministry should also actively pursue the tagging of the money to PHUs directly so that the DHBs become a pass through for administrative and accounting reasons.	See commentary to recommendation 1.3.3 in section 2.4. This has been actioned with additional resources for the COVID-19 response having been made available. The issues around an agreed level of baseline funding to ensure that the activities of the PHUs are sustainable on an ongoing basis is part of the normal Government Budget processes.
2.6.5	The Committee is of the view that greater direction should be provided by the Ministry around the multiple technology systems/platforms operating within the public health arena. The justification for more than one system should be robustly tested, with a decision taken and implementation commenced. A timeline should be agreed for implementation of a common system.	See commentary to recommendation 1.3.4 in section 2.4. This has been resolved successfully with all PHUs using the common platform with effect from end of July 2020.
2.6.6	The Committee considers that every effort should be made to improve and align the data sources upon which the	See commentary to recommendation 1.3.5 in section 2.4.

	<p>Contact Tracing system is based. Good-quality information is a key determinant of success of a high-quality Contact Tracing system – at present we are not there yet, with multiple sources of data/information, much of it manual. There continues to be active development across several areas outside the Ministry (e.g. the Bluetooth COVID Card) that need to be actively incorporated into the future Contact Tracing system.</p>	
<p>2.6.7</p>	<p>The Committee recommends that the Ministry should both lead and accelerate the exercise of establishing standard operating procedures to be adopted nationally across the health system. Some form of standardisation and/or normalisation is very important both to understand what is going on and where the emerging pressure points are and to assist the easy transfer of staff across PHUs as volume and need requires – the less variation across PHUs, the lower the learning curve for those involved. The new standard operating procedures should be developed in consultation with PHUs to understand and incorporate what works on the ground.</p>	<p>This has been achieved by the Ministry.</p>
<p>2.6.8</p>	<p>The Committee recommends that the Ministry, as the system leader, should clarify the additional human resources required and ensure they are appropriately trained and capable of being deployed at short notice should the need arise. There would also be great value in mandating someone to have the accountability and decision rights for the operation of the system.</p> <p>Clarity should also be provided around trigger points for moving between levels and the measures and restrictions</p>	<p>See commentary to recommendation 5 in section 2.2.</p> <p>There is an ongoing training programme to meet this requirement.</p>

	<p>that would be applied in each level. As soon as practicable, the systems and procedures around the surge capacity and capability should be stress-tested to ensure they work. Stress-testing is a fundamental element of success of any system.</p>	
2.6.9	<p>The Committee recommends that the changes to the Model of Care away from the traditional model are fully embedded across the system and it continues to evolve. The process inevitably has an element of clinical input but that can be delivered in different ways. A fit-for-purpose model that meets the needs and diversity of the patient group is required and is key to success.</p>	<p>The Ministry is actively changing the model of care in response to the dynamic nature of the COVID-19 response.</p>
2.6.10	<p>The Committee recommends that the Ministry should provide for greater resilience within the system and have resources identified and suitably trained for non-COVID-19 diseases/outbreaks that may need to be responded to through the next 24 months (and potentially beyond). This could be done through diversifying some of the surge capacity identified in earlier sections of the report.</p>	<p>This has been actioned and is part of the planning adopted by the Ministry.</p>
2.6.11	<p>The Committee encourages the Ministry to look beyond the immediate caseload and to take a worst-case scenario and plan appropriately. A well-functioning community and economy needs a high-quality well-informed and resourced Contact Tracing system as both a disease control measure and an insurance plan. This can also be extended to other communicable diseases such as the measles outbreak in 2019.</p>	<p>See commentary to recommendation 5 in section 2.2.</p> <p>This forms part of our recommendation around the scenario planning and stress-testing of the system.</p>

2.6.12	<p>The Committee encourages a renewed focus on the implementation of the recommendations of the Verrall Report while actively recognising that contact tracing is a key part of a response ecosystem that includes strong border controls and proactive testing. The increasing Whole of Government interest should be reflected in the governance and operation of the system moving forward to ensure that the interdependencies are actively understood and managed. Further consideration is required as to determining how the integrated response will operate and where it will be located/hosted.</p>	<p>See commentary to recommendation 1.3.8 in section 2.4.</p> <p>Improvements have been made but further ongoing work will be required to ensure that the needs and priorities of key stakeholders and the wider public are addressed promptly and appropriately.</p>
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12 June 2020

Hon David Clark
Minister of Health
Parliament Building
Wellington
New Zealand

Dear Minister

Contact Tracing Assurance Committee (CTAC)

Further to our Terms of Reference and our recent discussions we are pleased to attach a copy of our final report on the Contact Tracing process and the associated issues around the implementation of the Verrall Report.

The position New Zealand finds itself in with respect to the COVID-19 response is extraordinary. We are the envy of many and that in no small part is due to the commitment of a large number of people across the country and in particular the Ministry of Health and the Public Health Units. They deserve considerable credit.

The response is now in a process of transition from an immediate response to the crisis presented by the pandemic to one that is more systematised and reflective of an aligned resourced national response. Despite the shift to Level 1 it cannot be assumed that SARS-CoV-2 will not re-present itself at scale.

In this context, the report sets out a number of areas that require attention to enable you and the Government to have the assurance and confidence required as to the capability and capacity of the system to respond. We acknowledge that the Ministry is already actioning several recommendations the Committee makes in the report.

We are available to elaborate on any aspects of the report if you require it.

Yours faithfully

Sir Brian Roche KNZM
Chair on behalf of the Contact Tracing Assurance Committee

INTERIM REPORT ON THE CONTACT TRACING SYSTEM

CONTACT TRACING ASSURANCE COMMITTEE

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1. Executive Summary

1.1 Overview

The Contact Tracing Assurance Committee (the Committee or CTAC) was appointed to provide assurance to the Minister of Health² as to the progress on the implementation of the recommendations in the report completed by Dr Verrall. This includes:

Areas reviewed under the Contact Tracing Assurance Committee terms of reference	High-level conclusions
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Any national changes required to strengthen national contact tracing, including the organisation of Public Health Units and arrangements with the rest of the health system.

The Committee considers that the semi-autonomous nature of operation of the Public Health Units (PHUs) together with their historical underfunding are problematic with respect to optimising the COVID-19 response (the response). The Ministry of Health (the Ministry), as the leader of the health system, needs to exert a stronger mandate to ensure a seamless, aligned national approach. Greater clarity is required over accountabilities and decision rights.

Assurance that the National Contact Tracing Unit (NCTU) is well placed to deliver rapid, effective contact tracing.

The Committee considers that, while a significant amount of work is underway to achieve the objective of rapid, effective contact tracing, further work is required. Very capable individuals within the current system could handle a moderate-sized outbreak; however, further work is required to strengthen and de-risk the system and position it to deliver rapid, effective contact tracing in the event of a sudden surge in cases.

Any other advice on emerging risks and issues within CTAC's remit.

The Committee considers that the move to Alert Level 1 requires a coordinated cross-Government approach to the core elements of the response (border control, proactive testing and contact tracing). The issues are beyond those exclusively under the responsibility of the health system and the structure and approach of the response should reflect this.

² The full terms of reference are attached as Appendix A.

1.2 High-Level Observations

Excellent results have been achieved to date with respect to the response to COVID-19. All those involved can take considerable satisfaction from what has been achieved. Despite the circumstances and irrespective of flaws (as experienced by all countries) people just made things work and good outcomes have been achieved. The ability to move to Alert Level 1 is testament to an effective response to date.

Considerable work has been undertaken to date by the Ministry of Health to implement the recommendations of the Verrall Report. Work is ongoing and the foundations of an effective Contact Tracing system are being implemented.

The circumstances for undertaking the work have changed as a result of the recent move to Alert Level 1. This factor, together with the inevitable and increasing pressure to expand the New Zealand “bubble” and allow foreign visitors, raises the risk profile of the response. With a severe global pandemic ongoing, the threat of new cases in New Zealand should not be underestimated. It is prudent and a good risk management practice to prepare appropriately.

It is crucial that New Zealand has a fully functioning and aligned set of interventions around strong borders, proactive testing and a well-informed and agile Contact Tracing system (“the ecosystem”). Contact tracing should not be seen as a standalone component of the response. In this context, it is important to strengthen and de-risk the individual components of the ecosystem by seeing them as a collective COVID-19 response.

While the Committee acknowledges the significant progress to date, our view is that the question now is increasingly about how New Zealand can have a fully-functioning society/community and economy, remaining confident that if the virus reappears the country will be able to respond in a way that safeguards the safety and wellbeing of human life without having to revert to Alert Level 3 or Alert Level 4 regionally or across the nation.

The response to the Verrall Report should be modified to reflect the broader perspectives now evident. Additional resources from across the Government and potentially beyond are needed to support and assist the Ministry in delivering the goal of the health system having immediate surge capacity to manage a situation with 350-500 cases per day and a pathway to cope with 1000 cases per day without reducing quality.

The circumstances and timing have changed as a result of the move to Alert Level 1 and the response to the Verrall Report should reflect that. It now requires an updated and agreed system-wide project plan with a delivery date established for a fully-integrated response that has been stress-tested.

1.3 Main Observations and Recommendations

1.3.1 Need for a System View

The COVID-19 pandemic has highlighted several flaws in the broader health system. The 12 Public Health Units work quite autonomously and are largely focused on their local communities/populations. The downside of this is a lack of clarity within the system as to accountabilities and decision rights. The lack of standard operating procedures (SOPs)

developed at the national level during the height of the COVID-19 response, for example, involved a high amount of work for all PHUs and still presents a risk (albeit being worked on).

A national public health crisis requires a nationally-led response with strong coordination and leadership. Further work is needed to build upon the gains and strengthen the collaborative working arrangements that evolved between the Ministry and PHUs during the initial phase of the COVID-19 response. There is now an opportunity to prioritise the development of co-design processes and high-trust relationships.

- The Committee recommends that the Ministry should take the role of system leader more clearly and be more assertive as to how the chain of command works – this is a sensitive area but it cannot be avoided. The balance should change to a national view/perspective with a regional/local flavour. The national coordination and leadership should continue to respond to the needs and views of the leaders of the PHUs.

In addition, the system requires clarity as to accountability and trigger points for moving resources. Resources need to be identified and trained so they are ready to be deployed if the need arises. Similarly, resourcing needs to reflect the possibility of an outbreak of another infectious disease that would further stretch the system and the capacity of PHUs.

- The Committee recommends that, as a matter of priority, the surge capacity of the system should be stress-tested. Novel assessment approaches may be needed in the context of zero case numbers.
- The Committee recommends that continued effort and focus should be given to the detailed preparedness plans being developed by individual PHUs.

1.3.2 Addressing Equity Issues

The challenges and consequences of an outbreak in Māori and/or Pasifika communities should not be underestimated.

- The Committee recommends that the Contact Tracing system more strongly reflects the needs of Māori, Pasifika and other vulnerable groups, including those in rurally isolated areas. There is more scope to employ and/or utilise staff and systems within already established Māori and Pasifika health and social service providers where these providers have existing links to their communities. The system should also identify and meet specific needs of Māori and Pasifika (e.g. alternative isolation arrangements or more language options).

1.3.3 Funding of PHUs

Despite the funding uplift, there continues to be confusion within the system around funding levels of PHUs. In particular, short-term contracts limit the ability to undertake longer term, sustainable resource planning.

- The Committee recommends that the Ministry should be instructed to clarify and, if necessary, tag the funding directly to PHUs so District Health Boards (DHBs) are just a pass through.

1.3.4 Role of a National Technology Platform

A National Contact Tracing Solution (NCTS) was introduced to create a common platform for the PHUs and the National Close Contact Service (NCCS) to use. However, three PHUs are still using their pre-existing systems. There is limited proof of any of these systems' ability to report on performance indicators (referred to in the Verrall Report) in real time and accommodate surge-staff used to other systems.

- The Committee recommends that the Ministry should mandate the use of NCTS after testing it robustly. There may be merit in having an opt-out process for PHUs who do not wish to join (e.g. they need to make a case as to why they do not use it); however, the ultimate decision rights should sit with the Ministry.
- The Committee recommends that the Ministry should continue to develop the NCTS to support other diseases that have an impact nationally (e.g. measles, whooping cough).

1.3.5 Information to Support and Inform the Contact Tracing Process

Effective contact tracing requires high-quality, timely and accessible information from individuals identified as close contacts. At present, there are multiple recording systems around the country (QR-based, apps, manual recording) with varying levels of uptake. A failure to streamline and clarify systems presents a risk to ongoing public support.

- The Committee recommends that the information recording systems used for contact tracing should be rationalised and further clarified nationally, with specific reference to the Bluetooth technology under development (COVID Card) by the Department of Internal Affairs. The user/customer experience should be enhanced to ensure compliance and the availability of high quality, accurate information for the contract tracing process.

1.3.6 Implementing a Whole of Government Approach

The Ministry could make even more use of the skills of the wider public sector, and in particular from the uniform branch of the Government (Police and NZDF) and from those with a broader technology skillset and experience (e.g. the technology team from the Department of Internal Affairs), while these engagements should be efficient and enhance the speed at which a technology solution is found.

- The Committee recommends that the Minister should actively explore more options to strengthen and de-risk the system through direct deployment of resources to support the Ministry in the implementation of the Verrall Report recommendations.

1.3.7 Relationship of Contact Tracing

Contact tracing is a key element in a package of interventions which should be fully aligned and interdependent. The relationships between strong and effective border controls, proactive testing and contact tracing (the ecosystem) are critical for a seamless response to COVID-19.

With the move to Alert Level 1 the response has effectively moved to a new phase. This new phase necessarily takes a broader perspective than the purely public health dimensions of the response experienced to date.

In this context, contact tracing should not be seen as a standalone component. It is important that every effort is made to strengthen and de-risk the individual elements of the ecosystem by seeing them as a collective COVID-19 response.

- The Committee recommends that an integrated view is taken of the relationship of contract tracing with other interventions part of the COVID-19 response and that the structure and governance of the project reflects that.

1.3.8 Project Structure of the COVID-19 Response

With the move to Alert Level 1 the COVID-19 response ecosystem has moved to a new phase. This provides an opportunity to revalidate the existing approach as well as refresh and potentially enhance the project structure as appropriate.

An 'operations unit' could be located within the Ministry of Health or within another entity such as the All of Government unit. Both options have a range of risks and rewards. Given the current work programme and the desirability of continuity, the Committee is of the view, albeit on balance, that it remains in the Ministry for the foreseeable future but with some form of advisory/governance group that secures the broader Government perspective. Progress should be reviewed within six to eight weeks and a formal determination made at that point as to the location of the unit. Irrespective of the final decision, there will be a need for a matrix-type approach to the issues both at a level of officials and of ministers. The interdependencies of information and the interests across the system and outside the Ministry must be recognised and proactively managed.

- The Committee recommends that the Minister should adopt a broader perspective beyond the confines of the Ministry of Health and that while the project should remain in the Ministry (supported by a mandated Whole of Government governance group) in the short term, a review should be undertaken within six to eight weeks to determine where it should be hosted/housed for the period the COVID-19 risks remain.

2. Detailed Report

Set out below is the detailed report in support of the content presented in the executive summary.

2.1 Introduction

The Contact Tracing Assurance Committee was established under section 11 of the New Zealand Health and Disability Act 2000 to provide the Minister of Health with independent advice on the Ministry of Health's improvements to the Contact Tracing system recommended in Dr Verrall's report, including:

- any national changes required to strengthen national contact tracing, including the organisation of Public Health Units and arrangements with the rest of the health system;
- assurance that the NCTU is well placed to deliver rapid, effective contact tracing during its early implementation period;
- timely advice on emerging risks and issues within CTAC's remit.

The Committee was convened in the context of effective contact tracing being a critical part of the Government's COVID-19 elimination strategy.

At the peak of the pandemic when New Zealand moved to Alert Level 4, the existing Contact Tracing systems within the PHUs were insufficient to manage the surge. The new system adopted was required to be robust and fit for purpose across all Alert Levels. Contact tracing is seen as a vital part of our immediate fight against COVID-19. Effective contact tracing helps to prevent potential onward transmission and raise awareness about the disease and its symptoms and supports early detection of suspected cases. It is critical that New Zealand's approach to contact tracing can meet these demands, recognising that New Zealand will continue to see sporadic cases, outbreaks and potential clusters of COVID-19 over an extended period of time.

Appropriate oversight is required to ensure that the Government can be assured that new cases are quickly identified, isolated and recovered.

2.2 Approach

In undertaking its work, the Committee engaged with a wide number of people associated with the contact tracing process³. This included key personnel from the Ministry and the PHUs. In addition, other interested parties (including Dr Ayesha Verrall) were interviewed. Several papers were also provided by those interviewed to assist in the work of the Committee.

2.3 Background

New Zealand reported its first COVID-19 case on 28 February 2020. From that time until 24 May it had just over 1500 confirmed and probable cases. There were 15 reported clusters,

³ Details of those interviewed are attached as Appendix B.

with five clusters registering in excess of 50 cases each. During that period the country was effectively put into lockdown, with a consequential impact on the health system, the community and the broader economy.

The introduction of an event of this scale and complexity is unprecedented in modern times. Not since the Spanish flu a century ago has something of this nature affected the world to this magnitude.

The response to the crisis required an extraordinary effort by a wide range of people. Resources were deployed to respond to what was a very dynamic and dangerous situation. Previously established ways of working and operating models were amended in flight to meet the challenge presented. As a result, the position we find ourselves in today as a country is the envy of many.

The initial response has highlighted a number of learnings for everyone involved. Dr Verrall's report of April 2020 highlighted several factors relevant to the Contact Tracing system. This includes the primary factors limiting a response being the then resource limitations of the 12 PHUs and their inability to scale up their case management and contact tracing response. This has now, in part, been solved by the establishment of the National Close Contact Service on 24 March 2020 within the Ministry.

The recommendations from Dr Verrall's report included:

- The Ministry of Health should expand the capacity of Public Health Units to isolate COVID-19 cases and trace their contacts three to four-fold for as long as COVID-19 remains a public health threat. Some of this additional capacity should include contact tracing teams that can move from one PHU to another according to need.
- The Ministry of Health should develop a COVID-19 outbreak preparedness plan that includes how to rapidly scale case identification and contact tracing and regain control. The plan should specify the task-shifting arrangements between PHUs and NCCS and any additional resource required to deal with up to 1000 cases per day while maintaining high performance.
- The Ministry of Health should develop a system that monitors the case-isolation and Contact Tracing process from end-to-end in the NCCS and PHUs. Recommended key performance indicators are listed in the appendix (of Dr Verrall's report). Of these 17 indicators, 3 are critical, 3 are urgent, 10 are high priority and 1 is moderate priority. Ability to measure these indicators in real-time should be proven. [Dr Verrall has since discussed an update of the original indicators with the Ministry]
- The NCCS and its providers must ensure close contacts in home quarantine are contacted every day to monitor for adherence to isolation and to assess for the development of symptoms.
- The NCCS and Medical Officers of Health should collaborate to better define referral protocols and triage systems, especially with respect to more complex or high-risk contacts.

- The Ministry of Health should give PHUs access to the NCTS in order to retain visibility of contacts traced by the NCCS.
- The Ministry of Health should engage with PHUs to determine if the NCTS could be suitable, with modification, as a single national contact information system.
- The Ministry of Health should rapidly complete development of a smartphone app to assist contact tracing and pilot it in New Zealand. Evaluation of the app should include assessing the proportion of contacts identified by the app who develop COVID-19, as well as other relevant parameters in the appendix (of the Verrall Report).

The Ministry of Health has now made progress against all recommendations. Dr Verrall has subsequently undertaken a further review of progress made by the Ministry and is comfortable with progress to date.

2.4 Role of Contact Tracing

Close contact tracing is the process of identifying individuals who have been in close contact with an individual with COVID-19 and communicating with them to provide direction to self-isolate and to monitor their wellbeing, including the development of symptoms.

Contact tracing forms part of a wider process which also includes case confirmation and investigation, case and close contact follow-up and other interrelated processes including assisted isolation and enforcement.

Contact tracing is a critical element in the country's elimination strategy in response to the pandemic. While critical, it must also be seen as part of a wider ecosystem of interventions to safeguard and respond to the issues as and when they arise.

In particular, a package of interventions is required to ensure an effective and manageable Contact Tracing system, namely:

- Strong and effective borders, including quarantining of new arrivals;
- Robust case detection and surveillance supported by a proactive and extensive testing regime;
- Quarantining and/or isolating of cases and close contacts;
- Strong community support of control measures, including physical distancing, good hygiene, staying home if sick and effective use of PPE when required.

All elements need to combine and inform one another to improve the probability of success in the fight against COVID-19.

The goal remains to ensure that when contact tracing is deployed, it has the best available resources and a fully-integrated information/data set to improve its speed and effectiveness.

2.5 Experience to Date

As introduced above, contact tracing had to be deployed in immediate response to an urgent and arguably overwhelming caseload. That required an extraordinary degree of effort and commitment from a wide range of people within the health system.

In terms of scale and by way of example, the following table sets out the volume of close contacts processed by the PHUs between 6 April and 25 May 2020:

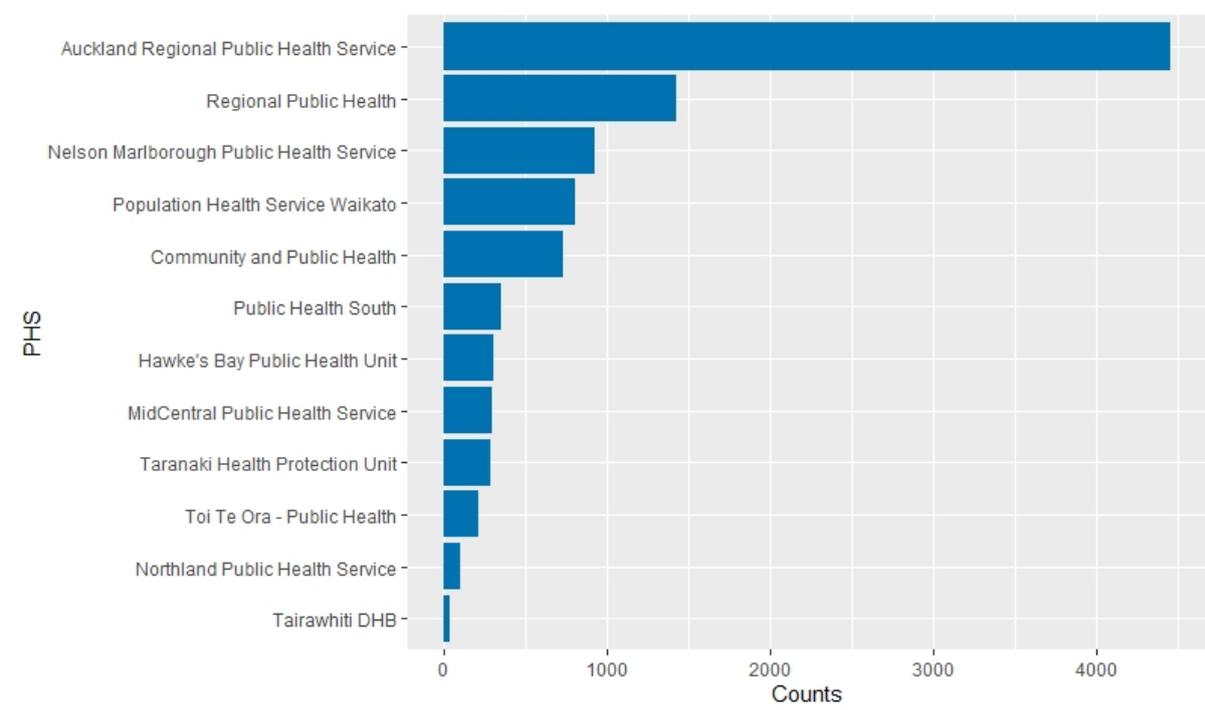


Figure 1: Breakdown of close contacts processed by PHU between 6 April and 25 May 2020.

The lockdown imposed under Alert Levels 4 and 3 led to a decrease in the number of cases and close contacts of each confirmed case. This allowed teams in the Contact Tracing system to take a stocktake of current ways of working and to develop plans to provide scalable and sustainable contact tracing services as the country relaxes restrictions.

As evidenced, there is a base of resources and experience to respond to further outbreaks of COVID-19.

2.6 Detailed Observations and Recommendations

Set out below are a series of observations that the Committee wishes to bring to your attention.

2.6.1 Progress to Date

First and foremost, we would like to acknowledge what has been achieved to date. On any scale it is impressive and creates a valuable learning and foundation for the next phase. Despite the rapid learning curve and the crisis that unfolded in New Zealand, a response was deployed, and it was effective. No one can take anything from those involved – they deserve credit for what has been achieved.

They achieved despite the impediments around process and systems – workarounds were deployed to achieve the outcomes sought. People innovated and effectively stood up a response to manage COVID-19. This occurred through the efforts of individuals and their strengths of personality, experience and commitments as opposed to a well-prescribed set of procedures and systems – this is not meant to be a criticism but merely the reality of the situation people found themselves in.

New Zealand is not unique in that regard. All public health entities across the world have experienced the same situation.

As is inevitable through any such experience there are some valuable learnings. Those learnings have been identified (per Dr Verrall's report) and acted upon. The Ministry and PHUs are actively working their way through the improvements.

As at today, while there is significant activity underway, the system and approach to be adopted for an agile, responsive and well-informed Contact Tracing system require further and ongoing work.

Ongoing attention is required by the Ministry, as the system leader, to deliver on all aspects of the Verrall Report and to ensure that the system as envisaged is capable of deployment in a seamless way.

2.6.2 Need for a System View

The COVID-19 response has highlighted a lack of clarity within the health system as to accountabilities and decision rights. PHUs normally operate within a defined geographic area with focus on the needs of their respective populations and coming together in networks (e.g. Public Health Clinical Network).

The 12 PHUs are services within DHBs but operate independently and receive funding directly through the annual budget. As PHUs are not legal entities in themselves, the Ministry has the possibility of being prescriptive about the work that PHUs do, including statutory responsibility. On the other hand, DHBs also maintain an interest in PHUs' work. In this situation there is a risk that PHUs are experiencing double-handing or a lack of clear governance.

Whilst the Public Health Clinical Network aims to provide leadership and strengthen PHUs' performance and sustainability, it is not a "hard-wired" network that directs PHUs operationally. Although there is no specific national system view, the personalities of those involved ensure a network does operate. This association has proved adequate under normal circumstances, but it was found wanting when pressure was placed on it during the response.

In addition to the lack of a clear national view, the position of public health in the national system has steadily declined in recent years. As a result, the PHUs have been placed under significant funding and resource constraints until the very recent circumstances of COVID-19.

Some argue their position and voice in the broader system had already been compromised prior to the current pandemic.

The relationship of the PHUs with the Ministry is unclear. The recent circumstances required the Ministry to step in and step up to ensure that the system operated as a national system (albeit with regional flavour/perspectives). This needs to be documented and promulgated across the system as a matter of urgency, reinforced with clear accountability and decision rights.

It is fundamental to the integrity and responsiveness of the system that there is a well-functioning, trust-based model operating between the Ministry and individual PHUs. The

system needs to be seamless and immune from any sense of the PHUs operating as individual and discrete business units.

The Committee considers that urgent attention should be given to clarifying the accountabilities and decision rights across the health system nationally. The system can ill afford confusion as to who is in charge and who does what in any given circumstance. It is acknowledged this is a very sensitive area, but it is one that must be confronted and clarified.

That does not mean a takeover by the Ministry of Health. Rather, a more specific understanding of how the system harnesses the skills of the centre and the distributed PHU network recognising the criticality of local knowledge. Both elements are critical to a successful Contact Tracing system and need to be addressed to strengthen and de-risk the process.

2.6.3 Addressing Equity Issues

While statistics of past cases and outbreaks do not reflect it, the impacts of COVID-19 arguably fall disproportionately on different communities, particularly with respect to Māori and Pasifika, who are more adversely impacted by health system frailties and the inequitable distribution of the determinants of health. Isolation, the absence of supportive infrastructure enabling access to health and other services, and the impacts of poverty are constant challenges in many rural communities.

The Contact Tracing system needs to recognise these factors and position its processes and approach to ensure it follows the first rule of ‘Do no harm’, particularly for those most vulnerable and in greatest need.

The Committee is encouraged by the initiatives in place to recognise the demands of these groups. In the event of a further outbreak, it is critical that equity underpins the complete planning and implementation process. It is also crucial that essential elements such as culturally appropriate clinical support and follow-up (including language support) are fully encompassed in any response.

In addition, given the criticality of speed for successful contact tracing, the process should involve those players who already have knowledge and presence in the communities most at risk.

Ongoing attention is required to ensure the Contact Tracing system adopted is reflective of the specific needs of Māori and Pasifika. In particular, we think there is considerable scope to employ or utilise staff and systems within already established Māori and Pasifika health and social service organisations, many of which have specialised knowledge, expertise and relationships essential for engaging their communities.

2.6.4 Funding of PHUs

As presented earlier, the role of public health and its associated funding has been lost in recent years. COVID-19 essentially put that to an end, bringing a very clear focus on public health. In addition, significant additional funding has been made available to the PHUs to ensure they are adequately and appropriately resourced.

Despite this new position, there is still an emerging concern from within the PHUs as to their ongoing funding, including the ability to offer more than short-term three to six-month contracts to staff. Irrespective of the actual merits or otherwise of such a position, any argument around such things can be a real distraction at this time. Despite the efforts of many to make resources available, there appears to be a climate of unwarranted uncertainty. Something seems to be getting lost in translation on this point.

The Committee recommends further work should be undertaken by the Ministry to ensure there is clarity around the funding for the PHUs through the next 24 months. Certainty and clarity would benefit all involved. The Ministry should also actively pursue the tagging of the money to PHUs directly so that the DHBs become a pass through for administrative and accounting reasons.

2.6.5 Role of a National Technology Platform

As in any system, technology has a key role to play. As identified in Dr Verrall's report, a technology solution, the National Contact Tracing Solution (NCTS), was developed through the initial response to the crisis for the use of PHUs and the NCCS. It is a platform that can be used across the system, thereby ensuring a common set of data and an improved ability to inform the case management activities that are undertaken. At present, a number of PHUs have their own system/platform so there is a need to manually transfer information from one participant to another. Recent rollout by two PHUs should provide data as to the adequacy/performance of the NCTS.

While able to be done, it does give rise to real issues around accuracy, efficiency and double-handling. There is much to be said for a single source of truth (capture it once, use it many times). The system needs to reliably provide performance indicator data in real time.

The concept of a single platform is problematic given the history of individual PHUs essentially operating remotely from the Ministry. The merits of having multiple platforms within what is a relatively small system are questionable and should be addressed. Recognising that PHUs with well-developed systems need to see some tangible benefits to incentivise the move to the NCTS.

The Committee is of the view that greater direction should be provided by the Ministry around the multiple technology systems/platforms operating within the public health arena. The justification for more than one system should be robustly tested, with a decision taken and implementation commenced. A timeline should be agreed for implementation of a common system.

2.6.6 Information to Support and Inform the Contact Tracing Process

The Contact Tracing system is very reliant upon having good and current information available to the contact tracers.

The initial response for contact tracing was fraught, with information captured manually and reliant on the recall of the individuals involved. While understandable at that point, it is not a sustainable position for the future.

Every effort needs to be made to get high-quality information captured through technological means that can be used in the event of a further outbreak. The accuracy of the information

provided is a critical determinant of the speed and quality of the contact tracing process. Limiting manual records and human recall depends on technology. It is noted that the Ministry has launched an app which is of limited utility, but with the potential for the addition of functionality over time. It is unclear how useful this app will prove to be. It is also unclear how optimal it can/will be without addressing the geolocation aspects and the inevitable privacy issues that arise. The Bluetooth technology system (COVID Card) that is under development and has already had some field-testing should be actively explored as a means to inform and support the Contact Tracing system.

There is further work required to improve the customer experience and usability of the information captured. It is critical to the quality and timelines of the response that information is available.

The Committee considers that every effort should be made to improve and align the data sources upon which the Contact Tracing system is based. Good-quality information is a key determinant of success of a high-quality Contact Tracing system – at present we are not there yet, with multiple sources of data/information, much of it manual. There continues to be active development across several areas outside the Ministry (e.g. the Bluetooth COVID Card) that need to be actively incorporated into the future Contact Tracing system.

2.6.7 Need for National Standard Operating Procedures (SOPs)

As noted at an earlier point, the PHUs have been operating with a focus on their local communities. That is, in many respects, their strength and a very valuable attribute for a national Contact Tracing system.

The relative autonomy of the individual PHUs and their different sizes, population needs, and staff composition have inevitably resulted in each unit operating under its own set of procedures. That was understandable in a non-COVID-19 world.

It was, however, an impediment for the Ministry of Health when it was required to undertake monitoring and reporting of progress through the initial crisis. It also involved a high level of manual work and a requirement of more in-depth understanding of PHU systems and operating models. Good information is critical in any circumstance, but particularly when a system is under pressure. The need for information and some form of consistency is important to meet the legitimate needs of key stakeholders such as politicians, the media and the public. Being able to speak authoritatively as to what is going on at a particular point in time goes to the very heart of confidence and trust. The left hand needs to know what the right hand is doing.

Moving forward, standard processes would support easier induction and transferability of staff, and delegation of work for the system to work effectively at a national level and best practices to be adopted widely.

The Committee recommends that the Ministry should both lead and accelerate the exercise of establishing standard operating procedures to be adopted nationally across the health system. Some form of standardisation and/or normalisation is very important both to understand what is going on and where the emerging pressure points are and to assist the easy transfer of staff across PHUs as volume and need requires – the less variation across PHUs, the lower the learning curve for those involved. The new standard operating

procedures should be developed in consultation with PHUs to understand and incorporate what works on the ground.

2.6.8 Model for Surge Capacity

Planning is underway as a result of the Verrall Report for the system to be capable of handling the contacts of up to 1000 cases a day, a target which we have had confirmed by the Minister. While surges may be in stages over three-four weeks in an evolving outbreak, our advice is that a large surge in capacity early on is better than playing catch-up.

It is unclear at this point how such a system would work, recognising the existing capacity limits of the PHUs and the NCCS. The working assumption is that no individual PHU would assume a workload of greater than 80% of its capacity. If it reached that point, cases would be referred elsewhere – either to another PHU or to the NCCS.

The deployment of additional resources needs to be clarified, alongside agreement as to who has the decision rights in such circumstances.

Similarly, someone needs to be accountable for identifying and deploying appropriately trained and skilled resources to meet the demands that emerge, including ongoing coordination and leadership during a response phase (e.g. Māori and Pasifika, as identified earlier). Those who may need to be deployed at short notice should have received adequate training beforehand.

The current process around developing the individual preparedness plans for each PHU is central and needs to continue. These plans need to clearly identify where the surge capacity is to be sourced from.

The Committee recommends that the Ministry, as the system leader, should clarify the additional human resources required and ensure they are appropriately trained and capable of being deployed at short notice should the need arise. There would also be great value in mandating someone to have the accountability and decision rights for the operation of the system.

Clarity should also be provided around trigger points for moving between levels and the measures and restrictions that would be applied in each level. As soon as practicable, the systems and procedures around the surge capacity and capability should be stress-tested to ensure they work. Stress-testing is a fundamental element of success of any system.

2.6.9 Need for a Model of Care

There is a clear need for a Model of Care for case management and contact tracing that is applied uniformly across the country. Case management and contact tracing are fundamental to controlling any outbreak of notifiable diseases and the process needs to be rapid, thorough and accurate. This process often involves both public health and primary care general practitioners (GPs). PHUs contact a case to provide advice, gain information for the purpose of protecting other individuals/whānau/community/population groups and monitor recovery from illness. GPs provide any clinical care. Communication between the two is needed.

Prior to the COVID-19 response, case management and contact tracing have been seen as something of a tick-box exercise.

The COVID-19 pandemic has forced recognition of the importance of other factors such as mandatory isolation and quarantine and the duty of care and continuity of care required.

Other issues more often associated with personal healthcare services such as privacy and confidentiality have also been highlighted.

A possible Model of Care could be a nurse-led or HPO-led process. Medical Officers of Health should be acting as consultants to guide those employed in the process and to deal with complexity. What is needed above all else is the appropriate clinical skills together with meticulous attention to detail, persistence, data management and ongoing professional development. That can, and has been, indicated by a number of people across a range of fields/areas of interest. Consideration should be given to certification of other options.

Once contact is made, core to the contact tracing process is the need for continuity of care – the same healthcare professional should have daily contact with cases and close contacts within families to:

- Enable clinical judgement about deterioration or complications – duty of care;
- Build trust and offer empathy to case/family in a situation of uncertainty;
- Access wider support services such as welfare or language support;
- Provide certainty to cases around when the next call will occur (e.g. 10am the following day);
- Reduce confusion for case/family about what is going on.

Tailored solutions should be actively explored for defined groups such as the elderly, essential workers and ethnic groups such as Māori, Pasifika and Asian. For instance, identifying alternative isolation and quarantine measures outside of the family home. Innovation will be necessary to ensure ongoing success.

In addition, when another pandemic or a major outbreak (e.g. measles) occur in the future, this model will be put to use again. At some point, there should be a commitment to a 'surge response group' (e.g. community-based nurses or similar) working on other business as usual in public health in the meantime.

The Committee recommends that the changes to the Model of Care away from the traditional model are fully embedded across the system and it continues to evolve. The process inevitably has an element of clinical input but that can be delivered in different ways. A fit-for-purpose model that meets the needs and diversity of the patient group is required and is key to success.

2.6.10 Impact on Business as Usual

The COVID-19 response is understandably taking priority in the PHUs and the Ministry of Health. Resource planning is being undertaken in the context of having the capacity to respond to 1000 cases a day (500 of these managed by PHUs). On any measure that will stretch the resources of the PHUs, which means that there is limited availability within the system to respond to any other public health crisis such as measles or drinking water. It also

means that as surge capacity is deployed, business as usual public health work (e.g. immunisation programmes) will pause.

The Committee recommends that the Ministry should provide for greater resilience within the system and have resources identified and suitably trained for non-COVID-19 diseases/outbreaks that may need to be responded to through the next 24 months (and potentially beyond). This could be done through diversifying some of the surge capacity identified in earlier sections of the report.

2.6.11 Requirements for Ongoing Diligence

The results achieved to date within New Zealand with respect to COVID-19 are very encouraging.

The move to Alert Level 1 permits a greater movement of people, with larger gatherings of people allowed. Whilst welcome, it does bring with it some risks to the community and the economy.

There is significant conjecture about the inevitability of a second wave of COVID-19, especially once quarantine and self-isolation requirements upon arrival are relaxed before a vaccine is found. As the community returns to a position of greater freedoms and pressure continues to relax border controls, it is possible that the virus re-emerges.

A rapid, high-quality, fully-informed and resourced Contact Tracing system is a key safeguard against widespread outbreaks. From a risk management perspective, it is prudent to continue the development and resourcing of a significant response capacity.

The Committee encourages the Ministry to look beyond the immediate caseload and to take a worst-case scenario and plan appropriately. A well-functioning community and economy needs a high-quality well-informed and resourced Contact Tracing system as both a disease control measure and an insurance plan. This can also be extended to other communicable diseases such as the measles outbreak in 2019.

2.6.12 Project Structure of the COVID-19 Response

As the initial response to COVID-19 comes to the end of its first phase it is important that the project broadens to reflect what is an ever-increasing cross-Government focus. While the health aspect will always be important, it is increasingly clear that seeing contract tracing as part of a system which also involves controls at the border and an active testing capacity is also crucial. These three elements (the ecosystem) represent the package of interventions that safeguard the country from having to revert to Alert Level 3 or Alert Level 4 scenarios nationally or regionally.

In this context, it is very much the vehicle that supports the freedom of movement within the economy and the broader community. Until such time as there is a vaccine or another intervention that limits the spread and impact of COVID-19, there will be a need for a system that can be deployed quickly to locate and isolate close contacts of infected people. This system ensures a response to safeguard the safety and wellbeing of human lives.

Given the increasing change in emphasis around Whole of Government, the change in the risk profile as a result of the move to Alert Level 1 earlier than anticipated, and the need to ensure that the Ministry is able to increasingly focus on its ongoing core business, there is merit in

considering a change in the project structure and location. This consideration should reflect the availability of resources from across the wider Government to support and accelerate the implementation of the recommendations of the Verrall Report.

There are a number of options around the positioning and leadership of the Contact Tracing system and its associated ecosystem. The main options are either retaining it within the Ministry or shifting it to the Whole of Government unit within the Department of Prime Minister and Cabinet (DPMC).

The immediate priority is to complete the implementation of the recommendations from the Verrall Report and stress test it to ensure that it is capable of delivering on the 1000 cases a day “target”. Making a structural change at this point potentially compromises this priority and gives rise to avoidable uncertainty and distraction. This would suggest retaining the project within the Ministry in the short term but giving consideration to the introduction of a mandated Whole of Government governance group to support and inform the Ministry in its current task.

Once the Verrall Report recommendations are implemented, an assessment should be made within six to eight weeks as to where the integrated COVID-19 response unit should be hosted/located.

The Committee encourages a renewed focus on the implementation of the recommendations of the Verrall Report while actively recognising that contact tracing is a key part of a response ecosystem that includes strong border controls and proactive testing. The increasing Whole of Government interest should be reflected in the governance and operation of the system moving forward to ensure that the interdependencies are actively understood and managed. Further consideration is required as to determining how the integrated response will operate and where it will be located/hosted.

Appendix A: Contact Tracing Assurance Committee's Terms of Reference

Background and context

- Significant progress on breaking the chain of transmission of COVID-19 means that New Zealand will move from Alert Level 4 to Alert Level 3 on 28 April 2020. While this is a positive step in the fight against COVID-19, relaxation of controls under Level 3 poses a significant risk while there is still a chance of residual community transmission.
- Elimination of COVID-19 does not mean that there will be no further COVID-19 cases in New Zealand. We will continue to see sporadic cases, outbreaks and potential clusters of COVID-19 over time. When cases appear they must be stamped out quickly and effectively to prevent onward transmission.
- Contact tracing is a vital part of our immediate fight against COVID-19. Effective contact tracing helps to prevent potential onward transmission, raise awareness about the disease and its symptoms and supports early detection of suspected cases. It is critical that New Zealand's approach to contact tracing can meet these demands.
- The Ministry of Health established the National Close Contact Service (NCCS) at pace to provide a streamlined national approach to contact tracing, supplementing the high capability but low capacity tracing model operated by the 12 individual Public Health Units (PHUs).
- To support scaling up to meet Alert Level 3 requirements, the Ministry commissioned Dr Ayesha Verrall to undertake a rapid review of New Zealand's contact tracing capability. Dr Verrall's report made eight key recommendations to strengthen contact tracing across four broad themes. The Ministry is now working to implement them under urgency as part of delivering a streamlined National Contact Tracing Unit.

Purpose and scope

- Effective contact tracing is a critical part of the Government's COVID-19 elimination strategy and must be robust and fit for purpose across all Alert Levels. Appropriate oversight is required to ensure that the Government can be assured that new cases are quickly identified, isolated and eliminated.
- The Contact Tracing Assurance Committee (CTAC) is therefore established under section 11 of the New Zealand Health and Disability Act 2000 to provide the Minister of Health with independent advice on the Ministry's improvements to the contact tracing system recommended in Dr Verrall's report, including:
 - any national changes required to strengthen national contact tracing, including the organisation of public health units and arrangements with the rest of the health system

- assurance that the NCTU is well placed to deliver rapid, effective contact tracing during its early implementation period
- timely advice on emerging risks and issues within CTAC's remit.
- Section 11 committees are independent; report directly to the Minister of Health; and are solely accountable to him.
- CTAC is an advisory group and does not have a role in overseeing ongoing delivery or performance of contact tracing functions. This accountability will be through the Director-General reporting to the Minister of Health via normal reporting channels.
- It may be appropriate to expand CTAC's terms of reference after contact tracing improvements have been made to examine any system issues which have become apparent as part of the pandemic response.

Membership and fees

- CTAC will comprise a Chair and four members with expertise in public health and Māori / Pacific health perspectives.
- Fees for the Chair and members will be set according to the Cabinet Fees Framework and outlined in a letter of appointment.
- All costs associated with CTAC will be met through existing Ministry baselines.

Meetings and processes

- CTAC will meet regularly on dates determined by the Chair. Initially CTAC will be required to meet more frequently. Meeting frequency will be determined by the Chair.
- Extraordinary meetings may be called by the Chair (or directed by the Minister) if urgent matters arise.
- CTAC will operate in good faith and on a 'no surprises' basis.
- CTAC meetings will initially be held virtually to align with physical distancing requirements. The Chair is responsible for setting meeting agendas, leading meetings and ensuring that the business of the day is heard.
- The Ministry will provide administrative support to CTAC including:
 - setting up virtual meetings
 - providing any analytical support
 - collating and distributing papers
 - recording minutes and actions as required.

Access to information and confidentiality

- Discussion within meetings will remain confidential and minutes will not be circulated outside the Ministry without the agreement of the Chair.

- CTAC can request access to any information held by the Ministry and other relevant health system agencies (e.g. PHUs and DHBs) provided the information is within scope of this terms of reference. Any such requests for information will be made to the Director-General of Health or his agent and will be responded to promptly.
- All information received, considered and generated by CTAC is subject to the Official Information Act 1982. Responses to any such requests will be collated by the Ministry on behalf of CTAC for the Chair's approval.

Disclosure and other matters

- All CTAC members must declare any actual, possible or perceived conflicts of interest. The Ministry's administrative support function will keep and maintain a register of any such declarations.

Appendix B: List of Interviews

Date	Interviewee/s
7 May 2020	Deborah Woodley Dr Caroline McElnay Population Health and Prevention Directorate, Ministry of Health Astrid Koornneef National Contact Tracing Service, Ministry of Health Michael Dreyer Darren Douglass Data and Digital Directorate, Ministry of Health
8 May 2020	Dr Ayesha Verrall Division of Health Sciences, University of Otago
8 May 2020	Professor Shaun Hendy Te Pūnaha Matatini, University of Auckland
11 May 2020	Matthew Allen Nick Leffler Allen + Clarke
11 May 2020	Gerardine Clifford-Lidstone Pacific Health, Ministry of Health Dr Corina Gray Dr Debbie Ryan Dr Gerard Sonder Pacific Perspectives Ltd
11 May 2020	John Whaanga Māori Health Directorate, Ministry of Health
18 May 2020	Jane McEntee Auckland Regional Public Health Service Peter Gush Regional Public Health Phil Shoemack Toi Te Ora Public Health Ramon Pink Community and Public Health

