

Observations from the Recent Delta Outbreak and their Impact on Reconnecting New Zealanders

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THE COVID-19 INDEPENDENT CONTINUOUS REVIEW,
IMPROVEMENT AND ADVICE GROUP

Overview from the Chair

The current Delta outbreak has, to a significant extent, exposed urgent issues with respect to New Zealand's preparedness for reconnecting. It has also highlighted a degree of fragility around the License to Operate – the goodwill and tolerance of the general public to lockdowns and the closure of the borders is being challenged.

Delta has fundamentally changed the model of preparedness and response and we must adapt accordingly. We do not have a do nothing option. The world is adapting and changing quickly, and New Zealand must also do so to not only manage the evolving risks from COVID-19, but to ensure that our society and economy can thrive as we move forward into a different and more uncertain world.

Timing is critical. We need to move with urgency to ensure we do not expose the country and New Zealanders to unnecessary risk and harm. To do this we need to experiment and innovate, try new ways of working, collaborate and harness our collective expertise and diversity of thought. We must not wait to find the perfect solutions but try things out and iterate solutions in real time.



Sir Brian Roche

Chair of the COVID-19 Independent Continuous Review, Improvement and Advice Group

Contents

Overview from the Chair	i
Introduction	3
Assurance framework overview	4
First assurance layer: Vaccination	5
Second assurance layer: Border processes	5
Domestic case isolation facility and domestic quarantine strategy	5
Third assurance layer: Public health measures adopted	6
Investment in testing (both reactive and proactive surveillance)	6
Investment in contact tracing	7
Use of technology platforms to facilitate and inform public awareness and response	7
Refresh of the Alert Level System	8
Fourth assurance layer: Safety net	8
Re-opening readiness assessment and planning	8
Investment in Critical Health System Infrastructure	9
Clear strategies for South Auckland - Pasifika and Māori in particular	10
Coherent strategy, coordination and accountability	11
Operating model	11
Approach to design, development and implementation	12
Augmenting the workforce capacity	13
Conclusion	13
APPENDIX A: Suggested programme of work	14

Introduction

- 1 The outbreak of the Delta variant in Auckland has, as you know, placed considerable pressure on the resources deployed to achieve a successful COVID-19 response. While there have been many outstanding examples of people going well and truly above what could have been reasonably expected, there are also many valuable lessons that can be learnt from the experience.
- 2 As has already been stated by Ministers, Delta has fundamentally changed the game and our preparedness and response systems and processes must necessarily reflect that. In that sense we do not, as a country or society, have a do-nothing option; the issue is what we need to do and how to prioritise efforts. While there will inevitably be a range of reviews undertaken by those actively involved in the current response, we are of the view that there are priority issues and themes that need to be actively addressed and implemented prior to decisions being implemented on relaxations at the border.
- 3 The concept of a phased reopening under the Reconnecting New Zealand work programme continues to make considerable sense. Delta has shown, however, that there are a number of preconditions that are required to inform decision-making on how a phased reopening of borders may occur and what systems, processes and infrastructure need to be in place. Failure to execute lessons from the issues highlighted by this current Delta outbreak will, in our view, expose the country to unnecessary risk.
- 4 We do not underestimate the challenge of what is outlined below. In many respects we are advocating for additional work and speed and putting more demands on a system at a point where it is arguably at its most fatigued.
- 5 In highlighting the issues in this report, we are also mindful that even the most conservative scenario post-reopening, will inevitably involve the virus, in one form or another, making its way into the community for periods of time, or even permanently. Such a scenario may have previously been seen as alarmist, but is inevitable, in our view, based on what we observe from the most recent outbreak together with international experience. This scenario in conjunction with the lessons from recent experience help to determine what preconditions are needed to provide assurance to key decision makers on a phased reopening.
- 6 Assurance is also needed that a phased reopening identifies, supports and protects the vulnerable. There must be a credible safety net in place that can both operate effectively and maintain the confidence and trust of those it seeks to serve. There have been examples of that not being the case for some sections of the community during the current outbreak. Addressing this will be critical to minimise issues of inequity within the community.
- 7 In addressing the future operating environment that we believe needs to be in place for successful outcomes from the Reconnecting New Zealanders programme, we have used the following broad assurance framework to both prepare for and respond to Delta and/or any other variant that may appear. A table that sets out a suggested programme of work is included as Appendix A.

Assurance framework overview

First Layer – Vaccination	This is a core foundation of any response system to protect the country and its people. The excellent progress to date needs to translate into high coverage across the population. There will be a need to ensure that the effectiveness of the vaccine remains appropriate to sustain ongoing population immunity
Second Layer – Border processes	The phased reopening of the border will require credible/verifiable information about the individual traveller both with respect to their vaccination status and their country of origin. Rapid testing will also be critical.
Third Layer – Public Health measures adopted	There will continue to be a number of interventions around public health measures such as masks, scanning and proactive testing and tracing across the community.
Fourth Layer – Safety Net	This dimension is focussed on the capacity and capability of the health system to support and respond to an outbreak. There must be a concerted effort to deliver additional equipment and staffing to the hospital and community health systems.

- 8 The framework and the tools and interventions within it must necessarily be very agile and effective – the virus is, at times, moving more quickly than our systems and processes. Similarly, although the layers are presented individually, they must operate as an integrated system – if one element fails the other aspects of the framework are exposed to additional pressures and demands and must be able to cope with that pressure.
- 9 While safeguards need to be in place to protect vulnerable communities, they also need to be in place to protect an increasingly vulnerable economy which is also dependent on borders reopening.
- 10 As we have been working across the recent work programme previously agreed with you, and through our collective observations from the Delta outbreak, we have identified key areas for further and urgent work under the assurance framework described above. In our view these areas are the preconditions needed to inform Reconnecting New Zealanders decision-making. They are summarised below, and for them to be addressed with the necessary urgency and agility, they should form part of a coherent strategy with a clear and single point of accountability.
- 11 Furthermore, the Reconnecting New Zealanders programme is centred around flows across our borders, which we believe is too narrow based on our most recent experiences. We recommend that the programme shifts to have a greater emphasis on domestic settings - the central focus of the programme should broaden to how New Zealand must adapt for the new 'future state'. Border and internal domestic settings are an inter-related system and should be seen as such.

First assurance layer: Vaccination

- 12 A critical precondition is an active and successful vaccination programme where all those who wish to, and are able to, have been vaccinated. Although vaccination rates in New Zealand are encouraging, there will continue to be an element of the population who remain unable or unwilling to be vaccinated. As a precondition for phased reopening, evidence will be needed that every effort has been taken to reduce barriers and ensure that the vaccine has been made accessible to everyone eligible. This is especially important for Māori, given the current vaccination coverage data. We also recommend looking to address any impediments to the vaccination programme that may exist such as funding.
- 13 To achieve this, we need to reorientate and take the vaccine into our communities through delivery mechanisms that people relate to. Initiatives such as the 'vaccine buses' in Auckland are a good start and this should be expanded beyond the 12 currently planned. Working with diverse communities and population age groups to ensure that appropriate messaging and methods of communication (including the use of technological platforms such as Instagram and Tik Tok that are popular with the younger demographic) are also key. It is encouraging to see that business are becoming involved directly in the roll out. Every effort needs to continue with the vaccination programme and any additional boosters that become available.
- 14 Although the efficacy of the vaccine has been proven it has also shown that despite being vaccinated people can carry the virus and unknowingly expose the community. Regrettably if that occurs, even within a phased reopening, there will be some in the community who remain significantly at risk.

Second assurance layer: Border processes

- 15 The phased reopening of the border will involve a series of processes that will require credible/verifiable information around the vaccination status of the traveller and their location over the previous three weeks to determine the risk status from their recent travels. These two factors, together with appropriate rapid testing, will be critical. Countries of origin may become less important over time if COVID-19 becomes similarly endemic across the world.
- 16 The processes adopted at the border to date have been a significant factor in our success so far. Their ongoing modification and ability to respond with speed to changing circumstances will be critical to a successful Reconnecting New Zealanders programme.

Domestic case isolation facility and domestic quarantine strategy

- 17 The Managed Isolation and Quarantine (MIQ) system has been placed under considerable strain during the Delta outbreak. With the scenario of increasing travellers into New Zealand, COVID-19 cases entering across the border and cases appearing in the community, this is a key area of focus. We need to determine future supply and operational models across quarantine facilities, hospital facilities, managed isolation facilities, and self-quarantine options for both border cases and community cases and contacts. There is an opportunity to design

isolation and quarantine solutions to meet the needs of the future, beyond the needs of the COVID-19 pandemic (such as short-term respite care).

- 18 Any new isolation and quarantine facilities should have enhanced health capability. This would mean that only the most severe cases of COVID-19 would need to be transferred to hospitals, thereby potentially decreasing the overall impact on hospitals, risk of exposure events, and the ability to continue as much business as usual as possible.
- 19 We recommend that a business case is completed for full suite of isolation and quarantine options based on best point of time assumptions and which provide best no-regrets future opportunity and use.
- 20 The largest likely release of pressure in the current imbalance of supply and demand in the current MIQ system will be the ability to adopt different testing and self-isolation processes. We need to determine the settings for home isolation versus managed isolation, depending on the border settings and who goes into MIQ facilities, and how community cases are to be managed. The ability to scale the soon to be operated pilot including developing effective home isolation and quarantine protocols will be a foundation of our future success. Proper consultation with business and other stakeholders is crucial.

Third assurance layer: Public health measures adopted

- 21 The systems we adopt for interventions such as surveillance, testing, and contact tracing need to be bolstered. The recent experience of the Delta outbreak clearly demonstrated the need to surge capacity across all areas as well as domestic quarantine and isolation options as covered above.

Investment in testing (both reactive and proactive surveillance)

- 22 The Delta outbreak saw an initial surge in numbers of people being tested. However, there were issues created around backlogs and delays, compromising early outbreak containment. In addition, a lack of prioritisation meant that priority workers and key locations of concern were not processed with urgency. Just one testing solution also decreases the ability to have a risk stratified approach.
- 23 While levels of testing were high in Auckland early in the outbreak (which was commendable), testing rates dropped to worryingly low levels by the weekend of 4 September. There is an opportunity to be more strategic and timely in the utilisation of proactive testing, particularly among essential workers in larger workplaces and the South Auckland community who have been hardest hit by this outbreak and previous outbreaks in February 2021 and August 2020.
- 24 Increased investment in saliva testing and overall testing capacity is urgently needed. Wider use of saliva testing would mean that individuals can be tested more frequently and reduce the risk of undetected cases in the community, as well as help the 'worried well' with testing options that are a better fit with their risk profile.
- 25 Given the nature of the virus there is an ongoing need to adopt emerging rapid test technologies. It is critical that we actively promote and achieve widespread testing across the

community irrespective of the known presence of the virus in the community. The availability of rapid antigen testing is critical to that and will form a key element of the surveillance strategy that needs to be adopted as part of Reconnecting New Zealanders. The ability to detect and respond immediately will be a key element of success. It is our view that rapid antigen testing is introduced for areas that have vulnerable groups, before entry into hospitals, aged residential care facilities, prisons, forensic facilities, and so forth. In addition, it is very likely that employers will want to have proactive testing available as part of their good employer and Health & Safety obligations. These initiatives would provide a valuable and current real time information for the preparedness and response system.

- 26 Similarly, a full nationwide programme needs to be implemented for virus detection in wastewater, while noting this platform's inherent limitations in providing false alarm (from unviable virus) and false assurance (from lower sensitivity). The information is a valuable input to the broader system and needs to be undertaken continuously across the country albeit with additional focus, as required in potential high-risk areas.
- 27 A key element of the menu of testing options will be the technological platforms that support testing to collect test data from both public and provide tests. This will enable a real-time nationwide heat map of what testing is being undertaken and what positive cases there are.
- 28 Testing should be a priority area of focus. It is a worry that it is nearly a year since recommendations re saliva testing were made and yet it is still very much in its early stages as a tool to be used against COVID-19. The work required to implement rapid test technologies can't be allowed to take as long – we have the ability to learn and adapt at pace from the international experience and should do so.

Investment in contact tracing

- 29 The Delta variant has been shown to have high transmissibility and potentially a shorter incubation period than the original COVID-19 virus strain. This means that the early aggressive response has been necessarily precautionary in defining close contacts and locations of interest.
- 30 Based on the number of contacts seen in both the current Delta outbreak and the case of the COVID-19 positive traveller from Australia to Wellington, the capacity required for contract tracing systems in terms of the numbers of cases per day has increased significantly. Investment in contact tracing capacity is an immediate need to address.

Use of technology platforms to facilitate and inform public awareness and response

- 31 As indicated earlier, a precautionary approach has been taken to defining close contacts and locations of interest. This has led to critical staffing issues at hospitals, for emergency services including Police, for MIQ staff, and for essential service providers such as supermarkets. It is key that public-facing information systems are able to quickly and simply promulgate information to prompt individuals across different ethnicities to take swift action and reduce risk of further exposure events. Goals around the use of the COVID-19 Tracer App and an

understanding of what success looks like in this area should be reviewed to maximise the benefits of technology to the system.

- 32 We recommend that there are improved public facing ICT systems providing greater specificity of locations of interest, timeframes, and individual action to be taken which are accessible to diverse communities. Furthermore, as speed of information dissemination is critical to mitigate the high transmissibility of Delta, we recommend an expert panel from New Zealand's IT sector review the current portfolio of IT solutions and recommend adjustments with urgency.

Refresh of the Alert Level System

- 33 There is a massive economic and social cost associated with lockdowns per week. Given the impacts on the economy and people's wellbeing, lockdowns (while they have enabled us to be in the position we are in) are an unsustainable tool. However, we do not currently have the health infrastructure to cope without lockdowns as evidenced by the stretching of Auckland's health infrastructure in the current outbreak even during an Alert Level 4 lockdown and due to current vaccination rates. It would make better sense to invest more money in preparedness and in strengthening public health measures at the lower Alert Levels to help avoid the need for lockdowns. Strengthening of public measures at lower levels has been recently seen through the changes to Alert Level 2 and these changes are commendable.
- 34 While the strategy should be to build a system that avoids the need for Alert Levels 3 and 4 lockdowns, we cannot remove these from our emergency response toolkit in the event that other measures do not maintain the R value below 1. The risk of new vaccine-evading variants will remain present.

Fourth assurance layer: Safety net

- 35 This dimension is focussed on the capacity and capability of the Health system to support and respond to an outbreak. The presence of COVID-19 requires a series of interventions around quarantine facilities, medical support and hospital interventions for some.

Re-opening readiness assessment and planning

- 36 A full readiness assessment against agreed metrics for key preconditions should be part of the decision-making framework for phased reopening. Given our understanding of health system readiness in this way, we are willing to engage directly with officials to support work that is already underway and that which is still needed for it to be fit-for-purpose for the complexities that will come with re-opening of borders.
- 37 Readiness and preparedness are a fundamental construct of the operating system - any planning in that regard needs to be done on a national basis. While there has been a lot of work in planning and readiness, including through the scenario planning work programme led by DPMC, it is not evident that adequate and integrated planning is occurring at all levels and across all assurance preconditions. An example of this is that DHB Chief Executives and Chairs have recently written to the Minister of Health that they are not confident in the level of

preparedness planning. DHBs are taking the lead themselves for readiness planning which is not necessarily the role of the delivery arm of the public health system. This initiative, while commendable, potentially misses the opportunity to nationally optimise and find efficiency across the country.

- 38 We have also observed that there is a wealth of public health data, but these data are generally not being analysed or used to inform planning and implementation. There is an opportunity to strengthen public health intelligence functions and the role of epidemiologists.

Investment in Critical Health System Infrastructure

- 39 The internal health systems and infrastructure need to be equipped to deal with increased cases that will enter our communities and ongoing patterns of illness.
- 40 Hospitalisation trends suggest that there needs to be a reconsideration and resetting of health system capacity for reconnecting New Zealand in the Delta variant context, and assurance that hospital and primary care services are ready. The current outbreak has revealed the very poor level of preparedness of hospitals for Delta. Auckland, which has a large and COVID-19 prepared health system relative to the rest of New Zealand, has essentially been stretched to capacity. Additional facility changes have had to be made at very short notice. Further changes will be required.
- 41 Significant amounts of planned care have been placed on hold. This is unsustainable as the health system must be able to do 'business-as-usual activity' as well as be equipped to deal with COVID-19. Similarly, the recent outbreak has shown the need for additional work force capacity and investment in appropriate facilities such as appropriately designed emergency departments, negative pressure enabled rooms, wards and Intensive Care Unit (ICU) and/or High-Dependency Unit facilities.
- 42 There needs to be a focus on investing in and building the health system needs of the future. Innovative solutions should be explored to address the gap between current capacity and what is needed. We are seeing from overseas evidence that even at 80 percent vaccination rates hospitals and health systems are under significant pressure. There is also a lot of evidence that the 'missing 20 percent' are likely to be at high risk of poor outcomes. Current Ministry of Health vaccination data by ethnicity shows this trend extends to New Zealand.¹
- 43 We recommend that a plan is developed and implemented for the necessary provision of health infrastructure and health workforce (including procurement, training strategies etc), which also enables all other functions of the health system to perform normally throughout the years ahead. The more capacity we have in the health system, the greater options we have in other areas of the system such as border controls, gathering limits, and so forth.
- 44 In particular we think there would be considerable merit in adopting an explicit n-1 framework to assess the health infrastructure system capacity. It is prudent in any system to have latent

¹ <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-data-and-statistics/covid-19-vaccine-data>

capacity to deal with surges – something that is highly probable with Delta and or other variants that may emerge.

Clear strategies for South Auckland - Pasifika and Māori in particular

- 45 As indicated earlier, the South Auckland community has been hard hit by this outbreak and previous outbreaks. Not long before the COVID-19 pandemic, this area was also disproportionately affected by an outbreak of measles in 2019. South Auckland has a high proportion of Pasifika and Māori compared with other urban areas. Many other ethnicities are also represented in this population. There are several factors which contribute to increased vulnerability and risk within this community, including many border workers residing in South Auckland.
- 46 Māori and Pasifika communities have been particularly hard hit. There is currently the risk that Māori and Pasifika will be overrepresented in unvaccinated populations. Pasifika and Māori are also adversely affected by respiratory health inequalities. Māori have the highest rate of death from respiratory illness and Pasifika, the highest risk of hospitalisation compared with other populations in New Zealand.² Furthermore, so far Māori have had the highest death rate from COVID-19 by population.³ It is clear that COVID-19 exacerbates these already existing inequities.
- 47 Māori currently have the lowest rates of vaccination. The need to meet Māori vaccination needs is a matter of utmost urgency, given the projected vaccination coverage across the general population by the end of November. There is a great opportunity for Māori leaders to design and develop an urgent way forward that is fully backed by government. This should happen immediately.
- 48 There is a gap in addressing the impacts on Māori and Pasifika. To begin to address the impacts on these populations (and indeed the broader South Auckland community), analysis of the economic impacts of not investing in equity needs to be incorporated into planning. How to get targeted support to those who really need it should be better understood and investment in primary and community care and our diverse communities should also be explored. Prioritising resources here is needed to mitigate downstream impacts on hospitals including ICUs and it needs to be recognised that access is not just about availability.
- 49 As we have seen in the current and some earlier outbreaks, the Pacific sector is critical in a crisis and a strategy needs to be developed and implemented which works to strengthen and build resilience across providers, churches, and the community between resurgence events. Investment that has been made in Pacific providers should be firmed up and continue throughout the pandemic and form part of the future strategy. Likewise, greater focus needs

² SOURCE: <https://www.asthmafoundation.org.nz/assets/documents/Respiratory-Impact-report-final-2021Aug11.pdf>

³ SOURCE: [We know how to boost vaccine rates, just give us the resources, Māori health providers say | Stuff.co.nz](https://www.stuff.co.nz/news/health/125444444/we-know-how-to-boost-vaccine-rates-just-give-us-the-resources-maori-health-providers-say)

to be on Māori communities and working in partnership with iwi, hapū, whānau, community groups and healthcare providers is critical.

Coherent strategy, coordination and accountability

Operating model

- 50 As we have highlighted in previous reports the current operating mode, in our view, does not have the necessary singular strategic oversight connecting Health with the wider system with a clear and single point of accountability and a fully integrated system. We acknowledge that there have been leadership structures put into effect in the response system such as the Border Executives Board (established to provide end-to-end protection at our borders) and the COVID-19 Chief Executives Board (a collection of CEs responsible for the oversight and assurance of the system as a whole). Much of the model still involves strength of personality and traditional relationships rather than singularly focussed, clear, documented operating models and decision frameworks.
- 51 As has been highlighted in previous reports to the Government decision rights are not always as clear as they need to be. In particular, the decisions that involve key dimensions of the health response around such things as saliva testing, surveillance strategy and testing at the domestic borders. Similarly, the decision rights between the Ministry of Health and the individual District Health Boards (DHBs) and Public Health Units continue to be sub-optimal in some cases.
- 52 This type of leadership landscape leads to risks of gaps. As illustrated by the current outbreak, issues such as an overwhelmed early aggressive outbreak response and the lack of foresight in relation to testing at the Auckland boundary have been highlighted. These types of issues confirm to us that the strategic oversight, inter-agency connectedness and leadership of the COVID-19 response need to be reconfigured under a fit-for-purpose COVID-19 agency/response unit that is able to better anticipate rather than being primarily in a state of reactivity. This is not in itself a direct criticism of any entity currently involved, and we acknowledge the immense hard work and effort from many people. However, we cannot stress more urgently that the current organising framework is sub-optimal and will fail us if we aren't able to adapt quickly enough. The COVID-19 pandemic has evolved into something that will now be part of our way of life for an extended period of time. Its presence will continue to present changing risks.
- 53 It is clear that while the model operating since the outbreak has delivered results it has highlighted shortcomings in the system to be able to cope with COVID-19 while operating a business-as-usual public health model. In other words, whenever an outbreak or crisis occurs, all resources are deployed to the front line of the battle and momentum everywhere else is lost. While understandable in the short term the sustainability of such an outcome in the medium term is highly questionable and will give rise to increased public frustration and dissatisfaction.
- 54 We recommend that this is put in place before the end of the vaccination rollout as the current arrangements put the country at unnecessary risk. The Unit should encompass an

accountability for the planning and integration of the items in the assurance framework identified above. The functions should include the core elements of:

- Surveillance & testing
- Intelligence
- Workforce capacity
- Contact tracing
- Quarantine and isolation
- Technology platforms (for data collection/collation and public communications)
- Readiness assessment and planning, including crisis management response plans with clear separation in responsibilities between those in crisis management and those delivering core business
- Investment in critical health system infrastructure
- Alert Level Framework (mandatory public health measures)
- Strategies for South Auckland communities/diverse communities (including ethnic, disability)/rural communities

55 As we have recommended in our previous letter of 4 June 2021, high performing organisations with operational excellence at the forefront of the response to COVID-19 are critical. In keeping with that view, this Unit must be a high performing organisation with world-class and courageous leadership that has the necessary cultural elements such as a clear sense of purpose and definition of success, a focus on supporting, celebrating and connecting people, performance management and recognition frameworks, and open-mindedness, continuous improvement and agility.

56 A fully integrated pandemic preparedness and response unit (the Unit) will enable all other government and health system functions to perform normally and to focus on their business as usual (much of which has been paused while the fight against COVID-19 is underway). The complexity of the pandemic response will only continue to increase in the short to medium term. Establishing such an operating unit should be a priority in order to optimise New Zealand's response. While public health is a major part of pandemic response, the system is complex and multi-faceted. Consideration should be given as to where a pandemic response unit would be best placed. Operational and logistical expertise are key.

Approach to design, development and implementation

57 Time is a luxury that we do not have as we race against Delta and the risk of continually evolving variants. In reflection of the everchanging situation and the pace needed to have the preconditions in place, we must shift to more of an ideation, prototyping, and real-world testing approach. This approach can be seen in the current Border Sprint workstream of Reconnecting New Zealanders. Building in the principles of human-centred service design into the operating model will see greater innovation and incremental progress towards meeting those pre-conditions. A further and significant advantage of this approach is that decision-makers will have greater confidence and assurance knowing that something has been tested in the real world.

Augmenting the workforce capacity

- 58 As stated above there is a real need for pace and urgency. The Delta outbreak has revealed limitations in the capacity of the COVID-19 system to respond, manage and stamp out cases. Were a larger outbreak to occur in the near future, there is real risk of our systems, infrastructures and work force being overwhelmed. While there are many talented, skilled and hard-working individuals working tirelessly across the public service, there is a wealth of expertise, knowledge, and innovative and strategic thinking in broader New Zealand. Making better use of people outside of the public service (many of whom we know are willing to help) will inject pace and fresh perspectives to meet the necessary preconditions and support an already fatigued workforce. Such an approach would signal a fundamental change in the current approach and operating model.

Conclusion

- 59 While we have seen immense effort and progress in our COVID-19 journey, there is still a substantial programme of work needed to be prepared for the challenges that we face, particularly as we move towards a phased reopening of borders in an uncertain and everchanging world. While we have set out, what is in our view, the necessary preconditions for a phased reopening, these must be considered as a collective and coherent set of actions resting under a single point of accountability, and not divided up across the system as a collection of singular recommendations. How we organise ourselves and take forward the necessary body of work is crucial.

APPENDIX A: Suggested programme of work

Strategic area or assurance layer	Functional area	Risk or issue	Recommended action	Expected outcome/benefit
Assurance layer one - Vaccination	Vaccination	Unvaccinated populations increase risk of higher rates of severe illness and mortality, and overwhelming the health system.	Address barriers to vaccination	Reduced levels of serious illness and mortality.
			Take vaccines into communities	Health system will be able to manage cases.
			Work with diverse communities and age groups	Reduced risk to those who cannot be vaccinated.
			Address any impediments to the vaccination programme such as funding.	Reduced vaccine hesitancy and associated risks. Improved access to vaccination.
Assurance layer two - Border processes	Cross-functional area (e.g. testing/technology platforms/airport operations)	Border systems that are not agile risks operational inefficiency at the border and ability to anticipate and respond to risks.	Iteratively modify border processes and build agility into design.	Streamlined and adaptable border processes that are more efficient and proportionate to risks.
	Quarantine and isolation	Travellers and COVID-19 cases (border and community) will risk overwhelming MIQ capacity with increased demand.	Determine supply and operational models for isolation and quarantine, including home-based settings.	An informed robust business case for decision-making
			Business case for a full suite of isolation and quarantine options.	Adequately manage risk, relieve pressure on hospital infrastructure and supply vs demand.
		Increased cases of COVID-19 coming across the border and appearing in the community will add to strain and risk for hospitals	New quarantine facilities should have enhanced health capability.	Decrease the overall impact on hospitals, risk of exposure events, and other health care.
Assurance layer three - Public health measures adopted	Surveillance & testing / technology platforms	Broad brush, and non-strategically prioritised testing risks cases not being detected early or being missed.	Bolster surveillance, testing, and contact tracing systems, including more strategic proactive testing.	Increase likelihood of early detection of community cases. Prioritised risk-based testing better manages capacity and risk.
			Use appropriate technological platforms to collect test data from both public and private tests.	Will enable a real-time nationwide heat map of testing being done and positive cases there.
			Adopt emerging rapid antigen testing technologies.	Rapid antigen testing in higher risk areas will mitigate risk of harm.
			Wider adoption of saliva testing.	Increased frequency of testing while reducing risk of undetected cases in the community. Enable risk-stratification (multiple testing options for different risk-profiles)
			Implement nationwide wastewater testing	Reduced risk of widespread undetected transmission and inform targeted surveillance testing priorities.

Strategic area or assurance layer	Functional area	Risk or issue	Recommended action	Expected outcome/benefit
	Contact tracing	Capacity of contact tracing system is insufficient for Delta and future possible virus variants.	Immediate investment in contact tracing capacity.	Increases the chances of outbreaks being extinguished at low alert levels.
	Technology platforms	Information channels may not always be effective in reaching, or gathering key data from, individuals and communities.	Develop improved public facing ICT systems that are appropriate for diverse audiences. Set up an expert IT panel to review the current portfolio of IT solutions. Articulate goals around the use of the COVID-19 Tracer App.	Optimised speed and accessibility of information will system-wide responses and outbreak management.
	Alert Level Framework	We do not have the health infrastructure to cope without lockdowns.	Investment in preparedness and strengthen all available public health measures at lower Alert Levels.	Avoid the need for Alert Levels 3 and 4 lockdowns (without removing lockdowns from our toolkit)
Assurance layer four - Safety net	Investment in critical health system infrastructure	Hospital preparedness is inadequate for outbreaks resulting in other planned health care being paused.	Reconsideration and resetting of hospital and primary care services capacity and assurance they are ready. Additional workforce capacity and investment in appropriate facilities. Explore innovative solutions. Develop and implement a plan for the necessary provision of health infrastructure and workforce. Adopt an explicit n-1 framework to assess the health infrastructure capacity.	Ensure the health system is prepared for outbreaks and can continue "business as usual". Increased options for other system areas such as border controls, gathering limits, and so forth. Better ability to deal with surges through latent capacity in system.
	Vaccination/Strategies for South Auckland and diverse communities	Māori and Pasifika are disproportionately affected by COVID-19 due to higher rates of serious illness and death.	Immediately engage Māori leaders to develop a way forward and develop and strengthen partnerships. Undertake analysis of the economic impacts of not investing in equity and incorporate into planning. Firm up investment that has been made in Pacific providers as part of the future strategy.	Significantly reduce the impacts and risks on these vulnerable communities. Strengthen and build resilience across communities between resurgence events. Help to ameliorate existing distrust of government.
	Readiness assessment and planning	Readiness planning done individually by DHB risks inefficiency, weaknesses, gaps and inconsistencies in the national response	Readiness planning is done at the national level and delivered regionally by the DHBs	Reduced risks of gaps, weaknesses, and inefficiencies during responses to outbreaks.
		Risk that key system components of the system will not be ready for reopening.	Undertake a full readiness assessment against agreed metrics. Rapid development of an integrated plan with clear goals, necessary steps, and readiness preconditions.	Identification of necessary preconditions for Reconnecting New Zealanders decision-making.
		Insufficient analysis of public health data limits targeted planning and interventions.	Strengthen public health intelligence functions and the role of epidemiologists in data analysis.	Ability to target resources and interventions to achieve better outcomes.
Coherent strategy, coordination and accountability	Operating model	Risk of gaps in current leadership landscape reduces the system's ability to be agile and anticipatory.	Put in place a fit-for-purpose pandemic preparedness and response unit with singular strategic oversight across the system.	Remove uncertainty within the system and increase agility and innovation. Delineated responsibilities will increase the system's ability to anticipate.

Strategic area or assurance layer	Functional area	Risk or issue	Recommended action	Expected outcome/benefit
				Maintains momentum of other necessary work, and limits public frustration and dissatisfaction.
		Preconditions necessary for Reconnecting New Zealanders decision-making will not be met in the required timeframe.	Form a coherent strategy with a clear and single point of accountability to deliver the work programme.	Increased pace in readiness for reopening through Reconnecting New Zealanders.
			Broaden the focus of the Reconnecting New Zealanders programme from 'flows across the borders' to 'adapting NZ for the future-state'.	Better system coordination and oversight will reduce risk of system gaps and weaknesses.
			Build in principles of human-centred service design.	Continuous benefits are realised from real-world testing and iteration. Decision-makers have greater confidence and assurance through real-world testing of solutions.
		Risk of suboptimal systems, infrastructures and work force through lack of proper engagement of experts outside of the public service.	Utilise expertise from outside of the public service.	Will inject the necessary pace, urgency, innovation and fresh perspectives. Lessen the risk of systems, infrastructures and workforce being overwhelmed.