Discussion Paper 2024/02

# The COVID-19 Ripple Effect: An independent review of New Zealand's response

Prepared as a submission for Phase One of the Royal Commission COVID-19 Lessons Learned | Te Tira Ārai Urutā


MCGUINNESS INSTITUTE
TE HONONGA WAKA

**Leaders are inevitably hemmed in by constraints. They operate in scarcity, for every society faces limits to its capabilities and reach, dictated by geography and economy. They also operate in time, for every era and every culture reflects its own prevailing values, habits and attitudes that together define its desired outcomes … Moreover, events often move too quickly to allow for precise calculation; leaders have to make judgements based on intuitions and hypotheses that cannot be proven at the time of the decision. Management of risk is as critical to the leader as analytical skill.**

Henry Kissinger (2022)
56th Secretary of State of the United States[1]

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**Title**

*Discussion Paper 2024/02 – The COVID-19 Ripple Effect: An independent review of New Zealand's response*

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**About the Institute**

The McGuinness Institute was founded in 2004 as a non-partisan think tank working towards a sustainable future for Aotearoa New Zealand. The Institute applies hindsight, insight and foresight to explore major challenges and opportunities facing New Zealand over the long term.

**About the cover – our top five**

The cover illustrates the five areas the Institute would focus on to reduce the impacts of the next pandemic on New Zealand's long-term future. They are:

- the healthcare system,
- the COVID-19 wage subsidy,
- the National Reserve Supply,
- education and health of young New Zealanders, and
- vaccine management and hesitancy.

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# Preface

The New Zealand Government's response to COVID-19 has changed how we live, work, learn, think and feel. It continues to have significant, long-term impacts on our everyday lives and how New Zealanders feel about the Government and other public institutions.

This report is an independent review into decisions made by the Government in response to COVID-19, using history and research to analyse economic, social and cultural impacts these decisions have had on society. It is inspired by the Australian report *Fault Lines: An independent review into Australia's response to COVID-19*, which was published in October 2022. Our objective here is to collect and share some thoughts and ideas on key lessons for future pandemics before those lessons are lost and forgotten.

The title was selected because we observed many cause-and-effect relationships and numerous unanticipated impacts rippling widely across society since early 2020. This insight was further reinforced while writing our book *COVID-19 Nation Dates: A timeline of significant events in Aotearoa New Zealand's COVID-19 pandemic* and while researching for this paper. In a crisis, people tend to focus on the immediate and urgent; however, the ripple effect shows even seemingly small short-term actions have a significant impact across the long term. In this context, the Government's actions responding to one thing (COVID-19) have had substantial, long-term consequences spanning various systems and parts of society, many of which are still occurring and are yet to be understood.

The Institute is currently preparing a second edition of *COVID-19 Nation Dates*. The second edition will be published in September 2024 and will include key events up to July 2024.

This discussion paper is part of *Project 2058*, the Institute's flagship project, which is used to focus our work on New Zealand's long-term future to the year 2058. It is also the Institute's submission to the Royal Commission on COVID-19. Thank you for critically looking at what worked and what did not. Unfortunately, your task is to assume the next pandemic is not far away.

We hope this report assists future leaders and policy makers to think of the long-term ripple effects of their decisions when faced with a pandemic (or other crisis), rather than only focusing on the present.

Lastly, thank you to all those who cared for, and continue to care for, COVID-19 patients. It was your courage, commitment and determination to deliver quality care that I remember most. Thank you.

Yours faithfully,

Wendy McGuinness

Chief Executive

**COVID's not in the news every day, but it's still a global health risk. If we look at wastewater estimates, the actual circulation [of SARS-CoV-2] is somewhere between two and 20 times higher than what's actually being reported by countries. The virus is rampant. We're still in a pandemic. There's a lot of complacency at the individual level, and more concerning to me is that at the government level. Lack of access to lifesaving tools such as diagnostics, therapeutics and vaccines is still a problem. Demand for vaccination is very low around the world. The misinformation and disinformation that's out there is hampering the ability to mount an effective response.**

Maria Van Kerkhove (6 February 2024),
interim director of the WHO's Department of Epidemic and
Pandemic Preparedness and Prevention[2]

# Introduction

The Institute welcomes the opportunity to offer feedback for the Royal Commission COVID-19 Lessons Learned | Te Tira Ārai Urutā. The Institute would like to thank the Government for launching a Royal Commission Inquiry into the Government response to COVID-19 and the opportunity to provide submissions.

Importantly, this discussion paper does not aim to represent a complete picture, but it does hope to contribute to the narrative by illustrating ways to analyse and think about our response in a way that might be helpful. The impacts of the pandemic were not felt equally; while some New Zealanders experienced the pandemic as deadly, terrifying, isolating and divisive, others look back at the lockdowns, especially the first lockdown, as a positive experience. This emphasises again why the Inquiry is so critical, and why it is essential to seek out as many stories as possible.

### Our scope

The challenge for the Commissioners will be to hear, read and analyse a diverse range of stories, identify common themes and list the less common, collate a list of innovative ideas and develop lessons from what was done right and what was not, in preparation for the next pandemic. In contrast, the scope of our paper is narrower and does not draw on the personal experiences of individuals. Instead it looks at the history and context of past pandemics and tries to take a broad, interconnected, ecosystem approach to the issues that became apparent to us as we chronicled the events recorded in our book *COVID-19 Nation Dates: A timeline of significant events in Aotearoa New Zealand's COVID-19 pandemic*. We also draw on other pandemic-related documents the Institute has published between 2005 and 2023; see the list in Appendix 1.

We note that the Commissioners ask two questions:

Question 1: Looking back – what would you like the Inquiry to know about your experiences of the pandemic?

Question 2: Moving forward – what lessons should the Inquiry learn from your experiences so we can be as prepared as possible for future pandemics? This paper focuses primarily on Question 2.

### How to read this submission

The discussion paper has identified lessons to help prepare New Zealand for the next pandemic. Table 1 lists 46 lessons for discussion and makes 31 recommendations for immediate implementation. If you are short of time, we suggest you read Table 1 and identify either a key lesson or recommendation you would like to learn more about. The relevant page numbers can be found in the right-hand column of Table 1. The paper is divided into five parts and each part has its own set of lessons and recommendations.

#### A: General to every pandemic

**Part One: The preparation for a pandemic**

#### B: Specific to the COVID-19 pandemic

**Part Two: The Inquiry into COVID-19**

**Part Three: The initial response when COVID-19 was outside New Zealand**

**Part Four: The response when COVID-19 was inside New Zealand and risks were high**

**Part Five: The response when COVID-19 is inside New Zealand and risks are lower**

**Limitations**

Unlike *COVID-19 Nation Dates*, this discussion paper contains a significant amount of opinion. This was necessary given the paper is an attempt to identify lessons for future generations. In undertaking this work we became aware of four major limitations:

1. The Institute has incomplete knowledge in some areas (colloquially called 'the unknown unknowns' – the information we do not know we don't know).
2. The Institute does not have expertise in certain areas (e.g. medical).
3. We found a lack of accurate, verifiable and timely analysis on many topics (e.g. although there was 'data' in the form of statistics, there was little 'information' in the form of analysis or deep thinking in the form of 'knowledge').
4. COVID-19 and its effects are still ongoing.

We have had to make assumptions and draw some weak connections to provide thoughts and ideas on topics that we hope might contribute to the work of the Commissioners. This was uncomfortable for us as we work hard to be evidence-based. However, on reflection, we feel that bringing together the impacts of such a significant event means accepting that a good attempt is better than no attempt.

For this reason, we have referenced this paper heavily in order to show the information we have relied upon. Our hope is that the Commissioners will have the necessary information and knowledge to stress test our thinking, to ignore what we have got wrong and to build on what we have right.

Using a jigsaw as an analogy, what we found when looking at the whole system was a large number of jigsaw pieces that we have still been unable to bring together to provide a clear picture of cause-and-effect relationships. We therefore thank the Commissioners in advance for their commitment and determination to make sense of this extraordinary time in New Zealand history.

## 1.1 Background

Shortly after its establishment in 2004, the Institute identified pandemics as an area worth studying. Our first publication was an article in the 2005 *Chartered Accountants Journal of New Zealand*: 'Managing the risk of a "bird flu" pandemic – a Chartered Accountant's perspective' (see Appendix 2). The article makes the observation that a pandemic requires a phased process and you need to respond differently at different stages. The article notes that closing the border was also generally accepted as an obvious first step:

> [A] potential full border closure until a vaccine is developed. The period of time between the first outbreak and the development of the appropriate vaccine will be a critical factor in managing the risk. This is currently expected to be in the range of six weeks to six months. Consequently, the longer New Zealand can keep the virus out (i.e. reduce the gap), or ideally, completely prevent the virus entering New Zealand (resulting in the second phase not occurring), the fewer negative effects on human health and the economy.[3]

We are now in the fourth year since COVID-19 arrived in New Zealand. The COVID-19 pandemic is the fifth global pandemic in just over a century. Previous pandemics began in 1918, 1957, 1968 and 2009. Future pandemics are inevitable.

The Institute believes we must strengthen our emergency health response so that we are ready for future pandemics. This discussion paper is not merely retrospective but forward-looking, advocating for actionable recommendations aimed at fortifying New Zealand's resilience to future health crises. By fostering transparency, accountability and continuous improvement, we aspire to contribute to the ongoing discourse surrounding pandemic preparedness and response strategies, thereby safeguarding the welfare of present and future generations.

## 1.2 High-level observations

1. New Zealand's response to the COVID-19 pandemic showed characteristics of being complicated, complex and, in a few rare cases, chaotic.

   Complicated is where direct cause-and-effect relationships exist and therefore the narrative evolves in a linear and predictable fashion, such as the COVID-19 wage subsidy and the National Reserve Supply (these are two of the top five areas the Institute would focus on to reduce the impacts of the next pandemic on New Zealand's long-term future, see the illustration on the cover). In contrast, complex is where parts of the system are made up of many interconnected and often uncertain parts that may amplify each other and, as such, do not interact predictably. Examples include the healthcare system, the education and health of young New Zealanders, and vaccine management and hesitancy.

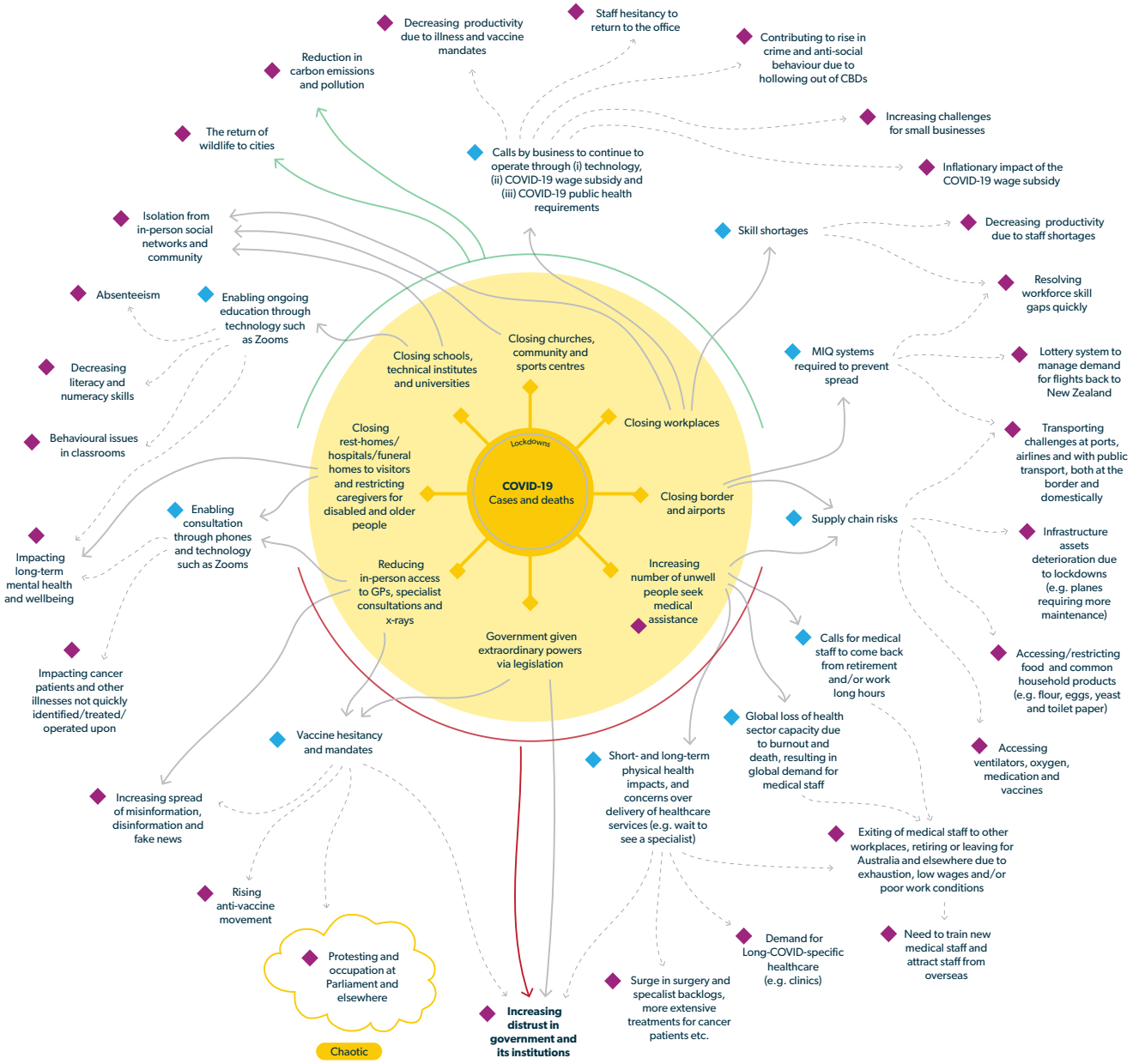
   The difference is important; complicated problems can be solved through detailed planning, protocols and execution, while complex problems require creativity, discovery and experimentation.

   The Cynefin Framework takes this thinking further. It identified five domains: complex, complicated, chaotic, simple and confused. The framework was developed in 2007 to help leaders recognise that their responses should vary depending on the domain they are operating in. The Cynefin Framework describes the chaotic domain in a 2007 *Harvard Business Review* article as the domain of rapid response:

   > In a chaotic context, searching for right answers would be pointless: The relationships between cause and effect are impossible to determine because they shift constantly and no manageable patterns exist—only turbulence. This is the realm of unknowables … In the chaotic domain, a leader's immediate job is not to discover patterns but to stanch the bleeding. A leader must first act to establish order, then sense where stability is present and from where it is absent, and then respond by working to transform the situation from chaos to complexity, where the identification of emerging patterns can both help prevent future crises and discern new opportunities. Communication of the most direct top-down or broadcast kind is imperative; there's simply no time to ask for input … Indeed, a specific danger for leaders following a crisis is that some of them become less successful when the context shifts because they are not able to switch styles to match it … Moreover, leaders who are highly successful in chaotic contexts can develop an overinflated self-image, becoming legends in their own minds. **When they generate cultlike adoration, leading actually becomes harder for them because a circle of admiring supporters cuts them off from accurate information** … One excellent technique is to manage chaos and innovation in parallel: The minute you encounter a crisis, appoint a reliable manager or crisis management team to resolve the issue. **At the same time, pick out a separate team and focus its members on the opportunities for doing things differently. If you wait until the crisis is over, the chance will be gone.** [bold added][4]

   We have attempted to map the interconnections, what we colloquially called the 'ripple effect' of COVID-19, see Figure 1. As noted above, we found some aspects of New Zealand's response to the COVID-19 pandemic were complicated, while others were complex. But a small number of areas showed characteristics of being chaotic. One prominent example is the occupation of Parliament.

## Figure 1: A ripple effect map: first-, second- and third- order effects from 2020 to 2024




2. Our healthcare system has not been designed to deal with unexpected events. Arguably, it was not COVID-19 that led to the long and costly 2021 lockdown of Auckland, but a lack of capacity in our healthcare system to deal with a crisis. As we understand it, the final decision rested on three consecutive questions:

**Q1: Could the healthcare system cope with a surge in cases?**

**Q2: If no, could Auckland (and indeed New Zealand) be vaccinated quickly?**

**Q3: If no, is the only option available to lock down Auckland until vaccines become available?**

**Q1: Could the healthcare system cope with a surge in cases?**

The answer was no. At that time, it was found that the virus could spread from non-symptomatic individuals (see Example 3 in lesson 1.8) and that Delta had a much shorter generation time than the earlier variants (the speed of transmission for Delta was thought to be closer to four days than the initial seven days).[5] Given Delta would spread very fast, the surge would be significant. Further, the speed of transmission would likely reduce the effectiveness of past interventions, such as contact tracing, testing and isolation. Hence it was felt that the healthcare system would not be able to cope with a surge in cases.

**Q2: If no, could Auckland (and indeed New Zealand) be vaccinated quickly?**

The answer was no. There were insufficient vaccine doses in the country.[6] Furthermore, two doses were required, which meant that a high vaccination rate was only possible later in the year.

**Q3: If no, is the only option available to lock down Auckland until vaccines become available?**

The answer was clearly yes. It also enabled the rest of New Zealand not to require a lockdown.

Our health system, and many of those around the world, is in a downward spiral. The fault lines that COVID-19 identified have undermined the resilience of the system, and many healthcare systems are in decay and crumbling. It will take significant investment by the public, as well as considerable time and effort by Government, to get back to pre-COVID levels. However, as this example shows, we need to build back better if we want to prevent long lockdowns in the future. We need to build some redundancy into the healthcare system to deal with one-off events. Nearly all crises we face in the future will benefit from an antifragile healthcare system.

Investing in redundancy is costly, but when compared with the cost of a long lockdown, it is cheap. The problem with the current narrative is that government has positioned COVID-19 as a 1-in-100-year event.[7] In our view this is a form of misinformation. It misleads the public and officials into thinking that there will not be another pandemic for 100 years (i.e. around the year 2120). In contrast, we consider the chance of New Zealand having to deal with a new pandemic in the next 10 years is far more likely (i.e. before 2035). Hence the level of investment in the healthcare system changes significantly if you are preparing the country for a 1-in-10-year event (rather than a 1-in-100-year event).

Two additional points. It is highly likely that Auckland will become an epicentre for another pandemic in New Zealand. Secondly, a vaccine will become a game changer. Without a vaccine, the Government will be faced with Question 1, followed by Question 3.

3. Our pandemic plans were out of date, lacked integration, and were designed for influenza, not coronavirus. A whole-of-government test was last done in 2007 and was well overdue.[8]
4. The Ministry of Health (MOH) website states that the National Reserve Supply (NRS) was to undergo a comprehensive review in 2023 to ensure the supply is able to support the New Zealand health system's responses to a wider range of hazards and risks.[9] Although this review is most welcome, we note that the full NRS list is no longer available on the MOH website.
5. New Zealand did close the borders in time; however, the Government should have given New Zealanders overseas more warning. From our perspective, the border closure was obvious and imminent. We were advising family and colleagues to get back to New Zealand two weeks earlier.
6. COVID-19 was not a severe pandemic; it was a moderate pandemic. Although these terms are not commonly used, the distinction is important. We need to design our systems for the worst-case scenario: a highly contagious virus that also has high mortality rates and targets young people (rather than COVID-19, which targeted patients older than 65 or those with pre-existing medical conditions).[10]

   COVID-19, in our view (although scientists may disagree), was a story of two types of variants. At the time, these differences in variant mortality profile were not clearly apparent and we were slow to adjust our strategies accordingly.

(i) Severe variants: Beta, Delta and more recently Omicron.

When faced with severe variants society needed to work hard to put in place protections before a vaccine became available.

By September 2021, Delta had spread globally and was the sole Variant of Concern (VOC). Omicron emerged as a VOC in November 2021. In the early days, Omicron was found to cause less severe sickness than Delta. However by 2023, studies indicated Omicron was as severe a threat as Delta. Studies 'imply that structural variations of the spike protein caused by mutational changes may increase the severity of illness and the risk of death in the Beta, Delta, and Omicron types.'[11]

(ii) Less-severe variants: Alpha and Gamma variants.

The level of restriction and protection required is not as high for less severe variants. There is still a place for a vaccine; however, it is not as essential. Omicron was initially thought to be less severe, but as noted above, it is now considered to be as severe a threat as Delta.

7. Ventilation is a key aspect if we want to keep schools open (for teachers and students), medical centres in operation (for patients and medical staff) and businesses working (for employees and customers). If we don't want 'hard' lockdowns or ongoing spread of viruses, we need to invest in ventilation.

8. The only certainty is uncertainty: the next pandemic will not play out like COVID-19.

   COVID-19 differed from the notable 1918 influenza pandemic, which killed 1% of New Zealand's population in just eight weeks. The influenza pandemic defined how pandemics were expected to behave and defined New Zealand's plans and preparation.[12] But then a different viral pandemic eventuated, leaving many of New Zealand's plans inapplicable. Extensive analysis must go into planning for future pandemics; however, it is important to learn from past mistakes and not create plans based solely on how COVID-19 operated.

9. Contact tracing and wastewater testing ended up being two significant tools for protecting society, particularly in the early stages of the Delta variant.

10. COVID-19 vaccines were always going to be the game changer. However, vaccine roll-outs require a high level of care and caution, often at a time when medical staff and policy analysts are exhausted. The individuals who lost their lives taking a vaccine to make society safe deserve our respect and their families should be financially compensated. Risks exist every time we cross a road or drive a car, and at one level, a COVID-19 vaccine is no different. However, we need to work hard at minimising risk in all the ways we work and live. The pandemic was unique because of the narrative and pressure that was used to vaccinate society, at pace.

11. New Zealand was fortunate to have stable, reliable and robust public service leadership, but even they would argue they were unprepared and that the previous plans were of little value.[13]

12. The so-called 'team of 5 million' was a great concept but unfortunately it didn't occur in practice. We knew personally of many business ideas designed to fill a clear gap in New Zealand's supply chain, however, these opportunities were not used or supported by the Government. This was not because they were not good ideas (many of them were globally novel and had the potential to minimise harm and save lives), but because there was resistance by the government to share the problem. It felt like government officials did not trust citizens to contribute, and had no risk appetite, despite the presence of many talented individuals working hard to find solutions to problems caused by COVID-19 and the surrounding lockdowns. The government felt safer buying goods from overseas suppliers, supporting international companies rather than local people and businesses. (This preference for purchasing from well-known suppliers is often called the IBM solution – no one was ever fired from choosing IBM.) To some degree, it was understandable given this was a life-and-death situation, however, it came across as if the government wanted New Zealanders to stay at home and do nothing, missing out on a number of local opportunities and also opening New Zealand up to supply-chain risk.

13. Globally, the COVID-19 pandemic is thought to have contributed to an erosion in trust in government, particularly among young people. The research to date does not indicate that there has been a significant reduction in trust, however there is a feeling that things have changed.

## 1.3 Outstanding questions

As a country we may never be able to answer these four outstanding questions with any degree of accuracy, nor agree, but these questions are important to identify and explore particularly given a next pandemic is likely to be around the corner. Some of these could be answered by a separate inquiry while others could be treated as part of this Inquiry. The Institute considers being informed is being forearmed.

**Q1: Was the money we spent worth it, could it have been spent better and to what extent has the $70 billion spending contributed to the recession?**

One of the shocks of the pandemic was not that it occurred but that it lasted so long (and is continuing). As Baker and others point out, past pandemics were much shorter.[14]

Although Treasury has released the funding decision data on 14 June 2023,[15] the analysis and in particular the fiscal strategy in response to the pandemic and how this compared with other countries is yet to be understood. It is normal in a crisis to have to spend money to resolve immediate short-term challenges. This is recognised in the Public Finance Act 1989 in terms of a buffer being required for emergencies. Over the longer term, it is clearly not sustainable to continue to overspend, hence it is important to be both practical and prudent during a crisis.

It would be good to understand to what extent money was spent on short-term expenses versus long-term assets, and what funds were spent on the health system (and in particular long-term improvements) versus other interests. See our recommendation on Treasury preparing a detailed report on its fiscal strategy in response to COVID-19.

**Q2: Why was Auckland locked down so long – what were the costs, risks and benefits?**

This question relates to the tools we had to combat COVID-19 and whether the Auckland lockdown was the optimal tool for dealing with COVID-19 in late 2021. Related to this question is whether New Zealand made the most of periods of being COVID-19-free due to the border closure and tracking and tracing. One of the key lessons is that the strategy needed to change as the pandemic changed; figuratively, it was as though while the virus replicated and mutated, our response needed to also evolve and adapt. We think the Auckland lockdown was an example of not evolving and adapting to changing circumstances. See recommendation 24 that Auckland Council prepare a report for the Minister for Auckland on lessons to be learned from the Auckland lockdowns in response to COVID-19.

**Q3: What is our risk appetite during a pandemic?**

We accept when we get into a car that we may have an accident and possibly die, but we all drive or accept a lift in a car. Identifying your level of risk appetite is an important decision when faced with a pandemic. For example, if a new virus tends to kill young people rather than old people, would that lead to a different strategy? What mortality rates and transmission characteristics (e.g. the $R_0$) overseas should lead to a border closure in New Zealand, and when the virus is in New Zealand, lead to communities being locked down? New Zealanders accepted the decisions in relation to COVID-19 because of what we were seeing on television in China and Italy. The decision was obvious, but what about a less aggressive virus? It seems appropriate that we explore and make public the characteristics that might drive our risk appetite and our precautionary approach.

**Q4: What were the catalysts for the occupation of Parliament?**

Figure 2 revisits the timeline found on the inside cover of the first edition of *COVID-19 Nation Dates*. Potential catalysts include:

- vaccine mandates
- adverse outcomes from the vaccine
- vaccine passes
- the Auckland lockdown.

However, it may have been pandemic fatigue, or a fear of the government having too much control, or the spread of misinformation and whipping up of belief in conspiracy theories and mistrust in government. It is likely to be a combination of many characteristics that led to the size and duration of the occupation at Parliament. In retrospect there are likely to be things that could have been done differently – but these need to be understood now, and democracy strengthened to minimise further protests and occupations of a similar nature during future pandemics. Importantly, protests are an important mechanism that contributes to a healthy democracy, but many of the actions taken during the occupation were extreme.

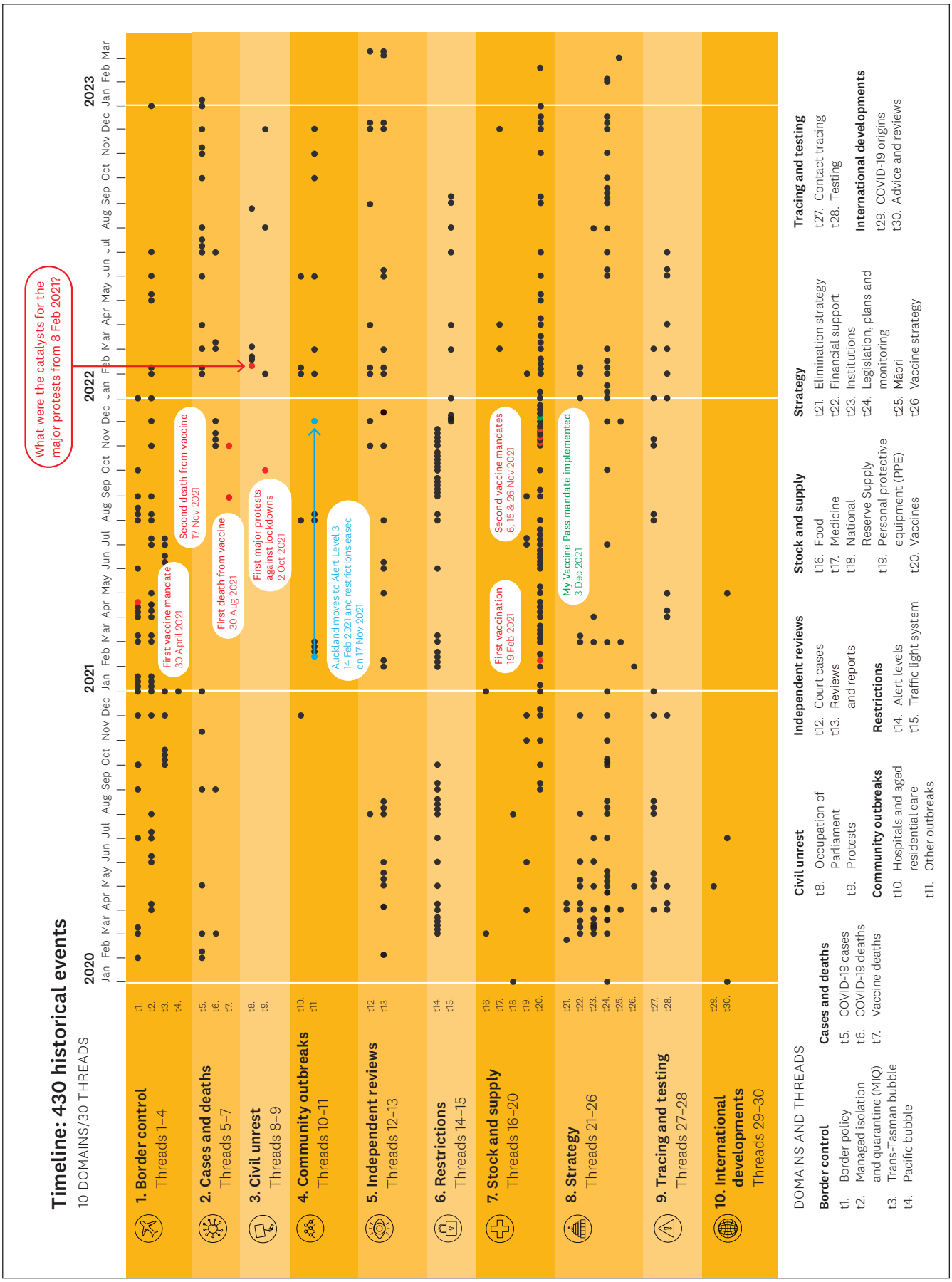
The Independent Police Conduct Authority's Review of the Policing of the Protest and Occupation at Parliament 2022 was useful, but it was narrow in scope and therefore fails to explore the bigger picture – what happened, why, and what could be done in the future to minimise discontent and future protests and occupations.

## 1.4 Lessons and recommendations

Lessons are identified through our review of New Zealand's pandemic response. New Zealand responded well in some areas and not in others. All lessons should be recorded today to help those responding to the next pandemic. The Institute's suggested lessons are listed in column 2 of Table 1. These are designed specifically for the Commissioners to consider when preparing their report.

Recommendations, in contrast, are our suggestions for immediate action. Not all lessons led to a recommendation. The Institute's recommendations are listed in column 4 of Table 1, followed by the relevant organisations. These recommendations could, and we think should, be implemented before the Inquiry reports in September 2024. Each recommendation aims to make good and to strengthen our current position – to help New Zealand become more antifragile[16] and better able to respond to pandemics.

## Figure 2: Analysing significant events to help identify possible catalysts for the occupation of Parliament[17]



## Table 1: Lessons and recommendations

| Lesson number | Lesson | Rec number | Recommendation | Relevant organisation/s | Page |
|---|---|---|---|---|---|
| | **Part One: The preparation for a pandemic<br>I. International response** | | | | |
| 1.1 | Acknowledge the next pandemic is not far away; it is a matter of when (not if). | 1 | Government to immediately establish a new independent body or embed the role in an existing independent institution to prepare and plan for the next pandemic. | Government | 32 |
| 1.2 | Support the establishment of an international Pandemic Accord and support global funding of WHO so that it is fit for purpose. | 2 | Government to actively support the Pandemic Accord and WHO. | Government | 32 |
| | **Part One: The preparation for a pandemic<br>II. Domestic response** | | | | |
| 1.3 | Establish a Centre for Disease Control (CDC). | 3 | Government to establish a national and distributed Centre for Disease Control (CDC) for high-level and long-term organisation to build resilience and pandemic preparedness. The role of the distributed CDC would be a significant expansion of the infectious disease activities currently provided by ESR. | Government | 33 |
| 1.4 | Plan how to close the border quickly. | 4 | CDEM to develop a specific planning document on how to quickly close the border. | CDEM | 33 |

| Lesson number | Lesson | Rec number | Recommendation | Relevant organisation/s | Page |
|---|---|---|---|---|---|
| 1.5 | Plan how to maintain and build trust in government and its institutions before and during a pandemic. | 5 | Government to consider each of the following to help maintain and build trust in our democracy:<br>(a) Establish an independent fiscal institution (IFI). It seems logical and timely to have an independent body to review (i) the fiscal response to this pandemic (such as the border lockdown and wage subsidy) and (ii) the fiscal costs, risks and opportunities of responses to future pandemics and other emergencies (such as our climate response).<br>(b) Establish the office of Future Generations Commissioner (passing legislation along the lines of the Well-being of Future Generations (Wales) Act 2015).<br>(c) Prepare the healthcare system for the next pandemic now. This is especially pertinent in terms of medical supplies and staff, which are already under strain and were pushed beyond their limits with COVID-19. We need to learn from our experience with COVID-19, to ensure nurses, doctors and other medical professionals have access to all the equipment and support they need. A key role for the Commissioners is to lay the groundwork and terms of reference for a new institution (e.g. a Pandemic Preparedness Commissioner) or suggest embedding this role in an existing institution. Our view is that the role should be advisory and independent of the day-to-day operations of the health system. It should also require an annual report on observations and insights to be tabled in the House.<br>(d) Increase the number of Offices of Parliament, so that the weight and responsibility does not fall on a small number of institutions. Adequate public engagement, independent inquiry and verification is essential, not just around collection and reporting of data and statistics, but also in terms of reporting information and knowledge.<br>(e) Strengthen the role of the existing Offices of Parliament. (We currently have three).<br>(f) Require MPs to have a Code of Conduct. The key role for government is to build trust in democracy and create ways to manage misinformation and disinformation and bullying in Parliament, both in the workplace and in public.<br>(g) Develop a stronger and more aligned network of ethics, penalties and punishments for poor practice both in the House and across government. | Government | 34 |

| Lesson number | Lesson | Rec number | Recommendation | Relevant organisation/s | Page |
|---|---|---|---|---|---|
| 1.6 | Plan how to create a learning culture while the pandemic is in progress. | 6 | Parliament to re-establish the Epidemic Response Committee, renaming it the Pandemic Response Committee. The committee should meet at least annually. It can then undertake additional targeted Inquiries as it sees fit, as well as work alongside the current Inquiry. This would be an alternative to extending the current terms of reference of this existing Inquiry, which at this stage seems costly. The committee should also be the recipient of the pandemic scenarios and the five-yearly whole-of-government exercise (see recommendations below). The committee should be responsible for tabling the reports in the House. | Parliament | 35 |
| 1.7 | Plan how to manage international and domestic supply-chain disruptions. | 7 | New Zealand Infrastructure Commission/Te Waihanga (an autonomous Crown entity) to undertake a review of key choke points in critical infrastructure. Medsafe (a business unit of the Ministry of Health) to undertake a review of key choke points in critical infrastructure. These reviews should focus on the types of products that should be stored for emergency use in case of another pandemic. | New Zealand Infrastructure Commission/ Te Waihanga<br>Medsafe | 36 |
| 1.8 | Build a flexible, equitable and modern medical system that is able to deal with more than one crisis at a time. | 8 | Government to invest in a flexible, equitable and modern medical system. | Government | 36 |
| 1.9 | Prepare for a worst-case scenario and apply a precautionary approach. | 9 | Government to require regular worst-case pandemic scenarios to be undertaken and tabled at the House. | Government | 39 |
| 1.10 | Test pandemic preparedness regularly. | 10 | Government to require a whole-of-government pandemic exercise to be run and reported upon every five years (looking more closely at the 2006 Exercise Makgill and 2007 Exercise Cruickshank). The report on the exercise should be given to the proposed Pandemic Response Committee (see above) and tabled in the House. | Government | 40 |
| 1.11 | Integrate pandemic planning with emergency planning. | 11 | The Commissioners to map the interconnections between second- and third level effects from the COVID-19 pandemic. The Institute has prepared an initial map as a starting point, see Figure 1.5. This will be useful for government when faced with the next pandemic. | Commissioners | 45 |
| 1.12 | Design a management structure fit for purpose. | 12 | CDEM and MOH to work together to prepare an integrated system of planning documents. All plans must be updated to 2024 and provided to the Pandemic Response Committee (see above) and, when final, tabled in the House. | CDEM and MOH | 46 |

| Lesson number | Lesson | Rec number | Recommendation | Relevant organisation/s | Page |
|---|---|---|---|---|---|
| 1.13 | Design a strategy to build trust in democracy. | 13 | Cabinet to review the COVID-19 management structure and explore ways it could be improved through embedding independent long-term thinking so that decisions are challenged, tested and shaped during a pandemic. | Cabinet | 49 |
| 1.14 | Ensure knowledge is built on information and that information is built on good data. | 14 | CDEM and MOH to prepare a pandemic strategy that assumes New Zealand must operate on its own and over a long period of time. | Te Whatu Ora – Health New Zealand<br>MOH | 50 |
| | **Part Two: The Inquiry into COVID-19** | | | | |
| 2.1 | Government should hold an Inquiry early. | 15 | Government to include in its Inquiry:<br>(i) mental health and wellbeing,<br>(ii) the Auckland lockdown decision,<br>(iii) an analysis of the supply shock and the demand shocks and whether the policies were appropriate in retrospect (including the decisions made by the monetary policy committee during the COVID-19 pandemic),<br>(iV) an analysis of court judgements and reports by independent government agencies, and<br>(iv) consider the publication of an interim report and a possible extension of the final report. It as already been extended from 26 June 2024 to 30 September 2024. Given the level of complexity and the lack of key information, we consider the Commissioners should seek out more information from bodies such as the Reserve Bank, Treasury and Auckland Council.<br>We also suggest that a permanent Pandemic Response Committee be established in Parliament to undertake other inquiries into the health reforms and the 'COVID-19 2020 election'. The reasoning is that the five points above are part of a complex system and should therefore form part of the broader Inquiry, whereas others (e.g. the elections and the timing of the health reforms) can be inquired into quite effectively in isolation, outside the current Inquiry. | Government | 59 |
| 2.2 | Government should provide Commissioners with a specific purpose to inquire into and a specific date to report on the results of their investigations. | 15 | | | |
| 2.3 | Government should set the scope but keep it broad. | 15 | | | |
| 2.4 | The scope of the Inquiry should include mental health and wellbeing. | 15 | | | |
| 2.5 | An Inquiry should investigate all additional stress points. | 15 | | | |
| 2.6 | The process of the Inquiry should be left to the Commissioners. | 15 | | | |

| Lesson number | Lesson | Rec number | Recommendation | Relevant organisation/s | Page |
|---|---|---|---|---|---|
| | **Part Three: The initial response when COVID-19 was outside New Zealand** | | | | |
| 3.1 | Get the team together quickly. | 16 | Parliament to establish the Pandemic Response Committee as a permanent committee of Parliament, ready to respond at any sign of a potential pandemic. | Parliament | 62 |
| 3.2 | Support and engage early with possible supply-chain risks and with the global response system, in particular with our neighbours in Australia and the Pacific. | 16 | | | |
| 3.3 | Re-establish the Epidemic Response Committee but under a new name – the Pandemic Response Committee. | 16 | | | |
| | **Part Four: The response when COVID-19 was inside New Zealand and risks were high**<br>**I: Reporting and communication** | | | | |
| 4.1 | Prepare regular situational reports for the public record. | 17 | The Pandemic Response Committee to require Situational Reports every quarter on the current COVID-19 pandemic, including WHO's risk assessment, and table these in the House. | Pandemic Response Committee | 66 |
| 4.2 | Report monthly on the content of the National Reserve Supply. | 18 | The Pandemic Response Committee to review the 2023 comprehensive review, ask questions and approve the (i) description of the contents, (ii) quantity of stock and (iii) reporting requirements. | Pandemic Response Committee | 70 |
| 4.3 | Monitor and combat misinformation, disinformation and fake news. | 19 | Government to create or empower a government institution to monitor social media for disinformation. This will need to be done in a transparent manner with a very specific set of rules and reporting requirements to ensure this is only ever undertaken in the best interests of society's long-term wellbeing. The terms of reference would need to be public. We also suggest the title of Minister for Media and Communications be modernised to become the Minister for Communications, News and Multimedia Platforms. | Minister for Media and Communications | 71 |
| 4.4 | Clear and consistent communication with the public. | N.A | N.A | N.A | |

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|---|---|---|---|---|---|
| | Part Four<br>II: Economic situation and stimulus | | | | |
| 4.5 | Report the financial impacts consistently, comprehensively and in a timely fashion. | 20 | Treasury should prepare a report on the financial strategy applied by the New Zealand Government in terms of its response to the pandemic, including outlining strategies that were rejected or adapted (such as those applied by other countries) and the types and timeframes of the demand shocks and the supply shocks (we expect both occurred). The report should look at the short- and long-term impact of those approaches (e.g. investing in hospitals versus employment); and the output versus the outcome. Most importantly, it should specify what it would do differently given what can be seen by comparing New Zealand's financial response with that of other countries. It would also be useful for the OECD or IMF to undertake an independent report on New Zealand's fiscal measures in response to the pandemic. There is no doubt that the measures taken in New Zealand will be felt for many years to come. | Treasury | 77 |
| 4.6 | Manage a pandemic wage subsidy. | 21 | Government needs to understand exactly how the wage subsidy came about and why there were no limits put in place. Our recommendation is that a separate inquiry be put in place. This could be undertaken outside of the current Inquiry. | Government | 83 |
| 4.7 | Help small businesses survive a pandemic. | 22 | The Commissioners to undertake/seek research into the extent to which technology advantage existed and how it might have been managed to deliver more equity. | Commissioners | 86 |
| 4.8 | Auckland deserves careful consideration. | 24 | Auckland Council to prepare a report for the Minister for Auckland on lessons to be learned from the Auckland lockdowns in response to COVID-19. The report should include an understanding of the costs, risks and benefits, and identify a range of alternative options and tools that might have been useful in terms of the country's response to significant disease in our largest city. | Minister for Auckland<br>Auckland Council | 87 |
| | Part Four: The response when COVID-19 was inside New Zealand and risks were high<br>III: Protect, test, and trace | | | | |
| 4.9 | MIQ system requires a rethink. | N.A | N.A | N.A | |
| 4.10 | Provisions should be made so people can continue to gather for funeral services, so close family and friends can provide support to those grieving. | N.A | N.A | N.A | |

| Lesson number | Lesson | Rec number | Recommendation | Relevant organisation/s | Page |
|---|---|---|---|---|---|
| 4.11 | Invest in excellent track and tracing systems. | N.A | N.A | N.A | |
| 4.12 | Wastewater testing should be reviewed to assess the effectiveness, how it could be improved, and what its further capabilities are. | N.A | N.A | N.A | |
| | Part Four: The response when COVID-19 was inside New Zealand and risks were high<br>IV: Vaccines and vaccination protocols | | | | |
| 4.13 | The safety of vaccine administering should be prioritised alongside the goals of mass vaccination. | 23 | Going forward, Medsafe, and all those administering a vaccine, to be made aware of the risks and what symptoms to act on urgently, and to share this, both verbally and in written form, with all recipients of the vaccine. | Medsafe | 90 |
| 4.14 | Develop an effective immunisation register able to quickly cater for new vaccines. | N.A | N.A | N.A | |
| 4.15 | The vaccination rollout strategy should align with availability and level of immunity. | N.A. | N.A | N.A | |
| 4.16 | Vaccine mandates should be used sparingly and require careful consideration. | N.A. | N.A | N.A | |
| | Part Five: The response when COVID-19 is inside New Zealand and risks are lower | | | | |
| 5.1 | Revitalise education. | 25 | Government to establish a taskforce to explore ways to make schools pandemic-safe, reduce absenteeism, reduce behavioural issues in the classroom, and improve maths, English and financial literacy. | MOE | 96 |
| 5.2 | Help revitalise New Zealand's central business districts (CBDs), making them safe and clean. | 26 | Urban planners to research and analyse the impacts of the pandemic on the CBD and identify ways to repurpose major city centres. | Councils | 97 |
| 5.3 | Care for those with long-term medical impacts. | 27 | Review the need for Long COVID-19 clinics and/or support. | MOH | 98 |
| 5.4 | Make clear the legal line between the freedom of an individual to protest versus the right of an individual (and their families) to privacy, and put significant penalties in place for those that cross the line. | 28 | Strengthen New Zealand's privacy law so that people who intimidate, oppress or threaten private individuals (e.g. those who share other people's private addresses online or bully experts or journalists and their families) are criminalised and sufficiently penalised, rather than the onus of bringing a legal claim being on the person victimised (as with the current privacy tort). | MOJ | 98 |
| 5.5 | Recognise, compensate and help families who have lost a loved one due to a pandemic vaccine. | 29 | Generously compensate families who lost a loved one due to the COVID-19 vaccine, or whose deaths were not able to be assessed by CARM due to insufficient information. | MOH | 99 |

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| 5.6 | Continue to support, compensate and recognise healthcare workers who put their lives at risk during the pandemic. | 30 | Identify 100 medical staff that contributed to the COVID-19 pandemic response and recognise them with a COVID-19 medal. | MOH | 99 |
| 5.7 | Analyse and assess fault lines in the broader health system and build capability now before our shared memory is lost. | 31 | Begin preparing for the next pandemic.<br>• Urgent work should be undertaken to archive all out-of-date documents (e.g. those that discuss DHBs) and update all new documents to align with the new centralised health reforms.<br>• Design future emergency epidemic response legislation.<br>• A comprehensive map of key strategy and planning documents is urgently required (we were not able to find a map or even a comprehensive list of all documents relating to the healthcare system, nor solely to pandemic management). In addition to being out of date, these documents are difficult to find.<br>• The role of the Chief Medical Officer should have a higher profile, along the lines of that of the UK – which is legislated and includes a requirement to produce an annual report. | Cabinet<br>MOH<br>Police<br>RBNZ<br>Treasury | 101 |

**In the throes of the COVID-19 disaster which, officially, claimed 7 million lives and wiped $2 trillion from the world economy, inter-governmental negotiations to reach international agreement on future pandemic non-proliferation were begun in December 2021 between 194 of the world's 196 nations. Nations set themselves the deadline of May 2024 by which they should reach agreement on what would be the world's first ever Pandemic Accord.**

WHO Director-General Dr Tedros Adhanom Ghebreyesus (22 March 2024)[18]

# Part One: The preparation for a pandemic

The purpose of pandemic planning should be to prepare for a broad range of eventualities:

(i) To have a clear plan, and test it frequently (minimum every three years).

(ii) To look at ways to support and protect those that are more challenged/vulnerable.

(iii) To provide a stable, durable and equitable supply of goods and services to all citizens wherever they live (such as medical products and services, water, food and electricity).

(iv) To develop ways to communicate clearly to all New Zealanders, including those that do not have:

  (a) access to the internet, a phone, a TV or a radio

  (b) a physical or home address (e.g. people who are homeless or live in isolated areas, sometimes off the grid).

(v) To identify, assess, and manage situations where a pandemic might come from within New Zealand. For example, analysing what protections exist to manage the risk of AgResearch accidentally creating a deadly pathogen through its genetic modification experiments that mix DNA between animals. Farm animals require careful management. H1N1 (swine flu), which led to the WHO announcing a pandemic in June 2009, is thought to have transferred from pigs to humans in California.[19,20]

## Key lessons

### I. International response

Lesson 1.1: Acknowledge the next pandemic is not far away; it is a matter of when (not if).

Lesson 1.2: Support the establishment of an international Pandemic Accord and support global funding of WHO so that it is fit for purpose.

### II. Domestic response

Lesson 1.3: Establish a Centre for Disease Control (CDC).

Lesson 1.4: Plan how to close the border quickly.

Lesson 1.5: Plan how to maintain and build trust in government and its institutions before and during a pandemic.

Lesson 1.6: Plan how to create a learning culture while the pandemic is in progress.

Lesson 1.7: Plan how to manage international and domestic supply-chain disruptions.

Lesson 1.8: Build a flexible, equitable and modern medical system that is able to deal with more than one crisis at a time.

Lesson 1.9: Prepare for a worst-case scenario and apply a precautionary approach.

Lesson 1.10: Test pandemic preparedness regularly.

Lesson 1.11: Integrate pandemic planning with emergency planning.

Lesson 1.12: Design a management structure fit for purpose.

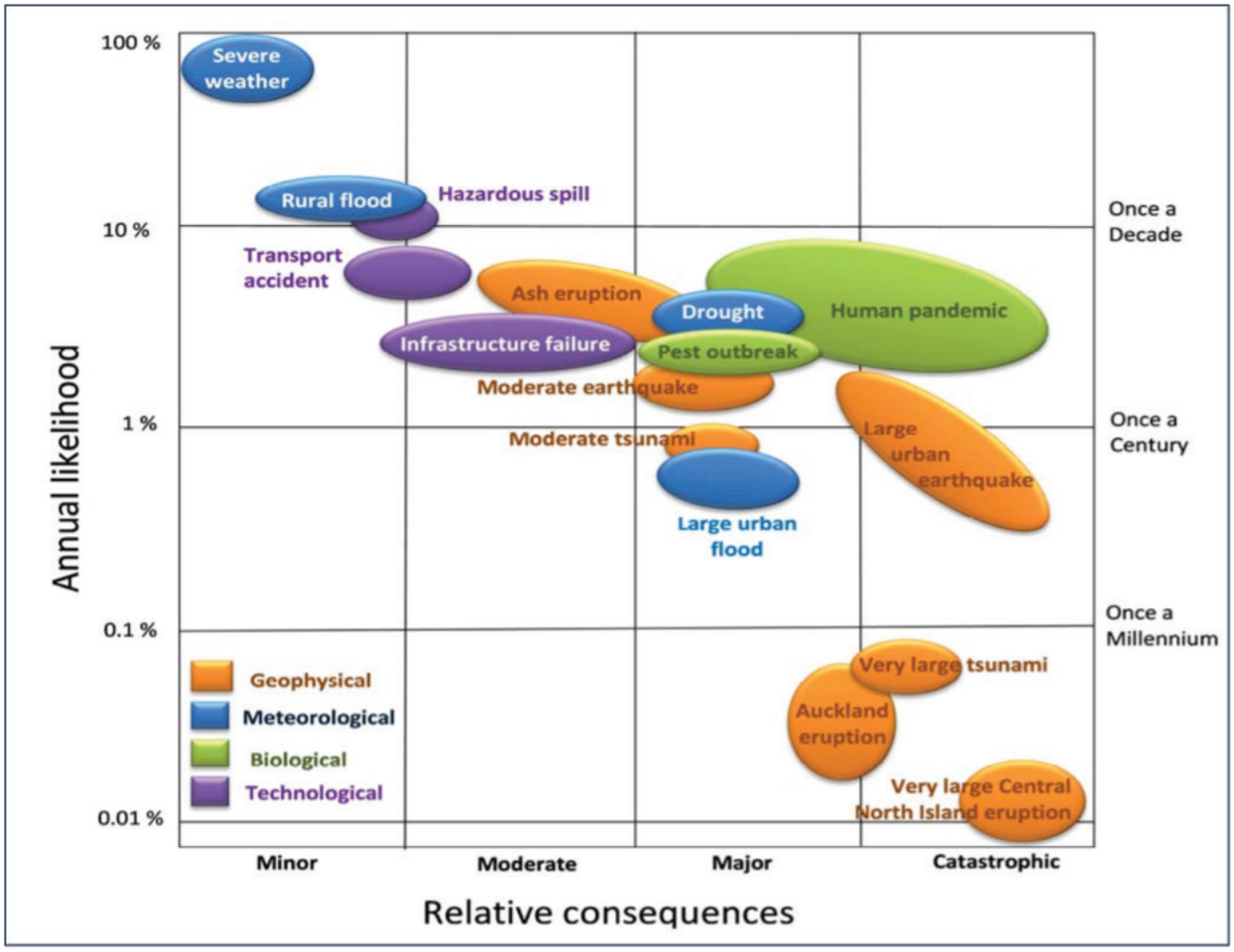
Lesson 1.13: Design a strategy to build trust in democracy.

Lesson 1.14: Ensure knowledge is built on information and that information is built on good data.

### Lesson 1.1: Acknowledge the next pandemic is not far away; it is a matter of when (not if).

The risk of a pandemic has been well socialised in risk management circles for many years. See for example Figure 1.1 from the 2014 *Briefing to the Incoming Minister of Civil Defence*.[21] The green bubble became a reality six years later, in the form of COVID-19. We consider this is an excellent graph to drive public policy. For example, it is possible to see in Figure 1.1 the 2016 Kaikōura earthquake (moderate earthquake), the 2019 Whakaari/White Island eruption (ash eruption), the 2023 Auckland Anniversary weekend floods (large urban flood) and the 2023 Cyclone Gabrielle (rural flood).

Figure 1.1: National Hazard Risks: MCDEM 2014 view of national risks by likelihood (probability) and consequences (magnitude)[22]




Our view is that the next pandemic may only be a matter of years away – and it may spread faster and be more deadly.[23] This is based on our understanding that very little has been done to date to reduce the risk of zoonotic diseases, and that climate change will further amplify the likelihood of the risk. A 2023 *Science* article found:

> While the world recovers from the COVID-19 pandemic, another crisis continues to spiral at a much faster speed than was expected. **Climate change is dominating our lives and causing a high level of distress**. Countries all over the world are struggling to survive the damage caused by extreme events. They are trying to control wildfires, rebuild roads and houses damaged by floods, and learn to survive in a hotter and more dangerous world. However, there is also a new threat that is being overlooked-the interaction between climate change and infectious diseases. A comprehensive meta-analysis revealed that climate change **could aggravate more than 50% of known human pathogens**. Unfortunately, this is happening now. [underlined in original, replaced with bold][24]

A 2022 *Nature* article found that climate change increases cross-species viral transmission risk:

> We predict that species will aggregate in new combinations at high elevations, in biodiversity hotspots, and in areas of high human population density in Asia and Africa, **causing the cross-species transmission of their associated viruses an estimated 4,000 times**. Owing to their unique dispersal ability, bats account for the majority of novel viral sharing and are likely to share viruses along evolutionary pathways that will facilitate future emergence in humans. Notably, we find that this ecological transition may already be underway, and holding warming under 2 °C within the twenty-first century will not reduce future viral sharing. Our findings highlight an urgent need to pair viral surveillance and discovery efforts with biodiversity surveys tracking the range shifts of species, especially in tropical regions that contain the most zoonoses and are experiencing rapid warming. [bold added] [25]

The *2024 Global Risks Report* published by the World Economic Forum (WEF) discusses what the next global shock might be and suggests it may be an ancient pandemic:

> The Arctic is the fastest warming region on Earth, experiencing global warming levels that are more than double those of the global average. Further warming will lead to gradual reductions in the permafrost, while abrupt thawing could occur due to heatwaves, wildfires and other environmental shifts. Although an 'improbable' tail risk, it does not require the full collapse of the permafrost to release harmful contaminants and ancient 'new' diseases, both microbial and virus-related, to which humans have little natural resistance, within the next decade. Further, as both states and animals exploit the warming of the Arctic region, hosts will become more readily available, increasing the likelihood of the biological threat.[26]

### Risks of filoviruses

In 2015, it was acknowledged that filoviruses were becoming an emerging risk worth investigating:

> Fruit bats in the genus *Rousettus* are widely distributed throughout Southeast Asia, South China, and the entire Indian subcontinent and have had positive serologic results for Ebola viruses in these regions, indicating that these bats play a role in the circulation of filoviruses in Asia. The possibility of new emerging filovirus-associated diseases in the continent emphasizes the need for further investigation of these animals.[27]

More research has now been undertaken:

> Recent discoveries of novel viruses in bats and their potential in spreading diseases has threatened global public health, especially in Africa due to the consumption of bat 'bushmeat'. Moreover, hunting bats for both food and money has put humans at significantly higher risk of zoonotic (from animal to human) spillover of viruses.[28]
>
> First and foremost, [Ebola] has the greatest human disease burden of the filoviruses as evidenced by it having caused the largest number of outbreaks with the highest frequency and largest number of human cases and deaths.[29]

In a *Nature Microbiology* article in 2019, it was found that the Menglà virus was found in a bat:

> Filoviruses, especially Ebola virus (EBOV) and Marburg virus (MARV), are notoriously pathogenic and capable of causing severe haemorrhagic fever diseases in humans with high lethality. The risk of future outbreaks is exacerbated by the discovery of other bat-borne filoviruses of wide genetic diversity globally. Here we report the characterization of a phylogenetically distinct bat filovirus, named Měnglà virus (MLAV).[30]

In response to this research, a 17 January 2019 article concluded:

> Scientists in China had previously found evidence, in the form of antibodies, of several filoviruses in *Rousettus* and *Eonycteris* bats and provided evidence that they were filoviruses – initially labelled as 'unclassified'. These same scientists then extended their investigation to explore the genetics of a virus collected from *Rousettus* bats from Mengla County.[31]
>
> Having genetically sequenced the Mengla virus, they discovered that it has 32-54% genetic similarity with known filoviruses and sits somewhere between the Ebola and Marburg viruses on the evolutionary tree. However, the Mengla virus is different enough to warrant its own genus. The new genus has been named Dianlovirus, and it sits in the filovirus group.[32]

There is concern that filoviruses might create a severe pandemic. Filoviruses are currently not airborne but they do have a high mortality rate and have increasingly been found to exist in bats. The relevance from a public health perspective is that these viruses are sitting in one of the more prolific reservoirs, close to humans. The thinking is that there are likely to be more types of filoviruses sitting in this reservoir than in any time of our history. The risk is that one of these spills over and evolves in such a way as to become airborne.

### Risks of H5N1 bird flu

Another risk is H5N1. An April 2024 article noted:

> UN officials have described avian influenza virus, which has killed tens of millions of poultry since 2020, and spread to 23 countries, as a 'significant public health concern'. Scientists have been surprised at H5N1's ability to jump to other species, with more than a dozen herds of dairy cows in the US thought to have been infected via exposure to wild birds. World Health Organisation chief scientist Dr Jeremy Farrar said the 'great concern' was the virus would develop the ability to infect humans - and ultimately spread between us. So far, that hasn't happened - but the case fatality rate among the several hundred people who have caught it, estimated at just over 50 per cent, is worryingly high. Farrar cautioned vaccine development was not 'where we need to be', and not all the world's public health agencies had capability to diagnose it.
>
> [...]
>
> Otago University virologist Dr Jemma Geoghegan said while the risk to humans was still low at the present time, 'there's definitely cause for concern that there are so many different mammalian hosts getting infected'.
>
> 'There's been a massive expansion on the host range of even mammalian spillovers, which is like nothing I have seen before.'
>
> The more often that occurred, she said, the more opportunity the virus had to evolve.[33]

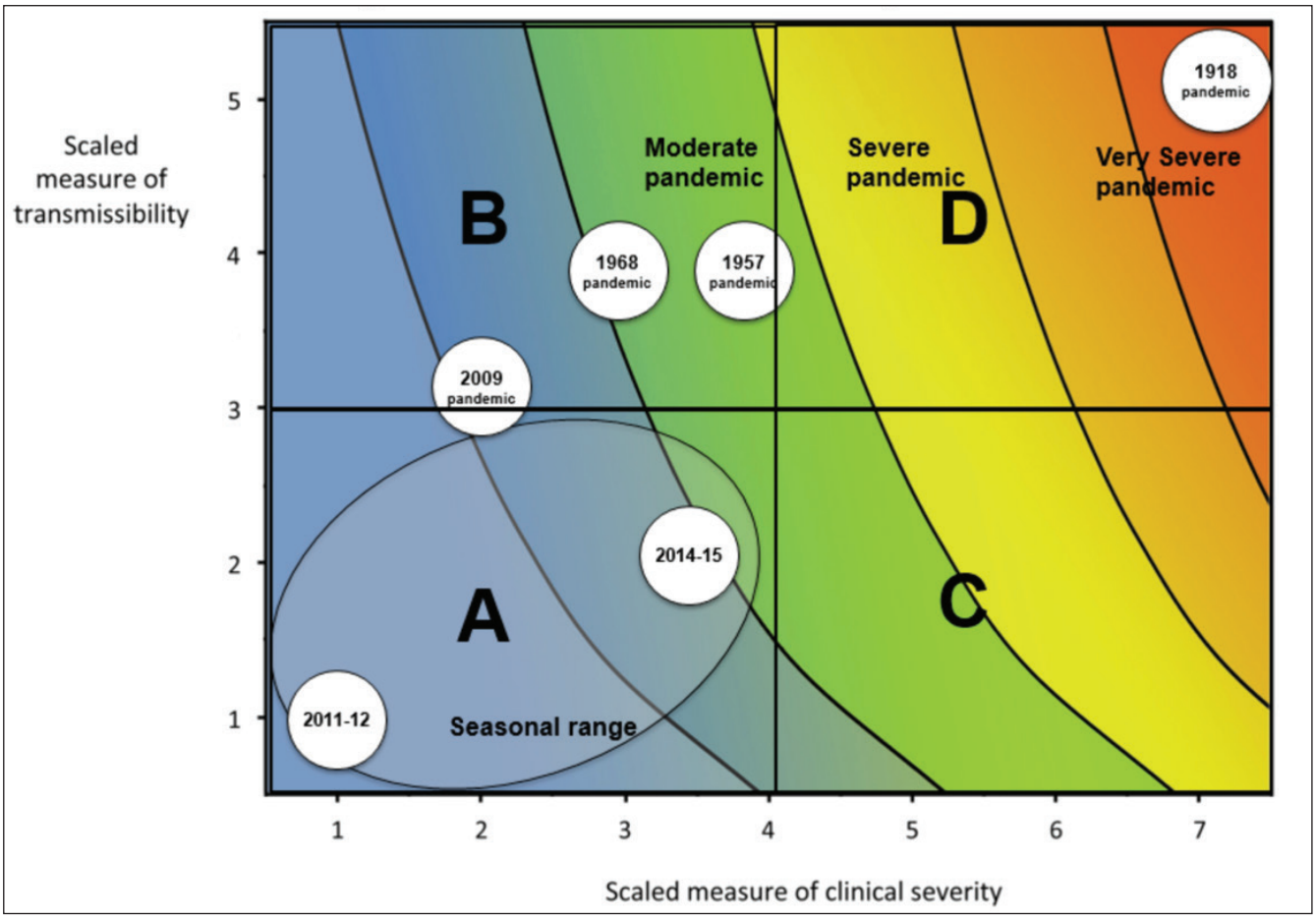
Understanding the frequency and types of pandemics is useful. A 2016 web page from the US Centers for Disease Control and Prevention (CDC) uses a diagram (see Figure 1.2) that attempts to characterise pandemic scenarios using clinical severity and transmissibility ($R_0$ being the basic reproduction number). Under this framework, COVID-19 could be considered a moderate pandemic with the vaccines, but it may have become a severe or very severe pandemic without the vaccines.

Two reports have estimated how many lives were saved because of the vaccines.

- A 6 October 2023 article, prepared by 16 leading scientists and doctors who worked on New Zealand's COVID-19 response states that the response has saved almost 20,000 lives, based on deaths that would have occurred if New Zealand's mortality rate matched the United States. In January 2023, New Zealand was the only country out of a group of 23 largely economically developed countries that had a negative excess death rate, meaning there were fewer deaths than what was predicted based on previous years (pre-COVID). The authors call for a comprehensive respiratory infectious disease mitigation strategy to manage the next phase of COVID-19, as well as influenza and other serious respiratory infections. Lead author Michael Baker states, 'We should treat other serious respiratory infections more like COVID-19. The disease burden of influenza is not inevitable and public health measures can alter the annual epidemic patterns.'[34]
- A 2 February 2024 study, partly funded by the DPMC and MOH, estimates that vaccines prevented between 4000 and 12,000 deaths during the Omicron phase of the pandemic. The research estimates that there were between 34,000 and 56,000 fewer hospitalisations over the period. However, co-author, professor Michael Plank, stated that 'if Māori vaccination rates had been on par with Pākehā, up to a quarter of the [292] Māori who died would still be alive.' The findings showed equity between Māori and non-Māori needed to be a key focus of future vaccination programmes. The study concluded that COVID-19 vaccination greatly reduced the burden on the health system in New Zealand.[35]

For example, the number of deaths from the 1918 pandemic in New Zealand was about 9000, whereas COVID-19 sits just under 4000 (see Appendix 5). Although it is very simplistic (which might explain why it is not often referred to today), in our view these types of diagrams are very good at setting a context.

Figure 1.2: U.S. Department of Health and Human Services Pandemic Planning Scenarios




Note to Figure 1.2: This graph displays the HHS Pandemic Planning Scenarios based on the Pandemic Severity Assessment Framework. The Pandemic Severity Assessment Framework uses a combined measure of clinical severity and transmissibility to characterize influenza pandemic scenarios. The horizontal axis is the scaled measure of clinical severity, ranging from 1 to 7, where 1 is low, 4 is moderate, and 7 is very severe. The vertical axis is the scaled measure of transmissibility, ranging from 1 to 5, where 1 is low, 3 is moderate, and 5 is highly transmissible. On the graph, HHS pandemic planning scenarios are labeled across four quadrants (A, B, C and D). From left to right, the scenarios are 'seasonal range', 'moderate pandemic', 'severe pandemic' and 'very severe pandemic'. As clinical severity increases along the horizontal axis, or as transmissibility increases along the vertical axis, the severity of the pandemic planning scenario also increases.[36]

Mortality on its own is not the full story, some pandemics deliver very different mortality rates for different age groups. This 2012 article, published in the CDC's *Emerging Infectious Diseases* journal, is interesting because it was written in 2012, and it recognises the relationship between mortality rate and age.

> **The influenza pandemic of 1918–19 was the most deadly single event in recorded history. Because of its unique severity and global effects, it is the prototype of a global natural disaster.** In recent years, fears of recurrence of an influenza pandemic similar to that in 1918 have motivated planning, preparations, and allocations of resources by public health and other government agencies, nongovernmental organizations, medical care providers, pharmaceutical and medical device manufacturers, medical researchers, private businesses, and persons worldwide.
>
> [...]
>
> In general, during the 1918–19 influenza pandemic period, illness rates were highest among children of school age. However, **mortality rates were highest among infants, young adults, and the elderly.** The W-shaped relationship between mortality rate and age is a unique and unexplained characteristic of the 1918 pandemic. The lack of correspondence between illness and mortality rate in relation to age belies the common views that direct pathologic effects of the virus were independently and invariably life threatening and that the usual clinical course after infection was rapid deterioration of respiratory function terminating in death. [bold added][37]

Without going into any detailed analysis of the types of pandemics by $R_0$ and case-fatality ratios (that is better left to scientists), it is well recognised that the 1918 pandemic, although short, was the largest influenza pandemic, and the worst pandemic in recent history. COVID-19 was the first coronavirus pandemic, but in terms of mortality, 1918 surpasses 2019. Deaths from the 1918 influenza pandemic were estimated on the low side to be 17.4 million,[38] and deaths from COVID-19 were recently reported by WHO on 17 March 2024 as just over 7 million.[39] To conclude, the next pandemic may be anything from a moderate to a very severe pandemic.

We have learned that a pandemic has effects much broader than medical care, hence, our suggestion to establish a new body to undertake this thinking and advise government.

Recommendation 1: Government to immediately establish a new independent body or embed the role in an existing independent institution to prepare and plan for the next pandemic.

### Lesson 1.2: Support the establishment of an international Pandemic Accord and support global funding of WHO so that it is fit for purpose.

Climate change and pandemics share one unique characteristic; they both require all countries to work together to manage the risks, and most importantly the actions of small countries matter.

WHO member states meet on a regular basis as part of the Intergovernmental Negotiating Body (INB). The World Health Assembly mandated the INB to submit its final draft of the Pandemic Accord to the Seventy-seventh World Health Assembly in May 2024.[40] We consider the Inquiry should endorse the need for a Pandemic Accord as part of its initial findings. Former Prime Minister Helen Clark (and others) have acknowledged that an international Pandemic Accord is critical. Helen Clark, Vaira Vīķe-Freiberga and Gordon Brown stated on 20 March 2024 that:

> A new pandemic threat will emerge; there is no excuse not to be ready for it. That is why national leaders must complete negotiations on an effective, multisectoral, and multilateral agreement on pandemic prevention, preparedness, and response in time for the 77th World Health Assembly in May.[41]

Recommendation 2: Government to actively support the Pandemic Accord and WHO.

### Lesson 1.3: Establish a Centre for Disease Control (CDC).

The Government should establish a national and distributed Centre for Disease Control (CDC) for high-level and long-term organisation to build resilience and pandemic preparedness. This was a recommendation made by experts from the Public Health Communication Centre.[42] The proposed CDC would be responsible for high-level and long-term organisation to build resilience and pandemic preparedness, in hopes of achieving long-term gains in population health, equity, and economic efficiency.[43] The Public Health Communication Centre states in the summary:

> Future pandemics could be far worse than Covid-19. An Aotearoa Centre for Disease Control (CDC) would significantly enhance national capability to address such threats and collaborate with similar global efforts. It would build the science capacity needed for pandemic preparedness and response and for managing multiple ongoing infectious disease challenges. A key responsibility would be building integrated surveillance systems, coordinated diagnostic laboratory services, and a suitably skilled and trained workforce.
>
> This organisation would be more effective, and make better use of resources, if it functioned as a 'distributed' centre with a hub providing core services and sector coordination, plus specialist nodes across universities and other organisations. Much of the resources already exist, with an established Crown Research Institute (ESR), and groups of expert infectious disease researchers and practitioners across the country. This Centre would coordinate and integrate these efforts to improve long-term health security in Aotearoa New Zealand, the Pacific, and globally.[44]

Many countries already have established CDC-type organisations that take responsibility for integrated surveillance, co-ordinated laboratory testing, outbreak response, workforce training, and strategic capacity building.[45] The United States established a CDC in 1946,[46] and the European Union established a CDC in 2005.[47] In January 2024, Australia launched an interim CDC:

> Why it is important
>
> The risk of public health emergencies is increasing. Australia has seen this in recent disease outbreaks and more frequent natural disasters.
>
> The reasons for the increased risk include:
>
> - changes in the environment that are leading to health issues, such as more diseases that spread from animals to people (zoonoses)
> - increasing vulnerability driven by climate change.
>
> A CDC will help Australia prepare for these increased risks.
>
> Background
>
> The Australian Government identified the need for an CDC after recent public health emergencies, including the:
>
> - COVID-19 pandemic
> - Japanese encephalitis virus outbreak
> - emergence of mpox (monkeypox)
> - 2019–20 bushfires and other natural disasters.
>
> These emergencies challenged the nation and prompted urgent responses. Australia faced the challenges well, but there are lessons from these experiences.
>
> The government decided to set up a CDC to improve the way we prepare for and respond to emergencies in the future.[48]

Recommendation 3: Government to establish a national and distributed Centre for Disease Control (CDC) for high-level and long-term organisation to build resilience and pandemic preparedness. The role of the distributed CDC would be a significant expansion of the infectious disease activities currently provided by ESR.

### Lesson 1.4: Plan how to close the border quickly.

New Zealand's first line of defence against an international pandemic was always going to be closing the border, but for most New Zealanders this came as a massive shock. We need to be prepared to do this more quickly and ethically (especially for New Zealanders located overseas) and to provide a longer pre-border-closure window in the future. Communication with the public is essential so they can prepare themselves and their families for possible future border closures.

The Institute was watching developments in China from 1 January 2020. The frequently cited scenario was an unknown pathogen evolving from live animal markets in China. By mid-January 2020, the Institute was suggesting the border be closed, and by late January 2020, our preparations were well under way. We continued to watch developments and expected an earlier response by the New Zealand Government. The earliest response we found was from MPs on 23 January 2020.[49] Basic border controls were not implemented until 14 March 2020 and the border was not closed until 19 March 2020 (almost two months).

We believe the border should have been closed weeks earlier.

Recommendation 4: CDEM to develop a specific planning document on how to quickly close the border.

### Lesson 1.5: Plan how to maintain and build trust in government and its institutions before and during a pandemic.

Globally, the COVID-19 pandemic is thought to have contributed to an erosion in trust in government, particularly among young people.[50] In mid-2020, an LSE discussion paper made the following observations:

> What will be the political legacy of the Coronavirus pandemic? We find that epidemic exposure in an individual's 'impressionable years' (ages 18 to 25) has a persistent negative effect on confidence in political institutions and leaders. We find similar negative effects on confidence in public health systems, suggesting that the loss of confidence in political leadership and institutions is associated with healthcare related policies at the time of the epidemic. In line with this argument, our results are mostly driven by individuals who experienced epidemics under weak governments with less capacity to act against the epidemic, disappointing their citizens. **We provide evidence of this mechanism by showing that weak governments took longer to introduce policy interventions in response to the COVID-19 outbreak**. These results imply that the Coronavirus may leave behind a long-lasting political scar on the current young generation ('Generation Z'). [bold added][51]

In 2023, the OECD made the following comment specifically about New Zealand:

> In New Zealand, the government's response to the COVID-19 crisis is considered effective as it protected people's lives with limited disruption to society and the economy. **A key factor in achieving these results was a focus on collective goals, grounded in the high-trust relationship that exists between New Zealanders and their public institutions**. Still, high levels of trust should not be taken for granted. As new challenges emerge and old ones reappear, people in New Zealand expect the government to build on the lessons from the pandemic to improve service delivery and the resilience of public institutions. This report provides recommendations for further strengthening trust, including making public services more responsive, integrating long-term thinking into policy making, countering the spread of mis- and disinformation and reinforcing New Zealand's integrity system. [bold added][52]

To some degree this view is supported by the public sector indices that compare New Zealand with other countries,[53] however, there has been a decrease in some indices. For example, the 2023 Corruptions Perceptions Index notes a slight decrease from 2020 (score 88) to 2023 (score 85).[54]

Recommendation 5: Government to consider each of the following to help maintain and build trust in our democracy:

(a) Establish an independent fiscal institution (IFI).[55, 56] It seems logical and timely to have an independent body to review (i) the fiscal response to this pandemic (such as the border lockdown and wage subsidy) and (ii) the fiscal costs, risks and opportunities of responses to future pandemics and other emergencies (such as our climate response).

(b) Establish the office of Future Generations Commissioner (passing legislation along the lines of the Well-being of Future Generations (Wales) Act 2015).[57]

(c) Prepare the healthcare system for the next pandemic now. This is especially pertinent in terms of medical supplies and staff, which are already under strain and were pushed beyond their limits with COVID-19. We need to learn from our experience with COVID-19, to ensure nurses, doctors and other medical professionals have access to all the equipment and support they need. A key role for the Commissioners is to lay the groundwork and terms of reference for a new institution (e.g. a Pandemic Preparedness Commissioner) or suggest embedding this role in an existing institution. Our view is that the role should be advisory and independent of the day-to-day operations of the health system. It should also require an annual report on observations and insights to be tabled in the House.

(d) Increase the number of Offices of Parliament, so that the weight and responsibility does not fall on a small number of institutions. Adequate public engagement, independent inquiry and verification is essential, not just around collection and reporting of data and statistics, but also in terms of reporting information and knowledge.

(e) Strengthen the role of the existing Offices of Parliament. We currently have three.[58]

(f) Require MPs to have a code of conduct. See our *Discussion Paper 2023/03 – National and International Comparisons of Codes of Conduct for Members of Parliament*.[59] The key role for government is to build trust in democracy and create ways to manage misinformation and disinformation and bullying in Parliament, both in the workplace and in public.

(g) Develop a stronger and more aligned network of ethics, penalties and punishments for poor practice both in the House and across government.

### Lesson 1.6: Plan how to create a learning culture while the pandemic is in progress.

From our perspective, a lot of early learning from overseas was considered and implemented, but over time this seemed to reduce. It appeared, from the outside, that we failed to undertake ongoing assessment of the situation. For this reason, the Institute prepared a Situation Report in September 2021 (replicating some of the work we were seeing internationally).[60] Situation reports illustrate progress and enable wider societal discussion about the public policy response to a crisis. In not producing its own situation reports, the government missed an opportunity to inform the public. Prepared by an independent office of Parliament, situation reports on the pandemic may have meant less revolt and protest by members of the public. Our view is that many people felt and continue to feel disengaged and unheard.

We consider more regular reports were necessary, ideally by independent parties. The OAG and the Ombudsman did undertake and prepare key reports (such as the aged care report and the PPE report).

We consider this independent reporting and review function should be embedded into the planning response and implemented as soon as a pandemic is on the horizon:

- Empower offices of Parliament by expanding scope and providing additional funding in preparation for the task they will undertake. There was a short window where they could have built staff and resources, ready for the challenges they would face and the new role they would undertake.
- Empower Parliament (not just Cabinet). The Epidemic Response Committee was very effective in providing checks and balances. However, it should become a permanent fixture of Parliament. The committee was established on 25 March 2020 and disestablished on 26 May 2020. Parliament opened again on 28 April 2020.[61, 62] The committee was, in reality, the first independent inquiry into Government policy. The committee could have, for example, become the chronicler of key events and lessons for future Parliaments faced with a pandemic. It was a missed opportunity.

Recommendation 6: Parliament to re-establish the Epidemic Response Committee, renaming it the Pandemic Response Committee. The committee should meet at least annually. It can then undertake additional targeted Inquiries as it sees fit, as well as work alongside the current Inquiry. This would be an alternative to extending the current terms of reference of this existing Inquiry, which at this stage seems costly. The committee should also be the recipient of the pandemic scenarios and the five-yearly whole-of-government exercise (see recommendations below). The committee should be responsible for tabling the reports in the House.

### Lesson 1.7: Plan how to manage international and domestic supply-chain disruptions.

As an island nation, New Zealand is very isolated and faces big issues with reliance on overseas for supply of core products. Local manufacture and supply of products would both support local businesses and improve adaptability and resilience to shocks. Our emergency planning must become more focused on the durability and resilience of our supply chain, including supporting local people and businesses.

- We need to know what our critical infrastructure assets are (and these will change over time). Criteria include defining critical infrastructure, listing those critical entities and ensuring repair and maintenance can be managed on site. This means not being dependent on overseas supply and encouraging local supplier engagement.[63]

- We need to know what our critical food, water and medicine needs are for an emergency. New Zealand is fortunate to have ample food, but this needs to be well distributed and there are seasonal and other risks (e.g. if our dairy cows have a disease and we cannot rely on dairy products). During the pandemic, there were a number of reports of iwi doing a great job of supplying and caring for their communities. There were, however, key gaps in the wider community, especially when it came to supporting those who are vulnerable.

Questions include how we supply:

- health-challenged and compromised citizens (and their carers)
- homeless people or those without financial resources to buy food and medicine
- people living in isolated and rural areas
- sick or isolating patients, and
- pensioners.

Everyone should have fair access and equitable pricing for essential goods and services.

Recommendation 7: New Zealand Infrastructure Commission/Te Waihanga (an autonomous Crown entity) to undertake a review of key choke points in critical infrastructure. Medsafe (a business unit of the Ministry of Health) to undertake a review of key choke points in critical infrastructure. These reviews should focus on the types of products that should be stored for emergency use in case of another pandemic.

### Lesson 1.8: Build a flexible, equitable and modern medical system that is able to deal with more than one crisis at a time.

The NZNO considers the COVID-19 pandemic revealed more starkly the multiple cracks in our health system.

> Since 2020, the *rules of engagement* for our health system and the expected and relatively predictable level of ill-health in the community have changed. COVID-19 has increased demand for health care through multiple pathways. Firstly, through managing those acutely unwell with COVID-19 infection. Secondly, by creating a large burden of catch-up care needed for those people whose care was delayed due to beds being reserved for those with COVID-19. Thirdly, because of long COVID, which, for some people, requires ongoing multidisciplinary specialist care. Fourthly, because of a deterioration in mental health associated with the pandemic and the public health measures to manage it. So, even if COVID-19 disappeared tomorrow, the legacy of health impacts through other pathways will remain.
>
> One predictable outcome is nurses find themselves before courts, inquests, and disciplinary committees as a system failure is investigated. Too often that system failure results in individual practitioners, nurses and others being investigated, appearing before an inquest, or charged because the system requires it. Individuals, rather than the system, are held to account ...
>
> The system is currently staying afloat through the desperate triage manoeuvre of cancelling a huge amount of planned care. This is necessary but is not sustainable. Even with reductions in planned care the health care workforce is currently struggling to manage the combination of post COVID-19 and business as usual ...
>
> These rising waiting lists, lengthy ED waiting times and uneven access can't be blamed on COVID-19 alone. The pandemic has simply added to the pressures and revealed more starkly the multiple cracks in our health system.[64]

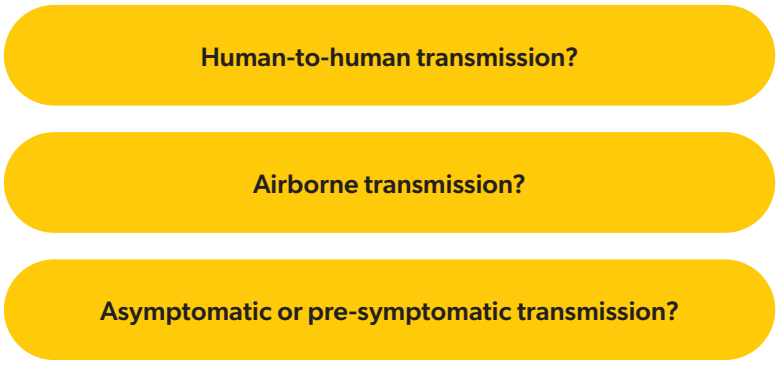
Unfortunately, bad luck happens. There is no relationship between two crises (for instance, a volcanic eruption and a pandemic). Both can independently occur at the same time. Some crises may also trigger others (for instance, an earthquake can cause tsunamis, landslides, floods or wildfires). Emergency services and medical support need to have some extra resource in the system so they can continue to provide help when multiple crises occur at once.

Recommendation 8: Government to invest in a flexible, equitable and modern medical system.

### Lesson 1.9: Prepare for a worst-case scenario and apply a precautionary approach.

It is easy to be what is often called a 'lazy optimistic' by not stress testing your thinking (i.e. not questioning the quality of the information being relied upon). Risk management demands the exploration of worst-case scenarios and the application of the precautionary approach. The latter is only applied when scientific uncertainty exists.

Throughout the pandemic there were several situations where a more precautionary approach could have, and in our view should have, been taken. With the benefit of hindsight, below are three WHO examples that aim to illustrate areas of scientific uncertainty early in the COVID-19 pandemic, and what New Zealand should look for when developing a response to potential pandemics in the future:




#### Example 1: WHO should have told countries to assume that human-to-human transmission was occurring, until evidence to the contrary

The May 2021 report by the Independent Panel for Pandemic Preparedness and Response (co-chaired by Ellen Johnson Sirleaf and Helen Clark)[65] noted the importance of applying the precautionary approach. For example:

> While WHO advised of the possibility of human-to-human transmission in the period until it was confirmed, and recommended measures that health workers should take to prevent infection, the Panel's view is that it could also have told countries that they should take the precaution of assuming that human-to-human transmission was occurring. Given what is known about respiratory infections, there is a case for applying the precautionary principle and assuming that in any outbreak caused by a new pathogen of this type, sustained human to-human transmission will occur unless the evidence specifically indicates otherwise.
>
> The Panel's conclusion is that the alert system does not operate with sufficient speed when faced with a fast-moving respiratory pathogen, that the legally binding IHR (2005) are a conservative instrument as currently constructed and serve to constrain rather than facilitate rapid action and that the precautionary principle was not applied to the early alert evidence when it should have been.
>
> The Panel's view is that the definition of a new suspected outbreak with pandemic potential needs to be refined, as different classes of pathogen have very different implications for the speed with which they are likely to spread and their implications for the type of response needed.
>
> The Panel's conclusion is that the declaration of a PHEIC, the highest level of global concern specified in the international, legally binding, health regulations did not lead to an urgent, coordinated, worldwide response.[66]

#### Example 2: WHO should have assumed airborne transmission was occurring, until evidence to the contrary

In March 2020, WHO announced that COVID-19 was primarily transmitted through respiratory droplets of saliva and mucus (e.g. from coughing and sneezing).

> Data from published epidemiology and virologic studies provide evidence that COVID-19 is primarily transmitted from symptomatic people to others who are in close contact through respiratory droplets, by direct contact with infected persons, or by contact with contaminated objects and surfaces. This is supported by detailed experiences shared by technical partners via WHO global expert networks, and reports and presentations by Ministries of Health.[67]

In July 2020, the evidence was mounting that COVID-19 was primarily transmitted through air in the form of tiny particles that can last longer and travel further (e.g. from talking). The BBC reported that:

> The World Health Organization has acknowledged there is emerging evidence that the coronavirus can be spread by tiny particles suspended in the air. The airborne transmission could not be ruled out in crowded, closed or poorly ventilated settings, an official said. If the evidence is confirmed, it may affect guidelines for indoor spaces. An open letter from more than 200 scientists had accused the WHO of underestimating the possibility of airborne transmission. The WHO has so far said that the virus is transmitted through droplets when people cough or sneeze.[68]

It was also interesting to note that in April 2024 the WHO published *Global technical consultation report on proposed terminology for pathogens that transmit through the air*. 'The pathogens covered include those that cause respiratory infections, e.g. COVID-19, influenza, measles, Middle East respiratory syndrome (MERS), severe acute respiratory syndrome (SARS), and tuberculosis, among others.'[69]

**Example 3: WHO should have assumed asymptomatic or pre-symptomatic transmission was possible, until evidence to the contrary[70]**

On 11 June 2020, WHO recommendations on personal protective measures (such as use of masks and physical distancing) were based on controlling transmission from symptomatic patients. WHO stated:

> Available evidence from contact tracing reported by countries suggests that asymptomatically infected individuals are much less likely to transmit the virus than those who develop symptoms. A subset of studies and data shared by some countries on detailed cluster investigations and contact tracing activities have reported that asymptomatically-infected individuals are much less likely to transmit the virus than those who develop symptoms.[71]

By 24 April 2020, academics began questioning whether the current strategy of focusing on symptom-based screening was effective.

> Asymptomatic transmission of SARS-CoV-2 is the Achilles' heel [the fatal weakness] of Covid-19 pandemic control through the public health strategies we have currently deployed. Symptom-based screening has utility, but epidemiologic evaluations of Covid-19 outbreaks within skilled nursing facilities such as the one described by Arons et al. strongly demonstrate that our current approaches are inadequate. This recommendation for SARS-CoV-2 testing of asymptomatic persons in skilled nursing facilities should most likely be expanded to other congregate living situations, such as prisons and jails (where outbreaks in the United States, whose incarceration rate is much higher than rates in other countries, are increasing), enclosed mental health facilities, and homeless shelters, and to hospitalized inpatients. Current U.S. testing capability must increase immediately for this strategy to be implemented.[72]

On 7 January 2021 the evidence was clear:

> **Question** 'What proportion of coronavirus disease 2019 (COVID-19) spread is associated with transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) from persons with no symptoms?'
>
> **Findings** 'In this decision analytical model assessing multiple scenarios for the infectious period and the proportion of transmission from individuals who never have COVID-19 symptoms, transmission from asymptomatic individuals was estimated to account for more than half of all transmission.'
>
> **Meaning** 'The findings of this study suggest that the identification and isolation of persons with symptomatic COVID-19 alone will not control the ongoing spread of SARS-CoV-2.'[73]

Our view is that because we closed the border relatively quickly, New Zealand was less vulnerable to the WHO biases that may have negatively affected other countries, in particular, WHO's early messaging on human-to-human transmission, the less risky droplet transmission scenario or minimal transmission from asymptomatic individuals.[74]

Perhaps these three examples illustrate that New Zealand did consider the worst-case scenarios and acted accordingly. Whether it was good risk management or good luck, closing the border gave New Zealand time 'to await the evidence', so that we had time to design a strategy for when COVID-19 was prevalent in New Zealand.

Everybody, including WHO, has embedded biases. The way to unveil them is to acknowledge that they exist and then try and identify where uncertainty may linger or assumptions lie. Then invite a diverse range of people to test your thinking. Where in doubt, it is best to apply a precautionary approach and close the border. New Zealand's isolation was, in foresight terms, a wild card that delivered great returns for New Zealanders – it was a classic low-probability event that delivered a large impact.

Recommendation 9: Government to require regular worst-case pandemic scenarios to be undertaken and tabled at the House.

### Lesson 1.10: Test pandemic preparedness regularly.

The whole of government should test pandemic preparedness every three years at a minimum. This is due not only to regular changes in government, but also to ongoing developments in research and development, medical practices, public policy and available technology. This preparedness test should result in recommendations that flow into an updated pandemic plan and pandemic-related public policy. This should also be communicated with the public, so they are aware of potential updates in pandemic planning.

The last time an exercise was run to test New Zealand's pandemic preparedness was in 2007. It was known as 'Exercise Cruickshank' and was run in four distinct stages, all in May 2007:

> Stage 1 'Keep it out' – 10 May 2007
>
> Stage 2 'Stamp it out' – 16 May 2007
>
> Stage 3 'Manage it' – 17 May 2007
>
> Stage 4 'Recovery' – Regional workshops on 23 May 2007 and a national workshop on 30 May 2007.[75]

Exercise Cruickshank was designed to test 'New Zealand's border control measures, quarantine and hospital plans, the early detection and isolation of patients, use of antiviral drugs, communicating information to the public and media and the set-up of Community Based Assessment Centres (CBACs) to assess and treat people with pandemic influenza'.[76] The Institute has requested a copy of the final report on Exercise Cruickshank as it may indicate the scope and state the lessons that were learned. We note that the exercise 'did not aim to address all aspects of the New Zealand Influenza Pandemic Action Plan'.[77]

Following Exercise Cruickshank, in October 2007 MOH published a report that discussed this exercise and an earlier exercise, Exercise Makgill.

> **Exercise Makgill** was carried out on 9 November 2006 over a 12-hour period. The exercise assessed the health sector's ability around the cluster control ('stamp it out') stage of response to a pandemic. This exercise used a table-top approach to simulate the events that could arise during a real pandemic event.
>
> [...]
>
> The report contains the lessons from Exercise Makgill. The Ministry of Health has used these lessons to advance planning and preparedness for response to a pandemic and to facilitate the more efficient and effective delivery of Exercise Cruickshank.
>
> **Exercise Cruickshank** was a whole-of-government influenza pandemic exercise led by the Ministry of Health. It took place over five days in May 2007. Exercise Cruickshank aimed to practise the plans set out in the New Zealand Influenza Pandemic Action Plan and test the intersectoral response at all four stages laid out in the plan. Exercise days covered intersectoral responses at national, regional and local levels [bold added].

We consider both exercises should be reviewed in detail, to compare them and learn how best to undertake future exercises of this kind. We also stress that pandemics are all different, spreading differently, causing different symptoms and originating in different ways. Future pandemic testing exercises therefore need to be undertaken regularly to prepare for a variety of possible pandemic types.

Recommendation 10: Government to require a whole-of-government pandemic exercise to be run and reported upon every five years (looking more closely at the 2006 Exercise Makgill and 2007 Exercise Cruickshank). The report on the exercise should be given to the proposed Pandemic Response Committee (see above) and tabled in the House.

### Lesson 1.11: Integrate pandemic planning with emergency planning.

#### A. The difference between influenza planning and coronavirus planning

New Zealand had previously only prepared influenza plans,[78] not coronavirus plans. We are unsure in retrospect if this made a significant difference to the outcome. Although we would recommend plans in the future be developed with a wide range of causes in mind (e.g. potential viruses and bacterial infections), it is the response (the process) that is set out in the plans that is important.

#### B. The difference between pandemic planning versus other emergency planning

New Zealand needs to collate the emergency response plans for natural disasters, pandemics, terrorism, cyber-attacks, war, nuclear emergencies, etc. We need an overarching system for all national emergencies, one that is aligned and creates a common language for emergencies.

We should have plans that not only explore all sorts of crises that relate to new diseases, but ensure these plans integrate with all types of medical emergencies (such as severe floods, earthquakes, wildfires and volcanic eruptions).

There are lessons to be learned from other New Zealand crises, including the Christchurch earthquakes and Cyclone Gabrielle. The 2024 Independent Review into the Hawke's Bay Civil Defence Emergency Management Response into Cyclone Gabrielle[79] made a number of observations and recommendations. Below are a few selected observations and recommendations from the 2024 review:

> Communications failures, lack of data and the speed, severity and extent of this event overwhelmed staff in the [Hawke's Bay Civil Defence Emergency Management Group Emergency Coordination Centre] (HBGECC or GECC). (p. 5)
>
> CDEM staff were overconfident about their readiness on the basis of prior emergency events such as COVID-19. They lacked a scenario planning mindset, had low multi - agency operational exercise experience and suffered from optimism bias. We have formed the view that they tended to take a best case scenario rather than a precautionary approach to planning, communication and warnings. (p. 6)
>
> Communities, volunteers, the contractor sector, businesses and utility providers provided critical and heroic response activity. These local resources were not well utilised by the CDEM Group in the response to this event. (p. 6)
>
> [T]he 2017 Ministerial review of the national emergency management system should be revisited in this regard. (p. 8)

The recommendations from our 2015 report *Lessons from the West African Ebola Outbreak in Relation to New Zealand's Supply Chain Resilience*[80] concur with the four observations and recommendations listed directly above. The aim of the 2015 paper was to use the Ebola epidemic as a case study to develop a better understanding and awareness of supply-chain risks and to offer some ideas about how New Zealand's resilience might be increased. The main focus of attention is on the medical risks and their management, but there is widespread recognition that a pandemic would have many effects beyond the need for medical responses.

Based on a 2015 WHO report that set out the four biggest lessons from the Ebola outbreak in 2014[81] and our scenario work, we have identified 10 lessons:

1. Invest in core infrastructure and research.
2. Be vigilant; probe, scan, rehearse, inform and respond in a timely manner.
3. Adopt a decentralised and flexible approach; design a unique package of independent but interconnected measures.
4. Engage locally; find out how the community wants to respond.
5. Embrace technology; data builds information and information builds strategic knowledge.
6. Lead from the top, both immediately and over time.
7. Coordinate; supply chain issues deliver complexity but also opportunities in both the short and long term.
8. Review; actively assess progress.
9. Build capacity; prepare response plans for a long-term extended emergency.
10. Govern; possibly separate operations in the field from technical advice/policy.

The 2015 report made three major recommendations.

1. There needs to be a conscious effort to:
    a) obtain tacit knowledge about New Zealand's supply chain risks;
    b) increase awareness and resilience management capabilities;
    c) make all trigger points transparent;
    d) make the crisis management framework less complicated from the outside looking in;
    e) draw a distinction between strategies, plans and guides;
    f) draw a distinction between preparation and response; and
    g) increase connectedness between central government, local government, businesses and community groups.

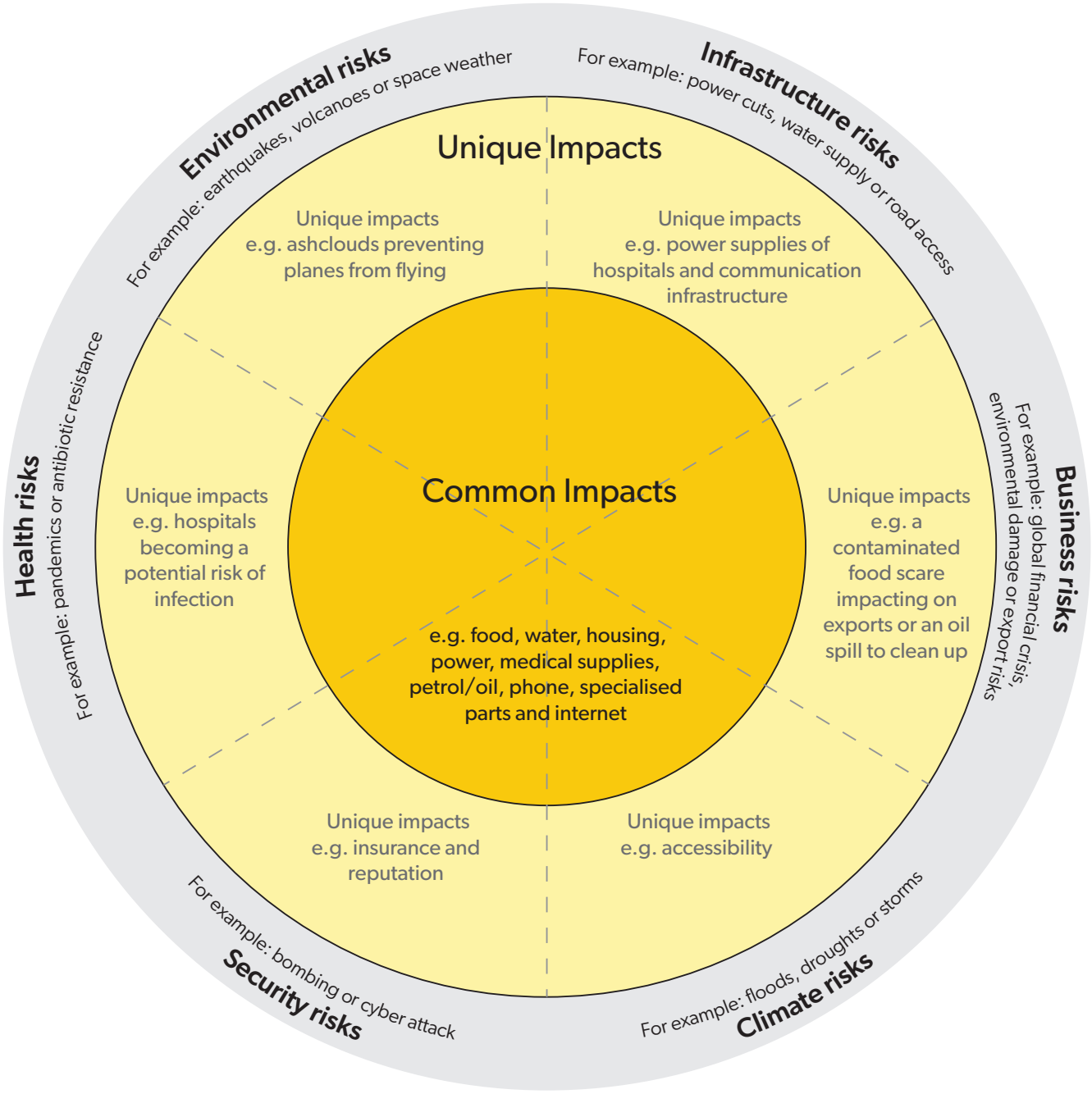
2. We need to find more effective instruments/tools to monitor and benchmark progress over time:
    a) An annual report on emergency risk events outlining what events happened over the previous 12 months, describing New Zealand's response to each event and any lessons learned, could be a cost-effective instrument.
    b) A supply chain risk matrix that benchmarks risks is a tool that might help identify priorities and develop action points (see Appendix 8).

3. Map and review existing strategies, preparation plans and response plans (for both central and local government). They need to be mapped in order to determine where documents may overlap (and cause confusion) or where gaps exist. The map then needs to be designed to illustrate how they all fit together so that when a disruptive event occurs, roles and responsibilities are clear to not only officials but also ministers and the general public.

The reality is that New Zealand must work harder at designing and integrating our strategic response to a range of crises. Importantly, there are a number of common characteristics that can be embedded into our crises planning, but pandemics have a few characteristics that mean they can create a perfect storm. See for example, Figure 1.3 overleaf (p. 9 of the report) from our 2015 report *Lessons from the West African Ebola Outbreak in Relation to New Zealand's Supply Chain Resilience*.

In this age of complexity, breaking down how resilience might be achieved in a logical manner is a useful endeavour. There are at least nine actions one can implement and embed into a system to help build and maintain resilience. Figure 1.4 (page 12 of the report) illustrates the process of the nine possible action points.

Figure 1.3: Common impacts identify the core infrastructure necessary to cushion the impacts of a range of disruptive events[82]

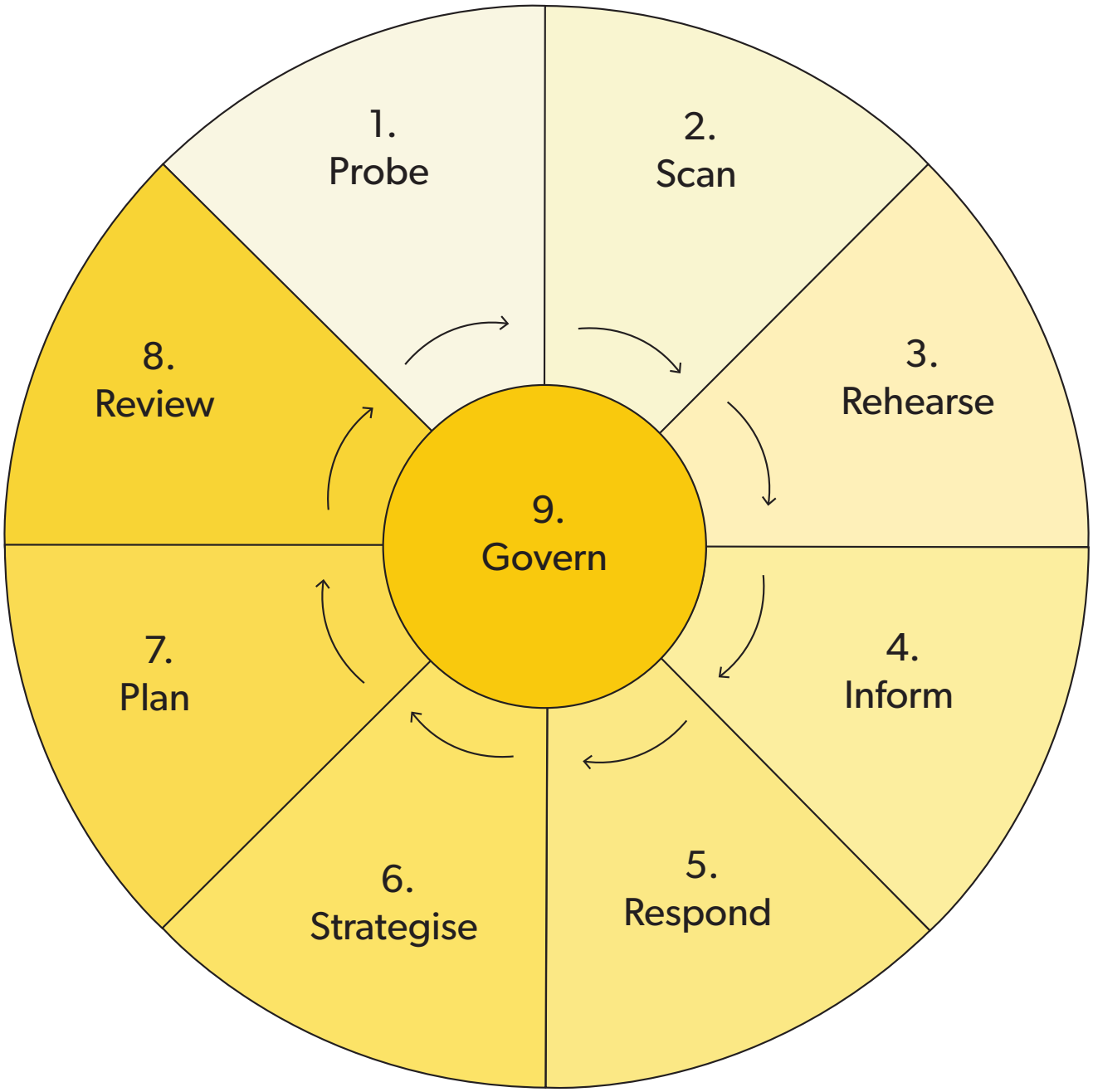



**Analysis – Look backwards and use this information for public policy.**

Figure 1 illustrates our analysis of the cause and effect of policy decisions made between 2020 and 2024 – what we have grouped into first-, second- and third-order thinking. It aims to illustrate what led to the challenges we face today:

1. In the early days of the COVID-19 pandemic, government tended to adopt first-order thinking – they did not 'have time' or 'make time' to identify second- and third-level effects.
2. Short-termism prevailed; the focus was on tomorrow and next week, not next month or next year (Roger Dennis's point in Lesson 1.12 below).
3. Because there was an excessive focus on short-term results at the expense of long-term interests, key opportunities to shape policy for the long-term were overlooked.
4. Many of the policy decisions made over that time eroded public trust in government and its institutions. More care was needed to think of long-term impacts of decisions and not to create divisive policy.

Figure 1.4: Building resilience into a system[83]




**Observations – going forward**

1. In times of stress, those in the front line will have a natural bias towards delivering short-term solutions. To balance this, it is extremely useful to have other people simultaneously thinking about the impacts on the country's long-term future.
2. The Prime Minister appeared to be too involved in the day-to-day crisis and communications rather than guiding the long-term direction of New Zealand. This may be because the Prime Minister felt public officials were not well prepared (and after reviewing the planning documents, that concern may have been warranted). It meant that although the crises of the time could be responded to immediately, no one was looking down the road and working to understand and design policy for future generations.
3. The Epidemic Response Committee could have done more to stress test policy for long-term impacts.

4. It is important to appreciate everyone is human and the pandemic created some difficult challenges for decision makers. This is understandable given the level of fear and anxiety, and no doubt the very poor sleep many in the leadership team had over this time. Assigning individuals and/or groups with clear responsibility to think of long-term impacts of decisions will both help ensure long-term issues get heard and relieve pressure on decision makers.
5. Instead of decisions being seen in terms of short-term COVID-19 prevention, decisions should also be considered in terms of how society might be impacted in three, five or ten years' time. Arguably second- and third-level thinking might have provided new insights, which could have led to a broader analysis of costs/benefits and risks.

Eight examples of decisions that could have been made differently if the long-term was considered:

**Example 1:** Instead of spending $19 billion on the COVID-19 wage subsidy,[84] government could have restricted the subsidy to $10 billion and instead spent $9 billion on tackling poverty, improving the healthcare system and/or investing in science and innovation. $19 billion creates a major financial burden on future generations. See discussion in Lesson 4.6.

**Example 2:** Instead of encouraging citizens to actively report breaches of protocols to police, less hard-line approaches should be considered. Examples include reporting to a health-line, or police patrolling public spaces and offenders being heavily penalised (much as police do on our roads to protect other drivers and their passengers). On 29 March 2020 the police launched a new online form which the public could use to report COVID-19 Alert Level 4 restriction breaches.[85] In our view, the fact that the police were involved added further tension and anxiety. See discussion in Lesson 5.7.

**Example 3:** Instead of prioritising possible COVID-19 patients over the care of existing patients (e.g. those with cancer), develop better ways of providing all patients with quality care. We may not know the numbers of people impacted by the reduced identification and treatment of cancer and other illnesses, but risk management is about looking at ways to reduce risks and balancing one risk against another. See discussion in Lesson 5.7.

Some early research on estimating the impact of the COVID-19 pandemic on the diagnosis and survival of five cancers in Chile from 2020 to 2030 found:

> Using a novel microsimulation model that fits well to the reported data, we find a projected short-term surge in diagnosed cancer cases due to delays in diagnosis from the COVID-19 pandemic, suggesting that the Chilean health system will need to ensure adequate capacity to detect and care for increased cancer cases in the coming years. Our findings show that among the five cancers responsible for an estimated 45% of Chilean cancer mortality, Chile will face an estimated 3300 excess cancer deaths between 2022 and 2025, rising to more than 3500 by 2030 as a result of delays in diagnosis. These estimates do not consider treatment delays or the potential adverse impact of COVID-19 on the quality of the cancer care provided.

They also noted:

> The impact of the COVID-19 pandemic is likely to differ by cancer type. For example, we find that stomach cancers are less likely to be affected due to a higher likelihood of emergency stage IV presentation before the pandemic, compared with breast and cervical cancers, which are more often diagnosed at earlier stages. The large proportion of stomach cancers typically diagnosed at advanced stages (III–IV) also means that the prognosis for these cases is affected to a much smaller degree than for cancers usually diagnosed at an earlier stage.[86]

Another paper focussed on prostate cancer and made the following comments:

> Overall, the findings discussed here show how COVID-19 has deeply affected all aspects of prostate cancer care, including early diagnosis, treatment and staging, with negative consequences that are not fully predictable and understandable at the present time. On the other hand, it is foreseen that SARS-CoV-2 will continue to circulate despite mass vaccination programs, so a continued effort to analyze its effects on prostate cancer care is mandatory. Physicians treating prostate cancer should consider preferring oral compared with intravenous agents and performing remote visits, if feasible.[87]

**Example 4:** Instead of suspending public servants (such as police, the defence force, teachers and medical staff) who had independently decided to remain unvaccinated, other options should have been explored to allow these people to continue to provide public services at a time when they were needed in society.[88] See discussion in Lesson 4.16.

**Example 5:** While the borders were shut, and hotels were empty, the government could have invited some of the world's leading academics, and their best students, to set up on a temporary campus in Queenstown. At the time, lecturers and students around the world were feeling isolated, and offering a face-to-face learning option (surrounded by stunning scenery) would have enticed a critical mass of smart talent to come to the country. Instead priority was given to low-paid manual labour, including over 400 Russian fisherman, many of whom had COVID-19.[89] See discussion in Lesson 4.9.

**Example 6:** Instead of closing all schools for five days each week, the government could have allowed them to remain open with protections in place, for instance COVID-19 testing, symptom-checking all students twice daily, handwashing, non-touch doors and surfaces, and good ventilation. Protocols could be put in place if one member of the family has COVID-19, with all children in a family staying at home. Another protocol could be for the school to operate morning school and afternoon school – with a three-hour gap between for basic cleaning and ventilation – or even three days' in-person schooling and two days' home schooling (e.g. Monday, Tuesday and Wednesday in person for one cohort, followed by three days in person for the next cohort – Thursday, Friday and Saturday). Children missed critical learning and socialising time and this is very difficult to replicate. Distance learning also favoured those with access to technology and/or who had parents who could help continue their education at home. An Education Review Office report on the ongoing impacts of COVID-19 from 2023 shows a decrease in NCEA achievement and school attendance, with poorer communities being impacted the most.[90] When schools were open during the 2022 Omicron outbreak, the management was unsatisfactory. The reduction in educational attainment, highlighted by the Human Rights Commission and the Disability Rights Commissioner in 2022, has the potential to generate a substantial life-course disadvantage for the pandemic generation.[91] See discussion in Lesson 5.1.

**Example 7:** Instead of stopping families and friends attending hospitals, hospices and funeral homes, have a maximum of 10 people in one bubble able to attend, ideally outdoors with masks, and use Zoom for everyone else. We felt the rules around dying and deaths were too rigidly implemented. Our view is that the risks should be explained but it is up to the people involved to make the final decision and bear the risks accordingly. For example, if someone is dying (and there is a low risk they have or can pass on COVID-19), their family and friends should be encouraged to wear PPE around the deathbed, but if they choose not to do so, that should be immediately accepted. See discussion in Lesson 4.10.

**Example 8:** Instead of not being able to visit a loved one in a residential care home, or being required to wear PPE (which can be scary for the resident), an alternative is that residents are wheeled into to a cubicle next to a closed glass window where speaker phones have been set up so that visitors can sit outside and speak with their loved one. The resident can chat, see photos or artwork (e.g children's hand-made cards) through the glass and be safe without anyone having to wear specialised protective gear. See discussion in Lesson 5.7.

Recommendation 11: The Commissioners to map the interconnections between second- and third level effects from the COVID-19 pandemic. The Institute has prepared an initial map as a starting point, see Figure 1.5. This will be useful for government.

### Lesson 1.12: Design a management structure fit for purpose.

It is important to consider the type of management structure best suited to manage a pandemic. Roger Dennis, a patron and foresight colleague, raised concerns about short-termism in the face of a crisis and suggested to Ministers how they might be able to remove this risk during the pandemic. He suggested establishing three completely separate units to report to Cabinet. Importantly each group would have its own timeframe to focus on and would consider/suggest public policy decisions – see Figure 1.5. Unfortunately this suggestion was not implemented.

In retrospect, even one independent group focused on identifying and reporting potential policy risks and policy opportunities may have led to a financially stronger and more socially robust New Zealand than currently exists.

Recommendation 12: CDEM and MOH to work together to prepare an integrated system of planning documents. All plans must be updated to 2024 and provided to the Pandemic Response Committee (see above) and, when final, tabled in the House.

## COVID-19 Response Plan

*Note that all three streams of work need to happen simultaneously*

| **Immediate** | **Near future** (rolling 4 – 6-week plan) | **Longer term** (12 – 24-month plan) |
|---|---|---|
| *Respond to current situation as best as possible.* | *Keep ahead of the situation.* | *Position New Zealand to emerge stronger.* |
| This should include:<br>1. Screening at airports for all arrivals with symptoms (including fever)<br>2. Briefing all DHB chairs that a COVID-19 response is the number one priority<br>3. Rolling out community triage and testing<br>4. Establishing triage centres in unused facilities such as sports stadiums<br>5. Identifying the young and yet-to-be qualified healthcare workers that will be at the front line of the triage<br>6. Ensuring that lifeline organisations have a supply of critical parts<br>7. Establishing resilient supply chain of medical supplies and equipment<br>8. Providing education and support to medical workers<br>9. Calling up Territorial Defence personnel to be on standby for setting up community testing stations and for supporting Police if required to maintain law and order. | Avoid another EQC-type response by establishing a small group away from the immediate response. The aim of this group is to step back and look at the bigger picture situation to:<br>1. Integrate efforts<br>2. Optimise investment<br>3. Go faster.<br>This group will need to be established immediately with a goal to deliver a high-level plan within five days. The group should include experts in data, community health, systems design, communications and government structure.<br>The goal is to create a plan for a coordinated response across public and private sectors that starts to bring ad-hoc initiatives under its direction.<br>Plan for concurrent disasters/shocks/crises:<br>• Monitor bad actors on the world stage<br>• Ensure telecommunications networks are on high alert and security is increased<br>• Monitor social networks for material that would create unrest.<br>Place critical parts of government on a war footing. | If the rest of the world is severely impacted by COVID-19, smaller and more agile countries have an advantage. New Zealand should be positioned to move fast to respond to a new normal.<br>New Zealand should position itself based on evidence from previous global shocks such as the Great Depression and previous world wars.<br>A small group should be established to:<br>1. Assess the opportunities for New Zealand based on how economies were tracking prior to the virus spread<br>2. Contact world experts to get their view on what the world might look like once the virus is controlled<br>3. Link this new world state to capabilities in industry and government investment<br>4. Establish a list of signals to monitor across the geopolitical spectrum in order to guide the speed and direction of response.<br>Government spending should be directed towards solutions to challenges outlined in the Long-Term Fiscal Statement, i.e. ageing population and climate change.<br>For example, infrastructure spending towards the low-carbon economy, so New Zealand is positioned to become an example for other countries. This will lead to job creation and economic growth as other nations also realise the opportunity. |

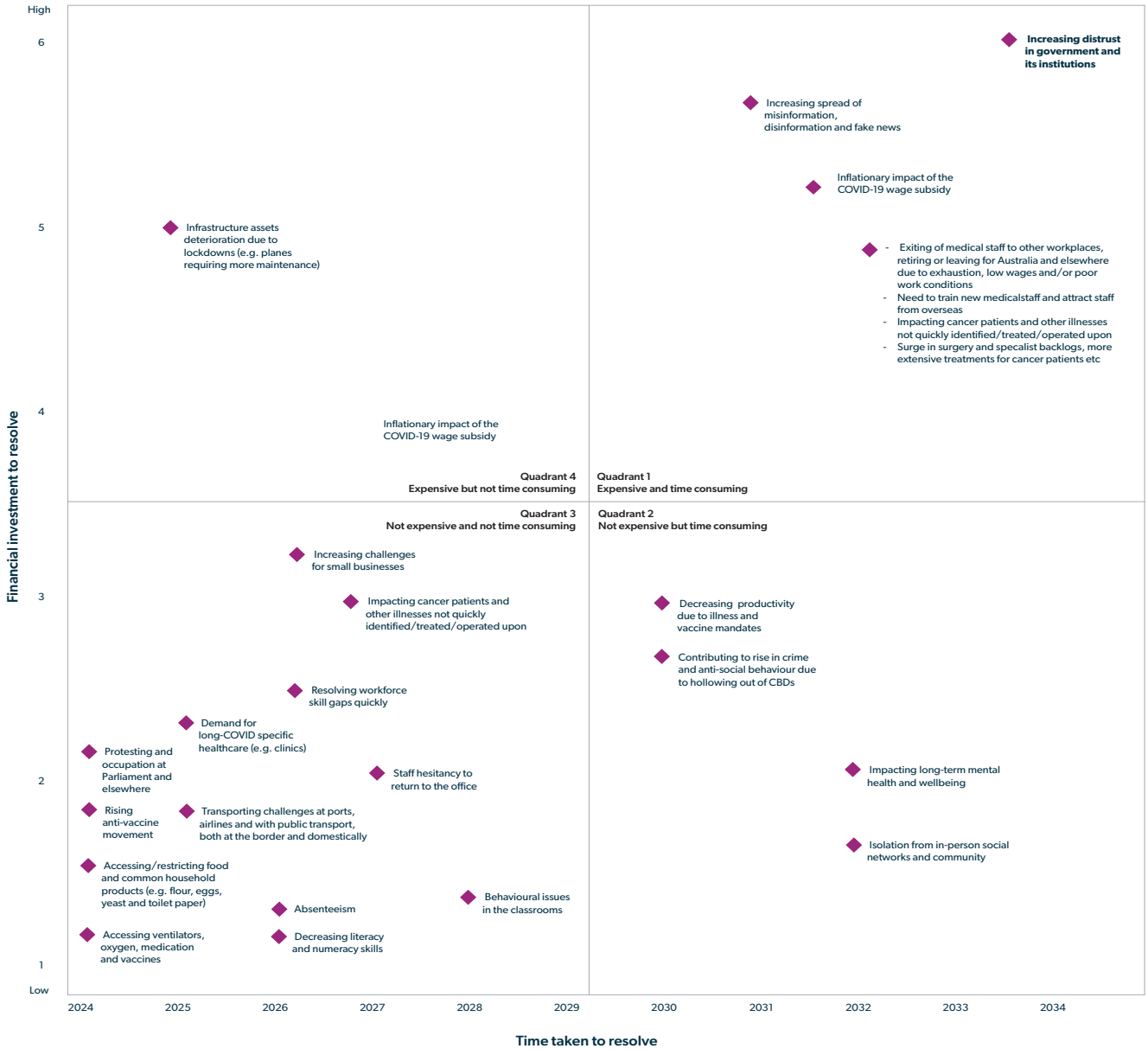
Figure 1.5: A structure to help focus Ministers on the immediate future, near future and the longer term[92]

## Lesson 1.13: Design a strategy to build trust in democracy.

What we have learned from the COVID-19 pandemic is that once the virus or bacteria is inside our borders, our next form of defence is trust in democracy. The overarching lesson is that part of the preparation is to build trust in government and its institutions – and that is not purchased but earned. As we stand today, we are extremely vulnerable. Government should be working hard to ensure that (i) there is a high level of public engagement in public policy, (ii) that the public are heard, (iii) that checks and balances are in place, and that bad behaviour by politicians and officials is followed by immediate and appropriate penalties and actions.

Figure 1.6 below illustrates the challenges we have ahead of us. This figure takes a selection of negative effects shown in Figure 1 (page 12) and places them on a continuum within a matrix, assessing broadly by cost and time taken to make good (e.g. back to normal). It is exploratory only and is designed to illustrate the work that needs to be done. We need to build trust in government and its institutions, and simultaneously, prepare for the next pandemic.

### Figure 1.6: The COVID-19 matrix of consequences through the lens of time and financial investment

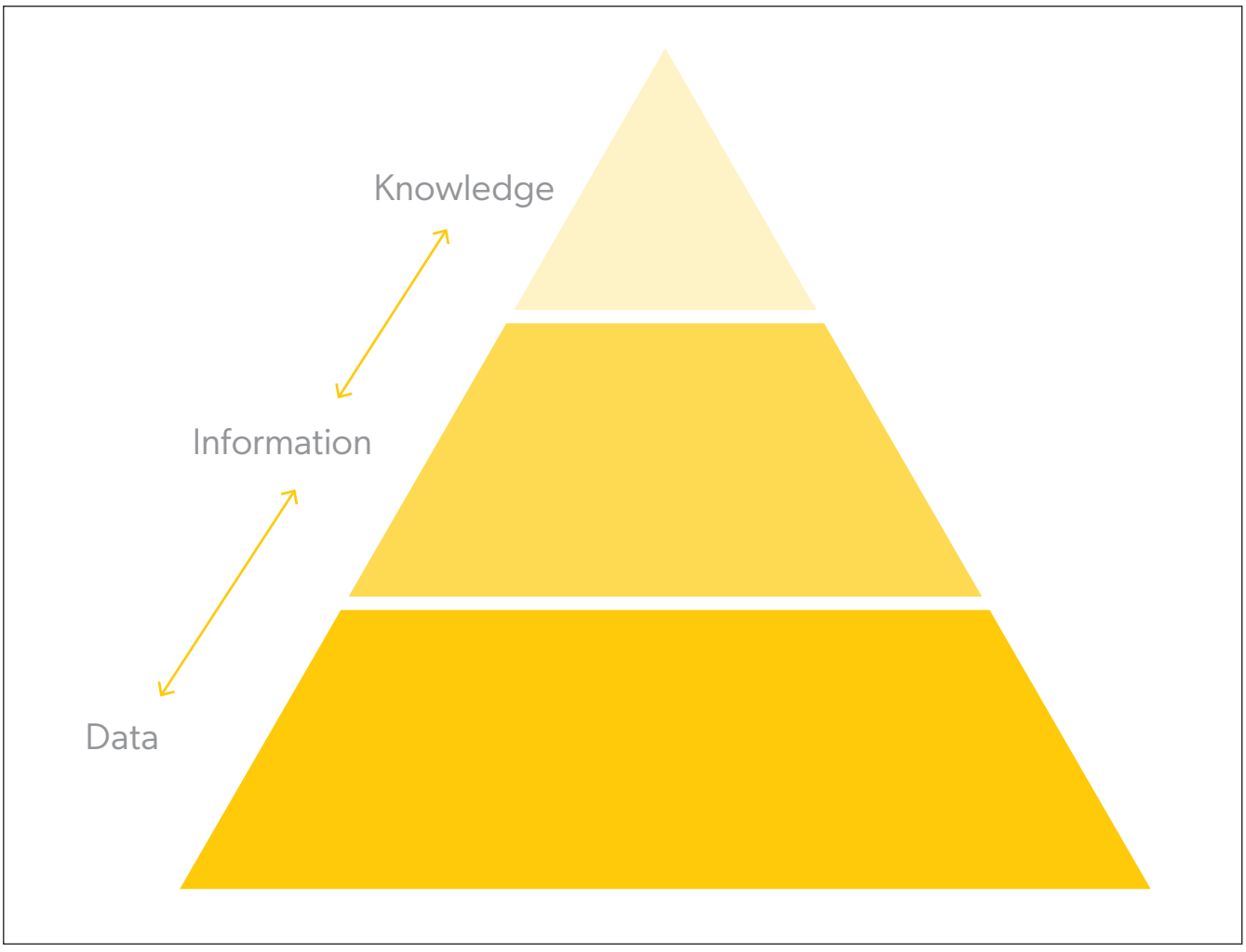


Recommendation 13: Cabinet to review the COVID-19 management structure and explore ways it could be improved through embedding independent long-term thinking so that decisions are challenged, tested and shaped during a pandemic.

### Lesson 1.14: Ensure knowledge is built on information and that information is built on good data.

Figure 1.7 below illustrates the difference between data, information and knowledge. Pandemic management requires colossal amounts of all three, in real time. This means a highly interconnected system needs to be up and running very quickly. Most importantly, there must be a focus on timely data, but equally an understanding that decisions will need to be made on insufficient data (hence Henry Kissinger's quote on the inside cover).

### Figure 1.7: The relationship between data, information and knowledge[93]




In our view, any strategy for a potential pandemic should have the following 12 characteristics:

1. Seek out second- and third-order thinking, explore the whole chain of effects – the risks, the impacts, and the outcomes. Apply deep thinking (in contrast to shallow thinking).
2. Demand timely information, such as variant types, deaths, MIQ numbers etc (with a caveat that not all information will be complete or accurate, e.g. poor information is better than no information).
3. Discuss what is an acceptable risk (e.g. we accept the benefits of driving a car even though we know accidents will occur).
4. Adopt a scenario mindset, including a worst-case scenario.

5. Seek out relevant experts, ideally with different perspectives.
6. Create a detailed, tested plan. Then simulate, stress test, and test all strategies, plans and assumptions again and again (don't be a lazy optimist).
7. Communicate in a clear, consistent and timely manner to Ministers, Parliament (MPs) and the public.
8. Pivot quickly when faced with new information or new goals (e.g. moving from an eradication strategy (zero forever), to an elimination strategy (zero for the time being) to a suppression strategy (acceptance).
9. Apply a precautionary approach.
10. Don't rely on (or be dependent on) overseas assistance, but assist where possible.
11. Design on the basis that the pandemic may be fast or slow; short or protracted; local or national; may target specific groups (e.g. age/genders/race); and most importantly.
12. Any pandemic response will require extensive community engagement and commitment to be successful.

Characteristics 10, 11 and 12 are unique to pandemics. In most other emergencies, New Zealand could rely on support from Australia, our treaty partners or Commonwealth countries, often within days. However, during a pandemic every country will be impacted and challenged, meaning to some degree we are on our own. This is why it is important to gather and articulate these lessons today, so that we are prepared for the next pandemic.

Recommendation 14: CDEM and MOH to prepare a pandemic strategy that assumes New Zealand must operate on its own and over a long period of time.

**Given the persistence of COVID-19, it is not clear that New Zealand will ultimately succeed in its elimination strategy despite having no active cases in June 2020. Furthermore, the long-term economic implications of stringent lockdowns are not yet known, and the costs could be especially burdensome on an economy reliant on agriculture, tourism, and hospitality … Around the world, governments and public officials are forced to make difficult decisions about public health, which will likely have lasting consequences regardless of the outcome.**

Thomas Jamieson (2020),
assistant professor, University of Nebraska at Omaha[94]

# Part Two: The Inquiry into COVID-19

The purpose should be to learn lessons as we go and, when looking back:

(i) to embrace independence and stress testing

(ii) to create mechanisms to stress-test policy decisions

(iii) to provide citizens with reassurance that government policy is independently stress-tested

(iv) to learn lessons as we go, as well as when the crisis is over.

## 2.1 Introduction

The scope for the Royal Commission of Inquiry into COVID-19 Lessons Learned is outlined in Clause 4 of the Royal Commission of Inquiry (COVID-19 Lessons) Order 2022:

4. Scope of inquiry

(1) The scope of the inquiry is the lessons learned from New Zealand's response to COVID-19 that should be applied in preparation for any future pandemic in the following areas:

- the legislative, regulatory, and operational settings required to support New Zealand's public health response to a pandemic, relating to
- isolation and quarantine arrangements for international arrivals and limiting the movement of people through the international system:
- community isolation and quarantine arrangements, contact tracing and case management systems, and limiting the internal movement of people through local boundary controls:
- the regulatory approval of, and the making available and mandating of, vaccines and other pharmaceutical and testing measures:
- modelling and surveillance systems:
- non-pharmaceutical public health measures, including vaccine passes, gathering limits, and personal protective equipment and its procurement and distribution:
- tools, systems, and frameworks developed in response to COVID-19:
- the settings needed to ensure that New Zealand's health system continues to deliver necessary services during a pandemic:

- communication with, engagement of, and enabling people and communities to mobilise and act in support of both personal and community public health outcomes over an extended period:
- the legislative, regulatory, and operational settings needed to ensure the continued supply of goods and services required to enable people to isolate or otherwise take protective measures for an extended period during a pandemic, relating to the provision of—
  - lifeline utilities and other necessary services:
  - education and childcare:
  - other government services:
- the legislative, regulatory, and operational settings required to support New Zealand's immediate economic response to a future pandemic, relating to—
  - fiscal and monetary policy responses, including co-ordination and preparedness to implement large-scale changes quickly and monitor their impacts:
  - temporary financial support to individuals, businesses, and sectors, including how such support might be quickly implemented, appropriately and accurately distributed, monitored, and ended:
  - short-term measures, such as exemptions, to sustain specific industries during a pandemic:

- the decision-making structures and arrangements that might be used or put in place during an evolving pandemic of extended length:
- consideration of the interests of Māori in the context of a pandemic, consistent with the Te Tiriti o Waitangi relationship:
- consideration of the impact on, and differential support for, essential workers and populations and communities that may be disproportionally impacted by a pandemic.

(2) The inquiry may assess whether New Zealand's initial elimination strategy and later minimisation and protection strategy in response to the COVID-19 pandemic, and supporting economic and other measures, were effective in limiting the spread of infection and limiting the impact of the virus on vulnerable groups and the health system, having regard to New Zealand's circumstances, what was known at the time, and the strategies adopted by comparable jurisdictions.

(3) The inquiry should consider the strategies, settings, and measures identified above as they existed or operated between February 2020 and October 2022, and not outside those dates.[95]

## Key Lessons

Lesson 2.1: Government should hold an Inquiry early.

Lesson 2.2: Government should provide Commissioners with a specific purpose to inquire into and a specific date to report on the results of their investigations.

Lesson 2.3: Government should set the scope but keep it broad.

Lesson 2.4: The scope of the Inquiry should include mental health and wellbeing.

Lesson 2.5: An Inquiry should investigate all additional stress points.

Lesson 2.6: The process of the Inquiry should be left to the Commissioners.

### Lesson 2.1: Government should hold an Inquiry early.

Looking back on the establishment of the Inquiry is an important backdrop. Key points that shaped distrust were as follows:

1. August 2020

   The Prime Minister was slow to support an inquiry, citing (anecdotally) that it was too soon and that the pandemic was not over.[96] Although both things were true, many in the community were calling for an earlier and more extensive Inquiry. This Inquiry was established in late 2022, but calls began much earlier. 'The Green party, National and Act have regularly called on the Government to launch an Inquiry into its COVID-19 response, as well as the economic decisions it, and the Reserve Bank made, which they believe helped lead to stubbornly high inflation and increased inequality.'[97] Former Prime Minister Helen Clark had also called for a full review into New Zealand's preparedness and handling of the COVID-19 pandemic as early as August 2020. 'Clark said the country did have an Epidemic Preparedness Act from 2006, as a result of the SARS virus and had a flu pandemic plan, which fortunately it had set aside to deal with the much different COVID-19 disease.'[98]

2. August 2021

   Epidemiologists and academics began getting pushback in the media as early as August 2021. Broadcaster John Campbell quoted a letter from Auckland University's vice-chancellor Dawn Freshwater, dated 9 August 2021, which 'urged Siouxsie [Wiles] to keep her public commentary to a minimum for an indefinite period as a way to minimise the harassment she was getting at the time'.[99]

3. February 2022

The anti-mandate and anti-vaccine protests at Parliament in early 2022 were both a shock and a warning. Public trust in Government was waning and it would have, in retrospect, been timely to invite an independent overview shortly after the protests, rather than wait until December 2022.

Our view is that the Inquiry should have been called in early 2022 so that the lessons had time to be collected, percolated and collated. Delaying the Inquiry risked key historical information being lost. There are a number of reasons why this might happen, including websites being updated, staff leaving, files being archived – or simply people moving on and wanting to put the pandemic behind them. Input from a body independent of Government was essential to collect the data and provide the necessary checks and balances.

### Lesson 2.2: Government should provide Commissioners with a specific purpose to inquire into and a specific date to report on the results of their investigations.

The Government should trust the Commissioners to inquire into a specific purpose and should not limit the timeframe to a particular date (in this case to October 2022). This is particularly relevant given the Inquiry did not begin until March 2023. The 2022 cut-off seems unnatural and illogical. Commissioners need to investigate and inquire into causes and effects, and these do not always follow a specific timeline.

> (3) The inquiry should consider the strategies, settings, and measures identified above as they existed or operated between February 2020 and October 2022, and not outside those dates.[100]

### Lesson 2.3: Government should set the scope but keep it broad.

In December 2022, the New Zealand Government announced a summary of the terms of reference, stating: 'The purpose of the Inquiry is to strengthen Aotearoa New Zealand's preparedness for, and response to, any future pandemic by identifying those lessons learned from New Zealand's response to COVID-19 that should be applied in preparation for any future pandemic.... The inquiry should consider the strategies, settings, and measures identified above as they existed or operated between February 2020 and October 2022, and not outside those dates.'[101]

> 6. Limits to inquiry's scope
>
> The following matters are outside the scope of the inquiry:
>
> - particular clinical decisions made by clinicians or by public health authorities during the COVID-19 pandemic:
> - how and when the strategies and other measures devised in response to COVID-19 were implemented or applied in particular situations or in individual cases:
> - the specific epidemiology of the COVID-19 virus and its variants:
> - vaccine efficacy:
> - the recent reforms to New Zealand's health system, including the organisational arrangements for public health services:
> - the judgments and decisions of courts and tribunals and independent agencies such as the Ombudsman, the Privacy Commissioner, or the Independent Police Conduct Authority relating to the COVID-19 pandemic:
> - the operation of the private sector, except where the private sector delivers services integral to a pandemic response:
> - particular decisions taken by the Reserve Bank's independent monetary policy committee during the COVID-19 pandemic:
> - any adaptation of court procedures by the judiciary during the COVID-19 pandemic:
> - any adaptation of parliamentary processes during the COVID-19 pandemic:
> - the conduct of the general election during the COVID-19 pandemic.[102]

The fact that the scope was so limited was very quickly picked up in the media. For example, Te Ao Māori News stated in December 2022: 'However, some aspects that are not included in the Inquiry scope are vaccine efficacy, recent reforms to the health system, the conduct of the 2020 election during the pandemic and more.'[103] All three were topics being discussed in the media at the time and deserved, in our view, to be front and centre. We feel this limited approach to the scope may have influenced the recent elections, in that it ignited further distrust in Government.

We note that the coalition Government[104] has now sought specific feedback on the inclusion of the following topics, as part of its commitment to expanding the scope of the Inquiry:

> Use of multiple lockdowns;
>
> Vaccine procurement and efficacy;
>
> The social and economic impacts on both regional and national levels;
>
> Whether the decisions made, and steps taken, were justified;
>
> The cost-effectiveness of the Government's policies, and whether the rules set by the Government appropriately balanced COVID-19 elimination with other goals;
>
> The Government's utilisation of partnerships with business and professional groups;
>
> The extent of disruption to New Zealanders' health, education and business as a result of the Government's policies;
>
> If the Government's response was consistent with the rule of law;
>
> How New Zealand's pandemic preparedness compared to other countries.[105]

Our view is that the terms of reference should have covered the areas that the public were concerned about: in particular, vaccine efficacy, recent reforms to the health system, and holding the 2020 election during the pandemic. We would have preferred a broad scope that enabled the Commissioners to explore any or all of the nine points mentioned above. In our view, the terms should have simply set a goal along the lines of former Prime Minister Helen Clark's comment above – to learn lessons for future pandemics from New Zealand's preparedness and handling of the COVID-19 pandemic.

The coalition Government has said it is committed to expanding the scope of the Royal Commission of Inquiry into COVID-19 Lessons Learned based on public input, by adding additional topics to the terms of reference.

In our view the current terms will therefore constrain the Commissioners, both in terms of scope and procedures. When writing a chapter for a 2022 book, *Royal Commissions & Public Inquiries*, Wendy McGuinness noted:

> When compared with other inquiry terms of references, it [the COVID-19 Royal Commission] is unusual for a number of reasons. The summary terms set out a detailed list of procedures and processes, and contains a long list of areas 'outside the scope of the inquiry'.[106]

The second edition of *COVID-19 Nation Dates* will include two chapters on the judgments and decisions of courts relating to the COVID-19 pandemic and to the wage subsidy. It will also include judgments by independent agencies such as the Ombudsman, the Privacy Commissioner and the Independent Police Conduct Authority. In our view, the courts stress tested the legislative framework and therefore those judgments provide a critical insight into the extent to which the legislation effectively executed the policy settings. Hence, we consider it is timely to start to design the shape and content of future emergency epidemic response legislation in 2024 (before the Commissioners present their final report).

### Lesson 2.4: The scope of the Inquiry should include mental health and wellbeing.

WHO found that the COVID-19 pandemic triggered a 25% increase in prevalence of anxiety and depression worldwide.[107] COVID-19 drastically changed people's lives by creating major disruptions to things including their living situation, work, education, life plans, support systems and community. It is important to assess how COVID-19 itself, and the Government's response to it (e.g. restrictions), affected people's mental wellbeing and what effects are still transpiring.

It is therefore surprising that the terms of reference in this inquiry do not cover mental health or how New Zealanders' wellbeing was impacted throughout the pandemic. In comparison, the inquiries by the United Kingdom and the Australian Commonwealth Government both included mental health and overall wellbeing in their scopes – not just physical health. See excerpts below.

**United Kingdom *COVID-19 Inquiry Terms of Reference***

The aims of the Inquiry are to: ...

2. Examine the COVID-19 response and the impact of the pandemic in England, Wales, Scotland and Northern Ireland, and produce a factual narrative account, including:
    a) The public health response across the whole of the UK, including
    [...]
        x) the impact on the mental health and wellbeing of the population, including but not limited to those who were harmed significantly by the pandemic;
        xi) the impact on the mental health and wellbeing of the bereaved, including post-bereavement support;
        xii) the impact on health and care sector workers and other key workers;[108]

[On 1 February 2024 a BBC article reported that the UK Inquiry i]s split into different parts. Work in four areas has begun:

- resilience and preparedness
- core UK decision-making and political governance
- the impact of Covid on healthcare systems
- vaccines, therapeutics and antiviral treatment

Future strands will consider:

- the care sector
- government procurement and PPE
- test-and-trace
- the government's businesses and financial responses
- health inequalities
- education, children and young people
- other public services

There is no specific timescale for how long the inquiry will last but Lady Hallett does not expect the public hearings to run beyond summer 2026.[109]

**Australian *Commonwealth Government COVID-19 Response Inquiry terms of reference***

The Inquiry will adopt a whole-of-government view in recognition of the wide-ranging impacts of COVID-19 across portfolios and the community. Specific areas of review may include, but are not limited to:

[...]

Broader health supports for people impacted by COVID-19 and/or lockdowns (for example mental health and suicide prevention supports, and access to screening and other preventive health measures).[110]

### Lesson 2.5: An Inquiry should investigate all additional stress points.

There are at least two examples.

**Example 1:** Whether the implementation of the health reforms was appropriate given New Zealand was still in the middle of a pandemic (a time when the healthcare sector was already under significant pressure).

On 1 July 2022, New Zealand moved to a new national health system.[111] The recent reforms to New Zealand's health system, including the organisational arrangements for public health services, are currently outside the Inquiry's scope.

It should be reviewed whether the health reforms were a good decision to make in the middle of a pandemic, where the healthcare sector was already under significant pressure and a number of staff were struggling with exhaustion, lack of sleep and mental health issues.

The *Health Policy* journal published an article, 'The 2022 restructure of Aotearoa New Zealand's health system: Will it succeed in advancing equity where others have failed?', which concluded:

> The prospects for successful reform may be diminished by challenges of implementation major changes on many fronts simultaneously.
>
> Overall, an enormous amount is being asked of each of the new agencies, which are expected to transform the system while also finalising their roles and connections between roles, collaborating and building relationships, establishing new policies and processes, and dealing with the COVID-19 pandemic, a burnt-out workforce, and significant workforce shortages in many areas. In the absence of clear policy direction regarding funding flows and formulae, it is unclear how many of the system shifts envisaged by reform planners can be leveraged. To succeed, these reforms require a systematic focus on key actions over a sustained period of time and there will need to be some early signs of progress in order to build momentum for wider health system transformation.[112]

Our key concerns were:

a) History and lessons learned would be easily lost due to staff changes.

b) Staff were already under significant pressure and strain. Adding additional and unnecessary stress, at that point in time, was unkind.

c) The reforms were expensive, and it is questionable whether this was a good use of taxpayers' funds given we had just spent $19 billion on the COVID-19 wages subsidy (see Lesson 4.6).

**Example 2:** Whether the timing of the election and its implementation was appropriate.

**We must go hard, and go early, and do everything we can to protect New Zealanders' health.**

Prime Minister Jacinda Ardern, 14 March 2020[114]

# Part Three: The initial response when COVID-19 was outside New Zealand

Purpose: Before the virus arrives

New Zealand is highly dependent on an effective global response, and should focus on a top-down strategy, including what we can learn from overseas and how best to close the border. The purpose should be:

(i) to support and develop a good working relationship with WHO, and other countries, such as Australia, the Pacific Islands and the UK

(ii) to prepare/put in place systems to close the border (purchasing key stock from overseas)

(iii) to test systems (this is the time to get the team together and stress-test thinking and software)

(iv) to inform the public of the plan

(v) to develop a good working relationship with all key manufacturers of vaccines, medicines (such as anti-viral medicines) and medical equipment (such as ventilators)

(vi) to talk with businesses early.

## Key lessons

Lesson 3.1: Get the team together quickly.

Lesson 3.2: Support and engage early with possible supply-chain risks and with the global response system, in particular with our neighbours in Australia and the Pacific.

Lesson 3.3: Re-establish the Epidemic Response Committee but under a new name – the Pandemic Response Committee.

### Lesson 3.1: Get the team together quickly.

This time is invaluable. It provides an opportunity:

- to review the pandemic plans
- to stress test the planning documents against the specific virus (or bacteria) of concern and to develop an informed strategy,
- to review the National Reserve Supply (NRS) and to check whether it is fit for purpose,
- to build the core team in person and set out their roles, responsibilities and methods of communication,
- to identify medical and infrastructure experts (and check they are in the country and able to advise), and to discuss the risk appetite and establish clearly what success looks like.

In itself, an announcement by Government that it is getting the pandemic team together would help alert to the general public that a pandemic might be imminent and therefore alert companies and individuals to get prepared. This could have occurred in early January 2020.

### Lesson 3.2: Support and engage early with possible supply-chain risks and with the global response system, in particular with our neighbours in Australia and the Pacific.

It is difficult to know how well this worked in practice, but it is obvious that these relationships are critical in terms of managing the risks of spreading the disease (e.g. cruise ships and planes) and the supply of critical infrastructure and goods.

### Lesson 3.3: Re-establish the Epidemic Response Committee but under a new name – the Pandemic Response Committee.

The Epidemic Response Committee was established on 25 March 2020 to consider and report to the House on matters relating to the Government's management of the COVID-19 pandemic. It was a cross-party committee, chaired by the Leader of the Opposition. It consisted of 11 members in total, six of whom were Opposition members. This provided a mechanism that facilitated inquiry and debate, which was vitally important for public trust. The meetings were made accessible to the public by Zoom.

The Committee was set up the day New Zealand went into lockdown and Parliament was adjourned. The House agreed to disestablish the Epidemic Response Committee on 26 May 2020.[115]

In our view the committee should have been set up earlier than it was. MPs began discussing the potential pandemic on 23 January 2020. Further, the committee could have remained in existence longer. Tasks it could undertake include:

- set the purpose and scope of the Royal Commission of Inquiry
- select Commissioners
- produce a record or report of their observations for future parliamentarians faced with a pandemic and for the future Commissioners.
- undertake other areas of Inquiry
- accept and respond to the Report of the Royal Commission of Inquiry
- meet at least annually, as a precursor to a future pandemic.
- meet when WHO highlights a potential pandemic threat. Importantly for future pandemics, the re-establishment of the committee for a potential pandemic that does not eventuate is simply another opportunity to test our responses.

Recommendation 16: Parliament to establish the Pandemic Response Committee as a permanent committee of Parliament, ready to respond at any sign of a potential pandemic.

**What we have to bear in mind is the current beds available in New Zealand ICUs aren't empty and waiting for patients to get Covid-19, they are 80-90 percent full at all times so the amount of spare, available beds is low ... Overall, we have towards the lower end of the OECD in terms of ventilators per 100,000 of population.**

Dr Andrew Stapleton (26 March 2020),
Australian and New Zealand Intensive Care Society spokesperson[116]

# Part Four: The response when COVID-19 was inside New Zealand and risks were high

Purpose: When risks are high

New Zealand needs to focus on a bottom-up strategy; to hear and respond to the needs of citizens, and to communicate and work with the local community (while also watching international developments). The purpose should be:

(i) to protect the challenged and vulnerable

(ii) to build on local relationships and support local communities

(iii) to test water, track and trace, and provide cleaning and medical support.

## Key lessons

### I: Reporting and communication

Lesson 4.1: Prepare regular situational reports for the public record.

Lesson 4.2: Report monthly on the content of the National Reserve Supply.

Lesson 4.3: Monitor and combat misinformation, disinformation and fake news.

Lesson 4.4: Clear and consistent communication with the public.

### II: Economic situation and stimulus

Lesson 4.5: Report the financial impacts consistently, comprehensively and in a timely fashion.

Lesson 4.6: Manage a pandemic wage subsidy.

Lesson 4.7: Help small businesses survive a pandemic.

Lesson 4.8: Auckland deserves careful consideration.

### III: Protect, test, and trace

Lesson 4.9: MIQ system requires a rethink.

Lesson 4.10: Provisions should be made so people can continue to gather for funeral services, so close family and friends can provide support to those grieving.

Lesson 4.11: Invest in excellent track and tracing systems.

Lesson 4.12: Wastewater testing should be reviewed to assess the effectiveness, how it could be improved, and what its further capabilities are.

### IV: Vaccines and vaccination protocols

Lesson 4.13: The safety of vaccine administering should be prioritised alongside the goals of mass vaccination.

Lesson 4.14: Develop an effective immunisation register able to quickly cater for new vaccines.

Lesson 4.15: The vaccination rollout strategy should align with availability and level of immunity.

Lesson 4.16: Vaccine mandates should be used sparingly and require careful consideration.

### Lesson 4.1: Prepare regular situational reports for the public record.

Information was generated at a fast pace and it was distributed in bits, rather than comprehensively.

The holding of regular press conferences by the Prime Minister and others to update New Zealanders on the Government's response to COVID-19 was excellent.[117] But these were bite-sized pieces of information rather than an overview of the current situation and its relationship to the past and future. This type of reporting was missing.

It is critical that the Government record and report on the pandemic, both for people living through it at the time and for people looking back at history. We recommend that the Government undertakes this more regularly and effectively, for example, by publishing a report at the end of every calendar year and a national timeline of key events.

Please note, we have some sympathy for the urgency and complexity faced by those pulling the levers during a pandemic. However, we believe the Government could have created a role for a public historian to record events as they happened.

Our book *COVID-19 Nation Dates* was a response to our concern that record keeping was not being undertaken in a timely, consistent and integrated manner. We felt it necessary because many of the policy changes were being announced orally on the 1pm television broadcast, rather than in written media releases or reports as is usual when Government is operating in normal circumstances.

The Institute considered funding or undertaking an independent review of New Zealand's response in 2022, along the lines of the Australian report *Fault Lines: An independent review into Australia's response to COVID-19* (20 October 2022).[118] At the time, it seemed a better use of our time to prepare a comprehensive and referenced timeline, as any future review (and indeed an upcoming Royal Commission) would benefit from a detailed timeline. In 2024, the catalyst for this discussion paper was the Inquiry's public invitation to comment and a desire to update the 2023 copy of *COVID-19 Nation Dates*, as the task of recalling key events gets harder with time. The new edition of *COVID-19 Nation Dates* will cover events up to July 2024.

Interestingly, a number of media outlets, professional groups and NGOs started timelines of events. Many of these did not include references, had various ad hoc entries or were not broad in approach. Most of them petered out over time (as they are time-consuming to maintain) or were updated/replaced with summaries of events (such as the MOH timelines). We checked all of these against our entries as a matter of good practice, to ensure we did not miss anything. They were invaluable. We would like to acknowledge all those that kept timelines, in particular Radio New Zealand, the *New Zealand Herald* and the *New Zealand Doctor*.

Our objective with *COVID-19 Nation Dates* was to chronicle events and sort them into a useful sequence for future analysts to review, and future managers of pandemics (when they arrive) to refer to. We also provided complimentary copies to key players to invite their feedback and suggestions for the next edition. The second edition aims to record events one year after the first edition, and four years after New Zealand moved to Alert Level 3. It will provide a comprehensive list of key events, which means not only adding new events but tweaking or adding old events to make the history clear and concise.

In terms of a detailed review, the Institute will prepare a Project 2058 report on pandemics. This is a key report and will be published later this year. It will contain more detailed analysis than we provide here and will also explore the post-pandemic international context. In many ways we see this paper as a continuation of our previous work, and the Project 2058 report as the final report in our pandemic project.

Recommendation 17: The Pandemic Response Committee to require Situational Reports every quarter on the current COVID-19 pandemic, including WHO's risk assessment, and table these in the House.

### Lesson 4.2: Report monthly on the content of the National Reserve Supply.

The National Reserve Supply (NRS) has been developed to ensure that health services have continued access to specific critical supplies during large or prolonged emergencies that generate unusual demands on normal health service stocks or supply chains.[119] The NRS underwent a comprehensive review in 2023. The Institute has recently requested a copy of the report.[120]

In our view, New Zealand's NRS was ill-equipped to deal with the demand, especially in the early stages of the COVID-19 pandemic. The Institute strongly argued for monthly reports on the NRS during the pandemic. Given this did not happen, we, like many others, thought the numbers and quality of goods must be overinflated. In our view, this damaged the government's credibility. We consider regular independent audits of the NRS, such as by the OAG, would have helped reduce panic and fear.

The NRS should be detailed, including numbers, sizes, expiry dates and batches, and it should include hardware (such as ventilators) and cleaning equipment (since keeping medical staff safe is essential). The details should be independently verified (ideally by the OAG).

When there is a pandemic, reporting should be monthly with verification by an independent body every month, especially for critical items (e.g. PPE). Both the report and the verification/audit statements should be published monthly on the MOH website.

When there is no pandemic, the content should be reviewed annually based on the best medical advice, to ensure the New Zealand medical system is ready for any eventuality (influenza, COVID-19 or others). It should be published monthly on the MOH website, and audited every year.

**PPE is required in all shapes and sizes and must be good quality.**

In the beginning of New Zealand's management of COVID-19, there were issues with personal protective equipment (PPE). The management and communication related to PPE were at times misleading/misdirected.

In May 2020, in colloboration with the New Zealand Nurses Organisation (NZNO) and Stickybeak (a New Zealand survey platform), the Institute undertook a survey of nurses on access to PPE. We heard stories of PPE being locked away, of staff reusing PPE, and nurses living in caravans so they could keep their families safe. The survey noted:

> In early March 2020, the Institute was contacted by approximately 15 healthcare providers over two weeks (this included nurses, specialists and GPs) – all were concerned about the lack of PPE. When we asked why they were contacting us, they said they did not have anywhere else to go. Reasons why they did not want to speak to the media was they 'might lose their jobs', 'it would not be good for their career', 'it would not be appropriate' and/or 'they did not have a mandate'.
>
> [...]
>
> Recommendations [include]:
>
> [...]
>
> (iv) Publish a comprehensive composition of the NRS every month on the MOH website
>
> (v) During a pandemic, audit the composition of the NRS every month and make the audit statement public.
>
> (vi) Integrate and design 'a co-ordinated package' of PPE products and protocols, which then set minimum NRS stock levels and guarantee Aotearoa New Zealand manufacturing of critical PPE
>
> [...]
>
> (ix) Treat PPE as a uniform
>
> (x) PPE protocols should drive PPE inventory (not the other way around)
>
> [...]
>
> (xii) Guaranteed Aotearoa New Zealand production [of PPE]
>
> (xiii) Review and implement better cleaning regimes

[...]

To conclude, the Institute is concerned that lessons from this crisis will not be identified, and therefore not dealt with. Aotearoa New Zealand's healthcare system has, in colloquial terms, effectively 'dodged a bullet' and there will be forces that seek to retain the status quo and 'wallpaper over the cracks'. The borders may have been tested but the healthcare capability has not. The small number of cases that were able to spread within Aotearoa New Zealand proved that our healthcare capability was challenged (as indicated by the number of patients and nurses infected at various healthcare facilities). This is not a healthcare system success story.[121]

### A: Preparedness

In June 2020, the Controller and Auditor-General (OAG) published a report on the Ministry of Health's Management of personal protective equipment in response to COVID-19. [122]

The report found:

- '[T]here were gaps in the planning about how PPE would be procured and distributed to mitigate the risk of shortages.'
- 'The Ministry did not regularly review DHBs' plans to ensure that they were kept current and that they were well aligned with the Ministry's overall plans.'
- 'The gaps in the planning also meant that the Ministry was not well positioned to ensure that PPE was available in enough quantities throughout the country to meet the demand caused by the pandemic.'
- '[T]he Ministry did not know what PPE stock the DHBs held in their reserve supplies or have a system to forecast demand.'
- '[T]his system did not lend itself to effective procurement in a competitive and internationally constrained market for PPE in the midst of a pandemic.'
- 'Guidelines about who should use what PPE and in what circumstances evolved during the response, and communications about those guidelines caused confusion. The changes in guidelines also challenged assumptions about the amounts of PPE that would be needed.'
- To be sufficiently prepared in the future, the health and disability sector needs a clear understanding of what PPE is held where, [and] who it should be provided to.'[123]

### B: Supply

Additionally, the OAG report identifies the domestic manufacturer and supplier of masks that MOH contracted was Safety & Medical Manufacturers Limited, trading as Quality Safety (QSi). They manufactured N95 masks and general purpose (surgical) masks for the national reserve of PPE. This was to offset the risk of having difficulty procuring these masks internationally during a pandemic.[124]

In November 2019, the Ministry asked QSi to produce 4.5 million more general purpose masks. By 31 January 2020, QSi had manufactured 1.452 million masks and procured an additional 3.048 million masks from China.[125]

During April 2020, two DHBs told the Ministry about an issue with faulty N95 masks the Ministry had provided. QSi recalled 364,000 masks and checked them. Five thousand were rejected as unfit for use[.][126]

Between 1 January and April 2020, the Ministry went from having oversight of national reserve stock held by QSi in stores in three locations in the North Island to having multiple new domestic and international PPE suppliers and three different distributors supplying a large number of providers.[127]

### C: Transparency

Further, surveys on healthcare experiences revealed that 26.8% of respondents did not receive adequate PPE from their employer to do their job at all times. 'This led to respondents personally saving both new (31.2%) and used (25.2%) PPE, purchasing their own PPE (28.2%), and engaging in extended wear practices.' 24.4% were told not to wear PPE due to stock levels and because wearing PPE might create panic (e.g. 'It would scare the public if we wore masks').[128] Additional research found that healthcare workers felt that '[t]he need for transparency was closely related to notions of trust, or lack thereof, with appeals to "trust your staff [enough] to be honest with them."'[129]

The *Lancet* Commission on lessons for the future from the COVID-19 pandemic journal article made the following key findings with relation to global PPE:

> Coordination among governments was inadequate on policies to contain the pandemic, including [...] commodity supply chains, data standards and reporting systems, and advice to the public, despite the very high interdependence among countries.[130]

### Supply and expiry of COVID-19 stock

During the pandemic, effective management of testing supplies stock in New Zealand could have been improved. A well-coordinated approach to stock management could have mitigated shortages and ensured equitable distribution of supplies and prevented disposal of old product. In more recent months, there a lot of PPE has been wasted.

Examples of mismanagement of stock related to testing, PPE and other COVID-19 resource supplies include:

1. Approximately 18 million rapid antigen tests, worth an estimated $160 million, were set to expire in June 2023. Health Minister Dr Ayesha Verrall urged Te Whatu Ora to minimise waste through re-purposing or recycling the tests. The majority of these tests were purchased when there was a global shortage, and these uncertainties made it necessary to purchase in bulk. Verrall states that this is the same approach taken with the purchasing of vaccines and PPE.[131]
2. In November 2023, reports state that Te Whatu Ora is disposed of $286.8 million worth of expiring COVID-19 equipment. This includes RATs, masks and gowns and other PPE that have been stockpiled throughout the pandemic. The items were purchased 'as a form of insurance for the country' when supplies of equipment were difficult to come by. In August 2023, reports stated that the Ministry of Education had spent around $350,000 in storage costs for masks purchased for teachers and students.[132]
3. Te Whatu Ora figures revealed in November 2023 that approximately 3.47 million doses of COVID-19 vaccines have expired at national warehouses in 2023, including 1.7 million doses of the Novavax vaccine, and 1.4 million doses of the original Pfizer vaccine.[133]
4. In December 2023, Pharmac issued statement that the national supply of Paxlovid, the most widely used treatment for COVID-19 in New Zealand, is limited.[134] Chemists in northern areas of New Zealand either completely ran out, or were running low. Close to 20,000 courses of Paxlovid arrived on 14 December 2023 and were fast tracked for distribution, while Pharmac stated it is trying to secure more stock for March or April 2024.[135] On 5 January 2024, Pharmac states that the supply issue was resolved.[136] However, on 11 April 2024, Pharmac makes an update that one batch of Paxlovid has expired and instructs any pharmacies with stock of this batch remaining to destroy it.[137]

### The OAG recommendations

The OAG report recommended that future health emergency planning frameworks need to contain specific guidance about responsibilities for procuring and distributing personal protective equipment.[138] It is clear that the PPE framework used in New Zealand was weak. Lockdowns allowed the Government a buffer to increase supplies of PPE by the time of the transition from an elimination strategy to a suppression strategy – where people and COVID-19 were out in the community and things like access to masks were highly important. Further, the OAG report recommended that the MOH and the district health boards strengthen the procurement strategy by including an analysis of risks to the supply chain and have a plan to address those risks.

Further, the MOH's reliance on one domestic manufacturer made New Zealand extremely vulnerable to supply-chain risks. Multiple companies should be contracted to ensure the domestic supply of PPE would remain stable in the face of future pandemics and supply chain issues. The manufacturing companies should also have their factory visited and stock reviewed annually (e.g. proof of concept).

A 2022 Mixed-Methods Survey of Healthcare Workers' Experiences of Personal Protective Equipment during the COVID-19 Pandemic in Aotearoa/New Zealand found that healthcare workers reported a considerable number of non-recommended practices regarding PPE, as well as a high prevalence of mental health concerns. 'PPE was reused and saved in the case of running out.' The report concludes that healthcare worker safety 'should be paramount, with clear communication regarding PPE use and supply being a key priority'.[139] Healthcare workers sat at the frontline of putting themselves and their families at risk of COVID-19, and they should not only be safe, but feel safe through honest transparent communication.

**The *Lancet* Commission recommendations:**

> Countries should strengthen national health systems on the foundations of public health and universal health coverage, grounded in human rights and gender equality. Strong public health systems should include [...] robust medical supply chains;
>
> [...]
>
> In addition to strengthening health systems, each country should determine and expand national pandemic preparedness plans to prevent and respond to newly emerging infectious diseases. Preparedness plans should include [...] robust health-commodity supply chains (eg, personal protective equipment, diagnostics, therapeutics, and vaccines).[140]

Recommendation 18: The Pandemic Response Committee to review the 2023 comprehensive review, ask questions and approve the (i) description of the contents, (ii) quantity of stock and (iii) reporting requirements.

### Lesson 4.3: Monitor and combat misinformation, disinformation and fake news.

Propaganda in the face of a crisis is not new, but the phenomenon is amplified in the digital age of social media. A significant and ongoing effect of COVID-19 in New Zealand (and internationally) has been the rise of misinformation, disinformation and fake news. To an extent, this was already present but was strongly exacerbated by the pandemic.

The extent of this unrest was highlighted by the government in 2020:

> A key focus of the public health response has been countering misinformation, rumour and disinformation. The strategy to respond is guided by four key ideas: rapid intervention to provide an alternative to the mis/disinformed narrative; an inclusive approach that recognises audience diversity; seeking media/social media agreement to slow/stop the spread of inaccurate information; and direct engagement that is respectful and culturally appropriate, encourages participation, and empowers through dialogue[141]

Terms associated with various kinds of misleading information arose as the phenomenon became more widespread on social and alternative media. These terms can be differentiated by the degree of intention behind the spread of information (mis- and disinformation) and the form in which the information is presented (fake news).

**Definitions of terms associated with false information**[142]

**Disinformation:** 'deliberately misleading or biased information; manipulated narrative or facts; propaganda.'

**Misinformation:** 'false information that is spread, regardless of whether there is intent to mislead.'

**Fake news:** 'false stories that appear to be news, spread on the internet or using other media, usually created to influence political views or as a joke.'

Significant effects have arisen directly from the spread of misinformation, disinformation and fake news, often culminating in widespread paranoia and conspiracies. In New Zealand, a lot of this was present in the communities that occupied Parliament grounds in early 2022.

International governmental efforts have been directed at combatting misinformation, disinformation and fake news.[143] However, this is a difficult exercise as overt control of the spread of information risks compromising rights of freedom of expression. In New Zealand, this right is enshrined in the New Zealand Bill of Rights Act 1990, s 14:

> Everyone has the right to freedom of expression, including the freedom to seek, receive, and impart information and opinions of any kind in any form.

Walking the line between, on the one hand, ensuring credible and reliable information is distributed to the public and, on the other, respecting freedom-of-expression rights remains a difficult endeavour in the age of social media and the internet. Conversations are needed around the appropriate and proportionate responses of governments to the seriously detrimental effects of active and malicious spreading of misleading information.

In the face of mistrust in government, and the inevitability of future pandemics, key stakeholders who are separate from Government hold a lot of sway in building trust and/or distrust. For example, Māori leaders were instrumental in engaging with and distributing messaging to their audiences, successfully raising Māori vaccination rates. At the same time, Pentecostal churches, such as Destiny Church, have been at the forefront of the opposition to COVID-19-related Government restrictions. Among their messaging, they have 'proclaimed COVID cannot survive in the bodies of the faithful, declared a link between the virus and 5G mobile technology, and maintained the pandemic is God's yardstick for distinguishing his loyal servants from pretenders'.[144] The Catholic Church, in response to the morality and ethics of the COVID-19 vaccine, released a statement from the Pope stating: 'it is morally acceptable to receive Covid-19 vaccines that have used cell lines from aborted fetuses in their research and production process' and 'all vaccinations recognized as clinically safe and effective can be used in good conscience with the certain knowledge that the use of such vaccines does not constitute formal cooperation with the abortion from which the cells used in production of the vaccines derive'.[145]

Recommendation 19: Government to create or empower a government institution to monitor social media for disinformation. This will need to be done in a transparent manner with a very specific set of rules and reporting requirements to ensure this is only ever undertaken in the best interests of society's long-term wellbeing. The terms of reference would need to be public. We also suggest the title of Minister for Media and Communications be modernised to become the Minister for Communications, News and Multimedia Platforms.

### Lesson 4.4: Clear and consistent communication with the public.

Governments all over the world were faced with the task of communicating clearly to discourage misinformation, increase public trust and stop panic and social division. In New Zealand, the Government succeeded in consistently sharing daily information with all New Zealanders in an easily understood way. Daily televised 1pm briefings worked well, as did daily updates of COVID-19 cases. This daily communication came from a small number of people (e.g. Jacinda Ardern, Ashley Bloomfield, Shaun Hendy and Siouxsie Wiles), which meant New Zealanders developed relationships with them, grew comfortable with the messaging, and felt reasonably well informed. The role of the media is also very important during crises, and it was critical for media to have the opportunity to question information presented by the Government and represent a variety of different viewpoints.

In the early days of the pandemic, this consistent communication established a sense of unity, heightened by messaging around the 'team of 5 million,' and looking out for your neighbour. However, the messaging also provoked fear and anxiety as people grew very afraid of contracting COVID-19, to the point that the first people affected by the virus were sometimes 'outcast' from their community. This had very negative mental health impacts on those who were isolated due to testing positive, and led to immense guilt and other negative feelings if they passed on the infection to friends and family (such as grandparents). The uncertainty about how COVID-19 was transmitted added to this.

However, as the pandemic developed and vaccine mandates were introduced, so did concerns about the Government's public messaging. The communication around getting vaccinated 'for New Zealand' meant those who did not get vaccinated were colloquially called 'anti-vaxxers' or 'conspiracy theorists', even when medical, religious or other legitimate reasons prevented them from choosing to receive the vaccine.[146] This caused social divisions by sharply splitting communities into those who were vaccinated and those who were 'anti-vax'. This division led to a number of protests across the country.

Communication could have emphasised that everyone has unique health and personal circumstances, and it is important to be kind to everyone, regardless of their vaccination decision. People should be educated and then given support to choose the medical risks they decide to take for themselves (and their children) according to their own circumstances and risk appetite, without receiving public judgement or backlash, or not being allowed to participate in society. It is understood there is always a balance to be struck between encouraging people to receive a vaccine and ensuring people do not feel pressured to make a decision they are uncomfortable with; however, with the right education people should have the freedom to make their own decisions.

As part of the Government's response to COVID-19 arriving in New Zealand, clear communication to the New Zealand public about both the virus and the new regulations imposed was vital in ensuring all people understood what was occurring.

As both the virus and the regulations that transpired were novel, it was important to clarify and standardise the terminology and definitions used, to ensure people were aware of how to act.

The communication strategies used by the Government and political leaders were a major strength of New Zealand's COVID-19 response. However it is important to note that in March 2020, a group of 50 of New Zealand's leading infectious disease and public health scientists felt the need to publish a joint statement in the *New Zealand Medical Journal*, urging political leaders to resist the temptation to scaremonger in an attempt to score points in the media.[147]

> Although it is election year, we urge politicians resist the temptation to scaremonger in an attempt to score points in the media. Instead, they should use their moments in the spotlight to amplify messages of our health system's preparedness and how New Zealanders can individually make a difference at this critical time. A crossparty parliamentary task force on COVID-19 could be one way to ensure this cooperation happens in a timely and productive fashion.

The level of fear around COVID-19 is high. New Zealanders are being bombarded with information and misinformation about this new viral disease. When people are scared or ill-informed, they aren't at their best. When they are well-informed they can make a huge difference both as individuals and as members of the wider community. This is very true with COVID-19, where every person practising good hygiene and cough etiquette can radically impact the spread of this disease. If the virus spreads further throughout our communities, and authorities ask people to limit social contact and self-isolate, cooperation with these necessary measures will play a crucial role in minimising COVID-19's spread and protecting the most vulnerable among us.[148]

**Key takeaways:**

1. **Terminology was implemented quickly and stayed consistent.**

   Words such as 'bubble' and 'lockdown' were used in the first stages of mass communication. People understood what these words referred to and the requirements implied.

2. **The terminology used was easily digestible for a diverse range of people.**

   The words used were not overly technical or requiring a previous knowledge of public-health terminology.

3. **Methods of communication were diverse.**

   Formats like posters, TV advertisements, social media, and regular press briefings were employed. The briefings were particularly helpful in that they broadcast media questioning. This allowed for potential confusions to be addressed.

   The *Briefing to Incoming Ministers: COVID-19 Overview* (dated 2 November 2020) expresses the following insights:

   **Public communications and engagement**

   Public communication and engagement play a crucial role in the Government's response to COVID-19. The public communications response is led by DPMC's COVID-19 Group[.]

   Supporting mass compliance with the Alert system rules has been the primary communications objective. This has been achieved by effectively mobilising the wider capacity of government, local government and core partners' communications, along with the DPMC COVID-19 Group maintaining a range of channels, especially the Covid19.govt.nz website, paid advertising and social media. The Unite Against COVID-19 campaign has been a significant part of the response, providing a pathway for decisions to be communicated directly to the public. Key policy changes are simplified, translated, and disseminated to people in New Zealand through these channels, which has generated high levels of voluntary public compliance.

   A key focus of the communications approach has also been to counter misinformation, rumour and disinformation. Additionally, the challenges of fatigue and other psychosocial and economic impacts may begin to erode compliance at all Alert Levels.

   It will be important to maintain an active public communications campaign for the foreseeable future, and to utilise the campaign and wider channels to increasingly support economic and social resilience and recovery from the impacts of COVID-19.

   [...]

   - During Alert Level 4 each post reached two million people on average. Official social media sites have received more than 210,000 comments and messages.
   - The Covid19.govt.nz website has become the authoritative source of information for people in New Zealand, and has been visited more than 21.5 million times.

   Iwi and Māori organisations play a key role in engaging and distributing key messaging to their audiences, this includes providing targeted audience-centric engagement and communications. [...] The Ministry for Pacific Peoples (MPP) led a cross agency communications initiative to ensure Pacific communities and Pacific stakeholders can easily access accurate information, including translated content, to increase their understanding of government announcements, guidelines and support available to them.[149]

Recommendation: No recommendation as this can be embedded into the new planning documents.

### Lesson 4.5: Report the financial impacts consistently, comprehensively and in a timely fashion.

It is unclear to what extent the pandemic caused supply shocks and demand shocks. Many argue there was a combination of both.

Treasury states that 'the COVID-19 Response and Recovery Fund (CRRF) was central to managing the government's financial response to address the evolving health, social and economic issues facing New Zealand during the COVID-19 pandemic from 2020 to 2022'. The final total for the CRRF was $61.6 billion (see Figure 4.1).

> The CRRF was established in Budget 2020 as a temporary fiscal management tool to support New Zealand's response to and recovery from COVID-19. Rather than being an actual sum of money ring-fenced by the Government, it was a funding envelope for budget management purposes that provided an indication of what the Government would be willing to spend, if necessary, to mitigate the impacts of COVID-19 on the health of New Zealanders and the economy.
>
> The CRRF was closed in Budget 2022. Some initiatives are still underway and will be managed through standard fiscal management processes as COVID-19 response and recovery measures are now integrated into standard public service delivery.
>
> The final size of the CRRF at its closure in Budget 2022 was $61.6 billion*, of which $58.4 billion had been allocated. This left a balance of $3.2 billion, which was repurposed with:
>
> - $1.2 billion set aside for any immediate COVID-19-related public health needs that could not wait until the next Budget cycle
> - $1.0 billion, or $250 million per annum, to offset investments funded from the Budget 2022 operating allowance, and
> - $1.0 billion for a package of measures to support low- to middle-income New Zealanders to manage the rising cost of living.[150]

The CRRF was established following the $12.1 billion package provided to support the initial response to COVID-19 (also shown in Figure 4.1).

Figure 4.1: Key movements in the size and balance of the COVID-19 Response and Recovery Fund[151]

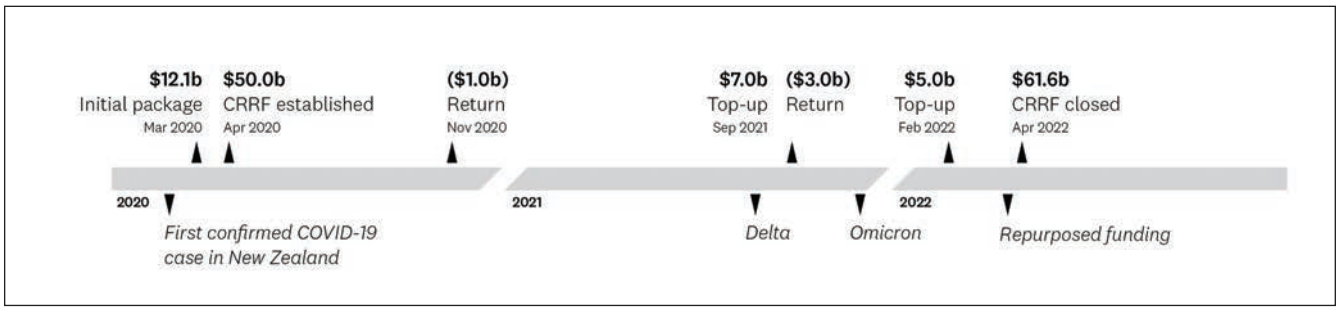
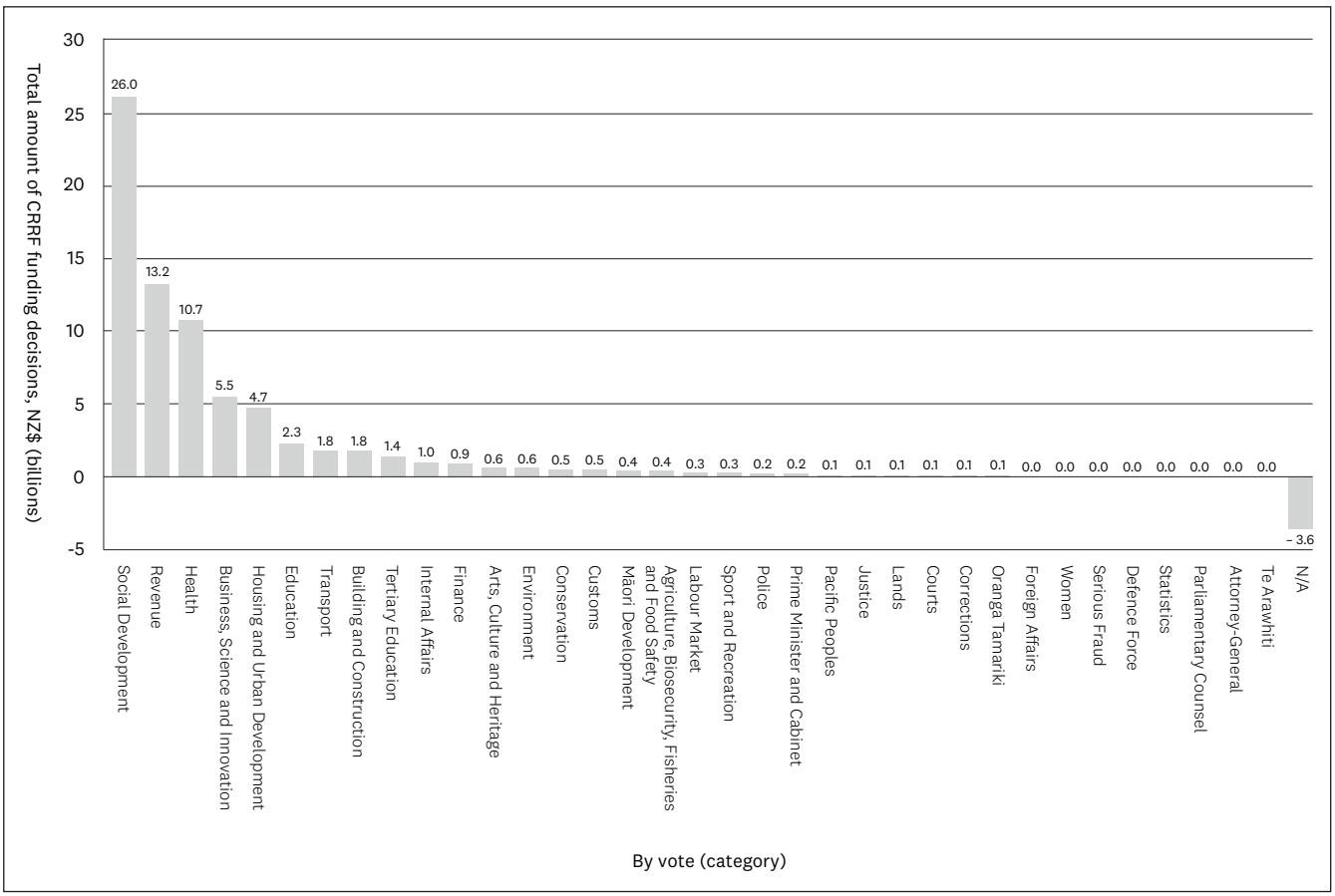


Figure 4.2: Fiscal impact of CRRF funding decisions by Vote ($70.4 billion)[152]




The Institute has concerns about the quality and timing of reporting and the fact that there was little consistent reporting for the general public. At the moment it is not easy to make an assessment of the fiscal strategy in response to the pandemic.

Lessons for those dealing with the next pandemic include:

- Set up a response and recovery fund immediately (and ideally regularly review the criteria as the process will apply to the many different types of crises New Zealand will face).
- Prepare a detailed six-monthly report for the general public on the operation of the fund. Our concerns relate to consistency, timeliness and comprehensiveness.
- Set a fixed limit for each six-month period. We consider there would have been some benefit in an actual sum of money being ring-fenced rather than a funding envelope approach.
- Report on the types of expenditure (although there are categories found on Treasury's website (see Figure 4.2), they are only data, not information). It currently requires someone with data analysis skills to analyse this data and turn it into meaningful information.
- Monitor and compare policy instruments and institutions with other countries. We consider the IMF work in comparing fiscal measures by country was very insightful (see Figure 4.4).
- The financial strategy for the COVID-19 pandemic seemed to focus on employment (a short-term approach) rather than investing in long-term assets and infrastructure. The report by the IMF shows the many different financial responses by countries. Our view, although it is not easy to evidence, is that New Zealand may have doubled down on the same strategy throughout the whole pandemic rather than adapting it over time. Arguably, the Government did not deviate or look at other strategic options; rather it added to the existing strategy rather than adapting it to suit the changing circumstances (i.e. to add, replace, remove or reduce protocols).

One of the risks, in a time of crisis, it is to overspend and make short-term decisions that deliver long-term negative impacts or, in some cases, unintended consequences. This needs to be analysed and understood before the next pandemic. We have seen very little detailed analysis, hence our recommendation below.

### Did New Zealand suffer a supply or demand shock, or both?

The Institute was unable to find a detailed analysis of the extent to which our economy was impacted by supply shocks, demand shocks or both. Our understanding is that it is important to use policies that suit the type of shock, otherwise it is easy to amplify the shock as an unintended consequence. This 2022 article on India sets the scene:

> **From the result of empirical analysis, it can be concluded that the immediate impact of the economic pause and breakdown of supply chains (domestic as well as international) as a result of COVID-19 was massive supply shocks to the output and price inflation of India in April 2020, at the macro and industry levels.** Subsequently, some industries and the macro economy started being subjected to negative demand shocks, in addition to the negative supply shock which was relatively milder in May and June 2020. Demand shocks to output were positive in some industries like the manufacture of food products (10), textiles (13), chemicals and chemical products (20), and electrical equipment (27). The magnitude of the demand and supply shocks varied across industries, and supply was inelastic in many industries. Though the IIP of many industries started depicting a V-shaped recovery from the supply shocks by June 2020, policy intervention became necessary, not only to mitigate the impact of the lockdown but also to immunise industries from such shocks in future. The government attempted to deal with the short-term credit needs of the stressed industries and to make them self-reliant and resilient to such shocks through its ABA policy. The efficacy of the ABA policy in addressing the economic crisis will unfold only over a period of time. The present study covered only the peak period of the first wave of the COVID19 pandemic. **The economic impact of the second wave of the pandemic, when lockdowns were localised and minimum disruptions were caused to the regular functioning of these industries, can be explored through further research.** [bold added][153]

A 25 February 2022 speech by Adrian Orr, Governor of the Reserve Bank, noted:

> In New Zealand, fiscal support for bolstering aggregate demand was welcomed by the [Monetary Policy Committee], given the size and pace of the economic shock, the ongoing environment of low nominal interest rates, and some of the specific supply-side effects of the health management actions. The bulk of the fiscal impulse created by the government's response to the COVID-19 pandemic is now behind us (see figure 6). Treasury's current outlook suggests that fiscal policy is expected to be less stimulatory on aggregate over coming years and, as such, add less to the economy's aggregate demand ...
>
> Our review process – which is now underway – has two parts:
>
> - a backward looking review and assessment of monetary policy performance over the last five years, which will consider how monetary policy performed during the pandemic period; and,
> - the formulation of 'remit advice' for the Minister of Finance on whether we believe there are any changes required to the remit when it must next be renewed ... We are legally expected to deliver our advice no later than November 2023.[154]

As of 2023, the fiscal effects are considered to be ongoing. The Reserve Bank's Financial Stability Report states:

> Banks' funding and liquidity positions also remain strong, with ample deposits to accommodate current lending growth rates, and a high level of liquid assets in the banking system reflecting the ongoing effects of the pandemic-related stimulus programmes.[155]

In terms of managing public funding in an emergency response or recovery OAG shares the following observations:

> In emergency response and recovery situations, funding and purchasing decisions often need to be made quickly, while still ensuring transparent and accountable decision-making, getting value for money, and acting lawfully.[156]

Recommendation 20: Treasury should prepare a report on the financial strategy applied by the New Zealand Government in terms of its response to the pandemic, including outlining strategies that were rejected or adapted (such as those applied by other countries) and the types and timeframes of the demand shocks and the supply shocks (we expect both occurred). The report should look at the short- and long-term impact of those approaches (e.g. investing in hospitals versus employment); and the output versus the outcome. Most importantly, it should specify what it would do differently given what can be seen by comparing New Zealand's financial response with that of other countries. It would also be useful for the OECD or IMF to undertake an independent report on New Zealand's fiscal measures in response to the pandemic. There is no doubt that the measures taken in New Zealand will be felt for many years to come.

Figure 4.3: Total CRRF funding decisions by financial year ($86.8 billion)[157]

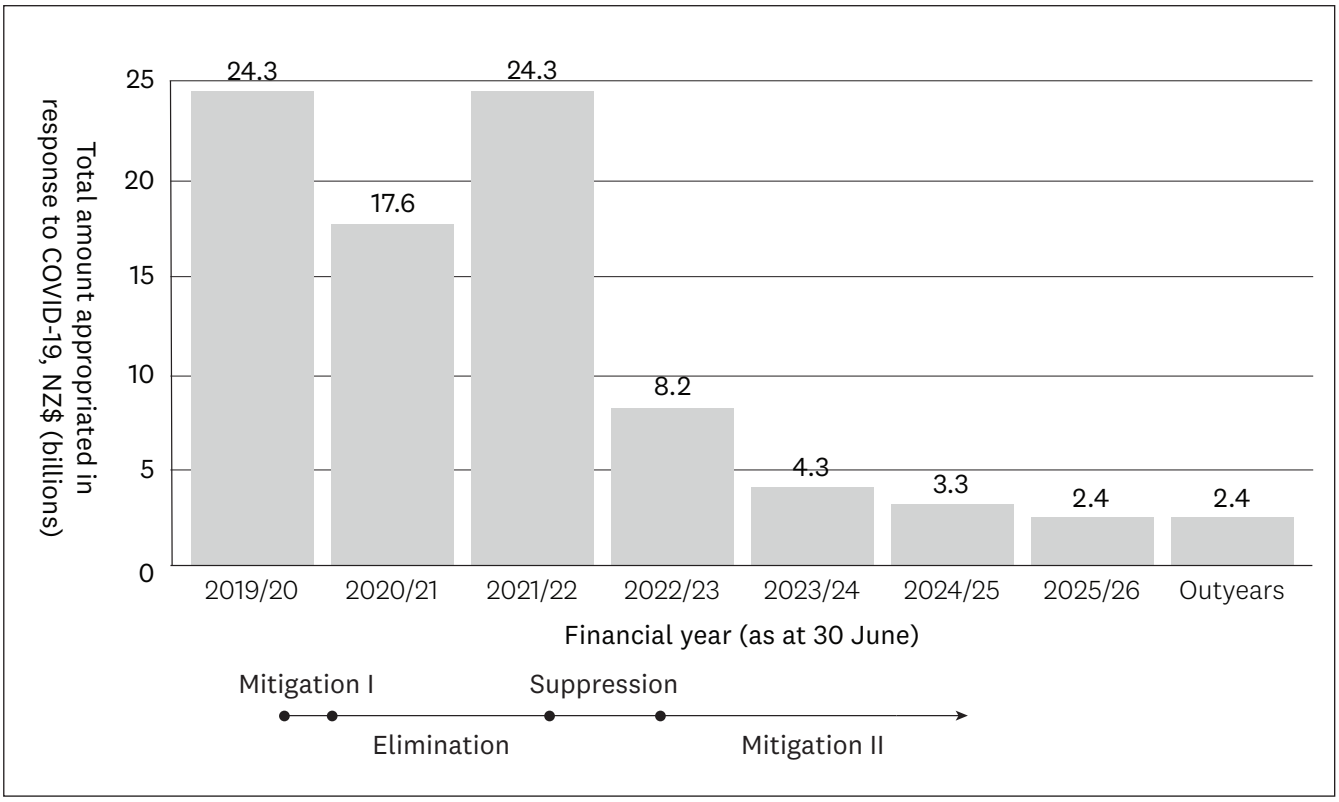
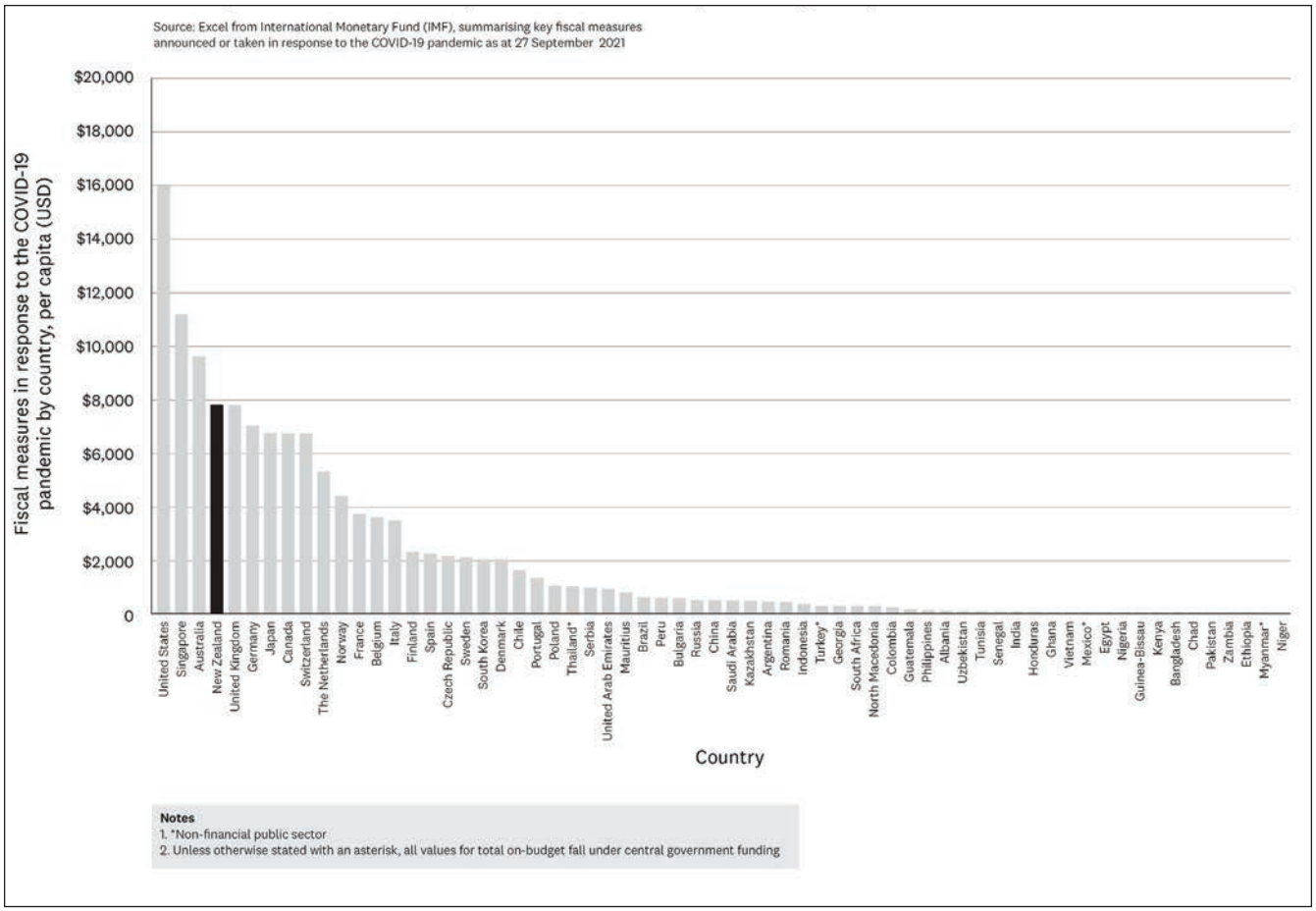


Figure 4.4: Fiscal measures in response to the COVID-19 pandemic by country, per capita (USD)[158]




Given the uncertainty around the economic outlook, and that the evolving impact of the COVID-19 pandemic was likely to progressively result in widespread impact on the Government's finances,[159] it was good to see that the Treasury collected updated fiscal forecasts from a much wider than usual group of agencies. This is similar to the process for preparing a Half Year Economic and Fiscal Update (HYEFU) or Budget Economic and Fiscal Update (BEFU). This led to the publication of Treasury's weekly COVID-19 Economic Dashboard from 17 April 2020 to 24 July 2020.[160] However it would also be good to see some more detailed analysis.

### Lesson 4.6: Manage a pandemic wage subsidy.

The COVID-19 wage subsidy remains the most significant use of taxpayers' funds during the pandemic. Notably the government investment in the health sector as a result of COVID-19 was 15% of the business support subsidy ($2,705 million/$17,996 million). See Table 4.1.

Table 4.1: Cumulative expenditure incurred from 2019/20 to 2021/22 against appropriations related to the most significant COVID-19 initiatives[161]

| Appropriation Name | Actual $m | Percentage |
|---|---|---|
| Business Support Subsidy COVID-19 | 17,996 | 59.1 |
| COVID-19 Resurgence Support Payment | 2,912 | 9.6 |
| National Response to COVID-19 Across the Health Sector | 2,705 | 8.9 |
| Small Business Cashflow Scheme COVID-19 | 2,263 | 7.4 |
| Implementing the COVID-19 Vaccine Strategy | 1,709 | 5.6 |
| Isolation and Quarantine Management | 1,568 | 5.1 |
| COVID-19 Support Payment | 1,307 | 4.3 |
| **Total** | **30,460** | **100** |

The wage subsidy system was controversial and was taken advantage of by a number of companies and individuals (see a copy of the declaration form in Appendix 3 and a selection of legal judgments in *COVID-19 Nation Dates*). It was only after wide public and media scrutiny that some highly profitable companies repaid the wage subsidy. Provisions could have been added to the subsidy that required companies who would go on to make a profit of X% more than the previous years to retrospectively repay the subsidy. In the early panic of the pandemic, the subsidy brought some businesses comfort and allowed staff to be paid. However, there should have been strict conditions on the use of the subsidy, including that it should have been paid back in some situations, and should have been included in annual reports and on a public register.

There are some anecdotal stories of companies taking out the subsidy and not passing on the full amount to their employees (but we have no evidence of this). By paying the employee what they would usually receive rather than the full amount of the subsidy, companies could keep the extra amount as spare cash to use as they wished.

The subsidy was funded publicly and thus transparency is critical. A requirement of accepting the subsidy should have been reporting it in annual reports by financial year or in financial statements via the External Reporting Board (XRB). The register should have required the official name of the company and business number and been linked to the Companies Register. A COVID-19 Wage Subsidy certificate showing the receipt and conditions could also be added retrospectively to the Companies Register. Many companies took the subsidy and went on to report high profits (showing they could have afforded to continue paying their employees), such as NZKS (see case study below).

If wage subsidies are to be used, they need a more transparent, aligned and accurate system in place.

Our view is that the Ministry of Social Development (MSD) reports[162] fail to provide any significant insights or recommendations on how the COVID-19 wage subsidy scheme could have been better implemented, managed, verified and analysed in a more timely fashion going forward. It is surprising and concerning that such a significant amount of taxpayer money was spent without normal oversight and verification. In our view, given the amount of public money spent on the subsidy, Cabinet (and officials) should have demanded a higher level of transparency and timely analysis.

The best review, although it is dated, is the OAG May 2021 report.[163] Page 6 of the report sets out the following recommendations (see below). We are unsure to what extent these have been followed, but they seem very appropriate.

> We recommend that, when public organisations are developing and implementing crisis-support initiatives that approve payments based on 'high trust', they:
>
> 1. ensure that criteria are sufficiently clear and complete to allow applicant information to be adequately verified; and
> 2. put in place robust post-payment verification measures, including risk-based audits against source documentation, to mitigate the risks of using a high-trust approach.

In relation to the Wage Subsidy Scheme, we recommend that the Ministry of Social Development:

3. test the reliability of a sample of the post-payment assurance work it carried out against documentary evidence held by applicants; and
4. prioritise remaining enforcement work, including:
   - seeking written confirmation from applicants (which could be targeted towards larger or risk-indicated applicants) of compliance with the eligibility criteria and the obligations of receiving the subsidy; and
   - pursuing prosecutions to recover funds and/or to hold businesses to account for potentially unlawful behaviour.

We recommend that the Ministry of Social Development, the Inland Revenue Department, the Ministry of Business, Innovation and Employment, and the Treasury:

5. carry out timely evaluation of the development, operation, and impact of the Wage Subsidy Scheme and use the findings to inform preparation for future crisis-support schemes.

Recommendation 5, in our view, has still not occurred.

One example of a large company taking advantage of the wage subsidy is New Zealand King Salmon (NZKS). NZKS received a wage subsidy totalling $3,771,976.80[164] over the pandemic; however, the company has gone on to report a 'FY24 net profit for the year of $28.5 million, compared to a net profit for the year of $1.9 million in FY23'.[165, 166]

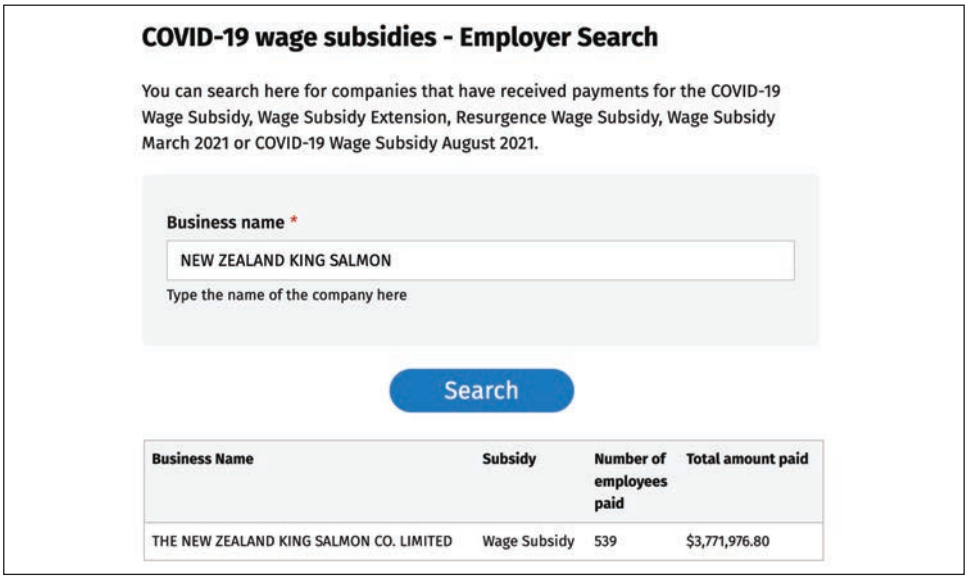
The wage subsidy declaration (see Appendix 3) was dependent on a high trust model, without the necessary penalties and administration that are essential when considering putting in place a high trust model. Many companies legitimately claimed the subsidy but then went on to make significant profits shortly afterwards. Others reconsidered the appropriateness of their claims and returned the subsidy to the Government.

Figure 4.5 shows the information all three registers contain and illustrates the lack of rigour in the COVID-19 wage subsidy. Of note:

1. The wage subsidy is in total and not by financial year or even calendar year.
2. The date/s the subsidy was issued were not included (and if money was returned this should also have been included).
3. The Company, The New Zealand King Salmon Co. Limited, is a subsidiary of New Zealand King Salmon Investments Limited. This information was not included.
4. Our understanding is that the subsidiary is not required to publish its annual reports in the public arena. This further supports the need for transparency.
5. The NZBN information was not included.
6. The company number was not included.
7. The company name does not include the name of the ultimate holding company (which is the NZX listed name).
8. The company address was not included.
9. The directors' names were not included.
10. The date that the company was registered was not included.
11. The company website was not included.
12. The industry classification/s were not included.

## Figure 4.5: Comparing registers using New Zealand King Salmon as a case study

### A: COVID-19 wage subsidies - Employer Search[167]



**COVID-19 wage subsidies - Employer Search**

You can search here for companies that have received payments for the COVID-19 Wage Subsidy, Wage Subsidy Extension, Resurgence Wage Subsidy, Wage Subsidy March 2021 or COVID-19 Wage Subsidy August 2021.

Business name *

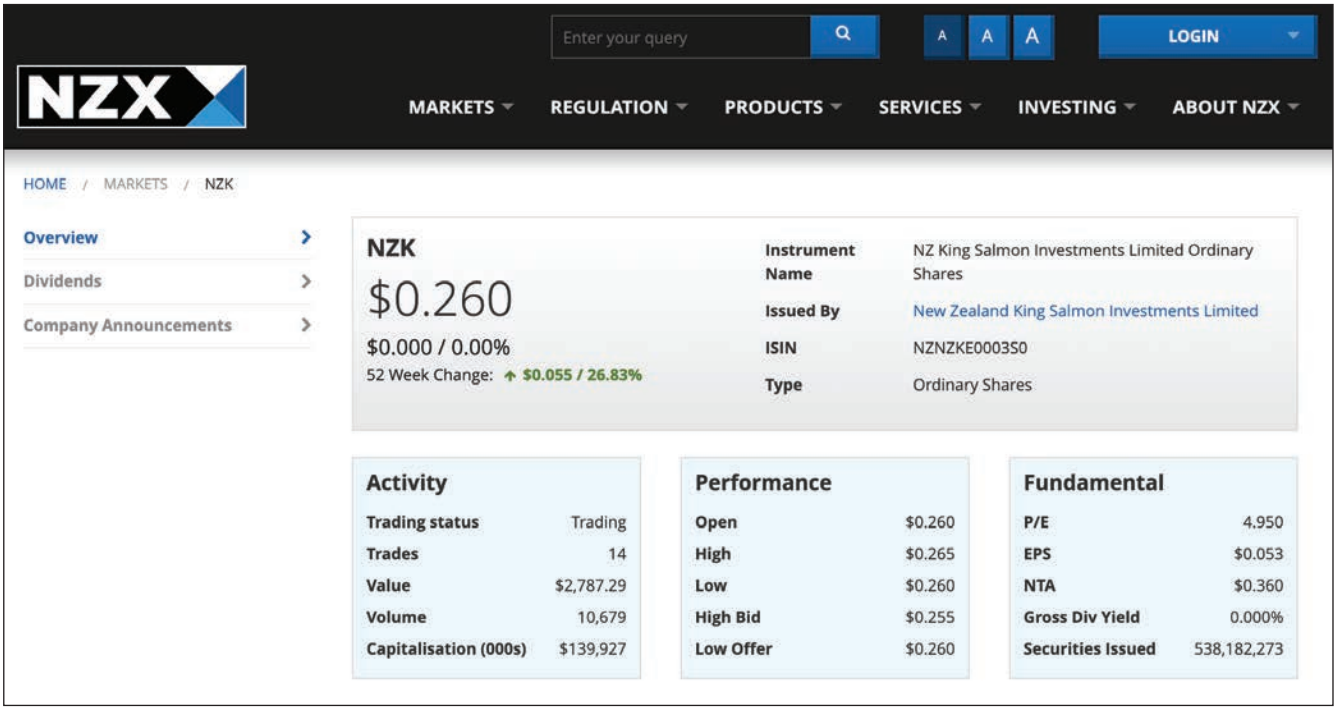
NEW ZEALAND KING SALMON

Type the name of the company here

Search

| Business Name | Subsidy | Number of employees paid | Total amount paid |
|---|---|---|---|
| THE NEW ZEALAND KING SALMON CO. LIMITED | Wage Subsidy | 539 | $3,771,976.80 |

### B: NZX[168]



Enter your query

A A A LOGIN

NZX

MARKETS REGULATION PRODUCTS SERVICES INVESTING ABOUT NZX

HOME / MARKETS / NZK

Overview

Dividends

Company Announcements

**NZK**

$0.260

$0.000 / 0.00%

52 Week Change: ↑ $0.055 / 26.83%

| | |
|---|---|
| Instrument Name | NZ King Salmon Investments Limited Ordinary Shares |
| Issued By | New Zealand King Salmon Investments Limited |
| ISIN | NZNZKE0003S0 |
| Type | Ordinary Shares |

**Activity**

| | |
|---|---|
| Trading status | Trading |
| Trades | 14 |
| Value | $2,787.29 |
| Volume | 10,679 |
| Capitalisation (000s) | $139,927 |

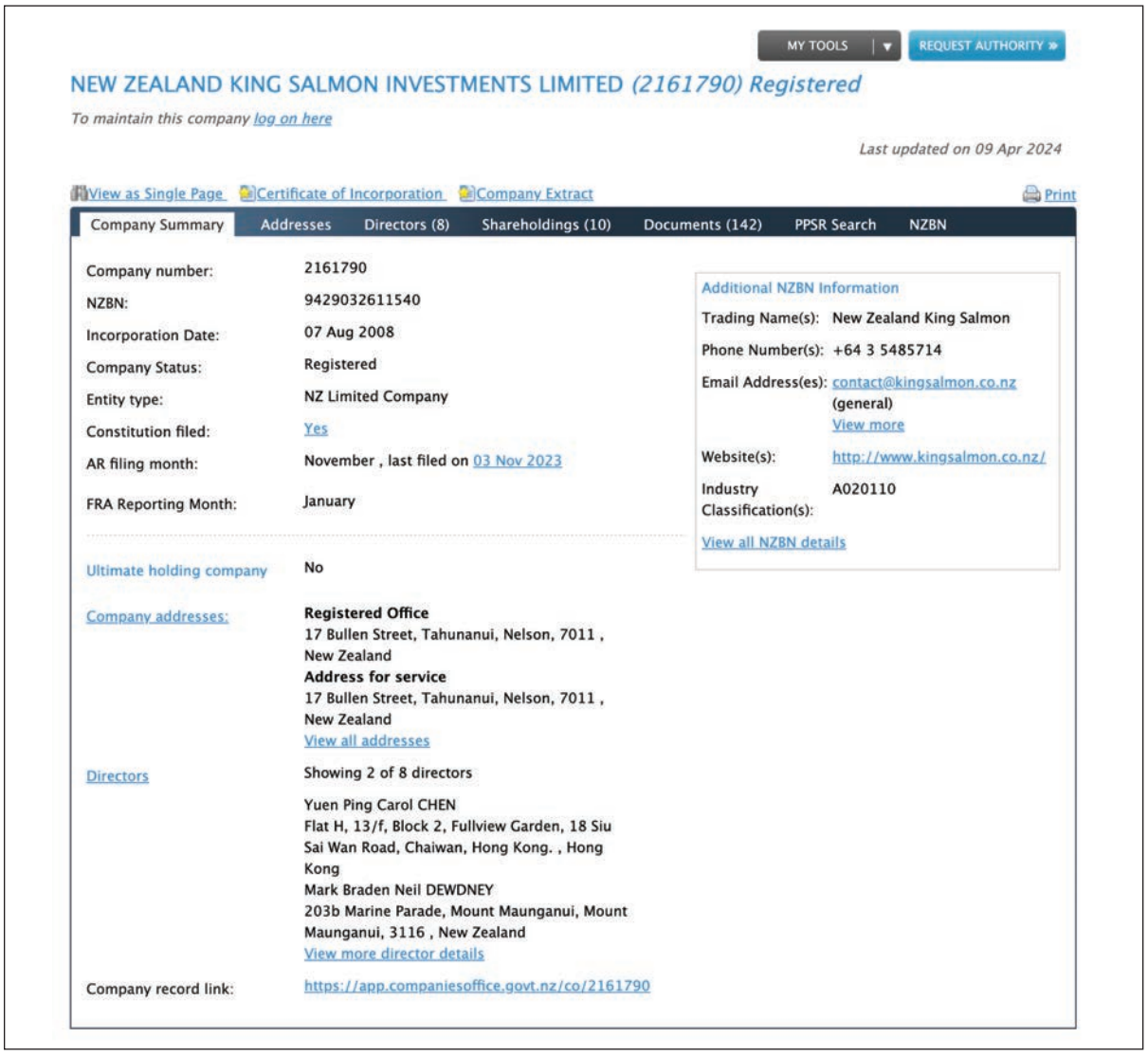
**Performance**

| | |
|---|---|
| Open | $0.260 |
| High | $0.265 |
| Low | $0.260 |
| High Bid | $0.255 |
| Low Offer | $0.260 |

**Fundamental**

| | |
|---|---|
| P/E | 4.950 |
| EPS | $0.053 |
| NTA | $0.360 |
| Gross Div Yield | 0.000% |
| Securities Issued | 538,182,273 |

### C: MBIE: Companies Register[169]



MY TOOLS | REQUEST AUTHORITY »

NEW ZEALAND KING SALMON INVESTMENTS LIMITED *(2161790) Registered*

*To maintain this company log on here*

*Last updated on 09 Apr 2024*

View as Single Page | Certificate of Incorporation | Company Extract | Print

Company Summary | Addresses | Directors (8) | Shareholdings (10) | Documents (142) | PPSR Search | NZBN

| | |
|---|---|
| Company number: | 2161790 |
| NZBN: | 9429032611540 |
| Incorporation Date: | 07 Aug 2008 |
| Company Status: | Registered |
| Entity type: | NZ Limited Company |
| Constitution filed: | Yes |
| AR filing month: | November , last filed on 03 Nov 2023 |
| FRA Reporting Month: | January |
| Ultimate holding company | No |
| Company addresses: | **Registered Office**<br>17 Bullen Street, Tahunanui, Nelson, 7011 , New Zealand<br>**Address for service**<br>17 Bullen Street, Tahunanui, Nelson, 7011 , New Zealand<br>View all addresses |
| Directors | Showing 2 of 8 directors<br>Yuen Ping Carol CHEN<br>Flat H, 13/f, Block 2, Fullview Garden, 18 Siu Sai Wan Road, Chaiwan, Hong Kong. , Hong Kong<br>Mark Braden Neil DEWDNEY<br>203b Marine Parade, Mount Maunganui, Mount Maunganui, 3116 , New Zealand<br>View more director details |
| Company record link: | https://app.companiesoffice.govt.nz/co/2161790 |

Additional NZBN Information

| | |
|---|---|
| Trading Name(s): | New Zealand King Salmon |
| Phone Number(s): | +64 3 5485714 |
| Email Address(es): | contact@kingsalmon.co.nz (general)<br>View more |
| Website(s): | http://www.kingsalmon.co.nz/ |
| Industry Classification(s): | A020110 |

View all NZBN details

The overarching point is that the COVID-19 wage subsidies were paid to companies to continue to pay their staff. However, it must also be remembered that these subsidies were paid using taxpayer funds.

By 1 July 2022, MSD reported the total costs of money paid out as government support for businesses and the COVID-19 wage payments amounted to $19,430,025,414.00 (i.e. over $19 billion).[170] Many ethically minded companies paid back the subsidy when they realised they did not need it; however, many companies did not think they needed to. We consider the government was slow to add the necessary rigour to the subsidy process, particularly given its size and scale.

While a number of people and institutions supported the subsidy scheme, we do not think it was expected to be such a large financial burden on the country for future generations. The pandemic hurt not only companies but small businesses and others. Everyone had to pay a pandemic-related cost, but it should be considered if this was fairly distributed. The phrase 'sunlight is the best disinfectant' comes to mind, hence our recommendations below.

Suggestions for retrospective additions to the COVID-19 wage subsidies register include:

1. The COVID-19 wage subsidies – Employer Search register should always use the legal name found on the Companies Register, as well as the NZBN.[171] In addition, all key information missing in the list above should be included retrospectively. Without this information, it is extremely difficult to align, verify and trace these payments. This lack of transparency creates an additional risk of increasing mistrust in government. See *COVID-19 Nation Dates*: Selected legal proceedings related to the COVID-19 wage subsidy.

2. Communication over when, if ever, the subsidy was to be repaid was unclear; this should also be added retrospectively. New Zealanders should be able to know the names of the ethical companies that paid back those funds and when they decided to do so.

Suggestions for the next pandemic, in addition to the above, include:

- Wage subsidy allocation should stipulate a number of conditions of receipt. Below are a few examples:
  - Agree to include the amount of the wage subsidy and the number of staff that received the subsidy in their financial statements as a separate note to their financial accounts.
  - Agree to inform each staff member that receives these funds, with a note saying that $ represents a subsidy from the government (via the company). It must be clear it is not from the company but from the Government.
  - Agree to pay back the subsidy if their situation changes and they no longer meet the criteria in the next five years. If this occurs, this must also be included in a separate note to their financial accounts.
  - The financial statements, if public, should be uploaded onto the COVID-19 wage subsidies register. A private list of names of staff who received the subsidy should also be provided.
  - If a company is not required to make their financial statements public, a one-page statement should be provided to the register and uploaded to indicate proof of receipt and who was paid the subsidy by wage band. (A private list of names of staff who received the subsidy should also be provided.)
  - If at any time in the next 10 years the subsidy can be audited/verified by the New Zealand government, and if criteria have not been satisfied or it is found the subsidy was not distributed to the employees listed, the whole pay-out can be reclaimed.
  - Disclose the companies' national/international ownership split. This is an important risk to remove in terms of whether these funds might end up as dividends in the bank account of overseas owners. See, for example, that the law in relation to filing audited financial statements is of a higher standard when shares are held by overseas owners.[172]
- The trust model did not work. High penalties, plus interest for funds received and returned, should be normal practice.
- The subsidy should be treated as a short-term loan, not a subsidy. This way the government could, on application, treat the loan as a gift by the government. One criterion for the gift could be if the average profit for the past five years is above the profit of the next three years.

Recommendation 21: Government needs to understand exactly how the wage subsidy came about and why there were no limits put in place. Our recommendation is that a separate inquiry be put in place. This could be undertaken outside of the current Inquiry.

### Lesson 4.7: Help small businesses survive a pandemic.

Large businesses often build flexibility and fluidity into their business model in order to respond to change. Importantly, they have the resources, experience, expertise, relationships and resources to adapt. In contrast, small businesses, although often nimble, are more likely to be cash poor and therefore extremely vulnerable to change. Small businesses account for 97% of all New Zealand firms and 29.3% of employment, and they contribute over a quarter of New Zealand's gross domestic product (GDP).[173]

Most importantly, small businesses are the future; a small portion will grow into large businesses/employers and therefore deserve support when times are tough. During the early stages of the pandemic, the incentives and protocols appeared to be designed for big businesses to pay staff wages and survive, which may have inadvertently put more pressure on small businesses.

The closure of butchers and bakeries during Alert Level 4 caused concern in the community as many considered them essential services. This led to some refusing to close as they wanted to use up existing stock, to continue to employ staff and pay their debts, and to serve the community at a time of crisis (e.g. provide meat and bread to older people in the local area).[174]

> The Mad Butcher chain has confirmed stores will be closed during the COVID-19 lockdown, despite initially claiming it was an essential service.
>
> [... ]
>
> 'We're really gutted that we can't be the place for New Zealanders to get their meat & grocery essentials, just at the moment'...
>
> [... ]
>
> The lockdown currently enforced in New Zealand to stop the spread of the coronavirus requires non-essential businesses to shut up shop. However, there was confusion in the lead up to the lockdown as to what was counted as essential.
>
> [... ]
>
> The list of essential businesses will be regularly updated, but currently defines essential 'fast-moving consumer goods' as 'any entity involved in the supply, delivery, distribution and sale of food, beverage and other key consumer goods essential for maintaining the wellbeing of people'.
>
> Primary industires [*sic*] also have exemptions for food and beverage packing, production and processing.
>
> However, an update on Thursday night confirmed: 'Butchers, bakeries and similar small-scale food retailers are considered non-essential, as similar products are readily available in supermarkets.'
>
> Addressing previous confusion about whether the Mad Butcher could remain open, Prime Minister Jacinda Arden told More FM on Friday the stores had to close.
>
> 'Yes, food is an essential service, but there are lots of places that produce food and we need to minimise the number of workers who have to be out and also the places that people will go to get food. So we have kept it to supermarkets and dairies,' she said.
>
> 'If you said yes to butchers, you'd say yes to bakeries, then you would have green grocers, then you'd have delis. We do have to draw a line.'
>
> When Ardern announced the lockdown on Monday stressed that essential services like doctors, banks, service stations, supermarkets and pharmacies would stay open.
>
> 'Non-essential businesses in New Zealand must now close. All bars, restaurants, cafes, gyms, cinemas, pools, museums, libraries, playgrounds and any other place where the public congregate must close their face to face function,' she said.
>
> The latest update on the COVID-19 website:
>
> - All supermarkets are considered an essential service
> - Farmers markets are not considered to be an essential service, as alternatives are available
> - Pest management may be undertaken only where required for human health and safety, and it is essential during the Alert Level 4 period. However, operators must ensure people have somewhere safe to go while the process is underway, in particular where a property is being vacated
> - Campgrounds may continue to operate under very strict protocols and management of access. Eg contact to be maintained only with people staying in the same abode/room; common social and recreation areas to be closed; split shift access to common areas
> - Backpacker accommodation providers may continue to operate under very strict protocols and management of access conditions. Eg contact to be maintained only with people staying in the same room; common social and recreation areas to be closed; split shift access to common areas
> - Butchers, bakeries and similar small-scale food retailers are considered non-essential, as similar products are readily available in supermarkets

- Furniture moving, in general, is not considered to be essential. However, as the deadline for domestic travel has been extended until midnight Friday 27 March, anyone in the process of moving house will need to complete their move before the end of Friday. Similarly, all furniture deliveries currently in transit would need to be also be delivered by the end of Friday
- Natural health services are considered non-essential
- Security is considered an essential service, even if security services are being provided in relation to a premise for a non-essential service
- Self-storage facilities can operate only to facilitate access for essentials. New sales or expiries of units are considered non-essential. Access to existing lockers is permitted for essential items or services only, eg fridges
- Critical support services to ensure businesses and workers can continue working from home are considered to be essential. This includes functions such as IT and Payroll
- Dairies can remain open, with a one-in-one-out rule, and cannot sell cooked food. You can download a 'one at a time in our store please' poster from our resources page.
- Food delivery is prohibited except for supermarket deliveries. Meals-on-Wheels and alternative meals on wheels services that have been referred from a DHB, ACC or MSD may operate and whole-food delivery may continue to operate (eg subscription food boxes are okay)
- Rental cars may be accessed in some circumstances. Ministry of Transport has put out documentation on essential transport logistics and services. Please refer to the Ministry of Transport website(external link)
- Every restaurant, café and bar must close all aspects of their operation
- Self-service laundries can stay open, with 2-metre physical distancing to be enforced
- The Warehouse must close
- Bunnings, Placemakers, Mitre 10 and other retailers essential to the supply chain for building and construction can stay open to trade customers for essential purposes only
- The Tiwai Point smelter is exempt from closure
- NZ Steel is to shut down in a way that allows for production to recommence easily
- Pulp and paper plants are to shut down their non-essential elements in a way that allows for production to recommence easily, and while maintaining essential production
- Methanex can remain in production, but at a scale consistent with the stability of gas supply.[175]

In our view closing bakers and grocers must have decimated the profitability of these small local businesses. To minimise contact between people, butchers and bakeries providing local food could have operated by selling their product at the door, by collection or by delivery. Supporting these small local producers is beneficial for the local community and prevents supply chain risks of larger supermarkets.

For example, a dairy owner (whose dairy opened 107 years ago and outlasted two world wars and survived the 1918 flu pandemic) noted:

> The dairy was open during alert level 4 but had very few customers and little income, Jeram said.
>
> **Fixed costs drained its cash reserves.** 'The insurance people are unrelenting, you've got your rates, last month I finished paying my GST, two lots of ACC levies, a provisional tax, and it's emptied my bank balance.' If they said '**you can pay your taxes and insurance and rates [with] a couple of months' relief with no penalties**', we'll pay them and we can survive. But that's not happening. '**Rates for instance, in lockdown you don't have the services, why should we pay the full rates?** Auckland Council's making a profit from us. They should be aware of that and reduce the rates for us.' [bold added][176]

We suggest more research is required to understand the full impacts on small business and what initiatives and incentives could be put in place for the next pandemic. Key observations to date include:

- Many small businesses went out of business in response to COVID-19.[177]
- Long-term impacts of shifts in consumer behaviour due to pandemic restrictions should be considered. For instance, consumers became used to buying from big supermarket chains (often online) rather than from small local stores, cafes and restaurants.

- Some customers were disadvantaged by the rules under Levels 3 and 4. This may be due to a technology bias and/or not being able to walk to local shops to purchase food and other items (often difficult for pensioners and the disabled). There was a great deal of demand for laptops in early 2020, and those that were able to have access to laptops must have had, to some degree, a technology advantage.

Recommendation 22: The Commissioners to undertake/seek research into the extent to which technology advantage existed and how it might have been managed to deliver more equity.

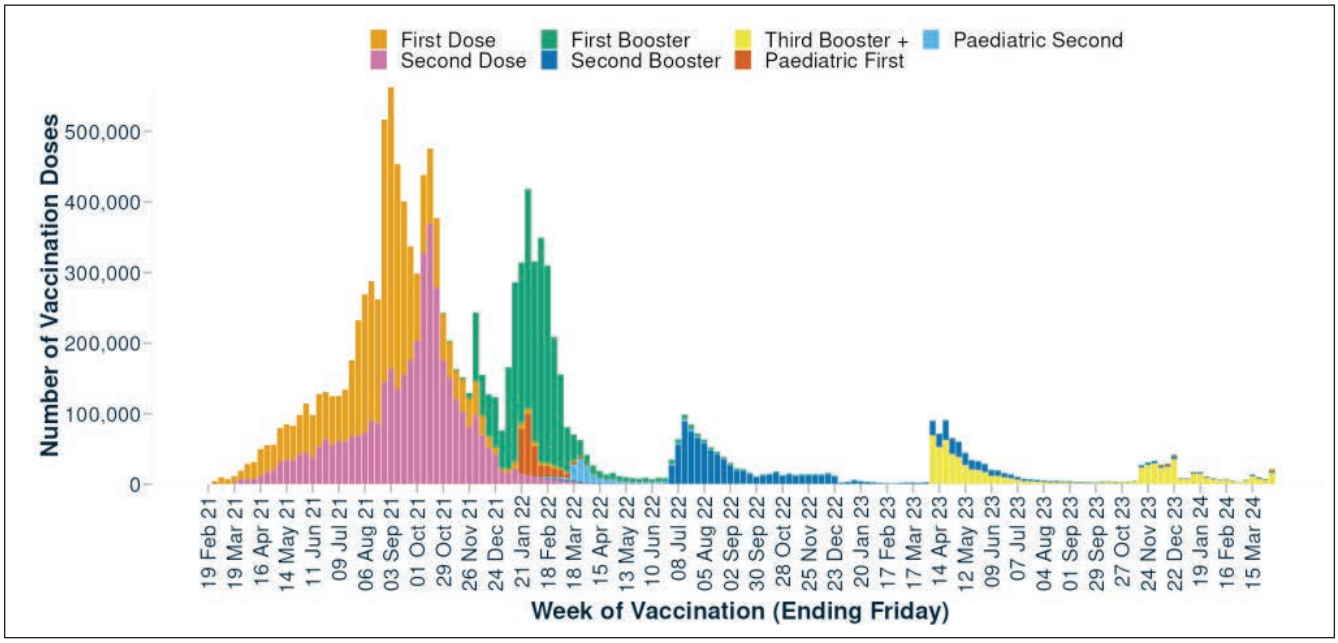
### Lesson 4.8: Auckland deserves careful consideration.

There may be some useful insights from the Auckland community on what options might exist next time. Auckland is likely to be challenged in future pandemics, due to its population size, it being a major entry point for people arriving in NZ, and its being a central port for goods and services.

In the early stages of the pandemic, concerns were raised that the Māori and Pasifika communities were more likely to be hospitalised.[178] Pasifika were also more likely to being exposed to COVID-19 as many worked in the healthcare industry, were living in large households, and attended large church services. Over 300,000 Pacific people live in Auckland city, and is often referrred to as the Polynesian capital of the world.[179]

It would be useful to explore options and outcomes for a range of scenarios that identify risks, costs and benefits and develop some observations and plans specifically for Auckland during the next pandemic.[180] For example, what was the economic cost to Auckland city? See Lesson 4.5.

Figure 4.6: COVID-19 vaccinations by week, February 2021 to 29 March 2024[181]




Recommendation 24: Auckland Council to prepare a report for the Minister for Auckland on lessons to be learned from the Auckland lockdowns in response to COVID-19. The report should include an understanding of the costs, risks and benefits, and identify a range of alternative options and tools that might have been useful in terms of the country's response to significant disease in our largest city.

### Lesson 4.9: MIQ system requires a rethink.

The MIQ system should be reviewed and improved in the case of managing border control in the face of future pandemics and/or other national issues.

A thorough border control plan should be established and made publicly available, so New Zealanders who travel and/or move overseas are aware of what would occur if New Zealand closed the border in the face of another pandemic. This should be created using the recommendations from the *Chief Ombudsman's final opinion on Managed Isolation Allocation System*:[182]

> Recommendation
>
> 347. Pursuant to section 22(3) of the O[mbudsman] A[ct], I recommend that MBIE address the issues I have identified in the design of any future national quarantine system. In particular, any future system needs to include careful consideration and thorough advice on the ability to properly consider individual circumstances and prioritise. While significant changes have since been made to MIQ, I consider it important, for any potential future closure of the borders, that the method of allocation that was used in MIAS [Managed Isolation Allocation System] be carefully reviewed and reassessed.
>
> 348. Key decisions about the allocation system were made by Ministers. I do not have jurisdiction to investigate the actions and decisions of Ministers under the OA, and therefore I cannot recommend they make an apology. However, I have advised MBIE I will be following up with the individuals who made complaints that prompted this self-initiated investigation to identify whether they have been affected by acts, decisions, omissions or recommendations made by MBIE that may be flawed and where a personal apology from MBIE may be necessary.

New Zealand citizens were excluded from being able to enter New Zealand, as a result of a lottery system. The High Court ruled in 2022 that the MIQ system breached the New Zealand Bill of Rights Act 1990 (NZBORA). (*Grounded Kiwis Group Incorporated v Minister of Health* [2022]).

The judge held that elements of the MIQ system were an unjustified breach of New Zealand citizens' right of entry into New Zealand, affirmed by s 18(2) of NZBORA. The restrictions that had been challenged, particularly elements of the voucher system and the determination of emergency applications, were found to have not sufficiently allowed individual circumstances to be considered and prioritised where necessary, and the mechanisms could not appropriately give effect to the right of citizens to enter. A more sophisticated system, which better prioritised those whose right to return was being unreasonably impacted, was possible and would have met the Government's public health strategy.[183]

During the pandemic, New Zealanders overseas were not given clear communication on how and when they could come home. The MIQ system was insufficiently designed and managed to handle the quantity of people wanting to come home, resulting in a bottleneck. The system was also not adequately prioritised, so there were many scenarios where a place in MIQ was filled by someone wanting to come to New Zealand on a holiday, and others with urgent needs to return home (such as to visit a terminally ill family member) were not able to come home.

Further, the management of the border meant a significant departure of migrants from New Zealand, which resulted in labour shortages in a number of New Zealand industries. Statistics New Zealand reported that in the June 2020 quarter, there were 57,200 departures, almost 90% of whom were non-New Zealand citizens.[184] New Zealand migrant workers play an essential role in the country's workforce:

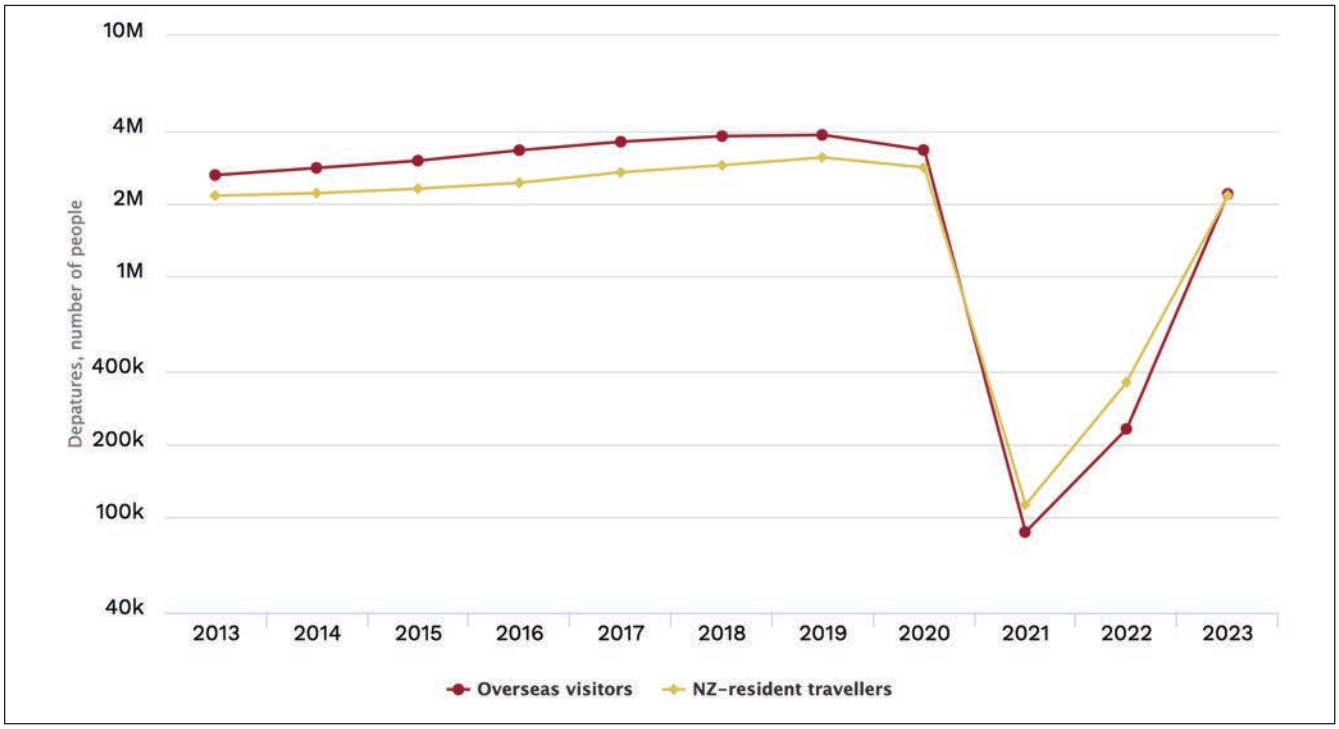
> Before the pandemic began, the NZ labour market relied heavily on new skilled workers coming in from overseas. Industries such as elderly care and dairy farming were largely made up of skilled migrants.[185]

As of the end of 2021, many NZ temporary work visa applications were on hold, meaning workers outside New Zealand were unable to apply for these positions. Additionally, the skilled migrant visa category was on hold until well into 2022.[186]

Additionally:

> **COVID-19 shifted the dynamics of departures from New Zealand**
>
> Prior to COVID-19, the ratio of overseas visitors (overseas residents departing New Zealand after a stay of less than 12 months) to New Zealand residents departing New Zealand each year, tended to be weighted more towards overseas visitors. But since 2020 this trend has changed, with New Zealanders now representing a larger proportion of departures. For the year ended April 2023 there were close to 4.4 million overseas visitors and New Zealand residents departing New Zealand, and these departees were split evenly between the two groups as displayed in the figure below.[187]

Figure 4.7: Departures of visitors and residents from New Zealand (year ended April)




In 2023, reports stated that a huge net migration surge, a rebound from the border closure, was creating a bottleneck of arrivals, without the infrastructure to support it. 'Migrant workers are helping with labour shortages and putting downward pressure on wages, but generate more demand for houses, infrastructure, and spending on education and health.'[188]

Recommendation: No recommendation as this can be embedded into the new planning documents.

## Lesson 4.10: Provisions should be made so people can continue to gather for funeral services, so close family and friends can provide support to those grieving.

People suffered immensely during the pandemic when families and close friends could not attend funerals for, or gatherings with, loved ones. This led to some traumatic and unethical situations, such as quarantine restrictions not allowing people from overseas to come home to farewell or support terminally ill family members, and people not being able to gather for a funeral service.

The process of losing a loved one is already extremely traumatic and negatively impacts mental health. Funerals, and other cultural gatherings of mourning, help acknowledge a loved one is gone and provide a support system for friends, family members and the wider community. Being forced to suffer without this support placed individuals at higher risk of mental health issues. 'Literature suggests that the restrictions on funerals and grief rituals may increase the chance of developing symptoms of prolonged grief.'[189] Some of these impacts may still be unknown, and due to their intangible nature, they are difficult to quantify.

It is recommended in the next pandemic there are protocols especially designed for funerals and other situations to help provide care for people struggling with the loss of loved ones, allowing communities to come together in a safe and supportive way.

Recommendation: No recommendation as this can be embedded into the new planning documents.

### Lesson 4.11: Invest in excellent track and tracing systems.

The University of Auckland published the following lessons from our COVID-19 tracing app.

> Data shows Kiwis are strongly driven by perception of risk. When new cases appeared in the community, people acted by scanning in and turning Bluetooth Tracing on. As the perception of risk lowered and alert levels decreased, participation dropped significantly.
>
> [...]
>
> The problem with this approach is when someone tests positive, health officials need their records from before that test, and you need your records so that you can find out if there are any overlaps - starting to scan at that point is too late. To be useful, people need seven-14 days of records. Modelling of how effective digital contact tracing might be suggests a 60-80 percent participation rate is necessary (in theory) before we can be confident data collected will be helpful for containing any possible outbreak. We've never reached that rate - only about 35 percent of the adult population actively participate in Bluetooth Tracing now.[190]

Further, the contact tracing app did raise digital access issues as not all people have access to smartphones. Those without smartphones were instructed to 'sign in' to places manually. However, the Privacy Commissioner reported that throughout the pandemic, they continued to be notified of 'instances of people gaining access to other people's personal information from paper-based contact tracing registers and using it in ways that breach the person's privacy'.[191]

The use of tracking and collecting people's personal data must be effective to be justified. The Centre for Economic Policy Research (CEPR) conducted a cross-country comparison of contact-tracing apps during COVID-19. They found that 'despite many countries supporting the use of tracking apps, there seems to be no evidence that they had an effect on controlling COVID-19'. Further, they stated that '[c]itizen trust in public interventions and commitment to social goals need to be nurtured in normal times to be effective in emergencies'.[192]

Recommendation: No recommendation as this can be embedded into the new planning documents.

### Lesson 4.12: Wastewater testing should be reviewed to assess the effectiveness, how it could be improved, and what its further capabilities are.

The success of water surveillance and testing is impressive, even enabling the different variants to be swiftly analysed and reported.[193] Any new pandemic plan should embed this tool into its planning.

National wastewater testing should be analysed to assess how it was used and how it can be improved. It should be investigated whether this type of testing could be used to generate further health benefits and data.

Recommendation: No recommendation as this can be embedded into the new planning documents.

### Lesson 4.13: The safety of vaccine administering should be prioritised alongside the goals of mass vaccination.

Information and education regarding possible symptoms of adverse reaction to watch for should be thoroughly prioritised and emphasised in order to prevent injuries and/or deaths as a result of the vaccine.

The pace at which vaccines were administered meant patient safety and information were compromised. One tragic case is the death of 26-year-old Rory Nairn from the vaccine.

> The inquest heard the pharmacist who vaccinated him was not aware myocarditis could be fatal and never warned him about the condition.
>
> 'The memo that went out after Rory's death put a proper alert on it and I think that should have happened after the woman's death, especially given the information that was coming through from international sources which aligned with the fact that there were issues with the vaccine and myocarditis,' Brett Nairn [Rory's father] said.
>
> 'The messaging at the time on the website, that I recall, was that it was mild and extremely rare. I know it's shifted to rare now that there's more evidence of myocarditis now than there was at the time. But the message is still safe and effective. Rory was a tradesman and I worked with him when we were working on his house at the time and every five minutes there were ads on the radio 'Get your vaccine, get your vaccine, safe and effective, safe and effective', just absolutely getting pumped out continually on the airwaves and how can something be considered safe when it can kill you?
>
> 'The morning that Rory died I rang my brothers ... and told them what had happened. They're in Auckland, and Chris let her family know, and none of them were able to come to the funeral in Dunedin because of the travel restrictions. A few of them definitely tried and applied for exemptions but they were unable to get them,' he said.[194]

At the time of Mr Nairn's vaccination the pharmacist had been unaware death could result from myocarditis.

> 'As soon as we were notified [of his death], all practises changed. [It is] unfortunate Mr Nairn had to pass away for that to happen,' the pharmacist said, breaking down into tears.[195]

Recommendation 23: Going forward, Medsafe, and all those administering a vaccine, to be made aware of the risks and what symptoms to act on urgently, and to share this, both verbally and in written form, with all recipients of the vaccine.

### Lesson 4.14: Develop an effective immunisation register able to quickly cater for new vaccines.

Vaccine certificates need to be robust and the Aotearoa Immunisation Register (AIR) needs to be able to quickly cater for new vaccines. It was good to see that a new national register for vaccination activity was recently created (to replace the National Immunisation Register (NIR) and COVID Immunisation Register (CIR)).[196] This streamlining of existing systems into one system (instead of pre-COVID-19 and COVID-19) is a good example of what should be happening throughout the healthcare system. The exception is Long COVID clinics, which requires a clinical focus given it is a new disease (see Lesson 5.3).

The first vaccine certificates were of poor quality, creating room for human error, and the cards were also easily lost or manipulated. Manufacturing numbers of batches were present on some, but not others. Going forward:

- The certificates should be more robust and resilient, contain a photo for identity purposes and always contain key information such as vaccine batch numbers, who administered the vaccine, when and where.[197]
- The back of the vaccine certificate should list adverse reactions and when to seek urgent medical care.

Recommendation: No recommendation as this can be embedded into the new planning documents.

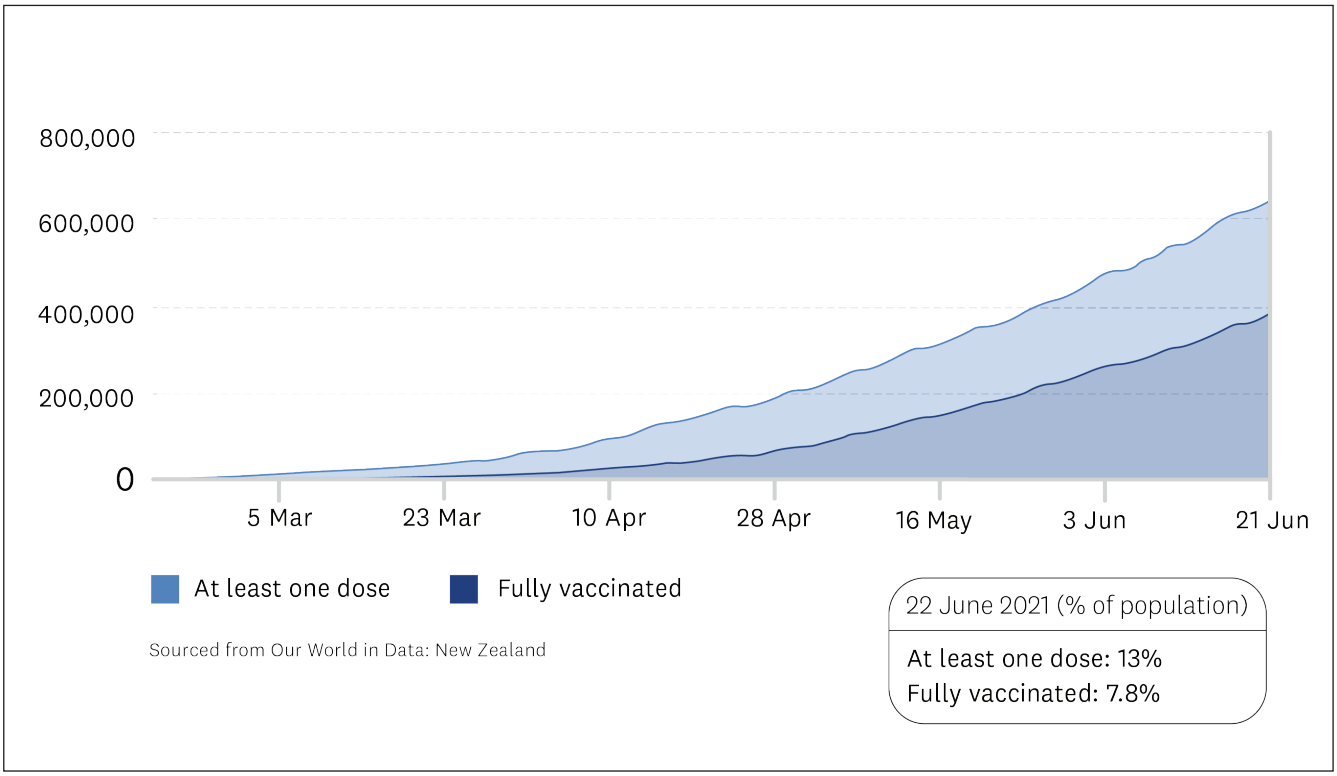
## Lesson 4.15: The vaccination rollout strategy should align with availability and level of immunity.

The Institute's *Think Piece 37: The gap between doses matters!* explained this lesson as follows:

> New Zealand's first COVID-19 vaccination occurred five weeks after the UK's first vaccination, on 19 January 2021, but six months later, the difference between rollouts is stark. See Figures 2 and 3 [repeated below in Figures 4.8 and 4.9 overleaf]. Kim Hill interviewed UK scientist Dr Chris Smith on 26 June 2021 on RNZ. Smith explained that what saved the UK was a strategy which focused primarily on getting one dose in the arms of as many citizens as possible. The goal was to follow up with a second dose later (when supply amped up, approximately two to three months later). This approach has recently been shown to provide a second benefit: that, as suspected in December 2020, the bigger the gap between vaccinations, the better the immune response. Smith said they found '12 weeks was de rigueur'; 8 a 12 week gap delivered the most robust, durable and resilient immune response. Having a 12-week gap between doses would not only make it possible for New Zealand to rollout the vaccination to more people, but most importantly, would deliver more durable long-term protection. That is the message from the UK rollout – a 12-week gap will ensure New Zealand is in the best position to live with emerging COVID-19 variants for years to come.[198]

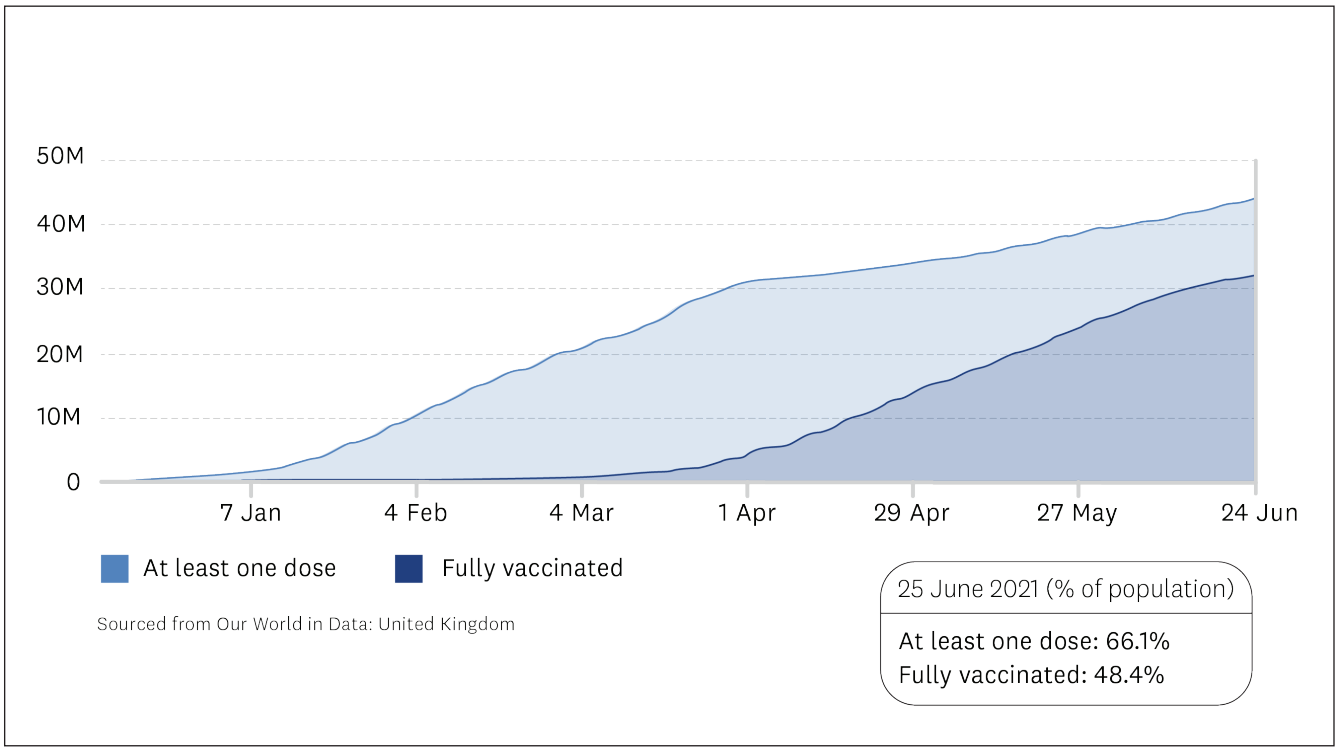
### Figure 4.8: NZ COVID-19 vaccinations, March to June 2021

Source: Our World in Data to 22 June 2021



## Figure 4.9: UK COVID-19 vaccinations, January to June 2021

Source: Our World in Data to 25 June 2021




Recommendation: No recommendation as this can be embedded into the new planning documents.

### Lesson 4.16: Vaccine mandates should be used sparingly and require careful consideration.

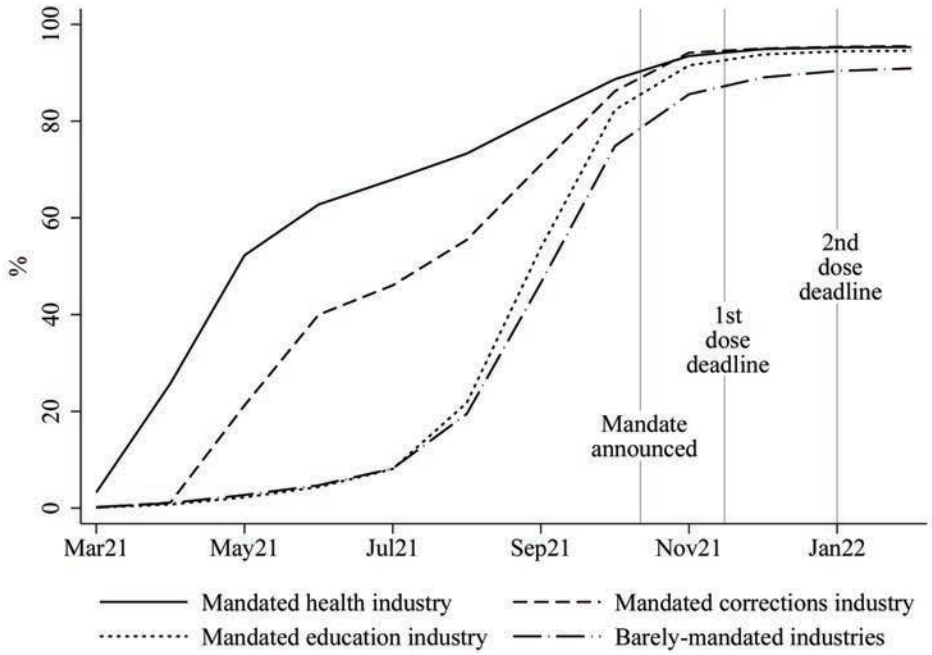
Victoria University of Wellington academics Kate Prickett and Simon Chapple noted in August 2021:

> Given robust association between trust in government and vaccine hesitancy, even after accounting for differences in the socio-demographic characteristics across high and low trust groups, it is likely that trust in the government will continue to play a role in supporting New Zealanders' confidence in getting the vaccine, particularly among those most hesitant. On the other hand, it points to a substantial group of people for whom receiving information about the vaccine from the government directly may not be persuasive. Instead, finding other trusted people or institutions, such as friends, whānau and their health practitioners, to engage with and address their vaccine-related concerns may provide more traction.[199]

As a result of the vaccine mandate on all District Health Board (DHB) workers (which came into force on 16 November 2021), on 17 November 1309 staff were stood down for not complying with the mandate. This was 1.6% of staff.[200] The impact on the DHB group was widely reported; information on other groups covered by the mandate is less easily accessible. A high level of transparency should have been maintained through the process by communicating updates, data on compliance rates, and any changes in policies or procedures. Transparency fosters trust and accountability within the organisation and the broader community. Despite the high compliance rate, it is crucial to acknowledge that a number of people who complied with vaccine mandates may have felt uncomfortable but were vaccinated in order to retain their job. Understanding reasons for non-compliance can inform targeted interventions, such as providing additional information, addressing misconceptions, or offering support. See also selected legal judgments in *COVID-19 Nation Dates*; 23 of the 39 selected relate directly to the vaccine strategy.

The NZ Policy Research Institute (formerly the NZ Work Research Institute) produced a report, *Workforce vaccine mandates: The effect on vaccine uptake and healthcare workers' labour market outcomes*, with insights regarding the effectiveness of vaccine mandates. Figure 4.10 below[201] shows 'the cumulative share of health, education and corrections workers who had received two vaccine doses over time, compared with workers in barely-mandated industries'.[202] Barely mandated industries are industries such as agriculture, forestry and fishing; construction; and professional, scientific and technical services and all their associated subindustries, where it is clear that government mandates did not apply generally, but there may have been a few workers who were subject to mandates.[203]

Figure 4.10: Cumulative double-vaccination rate by industry, March 2021 to January 2022




The findings suggest:

> [T]hat vaccine mandates did little to increase the uptake of COVID19 vaccinations given that uptake was already high in general, and particularly high among workers covered by the mandates. Moreover, they had a negative effect on the labour market outcomes of unvaccinated [healthcare workers], which not only had consequences for the individuals involved, but also likely contributed to ongoing skills shortages in the health industry. For future pandemic planning, this suggests that vaccine mandates should be used judiciously.
>
> [...]
>
> [A]nother consideration is whether mandates could have the unintended consequence of crowding out vaccination willingness, with potential spillover effects to other vaccinations.
>
> [...]
>
> In terms of COVID-specific evidence, a representative panel survey in Germany found that mandates 'substantially increase opposition to vaccination'.
>
> [...]
>
> Thus, vaccine mandates may negatively impact people's sense of civic duty and the feel-good factor associated with 'doing the right thing'. [...] an unexpected cost of the COVID-19 pandemic may be erosion of public confidence in all vaccines, which is partly driven by inflated claims about COVID-19 vaccine efficacy creating unrealistic expectations among the public about what the vaccines could achieve.[204]

Recommendation: No recommendation as this can be embedded into the new planning documents.

**By mid-2022, Covid-19 had become widespread in our communities. By October 2022, the Government had announced that New Zealand could safely move to the next phase of the Covid-19 response and lifted most restrictions.**

**However, now is not the time to become complacent. In my view, the Government must demonstrate that it is taking action to avoid what the World Health Organization warns all countries against – a cycle of 'panic then forget' when it comes to responding to emergencies.**

John Ryan (8 December 2022)
Controller and Auditor-General[205]

# Part Five: The response when COVID-19 is inside New Zealand and risks are lower

Purpose: When risks are low

New Zealand needs to focus on a bottom-up strategy; to hear and respond to the needs of citizens and communicate and work with the local community (while also watching international developments). The purpose should be:

(i) to help support young people rebuild their futures, especially in terms of education, training, health, employment and social events

(ii) to support local communities and iwi to refresh and rebuild

(iii) to continue to monitor wastewater, public health and international developments (both in terms of medical care and new COVID-19 variants)

(iv) to develop skills in managing Long COVID-19.

## Key lessons

Lesson 5.1: Revitalise education.

Lesson 5.2: Help revitalise New Zealand's central business districts (CBDs), making them safe and clean.

Lesson 5.3: Care for those with long-term medical impacts.

Lesson 5.4: Make clear the legal line between the freedom of an individual to protest versus the right of an individual (and their families) to privacy, and put significant penalties in place for those that cross the line.

Lesson 5.5: Recognise, compensate and help families who have lost a loved one due to a pandemic vaccine.

Lesson 5.6: Continue to support, compensate and recognise healthcare workers who put their lives at risk during the pandemic.

Lesson 5.7: Analyse and assess fault lines in the broader health system and build capability now before our shared memory is lost.

Please note: The current Inquiry is only considering 'strategies, settings, and measures ... as they existed or operated between February 2020 and October 2022, and not outside those dates', but this section discusses post-October 2022 impacts. Importantly we consider the scope of the Inquiry needs to be extended until 31 December 2023.

### Lesson 5.1: Revitalise education.

The pandemic had a major impact on education, in terms of disrupting the habit of learning and acting as an obstacle to socialising for young people, in particular with aged family members (who often share stories and wisdom) and with their friends and colleagues. The lockdowns (in particular the Auckland lockdown) will have had an impact. However it is arguably the tail of the pandemic and reports from young people that they still feel stress and fatigue that has had the biggest impact. For example, some parents were uncomfortable about sending their children to school, especially when COVID-19 was in the school community.

A recent Brookings report notes that in the US, 'chronic student absenteeism has arguably become the number one challenge for public K-12 education. If children are not in school, they are not building the skills and knowledge necessary to keep up with their learning standards. And 30% of students nationwide were chronically absent in 2021-22—double the pre-COVID-19 average—with only minor improvements in 2022-23.'[206] The report defines chronic absenteeism as missing 18 days (10% of 180 days) in a full school year.

In 2023, the Ministry of Education reported that the incidence of COVID-19 and other typical winter illnesses continued to be associated with an increase in medical absences compared to 2019 (pre-COVID-19):

- Only 47% of students met the criteria for regular attendance during term 2, 2023 (MoE defines regular attendance as attending greater than 90 per cent of class time or missing no more than one day each fortnight). This means over half of students were not regularly attending school in this time.
- This also remained lower than term 2, 2019 (pre-COVID-19), when the attendance rate was 57.7%.[207] However, it should be pointed out this is still very low.

Rather than encouraging home schooling during high-risk times (placing further pressure on working parents and isolating students from their peers), ventilation in schools is going to be key to enabling schools to stay open during the less significant times during a pandemic.

A RNZ article on a recent OECD survey found:

> 'Students in Aotearoa New Zealand reported relatively negative behavioural climate compared to most other countries in PISA, and the lowest amongst OECD countries. Similar to Aotearoa New Zealand were Brazil, Morocco, Bulgaria, Chile, Sweden and Uruguay. Australia, Canada and the UK all had much more positive behavioural climates in maths classrooms', the PISA 2022 Mathematics Achievement and Experiences of 15 year olds report said.
>
> It also showed that higher levels of disruption were associated with lower scores in the PISA maths test.
>
> [In response to the survey] Post Primary Teachers' Association acting president Chris Abercrombie said in his experience New Zealand students were not badly behaved.
>
> Since the pandemic started poor behaviour had not become more common but it had become more serious in nature, he said.
>
> Abercrombie said high-quality teachers working in their areas of specialist knowledge were more likely to have well-behaved classrooms than teachers who were trying to cover unfamiliar subjects because of staff shortages.
>
> 'If we had the qualified, suitable teachers in each class and we know that there's issues finding maths teachers, science teachers, then that will help with these issues, particularly around maths anxiety because we know higher levels of maths anxiety correspond with poorer results', he said.[208]

The *New Zealand Medical Journal* published research showing the management of the 2022 Omicron outbreak was unacceptable in schools. The research calls for the approach in 2023 to reorient away from a 'business-as-usual' strategy to 'a science-led and whānau-centred approach to infection control (including COVID-19 and other infections)'. In-person learning was prioritised without adequate protections and planning to mitigate the spread of COVID-19 in schools. In 2022, both the Human Rights Commission and the Disability Rights Commissioner made recommendations to the Government to ensure access to distance-learning technology and mandate mask-wearing in times of high transmission, but these were not implemented. 'Despite the efforts of educators to mitigate impacts, at the end of 2022, students entered NCEA exams with fewer credits than in the previous two pandemic years. This reduction in educational attainment has the potential to generate a substantial lifecourse disadvantage for the pandemic generation.' The publication emphasises that '[s]chool should be one of the safest places a child can be'.[209]

Many of the education issues existed before COVID-19. However, COVID-19 is likely to have amplified the impacts, especially on a small cohort that could not access technology or receive home learning support over that time. This is an area that requires more research, so the impacts are better understood.

Recommendation 25: Government to establish a taskforce to explore ways to make schools pandemic-safe,[210] reduce absenteeism, reduce behavioural issues in the classroom, and improve maths, English and financial literacy.

### Lesson 5.2: Help revitalise New Zealand's central business districts (CBDs), making them safe and clean.

The impact of the pandemic on our CBDs is likely to be a mix of causation and correlation. Fewer people working in the central city has meant less vibrancy and activity, meaning fewer people want to be in the city. There are likely to be other trends as well, such as state housing moving into the central city (as is the case in Wellington) or poor public transport. Understanding the drivers will be important for future planning.

One strong outcome of COVID-19 was encouraging people to work remotely when possible, which had long-term impacts on the workplace and inner-city environments, and also on suburban environments, as many people now shop and socialise in their suburbs rather than the city. Remote working also led to a separation between those who had access to technology and those who didn't.

People continue to work remotely, which has had mixed impacts on mental health and changed workplace culture, with many of these impacts continuing in 2024. Fewer people working in cities has negatively impacted businesses including urban cafes, gyms and shops.

The recent New Zealand Crime and Victims Survey explored the impact of the COVID-19 pandemic on crime and victimisation:

> In the two years before the pandemic, the NZCVS did not reveal any changes in victimisation or reporting behaviour. However, since the outbreak of the pandemic, we have observed these trends that reflect long-term changes in victimisation and reporting behaviour:
>
> - A decrease in the proportion of households that were burgled.
> - An increase in the proportion of people who experienced fraud and deception.
> - An increase in the proportion of people who reported experiencing sexual assault during their lifetime.
> - A change in people's perception that interpersonal violence is 'just something that happens' to something that is 'crime'.
> - A decrease in reporting crime to the Police.[211]

A recent RNZ article also identified an increase in the number of ram raids:

> The number of ram raids carried out has quadrupled in the space of just two years - and the majority of those caught were under the age of 18.
>
> In two years there has been a 465 percent increase in ram raids, and of those caught by police 70 percent were aged under 18.
>
> Data released to RNZ under the Official Information Act showed that in the 2022 calendar year, police recorded 516 ram raids.[212]

It may be that life in the inner city will never revert to normal, in which case a new normal needs to be defined and clarity provided over what a successful CBD might look like.

There is a counter argument here, as a number of people have found remote working better for their mental health and wellbeing, enjoy travelling less (and therefore polluting less), and that remote working allows businesses to employ the best people for the task, rather than being limited to local residents.

Understanding how this has evolved and what the new normal might look like is important. This is an area that requires more research, so the impacts are better understood. For example, the customer losses in CBDs may have been picked up by suburban businesses.

Recommendation 26: Urban planners to research and analyse the impacts of the pandemic on the CBD and identify ways to repurpose major city centres.

### Lesson 5.3: Care for those with long-term medical impacts.

The important and long-term impacts of a pandemic are often ignored as people focus on the urgent, short-term impacts. However, people suffering from the long-term impacts of a disease also need medical and mental support. Recent reports from the US show experts are concerned about the rise in Long COVID-19 cases, with increasing numbers of people developing Long COVID-19 (including after a second or third infection).[213]

The care for Long COVID in the UK (such as providing Long COVID clinics to help those with long-term symptoms) appears to be of a much higher standard than in New Zealand, as indicated when the Institute compared the Long COVID information available on the UK and New Zealand COVID-19 support websites.[214]

Recommendation 27: Review the need for Long COVID-19 clinics and/or support.

### Lesson 5.4: Make clear the legal line between the freedom of an individual to protest versus the freedom of an individual (and their families) to privacy, and put significant penalties in place for those that cross the line.

The level of abuse that medical experts, in particular women, received during the pandemic was shocking for its pace and the scale of personal attacks. This was, in our view, unprecedented and caught society and our leaders off guard. This must not happen again.

Better protections and penalties must be put in place to enable our experts and leaders to focus on research, analysis and strategy, and most importantly, have the freedom to say what they think. A learning society is one that enables experts to speak and be heard. It was an oxymoron that the very people that were advocating freedom of speech were actively seeking ways to close down the voices of experts. Freedom to speech and the right to privacy is paramount to ensuring we have a healthy and progressive democracy.

From our perspective, the line between freedom of speech and intimidation must be well communicated in advance of any future pandemic. Further, anyone who is paid or funded by government, including indirectly via a university, should not be bullied. It is in the public interest that society provides protections so they can do their jobs.

Our view is that a small minority of citizens consider bullying and intimidation of public figures (and their families) is acceptable. This issue will not go away, whether it is to do with COVID-19, the next pandemic or even issues like fluoride or the 15-minute city.[215] We also do not doubt that bullying of experts and journalists is still occurring. For this reason, we suggest both the 'line' and penalties in current legislation be reviewed and strengthened.

Recommendation 28: Strengthen New Zealand's privacy law so that people who intimidate, oppress or threaten private individuals (e.g. those who share other people's private addresses online or bully experts or journalists and their families), are criminalised and sufficiently penalised, rather than the onus of bringing a legal claim being on the person victimised (as with the current privacy tort).

### Lesson 5.5: Recognise, compensate and help families who have lost a loved one due to a pandemic vaccine.

The MOH reports the cumulative total of COVID-19 vaccination doses administered in New Zealand as at 29 March 2024 was 13,021,145 doses.[216] This is a significant number and the vast majority of people who received the vaccine did not suffer any adverse reaction.

To date, two deaths have been determined by the Coroner to be due to myocarditis following first-dose COVID-19 (Pfizer) vaccination. Fifteen other deaths could not be assessed due to insufficient information, and four deaths were still under investigation.

The most recent Vaccine Safety Report found on the MedSafe website[217] is Medsafe Safety Report 46. It states:

> Up to and including 30 November 2022, a total of 184 deaths were reported to CARM after the administration of the Comirnaty vaccine. Following medical assessments by CARM and Medsafe it has been determined that:
>
> - 163 of these deaths are unlikely related to the COVID-19 vaccine
> - 15 deaths could not be assessed due to insufficient information
> - 2 cases are still under investigation
> - 2 deaths were determined by the Coroner to be due to myocarditis following first-dose COVID-19 (Pfizer) vaccination
> - 1 death was likely due to vaccine-induced myocarditis (awaiting Coroner's determination)
> - for 1 death, myocarditis was found at the time of death and a link to the vaccine could not be excluded. (This death is awaiting the Coroner's determination.)[218]

The Institute understands that New Zealand has a no-fault compensation scheme for vaccines and ACC provides financial compensation to people who suffer injury or fatality as a result of a vaccine. An injury caused by a vaccine is covered by ACC if it is a 'treatment injury' as set out in Section 32 of the Accident Compensation Act 2001. Therefore, people who are injured or families whose member dies because of the vaccine are only eligible to receive compensation under ACC. ACC support for a deceased vaccine recipient is restricted under the Act to include only payments for loss of income, payments to help with childcare, or a one-off survivors' grant. This grant is only $7,531.49 to the spouse or partner or $3,765.76 to each child.[219]

What made the COVID-19 vaccination situation unique was that the vaccine was promoted as a key initiative of Government to combat COVID-19, not just at a personal level, but in order to make the local community and wider public safe. For this reason, it is appropriate for society to be generous and compensate those families accordingly. In our view, even in cases where there was insufficient information (the 15 cases noted above), generous compensation should be provided. Given the circumstances, it is time to err on the side of compassion.

Recommendation 29: Generously compensate families who lost a loved one due to the COVID-19 vaccine, or whose deaths were not able to be assessed by CARM due to insufficient information.

### Lesson 5.6: Continue to support, compensate and recognise healthcare workers who put their lives at risk during the pandemic.

In private business situations, when an employee works above and beyond during an unprecedented year of difficulty, the strain on their mental and physical health, relationships and work/life balance are often acknowledged with a bonus, raise and/or promotion. The Institute is not sure if any additional financial support was provided to recognise these extraordinary citizens, but we consider there should be some consideration of a thank-you payment. It is particularly relevant to consider this in the context of over $19 billion spent on the wage subsidy, with large amounts of this being received by people who were at home under lockdown, while others went to work, putting their own health at risk to nurse the sick. We consider the medical staff that nursed the first COVID-19 patients to be exceptional; many of them went into isolation to protect their families from the risk of COVID-19.

At a minimum, a public thank you should be made to doctors, nurses and healthcare workers who put their lives at risk to help others.

Recommendation 30: Identify 100 medical staff that contributed to the COVID-19 pandemic response and recognise them with a COVID-19 medal.

### Lesson 5.7: Analyse and assess fault lines in the broader health system and build capability now before our shared memory is lost.

It is important to remember that pandemics result in mortalities and long-term health issues. See Appendices 4 and 5. Included in Appendices 6–8 are numerous risk assessments that should contribute to how we could benchmark and assess progress towards pandemic preparedness going forward. The second edition of *COVID-19 Nation Dates* will include two chapters on the judgments and decisions of courts relating to the COVID-19 pandemic and to the wage subsidy up to 31 March 2024. It will also include reports by independent agencies such as the Ombudsman, the Privacy Commissioner and the Independent Police Conduct Authority. In our view, as noted earlier, an analysis of those judgments is critically important if we wish to understand the impacts of the policy settings on society between 2020 and 2023. Further, it is essential to start to design a legislative system now to cope with future pandemics. Hence we consider it is timely to start to design the shape and content of future emergency epidemic response legislation in 2024 (before the Commissioners present their final report). This is necessary given that the House will have sufficient institutional memory to debate the legislation.

Our GDS Index found that the *New Zealand Influenza Pandemic Plan: A framework for action*[220] was not very transparent and required more work, see Appendix 9. Importantly the index rates a strategy on its ability to be assessed (i.e. does it have all the necessary information), rather than it being a good strategy. The Institute undertakes the Index regularly in the hope it ensures that public-sector organisations explain their strategies in sufficient detail that they can be understood and accessed – is there clarity over the purpose and goals and how can you know if they are successful or not?

New Zealand's Chief Medical Officer role and leadership should have been more prominent during the pandemic.[221]

Public reporting on the strategic framework underlying our health system is still in disarray, see Appendix 10 (see Figures A10.1 and A10.2 for the relationships between New Zealands National Health Emergency Plans in 2008 and 2015, and other health documents).[222] At one level, that is understandable given the stresses the system has undergone; however, strategy is about what you do and what you decide not to do. We consider the strategy and planning documents, especially around a pandemic, should be high on the to-do list for the Minister of Health, and the Ministry of Health.

The Health Quality & Safety Commission (HQSC) has published two reports on COVID-19. The first report, *A window on quality 2021: COVID-19 and impacts on our broader health system: Part 1: March 2020 to August 2021,* published on 20 December 2021, acknowledged the extent to which inequity was amplified during the pandemic, and makes a number of recommendations, including one on improving the COVID-19 Protection Framework and two on the need for more research and analysis, see below. Interestingly, it concluded that '[a] health care system that performs resiliently is one where the system, at all levels, is able to adapt to shocks and change to ensure we provide high-quality care'.

4. DHBs/Health NZ, from July 2022, must approach addressing the backlogs of elective activity created by COVID-19 restrictions with greater thought and stronger emphasis on understanding the particular make-ups of their backlogs and prioritisation of work according to need. The Ministry of Health reports that it anticipates access to elective care and screening (and all other health care) would be improved under the COVID-19 Protection Framework (CPF).
5. What we have learned about the nature of patient experience of primary care during COVID-19 restrictions as discussed here is valuable but high level. Local primary health organisations should use their survey data to look at the experience of their populations, consider evidence of difference in that experience for different parts of their populations and tailor services, including telehealth care services, appropriately.
6. A national primary care data set is a long-standing deficiency that needs to be addressed. There is a notable gap in our understanding of how the health system as a whole responded to COVID-19 due to the absence of consistent national primary care data, despite primary care having powerful local clinical systems.[223]

The second report by the Health Quality & Safety Commission, *A window on quality 2022: COVID-19 and impacts on our broader health system (Part 2)*, notes a number of observations on the impacts of COVID-19 and public policy responses on the broader health system. Appendix 11 contains a selected list, but we recommend reading both reports. They illustrate the type of analysis that we think should be applied in the economic sphere as well; it is essential to understand the impacts and know where the fault lines exist economically, socially and culturally. Importantly, this type of analysis will trigger a conversation on how we might build back better. The second HQSC report closes by stating:

> - The experiences of the pandemic are now woven into the whakapapa of the health care system, shaping its future. If the pandemic has shown us anything, it is that the future is not the same as the past. There is no going back and the reforms offer an important opportunity for **transformation and building a more resilient health care system that is better suited to the uncertain and dynamic realities we face.** [bold added][224]

Recommendation 31: Begin preparing for the next pandemic.

- Urgent work should be undertaken to archive all out-of-date documents (e.g. those that discuss DHBs) and update all new documents to align with the new centralised health reforms.
- Design future emergency epidemic response legislation.
- A comprehensive map of key strategy and planning documents is urgently required (we were not able to find a map or even a comprehensive list of all documents relating to the healthcare system, nor solely pandemic management). In addition to being out of date, these documents are difficult to find.
- The role of the Chief Medical Officer should have a higher profile, along the lines of that of the UK – which is legislated and includes a requirement to produce an annual report.

# Glossary

The following is a list of frequently used terminology associated with the COVID-19 pandemic and their meanings within the New Zealand context.

This list is adapted from definitions and glossaries from WHO, Health New Zealand, Stuff, Radio New Zealand, the Public Health Communication Centre, Beehive press releases, New Zealand Parliament, Site Safe, COVID-19 legislation, MOH, MSD, and The Spinoff. See specific references below.

| | |
|---|---|
| **Alert levels** | A 4-stage alert level system that specifies measures to be taken to control the COVID-19 pandemic at each level.[225] |
| **Asymptomatic/ Non-symptomatic** | A person who has tested positive for COVID-19 but does not have any of the commonly seen symptoms.[226] |
| **Booster** | A 'top up' vaccine after a primary course to help boost immunity.[227] |
| **Border closure** | The border being heavily restricted to well-defined groups (e.g. NZ citizens, essential workers, people from a ballot) with quarantine requirements.[228] |
| **Bubble** | A 'bubble' is made up of all the people who live in your household. That could be your flatmates, parents, siblings, children, and/or partner.[229] |
| **Close contact** | People who may live, work or have been in the same place at the same time as someone who is infectious with COVID-19 and/or who have been in a closed environment within 2 metres of a case for 15 minutes or more.[230] |
| **Community transmission** | Person-to-person transmission in the community where cases have no link to international travel or recent arrivals.[231] |
| **Contact tracing** | The process of the Ministry of Health and local DHBs tracking down people who may have been exposed to the virus. Contact tracing finds people who were either close contacts of confirmed cases or casual contacts. Close contacts are at a higher risk of infection.[232] |
| **COVID-19** | The highly contagious disease caused by the SARS-CoV-2 coronavirus that affects your lungs, airways and other organs.[233, 234] |
| **Elimination strategy** | The Government's strategy, implemented in March 2020, to 'keep it out, find it and stamp it out'. Initiatives were focused on getting to and maintaining 'zero COVID-19', while vaccination was not yet available.[235] |
| **Essential services** | Businesses, operations, and workplaces deemed essential to the provision of the necessities of life which were directed to stay open during lockdowns. This included supermarkets, chemists, and doctors.[236] |
| **Extraordinary powers** | The Government may be required to exercise extraordinary powers when responding to an emergency situation.[237] In October 2022, the 'COVID-19 Public Health Response Act 2020 [was] significantly narrowed to allow for a limited set of public health measures, as a guard against new COVID-19 waves or variants'.[238] |
| **Fully vaccinated** | A person who has received all primary doses of the COVID-19 vaccine (e.g. two doses of the Pfizer vaccine).[239, 240, 241] |
| **Household contact** | A person living with someone who has COVID-19.[242] |

| | |
|---|---|
| **Immunocompromised** | People with a weakened immune system who are at risk of severe illness from COVID-19.[243] |
| **Isolation/self-isolation** | Not leaving your house and not going to work or school. It also means staying away from others in your household as much as possible.[244] |
| **Locations of interest** | Places visited by a positive case, published on the Ministry of Health website to direct people who also visited that place to follow public health advice.[245] |
| **Lockdown** | Refers to the country's placement in Alert Level Four. Lockdown means that all non-essential businesses are closed, although a select few can still trade online and offer contactless home delivery. Supermarkets and pharmacies are among the essential services.[246] |
| **Long COVID** | When the effects of COVID-19 last longer than 12 weeks.[247] |
| **Misinformation, disinformation, fake news** | The spread of misleading or false information. |
| **Mitigation strategy** | A strategy to 'flatten the peak' (of cases) to avoid overwhelming health services and protect the most vulnerable.[248] |
| **My Vaccine Pass** | See Vaccine pass below. |
| **Outbreak** | An epidemic increase that is localised in time and place, likely arising from a border control failure.[249] |
| **Positive/confirmed case** | Someone who has tested positive for the novel coronavirus COVID-19.[250] |
| **Partially vaccinated** | A person who has received one dose of a COVID-19 vaccine.[251] |
| **PCR** | Polymerase chain reaction (PCR) tests are highly sensitive and accurate tests that enable detailed genomic analysis. The PCR test looks for the genetic material of the virus in a swab sample taken from a person's nose or throat and is tested in a lab. PCR tests were the main form of testing in New Zealand from 2020–2021.[252] |
| **PPE** | Personal protective equipment. During the pandemic, this usually refers to face masks, hazard suits and other gear.[253] |
| **QR code** | A unique identifying code issued by the New Zealand Government for businesses to display at their premises to enable contact tracing.[254] |
| **$R_0$/'R naught'** | The reproduction number that indicates how contagious an infectious disease is. The number that follows indicates the average number of people who will contract a contagious disease from one person with that disease (e.g. '$R_0$ of 18' means a person who has the disease will transmit it to an average of 18 other people).[255] |
| **RAT** | Rapid antigen test (RAT) is a take-home test that people can do themselves and view the result shortly after taking the test. New Zealand transitioned to using RATs as its predominant testing method in early 2022.[256] |
| **Social distancing/ physical distancing** | People keeping a safe distance of 2m away from others.[257] |
| **Suppression strategy** | A strategy to substantially lower case numbers and outbreaks.[258] |
| **Symptomatic** | A person that has COVID-19 symptoms but may not be a confirmed case.[259] |

| | |
|---|---|
| **Symptoms** | Include: a new or worsening cough; sneezing and runny nose; a fever; temporary loss of smell, or altered sense of taste; sore throat; shortness of breath; fatigue or feeling tired.[260] |
| **Traffic light** | Three settings (red; orange; green) which different parts of New Zealand were designated in a revised protection framework where businesses remained open.[261] |
| **Up-to-date with their vaccines** | A person who has received all recommended COVID-19 vaccinations, including any booster dose(s) if and when eligible, according to their age and other factors.[262] |
| **Vaccine mandates** | A COVID-19 Public Health Response (Vaccinations) Order 2021, requiring certain work to be carried out by affected persons who are vaccinated and have received a booster dose.[263] |
| **Vaccine pass** | The official record of someone's COVID-19 vaccination status. A legal requirement to enter places that have vaccination requirements under the traffic light system (e.g. events, hospitality venues, hairdressers, gyms, sports or faith-based gatherings). May also be referred to as a vaccine certificate.[264, 265] |
| **Variants** | Variant refers to the differences in the genetic code from that of the original virus. (e.g. Delta or Omicron). Some changes may affect how easily the virus spreads, the disease severity, the ability of vaccines to prevent disease or the effectiveness of treatments, diagnostic tools, or other public health and social measures.[266,267] |
| **Variants of interest (VOIs)** | Variants that have had changes to the virus's properties, as identified by the World Health Organization, and are monitored more closely.[268] |
| **Variants of concern (VOCs)** | 'Variants of interest' that significantly change the way the virus behaves and present an increased public health risk, as identified by the World Health Organization.[269] |
| **Wage subsidy** | A high-trust scheme providing rapid payments up front to businesses affected by COVID-19 restrictions so that employers could continue to pay their employees.[270] |

# Appendix 1: McGuinness Institute pandemic documents

Table A1.1: List of McGuinness Institute pandemic documents, 2005–2023[271]

| Date | Title | Document type |
|---|---|---|
| December 2005 | Managing the risk of a 'bird flu' pandemic – a Chartered Accountant's perspective | Article |
| June 2006 | Managing the Business Risk of a Pandemic: Lessons from the Past and a Checklist for the Future | Early report |
| May 2015 | Lessons from the West African Ebola Outbreak in Relation to New Zealand's Supply Chain Resilience | Contributing paper |
| March 2020 | OIA to MOH: Virus outbreak (ICU beds and more) | Correspondence |
| March 2020 | OIA to DHBs: Open Letter to District Health Boards | Correspondence |
| March 2020 | Letter to MOH: Thank you | Correspondence |
| March 2020 | Distancing strategy: Flattening the COVID-19 curve | Infographic |
| March 2020 | COVID-19 Phase 1: Instagram poll results | Infographic |
| March 2020 | Worksheet 2020/01: COVID-19 Exploring certainties and uncertainties | Worksheet |
| April 2020 | OIA to MOH: Intensive Care Drugs | Correspondence |
| April 2020 | OIA to MOH: National Reserve Supply | Correspondence |
| April 2020 | OIA to MOH: Vaccinations | Correspondence |
| April 2020 | OIA to DPMC: COVID-19: Moving from Level 4 to Level 3 | Correspondence |
| April 2020 | Unlocking Strategy: the COVID-19 dilemma | Infographic |
| April 2020 | Country graphs: Mapping the COVID-19 curves | Infographic |
| April 2020 | Think Piece 33 – The Long Normal: Preparing the National Reserve Supply (NRS) for pandemic cycles | Think piece |
| April 2020 | Think Piece 34 – I am hungry for a vision for our country | Think piece |
| April 2020 | Working Paper 2020/01 – Analysis of options if P2/N95 masks are no longer available | Working paper |
| March/May 2020 | OIA to DHBs: Open Letter to District Health Boards (Responses) | Correspondence |
| May 2020 | Survey Insights: An analysis of the 2020 NZNO PPE Survey | Survey |
| June 2020 | Think Piece 35 – Where next? A Garden of Eden or a Slough of Despond? | Think piece |
| July 2020 | OIA to AgResearch | Correspondence |
| July 2020 | Working Paper 2020/06 – Letter to the Minister on AgResearch's approval for GM animals in light of pandemic risk | Working paper |
| January 2021 | OIA to MPI: Pandemic Risk: AgResearch Approval for GM animals (continued) | Correspondence |
| January 2021 | OIA to EPA: Pandemic Risk: AgResearch Approval for GM animals (continued) | Correspondence |

| Date | Title | Document type |
|---|---|---|
| March 2021 | OIA to MOH: Risk Management | Correspondence |
| April 2021 | Working Paper 2020/12: - An analysis of the responses to the 'Open Letter to District Health Boards (dated 25 March 2020)' | Working paper |
| June 2021 | Think Piece 37: The gap between doses matters! | Think piece |
| July 2021 | OIA to MOH: Risk Management (continued) | Correspondence |
| September 2021 | Discussion Points: Discussion Paper 2021/03 – A COVID-19 Situational Report: Beyond Aotearoa New Zealand's Fortress | Slideshow |
| September 2021 | Discussion Paper 2021/03 – A COVID-19 Situational Report: Beyond Aotearoa New Zealand's Fortress as at 1 September 2021 | Discussion paper |
| October 2021 | A Suppression Strategy: Living with COVID-19 in the Year 2022 | Infographic |
| March 2022 | OIA 2022/01 to MOH: Composition of the National Reserve Supply | Correspondence |
| April 2022 | OIA 2022/03 to MOH: Number of staff employed (FTE) by MOH | Correspondence |
| March 2023 | OIA 2023/02 to MSD: COVID-19 wage subsidy information on NZSX-listed companies | Correspondence |
| March 2023 | COVID-19 Nation Dates: A timeline of significant events in Aotearoa New Zealand's COVID-19 pandemic | Book |

# Appendix 2: The 2005 article: Managing the risk of a 'bird flu' pandemic – a Chartered Accountant's perspective[272]



## Managing the risk of a 'bird flu' pandemic – a Chartered Accountant's perspective

*By Wendy McGuinness*

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International concern about the so-called "bird flu" continues to rise, and a growing number of companies are realising they need to launch their own "pandemic contingency plan", as reported in the *Financial Times* in October.

Myles Druckman, vice-president of medical assistance at International SOS, a US-based medical consultancy with 6,400 corporate clients, stresses that while companies may have general contingency plans in place, "you have to tailor your responses to a potential pandemic, which are a little different from, say, a bomb … A pandemic is a phased process and you need to be able to respond differently at different stages."

In this article I review the current landscape and provide a general context for further thought and discussion. To this end, Chris Peace of Risk Management Ltd has contributed a graphical assessment of the pandemic risk compared with other, national scale risks; and Rachel Farrant, a partner at BDO Spicers, has supplied some responses to key questions about what a pandemic might mean for Chartered Accountants in public practice.

### The current landscape

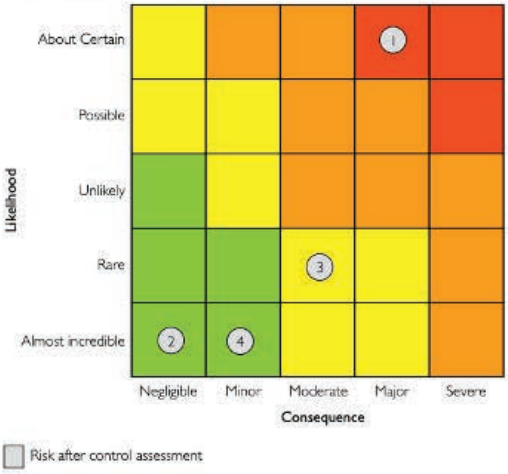
A seminar held at Te Papa in Wellington on 1 November by the New Zealand Society for Risk Management Inc, entitled *Avian influenza (bird flu) – the next pandemic?* (sponsored by MARSH, Solid Energy – Coals of New Zealand, URS New Zealand, Air New Zealand and ACC), drew the big picture. Table 1 outlines seven key observations from the seminar.

The scale of risk due to an influenza pandemic is significant as shown in Figure 1, where the risk levels (after taking into account current controls) of four events are mapped and compared: the influenza pandemic (risk 1), a nuclear-powered ship suffering a radiation leak in Wellington harbour (risk 2), a major earthquake in Wellington (risk 3) and a Boeing 737 crash (risk 4). As can be seen, the current level of control for an influenza pandemic still leaves the country exposed to a high level of risk, whereas the other risks are at much more acceptable levels.

As suggested by Druckman, the seminar clearly identified that a phased process was likely, and that each phase would require a different response. Consequently, it is clear businesses, communities and families should plan for:

(i) a potential full border closure until a vaccine is developed. The period of time between the first outbreak and the development of the appropriate vaccine will be a critical factor in managing the risk. This is currently expected to be in the range of six weeks to six months. Consequently, the longer New Zealand can keep the virus out (i e reduce the gap), or ideally, completely prevent the virus entering New Zealand (resulting in the second phase not occurring), the fewer negative effects on human health and the economy.

Figure 1. Controlled Risk Matrix: national scale risks in New Zealand




| | Risk | Control Consequence | Control Likelihood | Control Risk |
|---|---|---|---|---|
| 1 | Avian influenza – national impacts | Major | Almost certain | Extreme |
| 2 | Radiation from nuclear powered ship | Negligible | Almost incredible | Low |
| 3 | Earthquake on the Wellington fault | Moderate | Rare | Medium |
| 4 | B 737 crash – domestic flight | Minor | Almost incredible | Low |

(Source: Risk Management Ltd, November 2005)

(ii) a potential influenza pandemic within New Zealand.

If the pandemic arrives, New Zealand should expect as many as three waves over a six-month period. Each wave of infection should be over in around eight weeks and most sickness will be concentrated in the middle of this period. Hence, in each wave, there may be a number of weeks where it would not be possible to conduct business as usual.

Directors and managers may find it useful to consider in advance how to operate their business if the border is closed, or in the second phase, how they can best maximise the health of their staff and families, maintain the value of their assets (cash, crops, animals, etc) and manage distribution systems, maintain critical infrastructure assets and services and where possible, meet the new needs of the wider community where people will be sick and/or absent.

Planning for these two contingencies will not only soften the blow if a serious influenza does develop, but as an island nation, any actions taken now must significantly improve New Zealand's recovery from a wide range of potential disasters in the future.

## A pandemic contingency plan

New Zealand business has, in the past, had to manage significant external risks, notably the 1998 power failure in Auckland. The subsequent inquiry and resulting report, "Auckland Power Supply Failure 1998: The Report of the Ministerial Inquiry into the Auckland Power Supply Failure", discussed the governance and accountability role of public companies' directors. Table Two provides an excerpt.

The power failure not only resulted in a general improvement in risk management but also is perhaps our most recent example of how firms can adapt and respond to such external risks. For example; as noted in Telecom's 1998 Annual Report (p8): "When the power failed in central Auckland, some extraordinary efforts by Telecom helped keep businesses running. Staff and their computers were able to move to premises outside the blacked-out area, often into their own homes, because Telecom provided the essential links to alternative workplaces and started a huge programme of free Call Diversions."

Preparing a pandemic contingency plan is a new concept that raises a number of questions for Chartered Accountancy firms with, as yet, very few answers.

## A Chartered Accountant's perspective

Rachel Farrant, a partner at BDO Spicers (Wellington), has some answers to key questions about the potential risks of bird flu and how the resulting impacts could be managed.

**1. Has BDO Spicers discussed in detail the potential risk of a pandemic and if so, to what degree is a pandemic contingency plan in place?**

A bird flu pandemic has only recently appeared on our radar. We are aware of the October 2005 reports by the Ministry of Economic Development and the Ministry of Health, in particular the Business Continuity Planning Guide. The issue has been raised at a partners meeting and we have discussed the need to review our current contingency plan, but we have not yet completed the process. As we currently have a policy of providing flu vaccines to all staff, I expect we would continue this practice by offering staff the bird flu vaccine, once it is developed.

In a general sense, a pandemic has consequences for both our firm and our clients, so issues like "key man insurance", wills, succession planning, maintaining accurate contact details, flexible working hours, maximising the health of staff and clients (for example, "if you are sick, stay home", quality hand-washing, minimising shaking hands, maximising availability of tissues), and considering issues surrounding tax deductibility of pandemic expenditure and legal liability, will have to be addressed.

**2. Have any issues been raised by staff or clients?**

Not to date, although one IT client has discussed buying masks and also, if necessary, the new vaccine. In my view, although a small number of people are worried about the implications, most see the risk in the same context as SARS and Y2K – that is, "crying wolf".

**3. After reading the seven key observations in Table 1, can you provide your thoughts on the potential implications for staff, clients and the community, under both phases, that is:**

**(i) a potential full border closure until a vaccine is developed (from six weeks to possibly as long as six months)**

This would impact on international business and staff travel. Obviously staff being trapped overseas is a serious concern. In regard to business services, we have international offices, so I expect we could easily outsource international commitments and offer reciprocal services.

Many of our clients would not initially be affected by closing the border; but businesses operating in the tourist industry and exporters sending goods by air would immediately feel the full effects. Relevant issues would include storage of perishable products, redundancies and subsequent cash flow problems for those with high fixed costs. It may take several weeks for the full effects to ripple through to other parts of the economy but there may be some winners. For example, New Zealand's home-grown produce, lifestyle products and services, and medical and nursing products and services may experience increased turnover. Other entities may also find a little bit of Kiwi ingenuity goes a long way – for example factories previously dependent on imports may either change methods of production or divert resources to other products.

In this phase, I imagine that BDO Spicers will put additional resource effort into preparing for the worst case – the arrival of deadly avian flu in New Zealand. Hence our focus would be two-fold - helping our clients through the initial impacts of a border closure while working to develop long-term strategies and practices to manage the effects of a potential pandemic in New Zealand.

**(ii) a potential influenza pandemic within New Zealand**

Provided the IT systems are working, I can imagine a scenario similar to the Auckland power crisis in 1998. Current policy at BDO Spicers is that only partners can take files home, but as indicated in 1998, extreme situations call for extreme solutions.

During the power crisis many of the Auckland staff either worked from home or other locations around the city. Importantly, the focus was on urgent tasks rather than what was important in

the long term (i e tasks that could be left a few months). Naturally, anything to do with cash was given a high priority.

In a pandemic, government expenditure is likely to be significant while at the same time, the tax take could hit an all-time low. Consequently, reporting requirements, like those of the NZX and Inland Revenue, may need to be more flexible to meet the significant challenges of auditing and verifying information at a time of high absenteeism and travel restrictions.

In addition, creditors, banks and other financial institutions will be challenged by clients unable to pay interest or invoices, and a flexible approach will need to be developed in order for businesses to recover quickly. Some industries will be able to recover more quickly than others and the speed of recovery will depend on which groups are affected. For example, restaurants, gyms and movie theatres should recover very quickly, whereas other sectors may struggle.

For the accounting profession, the closure of PCE1 and PCE2 educational colleges may create a gap in the expertise in the accounting profession that could be felt for a number of years to come. However, this may be easily resolved by emailing assignments.

## Further information

Information on the probability of a pandemic and the management of the possible consequences of a pandemic is constantly under review. Those interested should refer to the following websites: in New Zealand, www.med.govt.nz/irdev/econ_dev/pandemic-planning/index.html and www.moh.govt.nz/pandemicinfluenza, and internationally, www.who.int/csr/disease/avian_influenza/en/. For those interested in understanding how New Zealand coped with the 1918 influenza pandemic, check out a book called Black November, by Geoffrey W Rice (revised edition 2005, Canterbury University Press), now on sale.

**Table One: Seven key observations from the seminar on *Avian influenza (bird flu) – the next pandemic?***

1. Scientists agree there will be another influenza pandemic but it is not possible to predict when this might occur. There have been three in the last century. Influenza spreads readily from person to person via droplets and aerosols (sneezing) and hand/mouth transmission.
2. The pandemic may or may not be deadly enough to require the closure of the New Zealand border.
3. The key triggers for closure of the New Zealand border currently include:
   (i) The World Health Organisation (WHO) confirms sustained human-to-human transmission (although WHO does not encourage countries to close their borders as a control procedure)
   (ii) New Zealand officials strongly suspect human-to-human transmission overseas
   (iii) Australia and/or Singapore close their borders.

**If deadly but not in New Zealand**

4. Past experience and mathematical modelling indicate that a partial border closure is unlikely to work. Consequently full border closure is the only solution and this may have to be sustained for many months, until a vaccine is available. Notably, New Zealand residents overseas may be required to stay away, overseas residents may be required to stay (NZ has approximately 200,000 international visitors a month) and will need to be accommodated, and all imports and exports stopped (with the possible exception of essential supplies) for a maximum of six months.

**If deadly and in New Zealand**

5. There will be isolation of the sick. This will mean the need for timely testing (probably by swabs) to detect the early entry of the virus to NZ, and possibly the timely creation of flu hospitals (i e in days/weeks). Options might include quarantine, closure of buildings/areas, a restriction on public gatherings, minimal internal travel and closures of schools and universities. These options may or may not slow the spread of illness. To be successfully implemented, such an approach will require major public support.
6. What is clear is that once bird flu is in New Zealand it will be very difficult to manage because:
   (i) patients are likely to be contagious 24 hours before symptoms develop – children may be infectious for up to three weeks (hence the proposal to close schools)
   (ii) some patients may be contagious but never develop symptoms
   (iii) other individuals may have symptoms but not have the pandemic flu. (If human to human transmission does occur, bird flu symptoms are likely to initially appear similar to today's viruses.)
   (iv) hospitals are likely to be full (they are currently approximately 90% full) and may neither have the beds nor wish to risk transmission to already unwell patients. Although a range of options are being developed for expanding acute sector capacity, the public may be asked to assist with the care of contagious patients in their own homes.
7. Past pandemics have dissipated over time and it is likely that this one would follow the same pattern. For example, past pandemics did not have Tamiflu, national health emergency plans or laboratories ready to develop, manufacture and distribute vaccines – but we do have a significant risk, which if managed well may not only save lives but also provide an effective and timely management structure to hasten our economic, social and environmental recovery.

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**Table 2: Auckland power failure 1998**

In the "Auckland Power Supply Failure 1998: The Report of the Ministerial Inquiry into the Auckland Power Supply Failure", the governance and accountability role of public companies in regard to risk management was discussed and is outlined below.

"In public companies directors owe their duty to the company as a whole and not to any individual shareholders, or groups of shareholders. They must take into account the longer-term interests of the company, including the interest of future shareholders, as well as the immediate situation; this requires that directors strive to enhance shareholder wealth in perpetuity rather than maximise short-term benefits to satisfy the particular demands of individual shareholders or classes of shareholders.

"However, since the ongoing prosperity of a company depends to a large extent on its stakeholders being content with its performance and having regard to its future, directors and management must have continuing regard to the interests of stakeholders such as creditors, employees and the community in which it operates. In particular, companies depend on their customers for their revenue and it is essential that they strive to maintain and increase customer satisfaction as far as it is consistent with their other responsibilities … Because companies vary greatly in size, complexity and ownership structure and the quality and experience of the people involved also vary it is difficult to set out a simple formula for good governance. Certain basic requirements must always be met, however, and there are principles and practices that have been found to be valuable in all or most circumstances.

"One of the most basic requirements is that a company manages its risks. The board is responsible for the stewardship of the company's assets, for its reputation and for arranging its affairs so that its ability to generate profits and to grow is not undermined. The board must satisfy itself that the risks facing the business have been identified and evaluated and that those that are likely to occur, and/or carry the most serious consequences if they do occur, have been adequately dealt with.

"The Australian/New Zealand Standard on Risk Management (AS/NZS 4360:1995) sets out a generic framework for risk assessment. There is no suggestion that a board needs to carry out the detailed process itself, but it has a clear responsibility to decide what process the company should adopt and to ensure that it is implemented properly." ■

# Appendix 3: COVID-19 wage subsidy declaration form

The subsidy was often referred to as the high trust model. The Ministry of Social Development website states:

> The Wage Subsidy was a high-trust scheme providing rapid payments up front to businesses affected by COVID-19 restrictions so that employers could continue to pay their employees. The aim was to help prevent job losses and business closures, and employers undertook to pass payments on to staff in wages.
>
> About $18.8 billion was delivered in 2020 and 2021 for wages for more than 1.8 million jobs. Overall 47 per cent of New Zealand jobs, excluding sole traders, were covered by at least one of the 2021 wage subsidies.[273]

The Ministry of Social Development summarises actions taken as at 1 March 2024 as follows:

> Our programme of work includes investigations, post-payment checks, requests for repayment, civil recovery, and in the more serious cases, prosecutions where there is evidence deliberate fraud was involved.
>
> We have engaged with tens of thousands of applicants since the scheme began, and as a result repayments continue to come in.
>
> We've been assisted by the high degree of transparency in the wage subsidy scheme, with an online tool that provides an up-to-date account of payments made to employers, net of any repayments. This has provided additional assurance, allowing employees and other members of the public to question payments or to lay complaints.
>
> Our assurance work is part of actions in response to the May 2021 report of the Office of the Auditor General.
>
> As of 1 March 2024 there has been:
>
> - 25,014 repayments of taxpayers' funds have been made, totalling $824.4 million
> - 15,687 pre-payment and post-payment checks on wage subsidy applications have been made (as of 31 December 2023)
> - 7,461 allegations of wage subsidy misuse have been resolved (as of 31 December 2023)
> - 46 people have been brought before the courts for wage subsidy misuse, in relation to more than $3 million in subsidy payments
> - 45 businesses have civil recovery action underway against them to recover payments
> - 11 cases of significant and complex alleged wage subsidy fraud have been referred to the Serious Fraud Office.[274]

The declaration on the Work and Income: Te Hiranga Tangata website states:

> 'This declaration applies to you if you applied for the COVID-19 Wage Subsidy before 4pm on 27 March 2020.
>
> By submitting this form, you (the employer or self-employed person) are declaring that you:
>
> - meet the eligibility criteria for the subsidy:
>   - your business is registered and operating in New Zealand; and
>   - the employees named in your application are legally employed in New Zealand; and
>   - your business has experienced a minimum 30% decline in actual or predicted revenue:
>     - over the period of any month from January 2020 through to the end of this scheme when compared to the same month last year, or a reasonably equivalent month for any business operating less than a year; and
>     - that loss is attributable to the COVID-19 outbreak; and

  - your business has taken active steps to mitigate the impact of COVID-19 on their business activities (such as engaged with your bank, Chamber of Commerce, industry association or the Regional Business Partner programme); and
  - you agree you will, using best endeavours, retain the employees named in your application in employment on at least 80 percent of their regular income for the period of the subsidy

- will notify the Ministry of Social Development if anything changes that may affect your eligibility
- have discussed this application with the employees named in your application and that they have consented (in writing, if practicable) to the information about them in the application being:
  - provided to the Ministry of Social Development; and
  - used by the Ministry of Social Development to make decisions about your application and to audit and review any subsidy that is granted; and
  - shared by the Ministry of Social Development with other agencies to the extent required by MSD, it's staff and auditors to make decisions about your application and to audit and review any subsidy that is granted

- will provide the Ministry of Social Development with information about you, your business or (with their consent) your employees to the extent required by the Ministry of Social Development, it's staff or auditors to make decisions about your application and to audit and review any subsidy that is granted
- consent to the Ministry of Social Development sharing information provided in this application about you or your business with other agencies to the extent necessary to make decisions about your application and to audit and review any subsidy that is granted
- consent to us publishing basic identifying information about your business and the level and duration of any subsidy provided to you (excluding any personal information about your employees) on a publicly accessible register
- acknowledge and agree all of the information you have provided to us is true and correct
- agree to repay any subsidy made to you if you:
  - were not or stop being entitled to the subsidy
  - provide false or misleading information in your application;
  - receive business interruption insurance

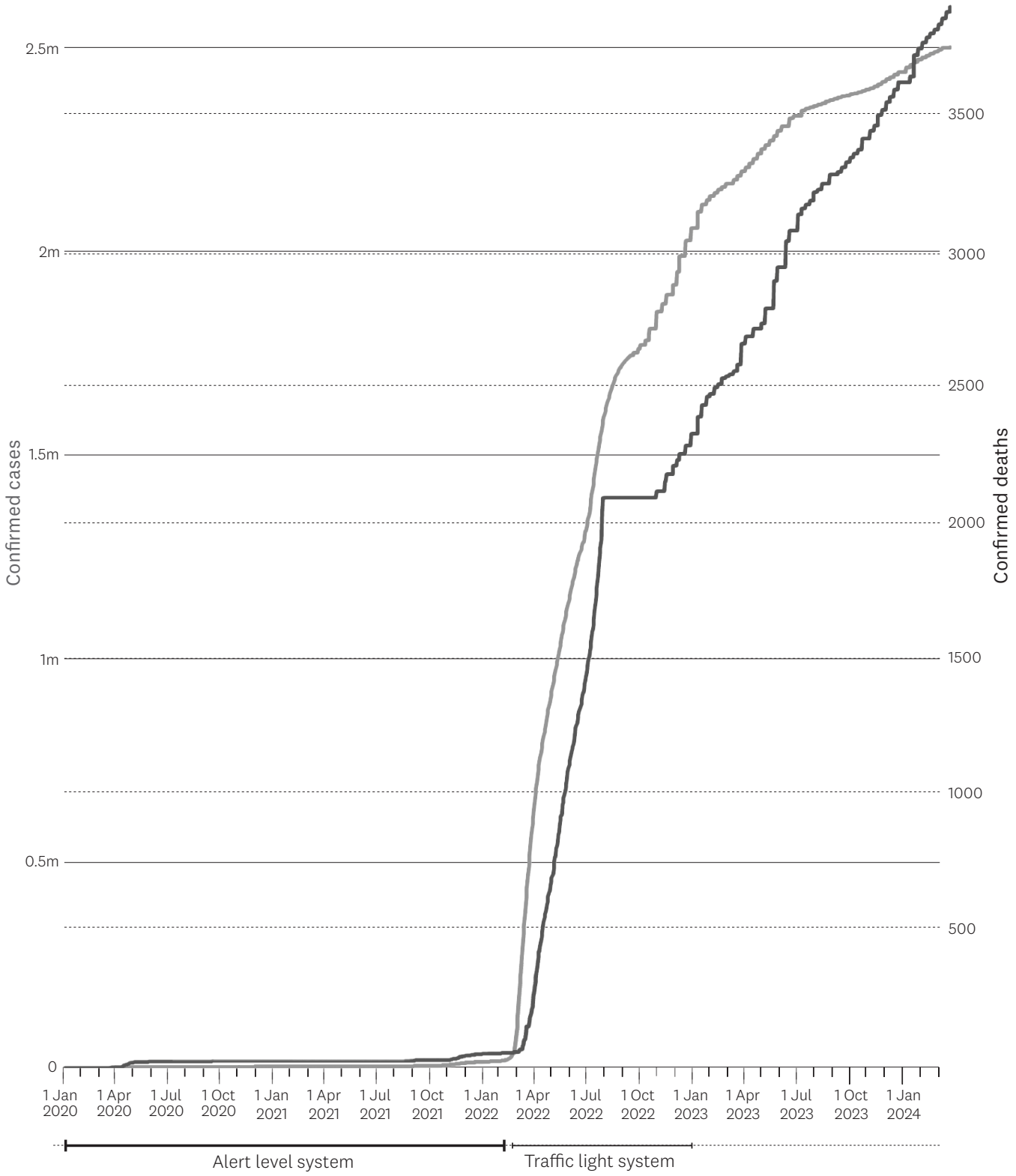
- acknowledge if you have provided false or misleading information, or receive any subsidy or payment that you were not entitled to receive, you may be subject to an investigation including for offences under the Crimes Act 1961
- acknowledge that this declaration forms part of your application
- acknowledge that the Ministry of Social Development may amend this agreement at any time and at their discretion.

In submitting your application you also acknowledge and/or agree:

- the Ministry of Social Development collects the information in this application and form to determine whether you are eligible to receive assistance
- the Ministry of Social Development will use the information provided in this application to assess your eligibility to receive the COVID-19 Wage Subsidy. We may also use the information to contact you or for research and reporting purposes, or to advise you on the matters relating to the assistance you applied for
- the Ministry will not use the information provided in this application for any other purpose or for assessing entitlement to any other assistance available from the Ministry unless required or authorised by law
- under the Privacy Act 1993 you have the right to request access to all information held about yourself and to request corrections to that information.[275]

# Appendix 4: New Zealand COVID-19 cases and deaths[276]

Note: The number of deaths plateaus from 29 July to 28 October 2022 as there were no reported deaths due to COVID-19 for 92 days.



# Appendix 5: Recent pandemics

The following text is from *Nation Dates*, fifth edition (2023).[277]

Taking a long view, pandemics are normal. What makes them appear abnormal is that they tend to start and finish quickly and occur intermittently, often with long periods between.

An epidemic can turn into a pandemic. An epidemic is usually caused by an infectious disease and occurs when many people have the same disease, for example influenza, at the same time. Epidemics of non-infectious diseases such as diabetes or heart disease can also occur. Early evidence of epidemics and pandemics in New Zealand is imprecise due to a number of factors; prior to 1872 in New Zealand statistics for causes of death were not collected, after 1872 under-reporting and misdiagnosis was common (as diseases with similar symptoms were not easily distinguishable), and Māori deaths did not have to be registered with the government until the early 20th century.

A pandemic is when an epidemic spreads between countries and is prevalent around the world. New Zealand has experienced four major pandemics, as outlined in the table below. The Ministry of Health defines a pandemic as 'an epidemic of infectious disease that spreads through human populations across a large region, for example multiple continents or even worldwide'.

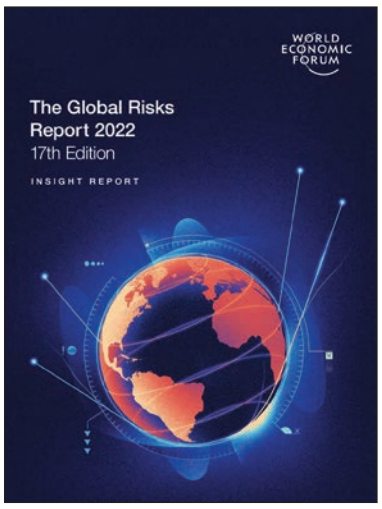
Today, the Ministry of Health (with assistance from the Institute of Environmental Science and Research) monitors infectious diseases and works closely with the World Health Organization (WHO). In addition, the Immunisation Advisory Centre provides independent information on immunisation and vaccine-preventable diseases.

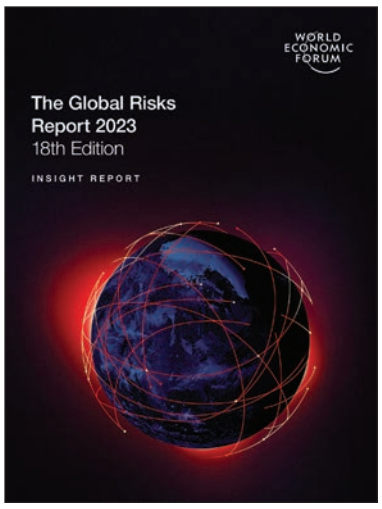
Table A5.1: Recent pandemics that impacted New Zealand, 1890–2024

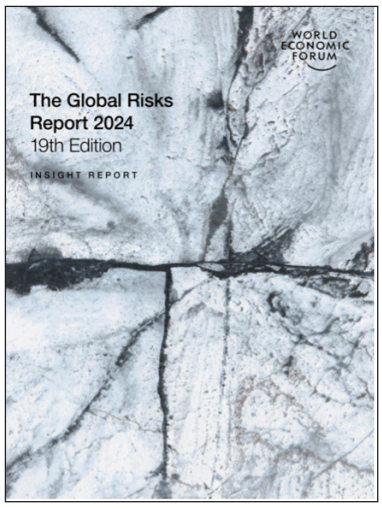
| | |
|---|---|
| **1890–1894** | **Influenza** |
| 1500 deaths (approx.) | 1393 deaths are registered. |
| **Oct 1918** | **H1N1 influenza** |
| 9000 deaths (approx.) | It is estimated one-third of the world's population became infected with the H1N1 influenza virus, with at least 50 million thought to have died worldwide. The high mortality rate in healthy people was a unique feature.<br>The virus is brought to New Zealand by troops returning home from the First World War. Between October and December 1918, the epidemic kills 9000 people – about half the total number of New Zealanders lost in the First World War.<br>Following the pandemic, a 1919 Influenza Epidemic Commission is established to inquire into its cause and to report on ways to improve the management of future epidemics. The commission's report contributes to the Health Act 1920. |
| **April 2009** | **H1N1 pdm09 (swine flu)** |
| 20–80 deaths (approx.) | A novel influenza A (H1N1) virus with a combination of influenza genes not previously identified in animals or humans emerges in the United States as influenza A (H1N1)pdm09.<br>This influenza mostly affects children, young and middle-aged adults. Few young people have any immunity to the virus, compared to almost one-third of people aged over 60, who have existing antibodies, probably from previous exposure to an older H1N1 virus.<br>On 25 April 2009 the first cases arrive in New Zealand among students from an Auckland high school returning from a trip to Mexico. In the following months over 3000 cases are confirmed, and 20 deaths are attributed to the disease, although more may have resulted from infection. The first wave peaks in July 2009 and another wave occurs in 2010. |

| | |
|---|---|
| **2020–2023**<br>3902 deaths<br>(approx. as at 24 March 2024) | **COVID-19**<br>This is the first pandemic caused by a coronavirus, officially known as the SARS-CoV-2 virus. Two smaller human coronavirus outbreaks have occurred over the previous 17 years: the 2003 Severe Acute Respiratory Syndrome (SARS) (technically called SARS-CoV-1) and the 2012 Middle East Respiratory Syndrome (MERS) (MERS-CoV).<br>On 31 December 2019, the World Health Organization (WHO) is first notified about multiple cases of pneumonia from an unknown cause, circulating in Wuhan, China.<br>On 23 February 2020 the first case of COVID-19 arrives in New Zealand unidentified via a traveller from Lombardy, Italy.<br>WHO declares COVID-19 a pandemic on 11 March 2020.<br>For more detail, please see the Institute's book *COVID-19 Nation Dates: A timeline of significant events in Aotearoa New Zealand's COVID-19 pandemic.* |

# Appendix 6: The 2020–2024 World Economic Forum Global Risks Reports




## Background

The World Economic Forum (WEF) regularly asks over 1200 experts across academia, business, government, the international community and civil society[278] to assess the impact of a series of global risks on a scale of 1 to 5 (1 representing a minimal impact and 5 a catastrophic impact).[279] Respondents were asked to value the impact of risks considering multiple criteria, including human suffering, societal disruption, economic shock, environmental degradation and political instability.[280] This research is conducted each year as part of WEF's Global Risks Perception Surveys (GRPSs), and the findings published in their annual Global Risks Reports.

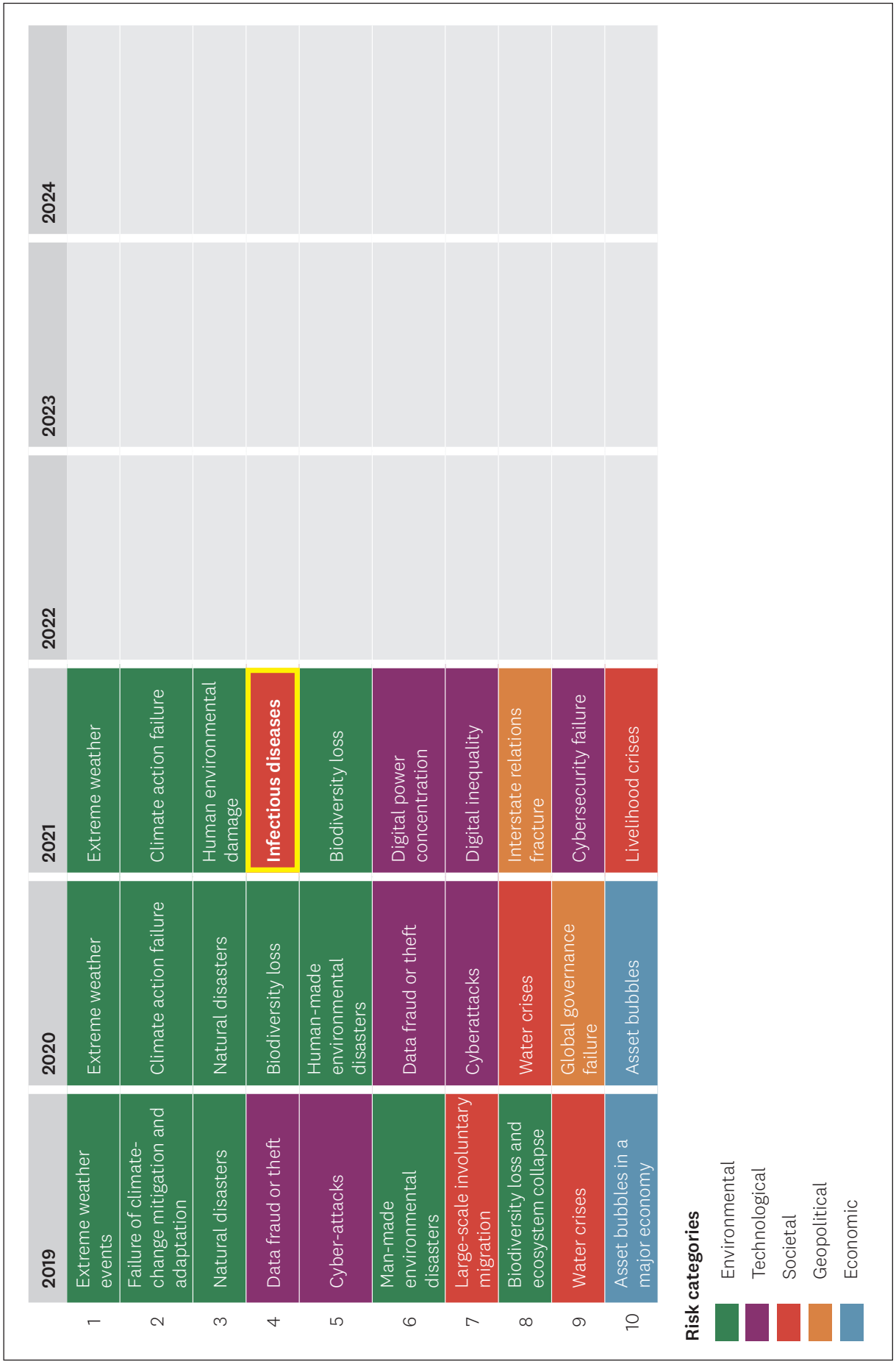
## Observations

Figures A6.1 and A6.2 bring together seven years of results for severity and three years for likelihood. The results illustrate the journey of the global pandemic through the eyes of the 1200 experts. Of note, is the extent 'infectious diseases' dissipates in the minds of experts over time (see yellow highlight added). Importantly, the risk of infectious disease is not identified in the top ten in years 2023 and 2024 – but the risk has not gone away – it has increased (see Lesson 1.1).

The 2024 report states:

> **The aftermath of the COVID-19 pandemic** and ongoing Russia-Ukraine war **has exposed cracks in societies** that are being further strained by episodic upheaval. Yet **the global system has thus far proved surprisingly resilient**. A widely anticipated recession failed to materialize last year, and financial turbulence was quickly subdued, but the outlook remains uncertain. Political strife and violent conflicts, from Niger and Sudan to Gaza and Israel, have captured the attention and apprehension of populations worldwide in some instances while attracting little focus in others. These developments have not yet led to wider regional conflicts – nor have they created globally destabilizing consequences such as those seen at the initial outbreak of the war in Ukraine or the COVID-19 pandemic – but their long-term outlook could bring further shocks. [bold added] (2024, p. 12)
>
> After the hottest Northern Hemisphere summer in recorded history in 2023,2 two-thirds of respondents selected Extreme weather (66%) as the top risk faced in 2024. El Niño, or the warming phase of the alternating El Niño-Southern Oscillation (ENSO) cycle, is expected to strengthen and persist until May this year.3 This could continue to set new records in heat conditions, with extreme heatwaves, drought, wildfires and flooding anticipated. AI-generated misinformation and disinformation (53%) and Societal and/or political polarization (46%) follow in second and third place. **Many countries are still struggling to regain lost years of progress that arose from the COVID-19 pandemic, creating fertile ground for misinformation and disinformation to take hold and polarize communities, societies and countries.** [bold added] [281]

## Figure A6.1: World Economic Forum (WEF) global risks ranked by 'likelihood' over a 10-year period (2019–2025)[282]



## Figure A6.2: World Economic Forum (WEF) global risks ranked by 'severity' over a 10-year period (2019–2025)[283]

# Appendix 7: The 2019 assessment by WHO of international health


### Background

In 2019, the World Health Organization published an evaluation of New Zealand's International Health Regulations Core Capabilities.[284] The Joint External Evaluation (JEE) Secretariat of the World Health Organization (WHO) visited New Zealand to evaluate 19 technical areas through a peer-to-peer, collaborative process that brought national subject matter experts together. This led to consensus over scores and priority actions for each of the 19 technical areas.

### Observations

'Antimicrobial resistance' and 'Risk communication' were New Zealand's weakest areas, evidenced by predominately scores of '3'. These areas are significant in their relationship to preparedness for and prevention of future pandemics.

> The International Health Regulations (IHR) (2005) are the legal framework for protecting global health security through collective international public health action. They outline the minimum core capacities that all WHO Member States must develop to detect, assess, report and respond to acute public health events and emergencies.
>
> In the Western Pacific Region, the Asia Pacific Strategy for Emerging Diseases and Public Health Emergencies (APSED III) serves as a common action framework for Member States to advance IHR (2005) implementation for health security.
>
> The JEE is one of the four components of the updated IHR (2005) monitoring and evaluation framework, along with mandatory State Party self-assessment annual reporting, after action reviews (AARs), and simulation exercises. The JEE provides a unique, voluntary opportunity for multisectoral teamwork within a country, supported by international collaboration, to assess IHR implementation. It promotes transparency, mutual accountability and international collaboration and confidence.
>
> Four overarching recommendations emerged from the week. These are intended to address crosscutting challenges affecting New Zealand's capacities across many of the different technical areas that are explored in greater depth in the JEE process and are outlined below.
>
> 1. Sustain and continue strengthening existing multisectoral, multidisciplinary coordination and collaboration around IHR-related activities at all levels, including through formalizing current arrangements where appropriate.
> 2. Build on the momentum of the JEE process in New Zealand to strengthen implementation of the IHR (2005) and coordinate monitoring and evaluation across agencies through the IHR National Focal Point (NFP).

3. Allocate increased, sustained funding and resources for advancing implementation of the IHR (2005) through APSED III, with a focus on strengthening national action around antimicrobial resistance (AMR), enhancing surveillance and risk assessment, addressing critical human resource needs and building risk communication capacity.
4. Given New Zealand's strong capability, consider formalizing existing arrangements and devising new ones where relevant, to support sustainable IHR implementation in Pacific Island countries and territories.[285]

The report concluded:

> Health security threats are increasingly complex to manage. All countries are vulnerable to the importation and exportation of public health threats of international concern, and the international community has a shared responsibility to prevent, detect and respond to health security threats. This can be achieved through continued investment in preparedness to minimize loss of life, social disruption and economic impact. New Zealand has an important role on the world stage and as a regional reference point, in demonstrating strong capacity by setting high domestic standards and continuing its commitment to, and investment in, regional and global health security.[286]

# SCORES AND PRIORITY ACTIONS

| Technical areas | Indicator no. | Indicator | Score | Priority Actions |
|---|---|---|---|---|
| **PREVENT** | | | | |
| National legislation, policy and financing | P.1.1 | The State has assessed, adjusted and aligned its domestic legislation, policies and administrative arrangements in all relevant sectors to enable compliance with the IHR | 5 | Enhance collaboration and coordination linkages in national legislation and policy development processes and response operations, particularly between the animal and human health sectors, to enable greater cross-governmental efficiencies in maintaining and enhancing the ability to meet IHR obligations.<br>Review current emergency funding mechanisms through a cross-government process to identify areas for improvement, in particular for events with a higher likelihood of occurring. |
| | P.1.2 | Financing is available for the implementation of IHR capacities | 5 | |
| | P.1.3 | A financing mechanism and funds are available for timely response to public health emergencies | 4 | |
| IHR coordination, communication and advocacy | P.2.1 | A functional mechanism established for the coordination and integration of relevant sectors in the implementation of IHR | 4 | Continue to advocate for and communicate the value of sustaining and enhancing investment in health security through the implementation of APSED III.<br>Consider reviewing and upgrading the functions of the IHR NFP to include supporting and coordinating the monitoring and evaluation of IHR implementation, including through annual reporting, JEEs, simulation exercises and AARs.<br>Enhance the functional mechanisms for multisectoral and stakeholder communication, coordination and collaboration, with particular focus on operational linkages between the animal and human health sectors, including public health, clinical services and food safety. |
| Antimicrobial resistance | P.3.1 | Effective multisectoral coordination on AMR | 3 | Ensure adequate resourcing to allow continued implementation of the national AMR Action Plan.<br>Develop national consistency in IPC programmes.<br>Assess antimicrobial stewardship programmes, including treatment guidelines, to determine whether a multiregional or a singular national approach is best.<br>Establish regular AMR surveillance and reporting in animal health and agriculture, and ensure this is coordinated with human AMR surveillance.<br>Establish coordinated reporting for surveillance of human AMR and antimicrobial use. |
| | P.3.2 | Surveillance of AMR | 3 | |
| | P.3.3 | Infection prevention and control | 3 | |
| | P.3.4 | Optimize use of antimicrobial medicines in human and animal health and agriculture | 4 | |

| Technical areas | Indicator no. | Indicator | Score | Priority Actions |
|---|---|---|---|---|
| Zoonotic disease | P.4.1 | Coordinated surveillance systems in place in the animal health and public health sectors for zoonotic diseases/ pathogens identified as joint priorities | 4 | Explore a more structured approach to information sharing between the OIE and the IHR NFPs and comparing their surveillance database information in order to identify gaps.<br>Establish a cross-agency initiative – such as a national multisectoral zoonoses governance arrangement, including the environment sector – in order to achieve a more coordinated, robust approach to management and communication regarding zoonotic diseases/events of public health concern.<br>The MOH and the MPI should introduce an integrated process for regular reviews and updates of their joint list of priority zoonotic diseases. |
| | P.4.2 | Mechanisms for responding to infectious and potential zoonotic diseases established and functional | 4 | |
| Food safety | P.5.1 | Surveillance systems in place for the detection and monitoring of foodborne diseases and food contamination | 5 | Ensure that relevant agencies – individually and jointly – train and exercise regularly in both technical capacities (e.g. diagnostic testing, methodologies, etc.) and soft skills and processes (e.g. communication, partner engagement, etc.).<br>Enhance regional consistency in responses, identifying how the MOH and the MPI can support local responses.<br>Formalize existing ad hoc and informal relationships and processes for information sharing and collaboration between agencies (e.g. the MOH, the MPI, DHBs, industry, etc.), and particularly those related to fulfilling global obligations (e.g. under the IHR and to OIE and FAO) and regional strategies (e.g. APSED III).<br>Explore the establishment of a national joint food industry/cross-government forum for food incidents. |
| | P.5.2 | Mechanisms are established and functioning for the response and management of food safety emergencies | 4 | |
| Biosafety and bios-ecurity | P.6.1 | Whole-of-government biosafety and biosecurity system in place for all sectors (including human, animal and agriculture facilities) | 5 | Conduct periodic reviews of the biosafety and biosecurity regulatory system in order to ensure it remains fit for purpose, including with regard to genetic technology and synthetic biology advances. |
| | P.6.2 | Biosafety and biosecurity training and practices in all relevant sectors (including human, animal and agriculture) | 5 | |

| Technical areas | Indicator no. | Indicator | Score | Priority Actions |
|---|---|---|---|---|
| Immuni-zation | P.7.1 | Vaccine coverage (measles) as part of national programme | 4 | Further develop, resource and implement a plan for improving equity of coverage in vulnerable populations, with a focus on reducing the equity gap for Māori children.<br>Ensure the communicable diseases framework includes surveillance of all vaccine-preventable diseases. |
| | P.7.2 | National vaccine access and delivery | 5 | Upgrade the national immunization register so that it provides a comprehensive solution for monitoring delivery of immunizations for all ages that can identify high-risk groups and can interface with other information systems. |
| **DETECT** | | | | |
| National laboratory system | D.1.1 | Laboratory testing for detection of priority diseases | 5 | Review and optimize the public health laboratory services to ensure public health surveillance, outbreak detection and response needs continue to be addressed, taking into account system changes and emerging technologies.<br>Consider whether national approach for point-of-care testing (POCT) is needed.<br>Include regulation of in vitro diagnostic testing devices in new legislation to formally regulate these products. |
| | D.1.2 | Specimen referral and transport system | 5 | |
| | D.1.3 | Effective national diagnostic network | 5 | |
| | D.1.4 | Laboratory quality system | 5 | |
| Surveil-lance | D.2.1 | Surveillance systems | 4 | Develop a forward-looking communicable diseases framework, reviewing current indicator and event-based surveillance mechanisms, to be supported by an interoperable information and communications platform.<br>Explore automated data sharing between EpiSurv and SIMS.<br>Undertake regular reviews and update documentation relevant to the national notification of diseases.<br>Fully implement direct reporting to EpiSurv.<br>Improve national alignment in contact management systems. |
| | D.2.2 | Use of electronic tools | 4 | |
| | D.2.3 | Analysis of surveillance data | 4 | |
| Reporting | D.3.1 | System for efficient reporting to FAO, OIE and WHO | 5 | Consider a formal mechanism for timely and routine information sharing on potential public health risks between the OIE and the IHR NFPs and finalize a protocol for coordinating the interface between IHR and INFOSAN reporting. |
| | D.3.2 | Reporting network and protocols in country | 5 | |

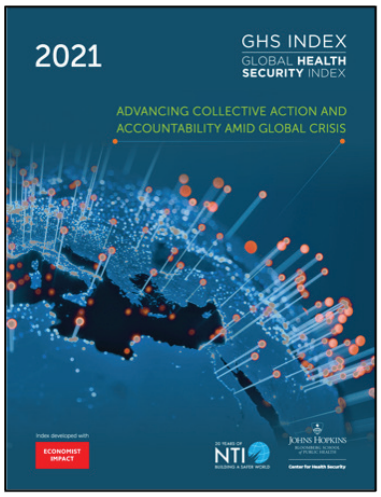
| Technical areas | Indicator no. | Indicator | Score | Priority Actions |
|---|---|---|---|---|
| Human resources (animal and human health sectors) | D.4.1 | An up-to-date multi-sectoral workforce strategy is in place | 4 | Ensure that resources are available for regular reviews of *Te Uru Kahikatea*.<br>Ensure that *Te Uru Kahikatea* prioritizes the development of a public health workforce that reflects New Zealand's demographic profile, with a particular emphasis on Māori and Pacific communities.<br>Ensure there is consistent support for HPOs, public health nurses, public health physicians, veterinarians and other related disciplines to undertake applied epidemiology training at the appropriate levels.<br>Build linkages and data sharing to strengthen public health workforce data collection, including the non-medical workforce, to enable robust monitoring and forecasting to ensure the workforce remains fit for purpose and responsive to future needs. |
| | D.4.2 | Human resources are available to effectively implement IHR | 5 | |
| | D.4.3 | In-service trainings are available | 4 | |
| | D.4.4 | FETP or other applied epidemiology training programme in place | 5 | |
| **RESPOND** | | | | |
| Emergency preparedness | R.1.1 | Strategic emergency risk assessments conducted and emergency resources identified and mapped | 4 | Develop and maintain an ongoing national risk review cycle to support and inform the National Security System and Emergency Management System, including those related to IHR implementation.<br>Enhance existing IHR-related emergency preparedness activity to support and align with the Emergency Management System policy reforms following the 2017 Ministerial Review<br>Continue to implement corrective actions identified in exercises and responses in timely and systematic way.<br>Continue emergency management training for the multidisciplinary health workforce and relevant partners. |
| | R.1.2 | National multisectoral multi-hazard emergency preparedness measures, including emergency response plans, are developed, implemented and tested | 5 | |
| Emergency response operations | R.2.1 | Emergency response coordination | 5 | Resource the development of resilient alternative National Health Coordination Centre arrangements in Auckland in support of the NCMC function.<br>Work across agencies to improve the information and intelligence systems that support decision-making in emergencies, including through increasing access to relevant information on health and IHR hazards. |
| | R.2.2 | Emergency Operations Centre (EOC) capacities, procedures and plans | 5 | |
| | R.2.3 | Emergency Exercise Management Programme | 4 | |
| Linking public health and security authorities | R.3.1 | Public health and security authorities (e.g. law enforcement, border control, customs) linked during a suspect or confirmed biological, chemical or radiological event | 5 | Enhance public health participation in relevant National Security System training at all levels.<br>Enhance the current arrangements which support the effective engagement of public health within the National Security System. |

| Technical areas | Indicator no. | Indicator | Score | Priority Actions |
|---|---|---|---|---|
| Medical countermeasures and personnel deployment | R.4.1 | System in place for activating and coordinating medical countermeasures during a public health emergency | 5 | Maintain arrangements for procuring, storing and distributing medical countermeasures and regularly review the composition of the National Reserve Supply to ensure readiness for public health emergencies.<br>Explore opportunities to enhance personnel and resource support for public health events or emergencies in the Pacific region through existing (e.g. emergency medical teams (EMTs), the Global Outbreak Alert and Response Network, etc.) and new mechanisms. |
| | R.4.2 | System in place for activating and coordinating health personnel during a public health emergency | 5 | |
| | R.4.3 | Case management procedures implemented for IHR relevant hazards | 4 | |
| Risk communication | R.5.1 | Risk communication systems for unusual/ unexpected events and emergencies | 3 | Move quickly to implement the communications-related recommendations to the MOH from the State Services Commission's Performance Improvement Framework by developing and implementing a formal communication plan for stakeholder engagement and management, including sharing resources and joint emergency response exercises.<br>Identify sustainable financing to strengthen and retain an expanded pool of experienced risk communicators in the health and disability sector, and a related information and communication systems capability, to deliver a forward-looking risk communications work programme that includes strengthening community engagement, dynamic listening and the management of miscommunication during routine operations and emergency responses.<br>Implement a best practices toolkit that identifies appropriate cross-sectoral communication channels for specific cultures, vulnerable populations and geographical locations. |
| | R.5.2 | Internal and partner coordination for emergency risk communication | 4 | |
| | R.5.3 | Public communication for emergencies | 3 | |
| | R.5.4 | Communication engagement with affected communities | 3 | |
| | R.5.5 | Addressing perceptions, risky behaviours and misinformation | 3 | |
| **IHR-RELATED HAZARDS AND POINTS OF ENTRY** | | | | |
| Points of entry (PoEs) | PoE.1 | Routine capacities established at points of entry | 5 | Enhance core capacities for responding to public health emergencies at designated POEs by strengthening readiness for chemical and ionizing radiation events, alongside existing communicable diseases and exotic pests capabilities. |
| | PoE.2 | Effective public health response at points of entry | 5 | Strengthen the standardization and interoperability of the public health emergency contingency plan across POEs and public health units by increasing the frequency and scope of exercises including AARs. |

| Technical areas | Indicator no. | Indicator | Score | Priority Actions |
|---|---|---|---|---|
| Chemical events | CE.1 | Mechanisms established and functioning for detecting and responding to chemical events or emergencies | 5 | Develop a national strategic framework for chemical incident surveillance and response.<br>Enhance on-site and laboratory reach-back capabilities for identification/quantification of chemical substances. |
| | CE.2 | Enabling environment in place for management of chemical events | 5 | |
| Radiation emergencies | RE.1 | Mechanisms established and functioning for detecting and responding to radiological and nuclear emergencies | 4 | Undertake a review of the National Radiation Incident Response Plan (NRIRP) and update to take account of the new legislation (Radiation Safety Act 2016) and the requirements in IAEA General Safety Requirements Part 7.<br>Develop national guidance on medical management of radiation emergencies, public health risk assessment and risk communications, then test implementation through full-scale exercises.<br>Explore developing relevant expertise and capacity for monitoring internal radiation contamination and performing internal radiation dose assessment. |
| | RE.2 | Enabling environment in place for management of radiological and nuclear emergencies | 4 | |

Scores: 1=No capacity; 2=Limited capacity; 3=Developed capacity; 4=Demonstrated capacity; 5=Sustainable capacity.

# Appendix 8: The 2021 GHS Index country profile for New Zealand




## Background

The Global Health Security (GHS) Index is a comprehensive assessment and benchmarking of health security and related capabilities across the 195 countries that make up the States Parties to the International Health Regulations (IHR [2005]),[287] the global treaty governing country requirements to mitigate cross-border health threats. The 2021 edition captures data during a period where countries were responding to and dealing with the effects of COVID-19 (August 2020 and June 2021):

> '[C]ountries now have a more acute understanding of what this lack of preparedness means for their health and prosperity. This understanding presents an opportunity to convert high levels of political awareness about pandemics to long-term gains in preparedness by sustaining newly developed tools and building out additional capacities to better protect lives and livelihoods against the next pandemic.'[288]

## Observations

The 2021 GHS Index scored New Zealand as 62.5 and ranked us 13 out of 195 countries.[289] See Figure A8.1 overleaf. Areas New Zealand scored particularly low in were: 'Prevention' (45); 'Rapid Response' (50.3); and 'Health System' (48.9). In contrast the 2019 GHS Index scored New Zealand as 54.0 and ranked us 35/195.[290]

The GHS Index website states that despite significant steps taken by countries to respond to the COVID-19 pandemic:

> All countries remain dangerously unprepared for future epidemic and pandemic threats, including threats **potentially more devastating than COVID-19**. [bold added][291]

And importantly the Index does not tell the full story, particularly given the US had the top score in the 2019 GDS Index. This 21 April 2020 article explains:

> Given that overall finding, it is important to dispel misconceptions regarding the score of 83.5 (out of a possible 100 [in the 2019 GDS Index[292]) received by the United States. Although the United States received the top score of 195 countries assessed and was ranked number one, its score and rank do not indicate that the country is adequately prepared to respond to potentially catastrophic infectious disease outbreaks. Significant preparedness gaps remain, and some of those are playing out in the current crisis. **The United States' response to the COVID-19 outbreak to date shows that capacity alone is insufficient if that capacity isn't fully leveraged. Strong health systems must be in place to serve all populations, and effective political leadership that instills confidence in the government's response is crucial.** [bold added] [293]

Figure A8.1: The 2021 Global Health Security (GHS) Index for New Zealand[294]

# New Zealand

**62.5** Index Score **13**/195


| | 2019 SCORE | 2021 SCORE | 2021 GLOBAL AVERAGE |
|---|---|---|---|
| **PREVENTION** | **48.4** | **45** | **28.4** |
| Antimicrobial resistance (AMR) | 83.3 | 83.3 | 45.3 |
| Zoonotic disease | 53.8 | 33.6 | 19.8 |
| Biosecurity | 28 | 28 | 18.7 |
| Biosafety | 50 | 50 | 20.9 |
| Dual-use research and culture of responsible science | 0 | 0 | 2.6 |
| Immunization | 75 | 75 | 63.3 |
| **DETECTION AND REPORTING** | **47.6** | **75.3** | **32.3** |
| Laboratory systems strength and quality | 50 | 87.5 | 44.9 |
| Laboratory supply chains | 50 | 100 | 15.9 |
| Real-time surveillance and reporting | 62.5 | 62.5 | 34.6 |
| Surveillance data accessibility and transparency | 23.3 | 26.7 | 34.7 |
| Case-based investigation | 75 | 75 | 16.9 |
| Epidemiology workforce | 25 | 100 | 46.5 |
| **RAPID RESPONSE** | **55.3** | **50.3** | **37.6** |
| Emergency preparedness and response planning | 83.3 | 75 | 30.4 |
| Exercising response plans | 0 | 25 | 21.1 |
| Emergency response operation | 33.3 | 33.3 | 27 |
| Linking public health and security authorities | 0 | 0 | 22.1 |
| Risk communication | 83.3 | 83.3 | 57.9 |
| Access to communications infrastructure | 87.4 | 85.7 | 65.7 |
| Trade and travel restrictions | 100 | 50 | 39 |

*Scores are normalized (0–100, where 100 = most favorable)*

| | 2019 SCORE | 2021 SCORE | 2021 GLOBAL AVERAGE |
|---|---|---|---|
| **HEALTH SYSTEM** | **46.6** | **48.9** | **31.5** |
| Health capacity in clinics, hospitals, and community care centers | 37.3 | 53.7 | 30 |
| Supply chain for health system and healthcare workers | 61.1 | 61.1 | 28.5 |
| Medical countermeasures and personnel deployment | 50 | 50 | 10.3 |
| Healthcare access | 52.7 | 52.7 | 55.2 |
| Communications with healthcare workers during a public health emergency | 50 | 50 | 10.8 |
| Infection control practices | 0 | 0 | 40.5 |
| Capacity to test and approve new medical countermeasures | 75 | 75 | 45.1 |
| **COMPLIANCE WITH INTERNATIONAL NORMS** | **59.7** | **77.8** | **47.8** |
| IHR reporting compliance and disaster risk reduction | 50 | 100 | 58.5 |
| Cross-border agreements on public and health emergency response | 100 | 100 | 50 |
| International commitments | 100 | 100 | 56.1 |
| JEE and PVS | 0 | 25 | 18.7 |
| Financing | 41.7 | 75 | 35.2 |
| Commitment to sharing of genetic and biological data and specimens | 66.7 | 66.7 | 68.4 |
| **RISK ENVIRONMENT** | **76.9** | **77.7** | **55.8** |
| Political and security risk | 92.3 | 93.5 | 58.1 |
| Socio-economic resilience | 93.1 | 93.1 | 60.9 |
| Infrastructure adequacy | 83.3 | 83.3 | 50.2 |
| Environmental risks | 35.2 | 38 | 54.7 |
| Public health vulnerabilities | 80.8 | 80.8 | 55.3 |

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www.ghsindex.org

# Appendix 9: The 2021 GDS Index assessment of the New Zealand Influenza Pandemic Plan: A framework for action (2017)

Figure A9.1: The 2021 GDS Index assessment of the New Zealand Influenza Pandemic Plan: A framework for action (2017)[295]

GDS19–28

## Influenza Pandemic Plan: A framework for action


**Purpose:**

*'To minimise deaths, serious illness and serious disruption to communities and the economy arising from an influenza pandemic.'* (p. 1)

**Strategy (to achieve the purpose):**

The approach is to provide a six-phase model of actions: plan for it, keep it out, stamp it out, manage it (pandemic management), manage it post-peak and recover from it (recovery). (p. 9)

**Key data**

| | |
|---|---|
| Publication date: | August 2017 |
| Duration: | 2017–NK |
| Number of pages: | 193 |
| Signed by: | Chief Executive only |
| This GDS replaces: | *Influenza Pandemic Action Plan* (2010) |
| Jointly held with: | Not applicable |
| Transferred from: | Not applicable |
| Strategy map: | Yes, p. 10 |
| Legislation: | Not applicable |

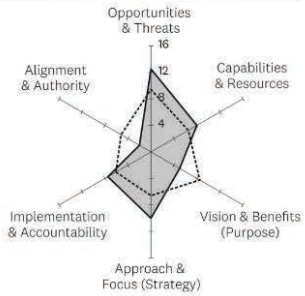
**2021 Scoring**

Rank:

99= out of 221 GDSs

24 out of the 48 GDSs in the Ministry of Health

24 out of the 48 GDSs in the Health Sector




| | | Strategy score | Out of |
|---|---|---|---|
| **1:** | **Opportunities and Threats** | | |
| 1.1 | Does it identify potential opportunities going forward? | 2 | 4 |
| 1.2 | Does it identify potential threats going forward? | 3.5 | 4 |
| 1.3 | Does it contain a clear statement describing the problem that the strategy is trying to solve? | 7 | 8 |
| **2:** | **Capabilities and Resources** | | |
| 2.1 | Does it identify current and future capabilities? | 3 | 4 |
| 2.2 | Does it identify what capabilities it does not have and needs to acquire or work around? | 1.5 | 4 |
| 2.3 | Does it identify current and future resources? | 2.5 | 4 |
| 2.4 | Does it identify what resources it does not have and needs to acquire or work around? | 1 | 4 |
| **3:** | **Vision and Benefits (Purpose)** | | |
| 3.1 | Does it provide a clear aspirational statement as to what success would look like? | 2 | 8 |
| 3.2 | Does it identify who the beneficiaries are and how they will benefit? | 2.5 | 4 |
| 3.3 | Does it describe how success will be measured and over what time frame? | 0.5 | 4 |
| **4:** | **Approach and Focus (Strategy)** | | |
| 4.1 | Does it break down the purpose into a number of strategic goals/objectives that are tangible, specific and different from each other? | 2.5 | 4 |
| 4.2 | Does it identify a range of strategic options to solve the problem? | 3.5 | 4 |
| 4.3 | Does it clearly describe the chosen approach, outlining what it will and will not do? | 2 | 4 |
| 4.4 | Does it highlight the risks, costs and benefits of the chosen pathway/approach? | 2 | 4 |
| **5:** | **Implementation and Accountability** | | |
| 5.1 | Does it identify who is responsible for implementing the GDS? | 4 | 4 |
| 5.2 | Does it identify who will report on its progress? | 2 | 4 |
| 5.3 | Does it explain how progress will be reported and over what time frames? | 1 | 4 |
| 5.4 | Does it discuss whether the GDS will undergo a review while it is active or once it is completed? | 0.5 | 4 |
| **6:** | **Alignment and Authority** | | |
| 6.1 | Does it discuss predecessors to the strategy and identify any lessons learnt from these? | 2 | 4 |
| 6.2 | Does it align with its department's SOI? | 0 | 6 |
| 6.3 | Does it align with its department's annual report? | 0 | 6 |
| **Total** | | 45 | 96 |

*19: Ministry of Health—Manatū Hauora* 191

# Appendix 10: List of MOH pandemic documents, 2002–2018

Notes:

1. The date listed is the date of publication (as specified by MOH) and may vary from the date on the document.
2. This table is not to be relied on as an exhaustive list of all epidemic- and pandemic-related publications by the Ministry of Health.

Table A10.1: Government epidemic and pandemic publications, pre-1 January 2020[296]

| Date published | Name of publication | Summary |
|---|---|---|
| 2 Mar 2002 | Exercise Virex National Report (nationwide pandemic response exercise held on 14 January 2002). | Although New Zealand has not experienced an influenza pandemic since 1969 the New Zealand health sector must be prepared to deal with the realities and consequences of such an event and have strategic action plans in place. |
| 2 Jun 2006 | National Laboratory Guidelines for Pandemic Influenza | The National Laboratory Guidelines for Pandemic Influenza were compiled in consultation with members of the New Zealand Virology Laboratory Network. They are intended for use by health professionals and laboratory staff to ensure safe handling and collection of human specimens for diagnosis of influenza with pandemic potential. |
| 2 Feb 2007 | Pandemic Influenza Exercise Programme - Coordinating Instruction for Exercise Cruickshank (Version 2) | Exercise Cruickshank was a whole-of-government influenza pandemic exercise led by the Ministry of Health. |
| 2 Jul 2007 | Getting Through Together: Ethical values for a pandemic | The National Ethics Advisory Committee – Kāhui Matatika o te Motu (NEAC) has completed its work on ethical values for a pandemic. |
| 2 Oct 2007 | Report on Exercise Cruickshank (nationwide pandemic response exercise held over 5 days in May 2007). | Exercise Cruickshank was the largest exercise of its kind to be conducted. It successfully practiced the four stages of a pandemic response across more than 40 government agencies at local, regional and national levels in New Zealand. |
| 2 Jul 2008 | Guidelines for Public Health Services on Cluster Control for Pandemic Influenza | These guidelines describe the public health interventions that may be used by Public Health Units in the cluster control phase of pandemic influenza. |
| 2 May 2009 | National serosurvey of vaccine preventable diseases | The serosurvey is based on blood test results of children aged 6-15 years and adults aged from 16-70 years. The study from 2005 to 2007 measures immunity derived from vaccination or past infection. This information is helpful in determining the potential for future epidemics, potential age groups at risk, the need for public health intervention, and evaluation of vaccine specific programmes. |
| 2 Jan 2010 | Early Protection Immunisation Programme: Information pack | Information for DHBs, PHOs and vaccination providers about the Early Protection Influenza Immunisation Programme commencing on 1 February 2010.<br>The Pack includes information on the Early Protection Programme, eligibility criteria, pandemic monovalent influenza vaccine details, clinical guidelines, pandemic influenza vaccine ordering and programme resources. |

| Date published | Name of publication | Summary |
|---|---|---|
| 2 Jun 2010 | Seroprevalence of the 2009 influenza A (H1N1) pandemic in New Zealand | A new scientific study shows the full effect of Pandemic Influenza H1N1 in New Zealand in 2009 |
| 2 Sep 2011 | National Health Emergency Plan: Mass casualty action plan | The National Health Emergency Plan: Mass Casualty Action Plan provides strategic direction and co-ordination to the health sector in the event of an incident resulting in a large number of casualties.<br>The purpose of the Plan is to provide national direction on the management of a mass casualty incident, when the impact of the incident has the potential to overwhelm parts of the health sector. |
| 5 Dec 2013 | National Health Emergency Plan: National Reserve Supplies Management and Usage Policies, 3rd edition | This document describes policy for the management and use of national reserve supplies, and details the principal responsibilities of the Ministry and district health boards in managing and using these significant national resources. |
| 5 Dec 2013 | National Health Emergency Plan H5N1 Pre-Pandemic Vaccine Usage Policy | This document provides some details about New Zealand's H5N1 pre-pandemic vaccine supplies, and outlines policies for the use of the vaccine. |
| 15 Oct 2015 | National Health Emergency Plan - A framework for the health and disability sector | The National Health Emergency Plan (NHEP) is a key emergency management document for the health and disability sector. |
| 20 Jun 2017 | Composition of the national reserve supply | National reserve supplies are designed to ensure that critical health services and supplies are available during large or prolonged emergencies that generate unusual demands on normal health service stocks or supply chains. The composition is updated in an ad hoc manner; the last update was in 2013 (see entry for 28 June 2020 in section 4). This document relates to the National Health Emergency Plan: National Reserve Supplies Management and Usage Policies, 3rd edition. |
| 4 Aug 2017 | New Zealand Influenza Pandemic Plan (IPP) | The New Zealand Influenza Pandemic Plan: A framework for action (NZIPAP) sets out the all-of-government measures to be taken to prepare for and respond to an influenza pandemic. It updates the New Zealand Influenza Pandemic Action Plan 2010. |
| 23 Nov 2018 | Exercise Pomare: Post Exercise Report | Exercise POMARE was an all-of-government influenza pandemic exercise led by the Ministry of Health.<br>Exercise POMARE was developed to enhance all-of-government pandemic readiness by ensuring government agencies understood their roles and responsibilities before, during and after a pandemic response. |

Figure A10.1: Diagram of New Zealand's National Health Emergency Plan[297]

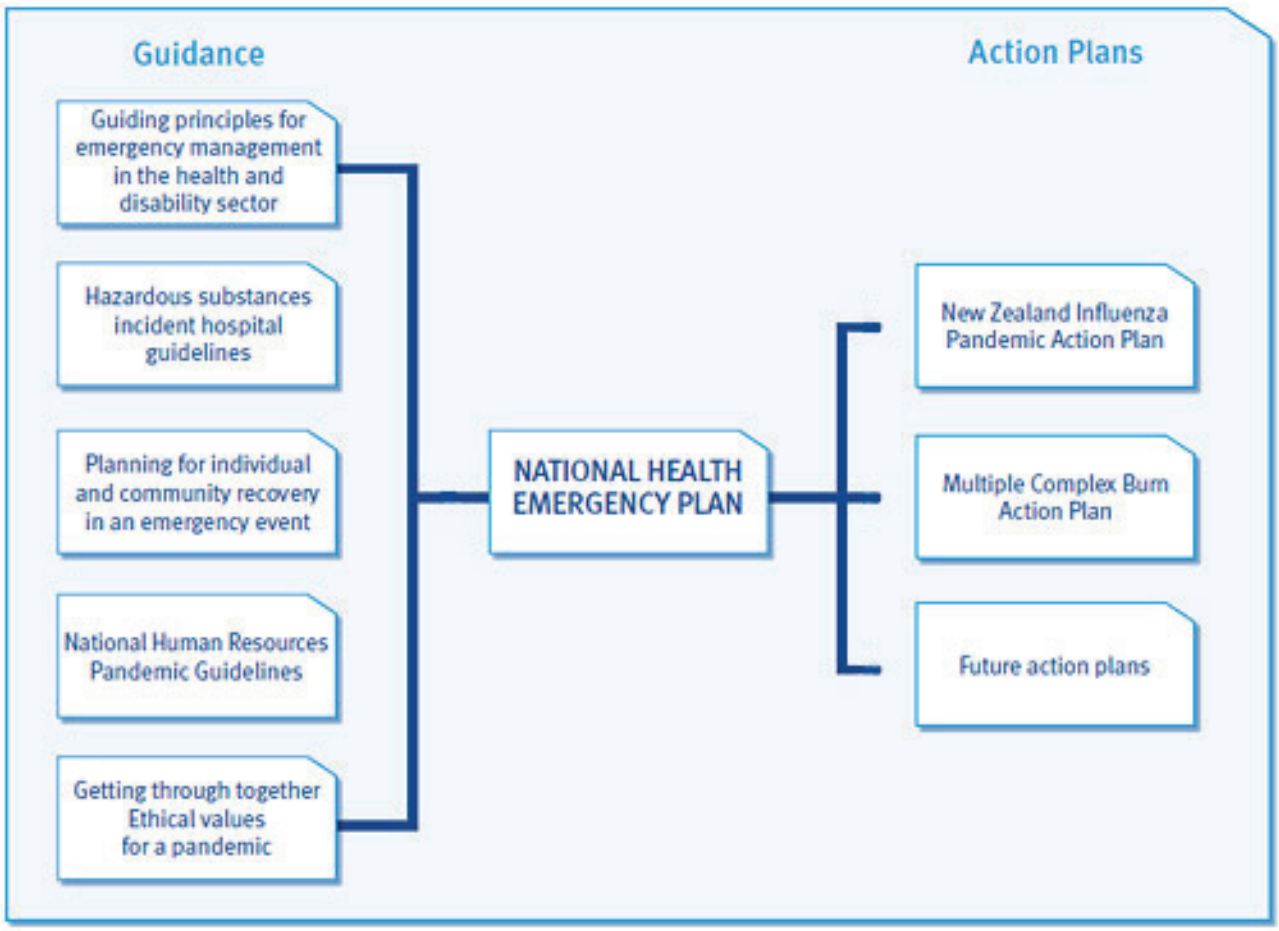
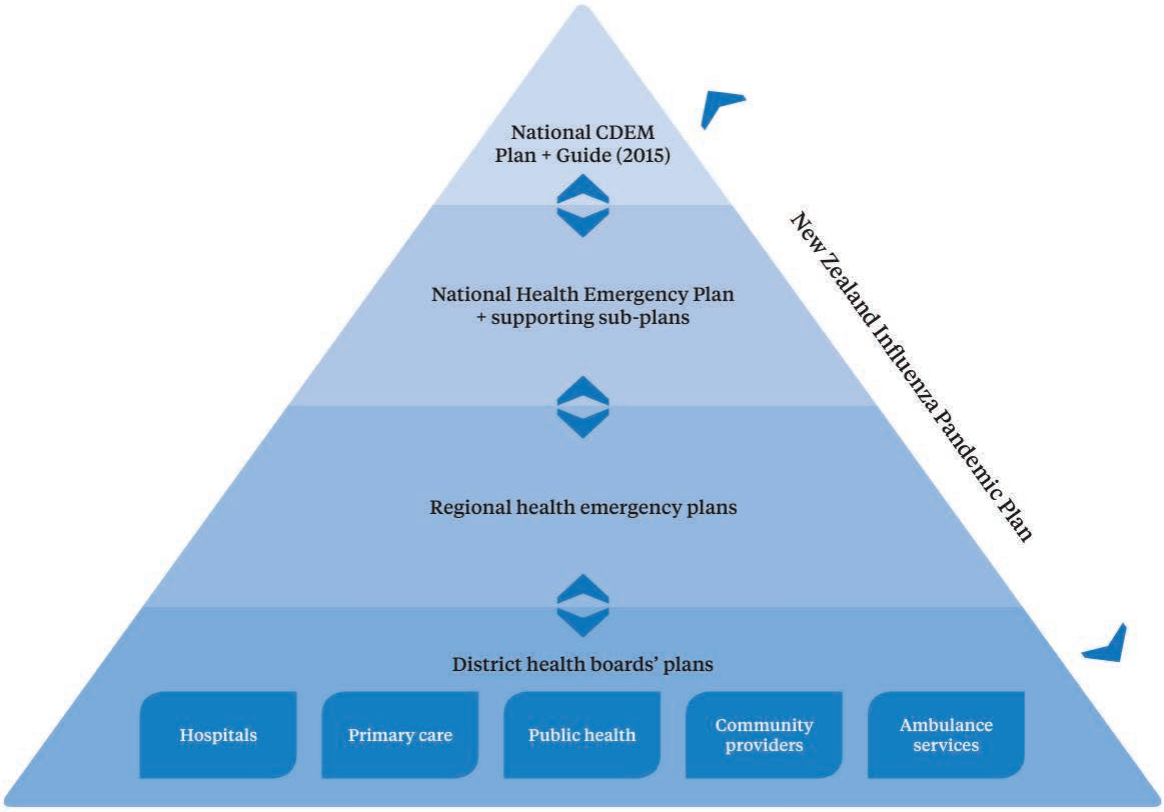
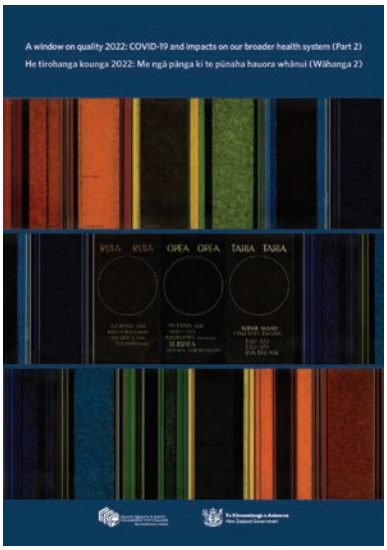



Figure A10.2: Map of New Zealand's health emergency management documents[298]



# Appendix 11: The 2023 Health Quality & Safety Commission report




The second report by the Health Quality & Safety Commission, *A window on quality 2022: COVID-19 and impacts on our broader health system (Part 2)*, notes a number of observations:

- The pandemic has contributed to reductions in the rate of childhood **immunisations** in Aotearoa New Zealand. Since March 2020, rates of immunisations among six-month-olds have fallen from 80% to 66% in June 2022. Coverage of 24-month-olds has fallen from 91% in March 2020 to 83% in June 2022. This has particularly impacted Pacific and Māori babies and babies in families living in poverty.
- The pandemic has contributed to reductions in rates of **screening for breast and cervical cancer**. Total breast screening coverage fell from 72% in June 2019 to 66% in June 2020 and has remained at a lower level since then, after six years of stable 72% coverage.
- **Emergency departments** have experienced increasingly difficult circumstances. Feedback from frontline staff indicates the main reason for these difficulties is that limited system resources (made worse by pandemic effects on staffing levels) have come up against greater, more complex, demand arising from the pandemic. Recent data suggests the number of presentations to emergency departments has been steady overall but the number of more urgent presentations has increased since the first lockdown in 2020.
- Access to **planned care** has become clogged. The percentage of patients waiting longer than four months for their first specialist assessment has increased from 14% to 26% in the year to May 2022. The number of patients who were given a commitment to treatment but did not receive that treatment within the required timeframe (four months) has more than doubled in the last year to almost 28,000 (41%) in May 2022. Planned care activity in hospitals dropped sharply over the first lockdown, creating a backlog, but this elective activity returned to expected levels. Starting again at the Delta outbreak in August 2021, however, the situation has worsened, with activity consistently lower than that expected based on earlier years.

Child and Youth

- The number of antidepressants and antipsychotics dispensed to those aged 0–17 years clearly increased at the start of the pandemic. More children aged 0–15 years were admitted to hospital for mental health reasons than would be expected from June 2020 to the August 2021 lockdown. Among children aged 10–14 years, hospital admissions with diagnoses of intentional self-harm (especially intentional self-poisonings) have risen since March 2020.
- The Eating Disorders Association of New Zealand reports a 58% increase in requests for assistance through its helpline in the 2020/21 financial year. New community referrals of those aged under 19 years to Auckland's Tupu Ora community-based specialist eating disorder service rose from around 100 per year to a new high of 180 in 2020/21. Hospital admissions likewise rose to an unprecedented high in 2020/21 for young people in the area of metro Auckland DHBs who have become medically unstable as a consequence of the severity of their eating disorder.

Working age adults

- The number of antidepressants dispensed increased after March 2020 and remained higher than the steady rates observed between January 2016 and January 2020. The change is not due to the introduction of wholesale limits to dispensings of medication for a period early in the pandemic.

Older people

- Despite the obvious disruptions to the networks, organisations and connections between whānau that support older people, including restrictions on those in aged residential care facilities, it is challenging to find data to quantify the mental health impacts of the pandemic on older people. Recent qualitative work has shown the pandemic has had effects on loneliness in older people, coalescing around three inter-connected ways older people themselves conceptualised and experienced loneliness: feeling disconnected, feeling imprisoned and feeling neglected.

Compounding effects of workforce stress and environmental instability

- Long-standing stresses on the health system are compounded by their effects on the workforce. Burnout leads to higher sickness rates and turnover, both of which further increase the workforce deficit. These effects bring the risk of creating a vicious cycle of further stress and departures. Distraction occurs where staff simply have too few resources to provide the level of care they would like to, often with activities foundational to good-quality care being foregone. This risks worse health outcomes and adverse events, which result in a psychological toll on staff and make burnout more likely. Again, a vicious cycle of reduced staffing and poorer care can develop. Several surveys report high levels of burnout in general practitioners (GPs) and the specialist medical workforce.

Health and Disability Commissioner complaints

- The Health and Disability Commissioner (HDC) has received an unprecedented number of complaints in the financial year 2021/22, 45% higher than 2018/19. In 2021/22, 26% of all complaints received were about issues related to COVID-19. HDC is currently receiving around 60–70 complaints related to COVID-19 a month. In the latest year's data, 18% of the complaints related to COVID-19 (158 in total) were about the impact of the pandemic on the system, including delayed care, staffing and other issues.[299]

# Endnotes

1 See Kissinger, H.A. (2022). *Leadership: Six Studies in World Strategy*. New York: Penguin Press, p. xvi.

2 See Bartels, M. (6 February 2024). Rampant COVID Poses New Challenges in the Fifth Year of the Pandemic. *Scientific American*. Retrieved 11 April 2024 from www.scientificamerican.com/article/rampant-covid-poses-new-challenges-in-the-fifth-year-of-the-pandemic

3 See McGuinness, W. (December 2005). Managing the risk of a 'bird flu' pandemic – a Chartered Accountant's perspective. *Chartered Accountants Journal of New Zealand.* Retrieved 28 March 2024 from www.mcguinnessinstitute.org/publications/articles

4 See Cyefin. (n.d.). About – Cyefin Framework. Retrieved 28 March 2024 from thecynefin.co/about-us/about-cynefin-framework

See also the original academic paper. Snowden, D.J. & Boone, M.E. (November 2007). A Leader's Framework for Decision Making. *Harvard Business Review*. Retrieved 28 March 2024 from hbr.org/2007/11/a-leaders-framework-for-decision-making

5 Importantly the time taken between first and second cases was found to also be reducing. Hear recording of Rodney Jones at Radio New Zealand (RNZ). (20 August 2021). Will the nationwide lockdown be extended? Retrieved 28 March 2024 from www.rnz.co.nz/national/programmes/ninetonoon/audio/2018809041/rodney-jones-will-the-nationwide-lockdown-be-extended

See also research supporting his comments:

Hart, W.S., Miller, E., Andrews, N.J., Waight, P., Maini, P.K., Funk, S. & Thompson, R.N. (14 February 2022). Generation time of the alpha and delta SARS-CoV-2 variants: an epidemiological analysis. *Lancet Infectious Diseases, 22*(5), 603–610. Retrieved 28 March 2024 from doi.org/10.1016/S1473-3099(22)00001-9

Madewell, Z.J., Yang, Y., Longini, I.M., Halloran, M.E., Vespignani, A. & Dean, N.E. (26 June 2023). Rapid review and meta-analysis of serial intervals for SARS-CoV-2 Delta and Omicron variants. *BMC Infectious Diseases, 23*, 429. Retrieved 28 March 2024 from doi.org/10.1186/s12879-023-08407-5

6 See Ministry of Health (MOH). (Updated 14 March 2023). COVID-19: Vaccine data. Retrieved 12 August 2025 from https://web.archive.org/web/20230315000343/https://www.health.govt.nz/covid-19-novel-coronavirus/covid-19-data-and-statistics/covid-19-vaccine-data

7 Small, Z. (23 December 2020). The 1-in-100 year event: Political party leaders reveal how COVID-19 has shaped their view of governance. Newshub. Retrieved 16 April 2024 from www.newshub.co.nz/home/politics/2020/12/the-1-in-100-year-event-political-party-leaders-reveal-how-covid-19-has-shaped-their-view-of-governance.html

8 See *COVID-19 Nation Dates* (1st ed.). Appendix 1.

9 See Ministry of Health (MOH). (Updated 18 March 2024). National Reserve Supplies. Retrieved 28 March 2024 from www.health.govt.nz/our-work/emergency-management/national-reserve-supplies

10 'According to the CDC, age remains the strongest predictor of poor outcomes and severe illness in patients with COVID-19. Data from the National Vital Statistics System (NVSS) at CDC states that patients with COVID-19 aged 50 to 64 years have a 25 times higher risk of death when compared to adults infected with this illness and aged less than 30 years. In patients 65 to 74 years old, this risk increases to 60 times. In patients older than 85, the risk of death increases to 340 times. According to the CDC, these data include all deaths in the United States throughout the pandemic, from February 2020 to July 1, 2022, including deaths among unvaccinated individuals. The percentage of COVID-19 patients requiring hospitalization was 6 times higher in those with preexisting medical conditions than those without medical conditions (45.4% vs. 7.6%) based on an analysis by Stokes et al. of confirmed cases reported to the CDC from January 22 to May 30, 2020. The study also reported that the percentage of patients who succumbed to this illness was 12 times higher in those with preexisting medical conditions

than those without (19.5% vs 1.6%).' See Cascella, M., Rajnik, M., Aleem, A., Dulebohn, C.S. & Di Napoli, R. (Updated 18 August 2023). *Features, Evaluation, and Treatment of Coronavirus (COVID-19).* Treasure Island (FL): StatPearls. Retrieved 28 March 2024 from www.ncbi.nlm.nih.gov/books/NBK554776

11 'The Beta and Delta variations were associated with a higher risk than the Alpha, and Gamma variants, as shown by a higher hospitalization rate, severity of illness, and mortality.' See Alam, M.M., Hannan, S.B., Saikat, T.A., Limon, M.B., Topu, M.R., Rana, M.J., Salauddin, A., Bosu, S. & Rahman, M. (11 July 2023). Beta, Delta, and Omicron, Deadliest Among SARS-CoV-2 Variants: A Computational Repurposing Approach. *Evol Bioinformatics Online, 19.* Retrieved 28 March 2024 from pubmed.ncbi.nlm.nih.gov/37457042

12 See Baker, M., Kvalsvig, A., & Harwood, M. (27 February 2024). A pandemic that won't go away – as COVID enters its 5th year, NZ needs a realistic strategy. The Conversation. Retrieved 27 March 2024 from theconversation.com/a-pandemic-that-wont-go-away-as-covid-enters-its-5th-year-nz-needs-a-realistic-strategy-224047

13 See 1News. (28 February 2024). Sir Ashley Bloomfield: Four years since NZ's first Covid case. Retrieved 27 March 2024 from www.1news.co.nz/2024/02/28/sir-ashley-bloomfield-four-years-since-nzs-first-covid-case

14 See Baker, M., Kvalsvig, A. & Harwood, M. (27 February 2024). A pandemic that won't go away – as COVID enters its 5th year, NZ needs a realistic strategy. The Conversation. Retrieved 11 April 2024 from theconversation.com/a-pandemic-that-wont-go-away-as-covid-enters-its-5th-year-nz-needs-a-realistic-strategy-224047

15 See New Zealand Treasury. (13 June 2023). Overview of the COVID-19 Response and Recovery Fund (CRRF). Retrieved 9 April 2024 from www.treasury.govt.nz/information-and-services/nz-economy/covid-19-economic-response/overview-covid-19-response-and-recovery-fund-crrf

See also New Zealand Treasury. (14 June 2023). COVID-19 Response and Recovery Fund (CRRF) funding decisions. Retrieved 9 April 2024 from www.treasury.govt.nz/publications/data/covid-19-response-and-recovery-fund-crrf-funding-decisions

16 The term antifragile comes from Nassim Taleb's book by the same name: *Antifragile: Things That Gain From Disorder*. A *Guardian* book review by David Runciman in 2012 summarised the difference between being fragile, robust and antifragile. 'You are fragile if you avoid disorder and disruption for fear of the mess they might make of your life: you think you are keeping safe, but really you are making yourself vulnerable to the shock that will tear everything apart. You are robust if you can stand up to shocks without flinching and without changing who you are. But you are antifragile if shocks and disruptions make you stronger and more creative, better able to adapt to each new challenge you face. Taleb thinks we should all try to be antifragile.' See Runciman, D. (21 November 2012). Antifragile: How to Live in a World We Don't Understand by Nassim Nicholas Taleb – review. *The Guardian*. Retrieved 28 March 2024 from www.theguardian.com/books/2012/nov/21/antifragile-how-to-live-nassim-nicholas-taleb-review

17 See *COVID-19 Nation Dates* (1st ed.). Inside cover.

18 See World Health Organization (WHO). (20 March 2024). Call for urgent agreement on international deal to prepare for and prevent future pandemics. Retrieved 27 March 2024 from www.who.int/news/item/20-03-2024-call-for-urgent-agreement-on-international-deal-to-prepare-for-and-prevent-future-pandemics

19 'Research has suggested the development of the virus was aided by the live export trade in pigs between the US and Mexico, before it eventually jumped to humans.' See Levitt, T. (15 September 2020). Covid and farm animals: nine pandemics that changed the world. *The Guardian*. Retrieved 28 March 2024 from www.theguardian.com/environment/ng-interactive/2020/sep/15/covid-farm-animals-and-pandemics-diseases-that-changed-the-world

20 'According to WHO report, all available evidence for COVID-19 suggests that SARS-CoV-2 has a zoonotic source. The transmission of the virus to humans happened through animal species that is more likely to be handled by humans. This intermediate animal host or zoonotic source could be a domestic animal, a wild animal, or a domesticated wild animal that is yet to be identified.' See Handiso, T.B., Jifar, M.S. & Hagisso, S. (2022). Coronavirus's (SARS-CoV-2) airborne transmission. *SAGE Open Medicine, 10,* 1–5. Retrieved 28 March 2024 from www.ncbi.nlm.nih.gov/pmc/articles/PMC9047781/#bibr45-20503121221094185

21 See Ministry of Civil Defence and Emergency Management. (8 October 2014). *Briefing to the Incoming Minister of Civil Defence.* (p. 7). Retrieved 28 March 2024 from www.civildefence.govt.nz/assets/Uploads/documents/publications/bim/Final-MCDEM-BIM-2014.pdf

22 See Ministry of Civil Defence and Emergency Management. (8 October 2014). Briefing to the Incoming Minister of Civil Defence. (p. 7). Retrieved 28 March 2024 from www.civildefence.govt.nz/assets/Uploads/documents/publications/bim/Final-MCDEM-BIM-2014.pdf

23 'Unlike geographically and temporally bounded disasters, a pandemic will spread across the globe over the course of months or over a year, possibly in waves, and will affect communities of all sizes and compositions. In terms of its scope, the impact of a severe pandemic may be more comparable to that of war or a widespread economic crisis than a hurricane, earthquake, or act of terrorism.' See US Homeland Security Council. (May 2006). *National Strategy for Pandemic Influenza Implementation Plan.* (p. 2). Retrieved 28 March 2024 from www.cdc.gov/flu/pandemic-resources/pdf/pandemic-influenza-implementation.pdf

24 See De Oliveira, T. & Tegally, H. (25 August 2023). Will climate change amplify epidemics and give rise to pandemics? *Science, 381*(6660). Retrieved 27 March 2024 from www.science.org/doi/10.1126/science.adk4500

25 See Carlson, C.J., Albery, G.F., Merow, C., Trisos, C.H., Zipfel, C.M., Eskew, E.A., Olival, K.J., Ross, N. & Bansal, S. (2022). Climate change increases cross-species viral transmission risk. *Nature, 607,* 555–562. Retrieved 27 March 2024 from www.nature.com/articles/s41586-022-04788-w

26 See World Economic Forum (WEF). (2024). *The Global Risks Report 2024 – 19th Edition*. (p. 48). Retrieved 28 March from www3.weforum.org/docs/WEF_The_Global_Risks_Report_2024.pdf

27 See He, B., Feng, Y., Zhang, H., Xu, L., Yang, W., Zhang, Y., Li, X. & Tu, C. (September 2015). Filovirus RNA in Fruit Bats, China. *Emerging Infectious Diseases, 21*(9), 1675–1677. Retrieved 16 April 2024 from dx.doi.org/10.3201/eid2109.150260

28 See Munir, M. (17 January 2019). Mengla: the Ebola-like virus recently found in China. The Conversation. Retrieved 16 April 2024 from theconversation.com/mengla-the-ebola-like-virus-recently-found-in-china-109679

29 See Dupuy, L.C., Spiropoulou, C.F., Towner, J.S., Spengler, J.R., Sullivan, N.J. & Montgomery, J.M. (2023). Filoviruses: Scientific Gaps and Prototype Pathogen Recommendation. *Journal of Infectious Diseases, 228*(S6), S446–S459. Retrieved 16 April 2024 from academic.oup.com/jid/article/228/Supplement_6/S446/7320345

30 See Yang, X., Tan, C.W., Anderson, D.E., Jiang, R., Li, B., Zhang, W., Zhu, Y., Lim, X.F., Zhou, P., Liu, X., Guan, W., Zhang, L., Li, S., Zhang, Y., Wang, L. & Shi, Z. (7 January 2019). Characterization of a filovirus (Menglà virus) from *Rousettus* bats in China. *Nature Microbiology, 4*, 390–395. Retrieved 16 April 2024 from doi.org/10.1038/s41564-018-0328-y

31 See Munir, M. (17 January 2019). Mengla: the Ebola-like virus recently found in China. The Conversation. Retrieved 16 April 2024 from theconversation.com/mengla-the-ebola-like-virus-recently-found-in-china-109679

32 See Munir, M. (17 January 2019). Mengla: the Ebola-like virus recently found in China. The Conversation. Retrieved 16 April 2024 from theconversation.com/mengla-the-ebola-like-virus-recently-found-in-china-109679

33 See Morton, J. (21 April 2024). Spread of bird flu among species, countries 'definitely cause for concern' - NZ virologist. *NZ Herald*. Retrieved 22 April 2024 from www.nzherald.co.nz/nz/spread-of-bird-flu-among-species-countries-definitely-cause-for-concern-nz-virologist/AF46QBWDTRE2FFBNMTDZSTV6AA

34 See Baker, M.G., Kvalsvig, A., Plank, M.J., Geoghegan, J.L., Wall, T., Tukuitonga, C., Summers, J., Bennett, J., Kerr, J., Turner, N., Roberts, S., Ward, K., Betty, B., Q.S., French, N. & Wilson, N. (6 October 2023). Continued mitigation needed to minimise the high health burden from COVID-19 in Aotearoa New Zealand. *New Zealand Medical Journal*, 136(1583), 67–91. Retrieved 30 January 2024 from www.immune.org.nz/publications/continued-mitigation-needed-to-minimise-the-high-health-burden-from-covid-19-in-aotearoa-new-zealand

See also Olley, S. (25 March 2023). Negative excess mortality sign NZ got it right with Covid-19 response - Sir Ashley Bloomfield. Radio New Zealand (RNZ). Retrieved 31 January 2024 from www.rnz.co.nz/news/covid-19/486666/negative-excess-mortality-sign-nz-got-it-right-with-covid-19-response-sir-ashley-bloomfield

See also University of Otago. (6 October 2023). Minimising harms from COVID-19 and other respiratory infections [media release]. Retrieved 30 January 2024 from www.otago.ac.nz/news/news/releases/minimising-harms-from-covid19-and-other-respiratory-infections

See also Powell, I. (21 February 2023). Cumulative pandemic deaths: a graph more effective than 1,000 words. New Zealand Doctor. Retrieved 30 January 2024 from www.nzdoctor.co.nz/article/undoctored/cumulative-pandemic-deaths-graph-more-effective-1000-words

35 See Datta, S., Vattiato, G., Maclaren, O.J., Hua, N., Sporle, A. & Plank, M.J. (27 February 2024). The impact of Covid-19 vaccination in Aotearoa New Zealand: A modelling study. *Vaccine*, *42*(6), 1383–1391. Retrieved 13 February 2024 from doi.org/10.1016/j.vaccine.2024.01.101

See also Radio New Zealand (RNZ). (10 February 2024). Covid-19: Vaccines saved thousands of lives during Omicron outbreak, study estimates. Retrieved 13 February 2024 from www.rnz.co.nz/news/national/508808/covid-19-vaccines-saved-thousands-of-lives-during-omicron-outbreak-study-estimates

36 See Centers for Disease Control and Prevention (CDC). (Updated 3 November 2016). HHS Pandemic Planning Scenarios. Retrieved 27 March 2024 from www.cdc.gov/flu/pandemic-resources/national-strategy/severity-assessment-framework-508.html

The HHS has also produced some COVID-19 scenarios. See Centers for Disease Control and Prevention (CDC). (Updated 19 March 2021). COVID-19 Pandemic Planning Scenarios. Retrieved 27 March 2024 from www.cdc.gov/coronavirus/2019-ncov/hcp/planning-scenarios.html

37 See Shanks, G.D. & Brundage, J.F. (February 2012). Pathogenic Responses among Young Adults during the 1918 Influenza Pandemic. *Emerging Infectious Diseases*, *18*(2), 201–207. Retrieved 19 April 2024 from wwwnc.cdc.gov/eid/article/18/2/10-2042_article

38 'Even in comparison to the low estimate for the death count of the Spanish flu (17.4 million) this pandemic, more than a century ago, caused a death rate that was 182-times higher than today's baseline.' See Roser, M. (Updated May 2023). The Spanish flu: The global impact of the largest influenza pandemic in history. Our World in Data. Retrieved 27 March 2024 from ourworldindata.org/spanish-flu-largest-influenza-pandemic-in-history

39 See World Health Organization (WHO). (n.d.). WHO COVID-19 dashboard. Retrieved 28 March 2024 from data.who.int/dashboards/covid19/deaths?n=o

40 See World Health Organization (WHO). (28 June 2023). Pandemic prevention, preparedness and response accord. Retrieved 27 March 2024 from www.who.int/news-room/questions-and-answers/item/pandemic-prevention--preparedness-and-response-accord

41 See Brown, G., Clark, H., Vīķe-Freiberga, V. & Brown, G. (20 March 2024). Delivering the Pandemic Accord the World Needs. Project Syndicate. Retrieved 27 March 2024 from www.project-syndicate.org/commentary/world-leaders-negotiate-a-pandemic-accord-who-misinformation-by-helen-clark-et-al-2024-03

42 See Baker, M., Crump, J., Kvalsvig, A., Geoghegan, J., Tukuitonga, C., Brewerton, M., Kerr, J. & Wilson, N. (16 November 2023). Why we need an Aotearoa Centre for Disease Control (CDC). Public Health Communication Centre Aotearoa. Retrieved 30 January 2024 from www.phcc.org.nz/briefing/why-we-need-aotearoa-centre-disease-control-cdc

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44 See Baker, M., Crump, J., Kvalsvig, A., Geoghegan, J., Tukuitonga, C., Brewerton, M., Kerr, J. & Wilson, N. (16 November 2023). Why we need an Aotearoa Centre for Disease Control (CDC). Public Health Communication Centre Aotearoa. Retrieved 30 January 2024 from www.phcc.org.nz/briefing/why-we-need-aotearoa-centre-disease-control-cdc

45 See Radio New Zealand (RNZ). (16 November 2023). NZ needs centre for disease control, experts say. Retrieved 30 January 2024 from www.rnz.co.nz/news/covid-19/502520/nz-needs-centre-for-disease-control-experts-say

46 See Centers for Disease Control and Prevention (CDC). (2023, 19 April). Our History – Our Story. Retrieved 10 April 2024 from www.cdc.gov/museum/history/our-story.html

47 See European Centre for Disease Prevention and Control (ECDC). (n.d.). European Centre for Disease Prevention and Control (ECDC). Retrieved 10 April 2024 from european-union.europa.eu/institutions-law-budget/institutions-and-bodies/search-all-eu-institutions-and-bodies/european-centre-disease-prevention-and-control-ecdc_en

48 See Australian Centre for Disease Control. (2024, 8 March). About the interim Australian Centre for Disease Control (CDC). Retrieved 10 April 2024 from www.cdc.gov.au/about/about-interim-australian-centre-disease-control-cdc

49 See *COVID-19 Nation Dates* (1st ed.). (p. 34).

50 See Saka, O. (7 September 2021). The political scar of epidemics: why COVID-19 is eroding young people's trust in their leaders. London School of Economics. Retrieved 5 April 2024 from www.lse.ac.uk/research/research-for-the-world/politics/the-political-scar-of-epidemics-why-covid-19-is-eroding-young-peoples-trust-in-their-leaders-and-political-institutions

51 See Aksoy, C.G., Eichengreen, B. & Saka, O. (June 2020). *The Political Scar of Epidemics.* London School of Economics. Retrieved 5 April 2024 from www.systemicrisk.ac.uk/sites/default/files/2020-08/dp-97.pdf

52 See OECD. (2023). *Drivers of Trust in Public Institutions in New Zealand, Building Trust in Public Institutions.* Paris: OECD Publishing. Retrieved 27 March 2024 from doi.org/10.1787/948accf8-en

53 See Public Service Commission (PSC). (25 January 2024). Trust in the Public Service: International rankings in trust and confidence. Retrieved 27 March 2024 from www.publicservice.govt.nz/research-and-data/trust-in-the-public-service

54 See Corruption Perceptions Index (CPI). (2022). New Zealand. Retrieved 27 March 2024 from www.transparency.org/en/cpi/2022/index/nzl

55 New Zealand does not currently have an IFI. See UK Office for Budget Responsibility. (n.d.). International engagement. Retrieved 5 April 2024 from obr.uk/about-the-obr/international-engagement

56 See a 2018 discussion paper submitted to Treasury on the topic. 'The suggested overarching purpose of the IFI is to: Enhance fiscal responsibility, accountability and transparency, support public debate, and strengthen Parliamentary scrutiny. It can achieve this by: Providing Parliament and the public with independent and non-partisan analysis and assessment on fiscal policy, economic and fiscal forecasts, and the financial implications of political party policy proposals.' See New Zealand's Fiscal Policy Framework: Establishing an Independent Fiscal Institution. (September 2018). Retrieved 5 April 2024 from www.asms.org.nz/wp-content/uploads/2022/05/Submission-to-Treasury-on-establishing-an-Independent-Fiscal-Institution.pdf

57 See Shaping Wales' Future. (29 January 2024). Foresight for sustainable development and well-being governance in Wales. Retrieved 5 April 2024 from shapingwalesfuture.blog.gov.wales/2024/01/29/foresight-for-sustainable-development-and-well-being-governance-in-wales

58 New Zealand has three offices of Parliament: the Ombudsman; the Controller and Auditor-General; and the Parliamentary Commissioner for the Environment. The first two offices played a significant role in providing assurance over the government's response to the pandemic.

See New Zealand Parliament. (15 August 2019). Who are the Officers of Parliament? Retrieved 5 April 2024 from www.parliament.nz/en/visit-and-learn/how-parliament-works/fact-sheets/who-are-the-officers-of-parliament

59 The Behavioural Statements for the parliamentary workplace have not prevented bullying, harassment and sexual harassment, indicating the statements have not created the necessary changes in behaviour. 'One method of creating real systemic change would be to dramatically strengthen the ethical regulations governing the behaviour of MPs. This could be done by creating a new code of conduct for MPs, by MPs.' See McGuinness Institute. (June 2023). *Discussion Paper 2023/03 – National and International Comparisons of Codes of Conduct for Members of Parliament.* (p. 24). Retrieved 5 April 2024 from www.mcguinnessinstitute.org/publications/discussion-papers

60 See McGuinness Institute. (1 September 2021). *Discussion Paper 2021/03 – A COVID-19 Situational Report: Beyond Aotearoa New Zealand's Fortress as at 1 September 2023*. Retrieved 27 March 2024 from www.mcguinnessinstitute.org/wp-content/uploads/2023/12/20231219-DP-2021-03.pdf

61 See *COVID-19 Nation Dates* (1st ed.). (pp. 38, 46 and 65).

62 'When it last met on March 25 to pass the laws required to allow the Government to spend on its Covid-19 response, only 30 were allowed to provide for distancing. It is understood the Government has agreed not to put any non-Covid 19 related legislation forward, and to a Question Time each sitting day but it may not be the usual 12 questions. Conventions around the sittings of Parliament mean the only way to close down Parliament further would be for the Prime Minister to ask the Governor-General to formally prorogue Parliament.' See *NZ Herald.* (17 April 2020). Covid 19 coronavirus: Parliament to sit again a month after adjourning. Retrieved 2 April 2024 from www.nzherald.co.nz/nz/covid-19-coronavirus-parliament-to-sit-again-a-month-after-adjourning/ZXHQGYZUPIOLKQYIOVU5XRK5KQ

63 See Dennis, R., McGuinness, W. & Boven, R. (7 May 2015). *Lessons from the West African Ebola Outbreak in Relation to New Zealand's Supply Chain Resilience*. Retrieved 27 March 2024 from www.mcguinnessinstitute.org/publications/contributing-papers

64 See New Zealand Nurses Organisation (NZNO). (7 September 2023). *The Aotearoa New Zealand health system – failing or fabulous?* Retrieved 28 March 2024 from www.nzno.org.nz/Portals/0/Files/Documents/AGM/2023-09%20The%20Aotearoa%20New%20Zealand%20Health%20System%20-%20Failing%20or%20Fabulous%20FINAL.pdf

65 'There is some evidence, based both on reconstructions looking backwards in time at the likely epidemiology and through the analysis of samples collected and stored, that the virus may already have been in circulation outside China in the last months of 2019. This evidence, however, still requires further examination, and confounding explanations, such as the contamination of samples, are still to be ruled out.' See Independent Panel for Pandemic Preparedness and Response. (2021). *COVID-19: Make It The Last Pandemic*. (p. 20). Retrieved 28 March 2024 from theindependentpanel.org/wp-content/uploads/2021/05/COVID-19-Make-it-the-Last-Pandemic_final.pdf

66 See Independent Panel for Pandemic Preparedness and Response. (2021). *COVID-19: Make It The Last Pandemic*. (pp. 25–26). Retrieved 28 March 2024 from theindependentpanel.org/wp-content/uploads/2021/05/COVID-19-Make-it-the-Last-Pandemic_final.pdf

67 See World Health Organization (WHO). (2 April 2020). *Coronavirus disease 2019 (COVID-19) Situation Report 73*. Retrieved 28 March 2024 from iris.who.int/bitstream/handle/10665/331686/nCoVsitrep02Apr2020eng.pdf?sequence=1

68 See BBC News. (8 July 2020). Coronavirus: WHO rethinking how Covid-19 spreads in air. Retrieved 28 March 2024 from www.bbc.com/news/world-53329946

69 See World Health Organization (WHO). (18 April 2024). Leading health agencies outline updated terminology for pathogens that transmit through the air [media release]. Retrieved 19 April 2024 from www.who.int/news/item/18-04-2024-leading-health-agencies-outline-updated-terminology-for-pathogens-that-transmit-through-the-air

70 Definitions:

Asymptomatic infection: 'An asymptomatic case is one in which someone has laboratory confirmed SARS-CoV-2 infection but does not develop symptoms (ie, fever, dry cough, fatigue). Asymptomatic transmission refers to transmission of the virus from a person who did not develop disease symptoms.'

Pre-symptomatic infection: 'Pre-symptomatic cases are those in which infection is detected before the person develops symptoms. Pre-symptomatic transmission is defined as transmission that occurs during the pre-symptomatic phase of the viral incubation period.'

See Gao, W., Lv, J., Pang, Y. & Li, L. (2021). Role of asymptomatic and pre-symptomatic infections in covid-19 pandemic. *BMJ, 375*(2342). Retrieved 28 March 2024 from www.bmj.com/content/375/bmj.n2342

71 See World Health Organization (WHO). (11 June 2020). Transmission of COVID-19 by asymptomatic cases. Retrieved 28 March 2024 from www.emro.who.int/health-topics/corona-virus/transmission-of-covid-19-by-asymptomatic-cases.html

72 See Gandhi, M., Yokoe, D., & Havlir, D. (24 April 2020). Asymptomatic Transmission, the Achilles' Heel of Current Strategies to Control Covid-19. *New England Journal of Medicine, 382*(22). Retrieved 28 March 2024 from www.nejm.org/doi/full/10.1056/nejme2009758

73 See Johansson, M., Quandelacy, T., Kada, S., Prasad, P.V., Steele, M., Brooks, J.T., Slayton, R.B., Biggerstaff, M. & Butler, J.C. (7 January 2021). SARS-CoV-2 Transmission From People Without COVID-19 Symptoms. *JAMA Network Open, 4*(1). Retrieved 28 March 2024 from jamanetwork.com/journals/jamanetworkopen/fullarticle/2774707

74 'Early in the pandemic, the World Health Organization stated that SARS-CoV-2 was not transmitted through the air. That mistake and the prolonged process of correcting it sowed confusion and raises questions about what will happen in the next pandemic.' See Lewis, D. (6 April 2022). Why the WHO took two years to say COVID is airborne. *Nature, 604*, 26–31. Retrieved 28 March 2024 from www.nature.com/articles/d41586-022-00925-7

75 See Blakeley, R. (17 April 2007). Exercise Cruickshank. Civil Defence and Emergency Management. Retrieved 28 March 2024 from www.gw.govt.nz/assets/Documents/2009/07/2007_211_1_Report.pdf

76 See Ministry of Health (MOH). (30 October 2007). NZ's Influenza Pandemic Preparedness World Class [media release]. Scoop. Retrieved 18 April 2024 from www.scoop.co.nz/stories/GE0710/S00120/nzs-influenza-pandemic-preparedness-world-class.htm

77 See Ministry of Health (MOH). (October 2007). *Report on Exercise Cruickshank*. (pp. vii, 1–2). Retrieved 18 April 2024 from ndhadeliver.natlib.govt.nz/delivery/DeliveryManagerServlet?dps_pid=IE970387

78 See full list of government influenza plans in *COVID-19 Nation Dates* (1st ed.). Appendix 1 (p. 161).

79 This Independent Review was commissioned by the Hawke's Bay Civil Defence Emergency Management Group Joint Standing Committee (which represents Hawke's Bay's five councils – Hawke's Bay Regional Council, Napier City Council, Hastings District Council, Wairoa District Council and Central Hawke's Bay District Council – as well as advisory members from Ngāti Kahungunu iwi and PSGE delegates). The Review was conducted by Bush International Consulting and will be led by Mike Bush, the former Commissioner of New Zealand Police; and Debbie Francis, Gary Knowles and Paul Vlaanderen. See Bush International Consulting. (March 2024). *Independent external review for Hawke's Bay Civil Defence and Emergency Management Group*. Retrieved 28 March 2024 from www.hbemergency.govt.nz/assets/Uploads/HBCDEM-Response-to-Cyclone-Gabrielle-Final-Report.pdf

80 See Dennis, R., McGuinness, W. & Boven, R. (7 May 2015). *Lessons from the West African Ebola Outbreak in Relation to New Zealand's Supply Chain Resilience*. Retrieved 27 March 2024 from www.mcguinnessinstitute.org/publications/contributing-papers

81 See World Health Organization (WHO). (January 2015). Ebola response: What needs to happen in 2015. Retrieved 27 March 2024 from www.who.int/news-room/spotlight/one-year-into-the-ebola-epidemic/ebola-response-what-needs-to-happen-in-2015

82 See Dennis, R., McGuinness, W. & Boven, R. (7 May 2015). *Lessons from the West African Ebola Outbreak in Relation to New Zealand's Supply Chain Resilience*. Retrieved 27 March 2024 from www.mcguinnessinstitute.org/publications/contributing-papers

83 See Dennis, R., McGuinness, W. & Boven, R. (7 May 2015). *Lessons from the West African Ebola Outbreak in Relation to New Zealand's Supply Chain Resilience*. Retrieved 27 March 2024 from www.mcguinnessinstitute.org/publications/contributing-papers

84 See Ministry of Social Development (MSD). (26 July 2022). The total costs of money paid out as government support for businesses and COVID-19 wage payments. Retrieved 28 March 2024 from www.msd.govt.nz/documents/about-msd-and-our-work/publications-resources/official-informationresponses/2022/july/26072022-total-cost-of-money-paid-as-government-support-for-businesses-andcovid-19-wage-payments.pdf

85 See New Zealand Police. (29 March 2020). New online form for public to report Level 4 restriction breaches to police [media release]. Retrieved 3 April 2024 from www.police.govt.nz/news/release/new-online-form-public-report-level-4-restriction-breaches-police

86 See Ward, J., Walbaum, M., Walbaum, B., Guzman, M.J., Jimenez de la Jara, J., Nervi, B. & Atun, R. (3 September 2021). Estimating the impact of the COVID-19 pandemic on diagnosis and survival of five cancers in Chile from 2020 to 2030: a simulation-based analysis. *Lancet Oncology, 22*(10), 1427–1437. Retrieved 28 March 2024 from doi.org/10.1016/S1470-2045(21)00426-5

87 See Crocetto, F., Buonerba, L., Scafuri, L., Caputo, V., Barone, B., Sciarra, A., Verde, A., Calogero, A., Buonerba, C. & Di Lorenzo, G. (23 November 2021). COVID-19 and prostate cancer: a complex scenario with multiple facets. *Future Science OA, 8*(1). Retrieved 28 March from doi.org/10.2144/fsoa-2021-0113

88 'As it stands, 164 of the overall police workforce of nearly 15,700 were affected by the mandate after choosing not to be vaccinated. For NZDF, the mandate affected 115 of its 15,500 staff. The group relied on two aspects of the Bill of Rights - the right to decline a medical procedure and the right to religious freedom ... New Zealand Defence Force workers were given notice that they would be dismissed on March 1 and police workers would be dismissed on March 7, [Matthew Hague, counsel for the applicants] said ... "I think they are committed to their jobs and these are people who have worked decades in the service of their community, they risk their lives domestically and when deployed on operation overseas. Many have received commendation and rewards for their work and their commitments to serving New Zealand ... The affected workers feel let down and betrayed by this Government who attempted to dismiss them from their jobs based on an unlawful order or an order that has now been held to be unlawful." See Griffiths, E. & Johnston, C. (25 February 2022). 'Not demonstrably justified': High Court upholds challenge to Police and NZDF vaccination mandates, terminations suspended. *NZ Herald*. Retrieved 27 March 2024 from www.nzherald.co.nz/nz/not-demonstrably-justified-high-court-upholds-challenge-to-police-and-nzdf-vaccination-mandates-terminations-suspended/LMAUM7LZWV6FFQWAKKJFLKYLIE

Refer also to information on the Employment New Zealand website: 'Employment actions if an employee is unvaccinated and there is a requirement that they are: Employers should take care to be fair and reasonable in their engagement with employees regarding vaccination, and work through processes with employees in good faith before deciding on any outcome. Employers cannot require any individual person to be vaccinated. Being unvaccinated however may have implications for an employee's job. If certain work can only be done by vaccinated workers under an employer vaccination requirement, employers should set a reasonable timeframe for employees to decide if they will be vaccinated. Special paid leave should be considered, especially in the short term, when employers and

employees are discussing whether an employee will be vaccinated and what will happen if the employee is not vaccinated.' See Employment New Zealand. (Updated 11 May 2023). Vaccines and the workplace. Retrieved 27 March 2024 from www.employment.govt.nz/workplace-policies/coronavirus-workplace/covid-19-vaccination-and-employment

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A Christchurch Long COVID clinic was trialled, but closed down. 'The only publicly funded Long Covid clinic in the country will shut up shop after a short, five-month run. A patient of the Christchurch-based pilot clinic since it opened in May said it had helped her make huge strides in her recovery. But with the clinic closing at the end of September, she had been discharged and was worried her progress could go backwards. The pilot was initiated by Te Whatu Ora Waitaha Canterbury to offer special care to people in the region with a Long Covid diagnosis. In the five weeks the service was accepting referrals, 109 people, referred by their GP, were accepted as patients. Patients could receive

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**It is therefore with great hope that I declare #COVID19 over as a global health emergency. However, that does not mean COVID-19 is over as a global health threat. Last week, COVID-19 claimed a life every three minutes – and that's just the deaths we know about… This virus is here to stay, it's still killing and it's still changing the risk remains of new variants emerging that cause new surges in cases and does the worst thing any country could do now is to use this news as a reason to … dismantle the systems it has built or to send the message to its people that COVID-19 is nothing to worry about.**

WHO Director-General Dr Tedros, 6 May 2023[300]

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