# Strategic COVID-19 Public Health Advisory Group

10 June 2021

Hon Dr Ayesha Verrall
Associate Minister of Health (Public Health)
Parliament Buildings
Wellington

Dear Minister

## Future of the Elimination Strategy

1. Our group has been asked to address the question: "*Is an elimination strategy still viable as international travel resumes and/or are we going to need to accept a higher level of risk and more incidence of COVID in the community?*"

2. We are pleased to deal with this issue, because it is fundamental to decisions about when and how to re-open New Zealand's borders. In order to make wise choices over the coming months, we must know where we want to be in a year or two's time. Otherwise hasty decisions could close off options for ever.

### Progress of the COVID-19 pandemic

3. The global pandemic is far from over. Attention is often focused on countries such as the United Kingdom and the USA, which have suffered a devastating toll but are now benefiting from relatively high vaccination coverage. Yet new waves of COVID-19 are appearing in many parts of the world, and the tragic situation in India over recent months is likely to be mirrored in other low or middle income countries in the future.

4. The rapid development of highly effective vaccines was a brilliant scientific achievement. Sadly this achievement has not been matched by success in scaling up production and providing adequate supplies of vaccines to the places where they are most needed. The Director-General of the World Health Organization, referring in January to the inequitable distribution of vaccines, said that "the world is on the brink of a catastrophic moral failure". In addition to the profound ethical issue, unchecked replication of the SARS-CoV-2 virus in many countries is sparking the emergence of new variants that threaten us all. Some of these variants are significantly more transmissible, leading to the rapid growth of outbreaks, while others have been shown to be less responsive to particular vaccines. Natural selection will favour variants of the virus that can escape vaccine-induced immunity.

5. No-one knows what the outcome of this pandemic will be, in say 3–5 years' time. The most optimistic scenario is that COVID-19 will have become a far less serious

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public health problem – either because the virus has evolved to be less damaging, or because vaccines (with or without adjustment) remain effective against all variants, including those that may yet appear, and are administered consistently to people throughout the world. A much more pessimistic scenario is that variants will have emerged that are more transmissible, more lethal, and resistant to vaccines. It is not at all unlikely that we will be playing a "cat and mouse game", in which vaccines are continually modified ("tweaked") for rich countries to deal with new variants after they arise. Judging by recent experience, people in low income countries may have delayed access to the latest vaccines. At this stage of the pandemic, New Zealand needs to have a strategy that can accommodate both the optimistic and pessimistic scenarios, as well as a more likely path somewhere in between.

## The elimination strategy

6. In a recent *Lancet* commentary, Oliu-Barton and colleagues compared five OECD countries that aimed for elimination of SARS-CoV-2 with 32 others that opted for mitigation, defined as "action increased in a stepwise, targeted way to reduce cases so as not to overwhelm health-care systems". These authors described elimination as "***maximum action to control SARS-CoV-2 and stop community transmission as quickly as possible***". They concluded that elimination created the best outcomes for health, the economy, and civil liberties.

7. New Zealand was one of the five OECD countries included in that analysis. Having observed the effectiveness of elimination in China, and facing the prospect of an overwhelmed hospital system here, New Zealand made an early decision to adopt an elimination strategy. This involved border restrictions, managed isolation and quarantine, a relatively short but rigorous lockdown, and public health measures including expanded testing and contact tracing – along with promotion of behaviour such as staying at home when sick, washing hands frequently and observing cough hygiene.

8. There is no doubt that this strategy has served us well. The health consequences can be illustrated by comparing New Zealand with Scotland, which also has just over five million people. New Zealand has had a total of 26 deaths during the pandemic, while Scotland has experienced over 10,000 deaths so far. Apart from the deaths, a great many more Scots have experienced serious illness, which has become chronic in a proportion of cases. Although some sectors of our economy, such as international tourism, have been badly affected, the New Zealand economy has recovered more quickly and more strongly than experts predicted. Moreover, our social and community life has flourished, in comparison with countries where repeated lockdowns and restrictions on gatherings (even of families) have made the past 15 months a time of frustration and grief.

9. Although the term "elimination" is well established in epidemiology, it is unfortunately used in different senses even by specialists, and is frequently misinterpreted as meaning "eradication". None of the countries that have

pursued an elimination strategy has experienced "Zero COVID" for a prolonged period. Even with border restrictions and quarantine, incursions of the virus occur from time to time; these can lead to clusters of infected people in the community, and occasionally to large outbreaks. Several of the countries that have been most successful, such as Taiwan, Vietnam, and Australia, are dealing with such outbreaks at present.

10. The description of elimination quoted in paragraph 6 was an action-oriented definition, which acknowledged that some community transmission of the virus will occur, although steps will be taken to stamp it out. So elimination does not necessarily mean zero transmission or incidence. In April 2020, the Director-General of Health (Dr Ashley Bloomfield) stated: "***The elimination approach focuses on zero-tolerance towards new cases, rather than a goal of no new cases***". In approaching the present question, our group is happy to follow this interpretation, which treats elimination as a ***process***, rather than as a permanent ***outcome***. We will return to the naming of this strategy later in this report.

## Reviewing our approach

11. There are two reasons why it is timely to review the case for holding to an elimination strategy. One is the advent of safe vaccines that have been shown to have high efficacy (in clinical trials) and effectiveness (in national programmes). The other is that there are calls to start re-opening our borders to travellers other than citizens and residents, and to allow more quarantine-free entry.

12. Quarantine-free entry is likely to be restricted, at least initially, to travellers from approved countries and to individuals who pass a pre-flight test (as at present) and possibly a further rapid test on arrival. Despite the most rigorous precautions, however, it is inevitable that people carrying the virus will enter New Zealand on a regular basis.

13. By the end of 2021, we hope that a high proportion of adult New Zealanders (aged 16 and over) will have been immunised with the Pfizer-BioNTech vaccine. This should mean that, during an outbreak of COVID-19, fewer people will become infected, and even those who are infected will be less likely to require hospital treatment or to die. Nevertheless, there is now emerging evidence that this vaccine may generate a weaker immune response against certain new variants of SARS-CoV-2, even though it appears to be superior to several other vaccines in this respect. It is not inconceivable that, by the end of the year, there could be an established variant that is significantly resistant to the vaccine.

14. Modelling studies suggest that likely levels of vaccination coverage, both in New Zealand and overseas countries, will not be sufficient to cross the herd immunity threshold – by which we mean the point at which an infection will stop spreading through a population simply because a sufficient proportion of people are immune. But high vaccine-induced immunity should certainly make it easier to stamp out outbreaks of COVID-19, using the public health and social measures that have been so important over the last year. A successful vaccination programme

will make the elimination strategy more feasible, in any situation where the virus keeps entering the country. Our ability to stamp out COVID-19 quickly will partly depend on the level of vaccination coverage that is achieved, including in particular regions and population groups.

15. In response to the question we have been assigned, the group concludes that an elimination strategy, as defined above, should still be viable as international travel resumes. Allowing more quarantine-free travel will increase the risk that SARS-CoV-2 enters the community, and even with high vaccination levels there will be some clusters of infection and occasional large outbreaks. These can be stamped out by public health and social measures such as testing, together with rapid tracing and isolation of contacts, as well as physical distancing and mask-wearing where appropriate. Obviously an aim would be to minimise the need for raising alert levels, with the economic and social costs these impose. Nevertheless, some localised elevations of alert levels may be unavoidable after borders are re-opened.

## Advantages of an elimination strategy

16. The advisory group considers that an elimination strategy is not only viable, but also the best option at this stage of the pandemic. There are several reasons for this conclusion.

17. Stamping out clusters of COVID-19 as they arise will mean that our health system is not overwhelmed by large numbers of patients requiring health care. In some countries, disruptions to health care may have caused even more deaths than the virus itself. The New Zealand health system is still poorly resourced to deal with any large outbreak of a disease such as COVID-19. As we entered the pandemic, the provision of intensive care beds (per capita) in New Zealand was less than one-third of the average among 22 OECD countries. New Zealand was in 21st place, followed only by Mexico. Although there will have been some expansion of facilities over the last year, this is likely to be modest in comparison with the countries that have been grappling with many thousands of desperately ill patients.

18. International travel is still severely restricted in many parts of the world. For example, the UK still requires travellers from most European countries (which have been placed on an “amber list”) to have tests before and (twice) after travel, and to quarantine for 10 days. About 50 countries are on a “red list”, and only British and Irish nationals are allowed to enter the UK – with stricter requirements – from these places. Yet countries such as the UK have no prospect of stamping out community transmission: their goal is merely to liberate citizens from continual lockdowns and to protect their health services from being overwhelmed. Even when the vaccination roll-out is complete in these places, it is likely that SARS-CoV-2 will continue to be a recurrent seasonal infection with serious consequences. Two eminent scientists (Chris Murray and Peter Piot) have recently predicted that winter surges may become the norm in the USA. This may require “both health

system change and profound cultural adjustment for the life of high-risk individuals in the winter months".

19. By contrast, New Zealand has the opportunity to continue to enjoy a lifestyle that is relatively unaffected by the ravages of COVID-19. Along with Australia and a few other countries, we should not need to be practising pronounced physical distancing, wearing masks in most indoor places, or separating the elderly and other high risk individuals (such as those with diabetes or obesity) from family and friends during winter months. This will be advantageous for our community life and economy, and it will make New Zealand a highly attractive place to visit or to settle in. In the wake of the pandemic, the Economist Intelligence Unit has just ranked Auckland as first, and Wellington as fourth, in their list of the world's most liveable cities.

20. Some people assume that, because SARS-CoV-2 is likely to persist as an endemic infection in most countries, the same thing will inevitably happen here. This is not necessarily the case. The term "endemic" refers to: "The constant occurrence of a disease, disorder, or noxious infectious agent in a geographic area or population group; it may also refer to the chronic high prevalence of a disease in such an area or group." There are other infectious diseases that are endemic in some countries, but not in all. For example, measles is endemic in many parts of the world, but has been eliminated in countries such as New Zealand by vaccination programmes. A WHO definition for the elimination of measles in a country allows for the importation of cases, as long as there is not continuing endemic transmission of a measles virus strain for more than 12 months. So far there is no internationally agreed definition for the elimination of SARS-CoV-2.

21. An important advantage of maintaining our New Zealand-type elimination strategy is that it keeps our options open. If this policy were to be abandoned now, so that endemic infection became established, it would probably never be possible to reverse the change. On the other hand, if it became clear over the next few years that the costs of elimination outweighed the benefits, it would be a simple matter to follow the example of other countries.

22. Being a small nation, New Zealand often adopts the strategies of larger and better resourced countries, in public health as well as other spheres. In April 2020, we forged an independent path that has proved to be highly beneficial for the health of the people, community life, and the overall economy. The advisory group considers that it is too soon to revert to copying the strategies of countries that have not eliminated COVID-19. A more ambitious approach is warranted.

## The case for a new name

23. Reference has already been made (in paragraphs 9 and 10) to the fact that the term "elimination" is confusing and ambiguous for many people. Australia eventually adopted an approach very similar to ours, but there it is called "aggressive suppression". The recent report from the Independent Panel for Pandemic Preparedness and Response (co-chaired by the Rt Hon Helen Clark) used

a similar term, “aggressive containment”, to describe the approach adopted in New Zealand and five Asian countries that were analysed.

24. The advisory group recommends that the Government, after appropriate consultation, should choose a new name in Te Reo Māori, to reflect the unique approach of Aotearoa New Zealand to this pandemic virus. Such a name could provide clarity in identifying our strategy for dealing with outbreaks originating from international travellers, in order to prevent the establishment of endemic disease.

## Conclusion

25. In our current view, the elimination strategy is still viable and, indeed, optimal as international travel resumes. It does not mean “Zero COVID”, but it does mean stamping out clusters of COVID-19 as they occur. The strategy should be reviewed regularly. Continuation of a successful elimination policy will require decisions about processing travellers and strengthening public health measures within the country. Such considerations are implicit in some of the other questions our group has been asked to address.

Yours sincerely

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# Strategic COVID-19 Public Health Advisory Group

24 June 2021

Hon Dr Ayesha Verrall
Associate Minister of Health (Public Health)
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Wellington

Dear Minister

**Phased Re-opening of Borders**

In this report we address two questions you have posed:

***Is a target for the percentage of population vaccinated helpful for making decisions on re-opening borders (or for driving vaccine uptake)?***

***How do we stage a phased re-opening of New Zealand's borders, taking account of vaccination coverage and the possibility of vaccine-resistant mutants?***

1. Vaccination against an infectious agent such as SARS-CoV-2 provides two kinds of benefit. First, vaccination protects *individual*s, by making it (a) less likely that they will be infected, and (b) less likely that they will become seriously ill if they are infected. Secondly, vaccination protects both *the whānau and the wider community*, by making it less likely that the virus will spread through the population.

2. The second benefit, which may be called *community protection*, is related to the concept of *herd immunity*. Unfortunately this term, which has become very popular during the pandemic, carries a variety of meanings. Most often, people are using it to refer to a state in which an infection largely stops spreading through a population because a sufficient proportion of people have become immune. Such immunity could be conferred by vaccination or by natural infection. The proportion of people who need to be immune is sometimes called the "herd immunity threshold".

3. This concept of a simple threshold is oversimplified, because there is always heterogeneity among groups in the population in the extent to which people are at risk of encountering the virus. For example, Pasifika people in South Auckland often live in crowded housing and they may attend large family gatherings and church services, where the risk of transmission during an outbreak is enhanced. As a result, their herd immunity threshold will be higher than for the population at large. In other words, a greater proportion of people in that community would need to be vaccinated in order to achieve community protection.

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4. As well as heterogeneity in the underlying risk of different groups in New Zealand, there is bound to be heterogeneity in the extent to which groups achieve high vaccination coverage. Thus there are likely to be geographic, ethnic, occupational, and social groups that have lower levels of immune protection, providing opportunities for the virus to spread more rapidly in certain communities.

5. Even though the problem of heterogeneity is normally not accounted for, mathematical modelling – both in New Zealand and overseas – suggests that plausible levels of vaccination coverage are unlikely to cross a herd immunity threshold. One factor is that children are not being vaccinated in most countries at present. Vaccines such as the Pfizer vaccine have been approved for use in children by some regulatory authorities, but there is still international debate about the role they should play.

6. Most modelling studies have assumed a reproduction number (R) characteristic of either the original virus that spread from Wuhan, or the Alpha variant, first identified in the United Kingdom. In recent weeks it has become clear that the Delta variant, first identified in India, is much more easily transmitted. This explains why the Delta variant has quickly become dominant in the United Kingdom (accounting for about 90% of cases), and it has also been responsible for the recent outbreak in Melbourne. The emergence of more transmissible variants (with higher R-values) means that the prospect of achieving herd immunity is even more elusive.

7. While the public needs to know that we will not achieve some magical state of herd immunity, it is also vital that everyone is aware that the degree of community protection provided by the vaccine depends on the level of coverage that is achieved. When New Zealand starts to re-open its borders, there will inevitably be outbreaks of infection. If a consistently high proportion of adults were fully vaccinated with two doses of the Pfizer vaccine, those outbreaks would be easier to stamp out with public health measures such as testing and contact tracing. If the vaccine coverage were lower and with appreciable heterogeneity, there would be much larger outbreaks, with more hospital admissions and deaths, and various forms of lockdown would be required to bring them under control. It is vitally important that we try to achieve the highest possible level of vaccination coverage, and that every effort is made to ensure that particular groups in the community are not left with lower levels of immune protection.

8. The modelling studies have to be interpreted with caution and they need to adapt to changing parameters in real time. For example, they have assumed very high vaccination coverage and values of R which are now too low for recent variants that are likely to enter New Zealand in the future. But even if these studies are taken at face value, they indicate that allowing infected people to cross our borders will lead to clusters of infection and some large outbreaks. For reasons we will discuss below, our group does not believe that

border restrictions should be relaxed significantly (beyond current "bubble" arrangements, as with Australia and the Cook Islands) until the vaccination programme has been fully rolled out. So setting a target for the percentage of the population vaccinated would not help in deciding when to start further re-opening.

9. The other part of the first question is whether setting a target would be helpful for driving vaccine uptake. This is probably better answered by behavioural scientists and experts in social marketing than by our group. Our advice would be merely to explain to the community that getting as near as possible towards 100% of all adults vaccinated (without particular groups being neglected) will enable New Zealand to reconnect with the world with the least disruption, illness and death toll from COVID-19. Clearly a small minority of people will refuse the vaccine, and there is misinformation that threatens some people's confidence in vaccination. But we hope the great majority of New Zealanders will regard being vaccinated as a civic duty that will protect not only themselves, but also their families and the communities they live in. It is likely that some people who decline vaccination, during this campaign, will seek it later when the re-opening of borders commences and outbreaks of COVID-19 start occurring.

## Phased re-opening

10. Whereas at present nearly all travellers arriving in New Zealand must enter the MIQ process, there are quarantine-free entry (QFE) arrangements with Australia and the Cook Islands. Such arrangements could be expanded to include other countries that pose no more risk than Australians to our partially vaccinated population. Regrettably, the deteriorating pandemic situation in many parts of the world means that there are very few places that would meet that criterion.

11. We recommend that, once vaccination programmes in Australia, New Zealand, and the Cook Islands are well advanced, travel between such "bubble"countries should be restricted to adults who have been fully vaccinated (and their children accompanying them). This would reduce the risk of the virus being carried from one country to another.

12. We have been surprised by suggestions that New Zealand could start to permit QFE for individuals and cohorts from other countries before the vaccination programme is completed. Even with the most rigorous precautions (which we will discuss below), it would be inevitable that people carrying the virus would enter New Zealand on a regular basis. Citizens could justifiably feel aggrieved, if they were exposed to this infection before being given the opportunity to be protected by vaccination. Furthermore, with only a partially vaccinated population, the resulting clusters and outbreaks of infection might well be too large for our public health units to extinguish by testing, rapid tracing and isolation of contacts. This limited capacity would be

a problem even under normal circumstances, but at present many of the staff are busy supporting the vaccination programme. Overloading these staff could impede the vaccine roll-out. Raising of alert levels might become a recurrent necessity, which would cause not only economic and community disruption, but also progressive damage to the social licence that enables lockdowns to be successful. (This is important, because raised alert levels may still be needed occasionally in the future, even after we achieve peak vaccination and start to re-open our borders.) Treatment services would probably also be stretched beyond capacity.

13. Once vaccination has been offered to all of the eligible population, we assume that border restrictions will start to be relaxed. No doubt a section of the community would prefer that we wait until there is no risk of causing outbreaks of COVID-19, but sadly that day may never come. The main purpose of maintaining closed borders since early 2020 has been to protect the population until vaccines had been developed and made available to our people. Provided that a high level of vaccination coverage is achieved, the elimination strategy can be maintained by vigorously stamping out clusters of COVID-19 as they occur. As we pointed out in our previous report, this should put New Zealand in a more favourable position than the great majority of countries, which will have to cope with endemic SARS-CoV-2 infection for the foreseeable future.

14. The challenge of dealing with regular importations of the virus through our borders should not be underestimated. Vaccination will protect the majority of adults, but like most other countries we will not have "herd immunity", so there will still be the potential for large outbreaks causing many hospitalisations and deaths. Without adequate safeguards, such outbreaks could overload the health system and disrupt social and economic life, in ways similar to those experienced by other countries over the past year. Groups in the community with lower levels of immune protection through vaccination would be especially vulnerable. Hence we support the idea that re-opening of the borders in 2022 should start in a carefully planned, phased way – with continuous monitoring and adjustments as needed.

15. Many of the details of this phased re-opening cannot be decided more than six months in advance, because the global pandemic is changing so rapidly. The situation in most countries is still unpredictable, and the virus has been mutating in more significant ways than scientists were predicting a year ago. As already mentioned, the Delta variant is highly transmissible; it may also cause more infected people to experience severe illness requiring admission to hospital. The Beta variant, first identified in South Africa, appears to be resistant to the Oxford-AstraZeneca vaccine. There may also be milder resistance to the Pfizer-BioNTech vaccine, but so far this vaccine has held up well against all the variants that have been studied. Nevertheless, it is possible that a variant resistant to the vaccine could emerge before we are ready to open our borders.

## Precautions that will be required

16. While the ultimate aim will be for as many travellers as possible to have QFE, it is likely that initially some categories of traveller may be granted an intermediate option – such as MIQ for a shorter period, or part (or all) of the quarantine period to be spent at home. The details of such arrangements would have to be determined in the light of information about the behaviour of the variants of the virus that are dominant at the time.

17. It is already possible to list some of the precautions that will be needed, when we start to admit more travellers without the requirement to spend 14 days in MIQ:

a. Initially QFE (or reduced time in MIQ) will probably be restricted to suitable individuals from countries where the pandemic is well controlled, and where there are not known to be variants circulating that would cause us particular concern.

b. Candidates for QFE (or reduced time in MIQ) will need to provide evidence that they have been fully vaccinated. Obtaining reliable evidence of vaccination will be a challenge, but there is work under way internationally on vaccine certification. The issue of which vaccines should be accepted is discussed below (paragraph 18).

c. People who report having recovered from COVID-19 should still be required to be vaccinated, because vaccination provides stronger immune protection than natural infection.

d. Children (if not eligible for vaccination at the time) who are travelling with vaccinated adults would not be required to be vaccinated.

e. All travellers, including children, should be required to have evidence of a negative PCR test shortly before departure.

f. A rapid test should also be required at the airport on arrival in New Zealand. The choice of test should be based on advice from an expert committee (see paragraph 20 below). People who fail this test, together with their close travelling companions (i.e. their "bubble"), would have to enter the MIQ system.

g. The possibility of a further compulsory test (say after 3 days), or more than one test, should also be considered. Tests on or before day 2, and on or after day 8, are required in England for travellers from "amber list" countries, which include most of those in Western Europe at present.

h. People granted QFE (or reduced time in MIQ) should consent to special measures to assist contact tracing. Apart from consistent scanning of QR

codes, these could include mobile phone tracking and possibly use of EFTPOS transactions.

i. Greater vigilance will be essential throughout New Zealand, and the strengthening of public health and social measures is discussed below (paragraph 23).

18. While this discussion is framed for the great majority of travellers, who arrive by air, similar arrangements will be needed for travellers who enter New Zealand through sea ports. Further work is required on most of the precautions listed. For example, there will be a need to decide whether vaccination with any COVID-19 vaccine approved by the World Health Organization will be accepted, or whether some vaccines will be determined as not providing the required protection from transmission. It is likely that most vaccines provide better protection against serious illness and death from COVID-19, than against asymptomatic infection and transmission of the virus to other people. At present there is not nearly enough evidence about these questions, but we expect additional studies will be completed before the end of the year. The selection and provision of laboratory tests is discussed in the following paragraphs.

## Work needed now

19. It is fortunate that New Zealand still has at least six months to prepare for reducing border restrictions, because considerable preparatory work is required. For example, decisions need to be made about arrangements for obtaining reliable evidence of PCR testing in the country of departure. There will also have to be careful consideration of which type of rapid test to use for screening travellers when they arrive at a New Zealand airport. A myriad of such tests, both rapid PCR tests and antigen tests, have been implemented around the world, but New Zealand has little experience of these. Their reliability, sensitivity, specificity, and convenience vary markedly. The testing system selected will need to be piloted and up-and-running before the first travellers seeking QFE arrive.

20. We recommend that the Government should establish very soon an expert committee to advise on the many laboratory testing issues that will arise over the next 18 months at least. This advisory group should comprise medical laboratory scientists, clinical microbiologists, and an epidemiologist with expertise in assessing the validity of clinical tests. Such a group could assist in ensuring that New Zealand is ready to roll out testing as soon as QFE is approved for some travellers. The committee will need to be open to innovative approaches to testing, as well as having a good understanding of operational issues in the New Zealand context.

21. This committee should also be asked to review testing capacity for SARS-CoV-2 within the country. Because of the closure of borders, New Zealand has had virtually no influenza since 2019, and several other respiratory illnesses are

still occurring less frequently. When travellers start entering New Zealand without quarantine, these conditions will become more common again. In the winter of 2022, there could be a need for very large numbers of tests to identify which people with respiratory symptoms have COVID-19.

22. Because of the certainty that more clusters and outbreaks of COVID-19 will occur, the contact tracing capacity of public health units needs to be reviewed again and probably strengthened. In future, outbreaks will be liable to occur in any part of the country, rather than mainly in Auckland as has been the case recently.

23. Consideration needs to be given as to how we can strengthen other public health and social measures that will assist in stamping out clusters of COVID-19. For example, contact tracing could be enhanced if people consistently scanned QR codes, but at present the support for this is abysmal. We recommend that the scanning of QR codes should be mandated at some types of venue. We understand the argument that such a requirement could not be enforced, but most citizens want to comply with the law. In several Australian states, checking in at various types of venue is mandatory. Although the Australians must have the same issue about enforcement, New Zealanders who have visited Australia recently have been struck by the high degree of compliance.

24. There needs to be a review of health system capacity and management systems for dealing with possible large outbreaks of COVID-19. This should include consideration of primary health care responses, medical ward capacity, equipment for non-invasive ventilation, and intensive care facilities. Our hospitals have often been dangerously stretched, even by routine winter outbreaks of influenza. In the winter of 2022 or 2023, a region in New Zealand could experience a large outbreak of COVID-19, at the same time as influenza is leading to many hospital admissions. An example of the kind of facility needed would be dedicated areas for the safe transit of patients who may have COVID-19.

## A suggested first step

25. The staging of a phased re-opening of New Zealand's borders, once the vaccination roll-out is completed, cannot be specified in detail yet. Too much will change over the next six months or longer, and no doubt any plan will be modified in the light of experience. But we recommend that the process could start with QFE (or reduced time in MIQ) for fully vaccinated New Zealand citizens or residents, who have gone overseas for a short trip and are returning to this country. There will be reliable evidence from the immunisation register as to whether such people have been fully immunised with the Pfizer vaccine, and they should be highly motivated to co-operate in keeping the virus out of New Zealand. Admitting this group first would assist in getting all the necessary procedures, such as rapid testing at airports, well

established before wider groups of travellers are admitted without quarantine.

## Conclusions

26. We have recommended that further significant re-opening of New Zealand's borders should not commence before early 2022, when as many New Zealanders as possible have been vaccinated. Much work needs to be started soon, to ensure that we will be well prepared to begin a phased re-opening.

27. The successful implementation of New Zealand's elimination strategy has prevented many thousands of deaths, as well as much serious illness, and our economy and community life have fared better than in nearly every other country. We have suggested in our previous report that this strategic approach will still be viable and, indeed, optimal as international travel resumes. Continuing to stamp out clusters of COVID-19 as they arise, owing to incursions of the virus, will be a major challenge. Failure to achieve such elimination would lead to a much larger burden of illness and death, as well as disruption of our economy and way of life.

28. The probability of success will be greatly enhanced if we can fully vaccinate a very high proportion of the eligible population over the coming months.

Yours sincerely

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# Strategic COVID-19 Public Health Advisory Group

27 July 2021

Hon Dr Ayesha Verrall
Associate Minister of Health (Public Health)
Parliament Buildings
Wellington

Dear Minister

**Timing of Next Phase of Re-opening**

In this report we address the following question you have posed:

***Regarding your recommendation (para 25 of June 24 letter) that we consider first relaxing entry requirements for New Zealanders who are returning to the country after being fully vaccinated through New Zealand's COVID-19 vaccination programme…***

***a. Would there be any circumstances in which this could commence before the completion of the vaccination roll-out?***
***b. What other measures would be required – e.g. reduced MIQ stay, self-isolation or additional testing?***
***c. Which travellers departing New Zealand might be eligible for this (noting that identifying eligible individuals might pose operational challenges)?***

1. We did recommend that the process of re-opening borders could start with quarantine-free entry (QFE) or reduced time in MIQ for fully vaccinated New Zealand citizens or residents, who have gone overseas for a short trip and are returning to this country. Nevertheless, we also stated that our group did not believe that border restrictions should be relaxed significantly until the vaccination programme has been fully rolled out (paragraphs 8 and 12 of June 24 letter). This was because, even with the most rigorous precautions as set out in our letter, it would be inevitable that people carrying the virus would enter New Zealand on a regular basis. We pointed out that, with only a partially vaccinated population, the ensuing outbreaks of infection might well be too large for our public health units to extinguish by testing, rapid tracing and isolation of contacts. Raising of alert levels would be almost inevitable, and the vaccine roll-out could be impeded. Moreover, treatment services would probably be stretched beyond capacity.

2. In reconsidering this advice, we have reviewed the recent progress of the COVID-19 pandemic. In the seven weeks since our report on the future of the elimination strategy was submitted, the global situation has deteriorated significantly. Increasing numbers of new cases appear to be linked to the spread of more transmissible variants of SARS-CoV-2. In particular, the Delta variant of concern has now been reported in 124 countries; the World Health Organization expects that this will become the dominant circulating variant over the coming months. The

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*The DPMC COVID19 Group is a business unit of the Department of the Prime Minister and Cabinet*

Delta variant is more than twice as infectious as the original virus identified in Wuhan. It also appears to be more liable to cause severe disease, requiring admission to hospital.

3. The ability of the Delta variant to cause major outbreaks rapidly is obvious from recent experience in India, Fiji, Australia, and many other countries. It is sobering to see what apparently resulted from the infection of a single person with this variant in Sydney. A recent study from China suggests that, with the Delta variant, the time interval from when a person is exposed to the virus until they show a positive PCR test is shorter, and the viral load at the time of their first positive test is many times higher, than with the virus that was prevalent last year. This suggests that the Delta variant can replicate faster and be more infectious during the early stages of infection. If this is correct, outbreaks caused by the Delta variant will be more difficult to control by testing and contact tracing alone.

4. Even with current settings, New Zealand is liable to experience an outbreak similar to that in New South Wales over the coming months – although presumably we would go into lockdown more quickly. Given the information that has accrued over recent weeks, we would be even more reluctant to recommend relaxation of border restrictions before all eligible citizens have had an opportunity to be vaccinated. We are hoping that New Zealand will achieve a very high vaccination coverage, which would make the re-opening of borders less problematic. The degree of community protection will be increased if eligibility for vaccination is extended to people between 12 and 16 years of age.

## Considerations for 2022

5. In our previous report, we recommended a number of steps that will be needed before the phased re-opening of borders commences. These include the selection and piloting of rapid testing at international airports, review and likely expansion of the contact tracing capacity of public health units, mandating of QR scanning at some types of venue, exploration of special measures to assist tracing of returning travellers, and review and strengthening of health system capacity and management systems for dealing with large outbreaks of COVID-19.

6. Here we will also respond to the second part of your question, relating to what measures might be required for fully vaccinated New Zealanders going abroad and returning. Unfortunately it would be premature to specify detailed arrangements at this stage, because we will need to know more about the behaviour of the virus that is prevalent early next year. Given the propensity of this virus to mutate, and the very high rates of replication around the world, it is entirely possible that Delta may have been displaced by an even more transmissible variant (with other unique characteristics) by the end of this year. This illustrates why it is unrealistic for some commentators to be demanding firm plans for re-opening, long in advance.

7. Earlier in New Zealand's response to the pandemic, returning travellers who were required to quarantine at home did not do so consistently, and measures to check on their adherence turned out to be largely ineffective. Various steps could be

taken to enforce self-isolation, but this option has become less attractive with the Delta variant. Most people do not "self-isolate"; they isolate with other household members. Experience in Sydney and elsewhere suggests that, with the more transmissible variant, other members of the household (as well as any visitors to the home) will be very likely to become infected themselves – even if efforts are made to keep apart. So there would be a significant risk of leakage of infection into the community.

8. In the early phases of re-opening, a reduced time in an MIQ facility, say for 5 to 7 days, would seem more realistic. This could be followed by additional testing once or twice in the second week.

9. As already mentioned, precise details would depend on the characteristics of the virus that is dominant at the time. But we recommend that pilot studies should be done now, to assist in decision-making later. First, it would be useful to record the vaccination status (including vaccine type and number of doses) of every traveller entering the MIQ system. Secondly, the current tests performed at Day 3 and Day 12 should be supplemented by an additional test at Day 5. This could use a saliva sample or a nasopharyngeal swab. It will be valuable to see how many vaccinated and unvaccinated individuals develop positive tests during the period from Day 6 to Day 12.

10. You have also asked which travellers departing New Zealand might be eligible for reduced quarantine requirements when this system is eventually introduced. Apart from the requirement to be fully vaccinated with the Pfizer-BioNTech vaccine, we believe the main criterion should be the country or countries to be visited or transited through. At present a person who has spent a fortnight in Brazil or India, for example, would pose a greater risk than someone who has visited a low-risk country. We understand that the Ministry of Health have been developing a system for classifying the risk associated with different countries on an ongoing basis. The reduced quarantine scheme could start with people who have visited low-risk (or medium- and low-risk) countries for a limited period – say up to one month.

11. Because children are currently not eligible for vaccination, we suggest that the scheme should initially be confined to vaccinated adults. Depending on experience, the arrangement could later be extended to include family groups where all the adults have been fully vaccinated.

## Conclusion

12. As already indicated, we could not recommend rolling out this scheme until as many New Zealanders as possible have been vaccinated. Our expectation is that, with all the precautions outlined in our previous letter, the scheme would lead to relatively few incursions of the virus and that these could be stamped out quickly. As experience is gained and arrangements are fine-tuned, we expect that QFE or reduced time in MIQ will be offered to a wider range of travellers arriving in New Zealand.

Yours sincerely

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Philip Hill
Ella Iosua
David Murdoch
Nikki Turner