

# Responding to Public Health Threats at New Zealand Air- and Seaports

Guidelines for the public health and border  
sectors

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**Te Whatu Ora**  
Health New Zealand

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# Contents

<b>Part A: Deciding whether to use border health measures</b>	<b>5</b>
<b>1 Introduction</b>	<b>6</b>
1.1 Purpose	6
1.2 International Health Regulations (2005)	9
1.3 Status of these guidelines	9
<b>2 The appropriateness of our border health protection measures</b>	<b>11</b>
2.1 Response phases	11
2.2 The approach at the border	12
2.3 Key criteria	13
<b>3 Choosing the right border health measure</b>	<b>16</b>
3.1 Potential border health measures	16
3.2 Evidence for border health measures	17
3.3 New Zealand experiences with border health measures (2009–2022)	20
3.4 Principles for making decisions	23
3.5 Questions to guide decision-making	24
3.6 Summary of the measures considered most viable	28
<b>Bibliography and references</b>	<b>30</b>
<b>Part B: Potential border health measures</b>	<b>32</b>
<b>1 Travel measures at international air- and seaports</b>	<b>33</b>
(a) Health advice and alerts for travellers and the wider border and travel sectors	33
(b) Screening travellers	37
(c) Managing contaminated goods, cargo, aircraft, vessels and/or environments	46
(d) Medical and other testing	48
(e) International travel advisories	51
(f) Diverting aircraft or vessels, travel restrictions and border closures	52
<b>2 Measures to manage symptomatic and/or exposed international travellers</b>	<b>59</b>
(a) Pre-departure measures	59
<hr/>	
Responding to Public Health Threats at New Zealand Air- and Seaports	3

(b) Passenger locator information	60
(c) Medical assessment of arriving travellers	62
(d) Medical and other testing	63
(e) Isolation	65
(f) Treatment of symptomatic travellers	70
(g) Contact tracing and/or prophylaxis	72
(h) Home or institutional quarantine	74
<b>3 Exit measures</b>	<b>80</b>
<b>Appendix 1: Literature scan</b>	<b>86</b>
Recent findings and themes	86
Conclusion	92
References	93
<b>Appendix 2: Border health measures previously applied</b>	<b>95</b>

# **Part A:**

# **Deciding whether to use border health measures**

# 1 Introduction

The goal of border health protection is to improve, promote and protect public health and mitigate biological (eg, communicable diseases), chemical and radiological risks that may arise at New Zealand's international airports and seaports.

Border health protection measures focus not only on the health and wellbeing of international travellers, aircraft, vessel crew and border workers but also on those of the wider New Zealand public, who may be exposed to health threats introduced by travellers and goods as they enter and move around the country.

New Zealand, as an island nation, does not have any land borders, unlike many other countries. The focus of the border health measures in these guidelines is, therefore, on international airports and seaports.

## 1.1 Purpose

These guidelines have been updated to continue to support operational responses where border health measures are required and to inform border health policy development. The guidelines do not set policy in their own right but are a tool to support decision-making about:

- whether border health measures should be used – on their own or in combination with other community-based health measures
- whether measures at the border are justified
- whether specific health measures could be implemented in response to specific public health threats.

Such public health threats could include the international spread of:

- well-established infectious diseases, such as polio or Ebola virus disease
- recent/emerging infections, such as COVID-19 (SARS-CoV-2) or Middle East respiratory syndrome coronavirus (MERS-CoV)
- other sources of disease or health risk (eg, chemicals, radiation, vectors, and pests of public health significance).

The guidelines identify a range of border health and travel measures that can be used to prevent or respond to public health threats to New Zealand. Pros and cons for each health measure are highlighted, along with issues that will need to be worked through if the measures are implemented.

## Impact of the COVID-19 global pandemic

These revised guidelines incorporate border health measures that were used in the response to the COVID-19 pandemic. They:

- summarise recent literature on border health measures, much of which focuses on COVID-19 experiences (see **Part A: Deciding whether to use border health measures, section 3.2: Evidence for border health measures** and **Appendix 1: Literature scan**)
- summarise border health measures used in New Zealand responses to public health emergencies from 2009 to 2022, including the COVID-19 response (see **Part A, section 3.3: New Zealand experiences with border health measures (2009–2022)** and **Appendix 2: Border health measures previously applied**)
- expand the core border health measures to describe and reflect COVID-19 experiences (see **Part A, section 3.1** and **Part B: Potential border health measures**).

The measures described in these guidelines are generally not new public health strategies. However, their scale and the length of time they were applied in the COVID-19 context represented a seismic shift in the way we respond to global public health emergencies – both nationally and internationally. Likewise, the resources needed to implement border health measures and the effort and commitment from border stakeholders and those supporting public health emergency responses have been unprecedented in modern times.

Measures such as health alerts, screening, testing, quarantine/isolation, contact tracing and even imposing border restrictions on the international movement of people, goods, aircraft, and vessels have been around for many years in some form. However, the more invasive and restrictive measures have usually been kept in reserve until they were needed and their use was justified. Such measures were included in past editions of these guidelines, but the content has been expanded to reflect the size and scale of their application in the COVID-19 response. For example, the controls on people that were allowed to enter New Zealand and the levels of control at the government-managed isolation and quarantine facilities that were established to manage those coming from overseas were more comprehensive than anything previously implemented in New Zealand prior to the COVID-19 response.

The COVID-19 pandemic has been a game changer for border health, and the descriptions of the border health interventions (see **Part B**) have been revised to recognise this. However, the guidelines are not intended to be a COVID-19-specific resource, and the measures in the guidelines can be used, adapted, and scaled up or down as needed to respond to a range of public health threats – they are not specific to a particular disease or other public health hazard.

Border health measures need to be tailored to the nature of the threat faced (which can evolve quickly). In the case of a serious global pandemic, such as COVID-19,

comprehensive border health measures may be needed for some time. However, for other public health threats, the more disruptive border health measures that were used during the COVID-19 response will not be needed because the public health risk can be appropriately managed in other ways. For example, by using health alerts, providing information to travellers and using more targeted interventions at the border, such as screening specific subgroups of travellers from at-risk countries only. Such measures were the focus of pre-COVID-19 responses in recent years.

As the public health threat evolves, we need to continually reassess the health measures being applied at the border to ensure they remain fit for purpose and proportionate to the public health risk and balance other considerations, such as social and economic impacts and impacts on travel and trade.

The guidelines do not deal with business-as-usual regulatory requirements, such as pratique (health clearance) processes applying to aircraft and vessels arriving from overseas (eg, reporting of symptomatic people on board), core infection prevention and control measures, or local public health services' plans or protocols for managing ill travellers.

They also do not address health and safety for workers or other obligations covered under the Health and Safety at Work Act 2015 – WorkSafe New Zealand (WorkSafe) and designated agencies are responsible for enforcing this Act.

The intended audience for these guidelines includes:

- government agencies that are responsible for providing policy advice and making operational decisions on border control measures, including Manatū Hauora – Ministry of Health, Te Whatu Ora, Ministry for Primary Industries (biosecurity), New Zealand Police, New Zealand Customs Service, Ministry of Transport, Civil Aviation Authority of New Zealand, Aviation Security Service, Maritime New Zealand, New Zealand Ministry of Defence and New Zealand Defence Force
- border health officers
- key stakeholders at our international air- and seaports, including airline and shipping companies, the Board of Airline Representatives of New Zealand Inc (BARNZ), border workers (eg, aircraft ground handlers, airport staff, pilots and stevedores, staff of worker associations/unions, etc), shipping operators and customs brokers.

## 1.2 International Health Regulations (2005)

New Zealand is party to the global commitment under the International Health Regulations (2005) to plan, prepare for and be able to respond promptly to acute public health threats to both New Zealand and the wider international community.

The International Health Regulations (2005) were negotiated by member states of the World Health Organization (WHO) and came into force in June 2007. Their purpose is to:

... prevent, protect against, control and provide a public health response to the international spread of disease<sup>1</sup> in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade. (WHO 2016, page 10)

The International Health Regulations (2005) specify a range of public health core capacities, along with surveillance, risk assessment, response and reporting requirements for managing risks to public health at the community, national and international levels. They seek to ensure the rapid response to, and containment of, public health threats at their source and to control the spread of disease at borders. Therefore, border responses may include both entry and exit measures. The measures discussed in these guidelines include a mix of emerging measures and those that have been used historically or considered for use.

## 1.3 Status of these guidelines

The original guidelines were adapted from a 2009 paper prepared by the WHO's Western Pacific Regional Office (WPRO). The guidelines are periodically updated as new border health measures are identified, as existing approaches are refined (or removed if found not to be feasible) or to include lessons learned during responses to public health emergencies of international concern (PHEICs).

The guidelines were significantly revised in 2022, including:

- updating the sections regarding the approach at the border (see **sections 2.2: The approach at the border** and **2.3: Key criteria** of Part A)
- updating the text around the evidence for border health measures (see **section 3.2: Evidence for border health measures** of Part A and **Appendix 1: Literature scan**)

<sup>1</sup> The IHR 2005 define 'disease' as 'an illness or medical condition, irrespective of origin or source, that presents or could present significant harm to human' (WHO 2016, page 7). This includes non-biological sources such as chemicals or radiation.

- adding information on the border health measures that have been (or are being) used in New Zealand in response to recent international public health emergencies – including the COVID-19 response (see **section 3.3: New Zealand experiences with border health measures (2009–2022)** of Part A and **Appendix 2: Border health measures previously applied**)
- updating the sections discussing the principles and key questions to inform decision-making (see **sections 3.4: Principles for making decisions** and **3.5: Questions to guide decision-making** of Part A)
- revising the more detailed descriptions of border health measures in **Part B: Potential border health measures** – including recognising the type and scale of measures used in recent public health responses, such as the COVID-19 pandemic.

The 2023 revisions are minor and administrative to reflect changes made in the 2022 health sector reforms, which included the establishment of Te Whatu Ora and the National Public Health Service, and the Public Health Agency as a division of Manatū Hauora. The New Zealand Traveller Declaration has been included as a new tool to manage public health risk.

# 2 The appropriateness of our border health protection measures

## 2.1 Response phases

As an island nation, New Zealand's borders are a key staging ground for responding to international public health threats. Our overall strategy for managing these threats is comprehensive and includes pre- and post-border phases.

Threat management at our borders should emphasise 'the four Rs'.

- **Reduction:** This involves avoiding or mitigating adverse consequences before they occur and so realises the sustainable benefits of managing risks at acceptable levels. Examples of risk reduction at the border include aircraft disinsection<sup>2</sup> programmes (managed by the Ministry for Primary Industries), which prevent live exotic insects of public health significance (eg, exotic mosquitoes) from entering New Zealand.
- **Readiness:** Good planning, preparation and practice (eg, exercises) are essential to enabling a successful intervention at the border.
- **Response:** With the right preparation, sound decision-making on suitable measures to be implemented and rapid deployment of those measures, public health threats can be prevented or at least delayed from entering the country, giving our health system time to mobilise and respond.
- **Note:** Border health measures have a finite life since the international threat might abate or measures within New Zealand might be established. Thus, the ongoing relevance and appropriateness of the border health measures will need to be monitored, and measures may need to be adapted, changed for other measures or ceased altogether.
- **Recovery:** It is important that border agencies and other stakeholders are supported to return to routine operations once any emergency has been diverted or successfully managed. Debriefs and lessons learned should be captured and incorporated into future readiness and response plans.

<sup>2</sup> The IHR define 'disinsection' as 'the procedure whereby health measures are taken to control or kill the insect vectors of human diseases present in baggage, cargo, containers, conveyances, goods and postal parcels' (WHO 2016, page 7).

This approach is consistent with New Zealand’s National Disaster Resilience Strategy,<sup>3</sup> which also explicitly recognises **resilience** in its core vision, goal and objectives. In the public health context, resilience includes the ability to anticipate and resist the effects of a public health threat, minimise adverse impacts, respond effectively to public health events, maintain or recover functionality and adapt in a way that allows for learning and thriving.

## 2.2 The approach at the border

Public health measures at the border can be costly and resource intensive, typically disrupting the normal functioning of international travel and trade sectors and impacting on the wider public. The potential benefits of any border health measures need to be carefully balanced against the potential social, economic and reputational impacts and the likely effectiveness of the measures, as well as the implications of taking no additional measures.

These guidelines suggest response options but also consider the actions required to ensure readiness to implement a response. These can be found at the ‘action points’ columns of the tables in **Part B: Potential border health measures**.

The approach at the border should:

- be flexible and adaptable to the specific public health threat, especially in terms of emerging threats (such as a pandemic) or other public health risks (such as chemical or radiological threats) or pests of public health significance
- reflect the seriousness of the public health threat, for example, a pandemic compared with a localised contamination incident
- reflect our commitment to Te Tiriti o Waitangi and ensuring equitable health outcomes
- adapt and change as the risk assessment changes, including the types of measures implemented and the length of time they are used for
- be evidence based where possible and reflect what is known about the epidemiological characteristics of the threat and what works in terms of health measures
- take account of national and local plans and existing health measures, laws and policies
- consider the international picture – this should include public health measures recommended by the WHO and those used by other countries, taking into consideration their suitability for New Zealand’s context and needs

<sup>3</sup> For more information, see the National Disaster Resilience Strategy webpage on the National Emergency Management Agency website at: [www.civildefence.govt.nz/cdem-sector/plans-and-strategies/national-disaster-resilience-strategy/](http://www.civildefence.govt.nz/cdem-sector/plans-and-strategies/national-disaster-resilience-strategy/).

- consider establishing and maintaining a surge capacity on an as-required basis so that it can be engaged with and activated when needed
- ensure all human rights and fundamental freedoms are respected as per the New Zealand Bill of Rights Act 1990 and the International Health Regulations (2005) (WHO 2016)
- plan for regular exercises, updates and maintenance of response plans and the implementation of health measures.

## 2.3 Key criteria

A set of criteria is available to help those involved in border health protection determine priorities and assess whether:

- any potential public health threat is of such (potential) significance that further action is warranted at our borders

**OR**

- pre-border or post-border action may be a more appropriate and effective response

**OR**

- existing actions (pre-border, at the borders and post-border) provide a sufficient response and no further measures are needed.

Using these criteria requires informed assessment/judgement. It is not feasible to specify the criteria and weightings precisely and develop a rigid formula for deciding on priorities.

### Essential criteria to consider

- Does the issue have a significant impact on the current and future health status of the total population or priority at-risk groups in terms of morbidity, mortality and quality of life?
- Will tackling this issue support our commitment to Te Tiriti o Waitangi?
- Are there effective existing measures, using population-based methods, that could be taken to improve, promote or protect health or prevent disease in respect of the public health threat? If not, are there potential innovative measures that could be considered?
- Has the WHO issued standing and/or temporary recommendations under the International Health Regulations (2005) (WHO 2016) that include specific measures at air- and seaports?

## High-weighted criteria

- Will tackling this issue provide the best health gain for the available resources?
- Will tackling this issue ensure equitable health outcomes for all New Zealanders, including protecting the health of at-risk communities, such as Māori and Pacific peoples? Are any populations more vulnerable than others (eg, children, the elderly, particular ethnic groups or those with pre-existing health conditions)?

## Medium-weighted criteria

- Is there stakeholder and public support for tackling the issue?
- Will short-term interventions give a sustainable benefit?
- Are the programmes that are being implemented sustainable over time and across sectors?
- Is it possible to engage other government and community sectors in the efforts to address the public health threat? Does every affected party benefit from the shared/complementary work?
- Is the issue currently being addressed (possibly more appropriately) by any other organisation, that is, is there a gap or a need to clarify/confirm roles?

Public health emergencies of international concern, for example, clearly meet these criteria for action. However, further analysis is required to determine the level of risk to New Zealand and our Pacific partners (in particular, the Realm of New Zealand countries)<sup>4</sup> and whether that risk justifies border control measures being implemented along with other community-based measures.

If it is decided that a threat is serious and public health action should be taken at the border to mitigate the threat, then further analysis is required to decide:

- the specific border health measure(s) to be applied
- the scope of such border health measure(s) (eg, which aircraft, vessels, or people the measures should apply to; whether measures should be rolled out at all air- and seaports or just some; how long border health measures should be implemented; whether they should be applied in tandem with other community-based measures; etc).

When implementing border health measures, health authorities need to be clear about the public health objective as well as how each measure contributes towards this overall objective. Measures need to be proportionate to public health risk. And, as signalled above, public health factors need to be carefully balanced alongside other considerations,

<sup>4</sup> The Realm of New Zealand encompasses the area in which the monarch of New Zealand, in the form of the Governor-General of New Zealand, is acknowledged as the head of state. The area of the Realm of New Zealand covers New Zealand, the Cook Islands, Niue, Tokelau, and the Ross Dependency of Antarctica.

such as potential human rights issues and the social, financial and economic impacts of implementing border health measures – particularly the more restrictive measures, such as mandatory quarantine/isolation.

# 3 Choosing the right border health measure

## 3.1 Potential border health measures

These guidelines consider three main groups of health measures:

- travel measures, before departure, at international air- and seaports or applied to contaminated cargo, aircraft or other vessels
- measures to manage symptomatic and/or exposed international travellers
- exit measures.

These measures are likely to be applied in combination, depending on the public health threat. Examples of specific border health measures under these three broad groupings are provided in **Error! Reference source not found.** below.

**Table 1: Examples for the three main health measure groupings: travel, symptomatic and/or exposed international travellers, exit**

1. Travel measures	
<ul style="list-style-type: none"> <li>• Health advice and alerts for travellers and the wider travel sector</li> <li>• Screening travellers</li> <li>• Medical and other testing</li> <li>• International travel advisories</li> <li>• Travel restrictions, border closures or diversions for aircraft/vessels</li> <li>• Managing contaminated cargo, aircraft/vessels and/or environments, including:               <ul style="list-style-type: none"> <li>• segregation or isolation</li> <li>• treatment, including disinsection, de-ratting, disinfection, decontamination</li> </ul> </li> </ul>	
2. Measures to manage symptomatic and/or exposed international travellers	
<ul style="list-style-type: none"> <li>• Managing <u>symptomatic</u> travellers               <ul style="list-style-type: none"> <li>• Pre-departure measures</li> <li>• Passenger locator information</li> <li>• Medical assessment of arriving travellers</li> <li>• Medical and other testing</li> <li>• Isolation</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Managing <u>exposed</u> travellers               <ul style="list-style-type: none"> <li>• Pre-departure measures</li> <li>• Passenger locator information</li> <li>• Medical and other testing</li> <li>• Contact tracing and/or antiviral prophylaxis</li> <li>• Home or institutional quarantine, including:</li> </ul> </li> </ul>

<ul style="list-style-type: none"> <li>• Treatment of symptomatic travellers</li> <li>• Contact tracing and/or antiviral prophylaxis</li> </ul>	<ul style="list-style-type: none"> <li>• self-health monitoring and illness reporting</li> <li>• voluntary or mandatory home quarantine</li> <li>• Voluntary or mandatory institutional quarantine</li> </ul>
<b>3. Exit measures</b>	
<ul style="list-style-type: none"> <li>• Health advice and alerts for travellers</li> <li>• Screening</li> <li>• International travel advisories</li> <li>• Travel restrictions and potential border closures</li> <li>• Passenger locator information</li> <li>• Vaccination</li> <li>• Medical assessment</li> <li>• Medical and other testing</li> <li>• Isolation of symptomatic travellers</li> <li>• Treatment</li> <li>• Contact tracing</li> <li>• Self-health monitoring and illness reporting</li> <li>• Quarantining exposed travellers</li> </ul>	

These health measures are considered in more detail in **Part B: Potential border health measures**.

## 3.2 Evidence for border health measures

### Limited published evidence base

There is a wide range of border health measures that could be applied to any given public health threat. However, historically there has been a lack of data to demonstrate the effectiveness of some of these measures (eg, border screening). The knowledge base used in developing international guidance for border control and travel measures has been limited and has largely consisted of historical and contemporary observations and mathematical models, rather than controlled studies that critically evaluate the effectiveness of different measures.

Any response to a public health threat needs to be tailored to the characteristics or behaviours of the threat and will need to be modified as new information becomes available and our understanding of the threat and epidemiology changes – particularly if the threat evolves, as seen with the different COVID-19 variants that emerged from 2019.

The original version of these guidelines (Ministry of Health 2016) noted some findings from past experiences, for example, WHO advice from 2006 and 2009, which queried the effectiveness of border screening (these reports are listed in the **Bibliography and references** below). Based on the review of available data in 2006, the WHO concluded that screening and quarantining travellers entering at international borders did not substantially delay the introduction of diseases in past pandemics, except in some island countries. Instead, recommended measures focused on providing information to international travellers and considering screening travellers who were departing countries that were known to contain transmissible human infections.

Similarly, in 2009, the WHO's Western Pacific and South-East Asia regional offices, together with the Association of Southeast Asian Nations (ASEAN), convened a regional forum to discuss public health measures at international air- and seaports. Participants reported on their experiences with measures such as border screening in their responses to the 2009 pandemic of the novel influenza A (H1N1) virus. Participants advised that screening was of questionable efficacy, extremely resource intensive and very disruptive to the day-to-day operations of the international travel sector. Providing information to travellers (including information about personal hygiene and protection, health measures expected on arrival, what to do if symptoms occurred and contact tracing) was considered a viable measure in response to that specific pandemic.

Experience with responding to the outbreak of Ebola virus disease (EVD) in West Africa in the period 2014–16 suggested that targeted screening to identify travellers arriving from high-risk countries is a potentially viable intervention. These travellers can be asked specific questions about potential high-risk exposures to determine if further measures should be applied (eg, self-monitoring, quarantine).

The COVID-19 global pandemic saw the implementation of border health measures on an unprecedented scale in modern times. Some island countries, such as New Zealand, Australia, many Pacific Island nations, and Taiwan, imposed tight border restrictions during the pandemic, and this delayed the introduction and spread of COVID-19, enabling authorities to better manage and mitigate the impact of the pandemic. Many other countries around the world also tightened their borders but faced other challenges in controlling the spread of the disease – especially those with land borders or who are geographically closer to larger mobile populations. It is difficult to compare different countries' approaches given the differences in their contexts, the nature and range of border and community measures they used and when they introduced those measures. There is a lack of published literature comparing different countries' approaches at the border or evaluating the effectiveness of their approaches.

## Recent findings and themes

The literature continues to evolve as the world faces new public health threats (such as COVID-19). To update these guidelines, in 2021, Manatū Hauora considered selected recent literature to identify key themes. However, there are key caveats to this information.

- The literature scan focused on selected publications from 2016 to 2021 – it was not a comprehensive or systematic literature review of the effectiveness of the border measures discussed in these guidelines: the effectiveness of border measures is seldom formally evaluated.
- The literature mostly relied on lower-quality evidence from modelling studies (rather than real-life data). Even the systematic reviews included in the scan cited many modelling studies.
- Much of the recent literature focused on measures applied in 2020/21, during the COVID-19 pandemic. Findings may, therefore, not always be applicable to all public health threats – including other recent pandemics or non-biological threats.
- The health measures discussed in the literature have been applied in different environments and systems and are based on different approaches across a range of countries. As a result, some of these measures may have less relevance to the New Zealand context – as we are an island nation that is geographically distant from much of the world.

The high-level findings from the 2021 literature scan are provided below. **Appendix 1: Literature scan** provides more detail about each point listed below and contains references to the documents considered in developing these high-level findings.

- Being prepared is a good start: the International Health Regulations (2005) (WHO 2016) provide a sound platform and focus for countries to build capacity, collaborate and strengthen their disease surveillance and response systems.
- It is better to implement border-based detection measures earlier rather than later.
- Border closures may delay the arrival of a pandemic, but the extent of the delay and the impact of border measures depend on multiple variables, such as circumstances in the country of departure, the infectiousness of the disease, the willingness of travellers to comply with public health measures before and during their travel, etc.
- Layering border health detection and protection measures produces better effects than using any single measure. Depending on the nature of the public health threat, layered measures could include:
  - pre-flight-day testing (<72 hours)
  - compulsory use of masks / face coverings and physical distancing within airport facilities
  - entry and exit screening measures

- check-in and departure lounge measures.
- Post-arrival follow-up may increase detection of cases that were asymptomatic on arrival.

### **Border control measures have some inherent limitations**

Without evaluation, it is hard to be confident of the effectiveness of specific measures or of measures in combination (layering). To this end, the WHO has urged countries to formally evaluate temperature screening measures so that an evidence base can be built.

The effectiveness of voluntary measures is constrained by the effectiveness of detection measures and the degree of voluntary compliance. There is some evidence that citizens are generally supportive of border measures, but there is also concern about unintended harms, such as people being unable to return to their homes, disruptions to the supply chain, increased anxiety for immigrant/refugee populations, inequitable burdens and outcomes, and restricted access to medical services.

## **Conclusion**

Some measures are considered to have clear public health benefits and can be instigated in response to most threats without involving substantial resources or causing much concern. However, others need to be carefully considered against the specific public health threat because they have potentially significant impacts and other consequences. Layering border health detection and protection measures produces better effects than relying on a single measure. Te Whatu Ora considers that those countries that implemented sound border health measures at the right times have been better able to manage the impacts of international public health threats, such as COVID-19, on their communities.

However, regardless of the measures applied, it is necessary to assess their effectiveness regularly as the public health threat evolves to ensure they remain fit for purpose and proportionate to the risk to public health.

## **3.3 New Zealand experiences with border health measures (2009–2022)**

The need to tailor the border health measures used to the specific (and often evolving) threat being faced can be seen in the measures used in New Zealand's responses to recent public health threats.

**Error! Reference source not found.** below provides high-level summaries of health measures applied at the New Zealand border relating to global public health events since 2009, and further detail is provided at **[Appendix 2: Border health measures previously](#)**

**applied.** Some of these events were public health emergencies of international concern (PHEICs) determined by the WHO, while others did not reach this threshold but still warranted some form of border health measures.

The information below and in **Appendix 2** is not intended to showcase every measure New Zealand employed in each event (other health measures were also implemented that were not focused at the border) but collectively highlights the broad public health approaches taken at the border for these public health events.

Even though a number of border health measures were applied in New Zealand across most recent public health events (eg, health alerts and advisories), the types of measures varied, along with the scale of the respective measures that were implemented. The COVID-19 response, for example, has required more intensive border health measures, over a such longer duration, than past responses.

**Table 2: Border health measures taken at the New Zealand border as a result of global public health events, 2009–2021**

Year(s) applied	Key border health measures applied in New Zealand
2009: Novel influenza A (H1N1) virus (swine flu)	<ul style="list-style-type: none"> <li>• Health advice and alerts for travellers and the wider travel sector</li> <li>• Passenger locator information included on Passenger Arrival Cards</li> <li>• Ill traveller response protocol developed</li> <li>• Contact tracing</li> <li>• Exit measures: when requested by overseas governments, screening and symptomatic travellers not permitted to depart</li> </ul>
2011: Nuclear accident at the Fukushima Daiichi Nuclear Power Plant in Ōkuma, Japan	<ul style="list-style-type: none"> <li>• Cargo and vessels’ testing for ionising radiation hazards</li> <li>• Japanese government certified goods free from radiation hazards</li> </ul>
2013: Middle East respiratory syndrome (MERS-CoV) outbreak	<ul style="list-style-type: none"> <li>• Health advice and alerts for travellers and the wider travel sector</li> <li>• Advice for airlines on aircraft cleaning</li> <li>• Ill traveller response protocol drafted (but not needed)</li> <li>• International travel advisories</li> </ul>

2014: Polio – spread of wild poliovirus	<ul style="list-style-type: none"> <li>• Health advice and alerts for travellers from affected countries on vaccination requirements</li> </ul>
2014 and 2018: Ebola virus disease (EVD) outbreaks	<ul style="list-style-type: none"> <li>• Health advice and alerts for travellers and the wider travel sector; health advice cards and signs at points of entry introduced</li> <li>• International travel advisories</li> <li>• Ill traveller response protocol developed</li> <li>• Screening high-risk travellers</li> <li>• Managing potentially exposed travellers: entry screening, voluntary home quarantine, self-health monitoring and illness reporting</li> <li>• Exit measures: when requested by overseas governments, screening and high-risk travellers not permitted to depart</li> <li>• Updates on New Zealand measures provided to Pacific Island nations and territories and WHO under Article 44 of the International Health Regulations (2005) (IHR)</li> </ul>
2015: Chemical explosions at Port of Tianjin, China	<ul style="list-style-type: none"> <li>• Testing of selected cargo and vessels for chemical hazards</li> <li>• Results provided to WHO under Article 44 of the IHR</li> </ul>
2016: Zika virus disease outbreak	<ul style="list-style-type: none"> <li>• Health advice and alerts for travellers and the wider travel sector</li> <li>• Existing vector control measures on aircraft and vessels and at international ports and airports continued</li> <li>• Technical vector control advice provided to border stakeholders</li> <li>• Contact tracing, including mosquito delimiting surveys</li> <li>• Exit measures: health advice and alerts for travellers</li> </ul>
<p>2019–ongoing: COVID-19 pandemic.</p> <p>By mid- 2023 New Zealand’s border health</p>	<ul style="list-style-type: none"> <li>• Health advice and alerts for travellers and the wider travel sector</li> <li>• International travel advisories</li> <li>• Travel restrictions, progressive border restrictions to classes of conveyances and travellers other than New Zealand residents, repatriation of New Zealand</li> </ul>

<p>measures had been removed.</p>	<p>nationals, maintenance of supply chains, face masks mandatory on aircraft (passengers and crew)</p> <ul style="list-style-type: none"> <li>• Traveller screening</li> <li>• Managing <u>symptomatic</u> travellers (passengers and crew): passenger locator information; medical assessment of arriving travellers; testing; isolation; treatment of symptomatic travellers</li> <li>• Contact tracing</li> <li>• Managing <u>exposed</u> travellers (passengers and crew): passenger locator information; contact tracing; testing; self-health monitoring and illness reporting; voluntary or mandatory home quarantine; voluntary or mandatory institutional quarantine</li> <li>• Testing and vaccination of border workers</li> <li>• Pre-departure testing and vaccination entry requirements for non-New Zealand citizens (including an exemptions process)</li> <li>• Identifying high-risk countries where direct travel to New Zealand was restricted</li> <li>• Requiring vessels enroute to New Zealand to report health status (and other information) to the authorities earlier than they usually need to do in routine times (this was to provide additional time for authorities to prepare if there was COVID-19 on board)</li> <li>• Monitoring of COVID-19 on cruise vessels</li> <li>• Exit measures: health advice and alerts for travellers, international travel advisories, travel restrictions and potential border closures, medical assessment, isolation of symptomatic travellers</li> </ul>
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### 3.4 Principles for making decisions

Generally, Manatū Hauora and Te Whatu Ora determine the border health measures to be taken to respond to public health risks (including screening). However, if additional legislative measures are required (eg, during a pandemic response that triggers the Epidemic Preparedness Act 2006), the Government will exercise its authority and power directly.

The following key principles should inform decision-making when considering potential border health measures.

- Public health measures related to international borders and travel should be implemented under the framework of the International Health Regulations (2005).
- Public health measures at our borders should be proportionate and commensurate with the threat posed to New Zealand and should consider advice from the WHO and the actions taken by other countries in the region. This does not preclude New Zealand taking a different approach if it considers there is justification, but any approach needs to be communicated to the WHO, using the channels established under the International Health Regulations (2005). If New Zealand imposes border measures that are more restrictive of international traffic and trade than what WHO has recommended, then under International Health Regulations (2005) we are required to inform WHO of such “additional measures”, provide a public health rationale, keep such measures under review, and respond to WHO with further information if so requested.
- Public health measures should be adapted to suit national and local epidemiological and sociocultural contexts. The response must be tailored to the threat, and it must be flexible. We cannot assume that a response used in one situation will be appropriate for the next public health threat.
- Ideally, public health measures taken at the border would be evidence based. Where there is limited or no evidence of effectiveness, expert advice should be sought, and mechanisms should be established to assess the effectiveness or review new evidence when it becomes available.
- Key factors to consider include expected public health benefits, Te Tiriti o Waitangi obligations, equity, legal frameworks and constraints, social and economic costs, resources required, feasibility of measures and ethical issues.
- Proposed border health measures need to be reviewed against key policies and plans.
- Before implementation, proposed border measures should be discussed with border health response teams and other key stakeholders (border agencies, airlines, Board of Airline Representatives of New Zealand Inc – BARNZ, shipping agents, air- and seaport authorities, ground handlers, customs brokers, etc).
- Consultation and collaboration with border stakeholders are essential when making decisions about potential measures to be implemented at our borders. This will ensure the risks and benefits of measures are well understood; border stakeholders can assist health authorities to ensure that the most feasible and effective and least intrusive measures are proposed; and measures can be applied most efficiently (eg, involving stakeholders appropriately).

## 3.5 Questions to guide decision-making

Sitting under these principles are several more specific questions that should be considered to inform decisions about what border health measure or mix of measures to

use in response to any given public health threat. In many public health emergencies, border response options may need to be implemented in the absence of complete information.

Decisions on border health responses may need to be made when the full information is not available. These questions should guide decision-makers in assessing the potential risks and benefits of options. Decisions should be reconsidered as new information is received.

## Initial threat/risk assessment

What do we know about the threat? What is the risk? Key factors to consider include:

- virulence and infectivity/toxicity
- mortality/morbidity
- achieving equitable outcomes
- mode of transmission/contamination
- incubation period
- severity of effects, including on vulnerable groups
- country (or countries) of origin (or specific risk areas within them)
- risks from imported goods (baggage, cargo, containers, postal parcels)
- risks from contaminated vessels or aircraft.

If there is little or no specific information about the threat, then consider following a process used for other threats. This could include using established systems and communication channels that airlines, air- and seaports, ground handlers, etc will be familiar with and that might provide a good starting point (eg, as laid out in air or seaport emergency response plans for dealing with hazmat incidents).

## Ongoing monitoring and review of the threat

In the ongoing monitoring and review of a public health threat, consider the following questions.

- Has our understanding of the threat changed? Has the WHO or International Civil Aviation Organization (ICAO) provided new advice or recommendations?
- As time passes, has the nature or our understanding of the threat changed? Do we need to change our response to the threat?
- Is there a changed risk in terms of virulence and infectivity or toxicity, morbidity/mortality, achieving equity, incubation period, severity of effects or effect on imported goods?

- Has the risk of suspected cases arriving in New Zealand increased or decreased? Have the risk countries/locations changed?
- Is there a greater risk of transmission within a local community?
- Has the risk of exporting the threat to countries that currently do not have notified cases increased?
- Are there new information and tools for identifying suspected cases? Are we monitoring in a manner that is consistent with monitoring systems used by our immediate neighbours and the Asia/Pacific region? What are our border stakeholders telling us?
- Will the monitoring have a significant impact on the likelihood of detecting suspected cases?

## **Effectiveness and feasibility of the border health measure(s)**

When assessing the effectiveness and feasibility of the border health measure(s), consider the following questions.

- Is each border health measure likely to be effective? What is the evidence base for this view? Is the measure routinely used in other comparable countries?
- What new information will the measures give us and is that information necessary to manage the risks or is it just desirable (or an academic curiosity)?
- Are the measures actually feasible in New Zealand? Can they be implemented practically? For example, can airlines / border agencies / travellers readily comply with the measures? Will the measures create any risks (eg, aircraft being required to report during landing procedures) or have unintended consequences?
- When can the measures be put into effect?
- Will measures support vulnerable populations (eg, will they disadvantage travellers for whom English is not a first language or those who are not able to access new technologies introduced as part of the health response)?
- Are the same measures appropriate or able to be consistently applied at all New Zealand air- and seaports? Can the same procedures be implemented by all aircraft operated by an airline or by all vessels operated by a shipping company?
- Does New Zealand's island nation status (and geographical separation) make a difference to the importance of following WHO/ICAO advice? Is there a good reason to diverge from the consistent responses within the global border health security community and/or Asia-Pacific region?

## Is it worth it?

What are the social and economic costs and benefits of implementing the measure(s)? Is the proposed risk management measure proportionate with its implementation costs? Is it the best health gain in terms of the available resources? Will it improve equity (or at least, not increase inequity)?

Is the measure sustainable over time and in different air- and seaports (eg, will it work equally well at Auckland Airport as at Queenstown Airport or the Royal New Zealand Air Force (RNZAF) airbase at Whenuapai, Auckland? Will it work at the Port of Tauranga just as well as at South Port, in Bluff or Devonport Naval Base)?

What are the likely impacts on our border health response teams?

## Acceptability and views of stakeholders

When considering the acceptability of the measures and stakeholders' views, ask the following questions.

- Is it a credible response? Is there public support for the health measure (including the views of airline staff, airport staff, maritime stakeholders, border agencies, travellers, etc)?
- How would the health sector respond if airlines, shipping agents or border agencies advised that they could not or were unwilling to implement a particular health measure? What would the next steps be to enable or require it? Would it be better to consider an alternative?
- Is the measure lawful (including under international laws)? Is it ethical? Is the measure a justifiable limitation under the New Zealand Bill of Rights Act 1990?
- Are there opportunities for collaborating with other sectors of government, port authorities, airlines, shipping agents?
- Are there political, social, economic or other factors (ie, wider than public health and epidemiology) to be considered?

The answers to these questions require a good understanding of:

- who the key stakeholders are that operate at our international air- and seaports, including: the port companies, airlines and shipping companies, their agents, ground handlers, travellers, and government border agencies (Open communications and relationship building with key stakeholders is vital to ensure chosen measures can be as effective as possible.)
- what happens at New Zealand's international air- and seaports – the roles and responsibilities of all stakeholders, including compliance/enforcement responsibilities of stakeholders

- the impact on these stakeholders of the public health threat and the potential measures to address the threat.

Manatū Hauora, through the National Focal Point,<sup>5</sup> provides the WHO with the public health rationale and scientific information for any measures taken in our country under the International Health Regulations (2005).

## 3.6 Summary of the measures considered most viable

The border health measures considered most viable for implementing at New Zealand international air- and seaports in response to public health threats include:

- providing proactive public health advice and issuing advisories and alerts for travellers on the Ministry of Foreign Affairs and Trade's SafeTravel website ([www.safetravel.govt.nz](http://www.safetravel.govt.nz)), and the Te Whatu Ora website ([www.tewhatauora.govt.nz](http://www.tewhatauora.govt.nz))
- enabling traveller self-reporting (eg, symptoms and travel history)
- taking pre-departure measures (eg, declaration of vaccination and health status related to the public health threat or any other appropriate measures)
- providing passenger locator information to manage/monitor symptomatic and exposed travellers
- having a visible public health presence at international air- and seaports
- screening travellers from high-risk countries or with high-risk exposures to provide them with targeted advice and to implement other public health actions (eg, self-isolation)
- testing travellers, conveyances and goods
- using a range of platforms to communicate information effectively (electronic message boards, forms and handouts, targeting 'meeters and greeters', etc)
- providing landside monitoring and support to travellers (not airside)
- isolating symptomatic travellers
- quarantining high-risk but non-symptomatic travellers
- offering treatment for symptomatic travellers
- tracing contacts

<sup>5</sup> New Zealand's National Focal Point under the IHR is the Office of the Director of Public Health in Manatū Hauora.

- conducting regular air- and seaport workforce briefs (eg, personal protective equipment (PPE) training)
- during significant public health events, and only when justified, restricting the people and craft permitted to travel to and from New Zealand.

A mix of measures, or a layering approach, at the border (together with community measures) may be needed, depending on the public health threat in question. Likewise, other border measures may be appropriate in specific situations. In response to any threats, appropriate infection prevention and control measures will need to be identified and implemented. Manatū Hauora and Te Whatu Ora will provide recommendations and advice on a case-by-case basis. For more information on the benefits and constraints of various health measures, see **Part B: Potential border health measures**.

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# Part B: Potential border health measures

# 1 Travel measures at international air- and seaports

## (a) Health advice and alerts for travellers and the wider border and travel sectors

Such advice and alerts aim to increase awareness, provide information and promote personal hygiene and appropriate health seeking behaviour.

Routine health advisories will be extended and enhanced during an emergency response. Health advice to be made routinely available at international air- and seaports include signs (electronic and/or posters) and health advice cards advising travellers to call the free Healthline (0800 611 116) if they become unwell within a month of returning to New Zealand from overseas travel. Health advice cards are available in at least 25 languages.

Providing up-to-date information to travellers was considered an important strategy in recent responses, including the COVID-19 pandemic response. This has included information about the risk, personal hygiene and protection, health measures expected on arrival, what to do if symptoms occur and contact tracing.

Options for using health advisories and alerts include:

- distributing them to travellers when the travellers apply for visas, book travel, check in, complete departure formalities, etc
- distributing them to all arriving travellers
- distributing them to travellers arriving from selected areas, countries or international regions
- placing advisories or alerts for travellers at strategic locations
- requesting airlines make in-flight announcements (but only for targeted flights and for significant safety announcements), supported by information handouts distributed to travellers in the aircraft
- targeting arrivals 'meeters and greeters'

- coordinating messaging with industry bodies, local-level stakeholders, etc.

The sorts of information to provide could include:

- recommendations that travellers who are ill should postpone international travel
- health requirements for travellers intending to travel to/from New Zealand
- a description of the nature of the disease or threat
- recommendations of precautionary measures travellers could take (eg, self-isolation, etc)
- advice on personal hygiene and infection control (eg, handwashing / use of sanitisers, use of face masks and other PPE, coughing/sneezing into sleeves, physical distancing, self-isolation, etc)
- information on the importance of health self-monitoring, symptom identification and appropriate health-seeking behaviour (eg, getting tested or vaccinated)
- reporting procedures to local health authorities if symptoms develop (hotline or contact details for local hospitals and public health authorities should be provided to direct travellers on where to go to report illness and obtain medical care)
- information on the measures that may apply to symptomatic or potentially exposed travellers and those working at the border.

Health advice can also be tailored for targeted subgroups at the border – for example, air- and seaport workers such as crew, ground and baggage handlers, pilots and stevedores, government agencies, air- and seaport company personnel, cleaning and maintenance personnel, retail workers and other border workers.

Multiple means of communications should be used to reach different kinds of travellers. Information should be disseminated to places where travellers are likely to see it (eg, prominently at airports, Ministry of Foreign Affairs and Trade **SafeTravel** website ([www.safetravel.govt.nz](http://www.safetravel.govt.nz)), tourism operators, accommodation providers, etc). Appropriate means of communication include via electronic noticeboards at airports (many airports have excellent facilities that can be easily used with appropriate warning), video clips, bulletin boards, websites, social media, emails, texts, etc. It will also be important to continue using some more traditional methods to support those who do not use electronic methods of communication, for example, banners, pamphlets and radio announcements at international air- and seaports, television, radio and print media, etc.

Up-to-date health information and alerts should be targeted at both incoming and outgoing international travellers. Communications need to be clear and easily understood by people from a range of backgrounds – including in a variety of languages.

Updated information and advice (eg, WHO advisories) should be provided as soon as possible to key travel stakeholders (airlines, shipping companies, airline and shipping agents, ground handlers, government border agencies, border workers, etc). Rigorous

processes for updating material promptly and correctly as new information becomes available will need to be established.

**Table 3: Up-to-date information and advice**

<b>Potential benefits</b>	<b>Limitations/consequences</b>	<b>Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)</b>
<ul style="list-style-type: none"> <li>• Increases public awareness</li> <li>• Promotes good hygiene behaviour</li> <li>• Empowers people to make informed decisions</li> <li>• Increases compliance with local public health advice</li> <li>• Visibly demonstrates a national commitment to border health measures</li> <li>• Informs travellers where to go for medical care and where to report if they develop symptoms, especially those with epidemiological risk factors</li> </ul>	<ul style="list-style-type: none"> <li>• No guarantee that people will pay attention or adjust their behaviour (especially if messaging is passive)</li> <li>• Language and cultural barriers need to be addressed</li> <li>• Materials will need to be updated when new information becomes available. It can also take time to refresh/update and disseminate all relevant advisory material</li> <li>• People can discard paper-copy information handouts easily, and this can be demoralising as border staff may feel the issue is being ignored and they have to spend time cleaning up</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare messaging (and ensure clinical input/review)</li> <li>• Develop communications strategy with timelines, supporting collateral, clearly defined roles and responsibilities</li> <li>• The strategy needs to differentiate between travellers and border stakeholders (eg, workers)</li> <li>• Develop a communications strategy in consultation with key stakeholders</li> <li>• Messaging needs to be appropriate for the audience, nationally consistent and authoritative</li> <li>• Identify languages for translations/interpreters</li> <li>• Health personnel disseminating information need to be clearly identifiable, easily accessible and professional</li> </ul>

		<ul style="list-style-type: none"> <li>• Transit travellers, VIPs, and air crew need consideration</li> <li>• Plans need to incorporate unique messaging options for individual air- and seaports</li> </ul>
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## Links to useful guidance or resources

- Te Whatu Ora, border health protection measures and controls in New Zealand. URL: [www.tewhatauora.govt.nz/our-health-system/border-health/](http://www.tewhatauora.govt.nz/our-health-system/border-health/) (accessed 21 September 2023).
- Te Whatu Ora, generic health advice cards for people arriving in New Zealand (in different languages), URL: <https://www.tewhatauora.govt.nz/our-health-system/border-health/border-health-measures-and-resources/health-advice-cards-for-people-arriving-in-new-zealand> (accessed 21 September 2023).
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## (b) Screening travellers

Entry screening aims to identify ill or potentially ill travellers before they get into the country. Screening can be undertaken in several ways, including screening on board aircraft or vessels or once people have disembarked, using health declaration forms, or other observational methods, such as visual or temperature screening of travellers.

Testing, in its various forms, can be undertaken as part of, or in combination with, screening. However, in these guidelines, testing is discussed separately (see **Part B: Potential border health measures, section 1(d) Medical and other testing** and **Part B: Potential border health measures, section 2(d) Medical and other testing**).

Border screening is unlikely to be effective in detecting all cases of illness among travellers as cases can be pre- or asymptomatic. Travellers may not have recognised their symptoms or can disguise their symptoms or simply not report them. Screening can also result in 'false positives', with those being screened reporting or even exhibiting similar symptoms from other causes (eg, general tiredness, headaches, dehydration or other effects from travel or other minor conditions).

Screening can be extremely resource intensive and can create delays for travellers and transport operators. It is generally accepted that thermal screening on its own is not an effective measure, but it may increase awareness of the threat and encourage travellers to complete health declarations truthfully. Providing up-to-date and accurate information to travellers was considered one of the most effective strategies used in previous public health threat responses (with the information provided including personal hygiene and protection details, health measures expected on arrival, what to do and who to contact if symptoms occur, contact tracing, etc).

As screening is resource intensive, requiring capacity and systems, Te Whatu Ora and Manatū Hauora will consider if resources should be deployed for this purpose. Before considering active or passive border screening measures, the following criteria can be considered. These have been drawn from the criteria used to guide decisions on whether to implement national health screening programmes in New Zealand and have been tailored for the border situation. They are also consistent with the principles identified in **Part A: Deciding whether to use border health measures, section 3.4: Principles for making decisions** of these guidelines. The criteria involve considering the following questions.

1. Is screening suitable for the disease, contaminant, chemical, radiological or other public health threat?
2. Does a suitable screening method exist that can be readily applied at the border?

3. Has early detection identified an effective and accessible treatment or intervention for the threat?
4. Is there high-quality evidence that border screening would be effective in reducing mortality or morbidity?
5. Will the potential benefit from the border screening likely outweigh any potential physical or psychological harm (caused by the screening method)?
6. What are the respective costs and benefits of implementing screening (including compliance costs to the transport and trade sectors)?
7. Will the health system be capable of supporting all necessary elements of the border screening pathway, including screening, diagnosis, treatment, isolation/quarantine and follow-up?
8. Are there any relevant social or ethical issues impacting on the decision to implement screening at the border?
9. Is screening being recommended by international authorities, such as the WHO, or being used by other countries of relevance to our situation?

Once a disease is transmitting widely within the community, consideration will be given to the continued need for border screening and/or the need for enhanced exit measures. However, for global threats such as the COVID-19 pandemic, border restrictions, including some form of screening, have been ongoing and applied in conjunction with other measures (eg, managed isolation/quarantine, regular health checks and scheduled testing).

**Exit** screening is probably best considered in situations where New Zealand may be experiencing community-level outbreaks, for example, screening (including self-reporting) and/or pre-departure testing for people flying from New Zealand to countries in the Pacific (such as the Cook Islands) where the overseas government requests New Zealand undertake exit measures.

## Health declaration forms

Health declaration forms aim to identify arriving high-risk travellers for follow-up and management if necessary. They are a tool to check on people's health status and are used in numerous sectors – including at the border. New Zealand requires arrivals to provide information for a range of purposes (including travel history and health status information in some circumstances), so in most cases, we have not needed to use an additional health declaration form during public health events.

Travellers to New Zealand must complete a New Zealand Traveller Declaration before reaching passport control in New Zealand. This collects travel history, customs, immigration, and biosecurity information. Travellers can complete a digital declaration (see

[www.TravellerDeclaration.govt.nz](http://www.TravellerDeclaration.govt.nz)),<sup>6</sup> or a paper arrival declaration which is available on their flight or on arrival in New Zealand.

When required, traveller arrival documentation requirements can be revised to include more information and/or documentation for health purposes.<sup>7</sup> If additional and dedicated health declarations are required, options include requiring declarations from: all arriving travellers; travellers arriving from affected countries or specific areas only; or any traveller who has been identified as being ill (with symptoms of concern) on or before arrival.

Health officials need to work closely with border agencies to establish and maintain processes for health declaration data collection, storage and analysis (including complying with any privacy requirements around personal data). Authorities must ensure the information collected is stored in a systematic and secure manner and is easily retrievable.

Some business-as-usual processes already involve health declarations (of some form) for arrivals. These are not the focus of these guidelines but include legislative requirements for pratique (health clearance) for arriving vessels and aircraft.<sup>8</sup> These processes would continue and may be strengthened during the response to a public health threat.

**Table 4: Health declaration forms**

Potential benefits	Limitations/consequences	Action points
<ul style="list-style-type: none"> <li>• Can identify travellers with epidemiological risk factors</li> <li>• Promotes self-reporting of illness</li> <li>• Records travellers' seat numbers and contact details for contact tracing efforts</li> </ul>	<ul style="list-style-type: none"> <li>• May be difficult to ensure accuracy of information (eg, contact details, fraudulent vaccination certificates)</li> <li>• Language barriers need to be addressed</li> <li>• Need to manage travellers' personal data</li> <li>• Need to manage self-reports</li> <li>• Need to avoid potential duplication of effort if health</li> </ul>	<ul style="list-style-type: none"> <li>• Consider if an additional health declaration form is needed over and above existing information mechanisms. If so, this could be used in a targeted way (eg, for a specific flight) or more generally for flights from affected countries</li> <li>• Consider if ill traveller protocols should be used instead (which may</li> </ul>

<sup>6</sup> As at September 2023 travellers to New Zealand by sea are not currently required to complete a digital declaration. The New Zealand Traveller Declaration system will be trialled for maritime arrivals in October and November 2023, so this may change in the future. See: [www.travellerdeclaration.govt.nz/travelling-by-sea](http://www.travellerdeclaration.govt.nz/travelling-by-sea) (accessed 21 September 2023).

<sup>7</sup> For example, previous versions of arrival documentation included questions about whether the person has been in close contact with a diagnosed COVID-19 case, has any of the listed symptoms for COVID-19 or has been tested recently for COVID-19 (and, if so, the results). Such information no longer needs to be provided when these guidelines were revised (September 2023).

<sup>8</sup> More information is available from the border health webpages on the Te Whatu Ora website at [www.tewhatauora.govt.nz/our-health-system/border-health/](http://www.tewhatauora.govt.nz/our-health-system/border-health/) (accessed 21 September 2023).

<ul style="list-style-type: none"> <li>Records travel history and potential exposures</li> <li>May increase vigilance for travellers of concern (eg, dedicated pathways for travellers from risk countries or regions)</li> <li>Can record vaccination status (supported by vaccination certificates)</li> </ul>	<p>status is already included in existing forms</p> <ul style="list-style-type: none"> <li>Some people may be unable to provide information using digital means, so paper-based options may also be required.</li> </ul>	<ul style="list-style-type: none"> <li>include seeking health status of arrivals)</li> <li>Need to prepare health declaration questions, including translations, using WHO / International Civil Aviation Organization / International Air Transport Association forms</li> <li>Provide advice/guidance on completion</li> <li>Develop a standard operating procedure for collecting, analysing and holding and disposing of information</li> </ul>
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## Screening travellers from affected countries

Screening travellers from affected countries aims to identify potential risk travellers and assess them for symptoms and/or risk exposures on arrival. Manatū Hauora, Te Whatu Ora, New Zealand Customs Service, Immigration New Zealand and other border officials can work cooperatively to undertake low-level entry screening of travellers who have travelled from or through affected countries. In time, it is hoped digitised arrival declaration information would risk-profile and identify these travellers in advance. Once identified, travellers from affected countries would then be referred for initial health questioning and assessment by health border officers.

If the traveller answered ‘no’ to all the initial screening questions, they would be provided with advice on what to do if they became unwell within the next a month and be given a health advice card. If the traveller answered ‘yes’ to any questions, they could be taken aside and given a more comprehensive health assessment by a health border officer to determine their status (case, suspected case or contact). Depending on the outcome of that assessment, other public health measures could then be implemented. For example, information and health advice could be provided to the person(s), they could be asked to support contact tracing or be provided with ongoing follow-up by public health staff, or they could be asked to self-monitor and report on their ongoing health status. Some people could be required to undergo isolation or quarantine (see **Part B: Potential border health measures, section 2(e): Isolation** and **Part B, section 2(h): Home or institutional quarantine**).

**Table 5: Screening for travellers from affected countries**

Potential benefits	Limitations/consequences	Action points
<ul style="list-style-type: none"> <li>• Increases public awareness</li> <li>• Helps to identify possible cases or exposed travellers on arrival</li> <li>• Enables information to be given to people who may be at higher risk</li> <li>• Facilitates management of contacts</li> <li>• Facilitates early management of cases detected</li> <li>• Detects travellers who do not have adequate vaccination cover and enables them to be offered vaccination</li> </ul>	<ul style="list-style-type: none"> <li>• Requires travellers to self-identify (supported by information held by border officials)</li> <li>• May be difficult to ensure accuracy of information (eg, contact details, fraudulent vaccination certificates)</li> <li>• Language barriers need to be addressed</li> <li>• Need to manage travellers' personal data</li> <li>• Need to manage self-reports</li> <li>• Resource intensive to implement (especially for significant periods of time)</li> <li>• Impacts on passenger flow and movements through the terminal</li> <li>• Infection prevention and control considerations will be imperative</li> <li>• There is a cost in providing any subsequently offered vaccination (including vaccinations for staff)</li> <li>• In the absence of WHO recommendations, such measures must not cause significant delays for travellers</li> <li>• Use of the new digitised systems and escalating a response will require bedding in</li> </ul>	<ul style="list-style-type: none"> <li>• Requires significant collaboration between agencies to implement, including seeking cooperation in identifying higher-risk travellers</li> <li>• Identify screening criteria (eg, symptoms and/or exposure risk)</li> <li>• Draft standard operating procedures for implementation, including reporting</li> <li>• Provide advice to front-line border staff for drafting operational orders (including PPE)</li> <li>• Requires plans for escalating a health response</li> <li>• If travellers identified via screening need to be separated and given a health risk assessment by health border officers, then further requirements are indicated, for example:               <ul style="list-style-type: none"> <li>• identify an isolation/assessment area</li> <li>• identify risk assessment criteria</li> <li>• provide advice/guidance to health border officers</li> <li>• train health border officers and ensure the availability of all appropriate equipment</li> </ul> </li> </ul>

		<ul style="list-style-type: none"> <li>develop appropriate reporting templates and procedures</li> </ul>
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## Visual screening of travellers

Visual screening aims to identify arriving travellers who are visibly ill. Visual screening methods may be additional to screening travellers from affected countries for symptoms or high-risk exposures. Visual screening may assist in identifying ill travellers, but only if there are obvious signs of illness, and it is unlikely that visual screening (as with screening measures in general) will assist in detecting all ill travellers.

Arrangements for visual screening at international air- and seaports will require trained personnel and further medical assessment and follow-up action if ill travellers are detected. In some countries, initial medical assessment, including visual screening, has been implemented at designated points of entry, such as international airports.

**Table 6: Visual screening of travellers**

Potential benefits	Limitations/consequences	Action points
<ul style="list-style-type: none"> <li>May detect obviously ill travellers</li> <li>Supplements other measures (eg, self-reporting, checking those from risk countries)</li> </ul>	<ul style="list-style-type: none"> <li>Questionable efficacy (eg, may miss people who are pre- or asymptomatic or who have mild symptoms that are easily missed and can also identify false positives)</li> <li>Cost (including staff resources and time – would take up considerable time of health authorities)</li> <li>Difficult to implement</li> <li>Low sensitivity and specificity</li> <li>Requires trained personnel</li> <li>Poor compliance – some travellers may actively hide symptoms or not even realise that they have been exposed</li> </ul>	<ul style="list-style-type: none"> <li>Apply screening criteria re sensitivity, specificity, ethics, etc</li> <li>Develop standard operating procedures with limitations and constraints clearly identified</li> <li>As noted in the previous section, travellers identified via visual screening can be isolated and given a more detailed health risk assessment by health border officers. Further public health measures could then be applied</li> </ul>

	<ul style="list-style-type: none"> <li>• Impacts in passenger flow and movements through the terminal</li> <li>• Infection prevention and control considerations imperative</li> </ul>	
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## Temperature screening

Temperature screening aims to detect arriving travellers who have a fever. Temperature screening methods may augment screening travellers from affected countries for symptoms or high-risk exposures. However, thermal screening of travellers at international air- and seaports is generally not considered to be an effective border measure. It is not generally recommended by the WHO as there is no reliable way of easily identifying infected but pre- or asymptomatic travellers, and those with mild cases or who do not have a fever can be easily missed.

If temperature screening is to be conducted, it should be done so in conjunction with well-developed protocols on how to manage travellers who are detected with raised temperatures. Basic infection prevention and control measures should also be applied. Options for temperature screening include thermometers and electronic, mass thermal screening devices.

Potential target populations to screen could include all arriving travellers (entry screening); travellers arriving from selected destinations (entry screening) and/or all travellers departing to some or all destinations, especially when there are community-level outbreaks (exit measures).

**Table 7: Temperature screening for travellers**

Potential benefits	Limitations/consequences	Action points
<ul style="list-style-type: none"> <li>• May be reassuring to the public and help raise awareness and encourage health promoting behaviours</li> <li>• May serve as 'sentinels' to detect some cases (but not all infected travellers)</li> </ul>	<ul style="list-style-type: none"> <li>• Cost, including staff resources (not considered cost effective) and time – would take up considerable time of health authorities</li> <li>• Current data suggests several limits in effectiveness: modelling suggests that, in general, temperature screening has a limited impact on reducing the risk of importing diseases, such</li> </ul>	<ul style="list-style-type: none"> <li>• Not currently considered cost-effective for application in New Zealand – monitor WHO advice and international literature, particularly for the specific disease of international significance and</li> </ul>

<ul style="list-style-type: none"> <li>The time-consuming nature of screening and the possibility of further measures taken if a traveller is found to have a fever may serve as a deterrence to travel for some (and therefore reduce arrival numbers)</li> </ul>	<p>as severe acute respiratory syndrome (SARS) and influenza</p> <ul style="list-style-type: none"> <li>New Zealand's COVID screening at points of entry rarely (if ever) identified cases</li> <li>Many factors influence screening, including sensitivity, specificity, false positives and false negatives</li> <li>Thermal scanning alone will not prevent entry or exit of public health threats as not all infected travellers have a fever and there are asymptomatic cases</li> <li>Needs equipment maintenance (calibration) and trained operators to ensure adequate and accurate readings</li> <li>May give the public a false sense of security</li> <li>Poor compliance and travellers may actively hide symptoms</li> </ul>	<p>evidence for temperature screening</p> <ul style="list-style-type: none"> <li>As noted in the sections above, travellers identified via any temperature screening implemented can be isolated and given a more detailed health risk assessment by border health officers. Further public health measures could then be applied</li> </ul>
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## Screening on board the aircraft or vessel

Screening on board aircraft or vessels aims to identify ill travellers before they arrive (such as in-flight case detection) or disembark. Options for inspection on board aircraft or vessels include pre-departure screening by crew or health authorities at the point of origin, in-transit screening by crew and/or pre-arrival screening by crew or health authorities from the destination country before travellers can disembark.

For responses to date, the WHO has not yet issued any official recommendations for inspections on board aircraft, vessels or ground transportations. This measure has been considered a country-level measure to be determined by national authorities. It should also be noted that the health part of the International Civil Aviation Organization (ICAO) aircraft general declaration, in Annex 9 of the International Health Regulations (2005), provides advice on identifying cases of communicable disease, which would include emergent diseases. New Zealand's Health Act 1956 and Health (Quarantine) Regulations 1983 require vessels or aircraft to declare to health border officers before arrival in New Zealand if a traveller is suspected to be ill. These are business-as-usual requirements that are always in place and not the focus of these guidelines.

Due to the logistical considerations, this measure may be more useful for arrivals via the maritime pathway, including cruise ships. Larger vessels, such as cruise ships, usually have medical or medically trained staff on board who could undertake screening and report ill travellers before they arrive in New Zealand. In addition, it is more feasible for passengers or crew to remain on board a vessel for screening as opposed to an aircraft.

**Table 8: On-board screening of travellers**

Potential benefits	Limitations/consequences	Action points
<ul style="list-style-type: none"> <li>Increases public awareness of threat, risk factors and symptoms of concern, etc</li> <li>Helps to identify possible cases before travellers disembark and enter the country</li> <li>Facilitates contact management – particularly those seated near a suspected case</li> <li>Facilitates early management of detected cases</li> </ul>	<ul style="list-style-type: none"> <li>Questionable efficacy for aircraft but likely to be more applicable to vessels</li> <li>Cost (including staff resources). Not feasible if resources are limited</li> <li>Could interfere with international air travel (eg, creating significant delays)</li> <li>Requires adequately trained personnel for health screening on board</li> <li>Pre- or asymptomatic or very mild cases are unlikely to be detected</li> <li>Likely to miss infections acquired just before or during a flight (incubation period)</li> <li>Not feasible in very busy airports with a large volume of international traffic</li> <li>Relies on illness reporting by pilot in command, vessel master or designated crew member or border health official</li> </ul>	<ul style="list-style-type: none"> <li>Develop standard operating practices for on-board screening</li> <li>Identify screening criteria</li> <li>Provide advice/guidance to crew</li> <li>Train staff, provide appropriate equipment and PPE</li> <li>Manage resourcing needs – implementation challenges for industry, border workers and health services</li> </ul>

## Links to useful guidance or resources

- New Zealand Customs Service traveller arrival information. URL: [www.customs.govt.nz/personal/travel-to-and-from-nz/travelling-to-new-zealand/on-your-arrival](http://www.customs.govt.nz/personal/travel-to-and-from-nz/travelling-to-new-zealand/on-your-arrival) (accessed 21 September 2023).

- New Zealand Travel Declaration website. URL: [www.travellerdeclaration.govt.nz](http://www.travellerdeclaration.govt.nz) (accessed 21 September 2023).
- New Zealand Customs Service, notification of arrival requirements for arriving commercial ships and cruise liners. URL: [www.customs.govt.nz/business/import/commercial-ships-and-cruise-liners](http://www.customs.govt.nz/business/import/commercial-ships-and-cruise-liners) (accessed 21 September 2023).
- Te Whatu Ora, border health (pratique requirements for arriving vessels and aircraft, including notification of health status). URL: [www.tewhatauora.govt.nz/our-health-system/border-health](http://www.tewhatauora.govt.nz/our-health-system/border-health) (accessed 21 September 2023).
- European Centre for Disease Prevention and Control's report, Considerations Relating to Passenger Locator Data, Entry and Exit Screening and Health Declarations in the Context of COVID-19 in the EU/EEA and the UK. URL: [www.ecdc.europa.eu/en/publications-data/passenger-locator-data-entry-exit-screening-health-declaration](http://www.ecdc.europa.eu/en/publications-data/passenger-locator-data-entry-exit-screening-health-declaration) (accessed 21 September 2023).
- WHO guidance: Policy and technical considerations for implementing a risk-based approach to international travel in the context of COVID-19, 2 July 2021. URL: [www.who.int/news-room/articles-detail/policy-and-technical-considerations-for-implementing-a-risk-based-approach-to-international-travel-in-the-context-of-covid-19](http://www.who.int/news-room/articles-detail/policy-and-technical-considerations-for-implementing-a-risk-based-approach-to-international-travel-in-the-context-of-covid-19) (accessed 21 September 2023).
- WHO webpage: Rapidly detecting and responding to health emergencies. URL: [www.who.int/activities/rapidly-detecting-and-responding-to-health-emergencies](http://www.who.int/activities/rapidly-detecting-and-responding-to-health-emergencies) (accessed 21 September 2023).

## **(c) Managing contaminated goods, cargo, aircraft, vessels and/or environments**

Managing contaminated goods, etc aims to identify contaminated or infectious baggage, goods, containers, postal items, aircraft or vessels, and/or environment to cleanse, decontaminate, disinsect, disinfect, fumigate or otherwise treat them. Some responses will require the management of craft, goods or baggage that are suspected or confirmed to be contaminated. Management of some or all of a port or airport environment, including buildings, may also be necessary to isolate and mitigate the risk of further spread or contamination. Vector control (eg, mosquitoes, rodents) is one of the more common measures, but other threats where goods, craft and environment require management include chemical or radiological hazards.

Following initial segregation and isolation, management actions may include all or some of the following treatments: disinsection, de-ratting, disinfection and decontamination.

**Table 9: Managing contaminated goods, cargo, aircraft, vessels and/or environments**

Potential benefits	Limitations/consequences	Action points
<ul style="list-style-type: none"> <li>Minimises the risk of further spread of disease or contamination by limiting transmission of the infectious agent or contaminated material (eg, radioactive risks)</li> <li>Can be reassuring to the public (many people may expect this to happen as standard practice)</li> </ul>	<ul style="list-style-type: none"> <li>Potential compliance costs and time delays to industry</li> <li>Some measures could potentially destroy or damage the goods, cargo, etc</li> <li>Some travellers will have concerns, phobias, etc with the treatment (spraying of chemicals, etc)</li> <li>Needs to be properly applied at the right time to be effective</li> <li>Potential to disrupt operations at point of entry</li> <li>The risk needs to be clearly articulated to public and border stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Ensure the capability to apply control measures to disinsect, disinfect and decontaminate baggage and other cargo is maintained</li> <li>A key action is to maintain interagency relationships, keep standard operating procedures updated and exercise emergency response plans</li> </ul>

## Links to useful guidance or resources

- WHO relevant guidance resources:
  - Minimising health risks at airports, ports and ground crossings. URL: [www.who.int/activities/minimizing-health-risks-at-airports-ports-and-ground-crossings](http://www.who.int/activities/minimizing-health-risks-at-airports-ports-and-ground-crossings) (accessed 21 September 2023).
  - Handbook for Inspection of Ships and Issuance of Ship Sanitation Certificates. 2011. URL: [www.who.int/publications/i/item/handbook-for-inspection-of-ships-and-issuance-of-ship-sanitation-certificates](http://www.who.int/publications/i/item/handbook-for-inspection-of-ships-and-issuance-of-ship-sanitation-certificates) (accessed 21 September 2023).
  - Handbook for Management of Public Health Events on Board Ships. 2011.** URL: [www.who.int/publications/i/item/handbook-for-management-of-public-health-events-on-board-ships](http://www.who.int/publications/i/item/handbook-for-management-of-public-health-events-on-board-ships) (accessed 21 September 2023).

- Guide to Ship Sanitation. 2011. URL: [www.who.int/publications/i/item/9789241546690](http://www.who.int/publications/i/item/9789241546690) (accessed 21 September 2023).
- Vector Surveillance and Control at Ports, Airports, and Ground Crossings. 2016. URL: [www.who.int/publications/i/item/vector-surveillance-and-control-at-ports-airports-and-ground-crossings](http://www.who.int/publications/i/item/vector-surveillance-and-control-at-ports-airports-and-ground-crossings) (accessed 21 September 2023).
- Guide to Hygiene and Sanitation in Aviation. 2009. URL: <https://www.who.int/publications/i/item/9789241547772> (accessed 21 September 2023).
- Other useful resources:
  - Australian Government, Department of Agriculture, Water and the Environment, Aircraft disinsection procedures for flights into Australia and New Zealand. URL: [www.agriculture.gov.au/biosecurity-trade/aircraft-vessels-military/aircraft/disinsection/procedures](http://www.agriculture.gov.au/biosecurity-trade/aircraft-vessels-military/aircraft/disinsection/procedures) (accessed 21 September 2023).
  - International Air Traffic Association (**IATA**), **Aircraft Cleaning and Disinfection During and Post Pandemic**. 2021. URL: [www.iata.org/contentassets/094560b4bd9844fda520e9058a0fbe2e/aircraft-cleaning-guidance-covid.pdf](http://www.iata.org/contentassets/094560b4bd9844fda520e9058a0fbe2e/aircraft-cleaning-guidance-covid.pdf) (accessed 21 September 2023).
  - International Atomic Energy Agency (IAEA), Advice on transportation of nuclear and radioactive materials. URL: [www.iaea.org/topics/transport](http://www.iaea.org/topics/transport) (accessed 21 September 2023).

## (d) Medical and other testing

Medical and other testing aims to increase screening specificity and help determine the likelihood of infected or contaminated travellers, goods, cargo, craft or airport/port environments. A range of different types of tests may be carried out on people, aircraft/vessels, cargo and the airport/port environments (eg, testing of drinking water, etc). For each threat, there may be existing test methods (eg, measles testing, chemical analyses, radiological testing, mosquito identification, etc), or testing options may need be developed during the response (eg, the COVID-19 polymerase chain reaction, PCR,<sup>9</sup> testing).

Testing may:

- give immediate results (eg, a rapid antigen test, Geiger counter testing, testing chlorine levels in drinking water or swimming pool water, or mosquito identification)

<sup>9</sup> A PCR (polymerase chain reaction) test is a viral test that searches for the virus' genes in a sample taken from the person being tested. It involves a laboratory making large numbers of copies from a very small sample of genetic material. So, the test can find small amounts of virus genes in a sample.

- require samples to be sent for laboratory analysis, with the time required for laboratory analyses dependent on the test undertaken.

Testing aims to make screening more specific and help determine the likelihood of contamination or infection. In general, testing should be guided by the public health risk assessment and comply with the provisions of the International Health Regulations (2005) (IHR) relating to further investigations (including the need to avoid unnecessary interference with travel and trade).

Testing should consider the predictive value of the test and should be used in conjunction with a well-planned protocol. Health authorities need to include practical arrangements for laboratory testing in their plans. The use of rapid tests needs to consider the reliability of results compared with laboratory-based tests. If such testing is to be introduced at international air- and seaports, a protocol should be developed as to the follow-up to be conducted for cases with either positive or negative results. Care must be taken in interpreting results, particularly if the type of contamination or infection is not known with certainty, to avoid false positive or negative results.

Testing should be part of a well-planned strategy or protocol. Health authorities need to include practical arrangements in their plans, including the reliability of results and actions to be undertaken depending on the outcome of testing results.

Options for implementing testing include:

- travellers following a public health risk assessment
- goods and cargo (including baggage) following a public health risk assessment
- aircraft and vessels following a public health risk assessment
- points of entry (eg, enhanced mosquito surveillance, testing of ventilation systems, etc).

A comprehensive testing regime was applied in the managed isolation and quarantine government facilities for the COVID-19 response.

Some subgroups could also be targeted for testing, for example, in the COVID-19 response, a system of regular testing of asymptomatic border workers was established (in addition to advising people to get tested if they developed symptoms).

**Table 10: Medical and other testing**

Potential benefits	Limitations/consequences	Action points
<ul style="list-style-type: none"> <li>• Confirms the presence or absence of a risk or threat</li> </ul>	<ul style="list-style-type: none"> <li>• Accuracy and predictive values depend on the threat and the test kits used</li> </ul>	<ul style="list-style-type: none"> <li>• Most tests will require detailed and confirmatory laboratory analysis</li> </ul>

<ul style="list-style-type: none"> <li>• Informs the actions required and their extent</li> <li>• Avoids further measures that may not be necessary</li> <li>• Provides information that may be useful to inform global threat assessments</li> <li>• Supports risk communication</li> <li>• For suspected contamination with chemicals or radioactivity, methods for testing/screening may be readily available for use now (don't need to create a new test). Likewise, for established environmental health issues, testing methods usually already exist (eg, drinking water quality)</li> </ul>	<ul style="list-style-type: none"> <li>• Can depend on available laboratory capacity to process the test sample(s) and return the results in a timely manner</li> <li>• Requires trained people, specific equipment and appropriate methodologies</li> <li>• Officers using kits need appropriate training, including interpretation of results</li> <li>• Can be expensive if used inappropriately and resource intensive if rolled out over long periods of time</li> <li>• For some threats, an appropriate test may not exist and needs to be developed</li> <li>• Arguably not realistic for New Zealand air- and seaports: our air- and seaports are not set up to accommodate people awaiting results</li> </ul>	<ul style="list-style-type: none"> <li>• Needs to be part of a response plan based on the specific public health threat</li> <li>• Develop supporting testing guidance for stakeholders</li> <li>• Laboratory capacity will need to be managed for large outbreaks (significant laboratory infrastructure and capacity has been needed for COVID-19 testing)</li> <li>• Management of the people who are awaiting testing needs to be considered (eg, can they isolate on a vessel or at home or are institutional isolation/quarantine facilities needed?)</li> </ul>
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## Links to useful guidance or resources

- WHO relevant guidance resources:
  - Minimizing health risks at airports, ports and ground crossings. URL: [www.who.int/activities/minimizing-health-risks-at-airports-ports-and-ground-crossings](http://www.who.int/activities/minimizing-health-risks-at-airports-ports-and-ground-crossings) (accessed 21 September 2023).
  - Vector Surveillance and Control at Ports, Airports, and Ground Crossings. 2016. URL: [www.who.int/publications/i/item/vector-surveillance-and-control-at-ports-airports-and-ground-crossings](http://www.who.int/publications/i/item/vector-surveillance-and-control-at-ports-airports-and-ground-crossings) (accessed 21 September 2023).
  - Handbook for Management of Public Health Events on Board Ships. 2011. URL: [www.who.int/publications/i/item/handbook-for-management-of-public-health-events-on-board-ships](http://www.who.int/publications/i/item/handbook-for-management-of-public-health-events-on-board-ships) (accessed 21 September 2023).

- Guide to Hygiene and Sanitation in Aviation. 2009. URL: [www.who.int/publications/i/item/9789241547772](http://www.who.int/publications/i/item/9789241547772) (accessed 21 September 2023).
- Other useful resources:
  - New Zealand's government Unite against Covid-19 webpage on testing. URL: [www.covid19.govt.nz/testing-and-isolation/covid-19-testing](http://www.covid19.govt.nz/testing-and-isolation/covid-19-testing) (accessed 21 September 2023).
  - Australian Government, Department of Agriculture, Water and the Environment, Aircraft disinsection procedures for flights into Australia and New Zealand. URL: [www.agriculture.gov.au/biosecurity-trade/aircraft-vessels-military/aircraft/disinsection/procedures](http://www.agriculture.gov.au/biosecurity-trade/aircraft-vessels-military/aircraft/disinsection/procedures) (accessed 21 September 2023).
  - International Air Traffic Association (IATA), **Aircraft Cleaning and Disinfection during and post Pandemic**. 2021. URL: [www.iata.org/contentassets/094560b4bd9844fda520e9058a0fbe2e/aircraft-cleaning-guidance-covid.pdf](http://www.iata.org/contentassets/094560b4bd9844fda520e9058a0fbe2e/aircraft-cleaning-guidance-covid.pdf) (accessed 21 September 2023).
  - International Atomic Energy Agency (IAEA). Advice on transportation of nuclear and radioactive materials. URL: [www.iaea.org/topics/transport](http://www.iaea.org/topics/transport) (accessed 21 September 2023).

## (e) International travel advisories

International travel advisories provide information for people and can seek to deter people from travelling to/from countries or regions if there are serious risks in doing so. Formal government travel advisories not only seek to provide information and increase awareness but also aim to deter people from travelling to/from countries or international regions. Such advisories are usually used in serious situations (such as war, extreme civil unrest or significant health threats). They can mean travellers will not be able to get travel insurance for travel to the affected countries. If a traveller is already in an affected country, they may be evacuated, or their insurer may tell them to leave the affected country within a stated timeframe. The New Zealand government publishes travel advisories on the Ministry of Foreign Affairs and Trade's **SafeTravel** website ([www.safetravel.govt.nz](http://www.safetravel.govt.nz)).

Options for maximising the reach of such advisories should include using key stakeholders (eg, travel agents, tourism companies, accommodation providers) and social media. The sorts of information to provide could include:

- the magnitude and likelihood of the risk (nature of the disease/threat, etc)
- the locations of concern (including specific areas of countries or regions)
- the importance of obtaining appropriate vaccinations, self-monitoring health, symptom identification and appropriate health-seeking behaviours

- procedures for reporting to local health authorities if symptoms develop (eg, providing hotline or contact details of local hospitals and public health authorities to report illness and obtain medical care)
- formal travel advisories indicating that travellers will not receive travel insurance if they travel to the affected countries and, if they are already in an affected country, they may be evacuated by their insurer. Multiple communication methods can be used to reach different kinds of travellers (such as health alerts on board aircraft and vessels, websites, social media, banners, pamphlets and announcements broadcast at international air- and seaports and using tourism industry networks, etc).

**Table 11: International travel advisories**

Potential benefits	Limitations/consequences	Action points
<ul style="list-style-type: none"> <li>• Increases public awareness</li> <li>• Empowers people to make informed decisions</li> <li>• Potentially reduces the number of individuals travelling to risk areas</li> <li>• May prevent or delay the introduction of a health threat (eg, virus)</li> <li>• Visibly demonstrates a national commitment to border health measures</li> </ul>	<ul style="list-style-type: none"> <li>• No guarantee that people will heed advice and not travel</li> <li>• Language and cultural barriers need to be addressed</li> <li>• Impractical for some travellers to heed (eg, foreign nationals or transit travellers returning home to a risk area)</li> <li>• Materials need to be updated when new information becomes available</li> </ul>	<ul style="list-style-type: none"> <li>• Health officials to work with the Ministry of Foreign Affairs and Trade to ensure the <b>SafeTravel</b> website is updated regularly</li> <li>• Work with the Ministry of Foreign Affairs and Trade to develop criteria for issuing formal travel advisories</li> <li>• Consider formal travel advisories if required</li> <li>• Monitor the situation and update the advisories as necessary</li> </ul>

## Links to useful guidance or resources

- Ministry of Foreign Affairs and Trade, **SafeTravel** website. URL: [www.safetravel.govt.nz](http://www.safetravel.govt.nz).

## (f) Diverting aircraft or vessels, travel restrictions and border closures

Today, global travel is commonplace (albeit significantly impacted because of the COVID-19 pandemic), and large numbers of people move around the world for business

and leisure. Aircraft or vessels may sometimes need to be diverted from their original destination to other air- or seaports for a range of reasons. This could include bad weather, mechanical issues with the craft, problems with port facilities or because of ill travellers or public health reasons. In addition to diverting craft, international travel could be limited to specific designated air- or seaports.

Measures imposing travel restrictions need to be carefully considered, justified and used only in exceptional circumstances because such measures are highly disruptive to the global community.

The WHO may make recommendations for border closures and travel restrictions. Advice may be provided, for example, to people who are ill to delay their international travel, for people developing symptoms following international travel to seek medical attention or for people to reconsider travel generally. During the response to Ebola virus disease, the WHO recommended stringent exit measures for affected countries that included screening travellers for any high-risk contact and symptoms of concern.

Before the COVID-19 pandemic, modelling and experiences showed that restricting travel would be of limited or no benefit in stopping the spread of a disease. Historical records of influenza pandemics, as well as experience with severe acute respiratory syndrome (SARS), confirmed this. The global response focused instead on minimising the impact of a disease by identifying cases promptly and providing infected individuals with appropriate care. For many future public health events, this approach is still likely to hold true.

However, in some responses, as has been seen in the global COVID-19 pandemic, it may be deemed necessary to impose border closures or restrictions, particularly in relation to risk areas. In the COVID-19 pandemic, some countries island nations, have found robust border restrictions, in combination with other measures, to be effective in delaying, reducing or even preventing the importation of COVID-19.

There are wide reaching consequences to implementing such measures, and countries should not rush into them without fully considering their implications, the purpose of the International Health Regulations (2005) and relevant WHO guidance and recommended measures. Options for implementing travel restrictions and border closure include:

- restricting travel to selected areas
- restricting travel from selected areas, including imposing further administrative requirements or a total ban
- closing international borders (eg, refusing international maritime and aviation arrivals)
- restricting the arrival of aircraft and vessels to designated points of entry (or in some specific cases, diverting such craft to another point of entry).

New Zealand (and many other countries) implemented wide-reaching border closures/restrictions in responding to the COVID-19 pandemic, including a mix of the above restrictions, at various stages of the response or in combination with other

measures (eg, mandatory testing of arrivals and quarantine/isolation requirements). Border restriction measures included:

- prohibiting flights from specific countries/areas
- restricting the type of vessels permitted to enter New Zealand (eg, approved cargo and fishing vessels only) and the people who can disembark
- closing borders to non-residents (with limited exceptions, such as essential workers)
- limiting quarantine-free travel to/from specified countries, by specified carriers
- requiring travellers to meet obligations before and/or upon, arrival (eg, pre-departure testing, pre-departure vaccination, pre-arrival confirmation of a place in a government quarantine/isolation facility, testing on arrival and during quarantine)
- applying controls to crew on aircraft and vessels (eg, use of PPE)
- designating specific 'higher-risk' travel routes to New Zealand and applying additional requirements to aircrew on these flights (eg, self-isolation).

The International Health Regulations (2005) provide mechanisms for countries to implement additional measures. However, countries that adopt measures that significantly interfere with international traffic (such as refusing international travellers' entry or exit for more than 24 hours) must provide the WHO with the public health rationale and scientific information for their actions under the International Health Regulations (2005). The WHO will follow up such matters and has obligations to share such information with all member states. New Zealand advised the WHO when additional border measures were implemented during the COVID-19 response.

**Table 12: Diverting aircraft or vessels, travel restrictions and border closures**

Potential benefits	Limitations/consequences	Action points
<b>Diversion of conveyance (eg, aircraft or vessel)</b>		
<ul style="list-style-type: none"> <li>• May enable the conveyance to be diverted to an air- or seaport with more appropriate facilities and resources (eg, a larger hospital)</li> <li>• Stakeholders may already be familiar with processes for diversions, etc as diversions can happen for other</li> </ul>	<ul style="list-style-type: none"> <li>• Safety of travellers and crew needs to be considered – this may not be a practical option in many situations</li> <li>• Logistical and feasibility issues need to be worked through (eg, Does the plane have enough fuel to be diverted? Are there facilities available at the new destination?)</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare standard operating procedures with relevant agencies (eg, Ministry of Transport, Civil Aviation Authority of New Zealand, Maritime New Zealand, New Zealand Customs Service, Ministry for Primary Industries, Immigration New Zealand, airlines and airports), including triggers, actions, decision-making and specifications</li> </ul>

<p>reasons in routine times (eg, bad weather)</p> <ul style="list-style-type: none"> <li>• May enable quarantine of aircraft and a better ability to deal with travellers and crew</li> <li>• Maritime scenarios often have added flexibility (eg, ability of crew and travellers to stay/wait on their vessel for longer periods to support the response or more options for a diverted location)</li> </ul>	<ul style="list-style-type: none"> <li>• May not be a viable option if multiple aircraft and/or vessels are expected – would be difficult to implement with more than a small number of aircraft and/or vessels</li> <li>• Feasibility may depend on other factors (eg, volume of existing traffic already at or going to the proposed air- or seaport or the type of craft involved may need specific facilities)</li> <li>• Will likely require ongoing management of passengers and crew (eg, accommodation, alternative onwards travel arrangements, etc)</li> </ul>	<ul style="list-style-type: none"> <li>• Some diversions may need to be actioned quickly, so good communications channels need to be in place before they are needed</li> <li>• Requires coordination of the response</li> </ul>
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**International travel restrictions**

<ul style="list-style-type: none"> <li>• Potentially reduces the number of ill individuals travelling (and impacts on health and other essential services, etc)</li> <li>• May prevent or delay the introduction of a public health threat if travel restrictions are applied quickly enough and are in place for long enough – especially for island countries like New Zealand</li> <li>• Restricts the numbers of people</li> </ul>	<ul style="list-style-type: none"> <li>• Initially, limited effect on stopping the spread of the virus internationally given speed and frequency of air travel and factors such as the incubation period of many diseases</li> <li>• Interferes with international travel and trade</li> <li>• Potential political and economic impacts and disruption to normal social functioning</li> <li>• Need to cover off human rights issues – including how New Zealanders in affected countries/areas can get home</li> <li>• Can be difficult to accurately define ‘affected’</li> </ul>	<ul style="list-style-type: none"> <li>• Would need government approval and preparation of any required legal mechanisms to authorise (laws, statutory notices and directions, etc)</li> <li>• Develop triggers, standard operating procedures and templates to ensure appropriate information is available in a timely manner for key decision-makers considering travel restrictions</li> <li>• Consider differences between maritime and aviation borders</li> <li>• Engage closely with other border stakeholders and develop the necessary</li> </ul>
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<p>entering, and the location(s) of entry, to enable authorities to prepare for and manage arrivals</p> <ul style="list-style-type: none"> <li>• COVID-19 experiences have shown that such measures can be a viable and effective public health response (if implemented alongside other measures such as quarantine/isolation, testing, vaccination, etc)</li> <li>• Can provide some protection for Pacific nations that are accessible from New Zealand</li> </ul>	<p>areas, and such areas can expand / drop away very quickly</p> <ul style="list-style-type: none"> <li>• Travellers may try to circumvent restrictions</li> <li>• Internationally, travel restrictions have not substantially delayed disease introduction in many countries in past pandemics, however, WHO accepts that travel restrictions may be indicated in some situations (eg, small island countries)</li> <li>• Travel restrictions are likely to impose significant economic costs on affected countries and may affect the provision of essential goods and medical services, etc</li> <li>• Aircraft past the point of no return would need to be managed</li> <li>• May hinder efforts to assist affected countries (eg, can restrict/prevent health care workers assisting with the response in affected countries)</li> <li>• Need to cover off human rights issues – including how New Zealanders in affected countries/areas can get home</li> <li>• Considerable resources will be needed and new systems and processes (eg, processing exceptions to border restrictions, etc) need to be implemented</li> </ul>	<p>systems and processes and ensure necessary resources to implement and manage changes at the border (eg, ensuring front-line staff know what to do)</p> <ul style="list-style-type: none"> <li>• Engaging with all border stakeholders to communicate public health risks, mitigation measures, the reasons they are needed and options for continuing border operations</li> <li>• If restrictions are widespread, consider if any bubble or quarantine-free travel is permitted from certain countries/areas</li> <li>• Consider issues for New Zealand residents in affected places wanting to return to and foreign nationals wanting to leave New Zealand and go to an affected place</li> <li>• Liaise with suppliers of essential goods and services to determine the impacts of border closures</li> <li>• Consider exemptions for trade and cargo craft/vessels, fishing vessels and other exemptions (eg, vessel repair, humanitarian reasons, etc)</li> <li>• Decide what other supporting public health measures need to be rolled out in conjunction with border restrictions (eg, quarantine/isolation facilities, testing, etc)</li> </ul>
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		<ul style="list-style-type: none"> <li>• Implement requirements for procedures for crew of vessels and aircraft and any other people permitted to enter the country</li> <li>• Notify WHO of this action and its rationale if the measures go further than WHO recommends</li> </ul>
<b>Border closures</b>		
<ul style="list-style-type: none"> <li>• Many of the above points will apply</li> <li>• Tighter controls may provide a greater chance of delaying the health threat entering the country</li> </ul>	<ul style="list-style-type: none"> <li>• Many of the above points will apply</li> <li>• More significant political and economic impacts and disruption to normal social functioning (compared with less restrictive measures), including impacts on essential supply chains</li> <li>• Some sectors likely to require government support to remain viable (eg, maritime, aviation, tourism, hospitality, etc)</li> <li>• The more comprehensive the border closure, the harder it could be for residents to return</li> <li>• May have negative economic impacts for other Pacific nations (if people and goods cannot travel there)</li> <li>• Need to cover off human rights issues – including how New Zealanders in affected countries/areas can get home (and what other measures are</li> </ul>	<ul style="list-style-type: none"> <li>• Many of the above points will apply</li> </ul>

	<p>needed, such as quarantine or isolated)</p> <ul style="list-style-type: none"> <li>• Considerable resources are needed to establish and implement new systems and processes (eg, processing exceptions to border restrictions, etc) and associated facilities</li> </ul>	
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## Links to useful guidance or resources

- Te Whatu Ora, information about border restrictions during the COVID-19 pandemic – including requirements at the aviation and maritime borders. URL: [www.tewhatauora.govt.nz/for-the-health-sector/covid-19-information-for-health-professionals/covid-19-information-for-specific-sectors](http://www.tewhatauora.govt.nz/for-the-health-sector/covid-19-information-for-health-professionals/covid-19-information-for-specific-sectors) (accessed 21 September 2023).
- New Zealand Government, Unite against COVID-19, information about international travel – including travelling to, leaving, and transiting through New Zealand. URL: [www.covid19.govt.nz](http://www.covid19.govt.nz) (accessed 21 September 2023).

# 2 Measures to manage symptomatic and/or exposed international travellers

## (a) Pre-departure measures

There are several potential measures that could be applied before people leave their country of origin and journey to New Zealand:

- pre-departure testing – for example, returning a negative test in the required time before travel and having proof of this
- getting vaccinated with an acceptable/approved vaccine and being able to demonstrate proof of this
- demonstrating immunisation – that is, getting vaccinated with an approved vaccine, within acceptable timeframes and with the required doses and having the requisite proof (eg, yellow fever vaccination certificates that have been used internationally for many years)
- designating high-risk countries where travellers cannot travel directly to New Zealand and must stay in a lower-risk country for a given time before departing for New Zealand and being able to confirm this – for example, in the COVID-19 response, some countries were designated as high risk.

The detail of each of these measures will need to be developed at the time of the response according to the specific public health threat being faced. All the above measures were used, at some stage, in New Zealand's COVID-19 response. Each measure required extensive work, including working through who the measures apply to and associated legal, privacy, bill of rights and operational considerations.

**Table 13: Pre-departure measures**

Potential benefits	Limitations/consequences	Action points
<ul style="list-style-type: none"> <li>Proactively manages risk offshore</li> <li>Can help minimise costs to the government if people do not travel (eg, to the health sector)</li> <li>Can help identify people who are exposed so that they can get necessary support (eg, treatment)</li> <li>Reduces risk to other travellers enroute</li> <li>Gives healthy travellers greater confidence and assuredness</li> <li>Can help minimise the burden on New Zealand’s health services</li> <li>Exceptions and exemptions can be applied – it does not have to be a blanket rule</li> </ul>	<ul style="list-style-type: none"> <li>Places responsibility on the traveller and may disrupt their plans</li> <li>May be a barrier to those who need to travel urgently</li> <li>Potential for measures to be circumvented by travellers (eg, forgeries, false declarations, etc)</li> <li>Language barriers need to be addressed</li> <li>Travellers’ personal data needs to be managed</li> <li>Requirements may be hard to meet in some countries (eg, no easy access to testing facilities or the accepted vaccination)</li> <li>Potential cost implications for travellers</li> <li>Cost and timing implications for the government to implement. Some measures will not be able to be implemented quickly</li> </ul>	<ul style="list-style-type: none"> <li>Develop very clear requirements and communicate those requirements to travellers and stakeholders</li> <li>Guidance needs to be developed on how to comply</li> <li>Develop and communicate any exemptions or exceptions that are allowed</li> <li>Bill of Rights and other issues need to be worked through</li> <li>Develop operational procedures to implement</li> <li>Can require significant capacity and resource to implement at the New Zealand border</li> </ul>

## (b) Passenger locator information

Passenger locator information is collected from travellers for contact tracing purposes. In New Zealand, passenger locator information is routinely collected from arriving travellers when they complete the New Zealand Traveller Declaration (and formerly from the Passenger Arrival Card before it was replaced in 2022). Passenger locator information (and other information on the cards) must only be held by public health authorities in

accordance with applicable law (including the Privacy Act 2020) and is to be used only for authorised public health purposes.

Crew and passenger lists may be obtained to support contact tracing. Incoming vessels also complete the Maritime Declaration of Health form, which lists the people who joined the vessel since the international voyage commenced or within 30 days, whichever is shorter, including all ports/countries visited in this period.

**Table 14: Passenger locator information**

Potential benefits	Limitations/consequences	Action points
<ul style="list-style-type: none"> <li>Provides for timely contact tracing</li> <li>Enables community cluster control</li> <li>Records travellers' seat numbers and contact details for use in contact tracing efforts</li> <li>Records travel history and potential exposures</li> </ul>	<ul style="list-style-type: none"> <li>May be difficult to ensure accuracy of information (eg, contact details) and relies on self-reporting</li> <li>Language barriers need to be addressed</li> <li>Travellers' personal data needs to be managed</li> <li>Current data gathering processes are burdensome and under review/change</li> </ul>	<ul style="list-style-type: none"> <li>Maintain standard operating procedures for accessing and sharing passenger locator information from the New Zealand Customs Service / Statistics New Zealand</li> <li>Requires guidance to be developed on how to complete</li> <li>Ensure standard operating procedure for collecting, analysing and holding and disposing of information</li> </ul>

## Links to useful guidance or resources

- New Zealand Customs Service traveller arrival information. URL: <https://www.customs.govt.nz/personal/travel-to-and-from-nz/travelling-to-new-zealand/on-your-arrival> (accessed 21 September 2023).
- New Zealand Travel Declaration website. URL: [www.travellerdeclaration.govt.nz](http://www.travellerdeclaration.govt.nz) (accessed 21 September 2023).
- New Zealand Customs Service, notification of arrival requirements for arriving commercial ships and cruise liners. URL: [www.customs.govt.nz/business/import/commercial-ships-and-cruise-liners](http://www.customs.govt.nz/business/import/commercial-ships-and-cruise-liners) (accessed 21 September 2023).

## (c) Medical assessment of arriving travellers

This measure involves assessing symptomatic or exposed travellers to determine the likelihood of infection or contamination. In general, any medical assessment should be guided by clinical considerations and abide by the provisions of the **International Health Regulations (2005)** relating to medical examination of travellers. Practical arrangements need to be planned and established by public health services for such medical assessments either at the air- or seaport or at designated hospitals in consultation with border authorities and other key stakeholders (as part of the ill traveller protocol and emergency plans).

Options for implementing medical assessment include:

- assessing symptomatic or exposed travellers arriving from selected areas/countries who have been detected through previous screening
- assessing all symptomatic or exposed travellers detected through previous screening
- assessing all travellers from selected areas/countries
- before community transmission within New Zealand, assessing all transit travellers departing for identified countries (eg, Pacific nations that are not experiencing community transmission)
- once community transmission is occurring within New Zealand, assessing all transit travellers departing for identified countries (eg, Pacific nations not experiencing community transmission)
- assessing potentially exposed people at the border, such as border workers (eg, crew, port and airport workers, border officials, etc).

Options for the location of medical assessments include a designated room or area at the air- or seaport with provision for traveller privacy and comfort or a health care facility (such as local hospital) within a reasonable distance of the air- or seaport.

Testing (which may or may not be undertaken as part of a medical assessment) is discussed in **section 2(d) Medical and other testing** below.

In the COVID-19 response, most arrivals by air were subjected to medical assessment as part of a wider package of measures, including testing and mandatory isolation/quarantine. In the maritime context, medical assessment was undertaken if requested, but most people self-isolated on their vessel. This was also supported by other measures, such as crew change procedures, testing and isolation requirements for crew permitted to disembark.

**Table 15: Medical assessment of arriving travellers**

Potential benefits	Limitations/consequences	Action points
<ul style="list-style-type: none"> <li>Helps identify suspected and probable cases</li> <li>Provides, or leads to, appropriate medical measures (treatment, isolation, testing, etc)</li> <li>Informs decision-making on further actions</li> <li>Helps ensure arriving travellers have received or can be offered appropriate vaccinations</li> </ul>	<ul style="list-style-type: none"> <li>Likely that some non-infected travellers will be classified as suspected or probable cases due to low specificity of assessment</li> <li>Travellers who do not meet the criteria for a suspected or probable case may still be infected (unless further testing is also undertaken)</li> <li>Requires trained medical or public health personnel – so needs to be appropriately resourced (especially if this measure is continued for a period)</li> <li>Requires an appropriate facility for medical examination</li> <li>May be ethical issues for dealing with travellers who may be identified during screening as having conditions that are not arising from the threat (eg, an organism of interest)</li> </ul>	<ul style="list-style-type: none"> <li>Plan for assessing ill travellers at the air- or seaport if required</li> <li>Consider legislative frameworks that apply, develop guidance and templates (eg, for quarantinable diseases, notifiable diseases and radioactive or chemical contamination)</li> <li>Ensure appropriate management of individual privacy and of their health information</li> <li>Consider fit with surveillance and testing plans that are also rolled out</li> <li>Review and update national planning and guidance</li> <li>Review status of vaccination in immigration requirements</li> </ul>

## (d) Medical and other testing

As noted in **Part B: Potential border health measures, section 1(d) Medical and other testing**, testing aims to make screening more specific and help determine the symptomatic travellers' likelihood of contamination or infection. In general, testing should be guided by clinical considerations and comply with the provisions of the International Health Regulations (2005) relating to further investigations (including the use of the least invasive method to achieve the same public health objective).

In any disease of international significance, it is likely that there will be asymptomatic infections, and viral or bacterial shedding in symptomatic persons is possible before onset and post resolution of symptoms. Similarly, in suspected contamination incidents, some test methods may identify precursors of chemical agents, and care must be taken in assuming the nature of the chemical contamination.

Options for implementing testing include:

- symptomatic or exposed travellers fulfilling the definition for a suspected case after medical assessment
- symptomatic or exposed travellers from selected areas/countries/aircraft/vessels detected through previous screening
- all symptomatic or exposed travellers detected through previous screening
- all travellers from selected areas/countries/aircraft/vessels.

A comprehensive testing regime was applied in the managed isolation and quarantine government facilities for the COVID-19 response.

Pre-departure testing is discussed in **Part B: Potential border health measures, section 2(a) Pre-departure measures.**

**Table 16: Medical and other testing**

Potential benefits	Limitations/consequences	Action points
<ul style="list-style-type: none"> <li>• Confirms the presence or absence of a risk or threat</li> <li>• Informs the actions required and their extent</li> <li>• Avoids further measures that may not be necessary</li> <li>• For suspected contamination with chemicals or radioactivity, methods for testing/screening may be readily available for use now (don't need to create a new test)</li> <li>• Provides information that may be useful to</li> </ul>	<ul style="list-style-type: none"> <li>• Accuracy and predictive values depend on the test used</li> <li>• Can depend on available laboratory capacity to process the test sample(s) and return the results in a timely manner</li> <li>• Requires trained people, specific equipment and appropriate methodologies</li> <li>• Can be expensive if used inappropriately, and resource intensive if applied for long periods of time</li> <li>• For some threats, an appropriate test may not</li> </ul>	<ul style="list-style-type: none"> <li>• Needs further analysis: dependent on the nature of the hazard</li> <li>• Surveillance strategy and testing plans need to be developed based on the specific public health threat (eg, testing at the border may be part of a strategy that includes testing in the community)</li> <li>• Develop supporting testing guidance for stakeholders</li> <li>• Laboratory capacity will need to be</li> </ul>

<p>inform global threat assessments</p> <ul style="list-style-type: none"> <li>• Supports risk communication</li> </ul>	<p>exist and needs to be developed</p> <ul style="list-style-type: none"> <li>• Can lead to incorrect interpretation if assumptions and constraints of methodology are not understood</li> <li>• Air- and seaports are not set up to accommodate people while they await test results</li> </ul>	<p>managed for large outbreaks – significant laboratory infrastructure and capacity were needed for COVID-19 testing</p> <ul style="list-style-type: none"> <li>• Management of the people who are awaiting testing needs to be worked through (eg, can they isolate at home or are institutional isolation/quarantine facilities needed?)</li> </ul>
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## (e) Isolation

In public health terms, ‘isolation’ involves separating ill or contaminated travellers or affected baggage, containers, parcels, other goods or aircraft or vessels in a way that prevents the spread of infection or contamination.<sup>10</sup> Isolation can be implemented at a person’s home, in a facility such as a hospital, hotel, community building or other temporary facility, or at the air- or seaport. In the maritime sector, isolation can occur (and often does) on the vessel. Such as approach is not usually viable with aviation arrivals where space is much more limited and aircraft are quickly turned around for onwards flights or moved to another location in the airport.

Options for implementing isolation include:

- all those fulfilling the case definition for a confirmed case
- all those fulfilling the case definition for a probable case
- all those fulfilling the case definition for a suspected case (including symptomatic travellers with epidemiological risk factors).

In general, isolating ill travellers will reduce the onward transmission of a disease and is a good public health practice. The challenge lies in identifying cases early enough for isolation to be meaningful from a public health perspective without unnecessarily isolating

<sup>10</sup>In contrast, the term ‘quarantine’ (discussed in **Part B, section 2(h) Home or institutional quarantine**) involves separating travellers who may have been exposed to the threat but are not necessarily ill. During the New Zealand COVID-19 response (including in the context of the managed isolation and quarantine facilities), the terms were often used interchangeably, or the opposite meanings were applied unintentionally.

people who do not have the disease. Larger outbreaks present other challenges. For example, it will usually be unlikely that the first person identified is the first case to have entered the country, so inevitably there will need to be other measures considered in a response.

Isolation should be voluntary to the greatest extent possible. Mandatory measures should only be instituted if there is sound justification, when voluntary measures cannot reasonably be expected to succeed, when there is a likelihood of non-compliance and when the failure to institute mandatory measures is likely to have a substantial impact on public health. Any confinement of individuals would need to follow the appropriate legal provisions in national legislation. Procedures must be developed to address logistic and transport issues. Isolation practices may be implemented according to updated national guidelines on case management that are consistent with the WHO guidance. Parts 3A and 4 of the New Zealand Health Act 1956 contain frameworks for measures such as isolation and quarantine, which can be used in appropriate circumstances at the border.

Infection control measures appropriate to each confinement context must be implemented to protect others from infection. Individuals should be confined in safe, habitable and humane conditions, including providing the necessities for life and, where appropriate, social and psychological support. Potential financial and employment consequences of confinement must also be considered. The interests of other household members of those under home isolation should be protected, especially those at increased risk of illness (eg, immune-compromised family members). Isolated travellers should receive appropriate medical treatment. One practical initiative to help reassure people is to let them take their luggage and belongings with them into isolation, but the traveller should be warned that some items may be destroyed if they cannot be decontaminated safely.

The New Zealand COVID-19 response used a range of isolation and quarantine approaches, including:

- self-isolation at home and on vessels
- government-managed isolation and quarantine in hotel facilities (together with dedicated transport arrangements, etc)
- isolation in hospital for those requiring hospital-based medical care.

**Table 17: Isolating travellers**

Potential benefits	Limitations/consequences	Action points
<b>Isolation of travellers</b>		
<ul style="list-style-type: none"> <li>• Effectively stops the further transmission of the disease if genuine cases can be isolated</li> </ul>	<ul style="list-style-type: none"> <li>• A range of services; infection controls; welfare, health and psychological</li> </ul>	<ul style="list-style-type: none"> <li>• Identify triggers for decision-making and for ensuring</li> </ul>

<p>while infectious / at risk and the threat contained</p> <ul style="list-style-type: none"> <li>• While it impacts on those isolating, it is temporary</li> </ul>	<p>supports; treatments; etc should be provided</p> <ul style="list-style-type: none"> <li>• A dedicated facility will usually be required if any risks and consequences of further spread are high</li> <li>• Isolating many people will require substantial, dedicated cross-agency resources, capacity and capability, and systems and processes as seen with the COVID-19 response</li> <li>• Potential impacts on airlines and vessels if crew are isolated on suspicion, affecting airlines' and vessels' ability to operate (could run out of crew)</li> <li>• Temporary loss of many usual freedoms/rights for those isolating</li> </ul>	<p>appropriate legislative provisions are in place</p> <ul style="list-style-type: none"> <li>• Identify appropriate facilities to use (eg, homes, hospitals, hotels, council facilities, etc)</li> <li>• Develop transport and facility guidelines</li> <li>• Develop and implement systems, processes and supports for those isolating</li> </ul>
<p><b>Isolation at home (voluntary)</b></p>		
<ul style="list-style-type: none"> <li>• Is the least costly isolation option</li> <li>• Relieves the burden on New Zealand's health care system</li> <li>• Is less stressful on individuals than being isolated elsewhere</li> <li>• Encourages potentially higher public acceptance than other isolation options</li> <li>• Can be easier to get food and other supplies delivered to the home</li> </ul>	<ul style="list-style-type: none"> <li>• Health monitoring and reporting system required</li> <li>• Difficult to monitor compliance, and deliberate or inadvertent non-compliance is a key risk, which can cause greater public health risks (eg, an outbreak)</li> <li>• Potential risk to other household members</li> <li>• Need alternative arrangements for non-residents</li> <li>• Safe transport to home required</li> </ul>	<ul style="list-style-type: none"> <li>• Identify triggers for decision-making and for ensuring appropriate legislative provisions are in place</li> <li>• Develop monitoring and welfare guidelines</li> <li>• Develop processes and requirements (eg, length of isolation; need for testing; precautions for other household members; access to health care and welfare services; access to food and</li> </ul>

<ul style="list-style-type: none"> <li>• Less cost for the government compared with establishing dedicated facilities</li> <li>• Less impact on other isolation providers (hotels, etc, that are reluctant to be used as isolation facilities)</li> </ul>	<ul style="list-style-type: none"> <li>• Wrap-around services and support must be available to provide the necessities for life to those who live alone or have special needs</li> </ul>	<p>other supplies; access to appropriate PPE, hygiene and sanitation; availability of suitable advice, operation of household ‘bubbles’; etc)</p>
<b>Isolation in a facility (eg, government-managed facility, hospital, hotel, marae, welfare centre, temporary facility, etc) (this could be mandatory)</b>		
<ul style="list-style-type: none"> <li>• Facilities (such as hospitals) may have the capacity to isolate symptomatic traveller/s appropriately</li> <li>• Managed facilities were set up by the government to cater for the large numbers of people in the COVID-19 response, so existing infrastructure can be used/adapted</li> <li>• Can provide ready access to appropriate medical care and wrap-around support</li> <li>• Can provide food and supplies, etc, to those isolating so they don’t need to provide for themselves</li> <li>• If testing is also required, then this could be set up and undertaken as part of the arrangements for all guests (greater efficiencies than if widespread testing is</li> </ul>	<ul style="list-style-type: none"> <li>• Increased burden on health care system</li> <li>• Without government intervention and resourcing, this may only be feasible if numbers are low</li> <li>• For many people, this will require substantial dedicated resources, capacity and capability, as well as systems and processes, as seen with the COVID-19 response</li> <li>• Larger cost to government to implement (especially over sustained periods)</li> <li>• Requires safe transport of individuals to the isolation facility</li> <li>• Political, ethical and possibly legal implications from mandatory confinement of individuals</li> <li>• May contaminate the facility (eg, a hospital)</li> <li>• Very complex to manage different scenarios (eg, crew changes,</li> </ul>	<ul style="list-style-type: none"> <li>• Develop triggers to consider this option</li> <li>• Need agreements or options for facilities worked out before those facilities are needed so they can be stood up very quickly – especially if many people will need them</li> <li>• Develop the systems, processes and protocols. For major events this will involve significant ongoing effort and resources</li> <li>• Resources may need to be dedicated for significant period – so ongoing capacity will need to be managed</li> <li>• Such systems and processes require constant adaption as circumstance can change (eg, the threat and demand can change rapidly)</li> </ul>

<p>needed in an isolation-at-home scenario)</p> <ul style="list-style-type: none"> <li>• Provides economic support to the accommodation sector during border closures</li> </ul>	<p>fluctuations of demand, etc)</p> <ul style="list-style-type: none"> <li>• In significant, long-lasting events demand can outpace supply so people won't be able to enter New Zealand</li> <li>• Likely to be more stressful on some individuals compared with isolating in their homes</li> </ul>	
<b>Isolation at the air- or seaport (usually only temporary) or on the arriving vessel</b>		
<ul style="list-style-type: none"> <li>• Temporary isolation of suspected cases is feasible at well-equipped seaports (and at sea, isolation on the vessel can be a viable option if the case can be kept separate from other people)</li> <li>• There may be scope for bespoke measures – eg, setting up a dedicated marina for yachts</li> </ul>	<ul style="list-style-type: none"> <li>• Many air- or seaport facilities have no capacity to implement appropriate isolation. In the maritime context, the most likely option is to be isolation on board the vessel</li> <li>• While vessels provide an option for isolation on board, aircraft do not have that kind of space</li> <li>• Resource intensive</li> <li>• Logistically challenging</li> <li>• Political, ethical and possibly legal implications from confinement of individuals</li> <li>• Potential disruption of air- or seaport facilities</li> <li>• Crew health welfare issues – particularly mental health. In the COVID-19 pandemic, many maritime crews had to stay on their vessels for long periods of time without the usual shore leave and with the stress</li> </ul>	<ul style="list-style-type: none"> <li>• Develop transport and facility guidance</li> <li>• Develop processes for shore leave and ability to access necessary health and welfare support for crew</li> <li>• Need to ensure infection control – including for air- and seaport workers who may interact with the infected vessel/aircraft and crew</li> <li>• Controls/precautions needed for crew who exit the vessel and want to go into the community (eg, returning air crew)</li> <li>• Need to develop processes to manage crew changes</li> </ul>

	of knowing active cases were close by	
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## Links to useful guidance or resources

- Government advice for people isolating with COVID-19. URL: [covid19.govt.nz/testing-and-isolation/if-you-have-covid-19](https://www.covid19.govt.nz/testing-and-isolation/if-you-have-covid-19) (accessed 21 September 2023)
- Notice about the transfer back of isolation and quarantine functions to the health system in mid-2023. URL: [www.tewhatoru.govt.nz/whats-happening/news-and-updates/older-news-items/isolation-and-quarantine-functions-to-move-to-health-system-on-1-july-2023](https://www.tewhatoru.govt.nz/whats-happening/news-and-updates/older-news-items/isolation-and-quarantine-functions-to-move-to-health-system-on-1-july-2023) (accessed 21 September 2023)
- A summary of lessons learnt from an operational health perspective from the evolution of the MIQ system during the COVID-19 response. URL: [www.tewhatoru.govt.nz/publications/care-in-the-community-miq-lessons-learnt/](https://www.tewhatoru.govt.nz/publications/care-in-the-community-miq-lessons-learnt/) (accessed 21 September 2023)
- Some historical information about the Managed Isolation and Quarantine (MIQ) system set up in New Zealand to respond to the COVID-19 pandemic. URL: [www.mbie.govt.nz/immigration-and-tourism/isolation-and-quarantine/](https://www.mbie.govt.nz/immigration-and-tourism/isolation-and-quarantine/) (accessed 21 September 2023).

## (f) Treatment of symptomatic travellers

The aim of offering treatment to symptomatic travellers is to reduce the severity of the illness, minimise complications in individuals infected with the disease and reduce the potential spread of the disease.

Options for implementing antiviral and/or antibiotic and/or other treatments include:

- all those fulfilling the case definition for a confirmed case with further clinical risk factors for complications
- all those fulfilling the case definition for a confirmed case
- all those fulfilling the case definition for a probable case
- all those fulfilling the case definition for a suspected case (including symptomatic travellers with epidemiological risk factors)
- all symptomatic travellers.

Recommendations on treatment will be developed and changed as information becomes available on any given public health threat. Travellers at high risk of complication (eg, those with chronic diseases or suppressed immune systems, or pregnant women) may

need to be prioritised for the treatment. Some individuals may have cultural or religious objections to some treatments, and these concerns must be considered carefully before proceeding with this measure. The Health Act 1956 contains provisions for treating people who are posing a public health risk (eg, in parts 3, 3A and 4). A person can refuse to give consent to medical treatment.

**Table 18: Treating symptomatic travellers**

Potential benefits	Limitations/consequences	Action points
<ul style="list-style-type: none"> <li>• May reduce the severity of the disease and avoid complications if used in genuine cases</li> <li>• Will reduce further spread of the disease</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult to accurately determine if treatment is indicated at a stage where it is most effective due to a lack of confirmatory information on infection status</li> <li>• Relies on sensitivity and specificity of screening and/or self-notification</li> <li>• Can be expensive if used inappropriately</li> <li>• Ethical issues when requiring treatment – particularly if a case is detected during screening</li> <li>• People can refuse consent to medical treatment</li> <li>• May require isolation in a health care facility (as opposed to being isolated in another facility or at home)</li> <li>• Isolation in a health care facility may limit availability of isolation facilities for other cases</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure a sound legislative framework exists, with clear policy and guidance on provisions regarding treatment/isolation</li> <li>• Identify triggers for decision-making and for ensuring appropriate legislative provisions are in place</li> <li>• Develop a policy on paying for services for travellers from overseas who do not have travel insurance</li> </ul>

## Links to useful guidance or resources

- Ministry of Health. 2017. Guidance on Infectious Disease Management under the Health Act 1956. Wellington: Ministry of Health (includes guidance on health measures under Part 3A of the Health Act, including medical officer of health directions and court orders regarding public health measures and provision of treatment for those posing a public health risk). URL: [www.health.govt.nz/publication/guidance-infectious-disease-management-under-health-act-1956](http://www.health.govt.nz/publication/guidance-infectious-disease-management-under-health-act-1956) (accessed 21 September 2023).
- Health and Disability Commissioner, Code of Health and Disability Services Consumers' Rights. The Code describes the key rights when people use a health or

disability service in New Zealand, including the right to make an informed choice and give informed consent. URL: [www.hdc.org.nz/your-rights/the-code-and-your-rights/](http://www.hdc.org.nz/your-rights/the-code-and-your-rights/).

## (g) Contact tracing and/or prophylaxis

Contact tracing is a measure that aims to identify people who might have been in close contact with a case (eg, a symptomatic or contaminated traveller). Contacts can be made aware of their risk of exposure, can be offered medical treatment (eg, prophylaxis), testing and support if needed, and may be required to undergo isolation or quarantine or take other steps to prevent further transmission.

The Health Act 1956 provides for mandatory contact tracing, which might be needed when voluntary contact tracing is not working or if the case is not cooperating. Part 3A of the Act contains provisions regarding formal contact tracing (see also [Links to useful guidance or resources](#) below for more details on contact tracing).

Options for contact tracing in the border health context could include:

- requesting self-health monitoring and illness reporting
- contact tracing travellers who may have been in close contact with the symptomatic or contaminated traveller (this depends on the public health threat, but for respiratory diseases on aircraft, it often covers people who were seated within three rows of the index case)
- contact tracing all travellers arriving in one or more affected aircraft or vessel.

In general, the extent of contact tracing should be based on the unique characteristics of a particular threat of international significance and the national decisions and capabilities. This may include possible exposures before beginning travel (eg, family or friends may have had similar exposures to a suspected case even if they have not sat together during a flight). It is also recognised that travellers may move about during a journey and the identification of close contacts (including crew members) for contact tracing should be based on all available information and the real situation. New Zealand needs to be able to share traveller information with other national authorities for possible contact tracing (subject to existing legislation). Contact tracing has been a pivotal measure used in the COVID-19 response up until the time of publication of these guidelines – although the tracing has mostly been undertaken as a community measure.

Prophylaxis is medical treatment used to prevent a disease from occurring in an exposed person. Prophylaxis for close contacts of travellers is based on national decisions and availability of appropriate drugs. The use of prophylaxis may be deferred in different stages of a national outbreak. If New Zealand decides to implement prophylaxis, the relevant provisions of the International Health Regulations (2005) need to be followed, including obtaining informed consent and providing advice on possible risks, etc.

Options for prophylaxis include:

- providing no prophylaxis for exposed travellers/crew members
- providing prophylaxis for close contacts only
- providing prophylaxis to all exposed travellers/crew members.

Pre-departure vaccination is included at **Part B: Potential border health measures, section 2(a) Pre-departure measures.**

Some close contacts may prefer the option of voluntary quarantine rather than prophylaxis.

**Table 19: Contact tracing and/or prophylaxis**

Potential benefits	Limitations/consequences	Action points
<ul style="list-style-type: none"> <li>• Aids in identifying other travellers who are at higher risk of contracting a genuine disease from the index case</li> <li>• Helps monitor possible infection of exposed travellers and other contacts (eg, border workers)</li> <li>• Can help prevent infection</li> <li>• May be a more effective measure than screening</li> <li>• Promotes compliance with the information sharing requirements of the International Health Regulations (2005)</li> </ul>	<ul style="list-style-type: none"> <li>• Extremely resource intensive when there are a lot of contacts (especially contact tracing all travellers in the same vehicle)</li> <li>• May not be possible to identify all possible contacts</li> <li>• Requires very smooth and timely communications and coordination among countries concerned</li> <li>• May cause undue concern for contacts, especially if the index case is not confirmed</li> <li>• May be difficult to ensure the confidentiality of personal data of exposed travellers</li> <li>• Ethical and human issues</li> <li>• Prophylaxis may not be cost effective</li> <li>• Needs rapid diagnosis of suspected cases for timely and effective investigation of contacts (or it becomes case finding – ie, the contacts have started experiencing symptoms before being located and their contacts will require tracing)</li> </ul>	<ul style="list-style-type: none"> <li>• Identify triggers for decision-making and ensuring appropriate legislative provisions are in place</li> <li>• Public health officers must have processes and procedures in place for contact tracing</li> <li>• Manatū Hauora guidance should be followed for statutory contact tracing under Part 3A of the Health Act – for example, when to contact trace, who can contact trace and how it should be carried out</li> </ul>

	<ul style="list-style-type: none"> <li>• Traveller locator information may not be complete or accurate</li> <li>• A sustained response needs to be justified by epidemiology</li> </ul>	
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## Links to useful guidance or resources

- Ministry of Health. 2017. Guidance on Infectious Disease Management under the Health Act 1956. Wellington: Ministry of Health (includes guidance on contact tracing under part 3A of the Health Act, including reference to other international resources). URL: [www.health.govt.nz/publication/guidance-infectious-disease-management-under-health-act-1956](http://www.health.govt.nz/publication/guidance-infectious-disease-management-under-health-act-1956) (accessed 21 September 2023).

## (h) Home or institutional quarantine

In public health terms, 'quarantine' involves restricting activities and/or separating travellers who are not ill but are suspected cases or contacts of a suspected case in a way that prevents the possible spread of infection or contamination (as opposed to isolation, which in public health terms, relates to people who are symptomatic). Quarantine may also include separating goods, aircraft or vessels for further examination or decontamination. Quarantine could be implemented at the traveller's home or in a facility (eg, a hospital or community building). In the maritime sector, quarantine (as with isolation described in **Part B: Potential border health measures, section 2(e) Isolation**) can occur on the vessel.

Home or institutional (including government-managed facilities, hotels, etc) voluntary or mandatory quarantine of exposed travellers aims to identify infected individuals and break the transmission cycle of a disease.

Options for implementing quarantine include:

- no quarantine (only focus on self-monitoring and reporting any illness in exposed travellers)
- quarantining close contacts of a probable or confirmed case
- quarantining close contacts of a suspected case
- quarantining all contacts of a probable or confirmed case
- quarantining all contacts of a suspected case.

Self-health monitoring and illness reporting aims to identify infected individuals among exposed travellers/crew members. Self-health monitoring and illness reporting is less resource intensive and should always be considered but will depend on the public health

risk assessment (including the risk posed by the individual contact) as this option carries the risk of a traveller infecting or contaminating others before their symptoms begin. If this option is used, the risk could be mitigated by advising exposed travellers to minimise contact with others and to avoid gatherings and crowded areas for a period. In significant public health events, more formalised quarantine systems may be needed. During the height of the COVID-19 pandemic (2020–2021), mandatory quarantine/isolation facilities were established for returnees – including facilities for those who were not known contacts and did not contract the disease.

In general, quarantining contacts may be useful in preventing the spread of disease or contamination. The challenge lies in balancing expected public health benefits against the cost and consequences of such a measure. It is important to avoid unnecessarily quarantining large numbers of people who may only be a low risk, based on the assessment.

Voluntary quarantine aims to encourage potentially infected individuals to quarantine themselves until their state of health is confirmed (and then they are well or treated as other ill people). Quarantine should be voluntary to the greatest extent possible. Mandatory measures should only be instituted as a last resort, when voluntary measures cannot reasonably be expected to succeed and the failure to institute mandatory measures is likely to have a substantial impact on public health (as has been the case in the COVID-19 pandemic). Any confinement of individuals needs to follow the appropriate national and international laws. Liaison with international travellers' embassies will be required. One practical initiative to help assure people is to let them take their luggage and belongings with them into quarantine. Parts 3A and 4 of the Health Act 1956 contain frameworks for measures such as isolation and quarantine, which can be used in appropriate circumstances at the border.

Control measures appropriate to each confinement context must be implemented to protect others from potential infection or contamination. Individuals should be confined in safe, habitable and humane conditions, including providing the necessities for life and, if feasible, psychological support. Potential financial and employment consequences of confinement should be addressed. The interests of the household members of those under home quarantine should be protected, especially those at increased risk of illness (eg, immune-compromised family members). People who are quarantined should be monitored and offered medical treatment where appropriate.

Quarantining and self-monitoring/reporting can be used concurrently, according to the risk that the contacts have been infected or contaminated; with quarantining used for those at higher risk, and self-monitoring/reporting used for those at lower risk. Other public health measures may also be offered in conjunction with quarantine, such as testing and prophylaxis.

As noted above in **Part B: Potential border health measures, section 2(e) Isolation**, the COVID-19 response used a range of quarantine and isolation measures. Self-quarantining

at home was used for appropriate cases in the pandemic and on vessels for arriving vessel crew and passengers. As the response progressed, the government established dedicated managed isolation and quarantine facilities in hotels (together with dedicated transport arrangements, etc).

**Table 20: Home or institutional quarantine**

Potential benefits	Limitations/consequences	Action points
<b>Self-health monitoring and illness reporting</b>		
<ul style="list-style-type: none"> <li>• Is least costly of all options</li> <li>• Does not disrupt social functioning</li> <li>• Can be combined with other appropriate medical measures (treatments, isolation, testing, etc) at onset of symptoms</li> <li>• Can help detect new cases</li> <li>• Slows down and possibly delays infection transmission in a country</li> </ul>	<ul style="list-style-type: none"> <li>• Responsibility of individuals to monitor and report accurately</li> <li>• Some potential for transmission before symptom onset</li> <li>• Effectiveness is limited by an individual's compliance</li> <li>• Potential impacts on airlines and shipping companies if crew are quarantined and this affects their ability to operate (could run out of crew) – may be better to offer crew prophylaxis or vaccination where possible</li> </ul>	<ul style="list-style-type: none"> <li>• Identify triggers for decision-making and for ensuring appropriate legislative provisions are in place</li> <li>• Public health officers have processes and procedures (including forms) for implementing self-health monitoring</li> </ul>
<b>Voluntary quarantine</b>		
<ul style="list-style-type: none"> <li>• Slows down and possibly delays infection transmission in a country</li> <li>• Manages potentially infectious individuals</li> <li>• Empowers people to take responsibility for managing their potential risk</li> </ul>	<ul style="list-style-type: none"> <li>• Requires a high level of awareness and self-responsibility</li> <li>• Services must be available to provide necessities to those who live alone or have special needs</li> <li>• Health monitoring and reporting system are required</li> <li>• Needs alternative arrangements for non-residents</li> <li>• Potential risk of transmission to household members if an</li> </ul>	<ul style="list-style-type: none"> <li>• Develop guidelines and advice</li> <li>• Prepare templates for advisory notices</li> <li>• Work with WorkSafe New Zealand to engage employer cooperation</li> <li>• Work with the Ministry of Business, Innovation and Employment's infrastructure group on the impacts on essential services,</li> </ul>

	<p>exposed individual is infected</p> <ul style="list-style-type: none"> <li>• Employers and others may be reluctant to accept voluntary quarantine (eg, not allow sick leave to be used)</li> </ul>	<p>supplies and industries</p> <ul style="list-style-type: none"> <li>• Health border officers have processes and procedures (including forms) for implementing voluntary quarantine</li> </ul>
<b>Home voluntary or mandatory quarantine</b>		
<ul style="list-style-type: none"> <li>• Less costly than institutional quarantine</li> <li>• Relieves burden on health care system or other potential facilities (eg, hotels)</li> <li>• Manages potentially infectious individuals</li> <li>• Slows down and possibly delays infection transmission in a country</li> <li>• Can be combined with other appropriate medical measures (treatments, isolation, testing, etc) at the onset of symptoms</li> <li>• Detects new cases</li> <li>• Less stressful on people to be quarantined at home than elsewhere</li> <li>• Ability to get food and other supplies delivered to the home</li> <li>• Encourages potentially higher public acceptance than</li> </ul>	<ul style="list-style-type: none"> <li>• Wrap-around services must be available to provide necessities to those who live alone or have special needs</li> <li>• Health monitoring and reporting systems are required</li> <li>• Difficult to monitor compliance</li> <li>• Requires alternative arrangements for non-residents and non-compliant travellers</li> <li>• Potential risk of transmission to household members if the exposed traveller is infected</li> <li>• May cause undue concern, especially if the index case is not confirmed</li> <li>• Safe transport to home required</li> </ul>	<ul style="list-style-type: none"> <li>• Develop guidelines and advice</li> <li>• Prepare templates for advisory notices</li> <li>• Work with WorkSafe New Zealand to engage employer cooperation</li> <li>• Work with the Ministry of Business, Innovation and Employment's infrastructure group on impacts on essential services, supplies and industries</li> <li>• Health border officers must have processes and procedures (including forms) in place for implementing voluntary or mandatory quarantine</li> </ul>

institutional quarantine options		
<b>Institutional (including government-managed facilities, hotels, etc) voluntary or mandatory quarantine</b>		
<ul style="list-style-type: none"> <li>• Manages potentially infectious individuals</li> <li>• Slows down and possibly delays infection transmission in a country</li> <li>• Ensures rapid detection of new cases</li> <li>• Can better ensure compliance with containment, health monitoring and illness reporting (than home quarantine)</li> <li>• Can be combined with other appropriate medical measures (treatments, isolation, testing, etc) at the onset of symptoms</li> <li>• Can provide food and supplies, etc to those isolating so they don't need to provide for themselves</li> <li>• Managed facilities were set up by the government to cater for the large numbers of people in the COVID-19 response, so existing infrastructure can be used/adapted</li> </ul>	<ul style="list-style-type: none"> <li>• Very resource intensive – human and financial. Without government intervention and resource, this may only be feasible if numbers are low</li> <li>• Logistically challenging and needs to ensure provision of essential services (safe food, water, medicine and communication means, etc)</li> <li>• Political, ethical and possibly legal implications from confining large numbers of travellers (especially foreign nationals)</li> <li>• Potentially extremely stressful and disruptive for travellers</li> <li>• Safe transport to facility required</li> <li>• The need to manage the direct and indirect costs and negative consequence of institutional-based compulsory quarantine of international travellers can be very serious (including a human right issue)</li> <li>• May cause concerns about financial loss to international travellers (eg, business people) and needs to address compensation issues</li> <li>• Some commercial facilities are not secure enough for</li> </ul>	<ul style="list-style-type: none"> <li>• For significant public health events, the government may need to step in and establish facilities, systems and processes to manage large numbers of people (as seen with COVID-19)</li> <li>• Work with employer organisations, unions and other relevant agencies to engage employer cooperation</li> <li>• Work with suppliers of essential goods and services to consider the impacts on these industries</li> <li>• Ensure arrangements with hotel chains, individual hotels (and other accommodation providers) for operation once quarantine facilities are in place</li> <li>• Prepare templates for requisitioning facilities, compulsory quarantine, etc</li> </ul>

	<p>compulsory quarantine of non-compliant travellers</p> <ul style="list-style-type: none"> <li>• Facilities may be required for people with special needs</li> <li>• In significant long-lasting events, demand can outpace supply; also complex to manage different scenarios (eg, crew changes, fluctuations of demand, etc)</li> </ul>	<ul style="list-style-type: none"> <li>• Consider establishing a 'government' quarantine facility</li> <li>• Border health officers must have processes and procedures (including forms) in place for implementing voluntary or mandatory quarantine</li> <li>• Consider exemptions (eg, on compassionate grounds)</li> </ul>
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## Links to useful guidance or resources

- Government advice for people with COVID-19. URL: [covid19.govt.nz/testing-and-isolation/if-you-have-covid-19](https://www.covid19.govt.nz/testing-and-isolation/if-you-have-covid-19).
- Notice about the transfer back of isolation and quarantine functions to the health system in mid-2023. URL: [www.tewhatauora.govt.nz/whats-happening/news-and-updates/older-news-items/isolation-and-quarantine-functions-to-move-to-health-system-on-1-july-2023](https://www.tewhatauora.govt.nz/whats-happening/news-and-updates/older-news-items/isolation-and-quarantine-functions-to-move-to-health-system-on-1-july-2023) (accessed 21 September 2023)
- A summary of lessons learnt from an operational health perspective from the evolution of the MIQ system during the COVID-19 response. URL: [www.tewhatauora.govt.nz/publications/care-in-the-community-miq-lessons-learnt](https://www.tewhatauora.govt.nz/publications/care-in-the-community-miq-lessons-learnt) (accessed 21 September 2023)
- Some historical information about the Managed Isolation and Quarantine (MIQ) system set up in New Zealand to respond to the COVID-19 pandemic. URL: [www.mbie.govt.nz/immigration-and-tourism/isolation-and-quarantine/](https://www.mbie.govt.nz/immigration-and-tourism/isolation-and-quarantine/) (accessed 21 September 2023).

# 3 Exit measures

Many of the measures mentioned in **Part B: Potential border health measures** in regard to arrivals in New Zealand could also potentially be applied to aircraft, vessels and travellers leaving New Zealand. Until recently, there was very limited information and evidence regarding specific exit measures. However, the 2014–16 Ebola virus disease epidemic in West Africa provided the opportunity for countries to exercise exit screening as a tool to prevent the international spread of the disease. Exit screening of high-risk contacts and/or symptomatic travellers at points of departure were reported to be effective in limiting the international spread of the disease.

There are several situations where exit measures could be considered or applied. The most likely times will be:

- when the public health threat originates within New Zealand and/or the World Health Organization (WHO) recommends exit measures for people leaving New Zealand (see below)
- when New Zealand receives a request from an overseas government to implement exit measures on vessels and aircraft leaving New Zealand for that specific country (the most likely cases for this will be requests from small Pacific nations, especially those where most of the air traffic is via New Zealand)
- when the WHO issues a recommendation under the International Health Regulations (2005) that exit measures be implemented
- in relation to specific measures for travellers transiting through New Zealand
- when New Zealand implements advisory or voluntary exit measures (eg, travel advisories warning airlines, shipping agents and travellers against leaving New Zealand to travel to destinations).

Exit measures should be applied as early as possible. In some cases, this can be at the time of booking travel or before the person goes to the air- or seaport (eg, issuing travel advisories to people recommending they do not travel at all or to specific destinations). It could be possible to apply exit measures at the boarding gate / entry to the aircraft if necessary, but this would be most disruptive to travellers, airlines and airports and would come at a cost.

Manatū Hauora and Te Whatu Ora consider that, in most cases, exit measures should be implemented only on the recommendation of the WHO or the request of the destination country and, in the latter case, in combination with that country also agreeing to apply entry measures. Priority will be given to Pacific and Realm of New Zealand nations to implement exit measures, at the requests of their governments. Relevant considerations before exit measures are rolled out in New Zealand include:

- the nature and likelihood of the threat
- the views of the specific destination country
- the actions being taken by other countries
- consistency with any WHO recommendations
- the resourcing and facilities available at destination countries
- the significance of implications for business, trade and tourism in the countries of destination, requiring the public health risk to be greater than the impacts of the measures (eg, effects on income, food security, etc).

The WHO may recommend that affected countries screen departing travellers. Exit screenings may be conducted at air- and seaports to identify sick travellers or travellers exposed to the disease or contaminant of concern and to delay those travellers from boarding an aircraft or vessel until it is safe for them to travel. Exit screening might differ for each outbreak or contamination event but may contain similar basic elements. These are as follows.

All travellers:

- have their temperature taken and/or other medical and/or contamination checks completed
- answer questions about their health and exposure history
- are visually assessed for signs of potential illness
- are required to produce evidence of vaccination or decontamination.

Travellers with symptoms or possible exposures can then be separated and assessed further to determine whether they should be:

- allowed to travel
- not allowed to travel on a commercial flight and referred to a public health authority for further evaluation
- not allowed to travel on a commercial flight until they demonstrate they have received an appropriate vaccination or decontamination.

**Table 21: Exit measures**

Exit measure	Potential benefits	Limitations/ consequences	Action points
Health advice and alerts for travellers	<ul style="list-style-type: none"> <li>• See <b><u>Part B, section 1(a) Health advice and alerts for travellers and the wider border and travel sectors.</u></b></li> </ul>		<ul style="list-style-type: none"> <li>• Consider appropriate communication channels – for example, travel booking websites,</li> </ul>

		<p>liaison with tour and conference organisers, social media</p> <ul style="list-style-type: none"> <li>• Develop a memorandum of understanding for refund and/or rebooking with travel insurance, tour operators, accommodation providers, airlines, cruise lines, etc</li> </ul>
<p>Screening (including inspections on board exiting aircraft and vessels, health declaration forms, visual screening, temperature screening, certificate of vaccination)</p>	<ul style="list-style-type: none"> <li>• See <b><u>Part B, section 1(b) Screening travellers.</u></b></li> </ul>	<ul style="list-style-type: none"> <li>• Include check-in and departure lounges</li> <li>• Consider mandatory questions for travellers at check in</li> <li>• Consider health screening, including temperature checks before check in and/or boarding</li> <li>• Consider transit and VIP travellers</li> </ul>
<p>International travel advisories</p>	<ul style="list-style-type: none"> <li>• See <b><u>Part B, section 1(e) International travel advisories.</u></b></li> </ul>	<ul style="list-style-type: none"> <li>• Consider appropriate communications channels</li> <li>• Develop a memorandum of understanding for refunding and/or rebooking with travel insurers, tour operators, accommodation providers, airlines, cruise lines, etc</li> <li>• Work with the Ministry of Foreign Affairs and Trade to develop</li> </ul>

			<p>criteria for issuing travel advisories</p> <ul style="list-style-type: none"> <li>• Work with the Ministry of Foreign Affairs and Trade to ensure the <b>SafeTravel</b> website is updated regularly</li> </ul>
Travel restrictions and potential border closures	<ul style="list-style-type: none"> <li>• See <b><u>Part B, section 1(f) Diverting aircraft or vessels, travel restrictions and border closures</u></b></li> <li>• Some Pacific nations may request that flights from New Zealand be stopped</li> </ul>	<ul style="list-style-type: none"> <li>• See <b><u>Part B, section 1(f) Diverting aircraft or vessels, travel restrictions and border closures</u></b></li> <li>• Some departing travellers will be foreign nationals wanting to return to their homes</li> <li>• Immigration issues</li> <li>• Travellers may not be able to afford to pay for extended accommodation</li> <li>• Transit travellers may have unique issues</li> <li>• Economic risks for countries of destination may outweigh public health risk</li> </ul>	<ul style="list-style-type: none"> <li>• Identify triggers for decision-making and for ensuring appropriate legislative provisions are in place</li> </ul>
Passenger locator information	<ul style="list-style-type: none"> <li>• See <b><u>Part B, section 2(b) Passenger locator information</u></b></li> </ul>		<ul style="list-style-type: none"> <li>• Internal borders may be relevant (ie, travel to points of departure)</li> </ul>

Vaccination	<ul style="list-style-type: none"> <li>• Some Pacific countries may request that flights from New Zealand be stopped</li> </ul>	<ul style="list-style-type: none"> <li>• Some departing travellers will be foreign nationals wanting to return to their homes</li> <li>• Immigration issues</li> <li>• Travellers may not be able to afford to pay for extended accommodation</li> <li>• Transit travellers may have unique issues</li> </ul>	<ul style="list-style-type: none"> <li>• Consider appropriate communication channels</li> <li>• Consider mandatory questions for travellers when booking and/or checking in</li> <li>• Require vaccination certification before check-in and/or boarding</li> <li>• Consider transit and VIP travellers</li> </ul>
Medical assessment	<ul style="list-style-type: none"> <li>• <b><u>See Part B, section 2(c) Medical assessment of arriving travellers</u></b></li> </ul>		<ul style="list-style-type: none"> <li>• Ensure appropriate legislative provisions are in place</li> </ul>
Medical and other testing	<ul style="list-style-type: none"> <li>• <b><u>See Part B, section 2(d) Medical and other testing</u></b></li> </ul>		<ul style="list-style-type: none"> <li>• Ensure appropriate legislative provisions are in place</li> </ul>
Isolation of symptomatic travellers	<ul style="list-style-type: none"> <li>• <b><u>See Part B, section 2(e) Isolation</u></b></li> </ul>		<ul style="list-style-type: none"> <li>• Requires further analysis dependent on the nature of the public health threat</li> </ul>
Treatment	<ul style="list-style-type: none"> <li>• <b><u>See Part B, section 2(f) Treatment of symptomatic travellers</u></b></li> </ul>		<ul style="list-style-type: none"> <li>• Ensure appropriate legislative provisions are in place</li> </ul>
Contact tracing	<ul style="list-style-type: none"> <li>• <b><u>See Part B, section 2(g) Contact tracing and/or prophylaxis</u></b></li> </ul>		
Self-health monitoring and illness reporting	<ul style="list-style-type: none"> <li>• <b><u>See Part B, section 2(h) Home or institutional quarantine</u></b></li> </ul>		

Quarantining exposed travellers	<ul style="list-style-type: none"><li>• See <b><u>Part B, section 2(h) Home or institutional quarantine</u></b></li></ul>
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## Links to useful guidance or resources

- WHO, Minimizing health risks at airports, ports and ground crossings. URL: [www.who.int/activities/minimizing-health-risks-at-airports-ports-and-ground-crossings](https://www.who.int/activities/minimizing-health-risks-at-airports-ports-and-ground-crossings) (accessed 21 September 2023).

# Appendix 1: Literature scan

As noted in **Part A: Deciding whether to use border health measures, section 3.2: Evidence for border health measures**, the historical evidence base for the effectiveness of border health measures is limited – largely consisting of observations and mathematical models rather than controlled studies that have critically evaluated the effectiveness of different measures.

The literature continues to evolve as the world faces new public health threats (such as COVID-19). To update these guidelines, in 2021, Manatū Hauora researched selected recent literature to identify key themes. However, there are key caveats to this research.

- The literature scan focused on selected publications from 2016 to 2021 – it was not a comprehensive or systematic literature review of the effectiveness of the border measures discussed in these guidelines: the effectiveness of border measures is seldom formally evaluated.
- The literature mostly relied on lower-quality evidence from modelling studies (rather than real-life data). Even the systematic reviews included in the scan cited many modelling studies.
- Much of the literature focused on measures applied in 2020/21, during the COVID-19 pandemic. Findings may, therefore, not always be applicable to all public health threats – including other recent pandemics or non-biological threats.
- The health measures discussed in the literature have been applied in different environments and systems and are based on different approaches across a range of countries. As a result, some of these measures may have less relevance to the New Zealand context – as we are an island nation that is geographically distant from much of the world. This can give New Zealand a little more time to respond, even with rapid global travel.
- There is no ‘silver bullet’ solution for all potential public health threats.

## Recent findings and themes

The main high-level findings from the 2021 literature scan are described below.

## **Being prepared is a good start: the International Health Regulations (2005) provide a sound platform and focus for countries to build capacity and strengthen their systems**

Preparedness at the onset of a pandemic is very important. For example, such preparedness was a considerable help for Taiwan when the Zika virus emerged in that country in 2016. In the preceding years, Taiwan had implemented a programme of work to ensure its international entry ports were compliant and ready to enact the core capacities set out in the International Health Regulations (2005). During the Zika epidemic, systems were in place and people were ready to act. Further, Taiwan introduced mandatory annual self-assessments at its seven ports, with five-yearly external evaluation (Ho et al 2017).

## **It is better to implement border-based detection measures earlier rather than later**

The importance of early implementation of detection measures at the border has been emphasised in relation to a range of pandemics and through both modelling studies and real-life data (Bou-Karroum et al 2021). The timing of implementation is key (Arino et al 2021; Ayouni et al 2021; Australian Government Department of Health 2019; Bou-Karroum et al 2021; Grépin et al 2021). Delaying implementation of border-based detection measures by six weeks can considerably reduce the effectiveness of the measure(s) (Grépin et al 2021).

Early introduction of detection measures can 'buy time' in which to prepare for the likely arrival of the pandemic. One recent systematic review concluded that border interventions using modern digital tools could have saved lives in Italy, Spain and the United States during the COVID-19 pandemic (Ayouni et al 2021).

One study suggested that there was a brief window of opportunity during which border closure would be effective against the Delta variant of COVID-19, and that window was found to be up to 10 days from the first opportunity for the variant to cross the border (Arino et al 2021). The study authors noted, however, that it may take weeks or even months for a novel variant to be detected, unless large-scale genome sequencing is in place. Thus, for some countries, this could make total closure of the border relatively ineffective under many circumstances.

## **Border closures may delay the arrival of a pandemic, but the extent of the delay and the impact of such measures depends on multiple variables**

There is some agreement in recent literature that border closures can be effective at delaying the arrival of an epidemic virus (Arino et al 2021; Ayouni et al 2021; Bou-Karroum et al 2021; Grépin et al 2021; WHO 2019). However, the suggested extent of any such delay varies across the literature considered in this scan. It has been suggested to be as short as four to five days (Grépin et al 2021), and as long as two to three weeks (Grépin et al 2021; WHO 2019). The heterogeneity may be due to factors such as characteristics of the virus itself (Zika, Ebola virus disease, COVID-19), any variation in transmissibility and/or the presence or absence of a period in which people appear asymptomatic but are nevertheless infectious.

Border closures and travel restrictions need to be implemented early in order to accrue their potential gains (Arino et al 2021; Bou-Karroum et al 2021). The WHO also advises that 'essential' international travel be excluded from measures that restrict travel and that, where such measures are used, human rights should be protected (WHO 2021).

Both observational and modelling evidence suggest that border closure may reduce the number of COVID-19 cases, disease spread across countries and between regions, and slow the progression of the outbreak. These effects are likely to be enhanced when implemented early, and when combined with measures reducing transmission rates in the community (Bou-Karroum et al 2021, page 8).

Travel restrictions can 'buy time' in which to prepare services and systems (at the border and in the community) to handle the approaching pandemic. A systematic review (50 of the 60 studies included were modelling studies) concluded that layering flight restrictions with mandatory quarantine appears to have a similar effect to complete border closure (Bou-Karroum et al 2021).

## **Layering border health detection and protection measures produces better effects than using any single measure**

Implementing multiple measures, or layering, is more effective than implementing any single measure (Ayouni et al 2021; Bou-Karroum et al 2021; Wilson et al 2021; WHO 2021).

The combination of testing, isolation, contact-tracing and public mask-wearing and physical distancing, without border closure and quarantine of travellers can suppress  $R_0$  to below 1, preventing the imported cases from initiating and escalating domestic transmission (Bou-Karroum et al 2021, page 8).

## **Pre-flight day testing (<72 hours) may be useful in some cases, especially when layered with other measures**

Two studies considered the effectiveness of pre-travel control measures, such as testing within 72 hours of planned departure. One study used modelling (Wilson et al 2021), and the other was based on real-life data (Tande et al 2021). Both studies found pre-flight testing to produce good results when combined with other measures.

## **Compulsory use of masks / face coverings and physical distancing within airport facilities are helpful measures within a layered approach**

The literature considered was consistent on the value of community-based mask wearing and physical distancing as protective measures against air-borne viruses. Following the introduction of social distancing, the R number (how many people are expected to be infected from a single case) declined substantially for influenza and stayed about the same for COVID-19 (Cowling et al 2020). The messaging about mask wearing and social distancing also applies to the airport environment: these measures are advocated by the WHO (WHO 2021).

Social distancing and mask-wearing in airport facilities were included in the multitude of measures used both to model the prevalence of outbreaks caused by air travel into countries that are free of COVID-19 (Wilson et al 2021) and to collect real-life data for specific trans-Atlantic routes between the United States (Atlanta or New York) and Italy (Rome or Milan) (Tande et al 2021).

## **Entry and exit screening measures may be helpful as part of a layered approach**

Entry and exit screening can be supporting layers used in conjunction with quarantine and subsequent testing (Yang et al 2021). In the midst of the Zika virus emergency, a comprehensive entry screening protocol in Taiwan identified five cases of Zika, 130 cases of dengue and four cases of chikungunya virus from 21,721 travellers who were identified as potentially ill (Ho et al 2017).

Temperature screening is sometimes used by some countries as part of their exit and/or entry screening. However, a major drawback to temperature screening is that people who are asymptomatic (or with very mild symptoms) are unlikely to be detected by using this measure on its own. The proportion of infected travellers that are detected through temperature screening upon arrival has been estimated in a modelling study at less than one-third of those who are actually infected (Gostic et al 2020).

A systematic review (50 out of 69 studies being modelling studies) found exit and/or entry screening alone to be unlikely to detect a large proportion of cases or to delay an outbreak (WHO 2021): universal screening during departure and arrival can detect 30 percent of infected travellers with 1 in 20 infections being asymptomatic (Bou-Karroum et al 2021). Further, another study estimated that only about 25 percent of people are likely to truthfully

self-report if they are concerned that reporting might result in their travel being postponed or cancelled (Gostic et al 2015, in Gostic et al 2020).

While the sensitivity of screening instruments and devices used in entry and exit screening has improved, the incubation period of a virus will always be an important factor in the potential effectiveness of the screening measure.

The probability that an infected person is detectable in a screening program depends on: the incubation period (the time of exposure to onset of detectable symptoms); the proportion of subclinical cases (mild cases that lack fever or cough); the sensitivity of thermal scanners used to detect fever; the fraction of cases aware they have high exposure to risk; and the fraction of those cases who would self-report truthfully on a screening questionnaire (Gostic et al 2020, page 4).

Further, the stage of the epidemic in the departure country also plays a part. If the epidemic is growing at the point of departure, there is a greater chance that the traveller will be infected but asymptomatic. On the other hand, if the epidemic is waning at the point of departure, it is more likely that the traveller will be symptomatic and thus more readily identifiable (Gostic et al 2020). Such complexities mean that different measures should be in place to facilitate the management of arrivals using measures that are appropriate to the person's original point of departure.

It is possible, and concerning, that a requirement for exit and/or entry screening may prevent someone from returning home due to costs and/or service availability (Australian Government Department of Health 2019; Klinger et al 2021). Nevertheless, the WHO suggests that countries with low or no (COVID-19) cases should implement visual screening and interviewing, with people who are symptomatic being denied travel rights (WHO 2021).

In a rapid review commissioned by Cochrane (13 out of 26 studies being modelling studies), the authors noted heterogeneity: some studies predicted or observed benefits from border screening, whilst others did not (Burns et al 2021).

Note: When there is limited evidence about the performance of vaccines in reducing transmission and/or persistent inequities in global vaccine supply, it may be useful to exempt fully vaccinated people from other measures, rather than requiring proof of vaccination as a prerequisite to travel (WHO 2021). This could include self-quarantine/isolation options instead of managed isolation/quarantine.

## **Check-in and departure lounge measures can be useful when appropriately layered**

Comprehensive entry and exit measures were amongst an array of measures making up the testing strategy for real-life Delta Air Lines flights between the United States (New York and Atlanta) and Italy (Rome and Milan). A study by Tande et al (2021) covered 9,853 travellers between 19 December 2020 and 1 April 2021.

The following exit measures were layered with other measures.

- At check-in, travellers attested to the absence of COVID-19 symptoms; and before receiving their boarding pass, they provided documented evidence of a negative molecular test result, obtained with 72 hours of their intended travel.
- In the departure lounge, symptom screening was conducted included a temperature measure; a rapid antigen test and (if the latter was positive) a rapid molecular test, with boarding denied if this was also positive.

Amongst other measures, the following entry measures were used.

- Upon arrival, all travellers were again tested, this time using a different rapid antigen test, with a positive result necessitating a molecular test, resulting in quarantine if this was also positive.

The Delta Air Lines testing strategy experiment resulted in five infected passengers being identified through rapid antigen tests and confirmed with rapid molecular test, giving a case detection of 1 in 1,970 travellers, during a time when COVID-19 was highly prevalent in the United States. However, the study's researchers point out two major limitations: those with planned travel may have rescheduled if they became aware they were unwell, so the sample is likely to be skewed; and travellers were not followed up in the post-travel period.

### **Post-arrival follow-up may increase detection of cases that were asymptomatic on arrival**

Some research has found that a significant number of travellers have undetectable COVID-19: they are asymptomatic because they have very recently contracted COVID-19 (Yang et al 2021). For this reason, post-arrival follow-up is necessary.

In situations where quarantine on arrival is not mandatory, telehealth services can be a useful mode for follow-up, having been used in relation to the Zika virus and COVID-19. Telehealth keeps the follow-up measure simple and relatively non-intrusive for the traveller, protects the service provider from potential exposure (Ayouni et al 2021; Ho et al 2017) and is cost effective (Bou-Karroum et al 2021). Contact tracing was included in the modelling study by Wilson et al (2021), but it was not included in the reasonably similar real-life assessment of the trans-Atlantic data from the Delta Air Lines flights.

The WHO advises that, in countries where there is no or low case numbers of a pandemic, it is prudent to collect contact details for all incoming travellers to facilitate health monitoring. Regarding the use of telehealth and digital tools more generally, the WHO advises alignment with their guidance on the use of digital tools (WHO 2021). The situation in 2021 contrasts considerably with that from 2009 when, during the influenza A (H1N1) pandemic, contact tracing was considered time and resource intensive and so was limited to passengers seated in close proximity to a traveller who subsequently testing positive (Australian Government Department of Health 2019). This contrast perhaps reflects the

perceived extent of the threat, reinforcing the necessity for measures to be appropriate to the situation.

Where travellers were regularly checked in the weeks following their arrival, rather than being quarantined, the second peak in COVID-19 cases was reduced to below that of the first peak, and its occurrence was delayed. Further, used alone, this measure was found to be more effective than social distancing used alone (Bou-Karroum et al 2021).

The strength of contact tracing as a measure has been summed up by Zhu et al (2021, page 4) who concluded that 'Contact tracing alone cannot bring life back to normal, [but without it,] ... the situation will be out of control very quickly when  $R > 0.8$ '.

Their point highlights that, in the COVID-19 environment, contact tracing can be considered hierarchically superior to other border-related measures described above, which appear to be more supplementary, or supporting, in nature.

## **Border control measures have some inherent limitations**

Without evaluation, it is difficult to be confident of the effectiveness of specific measures or of measures in combination (layering). This point was specifically made with reference to the effectiveness of communications measures, contact tracing (Australian Government Department of Health 2019) and temperature screening (WHO 2021). The WHO has urged countries to formally evaluate temperature screening measures and to share their findings to help build an evidence base (WHO 2021).

The effectiveness of voluntary measures is constrained by the effectiveness of detection measures and the degree of voluntary compliance.

There is some evidence that citizens are generally supportive of border measures, but there is also concern about unintended harms, such as people being unable to return to their home, disruptions to the supply chain (Bou-Karroum et al 2021), increased anxiety for refugee populations, inequitable burdens and outcomes, and restricted access to medical services (Klinger et al 2021).

## **Conclusion**

Some measures are considered to have clear public health benefits and can be instigated in response to most threats without involving substantial resources or causing much concern. Others have clear value, despite involving resources and effort, such as contact tracing. However, there are others that need to be carefully considered against the specific public health threat, because they have potentially significant consequences and impacts.

Layering border health detection and protection measures produces better effects than using any single measure. Additionally, as the public health threat evolves, it is necessary to regularly assess the measures being applied to ensure they remain the best fit for purpose and proportionate to the public health risk.

As noted above, there are clear some limitations to the literature included, such as the point that many recent studies are COVID-19 focused.

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# Appendix 2: Border health measures previously applied

To expand on **Part A: Deciding whether to use border health measures, section 3.1: Potential border health measures**, the table below provides examples of key border health measures applied in New Zealand in response to recent global public health threats.

Event <sup>11</sup>	Key border health (and related) measures applied in New Zealand's response
<p><b>2009: Novel influenza A (H1N1) virus (swine flu)</b> pandemic, with worldwide spread. A PHEIC<sup>12</sup> was determined on 25 April 2009 and terminated on 10 August 2010.</p>	<ul style="list-style-type: none"> <li>• Health advice was provided to travellers arriving at Auckland international airport from affected countries to check for symptoms and to provide further advice on what to do if the person developed symptoms.</li> <li>• Travellers could self-report symptoms and be given advice about self-isolation.</li> <li>• Contact tracing was undertaken of people arriving on flights from countries of concern if the flight had not been met at the airport. Travellers were given advice around the symptoms of concern and what to do.</li> <li>• As the outbreak spread globally, health advice was provided to all arriving travellers.</li> <li>• Once community transmission was established in New Zealand, the focus moved from border measures to also implementing/maintaining community public health measures. Influenza vaccinations in New Zealand now cover H1N1.</li> <li>• Exit measures were also applied by New Zealand, at the request of some overseas governments, that comprised a health questionnaire delivered to departing travellers,</li> </ul>

<sup>11</sup> Summaries of events adapted from the following sources:

The IHR Emergency Committees webpage on the World Health Organization (WHO) website. URL: [www.who.int/teams/ihr/ihr-emergency-committees](http://www.who.int/teams/ihr/ihr-emergency-committees)

Mullen L, Potter C, Gostin LO, et al. 2020. An analysis of International Health Regulations Emergency Committees and Public Health Emergency of International Concern Designations. *BMJ Global Health* 2020; 5:e002502. doi:10.1136/bmjgh-2020-002502.

<sup>12</sup> Public health emergency of international concern.

	<p>including transit passengers. Travellers reporting symptoms were not permitted to leave New Zealand.</p>
<p><b>2011: Nuclear accident at the Fukushima Daiichi Nuclear Power Plant in Ōkuma, Japan,</b> caused by the Tōhoku earthquake and resultant tsunami.</p>	<ul style="list-style-type: none"> <li>• Checking for ionising radiation hazards on selected goods/cargo on vessels arriving from <b>Fukushima</b>.</li> <li>• The Japanese government also provided assurances that exported good were free from radiation hazards.</li> <li>• Further border measures (such as traveller screening or travel restrictions) did not need to be applied.</li> </ul>
<p><b>2013: Middle East respiratory syndrome (MERS-CoV) outbreak</b> – a viral respiratory illness. Regions affected by the outbreak included parts of the Middle East, Africa, Southeast Asia, Europe, North America. WHO did not declare a PHEIC. No cases were detected in New Zealand.</p>	<ul style="list-style-type: none"> <li>• Health advice/advisories were developed and provided to arrivals, border stakeholders, health sector stakeholders and the wider population. This included information about MERS-CoV, symptoms, affected countries, when and how to seek further health advice, and hygiene and sanitation measures (eg, hand washing, avoiding close contact with relevant animals and people who were suffering from acute respiratory infections, etc).</li> <li>• Manatū Hauora produced specific advice for pilgrims travelling for Hajj or Umrah.<sup>13</sup></li> <li>• Information for travellers was posted on the Ministry of Foreign Affairs and Trade’s <b>SafeTravel</b> website.</li> <li>• Advice was provided to airlines on cleaning aircraft based on international guidelines.</li> <li>• An ill traveller protocol was drafted in case it became necessary.</li> <li>• Further border measures (such as travel restrictions) did not need to be applied in response to the 2013 outbreak, based on Manatū Hauora monitoring and risk assessments.</li> </ul>
<p><b>2014: Polio – spread of wild poliovirus</b> Regions affected included parts of Africa, the Middle East and the Pacific. A PHEIC was determined on 5 May 2014 and remains in place at the time of</p>	<ul style="list-style-type: none"> <li>• Manatū Hauora and Immigration New Zealand provided information, including a health notice to countries affected by polio (that had been identified by WHO). Travellers from such countries were strongly recommended to ensure they had been vaccinated for polio at least 4 weeks to 12 months before their departure to New Zealand. Those travelling from affected countries to New Zealand who had not been vaccinated within this timeframe were asked to get vaccinated before</li> </ul>

<sup>13</sup>Pilgrimages to Mecca in Saudi Arabia conducted by Islamic pilgrims.

<p>publication of these guidelines (September 2023).</p>	<p>departure and telephone Healthline on arrival about completing their vaccination requirements in New Zealand. Travellers needed to bring their proof of vaccination documentation with them.</p> <ul style="list-style-type: none"> <li>• Manatū Hauora and Te Whatu Ora continue to monitor the situation, but no other border measures have been applied since the PHEIC was determined.</li> </ul>
<p><b>2014: Ebola virus disease (EVD)</b> Regions affected included parts of Africa, North America and Europe. A PHEIC was determined on 8 August 2014 and terminated on 29 March 2016. No cases were detected in New Zealand.</p> <p><b>2018: EVD</b>, in Democratic Republic of Congo. Africa was the region affected. A PHEIC was determined on 17 July 2019 and terminated on 26 June 2020. No cases were detected in New Zealand.</p>	<ul style="list-style-type: none"> <li>• In line with WHO recommendations no general restrictions on travel or trade with affected countries were applied (eg, border closures or significant restrictions). Manatū Hauora monitored the situation and focused efforts on higher-risk travellers (eg, returning health/aid workers from affected countries).</li> <li>• Health advice/advisories were developed for travellers, health sector stakeholders and the wider population. This included information about EVD and how it is spread, symptoms of concern, when people are infectious, affected countries, when and how to seek further health advice, and hygiene and sanitation measures.</li> <li>• Health advice cards and signs for international points of entry were developed in a range of languages. These provided generic advice on symptoms of concern and what travellers should do if they became symptomatic.</li> <li>• Information for travellers to affected countries was posted on the Ministry of Foreign Affairs and Trade’s <b><u>SafeTravel</u></b> website.</li> <li>• Operational guidance was provided to public health staff, including those managing arrivals at the border. This included guidance on exercising regulatory powers, screening, risk assessment, case management, contact tracing, ongoing monitoring and any restrictions/precautions once back home, infection control and cleaning sanitation guidance, etc.</li> <li>• A series of presentations were delivered by Manatū Hauora to airline representatives, border agencies and front-line border agencies and airport and airline staff at all international airports.</li> <li>• Manatū Hauora officials worked with other border agencies to assess risk and target travellers from affected countries.</li> </ul>

	<ul style="list-style-type: none"> <li>• Targeted health entry screening at international airports was undertaken to identify who had travelled from or through affected countries (as identified by WHO). Arrivals from affected countries were initially screened by New Zealand Customs Service officials or through the eGate process<sup>14</sup> on their recent travel history and health status. Their responses determined if they would be provided generic health advice (low risk) or separated for follow-up with public health staff (higher risk).</li> <li>• Affected countries implemented exit screening of departing travellers (including those travelling to New Zealand) as recommended by WHO.</li> <li>• Targeted measures were implemented to manage New Zealand health care or humanitarian aid workers travelling to/from affected countries to support their EVD responses (eg, pre-departure advice, entry screening, self-monitoring and reporting, self-isolation).</li> <li>• New Zealand health measures were applied to travellers entering New Zealand, including transit passengers. High-risk travellers were not permitted to leave New Zealand.</li> <li>• Health officials kept Pacific Island countries and territories and WHO informed (consistent with Article 44 of the IHR) so those countries/territories could adjust their border measures, taking into consideration New Zealand's border measures and the risk of infected travellers arriving via New Zealand.</li> </ul>
<p><b>2015: Chemical explosions at Port of Tianjin, China</b></p>	<ul style="list-style-type: none"> <li>• Precautionary swabbing/testing for chemical contamination of cargo and surfaces of vessels arriving into New Zealand from the <b>Port of Tianjin</b> was undertaken.</li> <li>• Information and results were provided to WHO under Article 44 of the IHR.</li> </ul>
<p><b>2016: Zika virus disease</b> Regions affected included parts of Africa, North America, South</p>	<ul style="list-style-type: none"> <li>• In line with WHO recommendations, no general restrictions on travel or trade with affected countries were applied. Manatū Hauora monitored the situation, but no other border measures (such as screening or</li> </ul>

<sup>14</sup>For more information on the eGate automated system for passport control, see the eGate webpage on the New Zealand Customs Service website at: <https://www.customs.govt.nz/personal/travel-to-and-from-nz/travelling-to-new-zealand/egate/> (accessed 21 September 2023).

<p>America, Central America, Southeast Asia, and the Western Pacific. A PHEIC was determined on 1 February 2016 and terminated on 18 November 2016.</p>	<p>isolation/quarantine, etc) were required during the PHEIC.</p> <ul style="list-style-type: none"> <li>• Because the virus is spread by <i>Aedes</i> species of mosquitoes not normally found in New Zealand, existing vector control measures at our international air- and seaports was a key focus. This included eradication of mosquito breeding sites around air- and seaports, applying control measures (eg, spraying), mosquito detection and interception responses, disinsection/spraying of aircraft and vessels and cargo, pre-border clearance of risk goods at overseas sites, inspection of arriving vessels, use of approved transitional facilities to clear high-risk imported goods, import health standards prescribing what is required for certain goods, and the facilities used to meet Ministry for Primary Industries standards.</li> <li>• Technical vector control advice (based on WHO guidance) was provided to border stakeholders involved in vector control.</li> <li>• Health advice was developed and disseminated about Zika virus and its potential health effects (eg, risks of congenital microcephaly and other severe brain abnormalities in babies if their mothers were infected while pregnant). The Ministry of Foreign Affairs and Trade’s <b><u>SafeTravel</u></b> website was updated. Pregnant women were advised to not travel to countries with Zika outbreaks. Travellers to affected areas were advised to take precautions against mosquito bites and, on return to New Zealand, to take precautions (including safe sex) to reduce the risk of onward transmission.</li> <li>• Travellers from affected countries with Zika symptoms were interviewed, and mosquito delimiting surveys were conducted around the travellers’ locations to confirm no potential vectors were present.</li> <li>•</li> </ul>
<p><b>2019–2023: COVID-19 pandemic</b> All regions globally have been affected. A PHEIC was determined on 30 January 2020 and</p>	<p>A comprehensive range of health measures, both at the border and in the community, were applied. Measures were scaled up/down as the threat/risk changed. While border health measures of some kind were in place for the duration of the pandemic, in tandem with community measures, the COVID-19 response was the first time that significant and</p>

<p>terminated on 5 May 2023.</p>	<p>ongoing border entry restrictions were implemented in New Zealand in response to a public health threat in modern times.</p> <p>Examples of border health measures applied during the COVID-19 pandemic are summarised below. In February 2022, the government announced a staged plan to reopen the border and reconnect with the world. All border measures were subsequently scaled back and removed.</p> <ul style="list-style-type: none"> <li>• Health advice and alerts for travellers, border workers and the wider travel sector have been ongoing.</li> <li>• International travel advisories have been posted on the Ministry of Foreign Affairs and Trade’s <b><u>SafeTravel</u></b> website.</li> <li>• Advice on infection prevention and control measures (eg, hand washing, physical distancing, cough/sneeze etiquette, personal protective equipment) has been a core part of the response, including at the border for both border workers and travellers.</li> <li>• Initially, the focus was on providing health advice to the border sector and travellers using travel alerts. Some screening and health assessments were provided for returnees, and people were asked to self-isolate/quarantine on arrival (eg, in their homes). During the period 2000 to 2022, border quarantine/isolation facilities and processes became more formalised (see below).</li> </ul>
<p><b>2019–2023: COVID-19 pandemic</b> (continued)</p>	<p><b>Border restrictions</b></p> <ul style="list-style-type: none"> <li>• Significant border restrictions on the foreign nationals allowed to enter New Zealand were implemented in early 2020 and remained in place during the pandemic, with adjustments from time to time. In early 2020, they were initially targeted at travellers leaving from or transiting mainland China, but, as the pandemic spread, these restrictions were expanded to foreign nationals from most other countries. With various exemptions (eg, essential workers), most foreigners were allowed to enter New Zealand over the period 2020–2022. In February 2022, the Government outlined a staged plan to reopen the</li> </ul>

	<p>border and end COVID-19 measures, including border health measures.</p> <ul style="list-style-type: none"> <li>• Most travel from New Zealand to other countries ceased/significantly reduced with the introduction of COVID-19 restrictions in 2020.</li> <li>• Maritime: Most foreign vessels were prohibited from entering New Zealand across the period 2020–2022, with a range of exceptions. Exceptions included: cargo vessels to maintain essential supply chains, fishing vessels and vessels that have been granted specific permission (eg, to undergo major repairs or refits). Cruise ships and foreign-flagged yachts have been banned from entering New Zealand waters since early 2020.</li> <li>• Vessels enroute to New Zealand that were allowed entry were required to report health status (and other information) to the authorities earlier than they usually do in routine times (this was to provide additional time for authorities to prepare if there was COVID-19 on board).</li> <li>• Monitoring of COVID-19 on cruise vessels</li> <li>• Aviation: Foreign aircraft allowed to enter were largely restricted to certain airports (predominantly Auckland and Christchurch). From 2021, air travellers from almost all countries travelling to New Zealand (who were permitted to enter) had to return a negative pre-departure test result for COVID-19 before departing for New Zealand.</li> <li>• Rules were introduced for aircraft crew, including returning New Zealand crew (eg, self-isolation, testing, infection control, etc).</li> <li>• From time to time, other border measures were implemented based on the evolving nature of the threat and ongoing risk assessments. Examples included: <ul style="list-style-type: none"> <li>• Quarantine-free travel to selected countries was introduced (and paused) as necessary.</li> <li>• There was a temporary suspension of entry for New Zealanders arriving from India during April 2021.</li> <li>• Restrictions on travel from ‘very high-risk countries’ to New Zealand were introduced. High-risk countries have included Brazil, India, Pakistan, Papua New Guinea, Fiji and Indonesia. At the time, only New Zealand citizens and their immediate families were able to travel to New Zealand from such countries.</li> </ul> </li> </ul>
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	<p>Others (including New Zealand residents) that were eligible to enter had to spend 14 days outside a very high-risk country before their arrival in this country.</p> <ul style="list-style-type: none"> <li>• <b>Border health measures have now been removed (as at September 2023).</b></li> </ul>
<p><b>2023–ongoing: COVID-19 pandemic</b> (continued)</p>	<p><b>Isolation and quarantine</b></p> <ul style="list-style-type: none"> <li>• Government-managed quarantine and isolation facilities were established for returning New Zealand citizens and permanent residents (and some other people with exemptions to enter the country). Arrivals entered a managed isolation/quarantine facility for a minimum period. Hotels were used as managed isolation/quarantine facilities. Such facilities had dedicated transport arrangements to move people. Health checks and a COVID-19 testing regime was incorporated into the managed isolation/quarantine system. Those testing positive for COVID-19 were usually moved to separate facilities. Returnees booked their managed isolation/quarantine before departing for New Zealand.</li> <li>• Quarantine/isolation requirements were introduced for maritime and aviation arrivals.</li> <li>• Most arrivals by sea had to isolate or quarantine on board their vessel (or at a managed facility) for at least 14 days since the last port of call or since their vessel last took on crew. Those on board had to meet defined low-risk indicators (including a negative COVID-19 test) before any person from the vessel could enter the New Zealand community. Signage requirements were introduced for vessels in isolation and quarantine.</li> <li>• Most permitted arrivals by air (eg, New Zealand returnees or those with exemptions to enter) had to undergo mandatory isolation/quarantine in managed facilities. Requirements were implemented for air crew that reflected risk. Specific processes and exemptions were applied for New Zealand-based international air crew depending on the route they were flying and other factors. Overseas-based crew followed separate requirements for their layover (using managed facilities).</li> </ul>

	<ul style="list-style-type: none"> <li>The government’s plan for a staged reopening of the border announced in February 2022 saw managed isolation and quarantine facilities removed during 2022 and replaced with self-isolation and testing on arrival. Those that did not meet New Zealand’s vaccination requirements, who were eligible to enter New Zealand, continued to undergo managed isolation and quarantine. The government facilities were eventually closed.</li> </ul> <p><b>Border health measures have now been removed (as at September 2023).</b></p>
<p><b>2023–ongoing: COVID-19 pandemic</b> (continued)</p>	<p><b>Testing</b></p> <ul style="list-style-type: none"> <li>Most travellers were required to have a negative pre-departure test result and approved documentation to enter New Zealand (some exemptions apply).</li> <li>Testing was introduced for border workers at managed isolation/quarantine facilities and air- and seaports.</li> <li>Specific requirements for testing aircrew were established. Testing requirements for maritime crew permitted to disembark were also implemented.</li> <li>Specific groups of higher-risk border workers were tested for COVID-19 on a regular basis. Border workers could choose to provide saliva as a sample for surveillance testing purposes for COVID-19 rather than undertake a nasal swab (or nasopharyngeal swab) testing cycle. However, nasal swabs were required if the person had COVID-19 symptoms or if the result of a saliva test was positive.</li> <li>The online Border Workforce Testing Register supported the Person Conducting Business or Undertaking (PCBU) concept<sup>15</sup> with their record keeping in respect of border workers’ COVID-19 swabbing dates and testing activity. Register use is mandatory for relevant PCBUs. The register also records the vaccination status of border workers.</li> </ul> <p><b>Border health measures have now been removed (as at September 2023).</b></p>

<sup>15</sup> For more information about PCBU, see the Who or what is a PCBU? webpage on the Worksafe website at: [www.worksafe.govt.nz/managing-health-and-safety/getting-started/understanding-the-law/primary-duty-of-care/who-or-what-is-a-pcbu](http://www.worksafe.govt.nz/managing-health-and-safety/getting-started/understanding-the-law/primary-duty-of-care/who-or-what-is-a-pcbu) (accessed 21 September 2023).

### **Vaccination**

- A requirement was introduced in April 2021 for all work in managed facility settings to be undertaken by people who have been vaccinated against COVID-19. This also applied to many government officials undertaking work in other high-risk border settings. Subsequently, in July 2021, such requirements were extended to make it compulsory for most border workers working in high-risk settings to be vaccinated.
- A rule was introduced requiring non-New Zealand citizens to be fully vaccinated against COVID-19 before travelling to New Zealand by air from 1 November 2021. These travellers had to have received their last dose at least 14 days before departure to New Zealand and be vaccinated with one of the vaccines approved by at least one government or approval authority. Some exceptions were applied (eg, New Zealand citizens, those under 17 years of age, refugees, etc) and there was provision to apply to the Director-General of Health for an exemption for some scenarios (eg, if a person had not been able to easily get vaccinated in their country of origin in the previous six months).

**Border health measures have now been removed (as at September 2023).**