

Responding to Public Health Threats of International Concern at New Zealand Air and Sea Ports

Guidelines for public health units,
border agencies and health service
providers

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1 Introduction

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

Border health protection measures focus not only on the health and wellbeing of international travellers and aircraft and ship crew but also on that of the wider New Zealand public, who could be exposed to health threats introduced as travellers enter and move around the country.

Moreover, New Zealand is part of the global community and, with international travel (especially by air) very common, we are also committed to contributing to a collaborative and effective international border health effort.

New Zealand, as an island nation, does not have any land border crossings, unlike many other countries. The focus of the border health measures in these guidelines are therefore at international airports and sea ports only.

Purpose

These guidelines identify a range of border health and travel measures that could be used to prevent or respond to public health threats (including communicable diseases, such as novel influenza). The guidelines also outline the potential advantages and disadvantages of each measure. The guidelines have been developed to aid decision-making around implementing appropriate health measures in response to international public health threats.

Audience

The intended audiences for these guidelines include:

- government agencies with responsibilities for border control measures (including the Ministry of Health, Ministry for Primary Industries (Biosecurity), New Zealand Police, New Zealand Customs Service, Ministry of Transport)
- district health board (DHB) public health units
- international air and sea ports
- key stakeholders at our international air and sea ports (including airline companies, the Board of Airline Representatives New Zealand (BARNZ), aircraft ground handlers, shipping operators and customs brokers).

International Health Regulations (2005)

New Zealand has joined a 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 and came into force in June 2007. The purpose of the International Health Regulations (2005) is to prevent, control and provide a public health response to international public health risks, that is appropriate to the risk and does not unnecessarily interfere with international travel and trade.

Risks to public health include the international spread of established infectious diseases, such as polio or Ebola virus disease, emerging infections, such as Middle East respiratory syndrome coronavirus (MERS-CoV), and other sources (eg, chemicals, radiation, vectors and other pests of public health significance).

The International Health Regulations (2005) specify a range of surveillance, risk assessment, response and reporting requirements for managing risks to public health at the community, national and international levels. They seek both 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 historically been used or considered for use.

Status of these guidelines

These guidelines are a working document. The Ministry of Health sought stakeholder feedback to develop the guidelines and will update them further as new options are identified and existing approaches are refined, or removed if found to be infeasible.

The original guidelines were adapted from a 2009 paper prepared by the World Health Organization's Western Pacific Regional Office (WPRO). A number of technical documents on pandemic influenza readiness and response, border and travel measures, interim advice on influenza A(H1N1) and research papers were reviewed to provide the background information and basis for the WPRO paper.

The guidelines were then amended to incorporate advice received from border health protection staff at the Auckland Regional Public Health Service (ARPHS) and information presented at the World Health Organization / Association of Southeast Asian Nations (ASEAN) regional forum, regarding public health measures at international air and sea ports under the International Health Regulations (2005). They have been updated further to incorporate lessons learned during responses to recent Public Health Emergencies of International Concern (PHEIC).

2 Are our border health protection measures appropriate?

Response phases

Our borders are one potential staging ground for responding to a public health threat. New Zealand's overall strategy for managing international public health threats is a comprehensive one that includes pre- and post-border phases.

Emergency management at our borders should emphasise 'the four Rs':

- **Reduction:** This avoids or mitigates 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 programmes, managed by the Ministry for Primary Industries, which prevent live exotic mosquitoes of public health significance (and other exotic insects) entering New Zealand.
- **Readiness:** Good planning, preparation and practice (eg exercises) is essential to enable 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 the health system time to mobilise and respond.

Note: Border health measures have a finite life, as the international threat is abated or measures within New Zealand are established, so their ongoing relevance and appropriateness will need to be monitored.

- **Recovery:** It is important that border agencies and other stakeholders are supported to return to routine operations once any emergency has been diverted. Debriefs and lessons learned should be captured and incorporated into future readiness and response plans.

The *New Zealand Influenza Pandemic Plan: A Framework for Action 2010* identifies six core response phases. While these measures refer to managing the global spread of a new strain of influenza, the general principles may be adapted to any communicable disease and to other threats at the border such as ionising radiation, chemicals, and pests:

1. **Plan for It** (*no human cases in New Zealand*)

During this phase, it is essential to actively plan for, prepare for and monitor international events. The role of the National Focal Point (required by the International Health Regulations (2005)) is essential at this phase. It is undertaken by the Public Health Group in the Ministry of Health.

2. **Keep It Out** (*no human cases in New Zealand*)

This involves implementing measures at our borders to try and *prevent* (which is very difficult to do in many cases) or at least *delay* (often a more realistic goal) a disease or threat from entering New Zealand. A key focus of any response at the border is to gain as

much time and gather as much information as possible to enable our health system to gear up for a national response.

This phase is not simply a case of closing the border. A full border closure is an extremely unlikely scenario given that most public health threats can be effectively managed with less restrictive measures and such a move would result in widespread social and economic disruption.

3. **Stamp It Out** (*first case identified in New Zealand; clusters of cases in New Zealand*)

This is a key escalation point and measures need to be actively planned and implemented both at our borders and within the wider community. This phase aims to delay the widespread transmission of the disease or other threat within a community until health care services have been able to prepare to respond and/or a vaccine becomes available.

The level of response in this phase will vary depending on the transmissibility of the organism and/or the severity of its effects. For example, a threat like Ebola virus disease is not readily transmissible but potentially has very severe consequences, therefore the containment and elimination of the disease assumes greater significance.

4. **Manage It** (*increased and substantial transmission in the general population*)

This phase occurs when community transmission is widespread and the response has moved to reducing the impact of the disease within the community.

At this time, active border control measures are likely to cease, or we may simply provide advice to people arriving in New Zealand about what they might expect and how to get help if they become unwell. Exit measures may still continue though, to minimise the impacts on other countries.

5. **Manage It Post-Peak** (*wave decreases post peak with the possibility of a resurgence or new wave*)

This phase occurs when the number of cases has peaked but there may be a resurgence of disease in the community or a new wave of infection. The response has moved towards restoring normal services, and supporting recovery, while preparing for a re-escalation of the response. There is unlikely to be active border control measures although we may be providing advice to people arriving in New Zealand about what they might expect and how to get help if they become unwell. We may still continue exit measures though, to minimise the impacts on other countries that may still be unaffected.

6. **Recover from It** (*response over and/or population protected by vaccine*)

This phase occurs when the incidence and prevalence of the disease has peaked and dropped back to levels where services may return to normal operation, including at the borders.

These guidelines provide suggestions for response options but also include consideration of the actions required to ensure readiness to implement a response (ie, the 'action points' columns in the tables in the appendices).

The approach at the border should:

- be flexible and adapted to the public health threat – especially emerging diseases such as an influenza pandemic
- take account of national and local plans and existing health measures, laws and policies
- consider surge capacity on an as-required basis so that it can be engaged when needed rather than as a 'permanent' function

- ensure all human rights and fundamental freedoms are respected as per the International Health Regulations (2005)
- ensure there is adequate budgeting and planning for regular exercises, updates and maintenance of response plans and the implementation of health measures at the border.

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.

The essential criteria are:

- Has the World Health Organization issued Standing and/or Temporary Recommendations under the International Health Regulations (2005) that include specific measures at air and sea ports?
- Does the issue have a significant impact on the current and future health status of the total population or priority groups in terms of morbidity, mortality, and/or quality of life?
- 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 particular threat? If not, are there potential innovative measures that could be evaluated?

The criteria given a high weighting are:

- Will tackling this issue provide the best health gain for the available resources?
- Will tackling this issue contribute to protecting the health of at-risk communities, such as Māori and Pacific peoples? Are any populations more vulnerable than others?

The criteria given a medium weighting are:

- 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 threat? Does every party benefit from the shared or complementary work?
- Is the issue currently being addressed by any other agency or organisation, ie, is there a gap?

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 for each country, and whether that risk can be managed by border control measures.

If it is decided that a threat is serious and public health action should be taken at the border to mitigate it, then further analysis is required to decide which specific border health measure(s) should be applied.

Public health measures at the border can be costly and extremely resource intensive. They can disrupt the normal functioning of the international travel and trade sectors and the wider public. The potential benefits of any border health measures need to be carefully balanced against their potential social and economic costs, and the likely effectiveness of the measure., as well as the implications of taking no additional measures

As such, in 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.

3 Choosing the right border health measure

Potential border health measures

The main groups of health measures discussed in these guidelines are:

1. travel measures at international air and sea ports
2. measures to manage symptomatic and/or exposed international travellers
3. 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 noted below.

1. Travel measures at international air and sea ports

- Health advice and alerts for travellers, and the wider travel sector
- Screening travellers
- International travel advisories
- Travel restrictions, diverting aircraft or ships, border closures.

2. Measures to manage symptomatic and/or exposed travellers

- | | |
|---|---|
| <ul style="list-style-type: none">• Managing <u>symptomatic</u> travellers<ul style="list-style-type: none">– Passenger locator information– Medical assessment of arriving travellers– Rapid laboratory investigations– Isolation– Treatment of symptomatic travellers– Contact tracing and/or antiviral prophylaxis. | <ul style="list-style-type: none">• Managing <u>exposed</u> travellers<ul style="list-style-type: none">– Passenger locator information– Contact tracing and/or antiviral prophylaxis– Rapid laboratory investigations.– Home or institutional quarantine<ul style="list-style-type: none">○ Self-health monitoring and illness reporting○ Voluntary or mandatory home quarantine○ Voluntary or mandatory institutional quarantine |
|---|---|

3. Exit measures

- Health advice and alerts for travellers
 - Screening
 - International travel advisories
 - Travel restrictions and potential border closures
 - Passenger locator information
 - Medical assessment
 - Isolation of symptomatic travellers
 - Treatment
 - Contact tracing
 - Self-health monitoring and illness reporting
 - Quarantine exposed travellers
-

These health measures are considered in more detail in Appendices 1 to 3 respectively.

Evidence for border health measures

There is a wide range of border health measures that could be applied to any given public health threat. However, there is a lack of data to demonstrate the effectiveness of many of these measures (for example, border screening).

Given the speed and volume of air travel, it is likely that any public health emergency of international concern would only be notified a short time before potentially infectious or contaminated travellers or contaminated goods arrived in New Zealand. It is extremely unlikely that the public health emergency response phase 2: *Keep It Out* could be implemented, and so border closure and diversion of aircraft or ships are unlikely to be viable measures.

The knowledge base used in developing international guidance for border control and travel measures has been limited and consists primarily 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 organism (or other threat) and will need to be modified as new information becomes available and our understanding of the organism (or other threat) and epidemiology changes. Measures being implemented may need to be changed with new knowledge about the characteristics of the disease or threat in question.

In many cases, actions at the border and within our borders will need to occur at the same time – for example public awareness initiatives, contact tracing and isolation/quarantine. However, as community-level transmission increases during an epidemic or pandemic, national efforts will shift from international border measures (phase 3: *Stamp It Out*) to focus on national and community public health measures (phase 4: *Manage It*). The focus on international border measures will become less relevant as this shift occurs, and border health measures will be adjusted based on the changing national strategy, policy and/or new guidance available.

Based on the review of available data in 2006, the World Health Organization concluded that screening and quarantining entering travellers at international borders did not substantially delay introduction of the disease in past pandemics, except in some island countries. It was considered that such measures would likely be even less effective in the modern era. Instead, recommended measures were to provide information to international travellers and consider screening travellers who were departing countries with transmissible human infections. At this stage, measures against pandemic influenza spread were focused principally at national and community levels rather than international borders.

In November 2009, the World Health Organization's Western Pacific and South-East Asia Regional Offices (WPRO and SEARO respectively), together with ASEAN, convened a regional forum to discuss public health measures at international air and sea ports under the International Health Regulations (2005). The discussion also considered the response to pandemic influenza A(H1N1). Participants reported that screening was of questionable efficacy but extremely resource intensive. It was also felt to be very disruptive to the day-to-day operations of the international travel sector. Estimates of cases detected at a border ranged from 2 to 48 percent of total cases, but most countries estimated that less than 10 percent were detected by screening at the border. One of the most effective strategies was providing information to travellers (including providing information about personal hygiene and protection, health measures expected on arrival, what to do if symptoms occur and contact tracing).

Research around the effectiveness of entry screening has reinforced these messages. Hale et al (2012)¹ examined the results of entry screening for influenza A(H1N1) and concluded that the entry screening programme rolled out at Auckland Airport's international terminal in 2009 had low sensitivity and was unlikely to have substantially delayed spread of the pandemic into New Zealand. The authors noted, however, that border screening might be undertaken for purposes other than preventing or delaying disease spread. Such purposes could include assuring the public that the authorities are taking action. Additionally, screening programmes usually involve communicating health information and advice on how to seek treatment, and such communication is consistently recommended as a key disease prevention strategy.

More recently, experience with responding to the outbreak of Ebola virus disease has suggested that targeted screening to identify travellers 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). However, to comply with the International Health Regulations (2005), in the absence of World Health Organization recommendations, such screening measures must not cause significant travel delays.

In conclusion, while some measures, such as providing up-to-date health information and advice to international travellers, are considered to have clear public health benefits and can be instigated without causing much concern, others should be examined carefully before a decision is made to implement them given that they offer minimal public health benefits and potentially significant consequences.

Summary of the interventions considered most viable

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

- providing proactive public health advisories and alerts for travellers (and also on the Ministry of Foreign Affairs and Trade's Safe Travel website and the Ministry of Health's website)
- enabling traveller self-reporting
- providing passenger locator information to manage/monitor symptomatic and exposed travellers
- having a visible public health presence at international air and sea ports
- screening travellers from high-risk countries or with high-risk exposures to provide them with targeted advice
- 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
- offering treatment for symptomatic travellers
- tracing contacts
- conducting regular air and sea port workforce briefs (eg, personal protective equipment training).

¹ Hale MJ, Hoskins RS, Baker MG. 2012. Screening for Influenza A(H1N1)pdm09, Auckland International Airport, New Zealand. *Emerging Infectious Diseases* 18(5). URL: wwwnc.cdc.gov/eid/article/18/5/11-1080_article (accessed 23 June 2016).

Other measures may be appropriate in specific situations, and the Ministry of Health will provide recommendations and advice on a case-by-case basis. For more information on the benefits and constraints of various health measures, see **Appendices 1–3**.

Starting-point principles

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 commensurate with the threat posed to New Zealand, and take into account advice from the World Health Organization and actions of other countries in the region.
- Public health measures should be adapted to suit national and local epidemiological and sociocultural contexts. The response has to 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 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, legal frameworks and constraints, costs, resources required, feasibility of measures and ethical issues.
- Proposed border health measures need to be reviewed against key policies, such as the *New Zealand Influenza Pandemic Plan: A Framework for Action 2010* (Ministry of Health 2010)².
- Before implementation, proposed border measures should be discussed with border health response teams and other key stakeholders (Border Working Group and border agencies, airlines, BARNZ, shipping agents, airport authorities, ground handlers, customs brokers, etc).
- Consultation and collaboration with border stakeholders is 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 have the opportunity to assist health authorities to ensure that the most feasible, effective and least intrusive measures are proposed; and measures can be applied most efficiently (eg, involving stakeholders appropriately).

Questions to guide decision-making

Sitting under these high-level starting point principles are a number of 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 border health emergencies, border response options will need to be implemented in the absence of complete information.

² Ministry of Health. 2010. April 2010. *New Zealand Influenza Pandemic Plan: A Framework for Action 2010*. Wellington: Ministry of Health. URL: <http://www.health.govt.nz/publication/new-zealand-influenza-pandemic-plan-framework-action> (accessed 30 June 2016).

These questions may guide decision-makers in assessing the implications of particular options.

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
 - mode of transmission/contamination
 - incubation period
 - severity of effects
 - country (or countries) of origin
 - risks from imported goods (baggage, cargo, containers, postal parcels)
 - risks from contaminated ships or aircraft.
- If there is little or no specific information about the threat, then consider following a process used for other threats. Such processes will include established systems and communication channels that airlines, airports, ground handlers, etc will be familiar with that might provide a good starting point (for example as laid out in air or sea port emergency response plans for dealing with hazmat incidents).

Ongoing monitoring and review of the threat

- As time passes, has the nature of the threat changed, or do we need to change our response to the threat?
- Has our understanding of the threat changed, or has the threat changed? Has the World Health Organization or International Civil Aviation Organization provided new advice or recommendations?
- Is there a changed risk in terms of virulence and infectivity or toxicity, morbidity/mortality, incubation period, severity of effects and effect on imported goods?
- Has the risk of suspected cases arriving in New Zealand increased or decreased?
- Is there a greater risk of transmission within a local community?
- Has the risk of exporting to countries that currently do not have notified cases increased?
- Is there new information/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 measure(s)

- Will the measure be effective? What is the evidence base? Is it routinely used in other comparable countries?
- What new information will the measure give us and is this necessary to manage the risks or is it just desirable (or an academic curiosity)?
- Is the measure actually feasible in New Zealand? Can airlines/border agencies/travellers readily comply? Will it create any risks (eg, aircraft being required to report during landing procedures)
- When can it be put into effect?
- Will it support vulnerable populations (eg, will it disadvantage travellers for whom English is not a first language)?

- Is the same response appropriate at all New Zealand air and sea ports? Can it be consistently applied across all air and sea ports? Can the same procedures be implemented by all aircraft operated by an airline or by all ships operated by a shipping company?
- Does New Zealand's island nation status make a difference to the importance of following the World Health Organization/International Civil Aviation Organization 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 costs and benefits of implementing the measure (not limited to economic costs)? Is the proposed risk management measure proportionate with the costs of implementing it? Is it the best health gain in terms of the available resources?
- Is the measure sustainable over time and in different airports and sea ports (eg, will it work at Auckland Airport as well as Queenstown Airport or Whenuapai Airbase; will it work at the Port of Tauranga as well as the Port of Bluff or Devonport Naval Base)? What are the impacts on public border health response teams?

Acceptability and views of stakeholders

- Is it a credible response? Is there public support for the health measures (including the views of airlines, airports, border agencies, travellers, etc)?
- How would the health sector respond if airlines, border agencies or travellers advised that a given measure could not be implemented or were unwilling to implement a particular health measure?
- Is the measure lawful, including internationally? Is it ethical?
- Are there opportunities for collaborating across other sectors of government, port authorities, airlines, shipping agents?
- Are there political, social, economic and 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 sea ports, including: the port companies, airlines and shipping companies, their agents, groundhandlers, travellers and the range of government border agencies)? Open communications and relationship building with key stakeholders is vital to ensure chosen measures will be as effective as possible.
- what actually happens at New Zealand's international air and sea ports – the roles and responsibilities of all stakeholders
- the impact on these stakeholders of the public health threat and the potential measures to address the threat.

Decisions on border health responses may need to be made when complete information is not available. These questions should guide an assessment of the potential risks and benefits of options and decisions should be reconsidered as new information is received.

Appendix 1: Travel measures at international air and sea ports

(a) Health advice and alerts for travellers, and the wider travel sector

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

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

Information to travellers was considered one of the most effective strategies in the influenza A(H1N1) response (including information about personal hygiene and protection, health measures expected on arrival, what to do if symptoms occur, contact tracing). Options for using health advisories and alerts include:

- distributing them to travellers when they apply for visas
- distributing them to all arriving travellers
- distributing them to travellers arriving from selected areas, countries or regions
- placing advisories or alerts for travellers at strategic locations.
- requesting airlines make in-flight announcements (but only for targeted flights and significant safety announcements), supported by information handouts distributed to travellers in the aircraft
- targeting landside ‘meeters and greeters’
- using social networking media to deliver messages to people.

The sorts of information to provide could include:

- recommendations that travellers who are ill should postpone international travel
- a description of the nature of the disease
- recommendations of precautionary measures travellers could take
- information on the importance of health self-monitoring, symptom identification and appropriate health-seeking behaviour
- 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 travellers and contact details for potentially ill travellers when they enter New Zealand.

Multiple means of communications can be used to reach different kinds of travellers (such as health alerts on board ships, banners, pamphlets and radio announcements at international air

and sea ports). Consider using innovative messaging media – ie, not just paper-based messaging but electronic notice boards at airports (many now have excellent facilities that can be easily used with appropriate notice), DVDs, texts, bulletin boards, social media, etc. Ensure information is disseminated where travellers are likely to see it (eg, prominently at airports, Ministry of Foreign Affairs and Trade *SafeTravel* website, tourism operators, etc).

It is important to develop and disseminate updated health information, advisories or alerts to both incoming and outgoing international travellers.

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

Communications need to be regular and targeted to the right people. They need to be clear and easily understood by people from a range of backgrounds – including in a variety of languages. Materials may need to be updated when new information becomes available.

Potential benefits	Limitations/ consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<ul style="list-style-type: none"> • Increases public awareness • Promotes good hygiene behaviour • Increases compliance with local public health advice • Shows governmental efforts and political visibility • Informs travellers where to go for medical care and where to report if they develop symptoms, especially those with epidemiological risk factors 	<ul style="list-style-type: none"> • No guarantee that people will read or adjust their behaviour • Language and cultural barriers need to be addressed • Materials will need to be updated when new information becomes available • Many people just discard paper copy information handouts and port staff have to spend valuable time clean them up 	<ul style="list-style-type: none"> • Draft templates and checklists • Identify languages for translations/interpreters • Health staff need uniforms and/or branding of stands, etc to be identifiable and 'official' • Plans need to identify who will be responsible for implementing strategies • Transit travellers and air crew need particular consideration • VIPs may require special treatment • Plans need to incorporate unique messaging options for individual air and sea ports

(b) Screening travellers

Screening aims to identify ill or potentially ill travellers before they enter the country. Screening can take place in a number of ways, including screening on board aircraft or ships, using health declaration forms, visual or temperature screening of travellers, or using rapid laboratory investigation.

Border screening is unlikely to be effective in detecting all cases of illness among travellers as cases can be pre-symptomatic or asymptomatic. Travellers may not have recognised their symptoms or can disguise their symptoms. It can be extremely resource intensive and will create significant delays for travellers and transport operators. It is generally accepted that thermal imaging is not effective but may increase awareness of the threat and encourage travellers to complete health declarations truthfully. Providing information to travellers was considered one of the most effective strategies used in previous 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).

The Ministry of Health decides on the border measures to be taken to respond to public health risks (including screening). As screening is resource intensive and requires existing capacity and systems, the Ministry of Health will realistically consider if resources should be deployed for this purpose. The Ministry of Health will make every effort to avoid measures that significantly interfere with international traffic (such as refusal of entry or departure of international travellers for more than 24 hours) and will be prepared to provide the World Health Organization with the public health rationale and scientific information for any measures taken under the International Health Regulations (2005).

While the World Health Organization does not have official recommendations around exit screening, such screening is probably best considered in situations where New Zealand may be experiencing community-level outbreaks. The Ministry of Health will reconsider or discontinue entry screening once a disease is transmitting widely within the community and will consider enhanced exit measures.

Before considering active or passive border screening measures, the proposed measures will be reviewed against screening criteria. Criteria developed to guide decisions on whether or not to implement national health screening programmes have been adapted for the border health context. These key criteria are also consistent with the principles identified in **section 3** of these guidelines. The criteria involve considering the following eight questions:

1. Is the disease, contaminant or public health threat a suitable candidate for screening?
2. Does a suitable screening test or 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?

Health Declaration Forms: travellers arriving in New Zealand complete the New Zealand Passenger Arrival Card that includes contact information and their location on the aircraft so separate Passenger Locator Forms are not required (see Appendix 2(a) for further information). However, a Health Declaration Card may be appropriate to document a traveller’s travel history, any risk exposures, and their current state of health.

Options for health declarations include: requiring declarations from all arriving travellers; travellers arriving from affected countries or specific areas or any traveller who has been identified as being ill (with symptoms of concern) on before arrival. Health Declaration Forms should be distributed to travellers before arrival (if possible), and travellers should receive instructions from crew members on how to fill out the form to ensure the information provided is as accurate as possible. This raises a number of practical compliance issues for airlines in particular, given space limitations and the additional expectations on airline staff. It may be preferable for air travellers to disembark and complete the declarations before clearing Immigration and Customs, if staff have not been able to distribute the forms before landing.

Health authorities need to have a clear plan for collecting the forms and managing the information collected (including complying with any privacy requirements around personal data). Authorities should also ensure that the actual forms or information collected is stored in a systematic and secure manner and is easily retrievable, especially if it is intended for use in future contact tracing. It would be useful to have the information available electronically. Forms should be securely destroyed once the period for contact tracing has lapsed.

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<i>Health declaration forms – aims to identify arriving ill travellers for follow-up if necessary</i>		
<ul style="list-style-type: none"> Identifies travellers with epidemiological risk factors Promotes self-reporting of illness Records travellers seat numbers and contact details for contact tracing efforts Records travel history and potential exposures May increase vigilance for travellers of concern (eg, specific Customs’ lanes) Records vaccination status (supported by vaccination certificates) 	<ul style="list-style-type: none"> May be difficult to ensure accuracy of information (eg, contact details, fraudulent vaccination certificates) Language barriers need to be addressed Need to manage travellers’ personal data Management of self-reports Duplicates the ill traveller protocol (arguably better to emphasise the ill traveller protocol instead) 	<ul style="list-style-type: none"> Prepare health declaration form, including translations, using World Health Organization/International Civil Aviation Organization / International Air Transport Association form Provide advice/guidance to crew Develop standard operating procedure for collecting, analysing, and holding and disposing of information

Screening Travellers from Affected Countries: Health and Customs/Immigration officials can work cooperatively to undertake low-level entry screening of travellers who have travelled from or through countries affected by a public health emergency of international concern. Customs officers may check the Passenger Arrival Cards and identify travellers who indicate that they have visited any affected countries in the past 30 days. Customs officers will ask travellers who have visited affected countries a series of questions about their health (fever plus other relevant symptoms of concern) and any risk exposures, eg, contact with cases or other sources of exposure. If the traveller answers ‘no’ to all the screening questions, they will be given a card with advice on what to do if they become unwell within a month of overseas travel. If the

traveller answers ‘yes’ to any questions, they will be isolated and public health officers will undertake a health assessment to see if they meet the case definition or may be a contact of a suspected case. The public health officer will give them information about the disease. The travellers will be assessed to see how they may have been exposed and how likely it is that they will get sick. If necessary, they will be asked to monitor their health (eg, take and report their temperature twice a day) and will be visited or phoned each day by a public health officer to see how they are feeling. They may be required to restrict their activities and contacts with others if required. Public health officers can also place people in quarantine if needed.

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<i>Identifying travellers from affected countries and screening for symptoms and/or risk exposures on arrival</i>		
<ul style="list-style-type: none"> • Increases public awareness • Helps to identify possible cases or exposed travellers at the time of their entry in the country • Enables information to be given to people who may be at higher risk • Facilitates management of contacts • Facilitates early management of cases detected • Detects travellers who do not have adequate vaccination cover and enables them to be offered vaccination 	<ul style="list-style-type: none"> • Requires travellers to self-identify (supported by information held by border officials) • May be difficult to ensure accuracy of information (eg, contact details, fraudulent vaccination certificates) • Language barriers need to be addressed • Need to manage travellers’ personal data • Management of self-reports • Cost of providing vaccination (including vaccinations for staff) • In the absence of World Health Organization recommendations, such measures must not cause significant delays for travellers 	<ul style="list-style-type: none"> • Contact New Zealand Customs to seek their cooperation in identifying travellers from affected countries at arrivals desk (or SmartGate/eGate) and undertaking screening • Identify screening criteria (eg, symptoms and/or exposure risk) • Draft standard operating procedure for implementation, including reporting • Provide advice to New Zealand Customs for drafting operational orders (including personal protective equipment) • Provide training for Customs officers who are undertaking screening <p>Travellers screened by Customs are isolated and given a more detailed health risk assessment by public health officers (including temperature monitoring if required):</p> <ul style="list-style-type: none"> • Identify isolation area • Identify risk assessment criteria • Provide advice/guidance to public health officers • Train public health officers, ensure availability of all appropriate equipment • Develop reporting templates and procedures

Visual Screening of Travellers: Visual screening methods may be additional to screening travellers from affected countries for symptoms or high-risk exposures. It 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 sea ports will require trained personnel and further medical assessment 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.

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<i>Visual screening – aims to identify arriving ill travellers who might be visibly ill</i>		
<ul style="list-style-type: none"> • May detect obviously ill travellers • Supplements other measures (eg, thermal scanning) 	<ul style="list-style-type: none"> • Questionable efficacy • Cost (including staff resources) • Difficult to implement and minimal effectiveness in identifying ill travellers • Low sensitivity and specificity • Requires trained personnel • Large opportunity costs as would take up considerable time of health authorities • Poor compliance – some travellers may actively hide symptoms 	<ul style="list-style-type: none"> • Apply screening criteria re sensitivity, specificity, ethics, etc • Develop standard operating procedures with limitations and constraints clearly identified

Temperature Screening: 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 sea ports is not recommended by the World Health Organization as there is no reliable way to easily identify infected but pre-symptomatic or asymptomatic travellers. If temperature screening is to be conducted, it should be 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 departing travellers in affected countries, especially those with community-level outbreaks (exit measures). However, temperature screening will not detect cases that are mild and may not be febrile or are pre- or a-symptomatic. While the World Health Organization does not have official recommendations around exit screening, it is probably best considered by national authorities in situations where countries have community-level outbreaks. Countries should reconsider or discontinue entry screening once a disease is transmitting widely within the country.

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<i>Temperature screening – aims to detect arriving travellers who have a fever</i>		
<ul style="list-style-type: none"> • May be reassuring to the public • May serve as 'sentinels' to detect some cases (but not all infected travellers) • The time-consuming nature of screening and the possibility of further measures taken if a traveller is found to be febrile may serve as a deterrence to travel 	<ul style="list-style-type: none"> • Cost, including staff resources – not considered cost effective • Current data suggests a number of limits in effectiveness: modelling suggests that, in general, temperature screening has a limited impact on reducing the risk of importing diseases such as severe acute respiratory syndrome (SARS) and influenza • Many factors influence screening, including sensitivity, specificity, false positives and false negatives • Thermal scanning alone will not prevent entry or exit of public health threats, as not all infected travellers have fever and there are asymptomatic cases • Needs equipment maintenance (calibration) and trained operators to ensure adequate and accurate readings • May give the public a false sense of security • Huge opportunity costs • Poor compliance and travellers may actively hide symptoms 	<ul style="list-style-type: none"> • Not currently considered cost-effective for application in New Zealand – monitor World Health Organization advice and international literature, particularly for the specific disease of international significance • Maintain list of suppliers

Rapid Laboratory Investigations: See guidance provided at Appendix 2(c).

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<i>Rapid laboratory investigation – aims to increase screening specificity and assist in determining the likelihood of symptomatic traveller infection or contamination</i>		
<ul style="list-style-type: none"> • If used in conjunction with medical assessment, it could provide an interim diagnosis to aid decision-making on further actions • Identifies non-infected individuals and avoids them being subject to further measures 	<ul style="list-style-type: none"> • Accuracy and predictive values depend on the threat and the test kits used • Officers using kits need appropriate training, including interpretation of results • Can be expensive if used inappropriately • Arguably not really realistic for New Zealand air and sea ports 	<ul style="list-style-type: none"> • Needs further analysis – may be feasible for radiation and some chemical hazards

Inspection on board the aircraft or ship: Options for inspection on board aircraft or ships include pre-departure screening by crew or health authorities from point of origin, in-transit screening by crew and/or pre-arrival screening by crew or health authorities from destination before travellers are allowed to disembark. Currently, the World Health Organization has not

issued any official recommendations for inspections on board aircraft, ships or ground transportations, although the health part of the International Civil Aviation Organization aircraft general declaration, in the International Health Regulations (2005), provides advice on identifying case of communicable disease, which would include emergent diseases. Country-level measures are the decision of national authorities. Nevertheless, the Health Act 1956 requires ship or aircraft crew to declare if a traveller is suspected to be ill in transit to the border health protection staff before arrival. Encouraging travellers not to change their seating assignment without informing the crew might facilitate subsequent contact identification. It is understood that very few countries conducted on-board inspections to detect suspected cases. This may be useful for cruise vessels – or to ensure cruise vessel medical staff are well briefed on symptoms of concern.

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<i>Inspection on board aircraft or ships – aims to identify ill arriving travellers on board aircraft or ships before arrival (such as in-flight case detection)</i>		
<ul style="list-style-type: none"> • Increases public awareness • Helps to identify possible cases before traveller entry • Facilitates contact management • Facilitates early management of detected cases 	<ul style="list-style-type: none"> • Questionable efficacy for aircraft but likely to be more applicable to ships • Cost (including staff resources) • Will interfere with international air travel (creates significant delays) • Requires adequately trained personnel for health screening on board • Asymptomatic or very mild cases are unlikely to be detected • Incubation of infections acquired before or during a flight • Not feasible if resources are limited • Not feasible in airports with a large volume of international traffic • Relies on illness reporting by pilot in command, ship master or designated crew member or public health official 	<ul style="list-style-type: none"> • Develop standard operating practice for on-board screening • Identify screening criteria • Provide advice/guidance to crew • Train staff, provide appropriate equipment and PPE

Imported goods, aircraft and ships: The World Health Organization has published relevant guidance documents that public health officers may find useful. Examples include:

- *Guide to Hygiene and Sanitation in Aviation* (2009), which covers cleaning and disinfecting aircraft and airport facilities.
- *Guide to Ship Sanitation* (2011), which presents the public health significance of ships in terms of disease and highlights the importance of applying appropriate control measures. This includes guidance around vector and reservoir control (insects and rodents, etc) and controlling infectious disease in the ship environment.

See: www.who.int/ihr/ports_airports/en/ for more details.

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<i>Imported goods and aircraft or ships – aims to identify contaminated or infectious baggage, goods, containers, postal items, aircraft or ships and to cleanse, decontaminate, disinsect, disinfect, fumigate or otherwise treat</i>		
<ul style="list-style-type: none"> • Helps to identify possible cases before entry • Prevents spread of diseases and limits transmission of the infectious agent or contaminated material (eg, radioactive risks) • Shows that government effort is being applied and can be reassuring to the public (many people may expect this to happen as standard practice) 	<ul style="list-style-type: none"> • Potential compliance costs and time delays to industry • Some measures could potentially destroy or damage the goods, cargo, etc • Some travellers will have concerns, phobias, etc with the treatment (spraying of chemicals, etc) • Needs to be properly applied at the right time to be effective 	<ul style="list-style-type: none"> • This is a core capacity at all times, so a key action is to maintain interagency relationships and keep standard operating procedures updated

(c) International travel advisories

Formal government travel advisories not only seek to provide information and increase awareness but also are aimed at preventing or strongly recommending people do not travel to/from particular countries or regions. This includes formal travel advisories posted on the Ministry of Foreign Affairs and Trade *Safe Travel* website. This form of advisory is used only in the most serious situations (such as war, extreme civil unrest or significant health threats) and is the strongest discouragement for travellers to visit a country or area. Such travel advisories can mean travellers will not receive travel insurance if they travel to the affected countries. If a traveller is in an affected country, they may be evacuated or their insurer may tell them to leave the affected country within a stated timeframe.

Comment: In the New Zealand context, this will include travel advisories posted on the Ministry of Foreign Affairs and Trade’s *Safe Travel* website (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 (hotline or contact details of local hospitals and public health authorities should be provided to guide where 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 in an affected country, 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 ships, banners, pamphlets and radio announcements at international air and sea ports).

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<ul style="list-style-type: none"> • Increases public awareness • Potentially reduces the number of individuals travelling to risk areas • May prevent or delay virus introduction • Shows governmental efforts and political visibility 	<ul style="list-style-type: none"> • No guarantee that people will heed advice and not travel • Language and cultural barriers need to be addressed • Impractical for some traveller to heed (eg, foreign nationals or transit travellers returning home to a risk area) • Materials will need to be updated when new information becomes available 	<ul style="list-style-type: none"> • Work with the Ministry of Foreign Affairs and Trade to ensure the <i>Safe Travel</i> website is updated regularly • Work with the Ministry of Foreign Affairs and Trade to develop criteria for issuing formal travel advisories • Consider formal travel advisories if required

(d) Travel restrictions, diverting aircraft or ships, border closures

There are considerable limitations to these measures, and countries should not rush into them without fully considering their implications, the purpose of the International Health Regulations (2005) and relevant World Health Organization guidance and recommended measures. The International Health Regulations (2005) purpose explicitly states that its intention is to ‘prevent, protect against, control, and provide a public health response to the international spread of disease in ways that are commensurate with ... the public health risks, and which avoid unnecessarily interference with international traffic and trade’.

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 flights).

The International Health Regulations (2005) explicitly recognise that travellers should always be treated with dignity and respect for their human rights.

The World Health Organization 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 World Health Organization recommended stringent exit measures for affected countries that included screening travellers for any high-risk contact and symptoms of concern.

Today, global travel is commonplace and large numbers of people move around the world for business and leisure. Limiting travel and imposing travel restrictions would have to be proven to be effective in stopping the disease of international concern from spreading as it would be highly disruptive to the global community. Scientific research based on mathematical modelling shows that restricting travel would be of limited or no benefit in stopping the spread of disease. Historical records of previous influenza pandemics, as well as experience with severe acute respiratory syndrome (SARS), validate this. The global response should focus on minimising the impact of the disease by identifying cases promptly and providing infected individuals with appropriate care.

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 World Health Organization with the public health rationale and scientific information for their actions under the International Health Regulations (2005). The World Health Organization will follow up such matters and has obligations to share such information with all member states.

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
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International travel restrictions – aim to reduce travel to and from affected countries or areas and prevent or delay disease introduction to a non-affected country

<ul style="list-style-type: none"> • Potentially reduces the number of ill individuals travelling • May prevent or delay virus introduction • May prevent or delay public health risk if travel restrictions are applied quickly enough and are in place for long enough 	<ul style="list-style-type: none"> • Limited effect on stopping the spread of the virus internationally • Interferes with international travel and trade • Potential political and economic impacts • Disrupts normal social functioning • Need to clearly justify rationale • Need to cover off human rights issues • Can be difficult to define 'affected' areas • Travellers may try to circumvent any restrictions • Travel restrictions and quarantining travellers at international borders did not substantially delay disease introduction in past pandemics, except at some small island countries • Travel restrictions are likely to impose significant economic costs on affected countries and may affect the provision of essential goods and medical services, etc • Aircraft past the point of no return would need to be able to land and then the travellers and crew quarantined/isolated • Hinders efforts to assist affected countries (eg, prevents health care workers assisting with the response in affected countries) 	<ul style="list-style-type: none"> • Develop triggers, standard operating procedures and templates to ensure appropriate information is available in a timely manner for key decision-makers considering travel restrictions • Prepare statutory notices and directions, including a pandemic notice • Prepare forms to requisition quarantine facilities • Liaise with suppliers of essential goods and services to determine the impacts of border closures
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Diversion of an individual conveyance (eg, if an aircraft has a novel infection on board or is contaminated) – aim to delay or prevent introduction of public health threat and ensure the most appropriate location to provide a public health response

<ul style="list-style-type: none"> • May enable the conveyance to be diverted to an air/sea port with more appropriate facilities, resources, etc • May enable quarantine of aircraft and a better ability to deal with travellers 	<ul style="list-style-type: none"> • Safety of travellers and crew needs to be considered – this may not be a practical option in many situations • Logistical and feasibility issues would need to be worked through (eg, Does the plane have enough fuel to be diverted? Are there facilities available at the new destination?) • May not be a viable option if multiple aircraft and/or ships are expected – would be difficult to implement with more than a small number of aircraft 	<ul style="list-style-type: none"> • Prepare standard operating procedures with Ministry of Transport, Civil Aviation Authority of New Zealand, New Zealand Customs Service, Ministry for Primary Industries, airlines and airports, including triggers, actions, decision-making and specifications
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Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<i>Border closures – aim to prevent travel to and from selected countries or areas and to prevent or delay disease introduction to a non-affected country</i>		
<ul style="list-style-type: none"> • May prevent or delay virus introduction if border closure is completely ensured and lasts for long enough • Complete border closure may help prevent or delay virus introduction in small island countries based on the 1918–19 influenza pandemic experience and limited modelling data 	<ul style="list-style-type: none"> • Safety concerns for aircraft in flight (and ships at sea) • Border closure and quarantining travellers arriving at international borders did not substantially delay virus introduction in past pandemics, except at some small island countries • Border closures may affect the provision of essential goods and medical services to countries with border closure • Aircraft past the point of no return would need to be able to land and then the travellers and crew quarantined/isolated • Returning residents may need to be allowed to enter and then be placed in quarantine or isolated 	<ul style="list-style-type: none"> • Consider issues for New Zealand residents abroad • Consider differences between maritime and aviation borders • Prepare statutory notices and directions • Prepare forms to requisition quarantine facilities • Liaise with suppliers of essential goods and services to determine the impacts of border closures

Appendix 2: Measures to manage symptomatic and/or exposed travellers

(a) Passenger locator information

Passenger locator cards collect contact information from travellers for future follow-up as necessary.

In New Zealand, passenger locator information is routinely collected from arriving travellers when they complete the New Zealand Passenger Arrival Card. The cards are collected by New Zealand Customs Service staff, and some specific data on the cards is scanned and processed by Statistics New Zealand. DHB public health officers should have arrangements in place to obtain the cards (or the relevant information) if required for contact tracing, after which they would be returned to the New Zealand Customs Service / Statistics New Zealand. 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 1993) and is to be used only for authorised public health purposes.

In the case of cruise vessels, crew and passenger lists may be obtained to support contact tracing. Incoming ships can also be asked to complete the section of Maritime Declaration of Health form that lists the people who joined the ship since the international voyage commenced or within 30 days, whichever is shorter, including all ports/countries visited in this period.

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<ul style="list-style-type: none">Increases public awarenessPromotes self-reporting of illnessRecords travellers seat numbers and contact details for use in contact tracing effortsProvides travel historyEnables community cluster control	<ul style="list-style-type: none">May be difficult to ensure accuracy of information (eg contact details)Language barriers need to be addressedTravellers' personal data needs to be managed	<ul style="list-style-type: none">Maintain standard operating procedures for accessing passenger locator information from the New Zealand Customs Service / Statistics New Zealand

(b) Medical assessment of arriving travellers

This measure seeks to assess symptomatic travellers to determine the likelihood of infection. 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 each DHB public health unit for such medical assessments either at the air or sea port or designated hospitals in consultation with border authorities and other key stakeholders (as part of the ill traveller protocol and emergency plans).

Comment: Options for implementing medical assessment include:

- assessing symptomatic travellers arriving from selected areas/countries who have been detected through previous screening
- assessing all symptomatic travellers detected through previous screening
- assessing all travellers from selected areas/countries (which may not be feasible)
- before community transmission within New Zealand, assessing all transit travellers departing for identified countries (eg, Pacific Island nations not experiencing community transmission)
- once community transmission is occurring within New Zealand, assessing all transit travellers departing for identified countries (eg, Pacific Island nations not experiencing community transmission).

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

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<ul style="list-style-type: none"> • Allows rapid identification of suspected and probable cases • Provides appropriate medical measures (treatment, isolation, testing, etc) • Informs decision-making on further actions • Identifies other illnesses • Ensures arriving travellers have received appropriate vaccinations 	<ul style="list-style-type: none"> • Likely that some non-infected travellers will be classified as suspected or probable cases due to low specificity of assessment • Travellers who do not meet the criteria for a suspected or probable case may still be infected • Requires trained medical or public health personnel • Requires an appropriate facility for medical examination • Consider ethical issues for dealing with travellers who may be identified as having conditions that are not arising from the threat (eg organism of interest) that may be identified during screening 	<ul style="list-style-type: none"> • Plan to ensure provision is made for assessing ill travellers at the air or sea port if required • Consider legislative frameworks that apply, develop guidance and templates • Ensure appropriate management of individual privacy and of their health information • What is the response if the disease is notifiable? Quarantinable? Other? • Review national planning and guidance • Include vaccination in immigration requirements

(c) Rapid laboratory investigations

Such investigations aim to make screening more specific and help determine the symptomatic travellers' likelihood of contamination or infection. In general, laboratory investigations 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).

Rapid laboratory testing should take into account the predictive value of these tests 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 sea ports, 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.

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

Comment: Options for implementing rapid laboratory investigations include:

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

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<ul style="list-style-type: none"> • If used in conjunction with medical assessment, it could provide an interim diagnosis to aid decision-making on further actions to take • Non-infected individuals are identified and further measures are likely to be avoided • For suspected contamination with chemicals or radioactivity, methods for screening may be readily available 	<ul style="list-style-type: none"> • Accuracy and predictive values depend on the test kits used • Requires trained people, required equipment and appropriate methodologies • Can be expensive if used inappropriately • Can lead to incorrect interpretation if assumptions and constraints of methodology are not understood 	<ul style="list-style-type: none"> • Needs further analysis: dependent on nature of hazard

(d) Isolation

Isolation involves separating ill or contaminated travellers or affected baggage, containers, parcels, other goods, aircraft or ships in a way that prevents the spread of infection or contamination (as opposed to quarantine, which relates to separating travellers who may have been exposed to the threat but are not necessarily ill). Isolation can be implemented at the person's home, in a facility such as a hospital, hotel, community building or other temporary facility, or at the air or sea port.

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 is to identify cases early enough for isolation to be meaningful from a public health perspective without unnecessarily isolating people who do not have the disease.

Isolation 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. Any confinement of individuals would need to follow the appropriate legal provisions in national legislation. Procedures must be developed to address logistical and transport issues. Isolation practices may be implemented according to updated national guidelines on case management that are consistent with the World Health Organization's guidance.

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 basic necessities and, where appropriate, psychological support. Potential financial and employment consequences of confinement have to 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.

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<i>Isolation of travellers</i>		
<ul style="list-style-type: none"> Effectively stops the further transmission of the disease if genuine cases are isolated while infectious 	<ul style="list-style-type: none"> A range of services, infection control, welfare, health and psychological support, treatment, etc should be provided Potential impacts on airlines and ships if crew are isolated on suspicion and this effects airlines' and ships' ability to operate (could run out of crew) 	<ul style="list-style-type: none"> Identify triggers for decision-making and for ensuring appropriate legislative provisions are in place Develop transport and facility guidelines
<i>Isolation at home (voluntary)</i>		
<ul style="list-style-type: none"> Is least costly isolation option Relieves burden on health care system Is less stressful on individuals to be isolated at home than elsewhere Encourages potentially higher public acceptance than other isolation options 	<ul style="list-style-type: none"> Health monitoring and reporting system required Safe transport to home required Difficult to monitor compliance Potential risk to other household members Need alternative arrangements for non-residents Services must be available to provide basic necessities to those who live alone or have special needs 	<ul style="list-style-type: none"> Identify triggers for decision-making and for ensuring appropriate legislative provisions are in place Develop monitoring and welfare guidelines
<i>Isolation in a facility (eg, hospital, hotel, marae, welfare centre, temporary facility, etc). This could be mandatory.</i>		
<ul style="list-style-type: none"> Facilities (such as hospitals) may have the capacity to isolate traveller/s appropriately Provides ready access to appropriate medical care 	<ul style="list-style-type: none"> Increased burden on health care system Safe transport to facility required Political, ethical and possibly legal implications from mandatory confinement of individuals May only be feasible if numbers are low May contaminate hospital (or facility) 	<ul style="list-style-type: none"> Develop triggers to consider this option Distinguish from treatment in isolation
<i>Isolation at the air or sea port (usually only temporary)</i>		
<ul style="list-style-type: none"> Temporary isolation of suspect cases is feasible at well-equipped air or sea ports with good laboratory testing capacity 	<ul style="list-style-type: none"> Many air or sea port facilities have no capacity to implement appropriate isolation Resource intensive Logistically challenging Political, ethical and possibly legal implications from confinement of individuals 	<ul style="list-style-type: none"> Unlikely to be feasible for New Zealand – develop transport and facility guidance

(e) Treatment of symptomatic travellers

The aim of offering symptomatic travellers treatment is to reduce the severity of the illness and minimise complications in individuals infected with the disease, and to 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 with suppressed immune systems and 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. National legislation should include appropriate provisions to protect people's human rights.

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<ul style="list-style-type: none"> • May reduce severity of disease and avoid complications if used in genuine cases • Will reduce further spread of the disease 	<ul style="list-style-type: none"> • 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 • Relies on sensitivity and specificity of screening and/or self-notification • Can be expensive if used inappropriately • Ethical issues when requiring treatment – particularly if a case is detected during screening • May require isolation in a health care facility (as opposed to being isolated in another facility or at home) • Isolation in a healthcare facility may limit availability of isolation facilities for other cases 	<ul style="list-style-type: none"> • Identify triggers for decision-making and for ensuring appropriate legislative provisions are in place • Develop a policy on paying for services for travellers from overseas who do not have travel insurance • Develop a policy on mandatory treatment and/or isolation

(f) Contact tracing and/or prophylaxis

This measure aims to identify other travellers who might have been in close contact with the symptomatic or contaminated traveller and provide them with prophylaxis.

Options for contact tracing 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 often covers people who have been situated within three rows of the index case)
- contact tracing all travellers in the same affected ship.

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.

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 (for example groups of families 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 ready to share traveller information with other national authorities for possible contract tracing.

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.

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

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<ul style="list-style-type: none"> • Aids in identifying other travellers with higher risk of contracting a genuine disease from the index case • Helps monitor possible infection of exposed travellers • May prevent infection • May be a more effective measure than screening • Promotes compliance with the information sharing requirements of the International Health Regulations (2005) 	<ul style="list-style-type: none"> • Extremely resource intensive when there are a lot of contacts (especially contact tracing all travellers in the same conveyance) • May not be possible to identify all possible contacts • Requires very smooth and timely communications and coordination among countries concerned • May cause undue concern for contacts especially if the index case is not confirmed • May be difficult to ensure the confidentiality of personal data of exposed travellers • Ethical and human issues • Prophylaxis may not be cost effective • 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) • Traveller locator information may not be complete or accurate • A sustained response needs to be justified by epidemiology 	<ul style="list-style-type: none"> • Identify triggers for decision-making and ensuring appropriate legislative provisions are in place • Public health officers have processes and procedures for contact tracing.

(g) Home or institutional quarantine

Quarantine involves restricting activities and/or separating travellers who are not ill but are a suspected case or contact of a suspected case in a way that prevents the possible spread of infection or contamination (as opposed to isolation, which relates to people who are symptomatic). Quarantine may also include separating goods, aircraft, or ships for further examination or decontamination. Quarantine could be implemented at the traveller's home or in a facility (eg, a hospital or community building). It is preferable not to provide quarantine facilities at the air or sea port.

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 suspect case
- quarantining all contacts of a probable or confirmed case
- quarantining all contacts of a suspect case.

Self-health monitoring and illness reporting is less resource intensive and should always be encouraged, as compared with quarantine measures. However, 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 of time.

In general, quarantining contacts may be useful in preventing the spread of disease or contamination. The challenge is 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.

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. Any confinement of individuals would need 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.

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 basic necessities and, if feasible, psychological support. Potential financial and employment consequences of confinement should be addressed. The interests of 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.

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<i>Self-health monitoring and illness reporting – to identify infected individuals among exposed travellers/crew members</i>		
<ul style="list-style-type: none"> • Is least costly of all options • Does not disrupt social functioning • Can be combined with other appropriate medical measures (treatments, isolation, testing, etc) at onset of symptoms • Can assist detection of new cases • Slows down and possibly delays infection transmission in a country 	<ul style="list-style-type: none"> • Responsibility of individuals to monitor and report accurately • Some potential for transmission before symptom onset • Effectiveness is limited by an individual's compliance • Potential impacts on airlines and shipping companies if crew are quarantined and this effects their ability to operate (could run out of crew) – may be better to offer crew prophylaxis or vaccination where possible 	<ul style="list-style-type: none"> • Identify triggers for decision-making and for ensuring appropriate legislative provisions are in place • Public health officers have processes and procedures (including forms) for implementing self-health monitoring.
<i>Voluntary quarantine – 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)</i>		
<ul style="list-style-type: none"> • Slows down and possibly delays infection transmission in a country • Manages potentially infectious individuals • Empowers people to take responsibility for managing their potential risk 	<ul style="list-style-type: none"> • Requires a high level of awareness and self-responsibility • Services must be available to provide basic necessities to those who live alone or have special needs • Health monitoring and reporting system are required • Needs alternative arrangements for non-residents • Potential risk of transmission to household members, if exposed individual is infected • Employers and others may be reluctant to accept voluntary quarantine (eg, not allow sick leave to be used) 	<ul style="list-style-type: none"> • Develop guidelines and advice • Prepare templates for advisory notices • Work with WorkSafe New Zealand to engage employer cooperation • Work with the Ministry of Business, Innovation and Employment's infrastructure group on the impacts on essential services, supplies and industries • Public health officers have processes and procedures (including forms) for implementing voluntary quarantine.
<i>Voluntary or mandatory quarantine: home quarantine of exposed travellers – to identify infected individuals and break the transmission cycle</i>		
<ul style="list-style-type: none"> • Manages potentially infectious individuals • Slows down and possibly delays infection transmission in a country • Can be combined with other appropriate medical measures (treatments, isolation, testing, etc) at the onset of symptoms • Detects new cases • Less stressful on people to be quarantined at home than elsewhere 	<ul style="list-style-type: none"> • Services must be available to provide basic necessities to those who live alone or have special needs • Health monitoring and reporting systems are required • Difficult to monitor compliance • Need alternative arrangements for non-residents and non-compliant travellers • Potential risk of transmission to household members, if the exposed traveller is infected • May cause undue concern, especially if the index case is not confirmed • Compulsory quarantine is not feasible 	<ul style="list-style-type: none"> • Develop guidelines and advice • Prepare templates for advisory notices • Work with WorkSafe New Zealand to engage employer cooperation • Work with the Ministry of Business, Innovation and Employment's infrastructure group on impacts on essential services, supplies and industries • Public health officers have processes and procedures (including forms) for implementing voluntary or mandatory quarantine.

Potential benefits	Limitations/consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
<i>Voluntary or mandatory quarantine: institutional (including hotel) quarantine – to identify infected individuals and break transmission cycle</i>		
<ul style="list-style-type: none"> • Manages potentially infectious individuals • Slows down and possibly delays infection transmission in a country • Ensures compliance with containment, health monitoring and illness reporting • Can be combined with other appropriate medical measures (treatments, isolation, testing etc) at onset of symptoms • Ensures rapid detection of new cases 	<ul style="list-style-type: none"> • Very resource intensive – human and financial • Logistically challenging and need to ensure provision of essential services (safe food, water, medicine and communication means, etc) • Political, ethical and possibly legal implications from confinement of large number of travellers (especially foreigners) • Potentially extremely stressful and disruptive for travellers • The need to manage the direct and indirect cost and negative consequence of institutional-based compulsory quarantine of international travellers can be very serious (including human right issue) • May cause concerns about financial loss to international travellers (eg, business people) and need to address compensation issues • Commercial facilities not secure enough for compulsory quarantine of non-compliant travellers • Facilities for special needs people 	<ul style="list-style-type: none"> • Develop guidelines and advice • Prepare templates for advisory notices • Work with employer organisations, unions and other relevant agencies to engage employer cooperation • Work with suppliers of essential goods and services to consider the impacts on these industries • Ensure arrangements with hotel chains, individual hotels (and other accommodation providers) for operation as quarantine facilities are in place • Prepare templates for requisitioning facilities, compulsory quarantine, etc • Consider establishing a ‘government’ quarantine facility • Public health officers have processes and procedures (including forms) for implementing voluntary or mandatory quarantine.

Appendix 3: Exit measures

Many of the measures mentioned in **Appendices 1** and **2** could also potentially be applied to aircraft, ships and travellers **leaving** New Zealand. Until recently, there was very limited information and evidence regarding specific exit measures. However, the 2014/15 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 a number of situations where exit measures could be considered or applied. The most likely times will be:

- when the public health emergency of international concern **originates** within New Zealand and/or the World Health Organization 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 ships and aircraft departing 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 World Health Organization 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 particular destinations).

Where possible, 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/sea port (eg, issuing travel advisories to people recommending they do not travel at all or to given destinations). Applying exit measures at the boarding gate/entry to the aircraft could be possible if absolutely necessary, but this would be most disruptive to travellers, airlines and airports and would come at a cost.

The Ministry of Health considers that, in most cases, exit measures should be implemented only on the recommendation of the World Health Organization or the request of the destination country and, in the latter case, in combination with that country also agreeing to apply entry measures. 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 World Health Organization 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 World Health Organization may recommend that affected countries screen departing travellers. Exit screenings may be conducted at sea and/or airports to identify sick travellers or travellers exposed to the disease or contaminant of concern and to delay them from boarding an airplane or ship 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 are separated and assessed further. This assessment determines 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.

Exit measure	Potential benefits	Limitations/ consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
Health advice and alerts for travellers	<ul style="list-style-type: none"> • Refer to Appendix 1(a) 	<ul style="list-style-type: none"> • Refer to Appendix 1(a) 	<ul style="list-style-type: none"> • Consider appropriate communication channels – eg, travel booking websites, liaison with tour and conference organisers, social media • Develop a memorandum of understanding for refund and/or rebooking with travel insurance, tour operators, accommodation providers, airlines, cruise lines, etc
Screening (including inspections on board exiting aircraft and ships, health declaration forms, visual screening, temperature screening, rapid laboratory investigations, certificate of vaccination)	<ul style="list-style-type: none"> • Refer to Appendix 1(b) 	<ul style="list-style-type: none"> • Refer to Appendix 1(b) 	<ul style="list-style-type: none"> • Include check-in and departure lounges • Consider mandatory questions for travellers at check in • Consider health screening, including temperature checks before check in and/or boarding • Consider transit and VIP travellers

Exit measure	Potential benefits	Limitations/ consequences	Action points (Actions required to prepare for implementing a measure, based on planning, readiness and debriefs from responses or exercises, etc)
International travel advisories	<ul style="list-style-type: none"> Refer to Appendix 1(c) 	<ul style="list-style-type: none"> Refer to Appendix 1(c) 	<ul style="list-style-type: none"> Consider appropriate communications channels Develop a memorandum of understanding for refunding and/or rebooking with travel insurance, tour operators, accommodation providers, airlines, cruise lines, etc Work with the Ministry of Foreign Affairs and Trade to develop criteria for issuing travel advisories Work with the Ministry of Foreign Affairs and Trade to ensure the <i>Safe Travel</i> website is updated
Travel restrictions, and potential border closures	<ul style="list-style-type: none"> Refer to Appendix 1(d) Some Pacific countries may request flights from New Zealand be stopped 	<ul style="list-style-type: none"> Refer to Appendix 1(d) Some departing travellers will be foreign nationals who will be seeking to return to their homes <ul style="list-style-type: none"> Immigration issues Travellers may not be able to afford to pay for extended accommodation Transit travellers may have unique issues Economic risks for countries of destination may outweigh public health risk 	<ul style="list-style-type: none"> Identify triggers for decision-making and for ensuring appropriate legislative provisions are in place
Passenger locator information	<ul style="list-style-type: none"> Refer to Appendix 2(a) 	<ul style="list-style-type: none"> Refer to Appendix 2(a) 	<ul style="list-style-type: none"> Internal borders may be relevant (ie, travel to points of departure)
Medical assessment	<ul style="list-style-type: none"> Refer to Appendix 2(b) 	<ul style="list-style-type: none"> Refer to Appendix 2(b) 	<ul style="list-style-type: none"> Ensure appropriate legislative provisions are in place
Isolation of symptomatic travellers	<ul style="list-style-type: none"> Refer to Appendix 2(d) 	<ul style="list-style-type: none"> Refer to Appendix 2(d) 	<ul style="list-style-type: none"> Requires further analysis dependent on the nature of the public health threat
Treatment	<ul style="list-style-type: none"> Refer to Appendix 2(e) 	<ul style="list-style-type: none"> Refer to Appendix 2(e) 	<ul style="list-style-type: none"> Ensure appropriate legislative provisions are in place
Contact tracing	<ul style="list-style-type: none"> Refer to Appendix 2(f) 	<ul style="list-style-type: none"> Refer to Appendix 2(f) 	<ul style="list-style-type: none"> Refer to Appendix 2(f)
Self-health monitoring and illness reporting	<ul style="list-style-type: none"> Refer to Appendix 2(g) 	<ul style="list-style-type: none"> Refer to Appendix 2(g) 	<ul style="list-style-type: none"> Refer to Appendix 2(g)
Quarantining exposed travellers	<ul style="list-style-type: none"> Refer to Appendix 2(g) 	<ul style="list-style-type: none"> Refer to Appendix 2(g) 	<ul style="list-style-type: none"> Refer to Appendix 2(g)

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