

What New Zealand Could Potentially Offer to Selected
Pacific Island Jurisdictions to Help Prevent the Spread of
Covid-19:
Commissioned Preliminary Report for the New Zealand
Ministry of Health

Prepared for the Ministry of Health

by

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NOTE

Although this report was correct at the time of writing, the information it presents may no longer be current because of continuing evolution of the COVID-19 pandemic and our understanding of it.

Unless otherwise indicated, peer review and full consultation with relevant agencies was not always possible in the timeframe available for producing this report.

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Abstract

This Report aims to identify potential interventions where New Zealand could offer to assist PICTs countries protect their populations from the emerging Covid-19 pandemic. In this Report we briefly describe the evidence of success historically in island jurisdictions keeping out pandemic influenza (including in the Pacific for pandemics in 1918 and in 2009). For the Realm jurisdictions (Tokelau, Niue, and Cook Islands) and those with strong New Zealand (NZ) links (Samoa, Tonga and Tuvalu), we detail current IATA data which shows a wide range of travel restrictions currently in place to prevent Covid-19 spread. But we also show that these jurisdictions typically have fairly minimal and outdated pandemic plans as well as relatively low scores on the Global Health Security Index. To help address these issues, and to prevent the spread of Covid-19 to these jurisdictions from NZ and elsewhere, we present a wide range of potential interventions that NZ authorities could offer. These interventions range from low-cost technical advice to more hypothetical interventions such as NZ support for regional protective sequestration zones. Given the rapid global spread of the Covid-19 pandemic, there is a short time-window to implement suitable interventions.

Background

As a high-income country in the South Pacific, New Zealand has responsibilities to offer help to Pacific Island jurisdictions during a pandemic threat situation. This is especially the case for those jurisdictions where there are constitutional links and the population are actually New Zealand citizens (Tokelau, Cook Islands and Niue). But this document also focuses on those states that have historically had a close association with New Zealand: Samoa, Tonga and Tuvalu (as requested by the client agency – the Ministry of Health). These jurisdictions have relatively low populations (all under 200,000) and some have low incomes (Table 1). This Report aims to identify what New Zealand assistance might offer to these jurisdictions in the “keep it out” and “stamp it out” phases.

Given the rapid global spread of the Covid-19 pandemic, there is a short time-window to develop, consult on, prioritise and implement suitable interventions. The evidence-base to help in the design and assessment of interventions to reduce the impact of this pandemic is expanding rapidly. For example, the recent WHO-China Report¹ on Covid-19 in China contains a wealth of information about the impact and control of the pandemic in that country, which still has had a majority of the global cases (as of 6 March 2020). Points of

particular relevance are the relatively low severity of disease in children and young people but high case fatality in those with chronic diseases (13.2% for those with cardiovascular disease, 9.2% for diabetes, 8.0% for chronic respiratory disease). This WHO-China Report also identified that most transmission occurred in the household setting. A positive finding was the apparent relatively high effectiveness of basic public health control measures of case isolation and contact quarantine in managing this epidemic in China.

Table 1: Population, income and life expectancy data for the six jurisdictions covered by this Report (Source: WHO country data: <https://www.who.int/countries/en/#C> unless indicated otherwise)

Jurisdiction	Population (2016)	Gross national income per capita (PPP international \$, 2013)	Life expectancy at birth (years, 2016)	
			Male	Female
Cook Islands	17,000	Recently over the threshold of \$12,236 ie, "high income"	NA	NA
Niue	2,000	NA	NA	NA
Samoa	195,000	4,840	72	78
Tokelau	1,285 (Census)			
Tonga	107,000	5,450	70	76
Tuvalu	11,000	5,990	NA	NA

* The Cook Islands is now classified as a high-income country (<https://www.economist.com/asia/2018/07/21/why-the-cook-islands-fears-rich-country-status>)

New Zealand has already (as of 5 March 2020) begun to offer assistance to Pacific nations. The following actions have been reported:²

“Foreign Affairs Minister Winston Peters announced on Wednesday that New Zealand will contribute \$1 million to a joint fund for the World Health Organisation's (WHO) Pacific regional coronavirus response plan, in partnership with Australia.

The New Zealand Government had also signed a contract with the Institute of Environmental Science and Research (ESR) for countries in the South Pacific to send samples of potential Covid-19 cases to ESR's laboratory in New Zealand for testing, free of charge, he said.

"In partnership with the WHO, New Zealand has deployed a team to Cook Islands to support Covid-19 preparedness, with further joint trips planned to Tokelau and Niue from next week," Peters said."

Method

IATA data on travel restrictions were collated for the six selected PICTs and online searches were conducted for any pandemic plans relating to each of them. Various literature searches in PubMed were conducted on 29 February 2020 for past research on pandemics and the Pacific.

Development of options was based on the authors' general knowledge of pandemic control (based on their research into the 1918 influenza pandemic, SARS, and the 2009 influenza pandemic). They have also had involvement with WHO in IHR work (MB) and have been in WHO meetings to discuss the role of border controls and the IHR (NW in 2019). The first author has worked in 10 Pacific Island Countries and Territories (PICTs) for WHO and the second author (VP) has spent his whole career working in health in the Pacific. Peer review of this work is anticipated from Ministry of Health colleagues.

Evidence for travel restrictions and pandemic control

There is systematic review evidence that air travel can spread influenza to new areas.³ Another systematic review in the *Bulletin of the World Health Organization* concluded that "Extensive travel restrictions may delay the dissemination of influenza but cannot prevent it."⁴ The most recent review published in 2020 identified stated that: "Some studies reported that travel restrictions could delay the start of local transmission and slow international spread, and one study indicated that small Pacific islands were able to prevent importation of pandemic influenza during 1918–19 through complete border closure."⁵

The 1918 influenza pandemic provides some examples of Pacific islands successfully keeping the disease out with protective sequestration (eg, American Samoa and New Caledonia).⁶ Border control for islands off the coast of North America was also successful ie, Yerba Buena Island, California⁷ and Shishmaref in Alaska.⁸ Maritime controls and road blocks also limited pandemic spread in the island nation of Iceland.⁹ But sheer geographic remoteness (and lack of ship visits) probably played some role in protecting some islands from the 1918 pandemic eg, Lau and Yasawa Islands (Fiji Group),⁶ Marajo Island (Brazil),⁸ St Lawrence Island (Alaska),⁸ and St Paul Island (Alaska).⁸ Isolation protected Niue, Rotuma (Fiji), Jaliut (Marshall Islands), and Yule islands (Papua New Guinea) in 1918, but then they experienced high mortality influenza epidemics (>3% of the population) following 1918.¹⁰

The 2009 influenza pandemic spread widely in the Pacific.¹¹ PICTs "started detecting pandemic H1N1 cases in June 2009, firstly in French Polynesia, with the last new detection occurring in August 2009 in Tuvalu." However, up to August 2010 "no confirmed pandemic H1N1 cases were identified in Niue, Pitcairn and Tokelau; the latter instituted strict maritime quarantine". This study also noted advances in surveillance in the Pacific: "For the first time, regional influenza-like-illness surveillance was conducted in the Pacific, allowing health authorities to monitor the pandemic's spread and severity in real-time. Future regional outbreak responses will likely benefit from the lessons learned during this outbreak."

Contemporary modelling work on travel volume restrictions to PICTs indicates that very large reductions would be required for protection,¹² ie, implying that complete bans might be required to ensure success. Another study of small islands reported that "quarantine at the borders of island nations could contribute substantially to preventing the arrival of pandemic influenza (or at least delaying the arrival date)."¹³ But in-country quarantine requires facilities that may be lacking in many PICTs.

Level of pandemic preparedness in PICTs

The Global Health Security Index (GHSI), first published in 2019, is a comprehensive, objective assessment of health security capabilities across 195 States Parties to the International Health Regulations (IHR). However, the range of GHSI scores for New Zealand’s Pacific neighbours is only 19.2/100 to 27.8/100 (see Appendix).¹⁴ In particular, Niue scored only 20.5/100 and the Cook Islands 20.4/100.

One indication of the suboptimal level of health security in the region has been recent measles outbreaks, notably in Samoa. The very high case fatality risk from measles in Samoa (relative to New Zealand) may also reflect reduced access to high quality hospital services. These outbreaks have probably created a further hazard in that immunity to other diseases appears to be depressed for some time in those individuals who have recently had measles. However, this issue might be less critical for children given that older adults have the highest risk of premature mortality with Covid-19 infection.¹⁵

Also of relevance is the impact seen with the 2009 influenza pandemic. “Pacific island countries and territories experienced significant morbidity and mortality, consistent with other indigenous and low-resource settings.”¹¹ At least for Pacific peoples in New Zealand, this population suffered from higher: prevalence of infection, hospitalisation rates and mortality rates when compared to those with NZ European ethnicity.^{16 17 18}

Past modelling work for pandemics in PICTs has been published,¹⁹ along with reviews of pandemic plans in Pacific nations.²⁰ However, such work is probably out-dated due to demographic changes and plan upgrades.

Current status of travel restrictions in selected PICTs

Table 2 shows that as of 29 February 2020 at least four of these selected PICTs were restricting travel from many other countries in response to the threat posed by Covid-19. Indeed, Samoa seems likely to have one of the most stringent travel restrictions in the world. Furthermore, effective on the night of 1 March, the Samoan Government ordered Air NZ to halve flights from New Zealand to Samoa.²¹

Table 2: Travel restrictions applying to the six selected PICTs in this Report (IATA data accessed on 29 February 2020*)

Jurisdiction	Full text from the IATA website	Comment
Cook Islands	Published 27.02.2020: “Passengers who have been in Cambodia, China (People’s Rep.), Chinese Taipei, Japan, Hong Kong (SAR China), Indonesia, Iran, Italy, Korea (Rep.), Lao People’s Dem. Rep., Macao (SAR China), Malaysia, Philippines, Singapore, Thailand or Viet Nam in the past 14 days are not allowed to enter Cook Isl.”	This list is far more comprehensive than NZ as of 29 February
Niue	Published 19.02.2020: “Passengers who have been in China (People’s Rep.) in the past 30 days are not allowed to enter Niue. This does not apply if they have stayed in a country with no confirmed cases of Coronavirus (COVID-19) for a period of minimum 14 days before entering Niue. They must have an official medical clearance undertaken within 3 days prior to arrival in Niue.	
Samoa	Published 28.02.2020: 1. Passengers who have transited through or have been in China (People’s Rep.), Chinese Taipei, Hong Kong (SAR China), Italy, Iran, Japan, Korea (Rep.), Kuwait, Macao (SAR China), Singapore or Thailand are not allowed to enter Samoa. They must have spent a period of 14 days in quarantine in a country that is free from Coronavirus (COVID-19).They must have	This appears to be one of the most stringent travel restrictions in the world at this time.

Jurisdiction	Full text from the IATA website	Comment
	medical clearance issued 3 days before arrival. The medical clearance must be a medical certificate issued by a registered medical practitioner. 2. Passengers who have transited through or have been in Australia, Canada, Chinese Taipei, France, Germany, Iran, Malaysia, Viet Nam, USA (California) or United Arab Emirates are not allowed to enter Samoa. This does not apply if they have a medical clearance issued 3 days before arrival. The medical clearance must be issued by a registered medical practitioner.”	
Tokelau	Not detailed on the IATA website.	Probably not detailed given the lack of air links
Tonga	Published 27.02.2020: 1. Passengers and airline crew arriving from or transiting through China (People's Rep.), Chinese Taipei, Hong Kong (SAR China) or Macao (SAR China) are not allowed to enter Tonga. This does not apply if they have stayed in a country with no confirmed cases of Coronavirus (COVID-19) for a period of minimum 14 days before entering Tonga. They must have an official medical clearance undertaken within 3 days prior to arrival in Tonga. - This does not apply to nationals of Tonga and their immediate family members. - This does not apply to permanent residents of Tonga and their immediate family members. - This does not apply to airline crew on direct flights from China (People's Rep.) who have been using appropriate personal protective equipment (PPE). 2. Passengers must complete a 'Traveler's Arrival Health Declaration Card' and submit it to the Ministry of Health Border Control when arriving in Tonga.	
Tuvalu	Not detailed on the IATA website.	

*IATA website. <https://www.iatatravelcentre.com/international-travel-document-news/1580226297.htm>

Current status of pandemic plans in selected PICTs

Table 3 shows the status of the online pandemic plans as of 29 February 2020 in the selected PICTs. Tuvalu appears to have no online pandemic plan, and the plan for Niue was quite brief. The plans were typically published in the 2006 to 2010 period, with a relatively strong focus on avian influenza (which was a particular concern prior to 2009). There was also no evidence of any upgrades in the light of the experience of the 2009 influenza pandemic (despite substantial advances in surveillance by PICTs¹¹). The jurisdictions with available plans all included some mention of border control options within the plan. Nevertheless, there appears to be scope for further detail and plan upgrades, including making the plans more generic (as opposed to just influenza).

Of note is that the New Zealand influenza pandemic plan states that “The New Zealand Government works closely with the governments of Tokelau, Niue and the Cook Islands to determine how best to help them with their preparedness and response to a pandemic.”²² Also: “The national reserve supplies of pandemic antibiotics are held in DHB stores and overseen by the Ministry, and include provisions for the Cook Islands, Niue and Tokelau.” Similarly these jurisdictions are covered in terms of New Zealand supplies of “stored sufficient needles and syringes, sharps containers and other vaccination equipment and supplies to mount a mass vaccination campaign covering the whole population.” The New Zealand plan also makes reference to these jurisdictions in the context of vaccinating (when vaccine available) frontline health workers. However, the New Zealand plan has no further

details relating to these three jurisdictions and nothing on how it might assist with border control measures or other actions in the “keep it out” or “stamp it out” phases.

Table 3: Existence of online pandemic plans for the six selected PICTs in this Report (as of 29 February 2020 using Google searches and the relevant WHO website:
<https://www.who.int/influenza/preparedness/plans/en/>)

Jurisdiction	Online plan exists? (Publication date)	Further details and brief comment
Cook Islands	Yes ²³ (2007)	The plan is focused on pandemic influenza and is fairly detailed at 38 pages. But it might be somewhat out-of-date as it was published in 2007 (ie, before the 2009 pandemic). It details various border controls – including restrictions on travel “from declared affected areas”. The plan refers to islands which “saved themselves” during the 1918 pandemic: “(American Samoa, Vanuatu, Tuvalu, Kiribati)”. See the main text above concerning what is covered for the Cook Islands in the NZ pandemic plan.
Niue	Yes ²⁴ (2010)	The plan is focused on pandemic influenza and is a 9 page section of the National Disaster Plan. There is a brief section on border control options including: “Full Closure of Air Border/Entry by Air”. See the main text above concerning what is covered for Niue in the NZ pandemic plan.
Samoa	Yes ²⁵ (2008)	Finding a functional online link to the plan involved extensive Google searches (eg, the link on the WHO website was non-functional). The plan is for pandemic influenza and is relatively detailed at 61 pages long. It refers to the full border closure option (both aircraft and shipping). As with many plans produced in this decade, there is quite a strong focus on avian influenza and poultry. This plan has, however, not constrained Samoa from taking strong travel restriction actions in response to Covid-19 (see Table 2 and a recent news report ²¹).
Tokelau	Only the NZ plan of 2017 ²²	Google searches only identify the NZ influenza pandemic plan – presumably due to Tokelau being a territory of NZ. Nevertheless, there is a brief mention of pandemics as a hazard in the Tokelau National Disaster Risk Reduction Plan. ²⁶ See also the main text above concerning what is covered for Tokelau in the NZ pandemic plan. Of note however, is that the lack of a specific plan for Tokelau did not prevent the use of successful maritime quarantine to stop the arrival of the 2009 influenza pandemic. ¹¹
Tonga	Yes ²⁷ (2006)	The plan is for pandemic influenza and is 30 pages long. It includes consideration of travel restrictions.
Tuvalu	No plan identified	The WHO website states: “No Plan or Plan not publicly available” (https://extranet.who.int/sph/influenza-plan-tuvalu). The online “Tuvalu National Strategic Action Plan for Climate Change and Disaster Risk Management 2012–2016”, does not cover pandemics.

Possible intervention options where NZ could offer to support PICTs

Table 4 below identifies a range of options for the “keep it out” and “stamp it out” phases. Further work could be considered for the subsequent phases (eg, support with health personnel and PPE provision etc). The options below range from highly feasible to more hypothetical (eg, protective sequestration for groupings of PICTs). Future work and consultation with PICT authorities could be done to expand on the details around the effectiveness and feasibility of any of these (or other) potential options.

Table 4: Potential actions that NZ could offer to support the “keep it out” and “stamp it out” phases in selected Pacific Island Countries and Territories (PICTs)

Possible intervention	Realm jurisdictions (a territory: Tokelau; 2 self-governing associated states: Cook Islands and Niue)	Other PICT jurisdictions with close links to NZ (Samoa, Tonga & Tuvalu)
<i>Possible action that NZ could offer</i>		
Intensify “keep it out” & then “stamp it out” pandemic control phases within NZ.	This action is good to do anyway for preventing health burdens in NZ. The relevance to Niue is particularly high – given air links are only with NZ.	
Offer to coordinate region-wide protective sequestration for groupings of PICTs (for as long as considered worthwhile) with NZ military surveillance of flights and maritime transport.	These 3 jurisdictions are geographically contiguous.	Along with the Realm jurisdictions, these 3 countries could form a geographically contiguous area covering all 6 jurisdictions.
Offer to quarantine in NZ just the returning nationals of PICTs (eg, 14 days).	Given the NZ citizen status of Realm jurisdictions – international legal requirements possibly necessitate this option for the NZ Government. A legal opinion could potentially assist here.	The numbers would be much larger in this group than for Realm jurisdictions.
Offer to quarantine in NZ any potential travellers to the relevant PICT (eg, 14 days before).		As above.
The above plus exit screening by health personnel at airports (at least for fever and obvious symptoms).	The efficacy of such exit screening is probably very low* but it may still be worthwhile especially if pre-travel quarantine is not used.	
Discontinue routine flights from NZ to the relevant PICT (if requested and by mutual agreement).**	Especially relevant to Niue where flights are only from NZ. Tokelau has no air links – only a ship connection with Samoa.	Such an action with Samoa would also help to protect Tokelau. The Samoan Government has already reduced flights from NZ to Samoa in March 2020. ²¹
If routine flights were completely discontinued as above, then to plan for special cargo or military flights to provide essential medical supplies .	However, if NZ was suffering in an epidemic – the NZ Defence Force may have competing demands.	As per the Realm jurisdictions.
<i>Action in the relevant Pacific jurisdiction that NZ could offer to support</i>		
Offer in advance technical expertise for pandemic plan upgrades (including border controls and identification of additional options for culturally appropriate social distancing and adapting “home quarantine” and “home isolation” to a local island context – if indeed it is appropriate at all).	This could include boosting components of the NZ pandemic plan where it covers these Realm jurisdictions. (See the Introduction which notes the NZ plans for NZ Team visits in March 2020).	There could be economies-of-scale benefits if NZ stockpiles (eg, of personal protective equipment) were expanded to assist these jurisdictions.

Possible intervention	Realm jurisdictions (a territory: Tokelau; 2 self-governing associated states: Cook Islands and Niue)	Other PICT jurisdictions with close links to NZ (Samoa, Tonga & Tuvalu)
Offer to support expanded surveillance and diagnostic capacity in PICTs.	Actually this appears to be already happening (ie, the offer of free transport of specimens to ESR's laboratory in NZ). ²	As per the Realm jurisdictions.
Advance planning around isolation facilities for initial cases (as part of a "stamp it out" phase).	Planning could identify hotels or other buildings that could be repurposed. The NZ Defence Force could potentially help build temporary structures.	As per the Realm jurisdictions.
Advance planning around a safe haven approach for specific Pacific Islands eg, temporarily and voluntarily relocating particularly vulnerable people to specific islands within PICTs where protective sequestration is considered most manageable.	May not provide much advantage for small Realm countries.	May be particularly suitable for countries like Samoa and Tonga where there are many inhabited islands.

* The effectiveness of exit screening for Covid-19 is likely to be fairly low given that mild illness is very common in Covid-19 cases (80% of symptomatic cases as per a large Chinese study¹⁵). Indeed, the WHO states that: "Temperature screening alone, at exit or entry, is not an effective way to stop international spread". But "For countries which decide to repatriate nationals from affected areas, they should consider the following to avoid further spread of COVID-19: exit screening shortly before flight;..." (https://www.who.int/ith/2019-nCoV_advice_for_international_traffic-rev/en/).

** This option is already envisaged in NZ's pandemic plan: "some Pacific countries may request flights from New Zealand be stopped".²⁸

Limitations of this Report and possible next steps

Because of the time and staff pressures around developing this Draft Report (and several other reports) in response to the Covid-19 pandemic, it was out-of-scope for us to consult with key agencies. A critical step is to now for the NZ Ministry of Health to consider providing feedback on this Draft Report so that we can refine the range of feasible and desired options. Then the Ministry of Health or other relevant agencies (Ministry of Foreign Affairs and Trade) could engage directly with the selected PICT Governments themselves to further clarify any jointly agreed way forward.

Conclusions

Given the rapid global spread of the Covid-19 pandemic, there is a short time-window to develop, consult on, prioritise and implement suitable interventions to assist PICTs protect their populations from this serious emerging disease. Fortunately, there is evidence of success historically in island jurisdictions keeping out pandemic influenza (including in the Pacific for pandemics in 1918 and in 2009).

For the six jurisdictions covered by this Report, we detail current IATA data which show a wide range of travel restrictions currently in place to prevent Covid-19 spread. But we also show that these jurisdictions typically have fairly minimal and outdated pandemic plans as well as relatively low scores on the Global Health Security Index. To help address these

issues, and to prevent the spread of Covid-19 to these jurisdictions from New Zealand and elsewhere, we present a wide range of potential interventions that New Zealand authorities could offer. These range from low-cost technical advice to more hypothetical interventions such as New Zealand support for regional protective sequestration zones.

Appendix

Table A1: Global health security index (GHSI) scores of selected PICTs and rank out of 195 countries¹⁴ *

Rank in the world	Sovereign South Pacific nation	GHSI Score	Comment
4	Australia	75.5	
35	New Zealand	54.0	
(85-86)	Global average	40.2	
155	Papua New Guinea	27.8	
162	Samoa	26.4	Jurisdiction discussed in this Report
165	Vanuatu	26.1	
168	Fiji	25.7	
171	Tonga	25.1	Jurisdiction discussed in this Report
181	Tuvalu	21.6	Jurisdiction discussed in this Report
182	Nauru	20.8	
183	Solomon Islands	20.7	
184	Niue	20.5	Realm jurisdiction discussed in this Report
185	Cook Islands	20.4	Realm jurisdiction discussed in this Report
189	Kiribati	19.2	

* We note that the GHSI is fairly demanding (Boyd et al, submitted manuscript), especially for small low-income countries. Therefore, it might be extremely difficult for them to ever achieve a high score. Nevertheless, the current scores do indicate genuine substantive scope for feasible improvement.

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