Containment and Mitigation Plan
Coronavirus Disease 2019 (COVID-19)

December 2020

Te Marae Ora

Cook Islands Ministry of Health

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1 Introduction

The Coronavirus Disease 2019 (COVID-19) pandemic caused by the SARS-CoV-2 virus continues to accelerate exponentially in many countries. Large and small economies have faltered, many people have died, and some survivors report experiencing what is described as 'long covid' post illness complications involving most body systems, the brain – strokes, dementia, heart – arrests or failure, lungs, kidney and liver failure.

The Cook Islands Emergency Response to COVID-19 (March 2020) has evolved and developed due to the knowledge gained from international health systems and successful health and societal systems' responses. Infection prevention and control measures, in particular, non-pharmaceutical interventions (NPI) have been the cornerstone preventative measure implemented in 2020. This will continue beyond the period when effective vaccines and therapeutics become available to the Cook Islands population. Surveillance activities including laboratory testing for COVID-19 helped guide decisions regarding border restriction measures beginning 31 January 2020 until 25 March 2020 when the Cook Islands border was closed to international travellers. Following the declaration of the Cook Islands as a COVID-19 free zone on 16 April 2020, travel exemptions have been provided to returning Cook Islanders and permit holders.

Good public health measures can help in the recovery of the Cook Islands economy. With growing confidence in the preparedness, readiness and response activities undertaken, the national response is gradually shifting to focus on the social and economic recovery of the Cook Islands. This coincides with plans to establish a quarantine free travel arrangement between the Cook Islands and New Zealand. Key to the success of this arrangement is a plan that pulls together the various strands of preparedness and readiness work, as well as response measures to contain, mitigate and eliminate COVID-19 cases should they arise. This requires careful planning as the country moves closer to the time when proven vaccines and therapeutics become available in 2021.

2 Purpose

To outline Te Marae Ora's Cook Islands Ministry of Health (Te Marae Ora) health and community systems readiness and response operations for COVID-19 scalability to containment and mitigation. This is an essential component of the Cook Islands Emergency Response Plan to COVID-19 to keep out, control, and eliminate COVID-19 in the Cook Islands.

3 Legislative Framework

Several legislative documents guide the national response to COVID-19.

- Public Health Act 2004
- International Health Regulations (IHR) 2005
- Disaster Risk Management Act 2007
- Ministry of Health Act 2013
- Ministry of Health (IHR Regulations Compliance) Regulations 2014
- COVID-19 Act 2020

4 The epidemiology of COVID-19

SARS-CoV-2, is mostly transmitted through the following modes: (1) Large droplet spread; (2) Transmission through aerosolised spread (for example coughing, sneezing); (3) Contact – direct or indirect – with respiratory secretions (for example contaminated surfaces). Recent reports of a highly transmissible strain (50%) is of concern. The incubation period (time between infection and onset of symptoms) is estimated to be 14 days, however, this could extend to 28 days. While some cases are asymptomatic, virus transmission is thought to occur during the pre-symptomatic and asymptomatic period. For the majority of cases: 80% are mild, 5 to 15% may or may not require hospitalisation, while 5% usually require ventilation in intensive care unit settings. Post illness complications of long COVId-19 are a concern.

5 The Cook Islands Emergency Response Plan to COVID-19 (March 2020)

The purpose of the National Emergency Response Plan to COVID-19 (Annex 1) was to mitigate the impact of COVID-19 on the health, social and economic status of the Cook Islands population. The response focused on robust measures to support the rapid identification, containment and management of imported cases, and health system preparedness.

5.1 National Leadership and Governance

The whole of society and nationwide emergency response to COVID-19 was led by the Prime Minister along with the Minister of Health, Cabinet, and Parliament. (Annex 2) Critical intelligence and planning entities such as the National Disaster Risk Management Council, Central Agency Committee, and the National Health Emergency Taskforce (NHET) provided advice to Cabinet.

Other stakeholders who have remained involved in the implementation of the national response include: House of Ariki (Traditional Leaders); Religious Advisory Council; Government Agencies; Non-government Organisations; Rarotonga and the Pa Enua Puna; Disaster Risk Management Committees; Other Community-based Committees, International Partners and the Private Sector.

5.2 Incident management, planning, administration and coordination

The NHET was activated in January 2020. Chaired by the Secretary of Health, recommendations from the NHET were presented to the Minister of Health and Cabinet Ministers.

The National Incident Management System (NIMS) and Health Incident Management System (HIMS) were activated in February 2020 and stood down on 05 May, shortly after the Cook Islands was declared COVID-19 free on 16 April 2020. Te Marae Ora Executive continue to lead the health response, while concurrently overseeing the delivery of business as usual health services.

The frequency of emergency response meetings are reduced and all those seconded to Te Marae Ora and other emergency response agencies have returned to their usual workplace. NHET meetings are held monthly.

5.3 Health systems strengthening

Plans published in May 2020 reflected developments in health and border systems strengthening:

1. Easing Border Restrictions (EBR) Plan; and
2. Critical Preparedness, Readiness and Response (CPR) Plan.

The aim of the EBR Plan was to outline Te Marae Ora's actions regarding the phased and safe easing of border restriction measures while minimising public health risks to Cook Islands residents and visitors. The EBR Plan included a border control matrix designed to inform decisions, based on the disease transmission patterns in the country from which passengers would be arriving. The CPR Plan described Te Marae Ora's health systems strengthening measures, in order to be in a position of readiness to respond effectively and to mitigate the threat and impact of COVID-19.

5.4 Border control measures and the economy

The earlier part of the national emergency response to COVID-19 focused heavily on border closures, giving time to strengthen in-country health systems processes. The Cook Islands is one of few Pacific countries to provide a variety of travel exemptions that has facilitated entry to the Cook Islands for Cook Islands residents and permit holders, while keeping COVID-19 at bay.

The following border measures have been implemented in the Cook Islands. (Table 5.1)

Table 5-1: Cook Islands border control measures according to disease transmission patterns in NZ

NZ disease transmission	NZ Alert Level	Cook Islands Border measures	Travel advisory (Closed Border)
First case Feb 28 Community transmission	NZ Level 3 – March 23 NZ Level 4 – March 25 NZ Level 3 – April 27 NZ Level 2 – May 13 NZ Level 1 – June 8	**SQMC (NZ, Cook Is.) travel from May 16** Repatriation: 260 PAX, May 16, 23, 30. SQMC – Holiday Inn (AKL) 14 days, test Day 5, Day 12, SQMC Edgewater Hotel 14 days, Day 6, Day 13	Exemptions for Cook Islanders and work permit holders
No new cases, May 1	NZ Level 1 – June 8	Border closed after May 30	Border closed
		Quarantine free travel from Jun 20 Weekly flights = eight	Exemptions for Cook Islanders and work permit holders
AKL Cluster, Aug 11 n=179, deaths = 3, last case Sep 27	AKL – L-3 Aug 12, NZ L-2 AKL – L-2.5 Aug 30, NZ L-2 AKL – L-2.5 Sep 21, NZ L-1 AKL – L-2 Sep 23, NZ L-1 AKL – L-1 Oct 7, NZ L-1	Border closed after Aug 8	Border closed
Post 14 days MIF arrivals from India, n=2 Oct 2, Oct 15	AKL – L-2 Sep 23, NZ L-1 AKL – L-1 Oct 7, NZ L-1	**SQMC (Cook Is.) travel from Sep 5** NZ exit test, health clearance SQMC 14 Days Raro, test Day 6, Day 13, 24/7 monitoring Weekly flights = eight 9th flight due to depart AKL Oct 31	Exemptions for Cook Islanders and work permit holders
Tauranga Ports 17 Oct n=4, last case 22 Oct	NZ Level 1 – Oct 7		
MIF arrivals Russia/Ukraine, 235 fisherman n=29, last case 26 Oct	NZ Level 1 – Oct 7		
MIF arrivals incursions ongoing Nov-Dec	NZ Level 1 – Oct 7	Quarantine free travel from Oct 31 Weekly flights	

Although border measures have kept COVID-19 out, the social and economic consequences have been severe. Job losses particularly in the hospitality industry have resulted in some returning to subsistence and commercial fishing and farming largely supplying the domestic market. The transition from a tourist and consumerism-driven economy to a producer-driven agri-tech economy has been a necessary reality. Fundamental to the sustainable recovery of the Cook Islands economy is the rapid transition to innovative diversified economic portfolios that are inclusive and grow resilient industries and communities.

Clearly, easing border restrictions is necessary to resuscitate the economy however, this process requires a clear understanding of the disease transmission patterns in countries where travellers are originating, the availability of exit/entry screening and testing for travellers, health systems preparedness and readiness to respond to any threat, the community's acceptance of the proposed measures, compliance with human rights principles, and the public's ability to maintain public health measures including physical distancing.

5.5 Critical preparedness, readiness and response strengthening

While border measures and travel exemptions have been in place, Te Marae Ora has focussed on strengthening health and community systems. In general this work has included the following key areas:

- Country-level coordination, planning and monitoring
- Incident management, planning, administration and coordination
- Non pharmaceutical public health measures, including physical distancing, at points of entry
- Enhanced surveillance and testing regimes
- Establishment of risk assessment, rapid response teams and case investigation
- Risk communication and community engagement
- Domestic travel considerations
- Essential health services
- Infection control and prevention (IPC) and Personal Protective Equipment (PPE)
- Mental health and psychosocial support
- Laboratory services
- Operational logistics
- Case management and clinical preparedness
- Patient care pathways and health care delivery
- Health care costs and financial protection

An important strategy has been to administer 5,000 influenza vaccines to border/frontline personnel, as well as older and vulnerable persons (33% population coverage). High child immunisation coverage >95% has provided additional protection against vaccine preventable diseases. Existing vaccine distribution mechanisms will be important when the COVID-19 vaccine becomes available tin 2021.

5.6 Risk communication and community engagement

Te Marae Ora along with other government agencies continues to inform and engaged the community on COVID-19. This involved establishing a COVID-19 website and Facebook page to share information on the national response along with developed information and education resources highlighting the public health measures people needed to take to protect themselves and their families. Tele-meetings via Zoom have helped connect populations so that communication with various community groups on Rarotonga and the Pa Enua could continue.

Te Marae Ora continues to maintain regular engagement with communities through decentralised health services on Rarotonga and weekly tele-zoom meetings with the Rarotonga Puna and Pa Enua.

6 The Re-orientation of Te Marae Ora Health Services

In the past two years, there has been focused attention on lifting the Cook Islands health system and quality of services in order to achieve universal health coverage. This is necessary in light of the four existential threats facing the Cook Islands; COVID-19, the non-communicable diseases epidemic, climate change and anti-microbial resistance.

6.1 Health system improvements

Te Marae Ora has invested substantial improvements across the health system. This has included the revision of clinical, public health, health management protocols, guidelines, plans, standard operating procedures and upskilling and training of the health and border workforce and general population on IPC and PPE. Strengthened IPC protocols and procedures as well as the stockpiling and enhanced distribution networks and pre-positioning of PPE (masks/gloves) in Rarotonga and Pa Enua health facilities have been critical to ensure the health system is ready to respond.

Acknowledging the value and importance of a skilled, competent and adequately remunerated workforce, the development of a new health professionals pay structure and 12 health career pathways: health protection, health promotion, mental health, oral health, medical practitioners, nursing, laboratory, pharmacy, radiology, biomedical, physiotherapy, paramedics with pay parity adjustments has been critical to benchmark workforce development plans.

Government is supporting significant capital projects (PCR lab, CT scan, Oxygen plant, ICT). The ICT upgrade to infrastructure, hardware and software (including a new patient information management system (PIMS), Laboratory information management system (LIMS) and Picture Archiving Computer (PAC) system for radiological imaging are critical to inform clinical management.

6.2 Organisation Restructure and Universal Health Coverage

The organisation restructure of Te Marae Ora (Annex 3) beginning mid-2018 was designed to ensure a more efficient clinical decision-making process in both hospital and community settings and to reorient the health system and service delivery model to focus on primary health care and preventive community based health services.

Phased over time, the November 2020 structure seeks to achieve universal health coverage through the shifting of health and human resources to community settings thus placing preventative and primary health care services closer to people. Secondary and tertiary level services continue to be provided in hospital settings and are complemented by visiting specialists to Rarotonga and the Pa Enua, and/or referral of patients to the New Zealand health system.

The new structure includes the establishment of 0.2 FTE chief medical officer and chief nursing officer advisory roles to the Secretary of Health as well as nurse manager positions in hospital, community services, and planning and funding directorate. Mental health services have expanded and are currently positioned under the Public Health Directorate to develop before lifting out into a separate Directorate. The recent graduation of two doctors with the Cook Islands General Practitioners Fellowship adds to the primary care workforce capacity development.

6.3 Decentralising the health system

The national emergency response included the opening of the coughs and flu clinic on 03 February 2020 and the setting up of 10 pre-determined Rarotonga Puna – local district emergency operating centres (EOCs) as part of the disaster risk management response. Limited public health nurse-led health services were provided in each of the 10 Puna EOCs on Rarotonga, in preparation for the detection of COVID-19 cases requiring a public health response. (Annex 4) The EOC's remain on standby for a COVID-19 outbreak as well as cyclone or other national disaster or emergency.

As part of the health response to COVID-19, the decentralisation of the health system (while already considered in earlier plans to lift the health system), occurred at pace. In March 2020. Rarotonga hospital-based Out-Patients and Emergency Department (OPED) services moved to Tupapa

community clinic in order to secure a 32 bed isolation ward (Te Kou) at Rarotonga hospital and to protect sick hospital in-patients. The Surgical ward was moved to the space previously occupied by the hospital-based OPED services, and out-patient specialty clinic services were limited further to control visitor and patient traffic through the hospital facility.

Road and parking space upgrades at the Tupapa-based OPED has increased physical access to the facility. Refurbishment of the OPED facility includes improved waiting room space, doffing and donning rooms and IPC patient flow, supported by a standalone tent to assess suspected COVID-19 cases. During usual work hours, a designated general practitioner receives phone consultations and triages/manages patients. This limits face-to-face interactions and reduces patient volumes to OPED, so staff can focus on patients requiring urgent or emergency services e.g. cardiac arrests, strokes.

6.4 Establishment of the Community Health Clinics

Following the declaration of the Cook Islands as a COVID-19 free zone in April 2020 and the subsequent redirection of health resources to border control measures, the utility of maintaining EOC facilities and functions diminished. However, the merits of providing health services in Puna settings and closer to populations was recognised, in particular the goal of achieving universal health coverage. This resulted in the further decentralisation of the health system securing permanent health facilities and services in each of the 10 Puna on Rarotonga. Critical to the design and planning of this initiative was the inclusion of community leaders that included traditional and religious leaders.

Key factors considered were:

1. For health systems to promote universal health coverage
2. Focus on preventative and primary health care
3. Enhance community development and empowerment for better population health outcomes
4. Establish community-based facilities to contain a COVID-19 outbreak within the Puna
5. Provide alternative facilities should Rarotonga hospital/Tupapa OPED facilities not be available
6. Health facilities to be climate change resilient and Water, Sanitation and Hygiene equipped
7. Expand health workforce by recruiting community health workers from within the Puna

Since July 2020, primary health care services have been provided through 10 community health clinics in each Puna on Rarotonga, two of which are using mobile bus services for their doctor visits. The clinics are staffed by nurses, community health workers, with weekly doctor visits, and include oral health and mental health services. Pharmaceutical (medicines) and IPC/PPE stocks are delivered to each clinic during the week. Government funds have refurbished three clinics. Plans are progressing to secure funds to refurbish the remaining clinics.

The formalising of partnerships with Community Health Clinic leads within the Rarotonga Puna has been undertaken through Arrangements of Health Co-operation (AOC) between the leads and Te Marae Ora. The AOCs have an annual workplan outlining the objectives and health outcomes sought.

6.5 For the Future - Primary Health Care Centre of Excellence

Although discussed and planned in the pre-COVID-19 period, Te Marae Ora lacks resources to establish the primary health care centre of excellence at the Tupapa community clinic. This centre will be a one-stop facility hosting a holistic primary care service alongside traditional medicine services that will complement conventional health services. The suite of services would enlarge existing community-based services providing a range of primary and secondary care services that include care for vulnerable populations - youth, elderly, disabled persons.

7 The COVID-19 Containment and Mitigation response framework

The International Health Regulations Emergency Committee has recommended that countries prepare for containment including active surveillance, early detection, isolation and case management, contact tracing and quarantine to prevent the onward spread of infection (locally, internationally), and to share full data with WHO.[1]

7.1 Objectives

The objectives of the Cook Islands Containment and Mitigation framework are:[2]

- Containment of the outbreak by slowing and stopping COVID-19 transmission, prevention of outbreaks and spread and elimination of the disease;
- Mitigation of the effects of an outbreak through reducing preventable morbidity and mortality, minimising negative health, social and economic impacts and facilitating early recovery;
- Access to current science, technical guidance, clinical care, equipment and supplies to reduce preventable morbidity, mortality and adverse social and economic impacts;
- Safe health workers through access to the knowledge, skills and resources required for safe practice, including access to PPE and optimal IPC practices; and
- NPIs, risk communication and community engagement as key COVID-19 transmission 'circuit' breakers.
- Efficient roll out of the COVID-19 vaccine in 2021 accompanied with the establishment of an adverse events following immunisation register

7.2 Principles of disease control and elimination[3]

It is important to define the outcomes sought by Te Marae Ora. Control refers to the reduction of disease incidence, prevalence, morbidity or mortality to a locally acceptable level as a result of deliberate efforts; continued intervention measures are required to maintain the reduction. Example: diarrhoeal diseases. Elimination of disease refers to the reduction to zero of the incidence of a specified disease (COVID-19) in a defined geographical area as a result of deliberate efforts; continued intervention measures are required. Example: neonatal tetanus. Elimination of infection refers to reduction to zero of the incidence of infection caused by a specific agent in a defined geographical area as a result of deliberate efforts; continued measures to prevent re-establishment of transmission are required. Example: measles, poliomyelitis. Eradication refers to the permanent reduction to zero of the worldwide incidence of infection caused by a specific agent as a result of deliberate efforts; continued measures to prevent re-emergence and re-establishment of transmission. Example: smallpox. Extinction refers to the specific infectious agent no longer existing in nature or in the laboratory. There is no example.

7.3 Evolution of the COVID-19 Emergency Response Framework

Recalling the Emergency Response plan from March 2020, there were three stages, four codes and four phases. With new information regarding the behaviour of the SARS-CoV-2 virus and COVID-19 disease, the emergency response framework has evolved.

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[1] *WHO COVID-19 Pacific Health Sector Support Plan, Phase 2 Plan Containment and Mitigation, 2020*

[2] *WHO Western Pacific Regional Action Plan for Response to Large-scale Community Outbreaks for COVID-19, 2020*

[3] Adapted from - Dowdle WR. The principles of disease elimination and eradication. Bull World Health Organ 1998;76 Suppl 2:23-5.

The COVID-19 Emergency Response framework now includes an additional Stage (Readiness Action) and Code (Magenta) to address the potential resurgence of cases or waves of cases when lockdown (Code Red) eases. The framework identifies four stages, five codes and five phases and respective thresholds and triggers. (Table 7.1)

Table 7-1: Emergency Response Framework

STAGES	CODE	PHASE	THRESHOLDS & TRIGGERS
Initial Action Stage	**Blue**	**Preparation and Readiness** Delay entry of disease	Disease is severe and spreads easily from person to person but is occurring outside the Cook Islands. Measures focus on delaying entry of the disease through hand washing, cough etiquette, use of face masks, and physical distancing. Minimal disruption to society such as travel advisories and restrictions. Reducing business as usual.
Targeted Action Stage	**Yellow**	**Alert** Delay widespread disease transmission	Disease is severe AND spreads easily from person to person, but the disease is not spreading widely in the Cook Islands and is being contained. Moderate disruption to society such as quarantine and isolation.
	Red	**Activation** Contain and Mitigate impact of disease	Disease is severe AND is spreading widely. The health system is unable to cope with the situation. Major disruption to society such as school closures, work from home notices and disruption of law and order in the community.
Readiness Action Stage	**Magenta**	**Post-peak** Anticipate resurgence or additional waves	Disease is severe AND spreads easily from person to person but there is a reduction in cases or COVID-19 has been eliminated, and there is anticipation in a resurgence or wave of cases as control measures relax. Active surveillance systems. Minimal to moderate disruption to society.
Stand-down stage	**Green**	**Post-event** Recovery	Disease is severe AND spreads easily from person to person however the disease threat is declining or eliminated due to the availability of vaccines +/- therapeutics, and can be managed under normal business arrangements**.** Transition from emergency response to business as usual.

7.4 The COVID-19 Response Framework and Targeted Interventions

Within each of the action stages are targeted interventions under the following functions: governance and legislation; surveillance and intelligence; border measures; resources and logistics; communication and consultation; health critical care and public health management; and social welfare and support. (Table 7.2)

Table 7-2: COVID-19 response framework and targeted interventions

FUNCTIONS	Initial Action Stage	Targeted Action Stage		Readiness Action Stage	Stand-down Stage
	Code Blue	Code Yellow	Code Red	Code Magenta	Code Green
Governance and Legislation	• Emergency governance arrangements – NDRMC, NHET, NRE • COVID-19 declared transmissible notifiable condition and dangerous condition • Activation of Health Emergency Operations Centre and Incident Management System (IMS) • Activate IHR reporting requirements	• Assess and advise on declaration of State of Emergency • Convene NDRMC, NRE and NHET • 24/7 coverage of National Emergency Operations Centre • Possibility of Parliament convening urgently to pass relevant legislation	• Declaration of State of Emergency • Emergency response fully activated • Circumstances to allow Parliament to extend a public health emergency • Police to maintain law and order	• Assess and advise on declaration of State of Emergency • Convene NDRMC, NRE, NHET	• No longer State of Emergency • Debriefing sessions – NDRMC, NRE, NHET and IMS
Surveillance and Intelligence	• Activate national capacity for disease surveillance and containment • Air/sea/land traffic surveillance • Weather reports • Monitor official and non-official reports	• Monitor and analyse information • Monitor flu-like symptoms presenting at clinics • Community surveillance • Testing lab samples overseas • Monitor official and non-official reports	• Intensify surveillance • Monitor all surveillance systems • Community surveillance • Testing lab samples overseas • Monitor official and non-official reports	• Intensify surveillance at POE • Sentinel populations • ILI/SARI surveillance • Test selected ILI/SARI samples to identify undetected virus circulation • Laboratory surveillance • EBS	• Review/evaluate surveillance systems • Monitor official and non-official reports • Update protocols

FUNCTIONS	Initial Action Stage	Targeted Action Stage		Readiness Action Stage	Stand-down Stage
	Code Blue	Code Yellow	Code Red	Code Magenta	Code Green
				• Test hospital admissions with respiratory presentations • Test all contacts • Conduct targeted testing for high-risk individuals and settings	
Border Measures	• Monitor incoming passengers for signs/symptoms • In-flight, airport and maritime announcements • Liaise with airlines/shipping operators • Assess entry to the Pa Enua • Health declaration and travel history • Early travel restrictions (quarantine) to delay entry	• Assess travel restrictions and revise • Health declaration and travel history • Assess entry to the Pa Enua • Cargo staging areas to minimise interactions between cargo handlers at ports and workers in country • Strict infection control procedures observed and regular decontamination • Provide logistical assistance to repatriate foreign nationals	• Assess travel restrictions and revise • Assess entry to the Pa Enua • Maintain cargo staging areas to minimise interactions • Strict infection control procedures observed and regular decontamination • Provide logistical assistance to repatriate foreign nationals	• Monitor incoming passengers for signs/symptoms • Assess travel restrictions and advise e.g. test before travel +/- quarantine on arrival • Health declaration and travel history • Assess entry to the Pa Enua • Maintain cargo staging areas to minimise interactions • Strict infection control procedures observed and regular decontamination • Provide logistical assistance to repatriate foreign nationals	• Review travel restrictions and revise • Transition airlines/shipping operators back to normal business arrangements • Update in-flight, airport and maritime announcements
Resources and Logistics	• Stockpile of personal protective equipment (PPE) e.g. face masks, hand gel, full gear • Health system capacity e.g. isolation areas, flu	• Assess stockpiles of PPE in case of shortages • Additional resources and finances mobilised as needed • Monitor health system capacity and establish	• Transition to standby accommodation for isolation if full capacity is reached in health facilities • Additional resources mobilised • Emergency funds mobilised	• Transition to standby accommodation in communities if hospital capacity is reached • Additional resources mobilised • Emergency funds mobilised	• Assess the status of stockpiles e.g. PPE, medicines, consumables, food • Replenish stocks as appropriate • Update plans and protocols

FUNCTIONS	Initial Action Stage	Targeted Action Stage		Readiness Action Stage	Stand-down Stage
	Code Blue	Code Yellow	Code Red	Code Magenta	Code Green
	clinics, HDU/ICU capability • Standby accommodation and infection control providers • Secondment of public servants • Capacity to maintain essential services • Prepare to transition from business as usual to emergency response • Review financial mechanisms to support business continuity and response	triggers if full capacity is reached • Health professionals on standby as needed • Maintain essential services (food, water, energy, waste disposal, mortuary services, financial services, law enforcement, ICT, transport, infrastructure)	• Reassess HDU/ICU capability • Maintain essential services	• Assess stockpiles of PPE in case of shortages • Maintain essential services	• Transition essential services to normal business arrangements/operations • Activate business continuity plans
Communication and Consultation	• Central communications hub and strategy • Resilient ICT e.g. email, remote access, internet • Liaise with international counterparts • Liaise with private sector and community stakeholders • Internal communications e.g. situation reports, memos • Health line details • Advice on cough etiquette, hand-	• Maintain cough etiquette, hand-washing, stock up on non-perishable items as needed • Stay up-to-date with health advice • Health line details • Advise those with the virus to take all measures to prevent infecting others • Advise those at risk to take precautions to avoid infection • Advise those who suspect they have the virus to call a medical practitioner/hospital/clinic	• Urge communities to maintain social distancing • Request voluntary compliance to isolation/quarantine as needed • Continue to advise on cough etiquette, hand-washing • Urge those with virus to take all measures to prevent infecting others • Urge those at risk to take precautions to avoid infection • Urge those who suspect they have the virus to call a medical practitioner/hospital/clinic	• Encourage compliance with recommended public health measures • Conduct monitoring activities and address issues as they emerge e.g. use of unverified treatments or reports of people avoiding health facilities • Request compliance isolation/quarantine • Urge those with virus to take all measures to prevent infecting others	• Notify public services will resume to normal business arrangements • Monitor feedback and refine risks communications • Acknowledge the community and other partners for their cooperation • Activate destination recovery programme through marketing • Advice and information to prevent stigma, discrimination and harassment

FUNCTIONS	Initial Action Stage	Targeted Action Stage		Readiness Action Stage	Stand-down Stage
	Code Blue	Code Yellow	Code Red	Code Magenta	Code Green
	washing, prepare home supplies • Advice and information to prevent stigma, discrimination and harassment	first, or the health line (29667) for advice • Advice and information to prevent stigma, discrimination and harassment	first, or the health line (29667) for advice • Advice and information to prevent stigma, discrimination and harassment	• Urge those at risk to take precautions to avoid infection • Urge those who suspect they have the virus to call Healthline for medical attention • Advice and information to prevent stigma, discrimination and harassment	
Clinical Care and Public Health Management	• Frontline training on infection control • Contact tracing as needed • Develop and refine case and contact definition as needed • Redirect people with flu-like symptoms to flu clinics	• Laboratory testing capability • Isolate and manage cases • Quarantine and contact trace • Prepare cases for transfer overseas if HDU/ICU capacity is overwhelmed • Flu clinics treat cases • Separate infected patients from at-risk patients e.g. elderly, disabled, chronic illness	• Intensify monitoring and reporting of cases • Transfer cases where HDU/ICU capacity is overwhelmed • Isolate and manage cases • Quarantine and contact trace • Distribute vaccine if available • Separate infected patients from at-risk patients e.g. elderly, disabled, chronic illness • Appropriate management of deceased persons	• Conduct rigorous case investigation to identify and quarantine close contacts • Conduct contact tracing • Triage cases and test people with symptoms • Reinstate restrictions as needed e.g. gatherings, quarantine/isolation	• Resume elective procedures • Review policies and processes • Review/revise plans and protocols • Trauma and psychosocial support • Appropriate management of deceased persons
Social Welfare and Support	• Welfare of residents and visitors • Coordinate services to at-risk population e.g. elderly, disabled, chronic illness • Individuals make necessary	• Voluntary self-quarantine/isolation • Possible school closures • Prohibit mass gatherings e.g. nightclubs, cultural or sports events, churches • Limit access and visitation to closed	• Strict visitor restrictions and access to closed communities, hospitals, isolation areas, prisons • Support for grieving families and communities • Mandatory self-quarantine/isolation	• Strict visitor restrictions and access to closed communities, hospitals, isolation areas, prisons • Restricted activities at higher-risk settings e.g. bars, pubs, nightclubs	• Maintain morale and social resilience • Support for grieving families and communities • Coordinate assistance e.g. financial/welfare to at-risk populations

FUNCTIONS	Initial Action Stage	Targeted Action Stage		Readiness Action Stage	Stand-down Stage
	Code Blue	Code Yellow	Code Red	Code Magenta	Code Green
	arrangements e.g. stockpile essential items, childcare • Coordinate assistance for elderly, disabled and chronic illness groups who do not live with any family members • Activities to build social resilience e.g. counselling	communities, hospital wards, isolation areas, prisons • Coordinate provision of supplies e.g. medicines, food to isolated or quarantined people • Individuals make necessary arrangements e.g. stockpile essential items, childcare • Health checks in the community	• Coordinate provision of services to at-risk populations e.g. elderly, disabled, chronic illness • Coordinate provision of resources e.g. medicines, food, financial assistance, special leave • Individuals make necessary arrangements e.g. stockpile essential items, childcare • Strict health checks in the community	• Support for grieving families and communities • Mandatory self-quarantine/isolation • Coordinate provision of services to at-risk populations e.g. elderly, disabled, chronic illness • Coordinate provision of resources, food, financial assistance, special leave • Individuals make necessary arrangements e.g. stockpile essential items, childcare • Strict health checks in the community	• Coordinate assistance e.g. financial/welfare to people and businesses affected • Re-open schools • Resume mass gathering events e.g. churches, sports events, concerts • Revise visitor restrictions and access to closed communities • Support communities to transition back to normal daily life

7.5 Health and community response measures

Transmission scenarios help in identifying gaps in preparedness, readiness and response measures. Health and community response priorities will shift according to disease transmission patterns. Five transmission scenarios highlight key health and community response measures and progress regarding policies and plans. (Table 7.3)

Table 7-3: Disease transmission scenarios, response measures and progress

Transmission scenarios	Response measures	Progress
PREPAREDNESS & READINESS **NO CASES**	Activate sectoral and whole-of-government emergency response arrangements, incident management structures and emergency operations centers (EOC)	National Health Emergency Taskforce National Emergency Response Plan to COVID-19 National IMS, Health IMS, Health EOC and ESR, COVID-19 Act 2020
	Review administrative procedures and emergency contingency funding to ensure they support emergency procurements and human resource surge	National budget 2020/21 - $3M contingency fund
	Review early warning systems at international and domestic points of entry, strengthen event-based surveillance for atypical pneumonia/ILI/SARI and clusters of acute respiratory disease in sentinel populations (e.g. health /border staff)	Surveillance & Testing Plan - ILI/SARI - Sentinel sites
	Review and revise case definitions and testing algorithms for GeneXpert technology and RT-PCR in-country testing	Public health, Ill traveller and Clinical Protocols, Surveillance & Testing Plan
	Ensure HCW access to personal protective equipment (PPE) and capability to apply recommended infection prevention and control (IPC) measures for standard, droplet, contact and respiratory transmission	PPE and IPC Policy and Training
	Prepare care pathways and facilities for mild, moderate, severe, critical and convalescent cases in place, incl. home care, patient referral and palliative care where needed	Public health Protocol Clinical Protocol/Guidelines Community care Guidelines
	Identify and prepare facilities for supervised quarantine, including feasibility of home quarantine	Supervised Quarantine and Medical Clearance Policy, Management of SQ Facility Plan
	Test and refine COVID-19 emergency contingency and business continuity plans, including through hospital walk-throughs to review triage, isolation facilities, high dependency beds and equipment, and IPC arrangements	Emergency contingency and Business continuity Plans, weekly walk through, IPC
	Review national stockpiles of essential medicines, laboratory consumables and supplies and whole-of-society Risk Communication and Community Engagement (RCCE) inclusive of travellers, HCWs and medically and socially vulnerable groups	mSupply logistics reporting IPC Governance RCCE Plan
	Provide ongoing refresher training to clinical and public health workers and rapid response teams in the above requirements for safe and effective COVID-19 case identification, detection, containment and response activities	Ongoing refresher training
	Anticipate and address the community support needs of medically and socially vulnerable groups with COVID-19 with other sectors.	Arrangement of Cooperation NGOs Community Facilities plan

Transmission scenarios	Response measures	Progress
CONTAINMENT **SPORADIC CASES**	Early case detection and isolation and aggressive contact tracing and quarantine to limit the number of generations of transmission. As the number of contacts and generations of transmission can increase rapidly and exceed contact tracing capacity, conduct planning for targeted contact tracing of high-risk exposures (i.e. close contacts, closed settings and mass gatherings)	Public Health Protocol Clinical Protocol
	Reinforce and monitor physical distancing measures in health care facilities e.g. by limiting visitors, establishing coughs and flu clinics with a one-way patient flow, and the use of PPE and IPC measures to prevent amplification of transmission in these settings and to protect HCWs and vulnerable patients	RCCE Plan IPC Plan
	Monitor the utilisation rate of PPE to guide replenishment needs given global shortage of PPE and long lead times from submitting purchase orders to supply shipment and arrival in countries	mSupply logistics reporting IPC Governance
	Activate care pathways for mild, moderate, severe, critical and convalescent cases, including home care, patient referrals	Public health Protocol Clinical Protocol, Community care guidelines
	Contribute to the regional and global understanding of the epidemiology and clinical spectrum of COVID-19 by participating in the First Few X cases early investigation protocols (FFX)	Public health Protocol
	Implement layered non-pharmaceutical interventions such as physical distancing measures in community settings (e.g. self-quarantine, limiting the size of gatherings, cancelling mass gatherings and social events, school closures, lockdown)	NPI measures
	Intensify RCCE and prepare the community for 3-6 months of physical distancing measures.	RCCE Plan
CONTAINMENT & MITIGATION **CLUSTERS OF CASES** **COMMUNITY TRANSMISSION**	Early identification of clinical deterioration to ensure optimal oxygenation and fluid balance to avoid the need for intensive care. Critical equipment and supplies include pulse oximeters, oxygen concentrators, high flow oxygen non-rebreather masks with reservoirs, as well as ventilators	Clinical Protocol Asset register HDU/ICU support
	Telemedicine support to ensure ongoing refresher training of ICU staff on lung protective ventilation, optimal fluid balance and nursing care for severe and critical patients	Clinical protocol ICT systems support
	Safe management of ventilated patients, including human resource management plans for medical, nursing staff and auxiliary staff	IPC Plan HDU/ICU Guidelines
	Monitoring of epidemiological trends (aggregated data) and impact on the health service	Sitreps, Health system reports, Go.data
	Arrangements for the continuation of essential clinical and public health services, including childhood immunisation, obstetrics, emergency surgery, NCD and chronic infectious disease medications and palliative care	CPR Plan
	Working with communities for culturally appropriate, safe burials and cremation	Burials Policy and Procedures
CONTAINMENT POST PEAK, ADDITIONAL WAVES	Continuation of essential health services to prevent the resurgence of epidemic and endemic diseases and preventable mortality, including ensuring access to medically and socially vulnerable groups	CPR Plan, EBR Plan Surveillance and Testing Plan Public Health Protocol
	Planning for early recovery while remaining vigilant for another wave of disease transmission through new introductions or the establishment of endemicity.	Recovery Plan
POST-EVENT, RECOVERY	Assess the impact of the disease on the community and plan actions needed to gradually return to normal operations. Access to proven vaccines +/- therapeutics.	Recovery Plan Vaccination Plan

7.6 Containment and mitigation activities

Table 7-4: Disease transmission scenarios and containment and mitigation activities

Transmission Scenario	NO CASES	SPORADIC CASES	CLUSTERS OF CASES	COMMUNITY TRANSMISSION	POST PEAK ADDITIONAL WAVES	POST-EVENT RECOVERY
Definition	No reported cases	One or more cases, imported (+/- at the border) or locally detected	Cases clustered in time, geographic location and/or common exposures	Larger outbreaks of local transmission with no link to transmission chains, or sentinel laboratory surveillance or multiple unrelated clusters	Reduction in cases but anticipating resurgence as control measures relax, new transmission chains, new cases/waves after several months	Cases reduced or eliminated due to NPI and/or the availability of vaccines +/- therapeutics
Phase	Delay entry of disease	Delay widespread spread of disease	Contain and Mitigate impact of disease	Contain and Mitigate impact of disease	Anticipate resurgence, additional waves	Recovery
Focus of efforts	**Containment**	**Containment**	**Containment**	**Mitigation**	**Containment**	**Recovery**
Aim	Stop transmission and prevent spread	Stop transmission and prevent spread	Stop transmission and prevent spread	Slow transmission, reduce cases, end community outbreaks	Stop transmission and prevent spread	Stop transmission and prevent spread
Emergency response mechanisms	Activate emergency response mechanisms	Enhance emergency response mechanisms	Scale up emergency response mechanisms	Scale up emergency response mechanisms	Anticipate and activate emergency response mechanisms	Stand down emergency response mechanisms
Risk communication and public engagement	Educate and actively communicate with the public through risk communication and community engagement	Educate and actively communicate with the public through risk communications and community engagement	Educate and actively communicate with the public through risk communication and community engagement	Educate and actively communicate with the public through risk communication and community engagement	Educate and actively communicate with the public through risk communication and community engagement	Educate and actively communicate with the public through risk communication and community engagement
Public Health Measures	Hand, face hygiene, respiratory etiquette, physical distancing, avoid closed, crowded, enclosed	Hand, face hygiene, respiratory etiquette, physical distancing, avoid closed, crowded, enclosed	Hand, face hygiene, respiratory etiquette, physical distancing, avoid closed, crowded, enclosed	Hand, face hygiene, respiratory etiquette, physical distancing, avoid closed, crowded, enclosed	Hand, face hygiene, respiratory etiquette, physical distancing, avoid closed, crowded, enclosed	Hand, face hygiene, respiratory etiquette, physical distancing, avoid closed, crowded, enclosed

Transmission Scenario	NO CASES	SPORADIC CASES	CLUSTERS OF CASES	COMMUNITY TRANSMISSION	POST PEAK ADDITIONAL WAVES	POST-EVENT RECOVERY
	spaces, disinfect surfaces, wear face masks when ill, or in crowded, enclosed spaces	spaces, disinfect surfaces, wear face masks when ill, or in crowded, enclosed spaces	spaces, disinfect surfaces, wear face masks when ill, or in crowded, enclosed spaces	spaces, disinfect surfaces, wear face masks when ill, or in crowded, enclosed spaces	spaces, disinfect surfaces, wear face masks when ill, or in crowded, enclosed spaces	spaces, disinfect surfaces, wear face masks when ill, or in crowded, enclosed spaces
Surveillance	Test for COVID-19 using existing respiratory disease surveillance systems and hospital, community based surveillance	Implement COVID-19 surveillance using existing respiratory disease surveillance systems and hospital, community based surveillance	Expand testing for COVID-19 using existing respiratory disease surveillance systems and hospital, community based surveillance	Adapt existing surveillance systems monitor disease activity (e.g. through sentinel sites)	Implement COVID-19 surveillance using existing respiratory disease surveillance systems and hospital, community based surveillance	Test for COVID-19 using existing respiratory disease surveillance systems and hospital, community based surveillance
Laboratory testing	Test probable, confirmed cases and contacts, test patients identified through respiratory disease surveillance	Test probable, confirmed cases and contacts, test patients identified through respiratory disease surveillance	Test probable, confirmed cases and contacts, test patients identified through respiratory disease surveillance	Test probable, confirmed cases and contacts, test patients identified through respiratory disease surveillance. If testing capacity is overwhelmed prioritise testing in health care settings and vulnerable groups.	Test probable, confirmed cases and contacts, test patients identified through respiratory disease surveillance	Test probable, confirmed cases and contacts, test patients identified through respiratory disease surveillance
Case finding, contact tracing and management	Conduct active case finding contact tracing and monitoring, quarantine of contacts and isolation of cases	Enhance active case finding contact tracing and monitoring, quarantine of contacts and isolation of cases	Intensify case finding contact tracing and monitoring, quarantine of contacts and isolation of cases	Continue contact tracing where possible, especially in newly infected areas, quarantine of contacts and isolation of cases, apply self-initiated isolation for symptomatic individuals	Conduct active case finding contact tracing and monitoring, quarantine of contacts and isolation of cases	Conduct active case finding contact tracing and monitoring, quarantine of contacts and isolation of cases
Case Management	Prepare to treat patients. Ready hospital and	Treat patients and ready hospital and community facilities	Treat patients. Ready hospitals and community facilities for potential surge,	Prioritise care and activate triage procedures. Scale up surge plans for	Prepare to treat patients. Ready hospital and	Prepare to treat patients. Ready hospital and

Transmission Scenario	NO CASES	SPORADIC CASES	CLUSTERS OF CASES	COMMUNITY TRANSMISSION	POST PEAK ADDITIONAL WAVES	POST-EVENT RECOVERY
	community facilities for potential surge	for surge, finalise triage procedures	revise triage procedures	health and community facilities	community facilities for potential surge	community facilities for potential surge
	Promote self-initiated isolation of people with mild respiratory symptoms to reduce the burden on health system	Promote self-initiated isolation of people with mild respiratory symptoms to reduce the burden on health system	Activate surge plans for health and community facilities	Implement self-initiated isolation of people with mild respiratory symptoms to reduce the burden on health system	Promote self-initiated isolation of people with mild respiratory symptoms to reduce the burden on health system	
Infection Prevention and Control	Train staff in IPC and clinical management for COVID-19	Train staff in IPC and clinical management for COVID-19	Train staff in IPC and clinical management for COVID-19	Retrain staff in IPC and clinical management for COVID-19	Retrain staff in IPC and clinical management for COVID-19	Retrain staff in IPC and clinical management for COVID-19
	Prepare for surge in health and community facility needs, including respiratory support and PPE - report stocks supplies weekly	Prepare for surge in health and community facility needs, including respiratory support and PPE - report stocks supplies daily	Advocate for home care for mild cases, if health care systems are overwhelmed, and identify referral systems for high risk groups	Implement health and community facilities surge plans - report stocks supplies twice daily	Prepare for surge in health and community facility needs, including respiratory support and PPE - report stocks supplies weekly	Prepare for surge in health and community facility needs, including respiratory support and PPE - report stocks supplies weekly
Societal Response	Develop all-of-society and business continuity plans	Implement all-of-society, repurpose government and ready business continuity plans	Implement all-of-society resilience, repurpose government, business continuity, and community services plans	Implement all-of-society resilience, repurpose government, business continuity, and community services plans	Revise and implement all-of-society and business continuity and community services plans	Update all-of-society and business continuity and community services plans. Return to business as usual.

8 Critical complementary response mechanisms

8.1 The role of non-pharmaceutical interventions 'circuit breakers'

Non-pharmaceutical interventions (NPI) and preventative public health measures remain the cornerstone for protecting the population even when vaccines and/or therapeutics arrive.

These NPI include:

- Wash your hands with soap and water (or use an alcohol-based hand sanitiser)
- Practise pragmatic physical distancing (at least two metres) where possible
- Cover your coughs and sneezes
- Avoid touching your face (eyes, nose and mouth) with unwashed hands
- Stay home when unwell
- Wear a face mask if unwell, in public, crowded or enclosed spaces
- Clean and disinfect frequently touched surfaces and objects
- Limit time spent in crowded or enclosed spaces
- Protect vulnerable members of our communities
- Avoid hugs, kisses or shaking hands
- Avoid shouting and singing in crowded and enclosed spaces
- Avoid spreading misinformation

8.2 Border control measures

Enhanced border control measures with pre-departure testing for international travellers as well as domestic travellers alongside NPI are critical to assist in keeping COVID-19 out, and/or control and elimination measures.

8.3 Risk communication and community engagement

Robust risk communications and community engagement (RCCE) measures ensure the public is well informed and able to take action to protect themselves, their families and communities. Working in partnership with the community through the Puna and Community Health Clinics is critical to ensuring the country can pivot quickly when responding to a case or outbreak.

8.4 Surveillance and risk assessment

Gathering information through multi-sourced surveillance activities helps in the early detection, assessment of risk, severity, speed of transmission, and extent of COVID-19, and helps inform national decisions regarding international and domestic border restriction measures (Rarotonga International Airport, sea ports) and communication for community action.

8.5 Laboratory services and testing strategies

Testing strategies for COVID-19 will change depending on surveillance activities for ILI/SARI cases, border intrusions, and contact tracing. Ensuring public trust requires a competent testing, tracing and isolation.

8.6 Case and contact management

The purpose of case and contact management is to detect and interrupt transmission in chains. Monitoring and reporting should ensure gaps are quickly identified and mediated. Case and

contact management includes widespread testing of close contacts – symptomatic and asymptomatic (where they are at high risk).

8.7 Operational logistics

This is critical to the Cook Islands COVID-19 response and ensuring we have sufficient supply of PPE, test kits/reagents, medical equipment and supplies. With fragile global supply chains and one flight a week and fortnightly shipping, procurement of essential supplies requires close monitoring and ordering of supplies for the health and national response.

8.8 Ensuring health services for all

Te Marae Ora has gradually moved from providing essential health services in the early months of the emergency response to business as usual e.g. childhood immunisation and other child health services, reproductive health, safe deliveries and neonatal care, trauma and medical, surgical and emergency services, however, this has placed additional stressors on a stretched workforce. The phased resting of the health workforce continues to be a challenge.

Vulnerable populations groups such as the elderly, children, youth, those who are disabled or living with mental illness, migrant workers, and prison inmates are at risk of further hardship with NPIs and border control measures. It is important to ensure plans are in place to mitigate the impact on vulnerable populations.

8.9 Health care costs and financial protection

In the first half of 2020, $5M was budgeted to fund the national COVID-19 response. This was used to purchase essential equipment (e.g. ventilators, oxygen concentrators), establishing 10 Puna on Rarotonga to support the response, organising nationwide communications to inform and educate our communities, fund repatriation and supervised quarantine of stranded residents in New Zealand. In the second half of 2020, $3M has been set aside for the COVID-19 response. This funds are administered by the Ministry of Finance and Economic Management.

9 References

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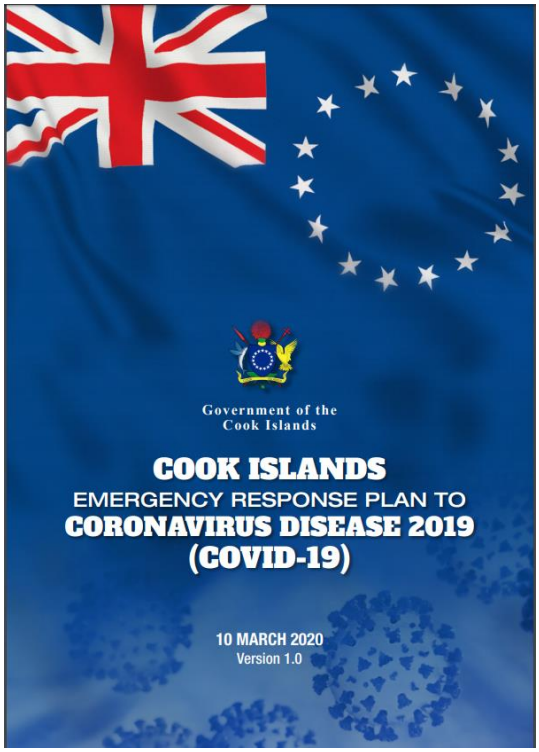
Annex 1: The Cook Islands Emergency Response Plan to COVID-19

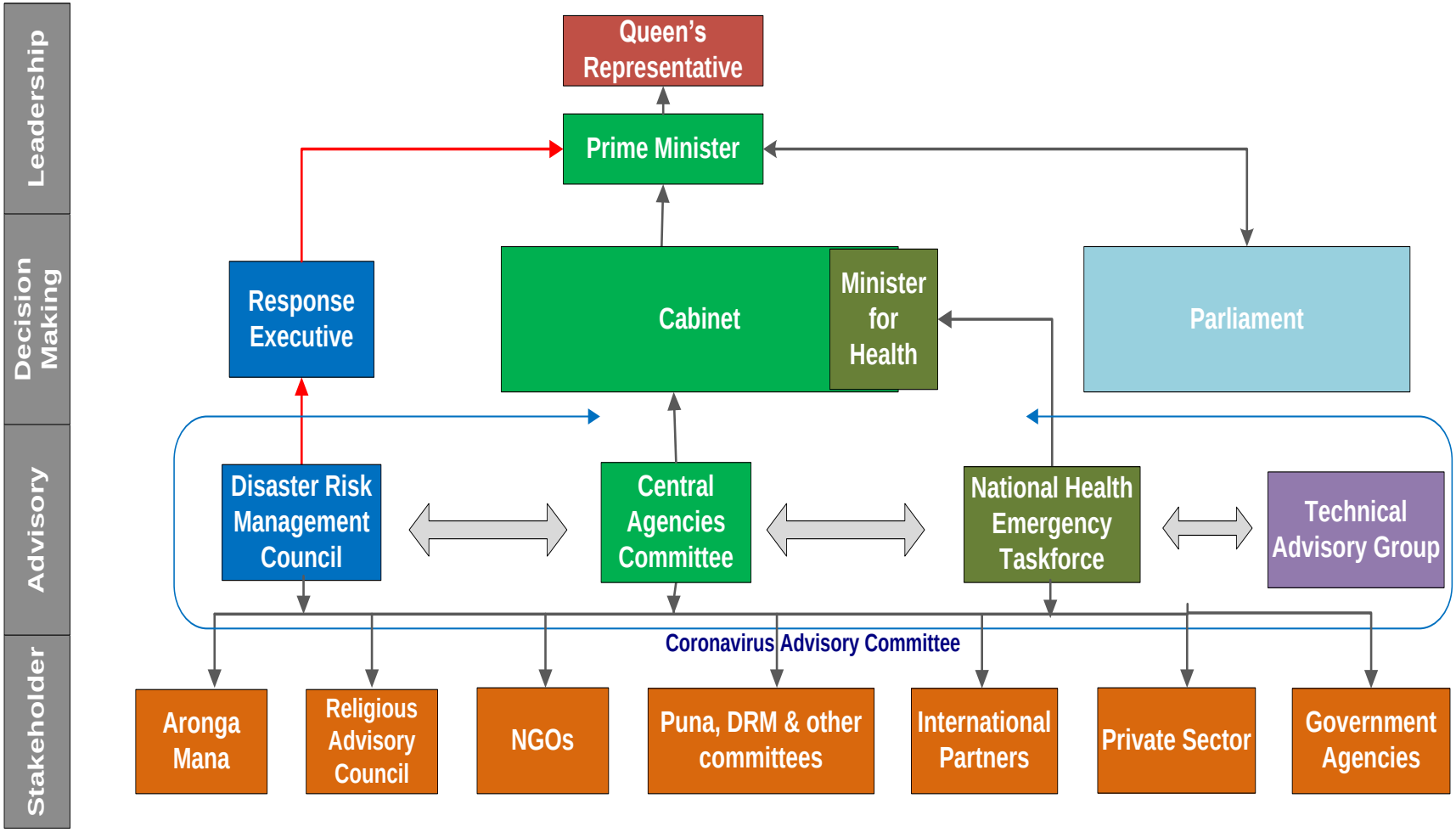


The Plan has three stages, four codes and four phases as outlined below.

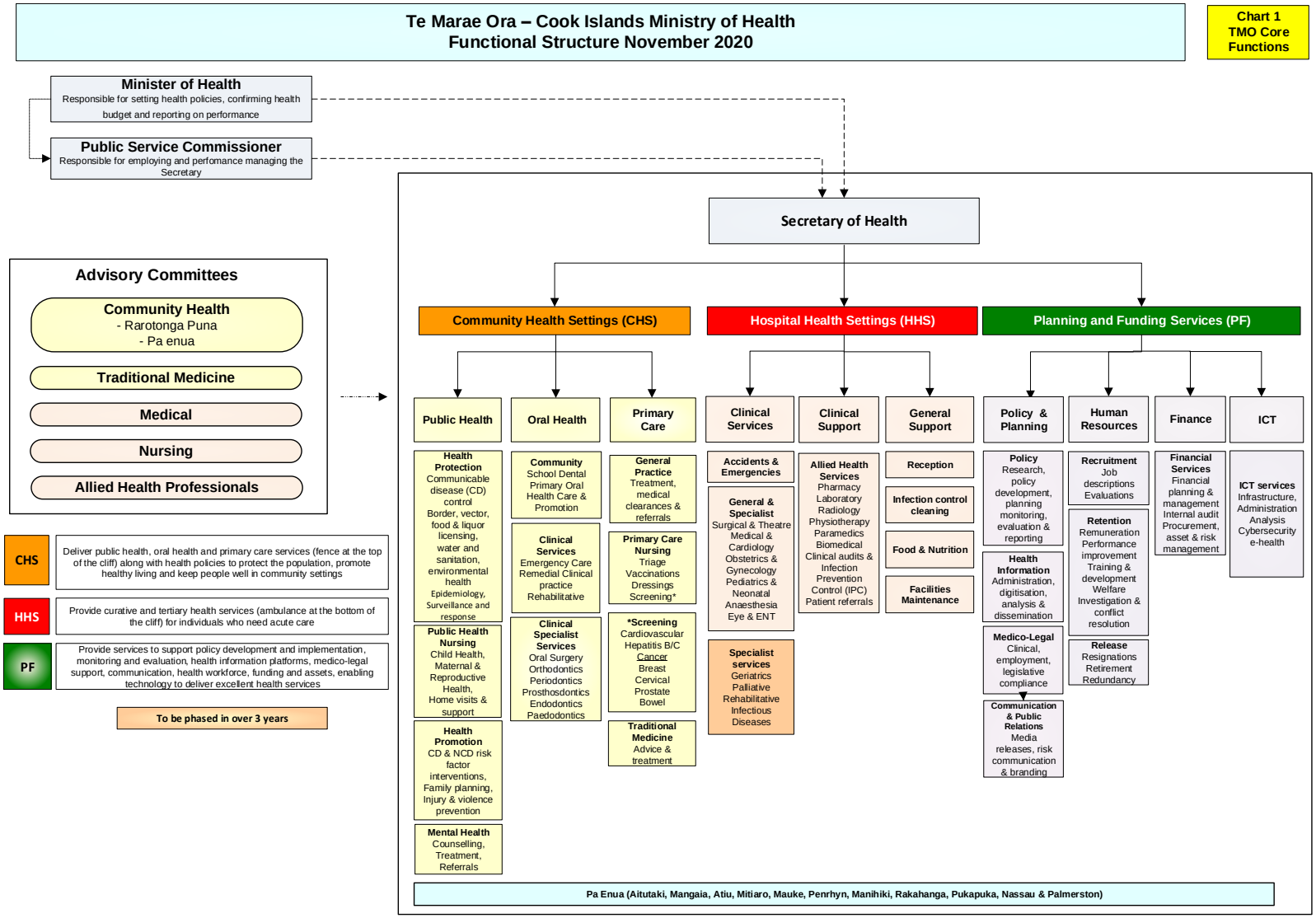
STAGES	CODE	PHASE
Initial Action Stage	**Blue**	**Preparation and Readiness** (Delay entry of disease)
Targeted Action Stage	**Yellow**	**Alert** (Delay widespread disease transmission)
	Red	**Activation** (Mitigate impact of the disease)
Stand-down stage	**Green**	**Post-event** (Recovery)

Within each of the action stages are targeted interventions under the following functions: governance and legislation; surveillance and intelligence; border measures; resources and logistics; communication and consultation; health critical care and public health management; and social welfare and support.

Annex 2: Governance and Leadership



Annex 3: Te Marae Ora Organisation Structure



Annex 4: Community EOC (Districts)

	Rarotonga Puna		Pa Enua DRM Committees
1.	Ngatangiia	1.	Mangaia
2.	Matavera	2.	Aitutaki
3.	Tupapa Maraerenga	3.	Atiu
4.	Takuvaine Tutakimoa	4.	Mauke
5.	Titikaveka	5.	Mitiaro
6.	Murienua	6.	Penrhyn
7.	Akaoa	7.	Manihiki
8.	Ruaau	8.	Rakahanga
9.	Nikao Panama	9.	Palmerston
10.	Avatiu, Ruatonga, Atupa	10.	Pukapuka
		11.	Nassau

Figure 1. Map showing community districts (Puna) for Rarotonga