

COOK ISLANDS ANTIMICROBIAL RESISTANCE NATIONAL ACTION PLAN

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Foreword

The development of the National Action Plan on Antimicrobial Resistance is a milestone achievement being the second such plan completed in the Pacific Region.

The commitment that was made at the sixty-eighth session of the World Health Assembly in 2015 was pivotal in driving the completion of this document. The global threat of antimicrobial resistance is relevant in our community here in the Cook Islands where resistance to antimicrobials is noted. Although we do not yet have high rates of resistance, the available data does show that we do need to be vigilant and increase awareness amongst our people and communities.

The work required for preventing the increased threat that we face needs a commitment from professionals across all sectors where antimicrobials are used. The objectives of this plan to raise public awareness and the activities identified require a cohesive and collective approach for its successful implementation.

The monitoring and surveillance of antimicrobial resistance is an important component of this plan and will need cooperation between relevant sectors in order for us to know the results and its success.

I am optimistic that we can make a difference in raising awareness of the threat of antimicrobial resistance and minimise its impact on our people.

A handwritten signature in purple ink, appearing to be 'Elizabeth Iro', written in a cursive style.

Mrs Elizabeth Iro
Secretary of Health

Acknowledgments

The contributions from representatives of the Ministries of Health, Marine Resources, Agriculture, and Education is gratefully acknowledged. We also thank representatives of the private sector (pharmacies, general practices, NGOs), and the participants of the various workshops held to develop this plan. The assistance of Drs Sarah Paulin and Sergei Eremin and Lepaitai Hansell from WHO Technical Support has been invaluable.

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Acronyms

AMS	Antimicrobial Stewardship
AMR	Antimicrobial Resistance
AAW	Antibiotic Awareness Week
DTC	Drug and Therapeutic Committee
EML	Essential Medicines List
EUCAST	European Committee on Antimicrobial Resistance Surveillance Network
FAO	Food and Agriculture Organisation of the United Nations
HHS	Hospital Health Services
HPU	Health Promotion Unit
IC	Infection Control
ICI	Infrastructure Cook Islands
IPC	Infection Prevention and Control
IPCC	Infection Prevention and Control Committee
LIMS	Laboratory Information Management System
MMR	Ministry of Marine Resources
MOA	Ministry of Agriculture
MOE	Ministry of Education
MOH	Ministry of Health
NAP	National Action Plan
NES	National Environment Services
NGO	Non-Governmental Organisation
PPE	Personal Protective Equipment
PPTC	Pacific Paramedical Training Centre
SPC	Secretariat of the South Pacific
TOR	Terms of Reference
WHO	World Health Organisation

Introduction

In 2014, the World Health Organisation (WHO) declared antimicrobial resistance as a global health threat that requires urgent collaborative action. High rates of resistance to hospital and community-acquired infections have been reported globally, with some of the highest rates reported in the Western Pacific Region.

The Ministry of Health of the Cook Islands has identified antimicrobial resistance as one of the priority agenda items following the launch of the Cook Islands Antibiotic Guidelines in November, 2015. Although the Cook Islands generally does not currently have high rates of resistant microorganisms, vigilance and actions are needed to address what resistance is present, to prevent an increase nationally, and contribute to antimicrobial stewardship internationally.

This National Action Plan on Antimicrobial Resistance is supported by the priority actions listed in the *Action Agenda for Antimicrobial Resistance in the Western Pacific Region*, which was endorsed by the Sixty-fifth session of the Regional Committee for the Western Pacific Region in 2014. In addition, on May 2015 the *Global Action Plan on Antimicrobial Resistance* was also endorsed at the Sixty-eighth session of the World Health Assembly, where Member States were urged to develop national plans on antimicrobial resistance within the two years following endorsement.

To develop the National Action Plan for the Cook Islands, the Ministry of Health with support from WHO held a national workshop from 2nd to 3rd December, 2015, with a follow-up workshop to finalise the Plan held on 27th October, 2016. Participants in the workshops included representatives from the Ministry of Health, Ministry of Agriculture, Ministry of Marine Services, veterinary services, private sector, and WHO. With inspiration from the Australian National Plan on Antimicrobial Resistance, the Fiji National Action Plan on Antimicrobial Resistance, as well as the Regional Action Agenda and Global Action Plan, the Cook Islands National Plan on Antimicrobial Resistance (2016-2020) was drafted and ratified by various agencies over a series of meetings. The Cook Islands National Action Plan on Antimicrobial Resistance (2016-2020) is the second such national plan in the Pacific.

Summary of Country Situational Analysis on Antimicrobial Resistance

The Cook Islands identified antimicrobial resistance as a priority agenda item in order to contain the spread of existing relatively low resistance rates and to prevent the rise and spread of further resistant microorganisms. There is high awareness of policy makers on the need to prevent and address antimicrobial resistance. However, the awareness in the general public is low. Antibiotic Awareness Week was celebrated for the first time in November 2015, but further awareness campaigns are needed.

The Cook Islands has a population of approximately 13,400 (August 2015). The principal hospital (85 bed capacity) is on Rarotonga. The hospital has a laboratory with the capacity for microbiology analysis (human and water specimen types), and is the only laboratory testing human specimen types in the Cook Islands.¹ Currently the Cook Islands is developing an antimicrobial resistance surveillance system and surveillance for notifiable diseases is ongoing.

The Rarotonga Hospital Laboratory has the capacity for microbiology, biochemistry and haematology analysis. However, it has limited capacity for data management. Currently, data is manually entered into MS Excel spreadsheets; there is a need for an electronic laboratory information management system. External quality assurance of the laboratory is undertaken yearly by Pacific Paramedical Training Centre (PPTC) and internal quality assurance is performed bi-annually.

A total of 1846 clinical samples collected between 9 July 2012 and 31 December 2014 were analysed at the Rarotonga hospital laboratory to aid the development of the Cook Island's first Antibiotic Guidelines (2015). The analysis indicated relatively low levels of resistant microorganisms. However reduced susceptibility of certain bacterial species to a range of antibiotics was observed, indicating a need for vigilance and action.

Staphylococcus aureus cultures were shown to have low susceptibility (37%) to penicillin, amoxicillin and ampicillin and more importantly, a reduced susceptibility to cloxacillin (88%) and erythromycin (76%). *Escherichia coli* samples demonstrated low susceptibility to amoxicillin (38%), and reduced susceptibility to amoxicillin-clavulanate (74%) and trimethoprim sulfamethoxazole (82%). Of the *Klebsiella spp.* tested, very low susceptibility was observed to amoxicillin (11%) with

¹ The Ministry of Marine Services also has a laboratory with microbiology and antimicrobial susceptibility testing, but not for human specimens.

reduced susceptibility to amoxicillin-clavulanate (66%) and tetracycline (83%). Additional bacterial species tested (enteric gram-negative bacilli and *Pseudomonas aeruginosa*) did not show significantly significant reduced susceptibility to ciprofloxacin or gentamicin.

Information on antimicrobials dispensed pursuant to a prescription is collected by hospital and publicly funded pharmacies in the Cook Islands. However, this data is not collated centrally, analysed, and utilised to inform good prescribing behaviour. The active monitoring of antibiotic consumption and promotion of rational use in private pharmacies also does not occur. However, all pharmacies restrict access to systemic antimicrobials via prescription only.

Procurement of selected antimicrobials² for the Ministry of Health is centralised through the Rarotonga Hospital Pharmacy Warehouse, with stock disseminated to Rarotonga outlets and outer island hospitals and health centres on request. A Hospital and Health Service Drug and Therapeutics Committee (DTC) exists, though there is a need to ensure the committee maintains a focus on antimicrobial stewardship.

Infection prevention and control is relatively well established in the Rarotonga hospital, however improvements are needed. Hand hygiene is heavily promoted but the infection control committee requires strengthening. Stock outs of personal protective equipment (PPE) are common and waste management including the separation of infectious and non-infectious waste is mostly implemented.

In summary, the major gaps and challenges identified by the situational analysis were, 1) low awareness of antimicrobial resistance of the general public; 2) need for a national comprehensive policy on antimicrobial resistance; 3) lack of a national surveillance systems to monitor antimicrobial resistance and antimicrobial use; 4) lack of an electronic laboratory information management system; and 5) poor implementation of health systems responses to antimicrobial resistance, in particular regarding prescribing habits and infection prevention and control in hospitals. These findings advised the development of the National Action Plan on Antimicrobial Resistance (2017-2020).

² The range of antimicrobials purchased, disseminated, and utilised is determined by what is included in the Cook Islands Essential Medicines List

Cook Islands Response to Antimicrobial Resistance

Governance

The responsibility of the implementation of the National Action Plan on Antimicrobial Resistance (2017-2020) (the National Plan) in the Cook Islands will fall under the Antimicrobial Resistance Committee with the key driver being the Ministry of Health.

National Antimicrobial Resistance Committee

Suggested members of the National Antimicrobial Resistance Committee (representatives from):

- *Ministry of Health (National Plan Champion and Lead)*
 - *Manager Quality & Infection Control*
 - *Manager Laboratory*
 - *Chief Medical Officer*
 - *Chief Nursing Officer*
 - *Chief Pharmacist*
 - *Director Community Health Services/Manager HPU*
 - *Heads of Clinical Specialities*
- *Ministry of Agriculture*
- *Ministry of Education*
- *Ministry of Marine Resources*
- *National Environment Services*
- *Non-Government and Private Services (e.g. General Practitioners, Pharmacies, Esther Honey)*

The proposed TOR of the committee is to include:

- *Purpose: implementation of the National Plan on Antimicrobial Resistance (2017-2020)*
- *Reporting: WHO and relevant Ministries*
- *Report: Annual Implementation Report*
- *Meet: biannually and as required*
- *Secure funding for the implementation of National Plan activities*
- *Monitoring and evaluation of outcomes*

Budget

Management of the overall budget and implementation of the National Plan activities will be the responsibility of the Ministry of Health. Access to external funding for National Plan activities will be coordinated by the Ministry of Health.

Strategic Objectives

1. Awareness raising and education on antimicrobial resistance
2. Strengthen surveillance of antimicrobial resistance and antimicrobial use
3. Optimise the use of antimicrobials in all sectors
4. Strengthen infection prevention and control

Strategic Plan

1. Raise awareness of antimicrobial resistance
 - 1.1. Develop an evidence based awareness campaign
 - 1.2. Strengthen public education on causes and prevention of antimicrobial resistance
 - 1.3. Raise awareness of the need for antimicrobial stewardship amongst stakeholders in the National Plan
2. Strengthen surveillance of antimicrobial resistance and use
 - 2.1. Establish a national surveillance system for antimicrobial resistance
 - 2.2. Strengthen antimicrobial resistance surveillance in animal and environmental sectors
 - 2.3. Strengthen monitoring of antimicrobial prescribing
3. Optimise the use of antimicrobials in all sectors
 - 3.1. Strengthen antimicrobial stewardship in Cook Islands hospitals
 - 3.2. Strengthen evidence-based procurement of antimicrobials for the health sector
4. Strengthen infection prevention and control
 - 4.1. Strengthen the national infection prevention and control programme for human health
 - 4.2. Strengthen infection prevention and control in the agriculture, private and environment sector including Pa Enea

Operational Plan

Sub-activity	Date	Implementer	Cost	Source of funding	Indicator
1. Raise awareness of antimicrobial resistance					
1.1. Develop an evidence based awareness campaign					
1.1.1 Establish the governance structure for the implementation of the National Action Plan ensuring representation from Pa Enua	2017	MOH, MOA, MMR, MOE, private sector, NES	Nil	-	A body or committee is formed or identified to drive the implementation of the NAP, TOR finalized and meetings set
1.1.2 Incorporate National Antibiotic Awareness Week into the Health Promotion Annual Calendar	Jan 2017, 2018	Community Health Services	Nil	-	AAW is incorporated into the HPU Annual Calendar
1.1.3 Develop targeted messaging for AAW with agreed terminology for consistency in awareness messages and ensure it is both in English and Maori	2017	AMR Working Group Media Committee	\$5,000	WHO/ Potential Donor Funding	Terminology agreed and used consistently across awareness materials
1.2 Strengthen public education on causes and prevention of antimicrobial resistance					
1.2.1 Conduct a perception survey during Te Maeva Nui annual event	2017 and 2019	MOH NGO's & Youth Groups	\$10,000 per survey	WHO/ Potential Donor Funding	Baseline awareness data available
1.2.2 Conduct ongoing awareness raising activities through existing mechanisms and events (annual health conference, church events, community outreach, outer island sports events, audio/video conference outreach to outer islands)	Nov 2017-2020	MOA, MOH MOE, MMR , NGOs, Private, GPs and Pharmacy	\$2,000	WHO/ Potential Donor Funding	Number of activities held annually

throughout the year, monthly IC newsletter, hospital grand rounds, field visits, lagoon day, annual career day at the college, pharmacy resources/activities & other existing trainings)					
1.2.3 Disseminate existing GP pamphlets to outer islands on using antibiotics responsibly to go with Pharmacy orders.	2017 onwards	MOH, MOA	\$600 p.a.	WHO/MOH	Number of health-care professionals handing out pamphlets
1.2.4 Include antimicrobial resistance awareness into the health programme in schools and in collaboration with MOE include in curriculum	July 2017 onwards	MOH, MOE, MOA	\$500 p.a.	MOE	School health programme revised
1.3 Raise awareness of the need for antimicrobial stewardship amongst stakeholders in the National Plan					
1.3.1 Hold an annual national meeting on antimicrobial resistance during Antibiotic Awareness Week to share information on AMR data and implementation of the national action plan.	November 2017 and 2018	AMR working group	\$4,000 p.a.	Potential Donor Funding	Meeting report is available
1.3.2 Integrate antimicrobial resistance awareness and education as a topic into the health professional mentoring programme with the outer islands through video/audio conferencing	2017, 2018	MOH	Nil	-	Topic incorporated
1.3.3 Strengthen and maintain knowledge of antimicrobial resistance and responsible use of antibiotics through continuing education programmes for all health professionals, the animal and private sector	2017, 2018	MOH, MOA, Private Sector	\$500 p.a.	MOH/FAO/ potential Donor Funds	Revision of continuing education programmes Number of health professionals completing the programme

1.3.4 Review and update as appropriate the antimicrobial resistance component in health professional education programme	2017	MOH	Nil	-	Review completed
1.3.5 Hold a workshop for the animal sector and animal owners on the appropriate use of antibiotics	2017	MOA		MOA/FAO/Donor Funds	Workshop held
1.3.6 Develop and incorporate antimicrobial resistance messaging into scheduled field visits	2017, 2018	MOH, MOA, NGO	Nil	-	Messaging developed and implemented
1.3.7 Conduct a perception survey on antimicrobial resistance and use of antibiotics of livestock keepers	2017, 2018	MOA	Nil	-	Baseline awareness data

Sub-activity	Date	Implementer	Cost	Source of funding	Indicator
2. Strengthen surveillance of antimicrobial resistance and use					
2.1 Establish a national surveillance system for antimicrobial resistance					
2.1.1. Establish an AMR Surveillance Committee and develop TOR in the first meeting.	January 2017	MOH, MMR, MOA	Nil	-	TOR of AMR Surveillance Committee finalized
2.1.2. Conduct regular training on antimicrobial susceptibility testing (EUCAST) for laboratory personnel	2017, 2018	Laboratory	15,000	WHO/ Potential Donor Funding	Training undertaken
2.1.3. Strengthen the collection and analysis of laboratory data through the development of an electronic LIMS (WHONET training)	2017	Laboratory	5,000	WHO/ Potential Donor Funding	Functioning LIMS

2.1.4. Conduct regular internal quality assurance audits	every 6 months	Laboratory		Potential Donor Funding	Internal quality assurance undertaken
2.1.5. Sharing of AMR data during Antibiotic Awareness Week and at other regular times throughout the year	November and June 2017, 2018	MOH, MOA, MOE	Nil	-	Annual AMR report following AMR meeting
2.2 Strengthen antimicrobial resistance surveillance in animal and environmental sectors					
2.2.1 Continue with survey programmes in animal sectors, sending of samples overseas for confirmation and relaying of the AMR data to the surveillance committee once established	2017, 2018	MOA		SPC/ Potential Donor Funding	Surveys conducted
2.2.2 Conduct a point prevalence study on antimicrobial use in agriculture in Rarotonga	2017,2018	MOA		SPC/FAO/ Potential Donor Funding	Report on findings of study
2.3 Strengthen monitoring of antimicrobial prescribing					
2.3.1 Undertake an antimicrobial prescribing pattern/consumption survey in the health & animal sector	2017, 2018	MOH, MOA		WHO/FAO/ Potential Donor Funding	Report on survey fundings

Sub-activity	Date	Implementer	Cost	Source of funding	Indicator
3. Optimise the use of antimicrobials in all sectors					
3.1 Strengthen antimicrobial stewardship in Cook Islands' hospitals					
3.1.1 Re-evaluate the terms of reference membership of the Drugs & Therapeutics and Infection Prevention and Control Committee and ensure incorporation of	2017, 2018	Chair of DTC and IPCC	Nil	-	TOR and membership of DTC and IPCC re-evaluated

antimicrobial stewardship as one of the key focus					
3.1.2 Provide technical assistance for professional development in terms of workshops and trainings on the causes and management of AMR both in-country and overseas	2017,2018	MOH and MOA		WHO/SPC/FAO/ Potential Donor Funding	<ul style="list-style-type: none"> - Technical assistance identified - Training needs identified
3.1.3 Ensure adherence to the Cook Islands Antibiotic Guidelines, e.g. internal clinical audit and providing prescriber feedback on antimicrobial use, at least twice per year (electronic and manual prescriptions)	ongoing	DTC		WHO/Potential Donor Funding	<ul style="list-style-type: none"> - Clinical audits conducted and results fed back to prescribers and dispensers
3.2 Strengthen evidence-based procurement of antimicrobials for the health sector					
3.2.1 Review the Cook Islands Essential Medicines List to ensure it reflects best practice with regard to antimicrobial choice for human health	2018	DTC		WHO/Potential Donor Funding	<ul style="list-style-type: none"> - Iteration of the EML is printed and dissemination to relevant stakeholders
3.2.2 Ensure the procurement of antimicrobials is based on the Cook Islands Essential Medicines List	2017,2018	MOH Pharmacy		-	Other than exceptional circumstances, antimicrobials purchased should only be those on the EML
3.2.3 Ensure medications procured especially antimicrobials have no less than 2 years shelf life remaining when they arrive into the Cook Islands	2017,2018	MOH Pharmacy, DTC		<ul style="list-style-type: none"> - WHO/Potential Donor Funding 	Audit or spot checks show no antibiotics had arrived into the Cook Islands with less than two years shelf life
3.2.4 Conduct audits of expired antibiotics every six months in Rarotonga and Pa Enea	2017, 2018	MOH Pharmacy – Rarotonga Pa Enea – Officer in Charge		WHO/Potential Donor Funding	Audit report available and actions to address the issues raised in the audit

Sub-activity	Date	Implementer	Cost	Source of funding	Indicator
4. Strengthen infection prevention and control					
4.1 Strengthen the national infection prevention and control programme for human health					
4.1.1 Conduct an assessment of IPC programmes at national and facility levels including IC guidelines	2017	MOH IPCC	\$6,000	WHO/Potential Donor Funding	Assessment carried out
4.1.2 Activate the IPC Committee and hold regular meetings	2017	MOH		-	Regular meeting reports and actions on IPC issues are addressed
4.1.3 Strengthen the national and facility based IPC programmes through regular training including Pa Enea	2017, 2018	MOH IPCC	\$2,000	WHO/Potential Donor Funding	Regular trainings conducted
4.1.4 Strengthen recording/supply processes and maintain appropriate stock levels at all times of PPE and IC supplies including those for Pa Enea	2017, 2018	MOH Pharmacy, Quality and Infection Control, Pa Enea medical officer in charge/nurse practitioner, Hospital Manager		-	No or limited stock outs of PPE and IC supplies reported from the hospital as well as Pa Enea
4.1.5 Pa Enea to ensure all medical waste is disposed of as appropriate including returning to Rarotonga for incineration if applicable	2017	MOH/ HHS and Pa Enea officer in charge		-	No reports of incidents with inappropriately disposed waste
4.1.6 Ensure ongoing maintenance of the Rarotonga and Aitutaki hospital incinerators	2017	Hospital Manager MOH	\$5,000	WHO/Potential Donor Funding	Maintenance plan for incinerators are in place

4.1.7 Raise the awareness of infection control practises in the community and congregate settings	5 May (National Hand Hygiene Day) Times of drought, heavy rains and during national events	MOH, MOE, MOA	\$5,000	WHO/Potential Donor Funding	Number of events held where infection control messaging and practices were available.
4.2 Strengthen IPC in the agriculture, private and environment sector including Pa Enua					
4.2.1 Conduct a situational analysis on water and sanitation	2017	MOH, MOA, MMR, ICI (Te Mato Vai), NES	\$10,000	SPC/FAO/WHO/Potential Donor Funding	Report from the situation analysis available and forward actions identified
4.2.2 Share information between sectors on best practises of IPC including biannual training on IPC	2017, 2018	MOH, MMR, MOA, MOE	\$2,000	SPC/FAO/WHO/Potential Donor Funding	<ul style="list-style-type: none"> - Trainings conducted - Regular meetings recorded