Cook Islands Health Workforce Plan 2016-2025

Workforce Development Pathway for Cook Islands Ministry of Health

30 November 2016

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Introduction

This plan proposes a pathway for the development of the Cook Islands health workforce to 2025. The plan charts the further development of the health workforce development, which was initiated through the *Health Workforce Plan 2010-2020* and the subsequent *Clinical Health Workforce Plan 2015-2020*.

The health workforce of the Cook Islands has achieved a great deal, despite the challenges of a small and dispersed population, a limited revenue base and the pressures of an international marketplace for health professionals. A strong core workforce has been built with very good connections to other countries, particularly New Zealand, through the Health Specialists Visits (HSV) programme.

This plan proposes a staged and incremental process to substantially grow and develop the health workforce over the next decade, to build both workforce capacity and capability, and to meet current and future challenges.

Health workforce challenges

In interviews undertaken for this review, the following challenges were identified:

- Funding constraints, in that the health system was seen to be working within tight fiscal settings which created barriers to growing the workforce, and accessing continuing professional development (CPD) and continuing medical education (CME) opportunities[*]
- Attracting school students for health-related careers, and managing competition from other countries, particularly Australia and New Zealand
- Retaining the workforce, as a result of isolation and a high workload for some roles; for specialists in particular, the current environment of daily on-call is not viable, and greater levels of cover are needed
- Succession planning for a workforce that is ageing in some key areas
- Capacity and capability constraints, through piecemeal CPD and limited access to scholarships for training; routine work needing to be undertaken by staff at levels higher than appropriate; and reactive modes of operating with little practice care planning and collegial practice
- A workforce that is not well-geared towards the challenge of non-communicable diseases.

Key future directions

The core directions proposed by this review are to substantially build capacity and capability by 2025 in the following areas:

[*] For the purposes of this review, CPD refers to the overall process by which health professionals keep updated to meet the needs of patients, the health service, and their own professional development; CME refers to the specific medical education for medical officers and specialists. It is acknowledged that there are overlaps between the two.

- In the long-term, building a specialist presence across general surgery, general medicine, paediatrics, obstetrics and gynaecology, anaesthetics, with at least one Masters and one postgraduate diploma in each speciality; along with one postgraduate diploma trained ophthalmology and psychiatry/clinical psychology;
- Strengthening general practice training and presence on Rarotonga, Aitutaki and Pukapuka;
- Strengthened generalist nursing training and presence throughout the health system;
- Nurse practitioner training and development, with a view to providing health leadership across all other outer islands;
- Explore a Primary Health Care nursing model training program (Post Graduate qualification);
- Expanded presence and training of dental therapists;
- Undertake a modified environmental health training program in country for Public Health Inspectors;
- Complete a modified pharmacy technician training program in country;
- Maintain ongoing professional training for allied health sectors;
- A system reorientation towards integrated prevention and management of non-communicable diseases.

The table below estimates and summarises the overall proposed workforce expansion (developed in consultation with staff at the Ministry of Health and health professionals):

Workforce area	Baseline (2016)	Total by 2025	Net change from 2016
General practitioners/outpatients MO	22	29	10
Specialists/Registrars	4	11	7
Nurse Practitioner	13	24	11
Registered Nurses	59	78	19
Midwife	30	36	6
Mental Health Nurse	1	4	3
Allied health	15	26	11
Dental health	5	8	3
Total	**149**	**216**	**70**

Detailed tables and funding directions are set out in the main body of this plan. Funding sources would include the Cook Islands government, WHO, and NZ Aid Programme, and the commitments in this regard would need to be explored with these agencies and organisations.

The expanded workforce should be underpinned by the following developments:

- Focusing health workforce development and activity towards preventing and managing non-communicable diseases, and with improved proactive care coordination, particularly for people with long term conditions;
- Enhanced generalised capacity of nurse practitioners working in community settings;
- Sustained recruitment through schools, integrated with focused support and mentoring to key health-related subjects (particularly English, chemistry and mathematics);

- Enhanced use of telemedicine between outer island-based general practitioners/nurse practitioners and outpatients/specialist doctors in the centre;
- Continued use of 'flying doctor'-type services for GP/outpatients, specialists and dental officers, and medical evacuation where required;
- Structured formal supervision/mentoring from remote islands to centre (Rarotonga), and from centre to overseas-based services, via colleges, networks, and HSV;
- Strengthening the policy, funding and informatics functions, to ensure system capacity that will support the workforce development and service reorientation.

A range of potential directions to strengthen CME and medical officers' clinical competencies are proposed to provide further strength and capability to the workforce over time.

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This plan was prepared for the Cook Islands Ministry of Health and WHO by Health Specialists Ltd - Dr Tearikivao (Kiki) Maoate, Debbie Sorensen, Dr Adrian Field - a New Zealand-based health development consultancy. It follows a process of engagement with health leaders in the Cook Islands and review of workforce data and associated information.

1. Introduction

This document proposes a detailed staffing, development and funding plan for the Cook Islands health workforce to 2025. The plan complements and takes further the *Health Workforce Plan 2010-2020* and the subsequent *Clinical Health Workforce Plan 2015-2020*. This plan takes a greater level of detail in workforce development compared to the previous plans, identifies areas of development in Rarotonga and outer islands, and details areas for sustained additional investment in the clinical health workforce.

The Cook Islands has built a strong core health workforce, despite the challenges of a small population that is dispersed across a wide area. This plan sets out a vision and pathway for a health workforce that can grow to a level of size and strength to enable high quality health service planning and delivery to the Cook Islands over the next decade.

The detailed directions of this plan remains consistent with the overarching goal of the original *Cook Islands Health Workforce Development Plan 2010-2020*, which aims

> *"To have a workforce with the capability and capacity to provide quality health care services to achieve better outcomes for all people living in the Cook Islands."*

This plan also affirms the mission statement of the Cook Islands Ministry of Health:

> *"To provide accessible, affordable healthcare and equitable health services of the highest quality, by and for all in order to improve the health status of people in the Cook Islands."*

This plan remains consistent with the seven led goals of the *Clinical Health Workforce Plan 2015-2020*, detailed in the appendices.

The scale of development needed for the Cook Islands health workforce is such that this will require sustained additional investment over the next decade, if the workforce is to have the depth and skill set that can meet the many challenges it faces, particularly those of non-communicable diseases.

The report draws on an analysis of current staffing and costs in the Cook Islands health workforce, and interviews in the Cook Islands on critical workforce needs and challenges. These are combined with an assessment of future staffing, funding and development requirements to provide a detailed health workforce development plan.

2. Training and development needs

***Brief**: forecast training and workforce development needs to meet the functions stipulated in the National legislations and policies (Ministry of Health Act 2013, National Health Strategy 2012-2016 and National Sustainable Development Plan 2016-2020)*

Cook Islands health profile

In the 2011 Census, the Cook Islands had a population of 15,000, with a relatively young population; approximately 19% of the population are aged 5-14 years. Relative to many countries in the Pacific (as at 2009), the Cook Islands has a reasonably positive overall health profile, including a high life expectancy of 72 years, and low infant mortality rate of 7.1 per 1000 live births, and under-5 mortality rate of 9 per 1000. Health services in the Cook Islands have to date achieved a very good level of maternal health, low infant mortality and high childhood immunisation coverage. The population decline which has occurred over many years is expected to continue, particularly in the northern islands.

Total health expenditure in 2014 was estimated at 3.4% of GDP; and government spending on health represented 8.6% of total government expenditure[1]; these are considerably lower than many other Pacific countries, including Tonga, Samoa and Fiji.

Infectious diseases are becoming rarer in the Cook Islands, owing to improvements in water supply and sanitation, and regular water testing. Sexually transmitted disease in the Cook Islands remains a concern and requires consistent interventions to encourage sexually active people to seek medical assistance if symptoms are apparent.

However, there is an increasing burden of non-communicable diseases (NCDs), such as cardiovascular, cancer, diabetes, respiratory problems, along with risk factors such as hypertension, obesity and injuries.[2] NCDs are estimated to account for 85% of mortality in the Cook Islands and are expected to require considerable long-term investment in prevention, management and treatment in both community and clinical settings.[3]

The health infrastructure in the outer islands is fragile, with facilities that require ongoing maintenance and upgrading. Hospital buildings were designed and built for larger populations and a more reactive health workload.[4]

Current deployment of Cook Islands health workforce

Maintaining and improving the health of the population, and meeting its health needs, falls on the shoulders of a health workforce of approximately 300 people, supplemented by visiting medical staff from other countries, particularly New Zealand and Australia.[*]

The Cook Islands' population is spread over a very wide area, with its fifteen islands totalling 240 square kilometres located in an area of 1.8 million square kilometres of ocean (comparable in size to that of India). Over 2000 to 2010, the Cook Islands had 12 doctors per 10,000 population (low

[*] We are grateful to the Ministry of Health for the provision of detailed workforce data to support this plan.

compared to the Western Pacific region of 14.5 per 10,000, and globally of 14 per 10,000).[5] The health workforce is also challenged with a highly dispersed population.

Distribution by island and clinical areas

As detailed in Table 1 below, most of the health workforce (78%) is concentrated in Rarotonga, and to a lesser degree Aitutaki (9%), with other islands maintaining a small workforce, primarily nursing-based, non-clinical (particularly health protection) and dental services.

In the outer islands, a small pool of medical officers work on some islands (Aitutaki and Mangaia). The bulk of outer island health services are led by nurses who work as nurse practitioners, and some are Registered Nurses.

Table 1: Distribution of Cook Islands Health Workforce, June 2016

Island	Allied health	Dental	Medical Officer	Midwives	Non-clinical	Nursing	Specialist	Total by island
Aitutaki	2	2	2	3	12	6		**27**
Atiu		1		1	3	2		**7**
Mangaia			1		2	5		**8**
Manihiki					2	2		**4**
Mauke		1			2	2		**5**
Mitiaro						2		**2**
Palmerston						1		**1**
Penrhyn					2	2		**4**
Pukapuka					2	4		**6**
Nassau		1				1		**2**
Rakahanga						1		**1**
Rarotonga	20	15	19	26	89	58	4	**231**
Total by clinical area	**22**	**20**	**22**	**30**	**114**	**86**	**4**	**298**

The 2015-2020 Clinical Workforce Development Plan notes that the Cook Islands meets the WHO minimum threshold of 2.5 well-trained healthcare workers per 1000 population. However, the geographical spread and isolation in some small islands makes equitable service provision challenging. An internal patient referral system is in place to ensure access to health services between the outer islands and Rarotonga. The New Zealand Medical Treatment Scheme and the Health Specialists Visits (HSV) programme respectively provide additional access to health services in New Zealand, and in-country specialist care.

Medical officer and specialist workforce

Within the health workforce employed by the Ministry of Health, 26 operate as either medical officers or specialists. Specialists work in the fields of anaesthetics, obstetrics and gynaecology, general physician and general surgery (Table 2). In addition, the current Chief Medical Officer specialisation was as an emergency physician; however, at the time of writing he was due to step down from this role. There is no psychiatrist or clinical psychologist based in Rarotonga, although one medical officer is working in this role.

Specialists are defined as doctors who have completed advanced education and clinical training in a specific area of medicine (their specialty area), and are recognised by their professional society as a specialist. Note that specialist training differs between New Zealand, Australia and the Fiji

School of Medicine. Graduates from the Fiji School of Medicine are able to practice in the Cook Islands, but they are not able to practice in New Zealand or Australia without further training and supervision. Because of the more advanced training, some supplemental specialist support is provided to the Cook Islands from Australia and New Zealand where existing specialties are already in place.

At the time of writing, a four-year Cook Islands Fellowship in General Practice was being implemented, which was developed in partnership with the Royal New Zealand College of General Practitioners and the University of Otago. Through this programme, medical officers complete papers at Otago University and are given rural general practice placements in New Zealand. This specialist designation differs from that offered in New Zealand, and is tailored to the needs of the Cook Islands.

In 2016, on an annual basis, total salary costs for medical officers are $826,000, and for specialists are $386,000. The average age is 43.5 years for medical officers and 53.2 years for specialists. Succession planning is now established particularly for specialist areas.

Table 2: Medical officers and specialists by area of practice, 2016

Specialty	Medical Officers	Specialist	Total
Anaesthetist		1	**1**
Medical Officers/Ophthalmology	20		**20**
Mental Health	1		**1**
Obstetrics and Gynaecology		1	**1**
Physician		1	**1**
Surgery		1	**1**
Paediatrics	1		**1**
Total	**22**	**4**	**26**

Nursing workforce

Some 116 nurses are employed in the Cook Islands, in different areas of activity or seniority (Table 3). Almost half (42%) are registered nurses. Total nursing wage costs were $3.1 million in 2016. The average age of the nursing workforce is 43 years, but varies widely across different areas of practice.

Table 3: Nursing workforce, 2016

Area of nursing	Number	Average age
Charge nurse	8	49.1
Registered nurse	51	38.5
Midwife	30	43.1
Nurse practitioner	13	44.7
Mental health nurse	1	57.0
Public Health Nurse	13	46.8
Total	**116**	**43.0**

Allied health workforce

22 people are employed in allied health, including one dietician, 10 working in different capacities in laboratories, 6 in pharmacy, 2 radiologists, 1 Physiotherapist, 1 Theatre Technician, 1 Paramedic

and the remainder in support or management roles (Table 4). Allied health workforce costs are $731,000 and the average age is 44.2 years.

Table 4: Allied Health workforce, 2016

Area of practice	Number	Average age
Dietician	1	51.0
Laboratory	10	44.1
Pharmacy	6	39.5
Radiology	2	38.5
Physiotherapy	1	51.0
Theatre Technician	1	41.0
Paramedic	1	24
Total	**22**	**44.2**

Dental workforce

20 people are employed in a variety of fields of dental health (Table 5). Dental health workforce costs are $577,400 and the average age is 43.9 years.

Table 5: Dental health workforce, 2016

Role	Number	Average age
Dental assistant	2	37.0
Dental hygienist	1	42.0
Dental officer	4	46.3
Dental therapist trainee	2	22.5
Management	1	43.0
Primary oral health worker	5	32.6
Public health dental specialist	1	36.0
School dental therapist	2	58.5
Senior dental technician	1	55.0
Supervisor clinical dental	1	66.0
Total	**20**	**43.9**

Other areas of the health workforce

Other aspects of the Cook Islands health workforce include the following:

- 55 working in central policy, analysis, administration, health inspectors and health promotion
- 59 working in the services sector, including ambulance officers, infection control cleaners, cooks, grounds staff and maintenance.

Key health workforce challenges and opportunities

Challenges

In discussions with stakeholders, a range of challenges to the development of the Cook Islands health workforce were identified.

Funding constraints was frequently cited; the health system was seen to be working within tight fiscal settings which compounded challenges of offering competitive salaries and restricted opportunities for funding training, CPD and CME.

The current Health Workforce Plan 2015-2020 sets a goal of workforce development within the current fiscal settings, on the basis of better containment of non-communicable diseases (NCDs). This is however unrealistic as the challenge of managing NCD costs, such as those of diabetes and cardiovascular disease, can only be overcome in the long-term rather than a short five-year time-span. Indeed, the challenge of NCDs argues in favour of greater workforce investment.

Three inter-related issues were identified as attraction, retention and succession:

- Attraction, in the sense of low interest among school students for health-related careers, and the challenge of offering competitive salaries. There was also seen to be competition from other countries, particularly Australia and New Zealand.
- Retention, as a result of the isolation of some roles. This was creating a high workload for some roles, particularly specialists, and increasing the risk of burnout.
- Succession, in terms of a workforce that is ageing in some key areas, and the ability to plan for the development of the workforce in a staged, incremental way that meets current and future demands. Between 2016 and 2025, an estimated 32 clinical staff (including medical officers, registered and enrolled nurses, specialists and nurse practitioners) are due to retire.

The third area of challenge is capacity and capability:

- At a general level, there was seen to be piecemeal CPD and limited access to scholarships for training, which contributed to gaps in retaining and building competencies.
- There was a general sense from interviews that the workforce is not well-geared towards the challenge of non-communicable diseases; the workforce needs to adapt to provide greater breadth and person-centred health care that reflects individuals and families' multiple health needs.
- There was also an indication that many medical staff are spending too much time working on areas that should be the role of nurses, and are not sufficiently able to work at the level of practice their training should indicate.
- Medical officers working in general practice and outpatient settings are operating reactively with little practice care planning and practicing collegially (critical to managing long-term conditions).
- Nurse practitioners, particularly those on outer islands, were seen to be isolated, lacking training and need more structured linkages to doctors working at the centre. The potential for nurse practitioners to deliver cost effective and sustainable health care across the Cook Islands is not yet fully realised.[4]

- In specialist practice, the greatest risk was in burnout of some specialist roles where only one is practising (including general surgery, O&G and general medicine) and are constantly on call. There are key gaps in paediatric and mental health services.
- In emergency departments, advanced critical care resuscitation training was noted as needed for staff in these settings.
- Critical work in quality assurance and infection control require strengthening in reporting and competencies across the workforce.

Opportunities

Amidst these challenges, there are also a range of opportunities for the development of Cook Islands health workforce. These include:

- The Cook Islands Fellowship in General Practice was widely seen as an integral tool in building a strong general practitioner workforce. This offers a career pathway for medical officers outside of specialist care, and ultimately offers the potential of a single integrated primary care/outpatients service across community and hospital settings. However, it was thought that it would take 5-10 years for the impact of this to be widely seen.
- A National Training Needs Assessment currently being commissioned by the Ministry of Education.
- In-country training funding opportunities available through the Ministry of Education.
- The shift to a bulk funding model for scholarships via the Ministry of Education; the view was that this would free up more funds and that health would be a priority for funding. The extent of funding available was unclear.
- The extensive ties to New Zealand specialists through health specialist visits offers ongoing clinical guidance, grand round and other learning opportunities.
- Telemedicine and e-learning opportunities, connecting the remote islands with support, teaching and supervision in Rarotonga, and with the potential to link clinicians in Rarotonga to similar support in Australia and New Zealand.
- There is potential for block learning opportunities in-country via CITTI, which could be shared across disciplines for common areas of learning (such as IELTS, chemistry, maths, physics, microbiology, physiology and anatomy).

Current training in progress

At the time of writing, a range of people are undergoing nursing, medical officer or specialist training:

- Nursing: Six students completing their third and final year of training and nine students completing their second; no first year training is occurring in 2016 but a new tranche is planned for 2017. The programme was rated good in terms of both educational performance and self-assessment in an NZQA assessment of nursing training completed in 2016.[6]
- Medical officer: One graduate anticipated in 2016, two in 2019 and one in 2020
- Cook Islands General Practice Fellowships: One to complete in each of 2016 and 2017, and potentially up to three in 2018-19

- Specialists: One Masters in Internal Medicine and one Masters in Anaesthetics to complete in 2017; and one O&G Masters and one Surgical Masters to complete in 2018.

Key future directions

Reflecting on the current state of the Cook Islands health workforce, there is seen to be a competent and committed workforce that has delivered well to date. However, there are key pressures in the health workforce that need to be addressed for the Cook Islands to have a viable and sustainable workforce that can meet the challenges of tackling non-communicable diseases, and ensuring equitable and efficient health service access to its dispersed population.

In the sections that follow, we propose a workforce development model that:

- Substantially builds the capacity (staffing) of the Cook Islands workforce across multiple areas
- Strengthens professional development and continuing medical education pathways
- Transforms existing international links through the Health Specialists Visits (HSV), colleges and mentoring/supervision to systematically build the capability of the health workforce
- Builds general capability to recognise, respond and where necessary refer to the centre (Rarotonga) or to New Zealand
- Builds in-country training opportunities across all disciplines
- Focuses on preventing and managing non-communicable diseases

The key areas of development proposed are:

- Expanding the number of specialists in most disciplines, and with the addition of paediatrics;
- Future funding the Cook Islands GP fellowship training for most current medical officers, as well as those hired in the future;
- Expanding the general practitioner workforce in Rarotonga, Aitutaki, and Pukapuka;
- Building the nurse practitioner workforce on all islands;
- Increasing capabilities for nursing, allied health, dental, pharmacy and public health inspectors, including a modified environmental health training programme in country for public health inspectors, a modified pharmacy technician training programme in-country and maintaining ongoing professional training for allied health sectors;
- Increasing capabilities for nursing, allied health, dental, pharmacy and public health inspectors;
- Strengthening of a mental health team including a psychiatrist and/or psychologist;
- Exploring a Primary Health Care nursing model training program (Post Graduate qualification);
- Refocusing activity towards prevention and management of non-communicable diseases.

These changes should be underpinned by comprehensive professional development and strengthened CPD and CME programmes, and leveraging learning opportunity via visiting health specialists.

The pathway proposed will require intensive forward investment over the next seven to ten years to build the workforce to the level proposed; following this initial investment the funding will shift to a model that is more focused on maintaining and replenishing workforce capacity and capability.

3. Minimum service levels

Brief: *standardize the minimum levels of services across the country based on geographical distribution and transportation access*

The proposed development of the Cook Islands health workforce is targeted towards ensuring the following minimum service levels by 2025:

- Specialist presence across general surgery, general medicine, mental health, paediatrics, obstetrics and gynaecology, ophthalmology, anaesthetics; and supported by a nurse leader in each specialty;
- Expanded general practice skill set and health leadership on two of the outer islands
- Nurse practitioner training and development, with a view to providing health leadership across all other outer islands
- Expanded presence of public health nursing, dental therapists and health protection
- Expanded radiology and ultrasound capability and development of a CT service.

As a small island state, a staged and incremental development process is needed over the ten years. Table 6 on the following pages proposes a core minimum service level to be developed and maintained for each island over the next seven to ten years. Section 4 details the staffing requirements and placements, and section 5 details the funding requirements.

The table is based on the following service profile in each island:

- Rarotonga: Concentration of secondary care, allied health, mental health, and centre for leading primary care/outpatient services, public health and dental services, together with Cook Islands-based health services education and training activities, and advanced level life support ambulance service.
- Aitutaki: Presence of primary health care/outpatient services through general practitioners/medical officers, nurse practitioners and enrolled/registered nurses; health protection officers and public health nursing; and advanced level life support ambulance service; availability of some lab services, along with radiology and ultrasound services utilizing one fully trained radiographer.
- Pukapuka: Presence of primary health care/outpatient services through general practitioners/medical officer, nurse practitioners and enrolled/registered nurses; and health protection services
- Atiu, Mangaia, Manihiki, Mauke, Mitiaro, Palmerston, Penrhyn, and Rakahanga: Local health leadership through nurse practitioners, combined with support from registered/enrolled nurses, health protection officers and some dental workers.

Table 6: Human resources to provide minimum services, for development to 2025

Island/ Sector	Aitutaki	Atiu	Mangaia	Manihiki	Mauke	Mitiaro	Palmerston	Penrhyn	Pukapuka	Rakahanga	Rarotonga
Population	2035	480	573	243	310	180	60	203	453	77	13,100
Allied health	Lab technician, Radiographer										Laboratory Pharmacists Radiographers Quality and infection control management
Dental health	Dental therapist	Dental therapist	Dental therapist	Dental therapist	Dental therapist	Dental therapist		Dental therapist	Dental therapist		Dental officer Therapist Technician Hygienist School dental nurse
Mental health											Psychologist and/or psychiatrist Mental health nurse
Primary health care/outpatients	General practitioner/ medical officer Nurse practitioner / registered nurse Paramedic	Nurse practitioner / registered nurse	Nurse practitioner / registered nurse	Nurse practitioner / registered nurse	Nurse practitioner / registered nurse	Nurse practitioner / registered nurse	Nurse practitioner / registered nurse	Nurse practitioner / registered nurse	General practitioner/ medical officer Nurse practitioner / registered nurse	Nurse practitioner/ registered nurse	Paramedic General practitioner/ medical officer Nurse practitioner / registered nurse Nurse education NCD nurse Advanced life support Ambulance officer
Public health	Health protection Public health nurse	Health protection / Public health nurse	Health protection / Public health nurse	Health protection / Public health nurse	Health protection	Health protection	Health protection	Health protection	Health protection	Health protection	Health promotion Health protection Public health nurse

Island/ Sector	Aitutaki	Atiu	Mangaia	Manihiki	Mauke	Mitiaro	Palmerston	Penrhyn	Pukapuka	Rakahanga	Rarotonga
Secondary care	Transport to/ outreach from Rarotonga as required	Transport to/ outreach from Rarotonga as required	Transport to/ outreach from Rarotonga as required	Transport to/ outreach from Rarotonga as required	Transport to/ outreach from Rarotonga as required	Transport to/ outreach from Rarotonga as required	Transport to/ outreach from Rarotonga as required	Transport to/ outreach from Rarotonga as required	Transport to/ outreach from Rarotonga as required	Transport to/ outreach from Rarotonga as required	General surgery General medicine Mental health Paediatrics Obstetrics and Gynaecology Ophthalmology Anaesthetics Nurse leader in each specialty Registered nurse Nurse education Midwifery Nurse Practitioner
Non-clinical	Ambulance Administration	Administration	Administration	Sea ambulance Administration	Administration	Administration	Administration	Sea ambulance Administration	Sea ambulance Administration	Sea ambulance Administration	Policy Administration Human Resource Funding and planning Health service data analysis/ intelligence

4. Clinical staff requirements

Brief: specify the number of clinical staff required in different areas, training in different areas and potential for WHO fellowships as well as exploring other funding options

Overall direction

To meet the future challenges of the Cook Islands health system and maintaining a healthy population across its dispersed islands, this development plan proposes a comprehensive programme of recruitment and development. This will enable the following key changes:

- Focusing health workforce development and activity towards preventing and managing non-communicable diseases, particularly through a strengthened primary health care system;
- Improved proactive care coordination, particularly for people with long term conditions, by general practitioners/nurse practitioners, with specialists providing focused care on complex cases;
- Enhanced generalised capacity of nurse practitioners, following development and implementation of a training curriculum, including nurse-led speciality clinics such as routine follow-up for diabetes, hypertension and gout care;
- Sustained recruitment through schools integrated with focused support and mentoring to key health-related subjects (particularly English, chemistry and mathematics);
- Enhanced use of telemedicine between outer island-based general practitioners/nurse practitioners and outpatients/specialist doctors in the centre (Rarotonga);
- Continued use of 'flying doctor' services to outer islands for GP/MOs, specialists and dental officers, and medical evacuation where required;
- Structured formal supervision/mentoring from remote islands to centre, and from centre to overseas-based services, via colleges, networks, and HSV.

The estimated staffing levels proposed in this section reflect the above changes, and should also be seen as indicative of the growth needed.

Key adaptations

It is stressed that this is not simply a recruitment programme; it will entail a substantial change management programme that would reconfigure the focus of health services to better meet the health needs of the Cook Islands people.

This new approach will require to some extent a re-framing of how the HSV operates. It will mean for specialist disciplines that become established in the Cook Islands, the need will be to focus more on supporting training and development, rather than in-country treatment. HSV patient-oriented activities will however need to be maintained for specialist areas that are not established through this plan.

Furthermore, this will require a significant shift in primary care, one that will be supported and given momentum by the Cook Islands GP Fellowships. The proposed redirection will place primary

care more at the centre of patient care, particularly for non-communicable diseases, with responsibility for the breadth of people's health needs and linking to specialist services. Such a shift will recognise the multidimensional nature of health, one that extends beyond episodic care.

Combined with the growth of graduates in the Cook Islands General Practice Fellowship, this approach envisages general practice as a key specialty and medical career pathway in the Cook Islands, and which is highly integrated between outpatient and community settings.

With appropriate reorientation and upskilling, primary care nurses will be able to take on a greater role in patient care, general practitioners will have a broader scope to include procedures currently undertaken by specialists (including fracture clinics and smears), and specialists will be more appropriately focused on more complex care needs. This will require strengthened training, supervision and peer review across the workforce.

On the outer islands, a strengthened nurse practitioner workforce will be required with sufficient training and enhanced scope of practice. This should be supported by clear processes and support to ensure fidelity to good practice, along with greater use of multifunctional telemedicine to enable high quality support at a distance, from primary and secondary care leaders in Rarotonga. This could include peer support, mentorship, supervision and continuing education.[4]

Clinical staffing levels

Medical officers and specialists

In total, an additional 17 general practitioners and medical specialists are proposed by 2025, comprising net additions of 10 general practitioners/medical officers and 7 specialists. This also assumes retirement of some staff, estimated at around eight general practitioners/medical officers and 2-3 specialists (based on the number approaching retirement). This is detailed further in Table 7 below. A mixture of Masters trained specialists and postgraduate diploma level registrars are proposed. Whilst ideally, all GPs would have training in the Cook Islands Fellowship, it is unlikely that this will be achieved by 2025; it is however proposed that at least 12 will reach this level of training.

Appendix 1 indicatively details the growth anticipated each year between 2016 and 2025, and the estimated salary costs (based on 2016 dollars).

Table 7: Medical officers, general practitioners and specialist staffing changes, 2016-2025

Medical officers/specialists	Baseline (2016)	Total by 2025	Total trained	Net change	Notes
General practitioners/ outpatients medical officers	21.5	29	19	10	Expansion of Cook Islands GP Fellowship
Ophthalmology	0.5	0.5	0.5	0	1 PG Diploma
Paediatrician	0	2	2	2	1 Masters and 1 PG Diploma (i.e. registrar level)
Anaesthetist	1	2	1	1	1 Masters
General medicine	1	2	2	1	1 Masters and 1 PG Diploma
Obstetrics and gynaecology	1	2	2	1	1 Masters and 1 PG Diploma
General surgery	1	2	1	1	1 Masters and 1 PG Diploma

Psychiatry/Clinical Psychologist	0	1	1	0	1 PG Diploma (psychologist/mental health)
Public Health Physician (NCD focus)	0	1	1	1	1 Masters
Total	**26**	**41.5**	**29.5**	**17**	

This growth will enable a stronger medical presence on the outer islands. As indicated in section 3, this envisages by 2025:

- Two general practitioners based on Aitutaki to support the local and the higher tourist population
- One general practitioner for Pukapuka
- All others, including specialists, in Rarotonga

The expansion of the Cook Islands General Practice Fellowship programme, together with the development of specialised capacity, will together support stronger coordinated care to the Cook Islands population. It will also provide over time critical relief to an overworked specialist workforce who are effectively on call 24/7 and support the future sustainability of the Cook Islands health workforce.

Nurses and midwives

Accompanying the growth of the specialist and general practitioner workforce, sustained growth is also proposed in the nursing workforce.

The key developments proposed are to:

- Foster the growth of independent community-based nurse practitioners to lead health services in many outer islands, and to work alongside general practitioners in Aitutaki and Pukapuka;
- Build generalist nurse capacity in each of the proposed areas of specialist development; this would provide a foundation across the nursing workforce, including development of lead nurses within specialist practice areas and public health nursing
- Continue the training programme of nurses beyond 2018, with a further two smaller tranches of training in 2020-22 and 2022-2024
- Expansion of mental health nursing workforce, with an additional three recruited by 2025
- Development of up to six additional midwives.

These are detailed in Table 8 below. As with the previous analysis, some retirement/attrition is expected, with a total of 20 estimated.

Table 8: Nursing staffing changes, 2016-2025

Nurses/midwifery	Baseline (2016)	Total by 2025	Total trained	Net change from 2016
Nurse practitioner	13	24	11	11
Registered nurses	59	78	29	19
Midwifery	30	36	6	6

Mental health nurse	1	4	3	3
Public health nurse	13	13	0	0
Total	**116**	**155**	**49**	**39**

Allied and dental health

Alongside growth of the medical and nursing workforce, some growth is also anticipated in the allied health and dental workforce, as set out in Table 9 below. The key developments are in:

- Substantial growth of laboratory and radiographer staffing
- Two further physiotherapists
- Development of the dental workforce, including training of dental therapists and recruitment/training of a new dental technician
- Advanced life support ambulance service (Rarotonga).

Retirement/attrition of four staff is anticipated.

Table 9: Allied/dental health staffing changes, 2016-2025

Allied/dental health	Baseline (2016)	Total by 2025	Total trained	Net change from 2016
Anaesthetic technician	1	2	1	1
Dental therapist	4	7	3	3
Dental technician	1	1	1	0
Clinical physiotherapist	1	3	2	2
Laboratory technician	10	15	8	5
Radiographer/Sonographer	2	4	2	2
Advanced life support ambulance (Paramedic)	1	2	1	1
Total	**20**	**34**	**18**	**14**

Policy and health informatics

Although not the focus of this review, we propose that some development of the policy function of the Ministry of Health is warranted. There is a need for further enhanced health information capacity. We therefore recommend that the health service intelligence role is expanded by an additional two to three further positions (from one previously). Further, the Chief Medical Officer (CMO) role is an important direct advisory role on health system delivery and service performance, and should be continued following the retirement of the current CMO.

In addition, the Cook Islands has an enviable health system asset in the form of a nationwide electronic patient record, providing a single unique health identifier through which the interactions of everyone in the health system are recorded. Allied with the centralised health infrastructure, this offers a prime opportunity for the integrated health management of the Cook Islands population. This would be a major platform in confronting non-communicable diseases and would support both the primary health care and secondary services workforce. This would be supported by the additional health information staffing indicated above, and would also require a

significant upgrade of the health information systems used in the Cook Islands (as discussed in another strategic planning document for the Cook Islands Ministry of Health).[4]

5. Future funding options

Brief: *inform policy options for future funding available to the health sector*

Funding requirements

A development package of this scale requires sustained investment over a ten-year period to achieve a workforce that has the capacity and capability needed.

In 2016, total staffing costs for the Ministry of Health are $8.2 million. Indicatively, we estimate that by 2025, the total additional workforce salary costs for the new proposed positions will be in the range of $2.4 million to $3.0 million (in 2016 dollars), comprising the following:

- General practitioners, medical officers and specialists: $1.5 million to $2 million (this includes locum costs for specialists estimated at $52,000 in 2016 rising to $92,000 in 2025)*
- Nursing: $1.3 million to $1.5 million
- Allied health and dental: $0.3 million to $0.4 million.

In addition, the fee and other associated training costs for such a development programme will be substantial; but at the time of writing, insufficient data is available to accurately assess these costs across all fields. It would be reasonable to assume however that the same quantum for additional salary costs ($2.4 million to $3 million) should be assumed for additional fees and support costs over the same period.† Currently a mixture of WHO, NZ Aid Programme, and Cook Islands Ministry of Health funding is used to support training costs.

We propose an annual CME funding budget based on the following levels per annum:

- General practitioners, medical officers and specialists: $9,000 per specialist and $5,000 per GP/MO; noting that not all medical officers will have overseas CME.
- Nursing: pool funded at $5,000 per nurse practitioner/senior nurse and $3,000 for other nurses
- Allied health and dental: pool funded at $5,000 per practitioner.

The level of CME funding proposed for specialists is lower than what would be available to New Zealand-practising specialists (currently $16,000 in the MECA contract); this would therefore require additional support from specialist colleges to support CME.

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* It is assumed that the growth of additional specialists/registrars will reduce the required locum costs per specialist overall; and that rotation of GPs/MOs will remove the need for locum support.

† Noting that the training costs are one-off and concentrated in the 2016-2025 period; whereas the salary costs build incrementally.

If CME funding is taken up at the level proposed, this would cost approximately $306,000 in 2017, increasing to $1.6 million in 2025 (again using 2016 dollars). This is detailed further in Table 10 below.

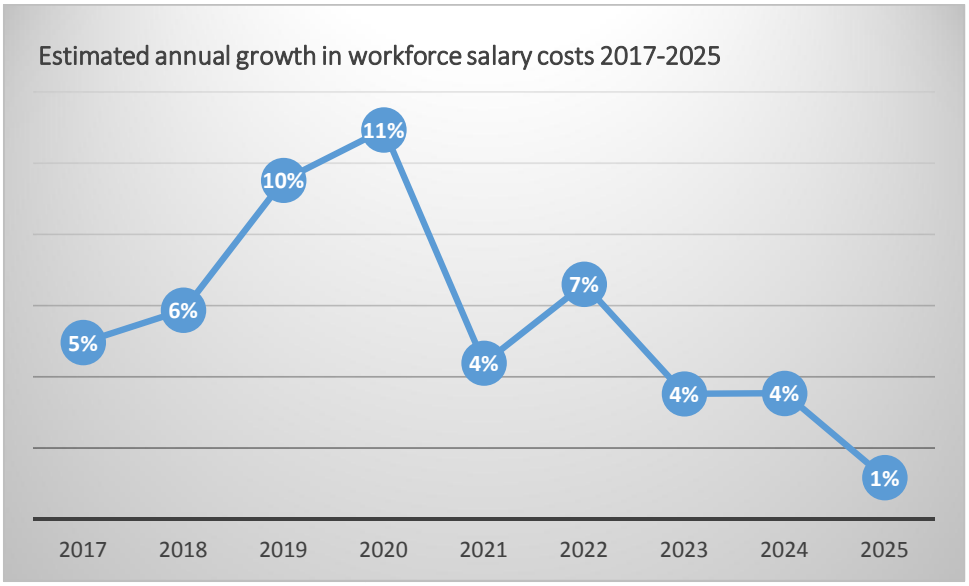
Table 10: CME funding by service area

Service area	Budget	Cost
General practitioners, medical officers and specialists	$9,000 per specialist and $5,000 per GP/MO	$74,000 in 2017 and $1 million in 2025
Nursing	Pool funded at $5,000 per nurse practitioner/senior nurse and $3,000 for other nurses	$182,000 in 2017 and $500,000 in 2025
Allied health and dental	Pool funded at $5,000 per practitioner	$50,000 in 2017, increasing to $82,000 in 2025

Please note that 2016 dollars are used because of the challenges of predicting inflation and wage cost growth.

For access to this CME funding, certain criteria will need to be established pertaining to the relevancy of the program, perceived outcomes of the CME and associated costs.

Whilst these figures appear large, it is important to stress that an incremental approach is proposed which will mean a staged approach to workforce growth and funding, with the largest increase occurring in 2020 (11%), and tailing off to 1% by 2025 to a level that will allow for maintenance of workforce levels. This will ensure a more affordable transition to the new workforce model.



Funding sources

To achieve this level of staffing and associated CME/professional development funding requires a significant, but staged investment. The incremental staging of this additional investment will ensure an affordable transition to the new workforce model.

There are a range of funding sources that would be appropriate for this level of workforce development. The funding required would need to be explored with these agencies and organisations:

- Tax revenue: The extent to which health services and the health workforce are funded is primarily an allocative decision made by central government. The workforce development approach proposed here will require sustained additional investment. We note that investment in the health system in the Cook Islands is low compared to other Pacific countries and that this would therefore offer an important opportunity for improved parity with other Pacific nations.
- WHO: The World Health Organization is a key donor source for workforce development in the Cook Islands, and further funding to support some elements of the programme will be required. WHO fellowships should be considered to support the medical, nursing, allied/dental health education components of workforce development as a platform for lifting the capability and capacity of the Cook Islands in future years.
- NZ Ministry of Foreign Affairs & Trade (MFAT): A shift has occurred from NZ-led selective funding to a bulk funding model for scholarships via the Ministry of Education; it is expected this will broaden the funding pool and that health would be a priority for funding. This offers a further funding source.
- Colleges: Professional colleges have supported many medical personnel to attend conferences, professional meetings and other training opportunities. These should continue to be leveraged, and to be structured more systematically into funding for continuing medical education.
- Other funders: These would require further exploration and may include philanthropic and European Union assistance.

6. Continuing medical education

Brief: *Develop a structured continuing medical education programme for all medical officers*

Continuing medical education (CME) is an important arm of the ongoing training of medical officers (and indeed all other service providers in the health system). We have been asked to develop a structured CME programme for Cook Islands medical officers as part of this plan.*

Professional development fits within the ambit of the Medical and Dental Practices Act 1976, which controls professional and ethical standards of medical and dental practice. In particular, this is to:

- Establish and maintain registers of persons who are entitled to practice medicine or dentistry
- Regulate private medical and dental practices
- Maintain discipline within the profession
- Advise and make recommendations to the Minister in respect of any matters affecting medical or dental practices in the Cook Islands.

Feedback from interviews in the Cook Islands indicates that CME is reasonably well-established. However, an important shift suggested for CME is towards building more open discussion and dialogue through open peer groups, and for stronger supervision and peer review of junior doctors, as discussed earlier.

This section sets out the core elements of a CME programme, drawing on established standards[7] and feedback from interviewees, to further build CME within the Cook Islands.

Purpose

CME is intended to maintain and develop competencies of doctors, to meet the needs of patients and the Cook Islands health system, explore new learning in medicine and respond to the requirements of professional bodies and the community.

CME development

International practice indicates that a needs assessment is a key element of CME, both formal and informal, around which CME programmes can be based for individual doctors and for teams; this should also be balanced against emerging issues that may only be appearing on the horizon for teams. CME activities should also be designed with the intention to enhance motivation to learn and improve practice.

Tailored learning design and approaches

CME should be tailored to the needs of individual doctors and carried out on a continuous basis. The learning should encompass integrated practical and theoretical components to enhance medical practice. Doctors should select CME content based upon their individual plans for learning.

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* Other health professionals were not part of the brief for this plan.

CME activities of doctors should be based on effective learning strategies, which lead to enhancement of quality of care, and include interdisciplinary team learning when appropriate

Doctors will require protected time and opportunities for reflection on practice, access to adequate professional literature, and opportunities for skills training

Informal opportunities for learning via interactions with colleagues, professional reading, and reflections on one's own experiences are essential aspects of a health worker's professional development.

Doctors should have access and be competent to use information and communication technology for self-directed learning, for communication with colleagues, information searching, and patient and practice management. As e-learning becomes more widely available at reasonable cost, the opportunities to use such technologies in CME will become more widespread, both within the Cook Islands and between the Cook Islands and other countries. This may offer some cost-efficient learning opportunities, particularly for the more remote islands.

Clinical simulation labs are recognized as an extremely effective learning tool. While they are expensive to establish, there are lower cost alternatives being developed that should be explored and considered for funding.

Leadership

The CME programme in the Cook Islands should be actively supported and led from with the Ministry of Health and involve the active collaboration of all medical teams and other relevant stakeholders (e.g. visiting specialists) in identifying areas of direction. The Chief Medical Officer will have a key role in fostering CME locally and building international links to support CME.

Supervisors and managers should encourage health workers to take advantage of CME opportunities, and working conditions must ensure time and other resources are available for CME. The Ministry should ensure regular review and updating of the structure, function and quality of CME activities. Selected areas of CME should be mandatory as a requirement for continuing a license to practice.

Mortality and morbidity review should be structured into elements of CME, to explore patterns of service outcomes at a system level, and the potential responses of clinicians.

International links

Links with existing colleges, the HSV, and other professional networks should be leveraged to bring the most up-to-date learning to bear. This is supported by international guidance, which stresses that the medical profession, in collaboration with other stakeholders, need to develop systems that encourage and recognise participation in local, national, and international professional development courses, scientific meetings and other formalised activities. Doctors must have opportunities to attend such activities.

Professional colleges have supported Pacific medical professionals through a range of activities, including training courses and workshops, train-the-trainer courses and support for participants to attend courses, including accommodation and international travel where courses are unavailable

in a participant's home country. Ways in which these can be embedded more formally and systematically should be explored.

Programmes such as HSV and SSCIP (Strengthening Specialised Clinical Services in the Pacific) also offer the opportunity for learning through clinics, grand round training and tailored support. If the workforce development model that is proposed in this plan is adopted, some reorientation of HSV over time will be useful, to enable it to be more focused towards capacity building. This should also be structured into HVS and SSCIP schedules.

It may also be useful to explore opportunities for more structured formal relationships with tertiary centres in New Zealand and Australia for learning and advice.

Documentation

An important element of CME programmes internationally is not simply that learning needs are identified and opportunities are made available and taken up, but that both needs and learning activities are documented by individual doctors and used as an opportunity for reflection against his or her own practice (performance appraisal). This informs further CME planning, provides 'learning portfolios' to share with peers, and helps track clinical progress and outcomes of doctors.

CME provision

International practice makes clear that providers of CME should be able to describe the educational basis of their activities including access to educational expertise. Any conflicting interests of CME providers should be declared. The providers of CME activities must meet agreed educational quality requirements. CME activities must be provided in settings and circumstances that are conducive to effective learning.

CME evaluation

CME activities need to be evaluated and steadily refined to ensure they continue to effectively support the ongoing professional development of medical officers. Where possible, this should involve experts in medical education and explore the learning process, the structure and specific components of CME and the learning outcomes. Feedback from CME participants needs to be systematically sought, based on agreed criteria.

Funding

Funding of CME activities is a necessary part of any health care system. Furthermore, funding systems for CME should ensure independence of doctors in their choices of CME activities.

As discussed earlier, we propose that all specialists should be supported to travel to a professional conference each year, with funding pools established with approximately $5000 allocated per person per year for this, as well as other tools and training. Medical officers (and also senior nurses) expected to attend a relevant professional meeting each year with a budget of $3000 per person per year.

7. Medical officers' clinical competencies and standards

Brief: *Develop the Cook Islands Medical Officers Clinical competencies and standards framework to sustain the safe practice of medical officers and maintain the provision of quality health service to all patients*

At a more specific level, we have been asked develop a Cook Islands medical officers' clinical competences and standards framework to sustain the safe practice of medical officers and maintain the provision of quality health service to all patients.

Establishing competencies at this level is a substantial undertaking, one which is developed over an extended period of time and involving widespread stakeholder consultation. Whilst such an exercise is outside the scope of this plan, we can offer some useful starting points for reflection in the development of such a framework from the international experience. It is also noted that the New Zealand Medical Council is understood to be working with the Cook Islands to help build a clinical competencies framework further.

Principles-based

The New Zealand Medical Council's *Good Medical Practice* guide[8] offers a principles-based approach for medical students, doctors and patients to reflect on practitioners' ethical and clinical conduct. Its core principles are detailed in Table 11 below.

Table 11: Principles of Good Medical Practice (NZ Medical Council)

Principle	Explanation
Caring for patients	Making the care of patients the first concern. Protecting and promoting the health of patients.
Respecting patients	Establishing trust. Awareness of cultural diversity. Treating patients as individuals and respecting their dignity.
Working in partnership with patients and colleagues	Responding to patients' concerns; giving them information in a way they can understand and act; respecting their right to reach decisions; supporting them in caring for themselves to improve and maintain their health. Maintain the trust of colleagues, and treat them respectfully. Work with colleagues in ways that best serve patients' interests.
Acting honestly and ethically	Being honest and open when working with patients; act ethically and with integrity by acting without delay to prevent risk to patients; acting without delay if there is good reason to believe that a colleague may be putting patients at risk; never discriminating unfairly against patients or colleagues; never abusing patients' trust in oneself or the public's trust of the profession. Work cooperatively with, and be honest, open and constructive in dealings with managers, employers, the Medical Council, and other authorities
Accepting the obligation to maintain and improve standards	Act in accordance with relevant standards Keep professional knowledge and skills up to date Recognise, and work within, the limits of one's competence. Be committed to autonomous maintenance and improvement in one's clinical standards in line with best evidence-based practice. Demonstrate reflectiveness, personal awareness, the ability to seek

	and respond constructively to feedback and the willingness to share knowledge and to learn from others. Accept a responsibility for maintaining the standards of the profession.

Other approaches to clinical competencies and standards are detailed in Appendix 4.

8. Conclusions

The development pathway proposed in this document is ambitious and will require concerted action across all levels of the health and education systems if its goals are to be realised.

To succeed, the plan will require active recruitment and support for the health professionals of the future at school and into tertiary education. It will also require the selection and development of existing early career health professionals so that they can become the health leaders of the future. Finally, it will require new ways of thinking across health professions to develop new competencies and provide coordinated care in response to non-communicable diseases.

The payoff for the Cook Islands will be a responsive, proactive and highly skilled health workforce that can better meet the current and future health needs of the people in its care.

Appendix 1: Estimated health workforce development and salary costing 2016-2025

Workforce development indicative growth estimates

Medical officers/specialists	Baseline (2016)	2017	2018	2019	2020	2021	2022	2023	2024	2025	Potential attrition	Total by 2025	Net change from 2016
General practitioners/outpatients MO	21.5		1	1	2	3	3	3	3	3	6	29	10
Ophthalmology	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0
Paediatrician	0			1			1					2	2
Anaesthetist	1				1							2	1
General medicine	1	1						1			1	2	1
Obstetrics and gynaecology	1					1				1	1	2	1
General surgery	1				1							2	1
Psychiatry	0				1	1	1	1	1			1	0
Public Health Physician (NCD focus)	0				1							1	1
Total	**26**	**1.5**	**1.5**	**2.5**	**6.5**	**5.5**	**5.5**	**5.5**	**4.5**	**4.5**	**8**	**41.5**	**17**
Nurses/midwifery	**Baseline (2016)**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**Potential attrition**	**Total by 2025**	**Net change from 2016**
Nurse practitioner	13			3	3	3	2				2	24	11
Registered nurses	59	7	7		7			4		4	10	78	19
Midwifery	30				2		2		2		3	36	6
Mental health nurse	1				2		2				1	4	3
PH Nurses	13				2		2				4	13	0
Total	**116**	**7**	**7**	**3**	**16**	**3**	**8**	**4**	**2**	**4**	**20**	**155**	**39**

Allied and dental health	Baseline (2016)	2017	2018	2019	2020	2021	2022	2023	2024	2025	Potential attrition	Total by 2025	Net change from 2016
Anaesthetic technician	1					1						2	1
Dental therapists	4		1			1				1		7	3
Dental technician	1			1							1	1	0
Clinical physiotherapist	1				1				1			3	2
Laboratory technician	10			2		2		2		2	3	15	5
Radiographer/Sonographer	2				1				1			4	2
Advanced life support ambulance (Paramedic)	1			1								2	1
Total	**20**	**0**	**1**	**4**	**2**	**4**	**0**	**2**	**2**	**3**	**4**	**34**	**14**

Please note these are indicative estimates and will require further review and refinement.

Indicative salary costings 2016-2025 ($000)

Medical officers/specialists	Baseline (2016)	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total additional costs (2025, in 2016 dollars)	90% of additional 2025 costs	110% of additional 2025 costs
General practitioners/outpatients MO	$864	$864	$864	$918	$1,026	$1,134	$1,296	$1,404	$1,512	$1,566	$702	$632	$772
Specialists	$301	$366	$431	$561	$690	$742	$807	$807	$807	$807	$506	$455	$557
Specialist locum costs	$53	$53	$53	$63	$62	$62	$62	$62	$62	$62	$9.5	$8.5	$10.4
Total	**$1,165**	**$1,230**	**$1,295**	**$1,479**	**$1,716**	**$1,876**	**$2,103**	**$2,211**	**$2,319**	**$2,373**	**$1,217**	**$1,096**	**$1,339**
Nurses/midwifery	Baseline (2016)	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total additional costs (2025, in 2016 dollars)	90% of 2025 costs	110% of 2025 costs
Nurse practitioner	$455	$455	$455	$525	$595	$455	$735	$805	$840	$840	$525	$473	$578
Registered nurses	$1,475	$1,625	$1,800	$1,800	$1,900	$1,900	$1,950	$1,950	$1,950	$1,950	$475	$428	$523
Midwifery	$420	$420	$420	$420	$450	$450	$480	$480	$510	$510	$90	$81	$99
Mental health nurse	$25	$25	$25	$25	$75	$75	$75	$100	$100	$100	$75	$68	$83
Public health nurse	$351	$351	$351	$351	$351	$351	$351	$351	$351	$351	$-	$-	$-
Total	**$2,726**	**$2,876**	**$3,051**	**$3,121**	**$3,371**	**$3,441**	**$3,591**	**$3,686**	**$3,751**	**$3,751**	**$1,165**	**$1,049**	**$1,282**
												10% additional cost range	
Allied and dental health	Baseline (2016)	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total additional costs (2025, in 2016 dollars)		
Anaesthetic technician	$19	$19	$19	$19	$19	$38	$38	$38	$38	$38	$19	$17	$21
Dental therapists	$108	$108	$135	$135	$135	$162	$162	$162	$162	$189	$81	$73	$89
Dental technician	$28	$28	$28	$56	$56	$28	$28	$28	$28	$28	$-	$-	$-
Clinical physiotherapist	$32	$32	$32	$32	$64	$64	$64	$64	$96	$96	$64	$58	$70
Laboratory technician	$260	$260	$260	$286	$312	$312	$312	$338	$338	$338	$78	$70	$86
Radiographer/Sonographer	$66	$66	$66	$66	$99	$99	$99	$99	$132	$132	$66	$59	$73

Advanced life support ambulance	$26	$26	$26	$26	$26	$26	$52	$52	$52	$52	$26	$23	$29
Total	**$539**	**$539**	**$566**	**$620**	**$711**	**$729**	**$755**	**$781**	**$846**	**$873**	$334	$301	$367
Overall total	**$4,430**	**$4,645**	**$4,912**	**$5,220**	**$5,798**	**$6,046**	**$6,449**	**$6,678**	**$6,916**	**$6,997**	$2,716	$2,445	$2,988

Please note these are indicative estimates and will require further review and refinement.

Appendix 2: Persons consulted

Our thanks to the people whose time and reflections informed this plan. Those consulted during the plan's development were as follows:

- Mrs. Elizabeth Iro, Secretary of Health
- Ms. Temarama Anguna, Human Resources Manager
- Mrs. Roana Mataitini, Director Funding and Planning
- Mrs. Ngakiri Teaea, Chief Nursing Officer
- Ms. Mary Macmanus, Principal Lecturer, Cook Islands Nursing School
- Dr. Yin Yin May Aung, Obstetrician
- Dr Deacon Teapa, Surgeon
- Dr. Neti Herman, Director Community Health Services
- Dr. Danny Areai, Dental Manager
- Ms. Stella Neale, Quality Manager
- Mrs. Daphne Ringi, Chief Executive Officer, Office of the Public Service Commission
- Ms. Gail Townsend, Secretary, Ministry of Education
- Dr. Bernard Fouke, Chief Medical & Clinical Services Officer
- Dr. Mareta Jacob, Medical Officer in Charge, Outpatients & Emergency Department
- Dr. Kati Blattner, Senior Lecturer, Rural Hospital Medicine, Dunedin School of Medicine

Please note the proposals presented in this report may not reflect the individual views of each person consulted.

Appendix 3: Goals of the Cook Islands Clinical Workforce Development Plan 2015-2020

The goals established in the above plan remain highly relevant, and this plan is consistent with the following overarching goals.

1. Provision of training and educational opportunities for selected clinicians based on community development strategies and health advocacy to reduce the growing burden and cost of NCDs in communities.
2. A range of incentives in place to health workers, and salary adjustments for medical specialists, that effectively attract Cook Islands clinicians back home for short, medium or longer terms to provide needed health services.
3. The retention of existing health workers in critical professional areas.
4. A pipeline of younger people entering clinical service to replace those leaving through retirement; and systems in place to facilitate retirees making the transition to retirement or new roles in health advocacy/ community development in health or the private sector.
5. All Cook Islands clinical health workers providing professional services at an agreed high standard.
6. To complete an audit of facilities, equipment and available (or new) technologies required to provide clinical services to an acceptable standard and to provide items that are identified as limiting clinical practice.
7. Necessary workforce development functions are well supported by professional associations and networks of specialty peers, mentors and clinical advisers.

Appendix 4: Other models of competencies for future consideration

Abilities, knowledge and skills

The UK's Royal College of General Practitioners offers a work-based competency framework that provides a pragmatic reflection of the abilities, knowledge and skills that a medical officer brings to his or her role.[9] This is made up of 13 competencies which may offer useful considerations in day-to-day clinical settings:

1. Communication and consultation skills – communication with patients, and the use of recognised consultation techniques
2. Practising holistically – operating in physical, psychological, socioeconomic and cultural dimensions, taking into account feelings as well as thoughts
3. Data gathering and interpretation – for clinical judgement, choice of physical examination and investigations and their interpretation
4. Making a diagnosis and making decisions – a conscious, structured approach to decision making
5. Clinical management – recognition and management of common medical conditions in primary care
6. Managing medical complexity and promoting health – aspects of care beyond managing straightforward problems, including management of co-morbidity, uncertainty, risk and focusing on health rather than just illness
7. Organisation, management and leadership - an understanding of the use of computer systems to augment the GP consultation and primary care at individual and systems levels, the management of change, and the development of organisational and clinical leadership skills
8. Working with colleagues and in teams – working effectively with other professionals to ensure good patient care, including sharing information with colleagues
9. Community orientation – management of the health and social care of the practice population and local community
10. Maintaining performance, learning and teaching – maintaining performance and effective CPD for oneself and others
11. Maintaining an ethical approach to practice – practising ethically, with integrity and a respect for diversity
12. Fitness to practise – the doctor's awareness of when his/her own performance, conduct or health, or that of others, might put patients at risk, and taking action to protect patients
13. Clinical examination and procedural skills – competent physical examination of the patient with accurate interpretation of physical signs and the safe practice of procedural skills

Leadership-based

The work of a medical officer, particularly as one becomes more experienced and recognised within the community, often involves a transition to different forms of leadership – as a health professional, as a colleague, as a manager, as an expert and advocate, and as a decision maker. With this in mind, the NHS in Britain has developed a Clinical Leadership Competency Framework which works across five domains, set out in Table 12 below.

Table 12: NHS Clinical Leadership Competency Framework

Domain	Element
Demonstrating personal qualities	Developing self-awareness Managing yourself Continuing personal development Acting with integrity
Working with others	Developing networks Building and maintaining relationships Encouraging contribution Working within teams
Managing services	Planning Managing resources Managing people Managing performance
Improving services	Ensuring patient safety Critically evaluating Encouraging improvement and innovation Facilitating transformation
Setting direction	Identifying the contexts for change Applying knowledge and evidence Making decisions Evaluating impact

Some aspects of the above are supported for senior public servants in the Cook Islands (including medical officers) through the Public Service Commission's leadership programme, delivered through CITTI. This is however more focused on line management; whilst useful, there are likely to be gaps in building experience and competency in managing relationships in situations where hierarchies may not exist, and where influence is needed across and between organisations, and with local stakeholders (such as village councils on remote islands). Leadership within Cook Islands communities is therefore a further strand of leadership development that should be explored.

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