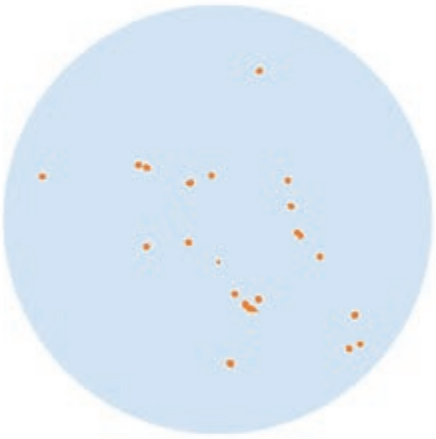
Human Resources for Health Country Profiles

Marshall Islands



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Acronyms

ADB	Asian Development Bank
AusAID	Australian Agency for International Development
AUT	Auckland University of Technology (New Zealand)
BA	Bachelor of Arts
BDS	Bachelor of Dental Surgery
BDSc	Bachelor of Dental Science
BS	Bachelor of Science
BSN	Bachelor of Science in Nursing
BSW	Bachelor of Social Work
CDC	Centers for Disease Control and Prevention (United States of America)
CMI	College of the Marshall Islands
CPE	continuing professional education
CSW	Certificate of Social Work
DCHMS	Diploma of Community Health and Medical Services
DDS	Diploma of Dental Science
DFAT	Department of Foreign Affairs and Trade (Australia)
DMD	Doctor of Dental Medicine
DO	Diploma of Osteopathy
EPPSO	Economic Policy, Planning and Statistics Office (Republic of the Marshall Islands)
FNU	Fiji National University
GDP	gross domestic product
GPA	grade point average
HINARI	Health Inter Network Access to Research
HRH	human resources for health
ISCO	International Standard Classification of Occupations
JCU	James Cook University (Australia)
MA	Master of Arts
MBBS	Bachelor of Medicine, Bachelor of Surgery
MD	Medical Doctor
MDG	Millennium Development Goal
MISGLB	Marshall Islands Scholarships, Grants and Loans Board
MS	Master of Science
MSN	Master of Science in Nursing
MSW	Master of Social Work
NCD	noncommunicable disease
NGO	nongovernmental organization
NTC	National Training Council
Ob/Gyn	Obstetrician/Gynaecologist
OT	Occupational Therapist
PA	Physician's Assistant
PhD	Doctor of Philosophy
PINA	Pacific Islands News Association
PINNED	Pacific Islands Network of Nurse Education Directors

POHLN	Pacific Open Health Learning Network
PPTC	Pacific Paramedical Training Centre (New Zealand)
PT	Physiotherapist
RD	Registered Dietitian
RMI	Republic of the Marshall Islands
RN	Registered Nurse
RP	Registered Pharmacist
SPC	Secretariat of the Pacific Community
SSCSIP	Strengthening Specialised Clinical Services in the Pacific
UNFPA	United Nations Children's Fund
UPNG	University of Papua New Guinea
USA	United States of America
USAPI	United States Associated Pacific Islands
USP	University of the South Pacific
WHO	World Health Organization
WUTMI	Women United Together Marshall Islands

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Executive summary

Background

The Marshall Islands is a group of 1225 islands that are home to 53 158 people, mostly of Micronesian origin. The capital city, Majuro, is the main urban centre with a population of approximately 27 000. The country gained independence in 1986 but is supported economically by a Compact of Free Association with the United States of America (USA). This close relationship allows minimal restriction on migration to USA with large numbers of Marshallese migrating across the Pacific. Traditional social structures are diminishing due to emigration and increasing urbanization.

The Marshallese people are almost totally reliant on the Government for health services, with less than 1% of health workers in the private sector. The health system comprises two hospitals, one each in the urban centres of Majuro and Ebeye, and 49 primary health care centres located on the rural outer islands. Funding for health care is not equitable. Almost 97% of health funding is directed towards the urban centres, even though 75% of the population live in these areas.

Current supply of human resources for health (HRH) and its distribution

At the beginning of 2012, there were 512 health workers employed by the Ministry of Health and three (a general medical practitioner, dentist and pharmacist) employed in the private sector. The Marshall Islands meets the WHO critical threshold of 2.3 doctors, nurses and midwives per 1000 population to be able to meet the Millennium Development Goals (MDGs), with 24 medical and 167 nursing and midwifery practitioners (WHO, 2006).

However, the distribution of workers is not equitable across the country. Majuro hospital employs 65% of all health workers despite its immediate catchment area reaching 48% of the population. Ebeye hospital employs 27% of all health workers and serves approximately 20% of the population. The remaining population on the outer islands have access to 8% of the health workforce, primarily health assistants.

Overall, 54% of the health workforce is female. Almost half of the doctors and three-quarters of nurses are female. Sixty per cent of health workers are aged between 30 and 50 years. As the retirement age is 60 years, there is potential for almost one-quarter of the workforce to be retired within the next 10 years. Currently, six doctors (22% of the physician cadre) and 29 nurses (17%) are 55 years or older.

Many of the health workers in medicine and nursing are foreigners. Seventy-eight per cent of doctors and 39% of nurses are expatriates, mainly from the Philippines and Fiji.

Main HRH issues

An HRH Task Force report to the Cabinet identified four main issues affecting the HRH system in the country:

- limited Marshallese health workers
- weak HRH planning and development
- poor educational foundation
- increase in noncommunicable diseases (NCDs).

Limited Marshallese health workers

The health workforce is heavily reliant upon expatriate workers, particularly in the fields of medicine and nursing. This is due to a combination of factors: out-migration of health professionals (particularly to the United States); failure of scholarship receivers to fulfil their bonding agreements; ageing of the local workforce; poor continuing professional education opportunities to up-skill; lack of proper recruitment and retention plans; and an inadequate remuneration system.

Weak HRH planning and development

HRH is not prioritized within the Ministry of Health, demonstrated by the inadequate resources allocated to HRH development and support, despite the development of the *National Health Workforce Plan for RMI 1998–2020*. Health information is not kept in a consistent fashion, and without up-to-date data, the ability to effectively plan and manage the health workforce is challenging.

The office responsible for the HRH management has limited influence and must work in partnership with other ministries and government agencies, often to the disadvantage of the health workforce. Recruitment and posts are decided on by the Public Service Commission, and funds for essential equipment and resources are managed by the Ministry of Finance. In many instances, these government bodies are not

technically qualified to judge the critical nature of health funding decisions, which can affect patient outcomes on the front line.

Poor remuneration is often cited as a reason for resignation. Working conditions are challenging, with shortages in essential infrastructure and supplies making it difficult for health workers to do their jobs properly. Doctors and nurses are often called upon to work double or triple shifts to cover shortages, as well as complete duties outside of their responsibility.

New sources of funding to maintain health services need to be found as assistance from the Compact Agreement started lessening since 2011.

Poor educational foundation

The pool of secondary students who are willing and able to complete health professions training at a tertiary educational institution is small. Only 30% of secondary school students pass their final year and the quality of graduates is inadequate. This has resulted in low levels of confidence in students who want to start a health career.

The country lacks training institutions, with only the College of the Marshall Islands offering an Associate of Science in Nursing. Some paramedical cadres are trained on the job (including dental assistants, health assistants and nurse's aide), but all other allied health workers require training overseas, primarily at the Fiji National University, the University of Papua New Guinea or the University of Hawaii.

Increase in NCDs prevalence

The rising prevalence of lifestyle diseases, particularly type 2 diabetes, is attributable to the increasing urbanization of the population. By 2015, it is predicted that 55% of men and 65% of women will be overweight, and that 90% of all hospital admissions will be due to type 2 diabetes and its complications. The number of health workers, and health workers with NCD prevention training, need to increase in order to meet the rising cases of NCD incidence.

1. Introduction

1.1 Demographic, social and political background

Demography and geography

Consisting of 1225 islands grouped into 29 low-lying atolls and five major islands, the Marshall Islands is arranged into two parallel island chains: the Ratak (sunrise) chain and the Ralik (sunset) chain. The Marshall Islands is located about 5000 km north-east of Australia and is inhabited by approximately 53 158 people (in 2011) (Table 1), primarily of Micronesian origin. Three-quarters of the population live in the two urban centres – the capital, Majuro (27 000 people) and Ebeye (11 408 people) (EPPSO, 2012). Traditionally, Marshallese people live in matrilineal extended families, but the rise of urbanization has disrupted these family connections and structures (UNICEF, 2003).

The Marshall Islands has one of the highest total birth rates in the Pacific, with 32.5 births per 1000 population in 2011, as well as one of the youngest populations, with 40% of the country aged less than 15 years and a median age of 21 years (EPPSO, 2012).

From the late 19th century, the islands were controlled by Germany until the First World War, after which they were ruled by Japan under the League of Nations mandate. Following the defeat of Japan in 1945, the islands became part of the United States Trust Territory of the Pacific Islands under a United Nations trusteeship until independence in 1986. After 10 years of negotiation, the first Compact of Free Association with the United States of America (USA) was signed and came into effect at independence, expiring in 2001. A second 20-year Compact Agreement became operational from October 2003 (ADB, 2005a; AusAID, 2011; CIA, 2012).

The Bikini and Enewetak atolls were used by USA as nuclear test sites between 1946 and 1958. Large numbers of residents of these and surrounding atolls were displaced due to radiation contamination and fallout; original inhabitants are still unable to return. As part of the Compact Agreement, special compensatory health and social services are provided to help those affected by the 67 nuclear tests conducted there (ADB, 2005a).

Social environment

While extreme poverty and hunger do not yet exist, there is a growing gap between the richest and poorest groups (ADB, 2003). Overcrowding in the two urban centres is on the rise as people migrate from the outer islands to Majuro and Kwajalein atolls. These atolls are two of the most densely populated areas in the Pacific (ADB, 2006). Overcrowding has led to shortages of clean water and sanitation, thereby increasing the prevalence of communicable diseases such as tuberculosis and leprosy. In addition, modernization and a trend towards adopting a cash economy have brought along increased levels of obesity, lifestyle-related diseases, adolescent pregnancy, suicide, alcoholism and tobacco use (WHO, 2011b).

Table 1. Selected sociodemographic indicators

Indicator		Year
Total population	53 158	2011
Urban population (%)	74	2011
Population growth (annual average %)	0.4	1999–2011
Net migration rate (per 1000 population)	-17.2	2011
Female population (% of total population)	48.8	2011
0–4 years (% of total population)	15	2010
5–14 years (% of total population)	27	2010
15–64 years (% of total population)	56	2010
65+ years (% of total population)	2	2010
Total fertility rate (estimated births per woman)	4.1	2011
Crude birth rate (per 1000 population)	33	2011
Crude death rate (per 1000 population)	5	2010
Literacy rate, adult total (% of population over 15 years old who can read and write)	90.6	2010

Sources: EPPSO, 2012; WHO, 2011a.

Employment opportunities in urban areas are inadequate. The unemployment rate has decreased from 30.9% in the 1999 census to 4.7% in the 2011 census, mostly due to the inclusion of domestic workers. However, the unemployment rate among young people is still more than twice the national average at 11% (EPPSO, 2012).

Under the conditions of the Compact Agreement, there are few obstacles to obtaining legal passage to work and live in the United States. Consequently, out-migration is high, with an estimated 11 000 Marshallese leaving the country between 1999 and 2011 (EPPSO, 2012). As a result, the annual population growth rate in the Marshall Islands is 1.2%, with more than three-quarters of the natural growth rate being offset by out-migration (ADB, 2005a). Large numbers of Marshallese are also migrating to urban areas from the outer islands. Sixty-eight per cent of the population lived in Ebeye or Majuro in 1999, increasing to 74% in 2011 (EPPSO, 2012).

Political environment

The Marshall Islands is governed by complementary democratic political and hierarchical traditional cultural systems. The semi-Westminster-style constitution was adopted in 1979 with the *Nitijela*, or lower house of parliament, holding legislative power. There is also an advisory council of high chiefs known as the Council of Iroij, who have no voting or veto power. The 24 electoral districts generally correspond to each atoll, from which 33 senators are elected every four years. Each district elects one or more senator (Majuro elects five, Ebeye elects three, and Jaluit and Arno each select two senators). The voting age is 18 years and is universal. From within the *Nitijela*, the president is elected, who in turn appoints a speaker and cabinet. The president serves as both head of state and head of government. There have been six presidents since independence, with the last election in November 2011 delivering Christopher J Loeak the presidency (US Department of State, 2012). There are no formal political parties but two main political groupings, the Aleon Kien Ad and United Democratic Party (Republic of the Marshall Islands, 2011).

Local governments for each of the four district centres (Majuro, Ebeye, Jaluit and Wotje) have an elected council, mayor, appointed local officials and local police force. National government grants as well as locally raised revenue fund the district centres (Republic of the Marshall Islands, 2011).

The judicial system is made up of the Supreme Court, High Court, and district and community courts with trial by jury or judge. Disagreements that occur from customary law and traditional practices, and cases involving land and title rights, are settled in traditional-rights courts (WHO, 2011b).

1.2 Current economic situation and macroeconomic indicators

The Marshall Islands is heavily reliant on assistance from the United States under the Compact Agreement, which makes up more than half of the country's gross domestic product (GDP). Under the first Compact Agreement, USA provided more than US$ 1 billion in aid and will continue to provide at least US$ 57 million each year until 2023, after which time a joint United States-Marshall Islands trust fund will provide annual payouts (DFAT, 2011). On average, GDP growth has stagnated at about 1% over the last 10 years due to government downsizing, drought, slumps in construction and tourism, and a reduction in income from fishing licenses renewal income (WHO, 2011b). Geography and transportation to and within the islands are major obstacles to economic growth.

The Government is the principal employer, followed by commercial and retail sectors. Subsistence farming makes up most of the agricultural sector, with coconuts and breadfruit being the primary commercial crops. However, there is a growing trend away from a subsistence economy to a cash economy. Accompanying this shift has been a breakdown in traditional family structures as workers migrate to Majuro or Ebeye to find employment (UNICEF, 2003). Domestic production is limited to copra, tuna processing and handicrafts. While tourism has declined somewhat over the years, it remains the best prospect for future income (WHO, 2011b). There are few natural resources and agriculture is not a viable option for revenue. Large tracts of land are contaminated, and increasing urbanization has meant traditional fishing and agricultural practices are not passed on.

While the Marshallese people are entitled to access the American labour market due to the Compact Agreement, many of the migrants are unemployed in USA. Those who have found work are often in low-paid positions, making it difficult to support other (largely unemployed) family members in the United States. Consequently, remittances sent to the home country are significantly lower compared to other Pacific countries. In 2002, remittances amounted to US$ 53 million in Fiji, US$ 58 million in Samoa and

Table 2. Selected economic indicators

Indicator		Year
GDP, current (US$)	162 935 850	2010
GDP per capita (current US$)	3016	2010
GDP growth (annual %)	5.2	2010
Health expenditure, total (% of GDP)	16.5	2009
Health expenditure per capita (current US$)	435	2012
Out-of-pocket health expenditure (% of total expenditure on health)	3.85	2009
Public spending on education (% of GDP)	12	2004
Unemployment rate (%)	4.7	2011
Labour force participation rate (%)	41.3	2011

Sources: World Bank, 2012a; Republic of the Marshall Islands Ministry of Health, 2011a; WHO, 2011a; EPPSO, 2012.

US$ 65 million in Tonga. In the same year, the Marshall Islands received less than US$ 1 million, despite the country having close social and economic links to the United States (ADB, 2006). Table 2 lists selected macroeconomic indicators.

1.3 Main health indicators

Mortality and life expectancy

Both infant and under-five mortality rates have decreased between 1990 and 2010 (see Table 3). Infant mortality has been almost halved, from 40 to 22 per 1000 live births, and under-five mortality has decreased from 51 to 26 per 1000 live births (World Bank, 2012b). However, these improvements in mortality rates have not resulted in increased life expectancy. A child born in the Marshall Islands in 1990 can expect to live 62 years, but a child born in 2009 can only expect to live 59 years (WHO, 2011a).

Main causes of mortality and morbidity

Like many of its Pacific island counterparts, the Marshall Islands is facing a double burden of infectious and noncommunicable diseases. While deaths from tuberculosis have decreased from 54 per 100 000 in 2002 to 8 per 100 000 in 2010, incidence has increased from 299 cases to 502 cases per 100 000 population. Leprosy is also trending upwards with 64 cases reported in 2007 and 110 in 2010. This growth in incidence is due to the increasingly cramped conditions in urban areas from in-migration and the increase in screening and outreach activities by public health nurses (WHO, 2011a; World Bank, 2012b).

Prevalence of overweight is expected to increase and fuel a growth in noncommunicable diseases (NCDs). In 2005, 50% of men and 59% of women in the Marshall Islands were overweight, which is projected to increase to 55% of men and 65% of women by 2015 (WHO, 2005). Cancer mortality has doubled from 13 cases to 26 cases between 2001 and 2010, and cerebrovascular accidents have almost tripled from 5 cases to 14 cases in the same period (WHO, 2005).

In 2002, chronic disease accounted for 71% (340) of all deaths, with cardiovascular disease being the major contributor. By 2010, diabetes and related diseases had taken over as the leading causes of mortality, with 7 out of 10 Marshallese people having elevated blood sugar levels and increasing numbers of younger people being diagnosed with diabetes (ADB, 2006; WHO, 2005). In 2009, there were 1700 cases on the

Table 3. Selected health indicators

Indicator	1990	2010
Life expectancy (years) Female Male	62 65 59	59* 58* 60*
Under-five mortality rate (per 1000 live births)	51	26
Infant mortality rate (per 1000 live births)	40	22
Neonatal mortality rate (per 1000 live births)	19	9
Maternal mortality ratio (per 100 000 live births)	n.a.	143
Births attended by skilled health staff (% of total)	n.a.	99

*Data from 2009.
n.a., not available.
Sources: WHO, 2011a; World Bank, 2012b.

Majuro diabetes registry. Two years later, this number increased to 5000. It is estimated that 90% of all hospital admissions are due to type 2 diabetes and its complications. Given the rising prevalence of diabetes, the costs associated with treating and managing this disease are growing. A review of 300 patient records of deceased Marshallese with diabetes showed the average cost of treating these patients during their lifetime was US$ 375 000 per patient (PINA, 2012).

The underlying cause of increasing NCDs is changing lifestyles (WHO, 2011b). High unemployment and a lack of services in the outer islands have encouraged many Marshallese to migrate to the urban centres of Majuro and Ebeye. Traditional ways of life are increasingly rare, and due to small arable land areas and shallow soil, there is insufficient land to grow enough food to sustain the population. Thus, there is a heavy reliance on imported food, in particular, white rice, white flour and tinned/canned meats that are high in fat and low in nutrient quality.

1.4 Health system

Governance structure

The Ministry of Health oversees medical and health services in the Marshall Islands. The Health Services Board was established under the Health Fund Act to ensure that the Ministry is operated according to the policies and regulations outlined for off-island medical referral services. The Board is chaired by the Secretary of Health and is made up of the Assistant Secretaries and the Medical Chief of Staff (ADB, 2005a). There are three bureaus within the Ministry, each headed by an Assistant Secretary who reports to the Secretary of Health. The bureaus are:

- Bureau of Primary Health Care Services
- Bureau of Majuro Hospital Services
- Bureau of Kwajalein Atoll Health Care Services.

The Ministry of Health also has two offices: Office of Administration, Personnel and Finances, which is supervised by an Assistant Secretary, and Office of Health Policy, Planning and Statistics, which is supervised by a health planner (Republic of the Marshall Islands Ministry of Health, 2011b).

Health policies are guided by the *Fifteen Year Strategic Plan 2001–2015*, which also covers the *Strategic Five Year Plan 2001 to 2005* and the *Operational Plan 2001 to 2005*. The national health priorities, which have remained unchanged since 2004, are as follows:

- develop and strengthen the capabilities of indigenous personnel;
- institutionalize primary health care strategies, decentralize heath care, promote community-based health care and take steps to make community-based health care systems as self-reliant as possible;
- strengthen and develop the health information system;
- secure a sustainable financial base from the government, the community and the private sector for health care delivery;
- reduce the prevalence of sexually transmitted infections (STI) and develop HIV/AIDS/STI prevention programmes;
- reduce population growth and urban densities;
- address and manage the causes and effects of malnutrition;
- address, prevent and manage the rising number of cases of diabetes and their health and social impact;
- coordinate and strengthen the provision of health education; and
- coordinate all aspects of the health care delivery system through the Health Services Board of the Ministry of Health (WHO, 2011b).

However, without a biostatistician or epidemiologist, monitoring and evaluation of these plans cannot be completed (Kroon et al., 2004).

Health services organization

Hospitals in Majuro (101-bed Leroj Atama Medical Center) and Ebeye (45-bed Leroj Kitlang Health Center) provide primary, secondary and limited tertiary health care, as well as inpatient, outpatient and preventive health services. The Majuro hospital is staffed by the bulk of clinical practitioners in the country, offering services in general medicine, surgery, orthopaedics, obstetrics and gynaecology, paediatrics, dentistry and physical therapy. The Ebeye hospital is smaller but provides a similar range of services.

There are 58 health centres, mostly on the outer islands, which work in tandem with the community health councils to provide primary health care services, including:

- disease screening;
- chronic and infection disease management;
- prenatal, diabetic and hypertension treatment, family planning and skilled birth attendance;
- child health surveillance;
- management and referral to hospital of acute cases; and
- health education in clinics and in schools.

Generally, each health centre is staffed by one health assistant who serves approximately 350 people in the surrounding area. In some centres, traditional birth attendants are also present (ADB, 2006; Republic of the Marshall Islands Ministry of Health, 2006).

There is a third hospital on Kwajalein Island at the US military base. This hospital has ample resources and is staffed by health professionals who are trained in the United States; however, health services are denied to most Marshallese and are provided to American military staff on base (Langidrik et al., 2007).

There is a small private sector made up of three health workers, namely, a general medical practitioner, a dentist and a pharmacist.

Due to transportation and communication limitations on the outer islands, many health services are not readily accessible. Furthermore, since health assistants are often male, as men are deemed better to handle remote conditions, women are reluctant to access services such as prenatal and postnatal services, family planning and STI counselling.

People with illness or injury tend to seek out traditional health workers when they do not understand the health system and services provided by the Government. There is propensity for people to wait until they are very sick before seeking non-traditional treatments, by which time the disease treatment can be difficult.

Since the establishment of the Bureau of Primary Health Care in 1990, health education and health promotion have been ongoing and are carried out in conjunction with stakeholders, nongovernmental organizations (NGOs), churches and community groups as a shared responsibility. The effect is that community outreach activities are increasing. The Community Health Council, which was established in 1995, recently conducted a self-assessment of its activities to revise its three-year strategic plan to coordinate closely with community-level stakeholders.

Sources of funding

The Marshall Islands is heavily reliant on external donor funding, particularly from the United States under the Compact Agreement. More than 50% of the health funding in 2006 came from USA (ADB, 2006). Other countries and funding bodies have donated funds to the country, including Australia, Japan, New Zealand, Taiwan, China, Asian Development Bank (ADB), World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC). To reduce the cost of offshore referrals, the Ministry of Health invites international clinical teams to visit once per year. In 2010, there were three visiting teams and 109 country referrals. In total, US$ 1.35 million was spent on referrals, or US$ 20.13 per capita (SSCSIP, 2011). Most referrals are to Hawaii and the Philippines.

Marshallese citizens presenting to the Majuro or Ebeye hospital pay a flat fee of US$ 5 for each visit (Harding, 2003). The costs of services are subsidized by the Government through a health fund, financed through taxation. The health fund is administered by the Health Services Board and allows citizens to access a variety of health care services (Government of the Marshall Islands, 2002). User fees make up approximately 1% of the overall health budget (Republic of the Marshall Islands Ministry of Health, 2006).

In 2009, the Government of the Marshall Islands spent 16.5% of its GDP on health care – the most of all the Pacific island countries. In comparison, Australia, Fiji and Tonga spent 8.5%, 3.4% and 6.2%, respectively (World Bank, 2012a). Funding from the Compact Agreement contributes more than half of the expenditure, with health insurance premiums from workers' salaries contributing a significant amount (World Bank, 2006).

Under the Compact Agreement, residents from the atolls of Rongelap, Utrik, Bikini and Enewetak who were affected by radiation, as well as their direct descendants, are covered by the *177 Health Care Program* that is funded by the United States Department of Energy. Between 8000 and 14 000 Marshallese are estimated to be in the programme. The Nuclear Claims Tribunal was established in 1987 by the Government to process claims for radiation-related illnesses. There are 36 explicitly defined malignancies and illnesses that citizens can claim, and the first claim was paid in 1991. Those who were alive or in-utero between 1946 and 1958, along with their children, can be compensated if the disease occurred in or after 1951.

Health expenditure

The average annual health budget of the Ministry of Health between 2007 and 2012 was approximately US$ 23 million. Most of the health budget is spent on curative care, despite the push to increase primary health care services. Each fiscal year, the funding for preventive services is increased to cope with the increasing prevalence of lifestyle diseases

(predominantly type 2 diabetes), which account for most hospital admissions.

Health expenditure is not evenly distributed around the country. Almost 97% of health funding is directed towards the urban centres, despite only approximately 75% of the population living in these areas. In 2007, inpatient treatment cost US$ 102 per day per patient, intra-island referrals cost US$ 2943 each, and referrals to Manila and Hawaii cost US$ 11 266 and US$ 36 427, respectively (Republic of the Marshall Islands Ministry of Health, 2006).

2. Health workforce supply and trends

At the start of 2012, the Marshall Islands had a total of 515 health workers, 512 of whom were in public service. Three health workers were employed in the private sector (one general medical practitioner, one dentist and one pharmacist). There were 23 vacant posts, all located in Majuro.

The overall health workforce density is 9.63 per 1000 population (refer to Table 4), which is one of the higher densities in the Pacific region. When looking at doctors, nurses and midwives, health worker density equates to 3.59 per 1000 population, above the recommended minimum threshold of 2.3 per 1000 population to be able to meet the Millennium

Table 4. Number of public sector health workers at the national level in 2007 and 2012

Health professional category/cadre	2007		2012	
	Total	Health workers/1000 population (Pop. 52 000)	Total	Health workers/1000 population (Pop. 53 158)
Generalist medical practitioners	31	0.60	9	0.17
Specialist medical practitioners			15	0.28
Medical assistants	-	-	2	0.04
Health assistants	-	-	52	0.98
Advanced practice nurses	188	3.62	20	0.38
Graduate/registered/professional nurses			116	2.18
Vocational/enrolled/practical nurses			19	0.36
Midwives			12	0.23
Nurse aides/nurse assistants	-	-	20	0.38
Dentists	6	0.12	4	0.08
Dental technicians and assistants	7	0.13	21	0.40
Pharmacists	6	0.12	4	0.08
Pharmaceutical technicians and assistants			3	0.06
Medical and pathology laboratory technicians	17	0.33	19	0.36
Medical imaging and therapeutic equipment technicians	8	0.15	9	0.17
Physiotherapists	-	-	3	0.06
Physiotherapy technicians and assistants	-	-	2	0.04
Medical and dental prosthetic technicians	-	-	1	0.02
Biomedical engineers	-	-	3	0.06
Health professionals not elsewhere classified	25	0.05	10	0.19
Health service managers	-	-	9	0.17
Health management personnel not elsewhere classified	-	-	2	0.04
Clerical support workers	-	-	64	1.20
Domestic and ancillary support workers	-	-	93	1.75
Total	**288**	**5.54**	**512**	**9.63**

Sources: Republic of the Marshall Islands Ministry of Health, 2011b; Republic of the Marshall Islands Office of the President, 2012.

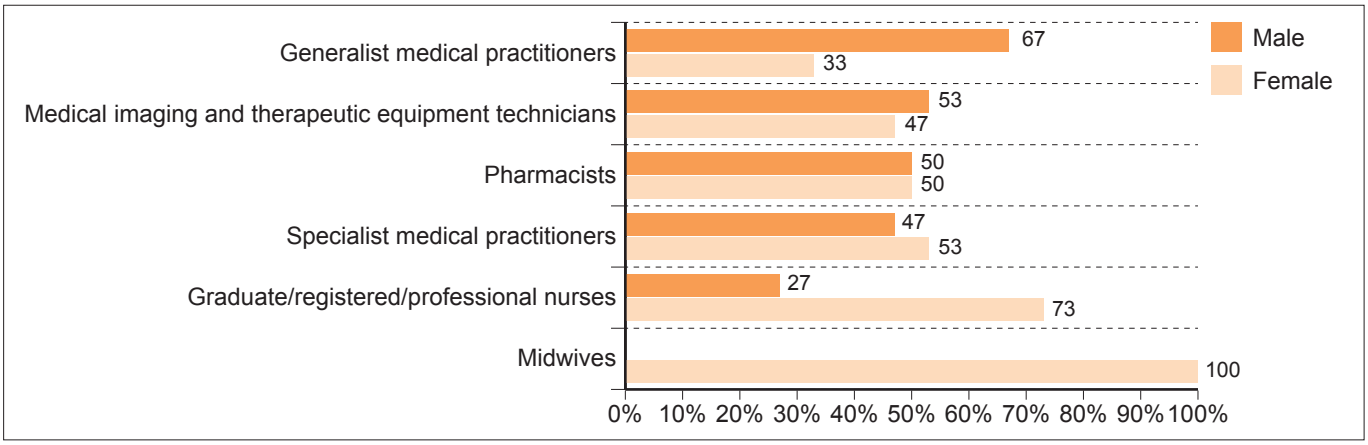
Development Goals (MDGs) (WHO, 2006). The country is on track to meet two of the three health-related MDGs (MDG 4: Reduce child mortality, and MDG 5: Improve maternal health). However, it is off track to meet MDG 6: Combat HIV/AIDS, malaria and other diseases (Pacific Islands Forum Secretariat, 2011).

3. Health workforce distribution

3.1 Gender distribution

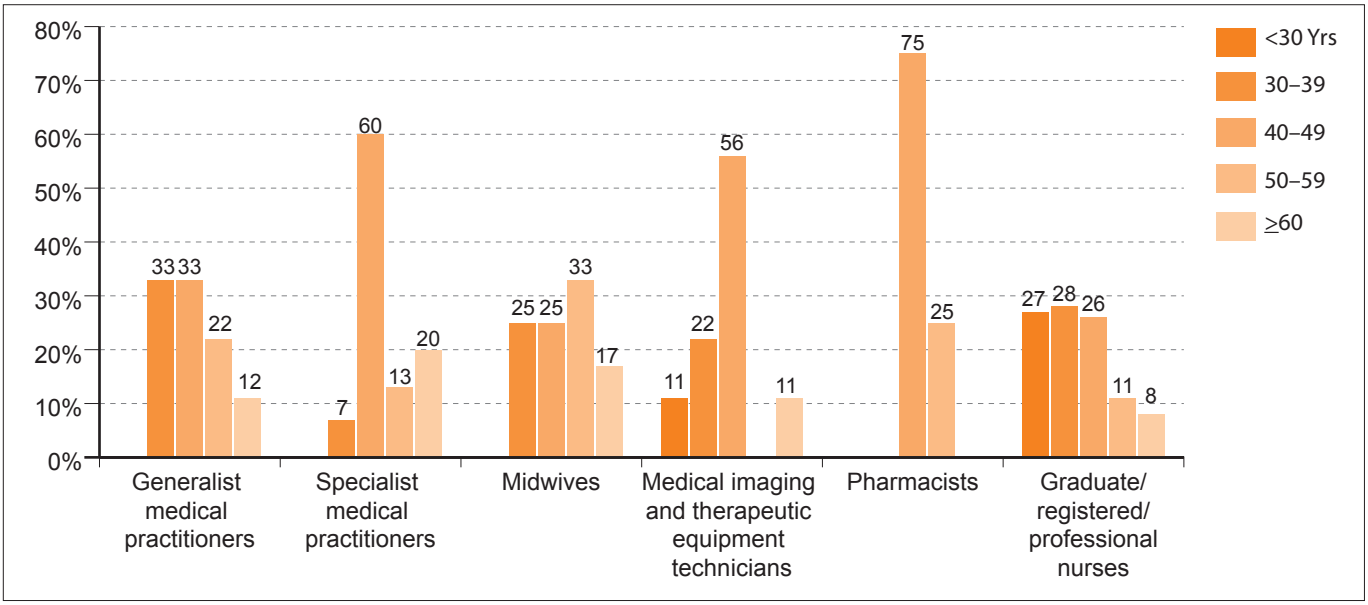
There are slightly more women (54%) than men in the public sector health workforce (see Figure 1 and Annex B). The nursing workforce has the highest proportion of women, followed by clerical support work and health management positions. More men are posted in the rural outer islands as they hold most (82%) of the health assistant posts. There are twice as many men than women practising general medicine. However, this is not the case for specialist doctors, with eight women and seven men practising in the country.

Figure 1. Distribution of health workers by gender in selected categories (%), 2012



Sources: Republic of the Marshall Islands Ministry of Health, 2011b; Republic of the Marshall Islands Office of the President, 2012.

Figure 2. Distribution of health workers by age in selected categories (%), 2012



Sources: Republic of the Marshall Islands Ministry of Health, 2011b; Republic of the Marshall Islands Office of the President, 2012.

Table 5. Distribution of public sector health workers by regional areas in January 2012

Health professional category/cadre	Total	Health workers/1000 population		
		Majuro (Pop. 27 000)	Ebeye (Pop. 11 408)	Outer islands (Pop. 14 750)
Generalist medical practitioners	9	0.19	0.35	0.00
Specialist medical practitioners	15	0.30	0.61	0.00
Medical assistants	2	0.07	0.00	0.00
Health assistants	52	0.19	0.18	3.05
Advanced practice nurses	20	0.33	0.96	0.00
Graduate/registered/professional nurses	116	3.30	2.37	0.00
Vocational/enrolled/practical nurses	19	0.56	0.35	0.00
Midwives	12	0.33	0.26	0.00
Nurse aides/nurse assistants	20	0.74	0.00	0.00
Dentists	4	0.11	0.09	0.00
Dental technicians and assistants	21	0.70	0.18	0.00
Pharmacists	4	0.11	0.09	0.00
Pharmaceutical technicians and assistants	3	0.07	0.09	0.00
Medical and pathology laboratory technicians	19	0.48	0.53	0.00
Medical imaging and therapeutic equipment technicians	9	0.26	0.18	0.00
Physiotherapists	3	0.07	0.09	0.00
Physiotherapy technicians and assistants	2	0.04	0.09	0.00
Medical and dental prosthetic technicians	1	0.04	0.00	0.00
Biomedical engineers	3	0.04	0.18	0.00
Health professionals not elsewhere classified	10	0.22	0.35	0.00
Health service managers	9	0.26	0.18	0.00
Health management personnel not elsewhere classified	2	0.04	0.09	0.00
Clerical support workers	64	1.85	1.23	0.00
Domestic and ancillary support workers	93	1.96	3.51	0.00
Total	**512**	**12.26**	**11.92**	**3.05**

Sources: Republic of the Marshall Islands Ministry of Health, 2011b; Republic of the Marshall Islands Office of the President, 2012.

3.2 Age distribution

Almost half (47%) of the public sector health workers are aged 40 or under (see Figure 2 and Annex C), with the largest age group being those aged 40–44 years (18.2%). The retirement age at the Public Service Commission is 60 years, with eligibility for social security benefits starting at 62 years. In a worst case scenario, where all those who reach 60 stopped working, almost one-quarter of the current workforce would be retired within the next 10 years, including 21% of doctors and 26% of nurses.

3.3 Geographical distribution

Most (90%) health workers are posted in the two public hospitals. The distribution of health workers is inequitable, with Majuro hospital employing 65% of all health workers but only serving 48% of the population. Ebeye hospital has 27% of all health workers, but the catchment area makes up 20% of the population. One-third of the country's population live on the outer islands but only have access to 45 health assistants. See Table 5.

3.4 Distribution of health workers by urban/rural area

There are 12.2 health workers for every 1000 people living in urban areas (12.3 in Majuro and 11.9 in Ebeye), but only 3.1 in the rural, outer island areas (refer to Table 6). For these people, there are limited health services, and treatment beyond basic primary health care requires travel to the urban centres. This lack of service is one driver of internal migration in the country. There are no doctors or nurses in rural areas, whereas there is 1 doctor for every 1639 people, and 1 nurse for every 236 people in urban centres.

Table 6. Distribution of public sector health workers by urban/rural areas in January 2012

Health professional category/cadre	Total	Urban (Pop. 38 408)		Rural (Pop. 14 750)	
		%	Health workers/1000 population	%	Health workers/1000 population
Generalist medical practitioners	9	100	0.23	0.0	0.00
Specialist medical practitioners	15	100	0.39	0.0	0.00
Medical assistants	2	100	0.05	0.0	0.00
Health assistants	52	13.5	0.18	86.5	3.05
Advanced practice nurses	20	100	0.52	0.0	0.00
Graduate/registered/professional nurses	116	100	3.02	0.0	0.00
Vocational/enrolled/practical nurses	19	100	0.49	0.0	0.00
Midwives	12	100	0.31	0.0	0.00
Nurse aides/nurse assistants	20	100	0.52	0.0	0.00
Dentists	4	100	0.10	0.0	0.00
Dental technicians and assistants	21	100	0.55	0.0	0.00
Pharmacists	4	100	0.10	0.0	0.00
Pharmaceutical technicians and assistants	3	100	0.08	0.0	0.00
Medical and pathology laboratory technicians	19	100	0.49	0.0	0.00
Medical imaging and therapeutic equipment technicians	9	100	0.23	0.0	0.00
Physiotherapists	3	100	0.08	0.0	0.00
Physiotherapy technicians and assistants	2	100	0.05	0.0	0.00
Medical and dental prosthetic technicians	1	100	0.03	0.0	0.00
Biomedical engineers	3	100	0.08	0.0	0.00
Health professionals not elsewhere classified	10	100	0.26	0.0	0.00
Health service managers	9	100	0.23	0.0	0.00
Health management personnel not elsewhere classified	2	100	0.05	0.0	0.00
Clerical support workers	64	100	1.67	0.0	0.00
Domestic and ancillary support workers	93	100	2.42	0.0	0.00
Total	**512**	**91.2**	**12.16**	**8.8**	**3.05**

Sources: Republic of the Marshall Islands Ministry of Health, 2011b; Republic of the Marshall Islands Office of the President, 2012.

However, it is not feasible or cost-effective to have a doctor posted in every outer island. A more feasible option may be to post more nurses, particularly nurse practitioners, in rural areas to offer a wider range of health services.

3.5 Distribution of health workers by private and public sector

The private sector in the Marshall Islands is small, comprising only one doctor, one dentist and one pharmacist, all of whom practise in Majuro. The doctor and pharmacist are both former public service Marshallese, while the dentist is an expatriate.

3.6 Distribution of health workers by citizenship

Most of the health workers are local Marshallese (85%), as seen in Table 7. However, there is high dependency on expatriate workers in the critical fields of medicine and nursing. Most foreign health workers come from the Philippines and Fiji.

3.7 Skills distribution

An overwhelming large majority of the workforce is in the public sector, with just three health workers in the private sector (ratios in Table 8).

Table 7. Distribution of public sector health workers by citizenship in January 2012

Health professional category/cadre	Total	% citizens	% non-citizens
Generalist medical practitioners	9	11.1	88.9
Specialist medical practitioners	15	20.0	80.0
Medical assistants	2	100	0.0
Health assistants	52	100	0.0
Advanced practice nurses	20	100	0.0
Graduate/registered/professional nurses	116	79.3	20.7
Vocational/enrolled/practical nurses	19	94.7	5.3
Midwives	12	25.0	75.0
Nurse aides/nurse assistants	20	100	0.0
Dentists	4	50.0	50.0
Dental technicians and assistants	21	90.5	9.5
Pharmacists	4	50.0	50.0
Pharmaceutical technicians and assistants	3	100	0.0
Medical and pathology laboratory technicians	19	68.4	31.6
Medical imaging and therapeutic equipment technicians	9	100	0.0
Physiotherapists	3	66.7	33.3
Physiotherapy technicians and assistants	2	100	0.0
Medical and dental prosthetic technicians	1	100	0.0
Biomedical engineers	3	66.7	33.3
Health professionals not elsewhere classified	10	100	0.0
Health service managers	9	88.9	11.1
Health management personnel not elsewhere classified	2	50.0	50.0
Clerical support workers	64	92.2	7.8
Domestic and ancillary support workers	93	97.8	2.2
Total	**512**	**85.0**	**15.0**

Sources: Republic of the Marshall Islands Ministry of Health, 2011b; Republic of the Marshall Islands Office of the President, 2012.

Table 8. Skills distribution in January 2012

Health professional category/cadre	Ratio
Nurses : Physicians	7:1
Unskilled : Skilled HRH	1:2.3
Private : Public providers by HRH category	1:170.1
Medical practitioners	1:24
Dental practitioners	1:4
Pharmacists	1:4

Sources: Republic of the Marshall Islands Ministry of Health, 2011b; Republic of the Marshall Islands Office of the President, 2012.

4. Health professions education

There is one tertiary educational institution in the country training health personnel – the publicly funded College of the Marshall Islands (CMI), which opened in 1989.

The University of the South Pacific (USP) offers foundation courses in mathematics, English and science to allow Marshallese students to qualify for a place in tertiary institutions.

4.1 Medical education

There is no medical school in the Marshall Islands. Students can enrol in medical school programmes within the Pacific, such as the Fiji National University (FNU), University of Papua New Guinea (UPNG) and the University of Hawaii. Some doctors in the country are graduates of the now defunct Pacific Basin Medical Officer Training Program (Langidrik et al., 2007). Specialist medical training is usually conducted at FNU. No Marshallese student has enrolled in or graduated from postgraduate medical specialist courses at FNU between 2008 and 2012.

Medical assistants, known locally as Medex, are often viewed as a doctor's "right hand man". Their professional role falls between those of doctors and nurses. These health workers have undergone extensive on-the-job training and education but do not possess a formal qualification.

Health assistants report to medical assistants and have completed on-the-job training. In 2007, a WHO-funded consultant began to conduct formal health assistant training, resulting in a Health Assistant Certificate that is offered to high school graduates. The 18-month course is intensive, covering English, basic anatomy, patho-physiology and basic pharmacology (Langidrik et al., 2007), with the current graduation rate at 95%. In 2011, there were 21 graduates, of which nine were posted to the outer islands and 12 continued their education (10 at USP and 2 at CMI) (Republic of the Marshall Islands Ministry of Health, 2011b). Over time, however, the role of the health assistant has become ambiguous. Eight of the 10 health assistants regard themselves as "doctors", often dispensing medicines and treatments, although they are only trained to perform primary health care practices and to serve as health educators and promoters (ADB, 2005a). Most health assistants are not well-trained but are responsible for virtually all health care in the outer islands (Republic of the Marshall Islands Ministry of Health, 2011b).

4.2 Nursing education

Nursing is the only health profession with training available in country. CMI confers a three-year Associate of Science in Nursing, with graduates qualifying as a registered nurse, known locally as a Staff Nurse 1. The Nursing Board reviews the curriculum every two to three years. The training at CMI is not competency-based and students may be prevented from passing due to a failure to maintain a minimum C-grade average (or 2.0 grade point average [GPA]) or a failure to pay tuition fees (JCU and AUT, 2011). Ministry of Health staff conduct an annual recruitment drive in an effort to encourage secondary students to apply for places at CMI. This effort is supported by the CMI Department of Nursing and Allied Health, which also recruits potential students.

It was reported that the pass rate for nursing students was approximately 60%–70% from 2008 to 2011 (College of the Marshall Islands, 2011). However, the enrolment and graduate numbers do not appear to support this claim. All-year enrolments at CMI were 297 in 2008 and 361 in 2009 (Table 9). Assuming student enrolments were evenly distributed across the three years (approximately 100 in each year) there

Table 9. Number of health worker training enrolments from 2008 to 2012

Health professional category/cadre	Number of entrants				
	2008	2009	2010	2011	2012
Generalist medical practitioners	-	-	-	1 (FNU)	4 (FNU)
Graduate/registered/professional nurses	297 (CMI)*	361 (CMI)*	† (CMI)	† (CMI)	† (CMI) 2 (FNU)
Midwives	-	-	2 (FNU)	-	-
Pharmacists	-	-	-	-	1 (FNU)
Medical and pathology laboratory technicians	1 (FNU)	2 (FNU)	-	1 (FNU) 9 (PPTC)	-
Medical imaging and therapeutic equipment technicians	1 (FNU)	-	-	-	1 (FNU)
Health professionals not elsewhere classified	1 (FNU)	1 (FNU)	-	2 (FNU)	2 (FNU)
Total	**300**	**364**	**2**	**13**	**10**

* Includes all-year enrolments.
† Nursing enrolment data not available.
Sources: Fiji National University, Republic of the Marshall Islands Ministry of Health, College of the Marshall Islands (personal communication, October 2012).

Table 10. Number of health worker training graduates from 2008 to 2012

Health professional category/cadre	Number of graduates				
	2008	2009	2010	2011	2012
Advanced practice nurses	-	1 (UPNG)	-	-	-
Graduate/registered/professional nurses	6 (CMI)	5 (CMI)	13 (CMI)	17 (CMI)	13 (CMI)
Dentists	-	-	-	1 (FNU)	-
Dental assistants and technicians	1 (FNU)	-	-	-	-
Physiotherapists	1 (FNU)	-	-	-	-
Medical and pathology laboratory technicians	-	-	1 (FNU)	6 (PPTC)	1 (FNU)
Environmental health and hygiene professionals	1 (FNU)	-	-	-	-
Health associate professionals not elsewhere classified	1 (FNU)	1 (FNU)	-	-	-
Total	**10**	**6**	**14**	**24**	**14**

Sources: Fiji National University, Republic of the Marshall Islands Ministry of Health, College of the Marshall Islands, University of Papua New Guinea (personal communication, October 2012).

were just 13 and 17 graduates in the corresponding cohort years respectively in 2010 and 2011 (Table 10), a graduation rate of approximately 13%–14%. This is not dissimilar to the overall graduation rate of CMI across all faculties (10%) (College of the Marshall Islands, 2011). Attempts were made to clarify this low rate of graduation and its possible causes with CMI but were unsuccessful.

For students living off campus, tuition fees are US$ 7505 per year (autumn and spring semesters) or US$ 2793 (summer semester). College fees are higher for the almost 5% of students who live on campus – US$ 8825 per year (autumn and spring semesters) or US$ 3453 (summer semester).

Most of the nursing cohort holds an Associate of Science qualification, but a small number of nurses hold higher-level qualifications from other institutions (e.g. Bachelor of Science in Nursing [BSN] or Master of Science in Nursing [MSN]). Nurses with bachelor's or master's degrees are also qualified as registered nurses and are known locally as Nurse Grade 1. More nurses with tertiary degrees are needed, but this is untenable at present due to a lack of able secondary school graduates. Some nurses complete an associate-level degree from the Northern Marianas Community College in Saipan (Langidrik et al., 2007). The CMI is a member of the Pacific Islands Network of Nurse Education Directors (PINNED), which aims to improve nursing practice in the USAPI nations (Republic of the Marshall Islands Ministry of Health, 2011b).

Nursing specialities such as midwifery are taught outside the country, primarily at FNU and UPNG, with financial support given to the students from WHO, the National Training Council (NTC) and the Ministry of Health (Republic of the Marshall Islands Ministry of Health, 2004). There was discussion with FNU to begin a nurse practitioner course in Majuro in 2012, but this did not occur.

Licensed practical nurses receive 9–12 months of on-the-job nurse aide training. Anecdotal evidence from key nursing personnel at the Ministry of Health suggests that many of these nurses have great difficulty in passing the nursing programme at CMI (Langidrik et al., 2007).

A nurse aide programme was started in 2003 to relieve clinical nurses from non-clinical tasks due to the heavy workloads. The first group of 25 students began training in January 2003 and finished in July 2003. There are currently 20 nurse aides in the country (Republic of the Marshall Islands Ministry of Health, 2004).

4.3 Dental education

There is no dental school in the Marshall Islands. Dentists, dental hygienists, dental technicians and dental therapists are trained usually at FNU.

In 2001, a community dental service training programme was developed in consultation with FNU, with assistance from the University of Washington's School of Dentistry. The dental service training programme, which was advertised in newspapers, accepted eight students (six high school graduates and two dental assistants with no formal qualifications) who had completed a high school diploma, had good spoken and written English skills, and had

demonstrated an ability to be reliable, responsible, professional and capable to work. The training programme was 3.5 months in duration. Students were assessed at the end of each topic and at the end of the course. Knowledge of theory and practical procedures were taken into consideration, along with attendance, professionalism and commitment. These dental assistants progressed to become dental outreach workers conducting oral health promotion at the community level.

Sixteen health assistants were also trained to provide basic oral health services, primarily in pain relief and fluoride varnish application. Students were evaluated through comprehensive written exams. The dental assistant training programme was funded through a State Oral Health Collaborative Systems Grant from the Maternal and Child Health Bureau, Health Resources and Services Administration and the RMI Work Investment Board.

Training the dental workforce has been successful in the past due to support from the Government. However, the programme is reliant on expatriate instructors. It is crucial that local staff establish their own teachers' training programme (Tut et al., 2007).

4.4 Other allied health education

Local training courses are not available for other allied health students. Students can either attend courses at overseas education institutions (primarily at FNU) or, as many are, be trained on the job without formal qualifications, including pharmaceutical technicians and medical equipment technologists (Langidrik et al., 2007).

Medical and pathology laboratory technicians are trained though an 18-month, long-distance education course taught by the New Zealand-based Pacific Paramedical Training Centre (PPTC), through the Pacific Open Health Learning Network (POHLN). The programme began in 2011 with nine students and two staff (staff-to-student ratio of 1:4.5). The only requirement for entry is a high school diploma (Republic of the Marshall Islands Ministry of Health, 2011b). Further training is being planned with a visit by PPTC in September 2012.

4.5 Education capacities

The Marshall Islands has limited capacity to increase the training output for health professions education due to the small size of the country. A major stumbling block is the lack of quality high school students who have required competencies in science, mathematics and English to pass tertiary-level entrance exams (ADB, 2006; Republic of the Marshall Islands Ministry of Health, 2011b). The number of students transitioning from primary school to secondary school is limited due to space restrictions, and enrolment is selective. In addition, the quality of education in primary and secondary schools is poor. Teachers are inadequately trained and often absent; classrooms are overcrowded and poorly resourced; parents do not provide enough support; and students often fail because of substance abuse, teenage pregnancy and a perceived lack of relevancy of the curriculum (UNICEF, 2003). Academic performance in high school is poor, with only 43% of adults over the age of 25 having graduated (EPPSO, 2012). Many graduates find it difficult to find jobs due to a lack of basic literacy, mathematics and work skills. In addition, many students cannot enrol in tertiary courses because they are not proficient in English, the standard language of instruction. Therefore, only a small number of students are willing and able to complete health-related training programmes (ADB, 2006).

The dearth of health training institutions in the country is also an impediment to improving the HRH situation. Sending students offshore for their studies is expensive and increases the likelihood of the graduate not returning with their newly developed skills. In addition, most students rely on financial assistance from donors or the Government. For students enrolled at CMI in 2009–2010, 98% of all first-year students received financial aid totalling US$ 630 404, or US$ 4880 per student. Across the whole college, 751 students (89%) received a total of US$ 1 038 097 in US Government Pell Grants, averaging US$ 1382 per student (National Center for Education Statistics, 2010).

The Marshall Islands Scholarships, Grants and Loan Board (MISGLB) allocates scholarships for all students. In 2010–2011, 19 students in health personnel education courses received scholarships. Few students apply for scholarships in the health sector and many of these applications are unsuccessful (Republic of the Marshall Islands Ministry of Health, 2011b). Some students are scholarship holders at universities in the United States and its territories, funded under the Compact Agreement. Between 1988 and 1999, 1614 students received scholarships and 245 commenced courses overseas. However, only 15% of these students completed their studies, mostly due to having inadequate skills when graduating

from secondary school (UNICEF, 2003). A number of students are supported by scholarships from other foreign donors. Support for students also comes from the National Training Council, which was established to help unemployed Marshallese find work and job training.

It was recommended by the HRH Task Force in 2011 that scholarships for students studying overseas be given only to those studying at FNU or UPNG, as these students will be registered to practise only in the Pacific island countries and thus more likely to come home. It was also recommended that MISGLB impose a five-year bonding agreement for students who receive financial assistance from the Government (Republic of the Marshall Islands Ministry of Health, 2011b).

An objective of the Ministry of Education's strategic plan for 2007–2011 is to strengthen communication between CMI and the Ministry. To this end, the HRH Task Force, comprising the Ministries of Health, Education and Finance, USP, CMI, NTC, MISGLB and the NGO Women United Together Marshall Islands (WUTMI), planned to organize a quarterly meeting of the Post-Secondary Education Board to share progress reports, update information and liaise with the Ministry of Health administration to streamline pre-service and in-service training needs. However, the outcomes are unknown so far (Canney et al., 2006).

Tertiary institutions such as CMI and USP are working together in partnership with the Ministries of Health and Education to offer preparatory courses in mathematics, science and English and to create scholarship schemes for medical students (Republic of the Marshall Islands Ministry of Health, 2011a).

Enrolment and graduate data from the University of Hawaii could not be obtained; thus the information presented in Tables 9 and 10 is incomplete. The number of enrolments in the nursing course at CMI for 2010–2012 is also unknown.

The Government of the Marshall Islands awarded 18 scholarships to Marshallese students in 2010–2011 (Table 11). Of these, seven students were awarded scholarships to study nursing; four studied at CMI and three abroad (Republic of the Marshall Islands Ministry of Health, 2011b).

4.6 Physical infrastructure

Nursing is taught at the CMI Uliga campus in Majuro. In 2008, a new building, Tolemour Hall, was completed to house the disciplines of mathematics, science and nursing. The facility contains a simulation laboratory for students to practise nursing skills prior to clinical placement in hospitals. The laboratory mimics a hospital with beds, intravenous poles, suction units, oxygen outlets and other hospital equipment. There are also facilities for studying (chairs, tables and computers) and photocopying. The CMI Tutoring Centre is open to all students and is equipped with computer workstations and tutors, primarily to assist with English and mathematics courses (College of the Marshall Islands, 2012a).

There are two residence halls for Marshallese students from the outer islands and students from the Federated States of Micronesia. The halls include two large kitchens, laundry facilities, computer laboratories, and student lounges. A canteen located next to the residence halls provides healthy, affordable meals (College of the Marshall Islands, 2012c).

Table 11. Average cost of training/education per graduate in 2012

Type of training institution	Average cost of training (US$)		Number of students receiving scholarships in 2010–2011
	Public	Private	
Medicine	N/A	N/A	2
Dentistry	N/A	N/A	1
Nursing Off-campus (autumn and spring semesters) Off-campus (summer semester) On-campus (autumn and spring semesters) On-campus (summer semester)	 22 515 8379 26 487 10 359	 N/A	7
Other health sciences	N/A	N/A	1
	N/A	N/A	1
	N/A	N/A	2
	N/A	N/A	4

N/A, not available.
Sources: College of the Marshall Islands (personal communication, October 2012); Republic of the Marshall Islands Ministry of Health, 2011b.

4.7 Technical infrastructure

The Department of Nursing and Allied Health at CMI is staffed by three nurses with bachelor's and/or master's degrees in nursing from American universities (Guam, Hawaii and Wisconsin). Salaries for nursing lecturers range from US$ 25 137 to US$ 33 515 per year, excluding a US$ 9000 housing allowance (College of the Marshall Islands, 2012b).

The nursing laboratory has DVDs and videocassettes for viewing, catalogued using an electronic system. In addition, the CMI library is stocked with more than 15 000 books as well as maps, microfilms, posters and subscriptions to newspapers from Guam, the Commonwealth of the Northern Marianas, the Marshall Islands and Palau (College of the Marshall Islands, 2012a).

4.8 Accreditation mechanisms

CMI was accredited by the US-based Western Association of Schools and Colleges, Accrediting Commission for Community and Junior Colleges on 1 January 1991. The last comprehensive review was done in 2009, and the next review is scheduled for 2015 (National Center for Education Statistics, 2010).

4.9 In-service and continuing professional education (CPE)

In-service training and CPE are not well coordinated. Aside from nursing, there are no requirements or incentives for other professions to complete CPE activities, and participation is not considered for promotion or staff retention. Major barriers include a lack of administrative support, unfamiliarity with technology (for distance learning), limited access at work, lack of resources and infrastructure, limited teaching staff and transportation problems (particularly those working in rural areas) (Langidrik et al., 2007).

An informal CPE programme was instigated at Majuro hospital by a small number of physicians. CPE is centred on case studies and monthly speaker assignments, which often include hospital statistical reviews. Attendance at CPE events is reasonable, with at least half of the physicians able to attend due to a dedicated CPE time slot being established. However, the lack of administrative support hampers the efficiency of these events, with the Chief Nurse and one physician responsible for tracking participation. There is no formal CPE committee structure or assessment of learning needs. Previously, the University of Hawaii's family medicine residents completed a rotation in the Marshall Islands and were expected to present at CPE events (Langidrik et al., 2007).

With the introduction of video-teleconferencing and the establishment of dedicated support staff to coordinate distance learning, more health workers are able to participate in regular educational conferences held at The Queen's Medical Center and Shriners Hospital for Children in Honolulu. POHLN has established a computer laboratory at Majuro hospital and provides opportunities for individual CPE and basic training. The laboratory has 35 computers that share a 64 Kbps Internet connection at a discounted rate of US$ 800 per month. Resources are limited to Majuro. CPE programmes borrow equipment from the Department of Energy and are reliant on donors for printed materials. The University of Washington donated textbooks for the hospital library in the early 2000s; however, other text resources are at least 5–15 years old. Access to full-text online journals through the Health Inter Network Access to Research Initiative (HINARI) is restricted due to the country not being able to pay user fees (Langidrik et al., 2007). CMI is currently establishing distance learning education centres in Ebeye, Wotje and Jaluit with the aim of upgrading the skills of health assistants (Republic of the Marshall Islands Ministry of Health, 2011b).

Regular training sessions are scheduled for nurses at Majuro hospital, but due to the timing of shifts and the time difference between Honolulu and the Marshall Islands, many are unable to participate. They have limited access to the POHLN computer laboratory in the evening due to other nurses abandoning their posts during evening shifts to use the Internet (Langidrik et al., 2007).

Ebeye hospital has a POHLN computer laboratory with 30 computers that share a dial-up Internet connection, costing US$ 22 per month and an additional US$ 3 per hour. Access is limited between the hours of 8:00 and 17:00. The connection is very slow and can take several minutes to load a basic webpage (Langidrik et al., 2007).

Health assistants working in the primary health care centres on the outer islands receive ongoing case-based education conducted via shortwave radio (Langidrik et al., 2007). However, training is not widely available as more than one in three health assistants have great difficulties accessing a radio (ADB, 2005a).

For other health workers, there are no coordinated CPE opportunities. On some occasions, a donor partner will offer on-site CPE opportunities to specific groups that are funded by them, despite the information being relevant to other health workers. Some health workers rely on web-based CPE, often at the direction of their managers, but most do not participate in regular CPE opportunities (Langidrik et al., 2007).

Health workers in the Marshall Islands have identified several areas in need of improved education opportunities for staff, including preventive health (particularly oral health), NCD control and sexual health. There is also a need for improving basic and continuing education for many health workers who were trained on the job without formal qualifications, such as technicians in the laboratory, pharmacy and radiology settings (Langidrik et al., 2007).

5. Human resources for health (HRH) utilization

5.1 Recruitment

Recruitment of health workers is conducted through the Public Service Commission (PSC), with vacancies and appointments notified within the public service official circular. Each position in the public service is established by the Commission and the Cabinet, with local Marshallese given priority in cases where candidates are equally qualified. New permanent staff are placed on probation from three months to two years. All appointees to the public service must pass a health check and notify the Commission if they have HIV/AIDS, tuberculosis or a contagious and communicable disease (Public Service Commission, 2008).

5.2 Deployment and distribution policies and mechanisms

Staff turnover and stability
Between 2008 and 2010, 45 health workers left the public service with nursing personnel accounting for half the turnover. Over three years, five doctors and 12 nurses resigned, one doctor and five nurses retired, two doctors and six nurses died, and three doctors and one nurse had their contracts expire (Republic of the Marshall Islands Ministry of Health, 2011b).

The salaries of nurses in the Marshall Islands are comparatively higher than those in other Pacific island nations, resulting in a number of expatriate nurses migrating from the Pacific region to the country (ADB, 2005b).

Attrition
Retention of staff, particularly nurses, has been a challenge. Most of the attrition has been due to resignations, with many doctors resigning before their contracts have ended, citing poor working conditions, lack of essential equipment and inadequate salaries. Many health workers move abroad to seek better opportunities, particularly to the United States due to the lack of travel restrictions under the Compact Agreement.

Due to the severe shortage of medical practitioners in the hospitals, doctors are required to work double or even triple shifts and are removed from regular duties to cover shortfalls in the outpatient clinic and the emergency room (*The Marshall Islands Journal,* 2012). This practice is not sustainable as it can result in doctor fatigue and poor services in public health. The situation has not improved since 2009. Previously, Filipino doctors filled this gap; however, in recent years, many expatriate doctors have been reducing the length of their stay and exiting their contracts early. Poor management is thought to be contributing to this problem. To partially address the shortage of specialists in the country, the current workforce is being scheduled to cover duties outside their responsibilities and training. Doctors read X-rays in the absence of a radiologist, and nurses have been trained in anaesthesia to cover for absent anaesthesiologists (*The Marshall Islands Journal*, 2012).

Average number of hours worked per week per HRH category
All health workers in the public sector are contracted to work 40 hours per week. However, as there are shortages in health workers in medicine and nursing, some staff work longer hours. More specific details and rate of overtime hours worked is not available.

Absenteeism
Staff shortages and high absenteeism rates have led to excessive workloads of double and triple shifts for many workers. It is thought that poor working conditions, lack of essential equipment and supplies,

and poor remuneration have led to a culture of low morale and absenteeism (Republic of the Marshall Islands Ministry of Health, 2011b). No data is currently available on the rate of absenteeism. However, if an employee is absent from their post for more than four weeks without permission, their position is forfeited (Public Service Commission, 2008).

Motivation

The absence of benefits system for public service health workers and other government employees has resulted in poor work productivity. Little emphasis is placed on improving worker performance (Republic of the Marshall Islands Ministry of Health, 2011b), and incentives are not given for health workers to work on the outer islands or to be on-call. This includes financial incentives and non-financial incentives such as housing and paid utilities bills.

There is, however, a public service regulation manual (Public Service Commission, 2008) that outlines the terms and conditions of employment. The following benefits are outlined in the manual:

- Study leave: For permanent officers with at least three years of continuous service. Leave may be granted for a total of two years in their entire career, and may be granted in one or many instalments.
- Annual leave: Eight hours for every pay period. Maximum amount of leave accrued at the end of one calendar year is 208 hours, at full pay. Where there is excess leave, the first 80 hours will be paid, but the rest is forfeited.
- Special leave: Up to one month, paid or unpaid available.
- Maternity leave: Twenty days at full pay for up to four deliveries. For five or more deliveries, 20 working days leave can be granted and deducted from accumulated annual leave, sick leave or special leave.
- Compassionate leave: Up to five days of unpaid leave in cases of death or imminent death of the employee's immediate family (parents, spouse, children, siblings or grandparents).
- Payment of leave upon death: Payment of outstanding leave can be made to the officer's spouse or other beneficiaries.
- Sick leave: Four hours per pay period, at full pay. There is no maximum amount. Sick leave greater than three days requires a medical certificate (Public Service Commission, 2008).

Most health professions in the country do not have clear career pathways. As CPE is not taken into consideration for promotion, there is little opportunity for it despite most health workers and their supervisors being eager, particularly those without formal qualifications who were trained on the job (Langidrik et al., 2007).

The first barrier to a nursing pathway is enrolment into a nursing course. Many high school graduates do not perceive nursing to be a rewarding career, particularly in financial terms (ADB, 2005b). Furthermore, once graduates are in the workforce, there are few opportunities for nurses to receive further education and to become better qualified. Nurse aides are encouraged to complete the Associate of Science course at CMI to become clinical nurses (Republic of the Marshall Islands Ministry of Health, 2004).

Health assistants are also encouraged to attend courses in mathematics, English and science at USP at the Majuro campus. These courses will allow them to meet prerequisites to study at FNU. In 2011, nine such students completed the foundation courses (Republic of the Marshall Islands Office of the President, 2011).

Management structure

The Office of Administration, Personnel and Finance within the Ministry of Health is responsible for all matters relating to personnel, administration, accounting and budgeting and deals directly with all of the human resource and material requests and management of the Ministry (Republic of the Marshall Islands Ministry of Health, 2004). The number of health worker posts are determined by the Ministry of Health budget and PSC approvals (Republic of the Marshall Islands Ministry of Health, 2011b).

There are no formal links between the Ministries of Health, Education and Finance, CMI and PSC. The PSC is a standalone body responsible for all personnel issues including approval of salary increments, promotion, and generic HRH and management training. It meets with various government ministries and stakeholders, including the Ministry of Health and CMI, once each year to discuss challenges, policies and ways forward.

Supervision mechanisms

Performance reviews are conducted at least once a year against a set of standards and job descriptions (Public Service Commission, 2008). However, supervision and guidance of staff posted on the outer islands are poor due to transport and communication difficulties as well as poorly kept medical records.

Physical environment and access to essential equipment and supplies/resources
Each hospital in the Marshall Islands has an emergency room, laboratory and imaging services, a pharmacy and an outpatient/public health clinic. However, Majuro hospital is approximately twice the size of Ebeye hospital (Kroon et al., 2004).

Infrastructure in primary health care centres on the outer islands is poor. Outreach teams of visiting health professionals to the outer islands provide opportunities for more advanced health care practices to be performed. Communication lines (radios) are non-existent or are in poor condition. More than 35% of health assistants do not have radio access to management to receive supervision and guidance. In emergencies, the local council radio is used, but it may be on a distant island. Vaccinations are solely reliant upon visiting teams, as there is no refrigeration or storage facilities. In addition, problems with maintaining laboratory equipment and medicine stock in pharmacies contribute to frustrations in the workforce (ADB, 2005b). Procurement of supplies and resources is often held up at the Ministry of Finance who do not understand the importance of critical equipment (Republic of the Marshall Islands Ministry of Health, 2011b).

5.3 Unemployment

Unemployment rates
The overall unemployment rate across the Marshall Islands was 4.7% in 2011. The unemployment rate for health workers is unknown, but it is likely very low due to shortages in the workforce.

Every nursing graduate from CMI is able to find a nursing job after graduation, but this does not happen immediately due to delays in graduate students filling out applications and in PSC processing employment applications. A Ministry of Health Decrement Plan has aimed to slowly replace expatriate nurses with local nursing staff.

Vacancies
As of January 2012, 23 established posts across the health care workforce were unfilled. The posts included nine positions in medicine (internal medicine, paediatrics, general/family medicine [2], radiology, anaesthesiology, obstetrics-gynaecology, psychiatry, urology); 13 positions in nursing (neonatal intensive care, intensive care [3], respiratory, midwifery [7] and recovery); and one biomedical engineering post. All vacant posts are based at Majuro hospital.

Most of the vacancies are in highly skilled posts and/or specialist posts. With the current inadequate number of Marshallese training to fill these positions, it is only feasible for these vacancies to be filled by expatriates.

5.4 Employment of health workers in the private sector

There are three private clinics in the country, all located in Majuro. A private medical clinic is operated by a retired local Marshallese doctor, who was formerly a public health service worker. A private pharmacy is run by a local pharmacist, and a private dental clinic is operated by an expatriate.

Further information is not available on either the Ministry of Health personnel who are also working in the private sector, or on the working conditions of the private sector.

6. Financing HRH

6.1 HRH expenditure

In 2010, US$ 10.8 million was allocated for personnel expenses, making up approximately 47% of the total health budget (Republic of the Marshall Islands Ministry of Health 2011b). For the 2012–2013 financial year, this proportion is expected to have increased to 54%. The budget for health is expected to decrease due to the reduction of Compact Agreement funding starting in the 2011–2012 financial year (Republic of the Marshall Islands Ministry of Health 2011b).

The heavy reliance on expatriate workers drains money from the health budget. In 2011, foreign health workers required US$ 800 000 in housing allowances, making up 3.5% of the annual health budget.

6.2 Remuneration to health workers

Public health positions are graded into 16 levels:

- 1–2: Service and support workers in unskilled positions or positions in manual or physical work.

- 3–5: Clerical workers in semi-skilled positions, responsible for programme delivery or assisting programme delivery staff.
- 6–8: Operational-level workers in skilled and specialized positions, responsible for main programme delivery.
- 9–14: Managerial staff with managerial and operational responsibilities.
- 15–16: Special-level staff in jobs that are "very important and critical" (Marshall Islands Public Service Commission, 2008).

The Ministry of Health proposed a new salary scale more than two years ago, but it has not been put into action due to protocols within the larger government system. The remuneration for health workers has not been updated, and the incentives and benefits system does not improve productivity. Fifty-five per cent of

Table 12. Average base level incomes by profession in January 2012

Health professional category/cadre	Level	Established posts	Average monthly salary (US$)
Generalist medical practitioners	12	Medical Officer	2000
	11	Medical Officer (Intern)	1750
Specialist medical practitioners	11	Anaesthetist	1750
Health assistants	10	Medex	1500
	3–5	Health Assistant I–III	440–566
	2	Health Assistant Trainee	389
Advanced practice nurses	8	Specialized Nurse	835
Graduate/registered/professional nurses	10	Chief of Nursing	1500
	8	Head Nurse	835
	8	Supervising Nurse	835
	6–8	Staff Nurse I–III	645–835
Vocational/enrolled/practical nurses	3–5	Practical Nurse I–III	440–566
	2	Practical Nurses Trainee	389
Dentists	12	Dentist	2000
Dental technicians and assistants	6–8	Dental Nurse I–III	645–835
	3–5	Dental Laboratory Technician I–III	440–566
	3–5	Dental Assistant I–III	440–566
Pharmacists	11	Chief Pharmacist	1750
	6–8	Pharmacy Specialist I–III	645–835
Pharmaceutical technicians and assistants	3–5	Pharmacy Technician I–III	440–566
Medical imaging and therapeutic equipment technicians	8–9	Medical Technologist I–II	835–1087
	9	X-Ray Supervisor	1087
	6–7	X-Ray Specialist I–II	645–732
	3–5	X-Ray Technician I–III	440–566
Medical and pathology laboratory technicians	10	Chief, Medical Laboratory	1500
	6–8	Medical Laboratory Specialist I–III	645–835
	3–5	Medical Laboratory Technician I–III	440–566
Physiotherapists	6	Physical Therapist	645
Nutritionists and dietitians	10	Chief Nutritionist	1500
	9	Senior Nutritionist	1087
	6–8	Nutritionist I–III	645–835
Health service managers	14	Chief of Staff, Hospital	2583
	13	Medical Director, Public Health	2250
	13	Permanent Secretary	2250
	10	Director (OIDS, Communicable Disease, Public Health, MCH, Family Planning)	1500

Source: Marshall Islands Public Service Commission, 2008.

all front-line staff earned less than US$ 9380 per year (Republic of the Marshall Islands Ministry of Health, 2011b).

Salaries are low, resulting in a lack of motivation and reduced standards of care by health workers. Remuneration is not reflective of qualifications and experience. As an example, nurses with an Associate of Science qualification are paid in the same salary group as those without a qualification (Republic of the Marshall Islands Ministry of Health, 2011b).

Salaries are increased with every three years of service and by skills acquired, but only if the staff member receives the support of his or her supervisor or department head. CPE is not used as a means to increase salaries.

Base salaries are paid to health workers either by cheque or by electronic transfer to a bank account. Health workers who are entitled to housing allowances are paid by PSC. Health workers who are recruited from overseas have their travel expenses paid for by the Ministry of Health.

No information is currently available to compare the salaries of private and public service workers. Within each pay level, there are up to five steps. Table 12 reports the average monthly salaries of health workers for Step 1 only.

7. Governance of HRH

7.1 HRH policies and plans

A National Health Workforce Plan for RMI 1998–2020 was developed in the late 1990s. This plan was reviewed and a WHO-sponsored action plan was developed in 2008. However, HRH continues to receive limited resources to implement, monitor and evaluate these plans, reflecting the low priority given to HRH. An HRH Task Force was convened in 2009 by the Cabinet to "review and develop a strategic plan for the RMI on human resources for health and related aspects of human resources" (Republic of the Marshall Islands Ministry of Health, 2011b).

The HRH Task Force made its findings public in 2011 and proposed that the various stakeholders implement several recommendations:

Recommendations to the Cabinet

- Approve and implement the salary scale that was proposed by PSC but not acted upon.
- Have the Ministry of Health and PSC develop a benefits scheme that encourages further education.
- Remove blockages, particularly in PSC and the Ministry of Finance, in hiring and promoting health care workers by giving responsibility to the Ministry of Health.
- Create an interagency HRH steering committee to coordinate health education (Ministries of Health and Education, NTC, MISGLB).

Recommendations to the Ministry of Health

- Improve HRH information infrastructure including data collection and HRH projections.
- Improve training for health educators and mentorship programmes for graduates.
- Establish internships for new graduates who are waiting for permanent postings to gain work experience.
- Explore the possibility of developing a mid-level training programme in conjunction with an accredited university to produce three levels of graduates – health assistants, nursing and medical-level graduates.
- Transfer the health assistant programme and budget to CMI.
- Find alternative training institutions for health worker education, including in English, science and mathematics, by working in conjunction with MISGLB.
- Coordinate scholarship programmes with foreign donors so that opportunities are maximized and complementary.
- Institute policy to increase local workers and reduce reliance on expatriate workers.
- Develop a licensure plan and upgrade training requirements for renewal of medical licenses by empowering the Medical Licensure Board.
- Improve working conditions, including equipment and supplies.
- Strengthen the Ministry of Health's human resource management and human resource development

activity including improved recruitment, retention, training and up-skilling.
- Develop new HRH policy by establishing training policies and career pathways for workers.
- Revive the Health Advisory Board and review its function as an interagency.
- Appoint a Ministry of Health representative to MISGLB and NTC.
- Liaise with the Ministry of Education to expand the Academy of Health-funded study programmes for students to gain exposure and work experience.
- Review entry-level requirements for pre-service and in-service training programmes developed by FNU, UPNG and USP.
- Develop career pathways for each health care worker category and develop a comprehensive training and development plan.

Recommendations to the Ministry of Education, CMI and USP

- Review and strengthen science curriculum standards, facilities and academic requirements for all schools.
- Identify and nurture secondary school students with an interest in the health professions.
- Reallocate or increase current scholarships for medical and allied health.
- Develop intensive teacher education programme to increase number of local tertiary-educated science teachers.
- Maintain partnerships with USP, Ministry of Health and CMI to promote interest in health care fields.
- Publish books on health topics in Marshallese to encourage interest in science-related areas.
- Develop interest in health and science fields as early as preschool.
- Develop relations with selected Filipino colleges and the University of Hawaii for higher learning opportunities in nursing and medicine.
- Ascertain how and why secondary school students make their career decisions using surveys.

7.2 Policy development, planning and managing for HRH

A national strategic plan, Vision 2018, guides the development of the country. The plan recognizes the need to develop human resources through improving education and through specific initiatives, including developing a local health care workforce, maintaining and expanding existing workforce skills, and developing CPE programmes (Langidrik et al., 2007).

Planning and management of HRH are shared among multiple government bodies including the Ministry of Health, Ministry of Finance and Ministry of Education. The HRH office within the Ministry of Health is understaffed with limited capacity. In 2011, the HRH office had only one staff person whose task was to keep timesheets and assist with recruitment paperwork. The office also lacks clear expectations, roles and responsibilities due to the multiple agencies involved in human resources. PSC has the final say on remuneration scales, hiring and promotion, which is problematic as there is no clear understanding by PSC of the importance and required skills of each position. Procurement of supplies and equipment is often held up by the Ministry of Finance, which further erodes the working environment and morale of health workers (Republic of the Marshall Islands Ministry of Health, 2011b).

7.3 Professional regulation

All health workers in the Marshall Islands must hold a license to practise from the Board of Health Professions, enforced under the Health Profession Licensing Act 2009. The Board has established criteria and standards for the granting of licenses, which must be renewed every two years. This Board replaced the old Medical Examining and Licensing Board (1983) and the Nursing Board (1995) when it was approved by Cabinet on 20 July 2011. The Board is made up of five voting members (one physician, one dentist, one allied health practitioner and two nurses) and a sixth non-voting public official in an advisory role (Government of the Marshall Islands, 2009).

Under the Health Profession Licensing Act, licenses are only awarded to recognized qualifications and positions. These include:

- Medical practitioners:
  - Medical officers – MBBS, MD
  - Assistant medical officers
  - Medical assistants
  - Health assistants
- Nursing practitioners:
  - Registered nurses
  - Licensed practical nurses
  - Advanced practice nurses
  - Certified nurse anaesthetists
  - Certified nurse midwives
  - Nurse assistants
  - Nurse practitioners
- Dental practitioners:
  - Dentists – DMD, DDS, BDS
  - Dental nurses
  - Dental assistants
  - Dental therapists
  - Dental technicians – BDSc

- Allied health practitioners:
  - Clinical psychologists
  - Counsellors – MA, MS
  - Psychiatric technicians
  - Certified addictions counsellors
  - Pharmacists
  - Pharmacy technologists
  - Pharmacy technicians
  - Social workers – BSW, BS, BA, MSW, MS, PhD, CSW
  - Laboratory technicians
  - X-ray technologists/technicians
  - Operating room technicians
  - Physiotherapists
  - Occupational therapists
  - Registered dietitians
  - Community health workers – DCHMS
- Alternative/complementary practitioners:
  - Osteopaths - DO
  - Music therapists
  - Certified/licensed acupuncturists

The Board of Health Professions grants licenses for all nursing professionals including registered nurses, enrolled nurses, licensed practicing nurses, nurse practitioners, midwives and nurse aides. The one-step process of registration was carried over from the previous Nursing Board. Graduates are required to:

- complete the nursing course from CMI or another approved institution;
- pass a skills checklist;
- pass a Board-set examination; and
- have a reference letter from a nursing school instructor.

All nurses must complete 30 hours of CPE every two years to renew their licenses. They are the only

Table 13. Projections for health workforce requirements in 2012, 2017 and 2022

Health professional category/cadre	Established posts	Health workers needed to fill all posts	
	2012	2017	2022
Generalist medical practitioners	11	15	19
Specialist medical practitioners	22	29	39
Medical assistants	2	3	4
Health assistants	52	69	92
Advanced practice nurses	20	27	35
Graduate/registered/professional nurses	122	162	216
Vocational/enrolled/practical nurses	19	25	34
Midwives	19	25	34
Nurse aides/nurse assistants	20	27	35
Dentists	4	5	7
Dental technicians and assistants	21	28	37
Pharmacists	4	5	7
Pharmaceutical technicians and assistants	3	4	5
Medical and pathology laboratory technicians	19	25	34
Medical imaging and therapeutic equipment technicians	9	12	16
Physiotherapists	3	4	5
Physiotherapy technicians and assistants	2	3	4
Medical and dental prosthetic technicians	1	1	2
Biomedical engineers	4	5	7
Health professionals not elsewhere classified	10	13	18
Health service managers	9	12	16
Health management personnel not elsewhere classified	2	3	4
Clerical support workers	64	85	113
Domestic and ancillary support workers	93	124	165
Total	**535**	**712**	**946**

Source: Republic of the Marshall Islands Ministry of Health, 2011b.

group of health workers with this requirement. For expatriate nurses, the Board of Health Professions makes an assessment based on the applicant's resume, qualifications and references but not on competencies. Breaches of protocol and disciplinary actions are reported to the Board with termination of one nurse's position occurring in the past. However, no de-registration of a nurse has occurred to date (JCU and AUT, 2011).

There is currently no information available on the registration process for medical practitioners and other health professional categories.

7.4 HRH information systems

The health information system in the Marshall Islands is under-developed and contributes to the lack of effective HRH planning and development as there is no up-to-date information. Data are not centralized and are still recorded manually. The Ministry of Health is currently working on plans to make the system fully electronic and automated.

7.5 Health workforce requirements

In the *Strategy for Action* paper, a goal was set to increase established posts by 33% in five-year intervals based on 2012 figures (Republic of the Marshall Islands Ministry of Health, 2011b). If the *Strategy for Action* paper were to be implemented fully, there would be 712 established posts in 2017 and 946 in 2022 (see Table 13).

Table 14. Projected number of health workers needed to fill established posts, accounting for ageing and other workforce exits

Health professional category/cadre	Established posts in 2012	Number of health workers needed to meet projected established posts in five-year blocks	
		2012–2017	2017–2022
Generalist medical practitioners	11	23	25
Specialist medical practitioners	22	11	12
Medical assistants	2	6	6
Health assistants	52	24	34
Advanced practice nurses	20	13	15
Graduate/registered/professional nurses	122	86	99
Vocational/enrolled/practical nurses	19	13	16
Midwives	19	12	15
Nurse aides/nurse assistants	20	11	12
Dentists	4	5	6
Dental technicians and assistants	21	13	13
Pharmacists	4	4	4
Pharmaceutical technicians and assistants	3	5	5
Medical and pathology laboratory technicians	19	10	13
Medical imaging and therapeutic equipment technicians	9	7	8
Physiotherapists	3	5	5
Physiotherapy technicians and assistants	2	5	6
Medical and dental prosthetic technicians	1	4	5
Biomedical engineers	4	5	7
Health professionals not elsewhere classified	10	7	10
Health service managers	9	8	8
Health management personnel not elsewhere classified	2	7	5
Clerical support workers	64	28	39
Domestic and ancillary support workers	93	39	58
Total	**535**	**213**	**284**

Source: Republic of the Marshall Islands Ministry of Health, 2011b.

Table 15. Annual exits from the Ministry of Health between 2008 and 2010

Health professional category/cadre	2008	2009	2010	Total
Medical practitioners	2	7	2	11
Medical assistants	1	0	0	1
Health assistants	2	0	1	3
Nursing personnel	9	4	10	23
Dental practitioners	0	0	2	2
Pharmacists	1	1	0	2
Medical pathology laboratory technicians	2	0	0	2
Medical imaging and therapeutic equipment technicians	1	0	0	1
Total	**18**	**12**	**15**	**45**

Source: Republic of the Marshall Islands Ministry of Health, 2011b.

The numbers of health workers needed in 2017 and 2022 to meet the projected established post targets were estimated (Table 14). The following assumptions were made:

- projections were applied to current (2012) established post numbers;
- workforce retirement occurs at 60 years;
- estimated exit numbers from 2011 were applied (Table 15), and for cadres with no exits recorded, the median of the eight known exit rates (0.7 per year) was applied; and
- stable population growth of 0.4% based on 1999–2011 growth rates.

8. Concluding remarks

The health workforce of the Marshall Islands faces serious challenges, particularly ageing and difficulties to produce new professionals due to low funds, partly due to reduced economic support provided through the Compact Agreement. In addition to these, retention of qualified health workers has become an issue in recent years.

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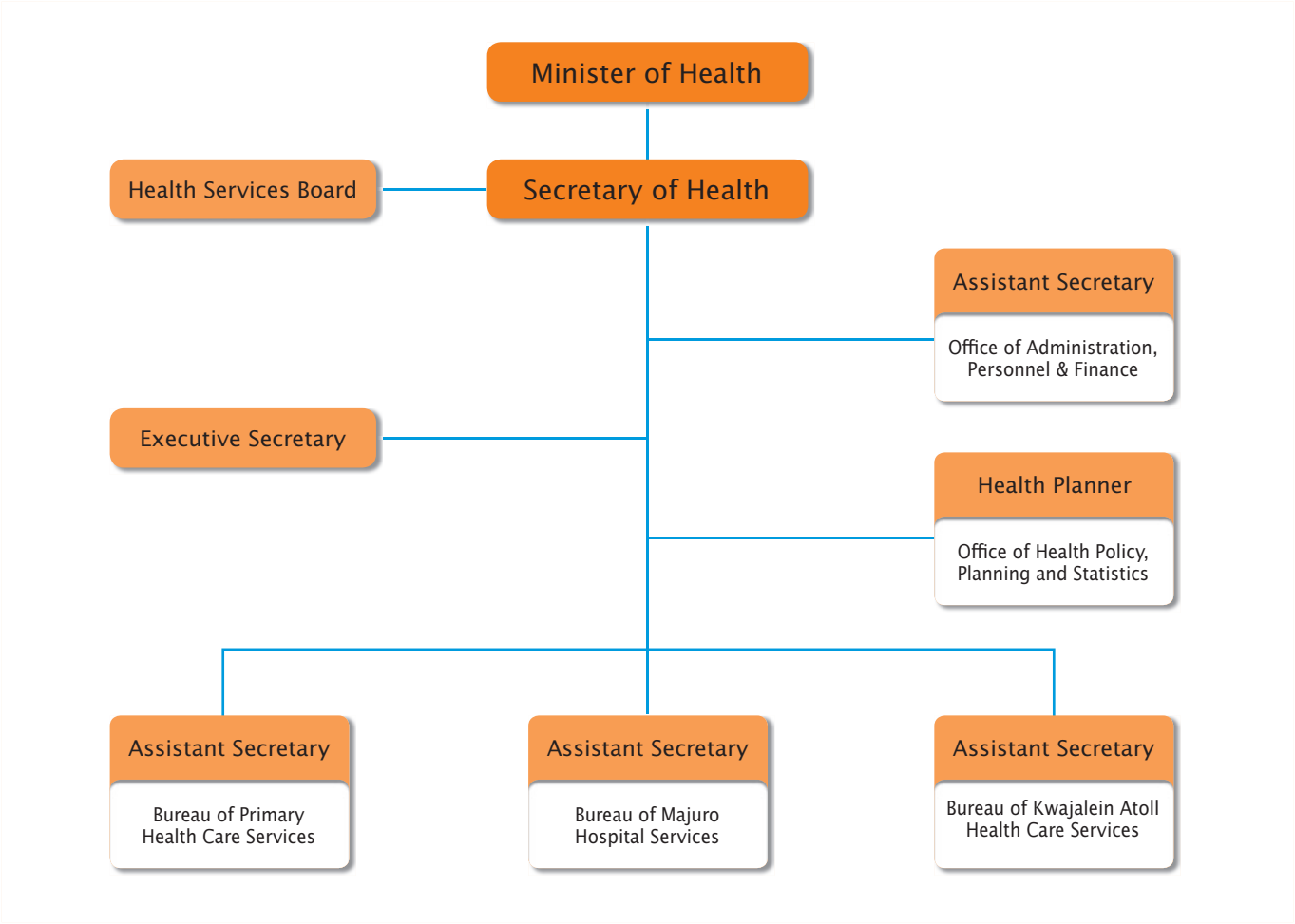
Annexes

Annex A. Ministry of Health organizational chart



Source: Republic of the Marshall Islands Ministry of Health, 2011a.

Annex B. Distribution of public sector health workers by gender in January 2012

Health professional category/cadre	Total	No. Female	% Female
Generalist medical practitioners	9	3	33.3
Specialist medical practitioners	15	8	53.3
Medical assistants	2	0	0.0
Health assistants	52	9	17.3
Advanced practice nurses	20	13	65.0
Graduate/registered/professional nurses	116	85	73.3
Vocational/enrolled/practical nurses	19	12	63.2
Midwives	12	12	100.0
Nurse aides/nurse assistants	20	12	60.0
Dentists	4	2	50.0
Dental technicians and assistants	21	11	52.4
Pharmacists	4	2	50.0
Pharmaceutical technicians and assistants	3	1	33.3
Medical imaging and therapeutic equipment technicians	9	4	44.4
Medical and pathology laboratory technicians	19	9	47.4
Physiotherapists	3	0	0.0
Physiotherapy technicians and assistants	2	0	0.0
Biomedical engineers	3	0	0.0
Medical and dental prosthetic technicians	1	0	0.0
Health professionals not elsewhere classified	10	7	70.0
Health service managers	9	5	55.6
Health management personnel not elsewhere classified	2	1	50.0
Clerical support workers	64	42	65.6
Domestic and ancillary support workers	93	37	39.8
Total	**512**	**275**	**53.7**

Sources: Republic of the Marshall Islands Ministry of Health, 2011b; Republic of the Marshall Islands Office of the President, 2012.

Annex C. Distribution of public sector health workers by age in January 2012

Health professional category/cadre	Total	<30	30–34	35–39	40–44	45–49	50–54	55–59	≥60
Generalist medical practitioners	9	0	1	2	2	1	2	0	1
Specialist medical practitioners	15	0	1	0	2	7	0	2	3
Medical assistants	2	0	0	0	0	0	0	0	2
Health assistants	52	4	12	6	8	5	7	3	7
Advanced practice nurses	20	3	4	1	4	3	3	2	0
Graduate/registered/professional nurses	116	31	14	19	26	4	6	7	9
Vocational/enrolled/practical nurses	19	0	0	4	1	4	3	3	4
Midwives	12	0	2	1	3	0	2	2	2
Nurse aides/nurse assistants	20	9	7	2	2	0	0	0	0
Dentists	4	0	2	0	0	2	0	0	0
Dental technicians and assistants	21	5	4	1	5	2	0	2	2
Pharmacists	4	0	0	0	3	0	0	1	0
Pharmaceutical technicians and assistants	3	0	1	1	0	0	0	0	1
Medical and pathology laboratory technicians	19	5	2	8	3	0	0	0	1
Medical imaging and therapeutic equipment technicians	9	1	1	1	4	1	0	0	1
Physiotherapists	3	1	2	0	0	0	0	0	0
Physiotherapy technicians and assistants	2	0	0	0	1	0	1	0	0
Medical and dental prosthetic technicians	1	0	1	0	0	0	0	0	0
Biomedical engineers	3	0	0	0	1	1	1	0	0
Health professionals not elsewhere classified	10	3	2	2	2	0	1	0	0
Health service managers	9	0	1	2	1	1	0	1	3
Health management personnel not elsewhere classified	2	0	0	0	0	0	0	2	0
Clerical support workers	64	9	13	13	7	6	7	3	6
Domestic and ancillary support workers	93	14	11	14	18	18	13	4	1
Total	**512**	**85**	**81**	**77**	**93**	**55**	**46**	**32**	**43**
Total (%)	100	16.6	15.8	15.0	18.2	10.7	9.0	6.3	8.4

Sources: Republic of the Marshall Islands Ministry of Health, 2011b; Republic of the Marshall Islands Office of the President, 2012.

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