Republic of the Marshall Islands Assessment for a Continuing Health Care Professional Development Program

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Abstract

In 2003, the University of Hawai'i Department of Family Medicine and Community Health entered a 4-year cooperative agreement with the U.S. Health Resources and Services Administration to establish the "Pacific Association for Clinical Training" (PACT). PACT's goal is to develop effective distance education methods to improve the education and skills of healthcare professionals in the U.S.-Affiliated Pacific Island nations. To determine the situation existing in 2004, one of PACT's first projects was to perform site visits to each jurisdiction, conducting needs assessments through interviews with key health care professionals, hospital administrators, and government officials. This article highlights findings of PACT's assessment of Republic of the Marshall Islands. Meant to establish a baseline for future reference, all data are those collected in 2004/2005 and have not been updated.

Key words: Republic of the Marshall Islands; Clinical Training; Workforce Development; Distance Education.
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Introduction

A preliminary written needs assessment survey was distributed in November 2003 and completed by key informants in the Republic of the Marshall Islands (RMI) Ministry of Health and Environment (MOHE) and at Majuro and Ebeye Hospitals. Drs. Sheldon Riklon and Lee Buenconsejo-Lum interviewed additional participants in person and through written communications. Cherie Shehata (University of Hawai'i Family Practice Resident) conducted the key informant interview for the laboratory staff during a clinical rotation in the RMI. The draft was reviewed and discussed at the November 2004 Advisory Board meeting and with the Secretary of Health for the RMI (fist author, Justina Langidrik).

The RMI is an island nation located in the central Pacific. The country consists of 29 coral atolls, including the world's largest, Kwajalein, and five coral islands (1,225 islands in total) running in two parallel chains. Total land area is 70 square miles, but the Exclusive Economic zone covers 750,000 square miles. The RMI is divided into 33 municipalities, with Majuro, Ebeye, Wotje and Jaluit as major district centers. Majuro and Kwajalein are served by international airlines and by Air Marshall Islands that offers flights between Majuro, Kwajalein and the outer islands, 23 of which have airstrips. Travel between many outer islands is by small boat. Most outer islands do not have electricity or running water. Supplies for some of the outer islands are transported by ship.[1]

The RMI is a self-governing democracy in free association with the U.S. and has been independent since 1986, and a member of the United Nations since 1991. During the period 1946-1958, the U.S. detonated total of 67 nuclear weapons in the atolls of Bikini and Enewetak and the total yield during the 12-year testing period equaled 108 megatons (equivalent to over 7,000 Hiroshima bombs). Radioactive material was absorbed from the contaminated food and water and increases

in leukemia, breast cancer and thyroid[2] cancer after radiation exposure have been established,[3] especially for those with childhood exposure.

Between 1986 and 2003, a targeted health care program (the 177 Health Care Plan) provided more comprehensive care for approximately 10,000 persons, including radiation-affected and displaced Marshallese and their descendants from the atolls of Rongelap, Utrik, Bikini and Enewetak. Funding for the 177 program, along with all other sector grants, is scheduled for incremental reduction per the Amended Compact of Free Association with the U.S.,[4] so it exists on a smaller scale. A U.S. Department of Energy-sponsored program (Ejmour Mokta)[5] provides screening and treatment for 207 Marshallese citizens considered by the U.S. to have been most directly exposed to radiation from nuclear weapons testing.

The total RIM population, based on a July 2004 estimate, is reported at 57,738 with a growth rate of 2.3%, a birth rate of 33.88 per 1,000 and a death rate of 4.94. Infant mortality is 30.5 per 1,000 live births, in comparison to the U.S. infant mortality rate of 6.63. Overall life expectancy is 69.7 years, compared to 77.4 years in the U.S. Over 62% of the population are 15 years of age or older.[6] A 1999 World Health Organization (WHO) report estimated that the population growth has outpaced the facilities for the provision of safe water and sanitation.[7] The overwhelming majority of the population is ethnic Marshallese or part-Marshallese. Major languages spoken include two major dialects of Marshallese and English; Japanese is also spoken by some. Ninety percent of the population is defined as literate (percent of the population >14 years of age who can read), based on a 1999 estimate from the RMI census. Approximately half of the population lives on Majuro Atoll. Another 13,000 citizens reside in densely populated Ebeye Atoll, which is a 78-acre (0.14 square miles) island 3 miles north of Kwajalein atoll. There are some homes and rural villages on all inhabited islands that do not have electricity or running water.

The RIM Gross Domestic Product (GDP) per capita is $1,194,[7] in comparison with the Hawai'i GDP of $37,986. Per capita income in urban areas is $1,379 and in rural areas, $520. Thirty percent of the country's revenue is from local sources (small-scale agriculture and handicrafts); 70% are from U.S. grants. The unemployment rate is approximately 31%. In 2002, the RMI spent $248 per capita on health care expenditures compared to $4,499 for the U.S.[8]

Health Workforce Demographics

There are two MOHE hospitals in the RMI, Majuro Hospital and Ebeye Hospital. Majuro is the main referral center. Basic health services are provided at the two hospitals and 49 dispensaries and health centers (most on the outer atolls). The majority of health care workers in both hospitals, including MDs, registered nurses (RNs) and laboratory staff are expatriate contract workers, while outer atoll health centers are staffed by medical officers, health assistants and local support staff. Majuro Hospital has a radiologist and pathologist (Table 1 details the number of health workers in various fields in the RMI).

A 1999 World Health Organization (WHO) report estimated that the population growth has outpaced the facilities for the provision of safe water and sanitation.

There is an additional hospital at the U.S. military base on the island of Kwajalein, close to Ebeye, which is staffed by U.S.-trained health workers; workers there have good access to health information resources. Entrance to the military base is restricted for most Marshallese and the hospital on Kwajalein does not typically provide care for Marshallese patients.

Included in the count of nurses in the RMI are Marshallese-licensed RNs, licensed practical nurses (LPNs) and certified nurse aides (CNAs). Nurses hold a variety of degrees, including Associates of Arts (AA), Bachelor of Science in Nursing (BSN) and Master of science in Nursing (MSN). The majority of nurses are practical nurses without formal degrees; most of the others hold Associate-level degrees.

The RMI Public Health Council employs approximately 16 nurses and eight health educators, and most participate in all prevention and education activities, ranging from immunizations, sexually transmitted disease prevention, Tuberculosis (TB) prevention, to high school education sessions. Additional public health services are provided by the Department of Reproductive Health and the Outer Island Health Care Services.

Health Workforce Training

Of the 32 physicians, one (author, Dr. Sheldon Riklon, who is Marshallese) received and completed his training in a U.S. allopathic medical school and is licensed to practice in the U.S. Some physicians are graduates of the now defunct Pacific Basin Medical Officer Training Program. The remaining physicians are expatriate physicians from the Philippines, Burma (Myanmar), Sri Lanka, and elsewhere.

Many of the graduate nursing staff received their education (Associate's degree) at the College of the Marshall Islands (CMI) nursing program or at Northern Marianas Community College in Saipan,

Table 1: RMI Health Workforce Demographics

	Physicians (MD, MO, MBBS, DCHMS, other)	Nurses (RN, LPN, CNA or Graduate nurse, practical nurse)	Nurse Mid-wives	DDS / DO	Dental Asst, nurse, tech	Extend-ers (Health Asst, Medex, comm health worker)	Lab	Pharm-acist or pharm tech	Radiol techs	Other: SW, diet, hlth inspec-tor, rehab, mental hlth
RMI-Ebeye	10	27	0	2	3	10	4	2	2	2
RMI-Majuro	21	150	11	4	4	5	13	4	6	8

Commonwealth of the Northern Mariana Islands. The CMI is an autonomous community college offering 2-year Associate degree programs, including nursing and allied health. The CMI is accredited by the Accrediting Commission for Community and Junior Colleges of the Western Association of Schools and Colleges. The Department of Nursing and Allied Health currently offers an Associate of Science (AS) degree in Nursing and is planning to offer an AS in Medical Laboratory Technology. There are few graduate nurses.

LPNs receive 9-12-month on-the-job nurse aide training. Many of them have difficulty succeeding in the nursing program at the CMI, according to key nursing personnel at MOHE.

Dentists, dental hygienists and assistants receive their training outside of RMI, typically at the Fiji School of Dentistry or in the United Kingdom. None of the seven dental assistants are formally certified. Dr. Ohnmar Tut, Preventive Service Dentist with RMI's Ministry of Health, with the assistance of Dr. Peter Milgrom from the University of Washington, School of Dentistry and others, has started a local dental assistant training pilot program that also incorporates training in health education and community outreach skills. Other U.S.-Affiliated Pacific Island (USAPI) jurisdictions have expressed great interest in sending potential candidates to the RMI for training and certification in such a program.

A WHO-funded consultant has been conducting formal health assistant training. Participants are high school graduates who receive an intensive 18-month core curriculum, covering English, basic anatomy and pathophysiology, and basic pharmacology. Once the health assistants return to their outer island dispensary, ongoing case-based education is conducted via shortwave radio. Currently, the health assistant training program is only open to Marshallese.

One radiologist was recently hired, so mammograms are now performed with increasing frequency. Few of the radiology technicians are certified. Until recently, radiology services were limited to x-rays and mammograms. However, a new computed tomography scanner is now in place. There is no fluoroscopic unit or magnetic resonance imaging scanner. Most of the technicians in Majuro and all of the technicians in Ebeye do not hold college certificates.

A pathologist was recently hired, so pap smears can now be read in Majuro. Technicians are also trained primarily on-the-job, and in Ebeye, none of the staff are certified medical technologists. Pharmacy technicians are also trained primarily on-the-job.

A new Health Professions Licensing Board was recently appointed and members are beginning the process of creating formal and standardized policies and procedures.

Continuing Professional Development Activities

Continuing Professional Development as a Health Priority

The RMI has recently endorsed a national strategic plan, Vision 2018, to guide the development of the country. The plan strongly emphasizes the need to develop human resource potential through improved education and other specific initiatives. The plan proposes to "establish a knowledge-based economy by equipping Marshallese citizens with internationally competitive skills, qualities and positive attitudes towards work and society." Priorities include improving the education system in order to develop a local health care workforce (educational "pipeline" programs), create or expand on opportunities for maintenance of skills of the existing workforce locally, through capacity building and addressing the many systemic issues that affect development of a sustainable health care workforce and a continuing professional development (CPD) program.

Most of the health care workforce and supervisors are eager for CPD opportunities, especially for those professionals trained primarily on-the-job. MOHE and hospital administrators have strongly supported this effort. A new Health Professions Licensing Board was

recently appointed and members are beginning the process of creating formal and standardized policies and procedures. Assistance with this process is a high priority area of need. Nurses who are members of the American Pacific Nurse Leaders Council (APNLC) and the Marshall Islands Nursing Association have a CPD requirement in order to maintain an active membership. Nurses are regulated by the RMI Board of Nursing. For the large remainder of the health professionals, there are no requirements or incentives for CPD activities. Currently, CPD activities are not considered criteria for job retention and promotion and many system barriers need to be addressed to change these policies. Leaders of the Pacific Basin Medical Association (PBMA), the regional professional organization for physicians, are also considering instituting a CPD requirement for active membership in order to establish and standardize continuing education requirements across the region.

Continuing Professional Development Infrastructure and Program

A small group of dedicated physicians and nurses at both Majuro and Ebeye Hospitals have been at the forefront of developing and improving CPD efforts over several years. However, there is still insufficient administrative or financial support despite their efforts.

In the RMI, there was a recent emphasis to preferentially allow native Marshallese health staff (rather than expatriates) to participate in off-island travel opportunities.

At Majuro Hospital, one or two physicians lead a fledgling group CPD program, mostly centered on interesting cases where medical care is discussed similar to "morbidity and mortality" rounds. Monthly speaker assignments are made a year in advance and the presenters often review hospital statistics for the previous month, summarize most of the cases they cared for and then discuss one case in more detail. Some of the discussions are evidence-based, while others describe the clinical course and ask for input on management or advice on improving care for future cases.

There is a regular continuing education time established, so at least half the physicians are able to attend. Although there is no dedicated administrative support person for CPD activities, fliers are posted and announcements are made overhead, which does improve attendance. Health professionals feel this method of communication, as well as the monthly assigned schedule, are very effective. Tracking of participation in group CPD activities is mainly the responsibility of the Chief of Nursing (for nurses) and one physician. There is no formal CPD committee structure, nor is there a written assessment of learning needs; potential topics for CPD discussion are also discussed at department meetings.

When University of Hawai'i Family Medicine residents were rotating in the RMI, they were required to make at least one educational presentation for health staff. The residents' topic selection were independently selected or guided by the rotation supervisor, Dr. Riklon.

With the recent expansion of video-teleconference (VTC) capability to Majuro Hospital and the hiring of a dedicated support staff to coordinate distance-education opportunities, more hospital staff members have been able to participate in routine educational conferences held at the Queen's Medical Center and Shriners Hospital in Honolulu, Hawai'i. Access to a WHO Pacific Open Health Learning Network (POHLN) computer laboratory at Majuro Hospital also provides opportunities for some individual CPD and basic training opportunities. Please refer to the in-depth assessment of e-learning capacity by Higa, also published in this special issue (pp 89-97). The information technology (IT) staffer at Majuro Hospital helps to coordinate VTC and online learning opportunities, but she does not track nor is she responsible for tracking participation and completion of the online courses.

Nurses at Majuro have regular training and update sessions, and the need for this training is mostly based on quality improvement or training to support new services offered at Majuro Hospital. Nurses also try to take advantage of VTC opportunities, but with the timing of their shifts and the time difference between Hawai'i and the RMI, many are unable to participate. Recently imposed access restrictions to the WHO computer lab present further barriers to nurses and allied health personnel working in the evening or night shifts.

The continuing medical education programs borrow a computer and VGA projector from the Department of Energy Ejmour Mokta programs in Majuro and Ebeye. The RMI received selected core texts from the University of Washington's Pacific Islands Continuing Clinical Education Program to augment their hospital libraries in the early 2000s. Other text resources are at least five to15 years old.

There are no coordinated CPD opportunities for dental health professionals, radiology staff, laboratory or pharmacy staff or other allied health providers in the RMI. Occasionally a funding agency will offer on-site continuing education opportunities, but those are usually limited to personnel in particular funded public health programs only, even though the topics may be relevant to a broader audience. Some staff rely on web-based CPD for individual learning, but most do not participate

in regular CPD opportunities. Many of the allied health providers who participate in online courses do so under the direction of their supervisors.

In Ebeye, no formal CPD program exists for any of the health providers. Several staff members are interested in CPD, but administrative barriers and lack of incentives prevail. The University of Hawai'i Family Medicine residents conducted at least one continuing medical education session while rotating at Ebeye Hospital.

In the RMI, there was a recent emphasis to preferentially allow native Marshallese health staff (rather than expatriates) to participate in off-island travel opportunities. However, many of the off-island trips are associated with administrative meetings and do not include opportunities for continuing education. The restriction on travel by expatriate physician staff, that provide much of the health care to the population, has been eased in large part after Marshallese physician leaders advocated on behalf of their expatriate colleagues. At the June 2004 PBMA meeting in Pohnpei, FSM, the majority of physician participants from the RMI were expatriates.

Barriers to Accessing Currently Available Continuing Professional Development Opportunities

In Majuro, historically there has been little administrative infrastructure to help formalize CPD programs or to provide support services for presenters. Even when programs are relevant and presented effectively, providers are often not able to implement the new knowledge or skills because of resource and infrastructure limitations or other systemic barriers. A prevalent concern among key informants was that many health providers are not familiar with online CPD opportunities and might not be comfortable using this technology. Those that are comfortable with or enthusiastic about utilizing online resources face slow and costly internet connections, as well as limited access at work. In general, there are insufficient CPD opportunities for providers. No group activities exist for dental or allied health providers and limited opportunities exist for nursing staff.

CPD opportunities on Ebeye are even more limited due to lack of incentives, limited administrative support, limited staffing and other infrastructure restrictions.

Priority Continuing Professional Development Needs

Key informant and hospital data sources point toward diabetes mellitus and associated non-communicable illnesses (coronary artery disease, heart failure, hypertension, renal failure, metabolic syndrome and obesity) as the most common diseases in the RMI. A majority of the hospital and off-island referral budgets are for these chronic illness and their complications. In 2001, diabetes (including complications) was the leading cause of death, followed by heart disease, cancer, neonatal deaths and accidents. A high and increasing rate of sexually transmitted diseases (syphilis and chlamydia, in particular) and other infectious diseases, as well as a high teen pregnancy rate, are of concern; these contribute to one of the highest infant mortality rates in the USAPI.

All providers interviewed agreed that more emphasis on preventive health and preventive oral health is needed. Otitis media and pneumonia were also consistently identified as priorities, based on the high prevalence of these two conditions. Nursing staff at Majuro Hospital also identified issues surrounding rape, especially unreported childhood rape, as a priority. Nursing staff in each department also identified content and skill areas needed to improve the quality of care provided at the hospital and public health clinics. Physician, nursing and pharmacy staff indicated a great desire to develop local capacity for advanced cardiac life support training and certification.

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For dental providers (including dentists, hygienists and technicians), there is a need for education of all providers regarding preventive and curative aspects of bottle caries, caries in general and periodontal disease. Because dental caries, gum disease and nutrition-related disease are so common, nutrition and dental health education is also a high priority area for all who perform direct patient care.

In general, there is a great need for basic, foundational training in addition to continuing education for the technicians in the laboratory, pharmacy and radiology. Many technicians are trained on-the-job without prior formal training. Pharmacists would like to see pharmacy and other staff, including nurses and doctors, receive training aimed at reducing medication errors, appropriately selecting antibiotics and properly using medications in emergency situations.

The laboratory has an acute need for training technicians in all areas of operation, from understanding what tests are used for, to developing policies surrounding blood transfusions, to skills building in histopathology and microbiology, to interpreting and analyzing laboratory statistics. The recently hired pathologist actively seeks

online training courses for the lab technicians. He makes recommendations on which of his staff should apply for specific courses, and works with the IT support person to facilitate this training. The pathologist also hopes to develop a training opportunity for a pathology resident, which would serve both the learning needs of the resident and the training needs of the lab staff.

For the Radiology Department, their priority is to get some formal continuing education training.

Potential for Collaboration

The Hawai'i Board of Medical Examiners is willing to assist the RMI and other jurisdictions in setting up licensing bodies by sharing Hawai'i policies and procedures for revision and adaptation to the local setting. Potential computer skills/informatics skills training opportunities exist at the CMI, but this has not been formally explored.

Distance Education Technologies

Existing Technology

All telecommunications services on the RMI are provided by the National Telecommunications Authority (NTA). Until mid-2003, there was no local Internet Service Provider (ISP), so internet access was provided through a commercial satellite link via Guam. A digital TDMA-800 cellular service launched during 2000, replacing the Island's original advanced mobile phone system. This system includes both fixed and mobile services and provides telephone service to some of the other islands in the Kwajalein Atoll where no fixed-line service is available. The NTA received government funding in August 2002 to build and operate the first earth stations for telephone communication on the remote islands of Jaluit and Wotje Atolls.

Majuro Hospital has a WHO POHLN laboratory with a shared 64 Kbps internet connection leased from the NTA. The monthly charge of $800 per month reflects a special discounted rate. WHO funding covers the cost of this internet link for the first year. There are 10 client computers, and one mail server in this lab. In total there are approximately 35 computers in the hospital. There are four computers that are networked in the medical records room, without internet access. One client computer has a dial-up internet connection in the pharmacy and sits alongside three computers without internet access. Other locations with dial-up internet access include the hospital administrator's office and a common computer located in the administrative office. There are no computers in the emergency room and outpatient department. Majuro Hospital also utilizes a wireless local area network beyond the computer lab and has connectivity to the Majuro library and MOHE through the Pan-Pacific Education and Communication Experiments by Satellite (PEACESAT) network based on a past National Library of Medicine grant for this specific purpose. This allows for internet access at Majuro Hospital at no metered cost. Initially, hospital staff had almost 24-hour access to the computers in the lab; however problems arose with staff using the computers instead of being at their duty stations and other internet-related infractions. Subsequently, the hospital's IT Department and Administration are working on an internet use policy and deciding on strategies for appropriate use during evening and night shifts.

Video-teleconferencing (VTC) now works fairly reliably in both Majuro Hospital and in the Department of Education. The main IT person at the hospital serves as the coordinator for VTC program opportunities (from Hawai'i, mainly) and also coordinates registration of online courses for allied health and other health professionals.

The newly built Ebeye Hospital has approximately 30 computers. Ten of these computers share the only available commercial dial-up access line at a cost of $22 a month and an additional $3 per hour. The access charges limit the current hours of hospital internet access to between 8:00 a.m. and 5:00 p.m. The connectivity is very slow and it can take several minutes to open a basic webpage. The medical director has expressed interest and offered staff support for developing a computer lab at the hospital.

Health Care Provider Experience or Comfort Level with Using Computers/ Distance Education

Experience and comfort level with basic computer skills vary widely, but in general, physicians are more experienced or comfortable than other providers. Some nurses had never used a computer before or had never participated in an online learning experience.

In Majuro, VTC conferences from Hawai'i are being utilized regularly, as well as some online learning opportunities for allied health professionals. There is such a demand at Majuro Hospital, that they are requesting more computers/internet access from the MOHE. Some physicians, nurses, dentists and dental assistants use their own computers and home internet to access online continuing education resources or perform web-based literature searches, but internet access is slow and costly. Although the RMI is eligible to access the Health InterNetwork Access to Research Initiative (HINARI) databases and full-text journal offerings, they have been unable to afford the user fee.

With rare individual exceptions, no distance education is being used consistently in Ebeye. Ebeye will

occasionally send interesting cases via Tripler Army Medical Center's store-and-forward technology program, but this is mainly for consultation and limited to one or a few individuals instead of the entire staff.

High cost, slow access, limited bandwidth and challenging telecommunications policy limit regular access to online CPD opportunities. Lack of VTC capability in Ebeye is also viewed as a large barrier. Rural clinics on Majuro do not have computers and outer island clinics and dispensaries often do not have electricity. Health providers also require varying amounts of training to utilize online health information resources.[10]

Summary

The health infrastructure and workforce in the RMI face difficult challenges in addressing many of the pressing health disparity and infrastructure problems due to geographical isolation, a struggling economy and inadequate and declining health funding provided from the renegotiated Compact of Free Association with the U.S. Despite these challenges, the nation's strategic plan, Vision 2018, strongly emphasizes development of human resource capacity and includes plans to "grow" a local workforce, as well as improve opportunities for the existing local Marshallese workforce of health providers. The Secretary of Health remains committed to improving quality and capacity of the workforce and the Hospital Administrator in Majuro is strongly supportive. A dedicated group of health providers at both Majuro and Ebeye Hospitals, as well as in the outer islands health systems remains a driving force for increasing knowledge, skills, and expectations for CPD. Providers in Majuro are utilizing recently acquired VTC capability and the WHO Open Health Learning Center for computer and internet access. Systemic issues still need to be addressed regarding internet usage policies and increasing the availability of the computers for the health provider staff.

The health infrastructure and workforce in the RMI face difficult challenges in addressing many of the pressing health disparity and infrastructure problems due to geographical isolation.

Ebeye Hospital has recently greatly expanded the numbers of computers available to health providers and has created some time on Friday mornings for continuing education. Challenges still remain with the cost, speed and reliability of internet access in Ebeye and Majuro. Health leaders continue to struggle with the issue of structuring incentives for CPD (mostly for physicians and allied health); a formal Health Professions Licensing Board has been appointed and members of the board will be working with the Hawai'i Board of Medical Examiners to develop standard operating procedures, policies and regulations. Although significant systemic and infrastructure barriers exist, the overall momentum toward a formal and, eventually, sustainable CPD program has been positive. All of the key informants and policy makers seem motivated to continue working toward these goals.

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