

Republic of the Marshall Islands National Comprehensive Cancer Control Plan 2007-2012



Republic of the Marshall Islands

National Comprehensive Cancer Control Plan

2007-2012

Republic of the Marshall Islands
National Comprehensive Cancer Control Program
Director Neiar Kabua
Ministry of Health
PO Box 16
Majuro, Marshall Islands 96960

Phone: 692-625-4955
Fax: 692-625-3432
Email: ncccprmi@ntamar.net

Contents

6	Mission & Vision Statements
6	Mission Statement
7	Vision Statement
8	Messages from Secretary
9	Introduction
21	Marshall Islands Demographics
22	The Nuclear Legacy
24	The Burden of Cancer in Marshall Islands
30	Primary Prevention
31	Tobacco Use and Exposure
36	Alcohol
40	Nutrition, Physical Activity, and Obesity
49	Infectious Agents
55	Environmental Carcinogens
58	Secodary Prevention
59	Screening Breast Cancer
62	Screening Cervical Cancer
64	Early Detection
66	Medical Care
66	Access to Cancer Care
67	Availability of Cancer Care in Marshall Islands
70	Quality of Cancer Care

71	Pathway to Care
76	Survivorship
77	Psychosocial Services, Palliative Care, and End-of-Life Care
82	Integrating Complementary Therapy into Cancer Care
84	Cancer Registry
84	Surveillance and Data Collection
90	Evaluation
92	Appendices
93	Appendix A: Ministry of Health Fifteen-Year Strategic Plan (2001-2015)
94	Appendix B: Comprehensive Cancer Control Coalition
95	Appendix C: 2002 RMI/WHO STEPwise NCD Risk Factor Survey
96	Endnotes/References

Mission & Vision Statements

Mission Statement

The Republic of the Marshall Islands National Comprehensive Cancer Program is committed to minimizing the impact of cancer, thereby improving the quality of life for communities of the Marshall Islands by:

- Delivering innovative, compassionate, accessible, community-based medical care and support to individuals and families affected by cancer with measurable impact on patient outcomes.
- Decreasing the incidence of cancer by encouraging prevention programs and early detection through appropriate screening and medical services.
- Capacity building for the health care workforce through additional training and certification to better meet cancer screening, early detection and treatment needs.
- Empowering clients by providing high quality, culturally relevant, linguistically appropriate, evidence based cancer health education resources, so the public can make informed choices.
- Facilitating psychological and counseling services, as well as community peer groups to provide physical and spiritual support.
- Educating policymakers and vigorously undertaking governmental and departmental legislation and advocacy on all matters relating to cancer care, support and education.
- Seeking partnerships and collaborations and providing meaningful opportunities for cancer survivors and volunteers, valuing their commitment, experience, insight, and knowledge as integral to better fulfilling NCCCP's mission.
- Exemplifying and promoting the highest level of public accountability and social responsibility through self-evaluation and continuous improvement within the constraints of sound fiscal management and prudent use of resources to fill the gap in services.

Vision Statement

The Republic of the Marshall Islands National Comprehensive Cancer Control Program's vision is to be the preeminent cancer health services provider in the RMI by ensuring that

- All cancer prevention services are established and provided
- Innovative framework for early detection and prevention are established and provided
- Feasible Cancer treatment services are established and provided
- Palliative care is provided to all cancer patients
- Support services are provided for cancer patients, survivors and their loved ones

Thereby provide efficient cancer health services in country to the people of RMI and thereby maximizing effective utilization of scarce resources available.

NCCCP's focus is, first and foremost, to provide quality medical care that meets the unique needs of the cancer patients. By advocating governmental and departmental policy and legislation, and by developing awareness through culturally relevant community education resources, NCCCP provides compassionate care and support services for patients and their families in the isolated communities we serve.



Messages from Secretary



Cancer prevention and screening for early detection are key priorities of the Marshall Islands Ministry of Health's National Comprehensive Cancer Control Plan because they are the most effective long-term strategies to reduce the general burden of cancer, minimize the cost of cancer treatment, and most importantly, alleviate human suffering.

Aspects of general health can be improved and many cancers avoided by adopting a healthier lifestyle. In fact, it is estimated that more than 80% of cancers may be attributed to environmental, social and cultural practices and factors. This is why education and primary prevention on the basis of addressing major health determinants is a key priority for the Marshall Islands. Investment in preventive measures is the most effective long-term weapon we have in the fight against cancer.

Regular and systematic examinations have the potential to significantly reduce mortality and improve the quality of life for people living with cancer by detecting the disease at an early stage, when it is more responsive to less aggressive treatment.

While late-stage cancer treatment can be complex and expensive, prevention and early diagnosis are highly cost effective, and can often be performed without advanced technologies. It is far more costly to pay for cancer treatments and support than it is to provide early detection and cessation services. With less funding needed for treatment, due to effective prevention and early detection, more resources can be allocated for public education, screening services, survivors' support groups and palliative care. Cancer survivors are key advocates of the National Plan.

Cancer is a disease that touches so many of us, either directly or indirectly. The important fields of primary prevention, effective screening programs, data collection and information sharing are some of the key areas where we can really make a difference.

This National Plan is a culmination of concentrated efforts by many dedicated stakeholders and is the Ministry of Health's pathway to address the continuum of cancer care in the Marshall Islands.

Justina R. Langidrik MPH
Principal Investigator
Secretary of Health

Introduction

Although progress has been made in Marshall Islands to reduce the burden of cancer, much still remains to be done. Declining death rates mean that Marshall Islands' population is aging. Overall cancer incidence and mortality increase with age. The population of RMI is very young with over 64% under the age of 24, and an average population age of 17.8 years.⁶ But, as the population of Marshall Islands ages, the burden of cancer will increase.

Cancer is not an inevitable result of aging. Although some of the risk factors for cancer, such as aging and heredity, cannot be controlled, others can. According to the Harvard Center for Cancer Prevention, over half of all cancer deaths may be attributed to behavior-related factors such as tobacco use, diet, obesity, and sedentary lifestyle.

Continued progress in overall cancer prevention and control will depend not only on gaining new knowledge through research, but more extensively applying current knowledge to reduce known risk factors and promote effective preventive, therapeutic, and palliative care services.

The Burden of Cancer in Marshall Islands

Cancer has consistently been one of the top five leading causes of death. However, truly accurate cancer data is still being collected. The National Registry is in its infancy and its staff requests additional training. Obtaining reports from the widespread, isolated outer islands is a challenge, and protocol must be streamlined to facilitate transfer of information between various offices. A staff pathologist conducts histopathology, cytology and autopsy pathology. However, an autopsy is performed for only two reasons:

Year	Reported	Male	Female	#1	#2	#3	#4	#5
2002	40	14	26	Cervical (28%)	Breast (18%)	Liver (10%)	Thyroid (6%)	Lung (5%)
2003	46	22	24	Cervical (22%)	Lung (13%)	Breast (11%)	Liver (11%)	Thyroid (9%)
2004	54	22	32	Cervical (13%)	Lung (13%)	Breast (13%)	Thyroid (7%)	Colon (7%)
2005	44	19	25	Lung (16%)	Uterine (11%)	Cervical (9%)	Thyroid (7%)	Kidney (7%)
2006	35	13	22	Breast (20%)	Cervical (17%)	Thyroid (9%)	Colon (9%)	Lung (6%)

for an unknown cause of death (upon request by police) or to determine the extent of a disease (upon request of physician).

Comprehensive Cancer Control

Comprehensive cancer control (CCC) is defined as an integrated and coordinated approach to reducing cancer incidence, morbidity, and mortality through prevention, early detection, treatment, rehabilitation, and palliation. These efforts encourage healthy lifestyles, promote recommended cancer screening guidelines and tests, increase access to quality cancer care, and improve quality of life for cancer survivors.

Rationale for Comprehensive Cancer Control Planning

Comprehensive cancer control represents a new approach to nationwide cancer efforts. The need for a new approach is based on challenges in cancer prevention and control identified by CDC through its partners, including state, territorial, and tribal health departments. These challenges include inadequate infrastructure, limited resources, limited use of data and research in decision-making, limited coordination among existing efforts, a heavy and unequal cancer burden, insufficient information about effective programs and services, cultural hurdles and poverty. To be a worthwhile approach, comprehensive cancer control must address some of these challenges and lead to improvements over current efforts. The potential benefits of comprehensive cancer control planning include developing solutions for overcoming the identified challenges to cancer prevention and control and improved health and cancer care outcomes.

Comprehensive cancer control is an effort to improve outcomes by:

- ▶ **Bringing many partners together** including medical and public health professionals, voluntary organizations, community and faith-based organizations, insurers, businesses, survivors, government agencies, academia, and advocates to develop a planned, culturally and

linguistically relevant approach for solving cancer problems.

- ▶ **Using available data and research results** and collecting needed data to identify gaps in services and priorities among the wide range of cancer issues (from prevention through survivorship or end-of-life).
- ▶ **Implementing evidence-based solutions** to ensure that current knowledge is applied in a cost-effective manner to achieve the best possible outcomes.
- ▶ **Using limited resources more efficiently** to develop a pathway to screening and treatment by integrating and coordinating efforts to reduce duplication and improve overall capacity throughout Ministry of Health's existing program protocol, and targeting resources to the highest priorities (e.g., areas of heaviest burden, major gaps, important disparities, large potential impact of prevention education and intervention, and feasibility of intervention).

Reducing the Cancer Burden in Marshall Islands

The burden of cancer can be reduced by implementing effective interventions to decrease preventable cancers, detecting cancer early, and ensuring access to quality cancer care services from diagnosis through survivorship or end-of-life. Taking a collaborative approach toward comprehensive cancer control began with the development of this plan.

The purpose of the Marshall Islands National Comprehensive Cancer Control Plan is to:

- ▶ **Provide a framework and guide for coordinated and integrated nationwide efforts to reduce the burden of cancer**—The plan covers a wide range of cancer issues in Marshall Islands. The plan addresses these issues through goals, objectives, and strategies for improvement. The primary audience for the

plan includes people who are in a position to effect the changes needed for improvements to occur (e.g., policy makers in public, private, and non-profit organizations; health professionals; and community leaders). Policy makers influence the allocation of resources necessary to conduct cancer prevention and control activities. Health professionals provide care and public health interventions for people who have cancer or are at risk for developing cancer. Public education about reducing individual risk for cancer, improving public awareness about available cancer services, and outreach efforts to underserved populations are also important. NCCCCP's Coalition includes many stakeholders who are members of the intended audience for the plan.

- ▶ **Highlight important cancer issues for prevention education and prioritization**—The scope of issues that cancer presents is daunting. The plan covers a wide range of important issues, but does not prioritize among them. Ideally, all plan strategies would be implemented to achieve all plan goals and objectives. In reality, resources are limited and additional prioritization will be necessary to guide the implementation efforts of the NCCCCP. In addition, partners and other stakeholders can use the plan to select priorities consistent with their missions.
- ▶ **Set goals and objectives for improvement**—Plan goals and objectives provide direction to ongoing and new efforts in cancer prevention and control. Goals in the plan were set for priority cancer issues in Marshall Islands.
- ▶ **Propose evidence-based or theory-based strategies to achieve goals and objectives**—Effective strategies for educating, preventing, detecting, and treating cancer have been identified through cancer research. Some of these approaches are not being adequately implemented. There is an opportunity to reduce the burden of cancer by doing more of what is already known to be effective.

- ▶ **Draw interested organizations and individuals together to work collaboratively toward shared goals**—Increasing the application of current knowledge may be best realized through integrated and coordinated efforts of key stakeholders nationwide. Collaboration, both in planning and implementation, may lead to more efficient use of limited resources while ensuring that mutually identified priorities are addressed. The plan should serve as a catalyst for Ministry of Health, the NCCCCP Office, NCCCCP's Coalition members and others to integrate and coordinate their efforts and direct resources to the major cancer issues in Marshall Islands. Partners maintain their current efforts to achieve their own missions and goals.

Plan Goals for Cancer Prevention and Control in Marshall Islands

The goals in the plan focus on priority cancer issues in Marshall Islands across the cancer continuum. The goals are based on an assessment of national surveillance data and statistics, review of results from cancer research, and recommendations from local cancer experts and cancer care providers. The plan is organized into four major content areas: primary prevention, secondary prevention, medical care and cancer registry.

Overall Goals of the Marshall Islands National Comprehensive Cancer Control Program		
Primary Prevention	1. Reduce impact of tobacco use and exposure on cancer incidence and mortality in RMI.	
	2. Reduce impact of alcohol consumption on cancer incidence and mortality in RMI.	
	3. Reduce impact of poor diet, physical inactivity, obesity on cancer incidence and mortality in RMI.	
	4. Reduce impact of infectious agents on cancer incidence and mortality in RMI.	
	5. Reduce impact of environmental carcinogens on cancer incidence and mortality in RMI.	
Secondary Prevention	6. Screening	a. Reduce mortality from invasive cervical cancer among Marshallese women.
		b. Reduce mortality from breast cancer in Marshallese women.
	7. Early Detection	a. Reduce mortality from oral/nasal cancer in RMI.
		b. Reduce mortality from thyroid cancer in RMI.
		c. Reduce mortality from colorectal cancer in RMI.
	Medical Care	8. Improve access to cancer care in RMI.
9. Improve the quality of cancer care provided in RMI.		
10. Ensure provision of adequate culturally appropriate psychosocial, palliative, end-of-life and survivorship services starting from diagnosis throughout the continuum of care.		
11. Ensure opportunity for safe, effective use of traditional complementary medicine in cancer care.		
Cancer Registry	12. Improve data collection and establish quality baseline data	

National Comprehensive Cancer Control Coalition

Because cancer, in its many forms, crosses all aspects of family and community life, it requires nothing less than a broad-based, integrated response. In 2004, the Ministry of Health initiated the development of a statewide partnership, NCCCP’s Coalition, which has become an important force in RMI’s multi-faceted battle against cancer, strengthening cancer prevention and control efforts by forging public/private partnerships.

Comprised of nearly one hundred members representative of RMI’s population, the Coalition

provided critical input during the development of the NCCCP Plan:

This composition gives NCCCP’s Coalition the ability to build bridges between relevant agencies because of the relationships which have been fostered with traditional and government leadership, community-based organizations and businesses.

The Coalition initially consisted of the general membership, five workgroups (one for each prioritized cancer: lung, women’s cancers (breast and cervical), oral/nasal, thyroid and liver), and a twelve person Executive Committee. Since NCCCP’s grant proposal was approved and funded, the Coalition

Description of Participating Organization	Role in Development of NCCCP Plan and Involvement Throughout Implementation of NCCCP Plan
*177 Health Care Program (4 Nuclear-affected Atolls)	Represents the four Nuclear Affected Atolls and will be involved with any/all activities addressing these atolls
*Attorney / Legal Counsel of the Nitijela (National Congress)	Identify applicable legislation; make recommendations for necessary legislation; draft new legislation
*Cancer Registrar (MOH)	Oversee National Registry, update Regional Registry, provide data, identify gaps in data/need for baseline data,
Cancer Survivors	Advocate for and assist in development of survivors support group and counseling services; involved in outreach activities
CARE Program (CBO) (community outreach)	Instrumental in research, development and authoring of grant; integral involvement in development and delivery of community outreach programs
Chamber of Commerce	Mobilize support from local businesses, specifically regarding enforcement of existing laws about alcohol & tobacco import and sales; in-kind contributions for outreach and public awareness activities
College of Marshall Islands	Provide education/training for counseling
*Council of Churches (FBO)	Mobilized support within the faith-based communities; integral involvement in development and delivery of community outreach programs and palliative, end-of-life care
*Council of Iroij (traditional leadership)	Powerful advocate of NCCCP programs and activities; provide cultural perspective, facilitate discussion on culturally difficult topics; give support/endorsement of NCCCP programs and events
*Dentistry / Ear-Nose-Throat Specialist (MOH)	Content consultant, provide data/screening for oral-nasal cancer and pre-cancerous lesions; identify capacity and training needs for oral/nasal cancer

*Ebeye Ministry of Health	Detail capacity and needs of Ebeye's health system; duplicate NCCCCP programs and activities for Ebeye community/ Kwajalein Atoll
*Epidemiologist	Develop survey tools, provide training and assistance in data collection, organization, analysis and entry; assist w/ reporting/evaluation requirements
Economic Policy, Planning & Statistics Office	Clearinghouse for all existing RMI data; will publish all statistics NCCCCP requests
*Health Promotions (MOH)	Collaborate with all programs within the MOH strategic plan to provide health promotion support and education materials for outreach and activities
*Laboratory (MOH)	Content consultant; process screening samples for diagnosis
*Majuro Clinic	Content consultant; liaison with Filipino community
*Marshall Islands Council of NGOs	Umbrella organization for non-government and community-based organizations in RMI; identify regional funding; mobilize its membership
Marshall Islands Mayors Association (NGO)	Mobilize local government support of each atoll; endorse NCCCCP program activities; help facilitate outreaches to their respective atolls
Ministry of Education	Incorporate all health education/ awareness messages into health curriculum; integral involvement in development and delivery of school outreaches
Ministry of Foreign Affairs	Work with Overseas Referral Office; regulates immigration and imports;
*Ministry of Health	Content consultant; provide oversight for NCCCCP office and Registry; mobilize all related departments to partner in NCCCCP efforts;
Ministry of Internal Affairs	Provide nation-wide outreach forums: National Youth Council, Division of Sports & Rec, outer island development, etc.
*Ministry of Transportation	Help facilitate NCCCCP outreaches to outer-lying atolls

<p>*Mission Pacific (Media) (CBO)</p>	<p>Provide multimedia expertise and training; assist in development of health promotion materials; integral involvement in development and delivery of community outreach programs</p>
<p>National Training Council</p>	<p>Provide training and funding opportunities</p>
<p>Nuclear Claims Tribunal</p>	<p>Represents the four Nuclear Affected Atolls</p>
<p>*OBGYN (MOH)</p>	<p>Content consultant; describe capacity and training needs for Reproductive Health staff, provide breast and cervical screening/ early detection</p>
<p>*Outer Islands Development Services (MOH)</p>	<p>Provide link to the isolated, outer lying atolls and islands of RMI; help organize training/capacity-building opportunities for outer island Health Assistants when they travel to Majuro or Ebeye; help organize mobile team outreaches to the outer islands for prevention, screening, treatment</p>
<p>*Police Commissioner</p>	<p>Enforcement of alcohol and tobacco legislation</p>
<p>*Psychiatry (MOH)</p>	<p>Content consultant; describe capacity and training needs for counseling; help develop a culturally/linguistically appropriate counseling program to address survivorship, end-of-life, and grief issues</p>
<p>*Public Health (MOH)</p>	<p>Content consultant; include NCCCCP messages in existing mobile team efforts; assist with prevention, data collection, screening, treatment, palliative care, etc.</p>
<p>*RMI Environmental Protection Authority</p>	<p>Integrate NCCCCP into the Environmental Education awareness programs for the schools and communities.</p>
<p>*University of Hawaii – John A. Burns School of Medicine</p>	<p>Coordinate the implementation of the Regional comprehensive cancer control plan; continue to provide technical assistance with implementation; coordinate Regional Cancer Registry with local CCC efforts and training; assist with/guide development of and/or provide region-wide health workforce training opportunities so that the jurisdiction CCC plan can be implemented more effectively</p>
<p>Women’s Athletic Club (CBO)</p>	<p>Provide outreach and training opportunities for women on Majuro; raised the funds to purchase MOH’s mammogram machine</p>

***Women United Together
Marshall Islands (CBO)**

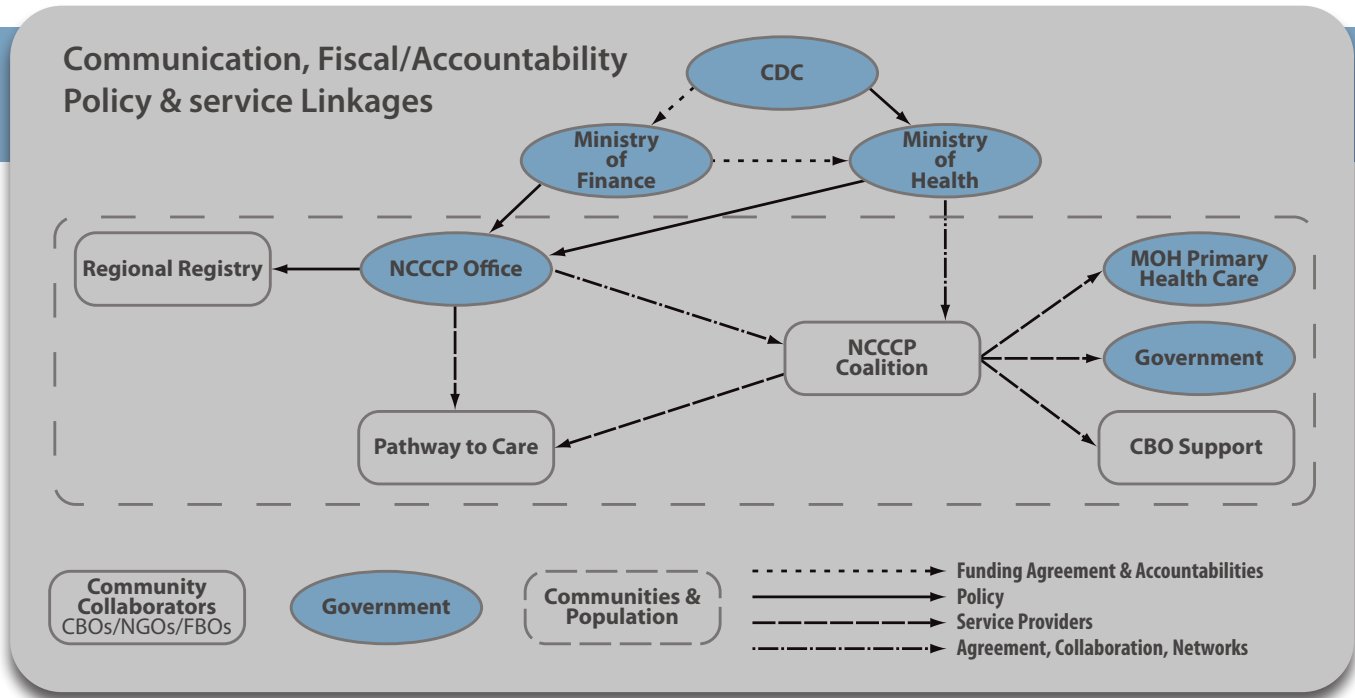
Provide outreach and training opportunities for women throughout RMI; very organized to mobilize outer islands; already involved in breast/ cervical prevention/ early detection programs

***Youth to Youth in Health
(CBO)**

Provide outreach and training opportunities for youth throughout RMI; staff a health center that provides prevention messages and screening/ early detection services

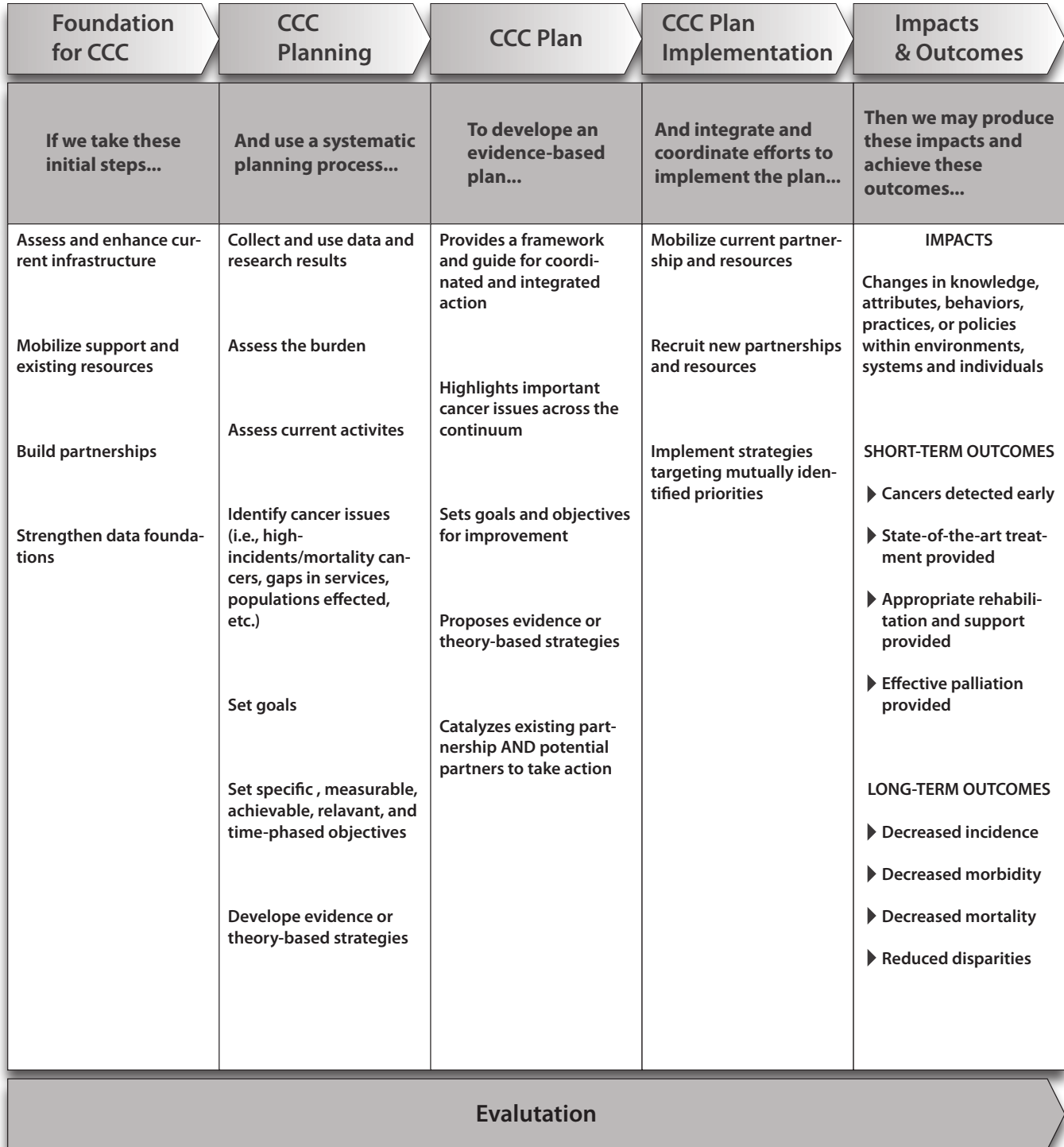
***Existing programs funded by other sources that will be critical to the successful implementation of the cancer plan.**

has been consolidated into a group of the key stakeholders and refocused toward implementation activities. Regular Coalition meetings provide updates on program implementation and facilitate communication and feedback.



A Logic Model for Comprehensive Cancer Control

The comprehensive cancer control process is described in the logic model shown below. The model shows how the process unfolds in various phases and the key components of each phase. Goals, objectives, and strategies for the NCCCP represent outputs from an intensive decision-making and planning process. The systematic planning process consists of collecting relevant data and research; assessing the cancer



burden, current activities and gaps in service; and developing priority goals, objectives, and strategies. RMI's NCCCP Plan is the guide and framework for nationwide cancer prevention and control efforts, which directs implementation efforts. The implementation process focuses efforts on these mutually identified priorities from within the plan. Lastly, evaluation, a critical component throughout the process, is used to determine if goals and activities are accomplished. The ultimate intended outcomes of comprehensive cancer control are reduced cancer incidence, morbidity, and mortality.

Purpose of the Plan

The Comprehensive Cancer Control Plan is based upon the Mission Statement of the Ministry of Health of the Republic of the Marshall Islands:

“To provide high quality, effective, affordable and efficient health services to all peoples of the Marshall Islands, through a primary health care program to improve health status and build the capacity of each community, family and individual to care for their own health. To the maximum extent possible, the Ministry of Health pursues these goals using the national facilities, staff and resources of the Republic of the Marshall Islands. “

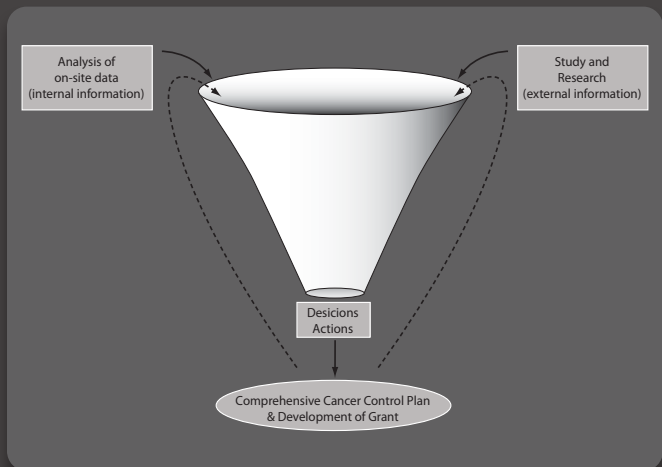
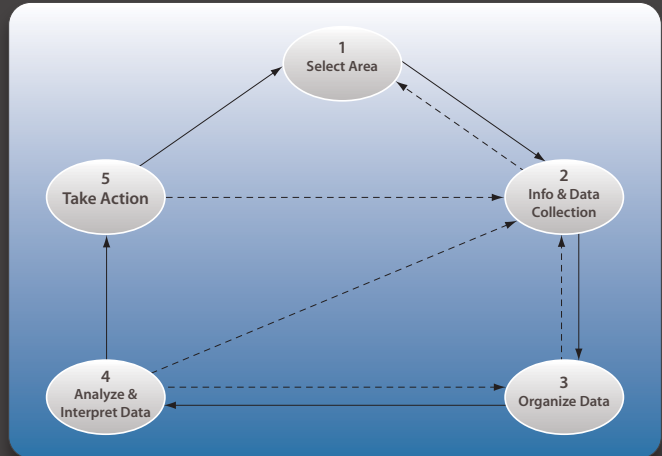
As the primary medical service provider in RMI, Ministry of Health is leading the NCCCP efforts and has committed all necessary staff and resources to this effort.

Comprehensive cancer control planning is a systematic process for identifying priority cancer issues in the nation.

Implementation of the Plan

Because the goals of the plan range from one end of the cancer continuum (primary prevention) to the other (survivorship and end-of-life issues), the strategies necessary to achieve them are varied. Implementation of the NCCCP Plan is driven with emphasis to priorities. It is a dynamic plan, which needs to – and will – change as progress is made and as setbacks are encountered. The plan

Action Plan



Solid lines indicate the primary direction NCCCP has developed for action plan; Dotted lines indicate common moves that occur as coalition seeks to refine or clarify information& identify the effects of actions taken.

will be monitored on a regular basis and amended in the light of progress, changes and changing circumstances, medical and technological progress, as well as staff development and changing priorities. New ideas and new concepts will result in fresh objectives being added and old objectives being amended, even discarded. Failures (and we should expect some failures) and successes will lead to the modification of strategies. Changes in circumstances, epidemiological changes in disease patterns, and changes in treatment regimes will demand changes in objectives. Some aims and objectives will be expanded and some will be curtailed.¹²⁶

Need for Data

Cancer has consistently been one of the top five leading causes of death. However, it is likely that the number of cancer cases in RMI is higher than what has actually been reported. For many years autopsies were not conducted and tissue sampling was limited due to a lack of necessary instruments and equipment. In addition, cancer reporting was not compulsory at Majuro Hospital until a policy decision in late 2005. Before that date, data on cancer cases ended up in multiple end points including Nuclear Claims Tribunal, off-island medical referral office, hospital medical records database and Health Planners office at the Ministry of Health. Now all suspected or diagnosed cases of cancers are reported to NCCCP Office and incidence and prevalence data is compiled both prospectively as well as retrospectively.

Lack of surveillance expertise is one of NCCCP's primary challenges. There are serious data deficiencies in key areas pertaining to the situation of cancer in terms of both quantitative and qualitative information. This leads to assertions based on perceptions and anecdotes rather than on evidence, which can result in scarce resources being misdirected and wasted. Surveillance is needed to assess the magnitude cancer in our community, to obtain information on behaviors that put persons at increased risk of acquiring cancer, and to monitor changes in high-risk behaviors over time.

In the development of this document, the NCCCP used multiple sources of data and information to assess the issues and to set goals and objectives. Marshall Islands specific data was used when available, as well as national data, reports and recommendations from national experts (e.g., Institute of Medicine), and local experts on cancer care issues. In general, Marshall Islands-specific data was unavailable for many topics. Therefore, baseline data was not provided and measurable targets were not set for some of the objectives. Since the scope of the plan is broad, priorities will need to be set among plan goals prior to implementation. Baseline data will be necessary to measure progress toward implementation goals and overall evaluation of comprehensive cancer control. Further assessment will be conducted as necessary to develop baselines for medical care goals identified as priorities. Objectives associated with priority goals may need to be refined.

The RMI National Cancer Registry has the potential to increase assessment capabilities, however this resource is in its infancy and has requested additional training in epidemiology, biostatistics, ICD-10 coding and SAS software to better analyze data. In the absence of empirical evidence of what works, it is necessary to plan interventions based on what is logical and is compatible with available resources and community aspirations.

An effective culturally and linguistically appropriate surveillance system is being developed, which will assess need, develop strategies and recommendations to report statistics on cancer and associated high-risk behaviors, and help strengthen data management processes for cancer; with particular emphasis on improving baseline data collection and more rigorous monitoring and reporting of performance based outcomes by all health promotion and medical agencies.

Marshall Islands

Demographics

Background

The Republic of the Marshall Islands (RMI) consists of approximately 1,225 remote islands grouped in 29 atolls and five major islands, which form two parallel groups, the “Ratak (sunrise) chain and the “Ralik” (sunset) chain, spread across 750,000 square miles of the Pacific Ocean, with a total combined land area of about 71 square miles.¹ To give perspective on the size of the nation, imagine a land area the size of Rhode Island spread out over an area the size of the portion of the US east of the Mississippi River.

Without question, land is the most important resource in the Marshall Islands. The Marshall Islands is a matrilineal society; land is passed from generation to generation from mother to oldest daughter and the social hierarchy is organized by access to land and resources.

RMI's total population is over 58,000 people. Approximately 46% of that number live on Majuro Atoll, the district center, which is comprised of only 3.75 square miles of dry land, making it the fourth highest population density in the Pacific at around 306 people per square kilometer and the highest average household size in the Pacific at 7.2 people.² The second largest population is found on the island of Ebeye in Kwajalein Atoll. The culture and social problems of the Marshall Islands could best be compared to those of Native American Indian settlements, the Alaskan frontier and other small island jurisdictions, rather than with mainstream USA.⁴

The widespread geographic isolation of these atolls makes delivery of health care services logistically challenging. The geographical distribution of the



population means Majuro and Ebeye receive better health and education services, which draw many people to relocate here. For the outer islands, in general, it is challenging to provide basic services particularly in health, education and transportation.⁵ The Ministry of Health (MOH) is the main provider of all health care services to the entire nation.¹⁵

The population of RMI is very young with over 64% under the age of 24, and an average population age of 17.8 years.⁶ Combined with high migration to the urban centers, this has resulted in a demand for education, employment, health and social services that far exceeds the capacity of the economy, current infrastructure and institutions to deliver.

General social and economic conditions and the overall quality of life for most Marshallese have steadily deteriorated. The RMI's human development index standing among 12 Pacific island countries fell from 5th to 8th in the late 1990s.

RMI is not ranked in the United Nations Development Plan's Global Human Development Index (HDI) Report, but had an HD Index value of 0.563 in the 1999 Pacific HDI Report, placing

RMI at 130 out of 174 countries in the 1999 global report.²

The distribution of income has become more unequal over time. Today, the RMI has one of the most unequal distributions of household income in the Pacific, as measured by the Gini coefficient.

Unemployment has risen steadily since independence. It reached 31% in 1999, a census year, and is estimated to have climbed further to nearly 34% in 2004.

The USA provides around US\$65 million annually in aid. As of 2004, the government sector, including state-owned enterprises, accounted for some 40% of GDP and 41% of total formal employment. The US share of the health budget increased from 42% in 1999 to 53% in 2006.

The Nuclear Legacy

Immediately following the end of WWII the United States government began a 12-year long nuclear atmospheric weapons testing program in the Northern atolls of the Marshall Islands. In total there were 67 tests conducted, 23 on Bikini Atoll, 43 on Enewetak Atoll, and one off shore from Enewetak Atoll. The vast majority of the detonations were above ground and atmospheric explosions, accounting for almost 80% of the total atmospheric testing in the history of U.S. nuclear testing.

During this testing period the amount of radiation that is estimated to have been released into the surrounding area is equivalent to dropping 1.5 Hiroshima bombs everyday for 11 years. In terms of radioactive iodine alone, 6.3 billion curies of iodine-131 was released to the atmosphere as a result of the nuclear testing in the Marshall Islands – an amount 99 times greater than the radiation released by the atmospheric testing in Nevada, 150 times greater than the estimated 40 million curies released as a result of the Chernobyl nuclear accident, and 8,500 times greater than the 739,000 curies released from Atomic Energy Commission operations at Hanford, Washington.

On March 1, 1954 the United States military detonated the largest atmospheric nuclear bomb in the history of mankind. It has been documented that shortly before the detonation of the Bravo shot the prevailing winds shifted. Thus, the inhabitants of Rongelap, Ailinginae, Utirik, and Ailuk atolls were showered with the radioactive fallout. A 2004 analysis by the U.S. National Cancer Institute (NCI) now suggests that people living on all atolls of the RMI were also directly affected by the testing. In addition, nearly 300 workers were exposed during the post-testing nuclear clean-up operations and the health effects on this group has never been evaluated.¹³²

The United States has endeavored to provide reparations for damages caused during the nuclear

testing period. In the Compact of Free Association between the Republic of the Marshall Islands and the U.S. government there is a specific section referred to as Section 177, or the 177 Agreement, that addresses the consequences of the U.S. nuclear weapons program.

To manage the reparation funds provided by the U.S. government the Nuclear Claims Tribunal was created. The Tribunal is authorized by statute to issue regulations "establishing a list of medical conditions which are irrebuttably presumed to be the result of the Nuclear Testing Program."

Without reliable information about the exposure level of individuals who had been living on other atolls, there could be no proof of probability that radiation had caused the medical conditions suffered by those individuals. Without such proof, the thousands of personal injury claims pending before the Tribunal were dismissed.

In 1990, the BEIR V Committee concluded that radiation is almost nine times more damaging than estimated by the 1972 BEIR I Committee. The latest scientific evidence from the 2005 BEIR VII report stated that exposure to even extremely low doses of ionizing radiation place individuals at a risk for cancer.

The Tribunal began to implement its personal injury compensation program in August 1991. Like the U.S. Downwinders' program, the Tribunal's program involved two presumptions. First, residency in the Marshall Islands was used as the basis for assuming exposure to levels of ionizing radiation sufficient to induce one or more of the listed medical conditions. Second, the manifestation of a radiogenic medical condition is presumed to result from exposure to radiation due to the testing program¹²⁹.

In May 2005, the National Cancer Institute released a study titled, "Estimation of the Baseline Number of Cancers Among Marshallese and the Number of Cancer Attributable to Exposure Fallout from Nuclear Weapons Testing Conducted in the Marshall Islands." Findings in the study stated:

"...Within the lifetime of the cohort, we estimate an additional 530 cancers that might be attributable to exposure to fallout radiation. Similar to the case for the baseline cancers, about one-half of the radiation related cancers are yet to develop or be diagnosed. These findings indicate that we expect the exposure to fallout to result in about a 9% increase in the total number of cancers, given an expected number of cancers (fatal plus non-fatal) of about 6,130."¹³⁰

The Nuclear Claims Tribunal is now near bankruptcy, with hundreds of claims yet to be fully settled. There are no funds currently available to manage the treatment of the impending cancer influx. It also is important to keep in mind that the NCI used the Hawaiian island inhabitants as the control population for comparison in this study. The study did not allow for the fact that the Hawaiian island inhabitants have developed the Western tendencies of poor diet and alcohol and tobacco consumption for much longer than the Marshallese population. Thus, the 530 excess cancer estimates should be considered to be very conservative, if not under representative.

Burden of Cancer

2003 Cancer Cases by Type			
Cancer Site	M	F	Total cases
Cervical	0	10	10
Lung	4	2	6
Breast	0	5	5
Liver	4	1	5
Thyroid	2	2	4
Oral	2	0	2
Nasopharyngeal	1	1	2
Pancreas	2	0	2
Uterine	0	2	2
Skin	2	0	2
Leukemia	1	0	1
Lymphoma	1	0	1
Prostate	1	0	1
Bladder	0	1	1
Kidney	1	0	1
Salivary gland	1	0	1
Total cases	22	24	46

2003 Cancer Cases by Age Group							
Age group (years)							
0-10		21-30	31-40	41-50	51-60	61-70	70+
0	0	2	9	9	15	11	1

2004 Cancer Cases by Type			
Cancer Site	M	F	Total cases
Cervical	0	7	7
Lung	6	1	7
Breast	1	6	7
Thyroid	0	4	4
Colon	1	3	4
Leukemia	3	0	3
Laryngeal	2	1	3
Uterine	0	2	2
Ovary	0	2	2

2004 Cancer Cases by Age Group							
Age group (years)							
0-10		21-30	31-40	41-50	51-60	61-70	70+
0	4	3	5	12	10	10	10

Burden of Cancer

Lymphoma	0	1	1
Prostate	1	0	1
Pancreas	1	0	1
Oral	0	1	1
Bladder	1	0	1
Liver	0	1	1
Brain	0	1	1
Stomach	0	1	1
Skin	6	1	7
Total cases	22	32	54

2005 Cancer Cases by Type			
Cancer Site	M	F	Total cases
Lung	5	2	7
Uterine	0	5	5
Cervical	0	4	4
Thyroid	0	3	3
Kidney	2	1	3
Leukemia	0	2	2
Lymphoma	1	1	2
Breast	0	2	2
Ovary	0	2	2
Nasopharyngeal	2	0	2
Liver	1	1	2
Pancreas	1	0	1
Oral	0	1	1
Bladder	1	0	1
Laryngeal	1	0	1
Esophagus	1	0	1
Unknown origin	1	1	2
Skin	3	0	3
Total cases	19	25	44

2005 Cancer Cases by Age Group							
Age group (years)							
0-10	11-20	21-30	31-40	41-50	51-60	61-70	70+
2	4	4	4	5	11	8	6

Burden of Cancer

2006 Cancer Cases by Type			
Cancer Site	M	F	Total cases
Breast	0	7	7
Cervical	0	6	6
Thyroid	0	3	3
Colorectal	2	1	3
Lung	2	0	2
Nasopharyngeal	2	0	2
Stomach	2	0	2
Bone	2	0	2
Lymphoma	0	1	1
Laryngeal	1	0	1
Ovarian	0	1	1
Uterine	0	1	1
Salivary gland	1	0	1
Vulva	0	1	1
Oral	1	0	1
Unknown origin	0	1	1
Total cases	13	22	35

2006 Cancer Cases by Age Group							
Age group (years)							
0-10		21-30	31-40	41-50	51-60	61-70	70+
0	2	4	4	6	13	4	3

2007 Cancer Cases by Type			
Cancer Site	M	F	Total cases
Lung	4	1	5
Cervical		5	5
Thyroid	0	5	5
Liver	3	1	4
Rectal	2	1	3
Stomach	2	1	3
Oral	3	0	3
Leukemia	3	0	3

2007 Cancer Cases by Age Group
Age group (years)
Unavailable

Burden of Cancer

Nasopharyngeal	2	0	2
Ovarian	0	2	2
Breast	0	3	3
Kidney	0	1	1
Esophagus	1	0	1
Para Nasal	0	1	1
Prostate	1	0	1
Pancreas	1	0	1
Lymphoma	1	0	1
Colon	1	0	1
Skin	3	1	4
Total cases	27	22	49

2008 Cancer Cases by Type			
Cancer Site	M	F	Total cases
Lung	5	0	5
Cervical	0	5	5
Breast	0	4	4
Leukemia	2	2	4
Lymphoma	2	2	4
Liver	2	1	3
Rectal	3	0	3
Prostate	3	0	3
Ovary	0	3	3
Thyroid	0	2	2
Pancreas	2	0	2
Brain	1	1	2
Eye	1	1	2
Nasopharyngeal	1	1	2
Testicular	2	0	2
Kidney	0	1	1

2008 Cancer Cases by Age Group
Age group (years)
Unavailable

Burden of Cancer

Laryngeal	1	0	1
Mouth	1	0	1
Ankle	1	0	1
Retroperitoneal Sarcoma	0	1	1
unknown primary (metastatic)	1	0	1
Uterine	0	1	1
Choriocarcinoma	0	1	1
Vulva	0	1	1
Skin	3	0	3
Total cases	31	27	58

Assessing the risk factors associated with dying of cancer in Marshall Islands found that, after controlling for age, length of disease, stage, grade, and histology, poverty was significantly associated with increased mortality for all cancers. Because resources for health care services are limited and current cancer rates seem low by comparison to international figures, more apparent infectious diseases are being given priority. But the cost of treating even a few more cancer cases will devastate a health care system already struggling to cope with a heavy burden. Health care costs will increase and resources will have to be diverted away from other socio-economic development activities, plunging RMI into further poverty.

Primary Prevention

Cancer is not inevitable...many cancers are preventable.

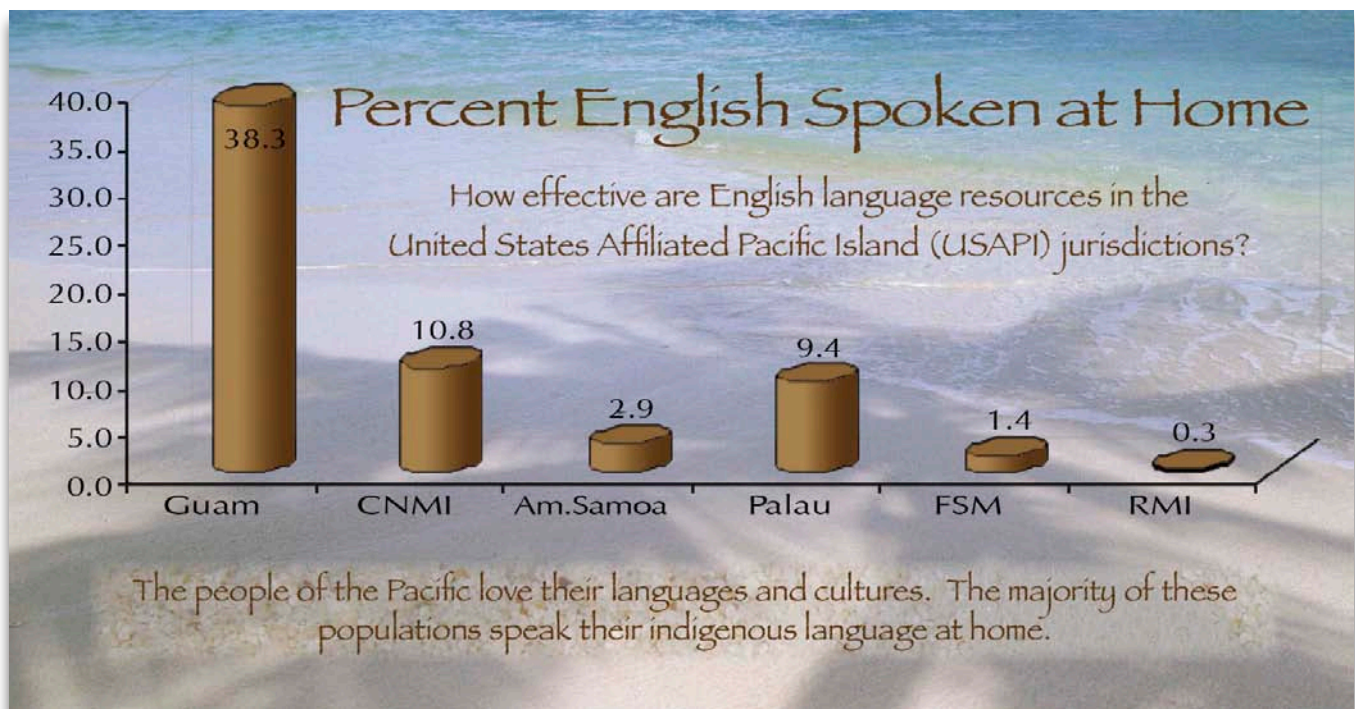
The Ministry of Health advocates public awareness and community education programs; however, funding is limited and, after meeting basic staffing, testing and treatment needs, there is little budget remaining for awareness programs. Lack of education and understanding dissuades people from seeking health services, testing and treatment for infections.

In the case of most Marshallese communities, their small size and prevalence of high-risk behavior make a community-wide approach most appropriate. To be effective in Marshallese culture, prevention programs must first educate traditional, government,

community and faith-based leaders. Community and cultural values, traditional and family support systems and religious beliefs play a central part in the lives of Marshallese people. Development initiatives must recognize the importance of these factors if they are to be effective and sustainable.

Due to the geographic isolation, mobile teams, though effective, are insufficient to reach the widespread, remote Marshallese communities. Low literacy rates make print media alone inadequate. Using all the forms of multimedia, television, radio, print and web, is the only possible way to fully disseminate prevention and health education messages throughout the nation.

Mobile teams partner with similar efforts by community partners and the Ministry of Health's



Health Promotion department, to reach the community with messages of cancer prevention and reduction of high-risk behavior. Mobile outreach components should include: culturally and linguistically appropriate cancer education DVDs, brochures and posters; pre/post surveys to collect data about the target audience’s knowledge of cancer and their involvement in high-risk behavior; and breast and prostate self-exam promotional pamphlets to help people determine if they should seek testing.

The Marshall Islands experiences limited English proficiency. A 2003 study shows the low percentage of English spoken at home in selected Pacific countries: Guam is the highest with 38.3%, CNMI 10.8%, American Samoa 2.9%, Palau 9.4%, FSM 1.4% and Marshall Islands is the lowest with only 0.3%.³

Consequently, English-language resources received from abroad are useful only to leaders in developing Marshallese language materials. The importance of high profile, targeted public awareness campaigns in the indigenous language, Marshallese, cannot be overstated. These campaigns are most effective when a variety of communication strategies are used including video, radio, and print resources. Even in the poorest homes the low cost of radio and television are seen as necessities rather than luxuries. The most effective public awareness campaigns are targeted, local, and responsive to the cultural context of each community.

Tobacco Use and Exposure

Scientific evidence linking tobacco use and exposure to cancer

Tobacco abuse, specifically cigarette smoking, has been proven to be single most preventable cause of mortality and morbidity in the world. Tobacco abuse, as a cause, has been established in several kinds of cancer including those of the lung, larynx, esophagus, pharynx, mouth, and bladder. Over 85% of lung cancers occur because of tobacco smoking.¹² Smoking also contributes to cancers of the pancreas, kidney, and probably cervix. In 1992, the US Environmental Protection Agency (EPA) classified environmental tobacco smoke as a Group A carcinogen.

Prevalence of Tobacco Use and Exposure

According to the 2002 RMI/WHO STEPwise NCD risk factor Survey, the overall proportion of smokers was 23.1% (± 2.9) among which 19.8% (± 3.3) were current daily smokers and 3.3% (± 0.9) current but non-daily smokers.

Results for adults aged 15-64 yrs	Total	Males	Females
Tobacco Use			
Percentage who currently smoke tobacco daily	19.8	34.7	4.2
For those who smoke tobacco daily			
Average age started smoking (years)	17.8	17.6	19.9
Average years of smoking	13.3	13.2	14.7
Percentage smoking manufactured cigarettes	97.7	97.6	98.7
Mean number manufactured cigarettes smoked per day (by smokers of manufactured cigarettes)	11.5	12	7.4

Primary Prevention

There was a greater proportion of current daily smokers amongst males (34.7 ± 5.4) compared to females (4.2 ± 1.2). The greatest proportion of current daily smokers among males was in the age group 35-44 years ($7.6\% \pm 2.5$) then decreasing with increasing age. Cigarettes smoked daily was 11.5 ± 1.6 . Among current smokers, there was a great proportion ($65.4\% \pm 9.0$) of tobacco users who chew tobacco which existed for each age group across both males and females. Notwithstanding the small numbers, it indicates that there is a lot of chewing tobacco that exists in the Marshall Islands for both males and females.¹³

The 2007 Youth Risk Behavior Survey showed:

Youth Risk Behavior Surveillance - Pacific Island United States Territories			
(January—June 2007)			
Tobacco Use Among RMI High School Students	1522 students surveyed	Prevalence among female students	Prevalence among male students
Lifetime cigarette use: ever tried cigarette smoking (even one or two puffs)	62.2%	53.1%	71.2%
Lifetime daily cigarette use: ever smoked at least one cigarette every day for 30 days	17.6%	12.6%	22.3%
Current Cigarette Use: smoked cigarettes on at least 1 day during the 30 days before the survey	32.4%	24.4%	40.9%
Current Frequent Cigarette Use: smoked cigarettes on 20 or more days during the 30 days before the survey	13.1%	5.3%	21.3%
Smoked more than 10 cigarettes per day on the days they smoked during the 30 days before the survey	6.9%	6.2%	7.5%
Aged <18 years and usually got their own cigarettes by buying them in a store (i.e., convenience store, supermarket, or discount store) or gas station during the 30 days before the survey	28.1%	21.4%	33.4%
Used smokeless tobacco (e.g., chewing tobacco, snuff, or dip) on at least 1 day during the 30 days before the survey	32%	21.6%	42.3%
Reported current cigarette use, current smokeless tobacco use, or current cigar use	38.8%	28.1%	50.7%
Smoked a whole cigarette for the first time before age 13 years	6.9%	6.2%	7.5%
Smoked cigarettes on school property on at least 1 day during the 30 days before the survey	16.3%	9.8%	23.1%
Used smokeless tobacco (e.g., chewing tobacco, snuff, or dip) on school property on at least 1 day during the 30 days before the survey	21.1%	14.1%	28%

According to the 2002 RMI/WHO STEPwise NCD risk factor Survey, second-hand smoke is a growing health concern in the Marshall Islands. Daily exposure to smoking is most frequent in the home at 18.9%, due to the fact that smoking is still largely viewed as culturally and morally unacceptable. Other locations of smoke exposure include work (14.3%), public eating establishments (11.2%) and public transport (8.4%).¹³

With the increased health concerns related to betel nut chewing the survey wanted to look at the proportion of the total population currently using betel nut and it revealed that 1.8% of the total population were daily

betel nut users with the highest proportion of users in the 25-34 years age group (3.0 % ± 2.3). This trend amongst the young age group could increase further if not addressed.¹³

Current Policy Environment

Title 26, Chapter 2 of the Marshall Islands Revised Code (MIRC) prohibits the sale or distribution of cigarettes and tobacco products, including chewing tobacco, by any manufacturer, retailer, or distributor of such products, or any other person, to any minor for any reason.¹⁶

Studies have shown that increasing taxes on tobacco is an effective way to reduce initiation and decrease consumption.^{17, 18, 19, 20} MIRC Title 48, Chapter 2 calls for AD VALOREM, SPECIFIC OR UNIT TAXES on imports, including:

Tobacco & cigarettes	\$1.00 per pkg. of 20 rolls
Cigars	151%
Other tobacco (Copenhagen)	\$2.75 per 34.2 grams or 1.2 oz

In addition, the Secretary of Finance is authorized to deduct a certain percentage from the import tax collected on the items listed below to supplement funding for the College of the Marshall Islands. The items affected and the percentages and amounts deductible are as follows:

Tobacco & cigarettes	\$0.20 per pkg. of 20 rolls
Cigars	1%
Other tobacco (Copenhagen)	\$0.25 per 34.2 grams or 1.2 oz ¹⁶

Smoking bans are effective in reducing exposure to second hand smoke. Title 7, Chapter 8 of the MIRC prohibits smoking in public premises (includes any

government building or office, school, or hospital, or private premises where people have access thereto or assembled therewith, through common usage or by general invitation, express or otherwise, including restaurants, but does not include bars where liquor is served), public vehicles, restaurants and aircrafts.¹⁶

Examples of Current Activities to Reduce Tobacco Use and Exposure

The Republic of the Marshall Islands ratified the **Framework on the Convention of Tobacco Control (FCTC)** in 2004.

Kick Butts Day is the Campaign for Tobacco Free Kids’ annual celebration of youth advocacy, leadership and activism. KBD is a day to stand out, speak up and seize control in the fight against tobacco. It is an important opportunity to raise awareness about the tobacco problem and support strong tobacco prevention policies.²⁰

The **Pledge Wall** is a school-based tobacco prevention activity that local high schools participate in each year. Students take pledges from fellow students, family and community members to display the pledge cards on a wall. The school that collects the most pledges is recognized with a trophy.

Effective Interventions to Reduce Tobacco Use and Secondhand Smoke Exposure

According to the Republic of the Marshall Islands Ministry of Health Strategic and Operational Plan 2001 to 2015, the goal of the Human Services Program is to provide social, welfare and human support services to improve the quality of life and wellbeing of the people of the Marshall Islands.

1. Reduce percentage of stores selling alcohol and tobacco to children

- a. Educate store owners and store keepers and staff
- b. Redesign media campaign broadcasts to include youth participation

- c. Increase number of Community Education events
- d. Increase number of Community Outreach programs
- e. Increase number of school education programs
- f. Develop leaflets and posters relevant to youth
- g. Distribute message with pens, key rings etc.

2. Determine the potential need for implementing a substance abuse program¹²⁶

Goal 1: Reduce the impact of tobacco use and exposure on cancer incidence and mortality in Marshall Islands.

Objective 1.1: By 2013, reduce the percentage of youth who report regular smoking from 32.4% to 22% and crewing tobacco from 32% to 22%.

Baseline/Data Source:

- 32.4% of high school students are current smokers / 2007 Youth Risk Behavioral Survey
- 32% of high school students use smokeless tobacco (e.g., chewing tobacco, snuff, or dip)/ 2007 Youth Risk Behavioral Survey

Strategies:

- Reduce tobacco advertising and curtail promotion of tobacco products.
- Increase taxes on all tobacco products to a level at least equal to the cost tobacco use imposes on the public, and use the revenue to support tobacco cessation programs.
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally

and linguistically relevant youth public awareness campaigns about tobacco prevention and cessation program.

- o Work with Coalition Members to promote and disseminate public education and awareness in community
 - o Introduce and use social marketing and behaviors change communication to promote healthy lifestyle
 - o Raise awareness of support options for cessation (e.g., physician chart reminders and pharmacy reminders).
 - o Prohibit tobacco use on all state-supported campuses and in public transit
 - o Increase funding for public health education specially focusing the youth
 - o Make all public and private schools tobacco free campuses
 - o Expand support for culturally and linguistically relevant school-based programming
 - o Promote efforts focused on reducing tobacco use among pregnant teens.
 - o Work with Ministry of Education and College of Marshall Islands to include tobacco cessation programs in their curriculum and student service resources
- Enforce laws which prohibits sale of tobacco to minors.
 - o Work with Nitijela to provide additional funds for the local police department to actively pursue and prosecute local business owners who illegally sell tobacco to minors.
 - o Educate local business owners about the risks associated with smoking at a young

Primary Prevention

- o age and explain why they need to stop selling to minors.
- o Ban product sampling, single cigarette sales, and novelty products.
- o Reduce youth access to tobacco by requiring all tobacco products to be in locked cabinets or located behind counters (no open placement).
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 1.2: By 2013, reduce the percentage of adults who smoke from 23.1% to 18%.

Baseline/Data Source:

- 23.1% of the population currently smokes / 2002 RMI/WHO STEPwise
- Current daily smokers total 19.8% / 2002 RMI/WHO STEPwise

Strategies:

- Reduce tobacco advertising and curtail promotion of tobacco products.
- Increase taxes on all tobacco products to a level at least equal to the cost tobacco use imposes on the public, and use the revenue to support tobacco cessation programs.
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns about tobacco prevention and cessation program.
 - o Work with Coalition Members to promote and disseminate public education and awareness in community

- o Introduce and use social marketing and behaviors change communication to promote healthy lifestyle
- o Increase funding for public health education
- o Raise awareness of support options for cessation (e.g., physician chart reminders and pharmacy reminders).
- o Prohibit tobacco use on all state-supported campuses and in public transit
- o Ban product sampling, single cigarette sales, and novelty products.
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 1.3: By 2013, reduce involuntary exposure to secondhand smoke at home from 18.9% to 14%; at work from 14.3% to 10%; in public eating establishments from 11.2% to 8%; and in public transport from 8.4% to 5%.

Baseline/Data Source:

- Daily exposure to secondhand smoke / 2002 RMI/WHO STEPwise
 - o Home (18.9%)
 - o Work (14.3%)
 - o Public eating establishments (11.2%)
 - o Public transport (8.4%).

Strategies:

- Support the development of partnerships among national and local agencies focusing on policy development and enforcement.

- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns about dangers of secondhand smoke.
 - Work with Coalition Members to promote and disseminate public education and awareness in community
- Develop capacity to measure involuntary exposure to secondhand smoke
- Prohibit smoking in all public places (including doorways to public buildings) by strengthening public and private policies.
 - Promote smoke-free work places through policy change.
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Alcohol

For cancer prevention, alcohol should be consumed only in moderate amounts or not at all. Moderate alcohol consumption is defined as one drink per day for adult women and two drinks for men.

Prevalence of Alcohol Consumption in Marshall Islands

2002 RMI/WHO STEPwise NCD risk factor Survey showed that, overall, 19.3% (± 4.8) were current consumers. There was noted to be a higher proportion of males (33.5% ± 7.5) that were currently consuming alcohol as compared to females (4.5% ± 1.2).

Results for adults aged 15-64 yrs	Total	Males	Females
Alcohol Consumption			
Percentage of abstainers (who did not drink)	80.7	66.5	95.5
Percentage of current drinkers	19.3	33.5	4.5
For those who drank alcohol in the last 12 months			
Percentage who drank on 4 or more days in a week		2.5	3.9
Percentage of women who had 4 or more drinks on any day in the last week			27.9
Percentage of men who had 5 or more drinks on any day in the last week		37.4	

Primary Prevention

The percentage of current consumers is highest in the age group 25-34 years (23.7% ± 6.6) and then decreases with increasing age. This trend persisted when stratified by gender. In terms of standard drinks (100ml of wine or 30ml of spirit or 300mls of regular beer), this survey revealed that 73.2% consumed 4 or more standard drinks per day during the past 12 months and 16.9% consumed 2-3 standards drinks per day. The proportion of males who consumed 4 or more standard drinks per day was 76.0% compared to females (55.1%).

The mean number of standard drinks consumed on any single occasion was 13.9 (±2.7) per drinking day for males and 9.1 (± 2.8) for females. There was also a trend for younger age groups to consume more number of drinks per drinking day overall and in both genders.

A big proportion of current consumers take 5 or more standard drinks per drinking day both for men and women. Binge drinking is defined as having 5 or more standard drinks per drinking day for males and 4 or more standard drinks per drinking day for females on any day in the last week. The survey showed that overall 65.7% (±9.7) of current alcohol consumers were binge drinkers, with a higher proportion for males (67.1% ± 8.4) as compared to females (55.0% ± 19.0). The highest proportion of binge drinking were in the younger age groups, with men engaging in binge drinking more frequently than women (men: 33.4 days; women 16.8 days). However these differences were not statistically significant.

The survey also asked where alcoholic beverages were commonly obtained and 76.4% reported that they get their alcoholic drinks from stores and 18.1% from friends and relatives. Men were more likely to obtain alcohol stores whilst women were more likely to obtain alcohol from friends and relatives.

review of the current tax structure on alcohol is needed, products like vodka and other liquors are very inexpensive and this situation is only contributing to some of the crime problems in many communities. According to national and local

police statistics for the last several years, the vast majority of reported crimes involved some form of alcohol. Better enforcement of laws already on the books could do a lot to regain control of this major community problem.

During a 2004 survey, over 95% of the 205 households asked that something be done to help decrease this problem of alcohol abuse in their village, such as prohibiting the sale of spirits in mom and pop stores.⁵

The 2007 Youth Risk Behavior Survey showed:

Youth Risk Behavior Surveillance - Pacific Island United States Territories (January—June 2007)			
Alcohol Use Among RMI High School Students	1522 students surveyed	Prevalence among female students	Prevalence among male students
Lifetime Alcohol Use: had at least one drink of alcohol on at least 1 day during their life	55%	44%	66.4%
Current Alcohol Use: had at least one drink of alcohol on at least 1 day during the 30 days before the survey	41.7%	33.4%	51%
Episodic Heavy Drinking: had five or more drinks of alcohol in a row (i.e., within a couple of hours) on at least 1 day during the 30 days before the survey	26.6%	22.6%	30.8%

Primary Prevention

Bought Alcohol in a Store	No data available for RMI		
Had drunk alcohol (other than a few sips) for the first time before age 13 years	10.9%	6.9%	14.8%
Had drunk at least one drink of alcohol on school property on at least 1 day during the 30 days before the survey	15.3%	11.7%	18.9%

Disparities

Consuming alcohol in more than moderate amounts or consuming five or more drinks on one occasion varies by age and gender. Younger men and women in Marshall Islands report both of these measures more often than older men and women. Men report drinking five or more drinks on one occasion more often than women. This association is consistent across age, racial, and ethnic groups. However, an equal proportion of men and women report drinking alcohol at higher than moderate amounts.

Examples of Current Activities

MIRC Title 21, Chapter 2 states that “No person under the age of 21 years shall purchase, consume, drink, or possess alcoholic beverages or other intoxicating liquors, or shall enter or remain in or be allowed to enter or remain in any bar in the Republic. No bar in the Republic shall remain open later than 12 am on weekdays and 2 am on weekends.

MIRC Title 48, Chapter 2 calls for AD VALOREM, SPECIFIC OR UNIT TAXES on imports, including:

Beer	\$0.50 per can or 12 oz.
Wine	\$2.75 per gallon
Spirits	\$12.00 per gallon
Mixed drinks	26%

In addition, the Secretary of Finance is authorized to deduct a certain percentage from the import tax collected on the items listed below to supplement funding for the College of the Marshall Islands. The items affected and the percentages and amounts deductible are as follows:

Beer	\$0.25 per can or 12 oz.
Wine	\$0.25 per gallon
Spirits	\$2.00 per gallon
Mixed drinks	1% ¹⁶

Effective Interventions to Reduce Alcohol Abuse

Several intervention strategies have been shown to reduce alcohol consumption, although the size and longevity of the effects vary.

- ▶ School-based interventions—Some school-based interventions focusing on social influences have shown long-term effects in reducing alcohol use, although the size of the effects has been modest.³⁰
- ▶ Public policy—Public policies that limit availability of alcohol (such as increasing the tax rate) have been associated with reductions in alcohol consumption.³⁰

According to the *Republic of the Marshall Islands Ministry of Health Strategic and Operational Plan 2001 to 2015*, the goal of the Human Services Program is to provide social, welfare and human support services to improve the quality of life and wellbeing of the people of the Marshall Islands.

1. Increase awareness of the Human Services Program

- a. Decrease the incidence of alcohol abuse
- b. Increase counseling to teens on alcohol abuse in schools
- c. Increase peer counseling to teens on alcohol abuse in schools
- d. Begin referral of teens from community support groups for counseling
- e. Establish counseling programs for adults on alcohol abuse
- f. Educate store owners and store keepers and staff
- g. Redesign media campaign broadcasts to include youth participation
- h. Increase number of Community Education events
- i. Increase number of Community Outreach programs
- j. Increase number of school education programs
- k. leaflets and posters relevant to youth
- l. Distribute message with pens, key rings etc.

2. Determine the potential need for implementing a substance abuse program¹²⁶

Goal 2: Reduce the impact of alcohol consumption on cancer incidence and mortality in Marshall Islands.

Objective 2.1: By 2013, develop programs and projects designed to decrease the drinking of alcohol beyond moderate levels among adults.

Baseline/ Data Source:

Younger men and women in Marshall Islands report consuming alcohol in higher than moderate amounts (consuming five or more drinks). / ADB Youth Social Services Survey.

Strategies:

- Develop baseline data to illustrate alcohol problem in the Marshall Islands
- Support new and existing public health and public safety programs that address alcohol consumption.
 - o Workshops with police department
 - o Public education materials about drunk driving, domestic abuse, etc.
- Increase effectiveness of services available through SAMHSA Substance Abuse Prevention and Treatment (SAPT) Program
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns about the impact of alcohol consumption on cancer risk
 - o Work with Coalition Members to promote and disseminate public education and awareness in community
- Introduce and use social marketing and behaviors change communication to promote healthy lifestyle
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 2.2: By 2013, develop programs and projects designed to decrease the drinking of alcohol beyond moderate levels among youth.

Baseline/ Data Source:

- 41.7% of youth admit to current alcohol use / 2007 Youth Risk Behavior Survey

Strategies:

- Develop baseline data to illustrate alcohol problem among youth in the Marshall Islands
- Work with Nitijela to revise existing and develop new legislation and policy regarding sale of alcohol to minors
- Work with police to enforce laws prohibiting sale of alcohol to minors
- Educate local business owners about the risks associated with consuming alcohol at young age and explain why they need to stop selling to minors.
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant youth-targeted public awareness campaigns about dangers of alcohol.
 - Work with Coalition Members to promote and disseminate public education and awareness in community
- Introduce and use social marketing and behaviors change communication to promote healthy lifestyle
- Increase effectiveness of services available through SAMHSA Substance Abuse Prevention and Treatment (SAPT) Program
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Nutrition, Physical Activity, and Obesity

Although many epidemiologic studies have established an association between diet, physical activity, and obesity and an altered risk of some cancers, the reasons for these associations are not certain. However, eating a healthy diet, participating in regular physical activity, and maintaining a healthy body weight are widely accepted as important strategies for maintaining or improving overall health. More research is needed to determine the impact of these strategies on reducing cancer incidence and mortality. Supporting existing efforts to encourage eating a healthy diet, getting regular physical activity, and maintaining a healthy body weight is a reasonable approach to promoting health that will likely have the added benefit of reducing the burden of some cancers.

Prevalence of Unhealthy Diet

Marshall Islands does not have detailed information on the eating patterns of its residents. However, low consumption of fruit and vegetables has been identified as a risk factor in the development of a range of chronic diseases, including coronary heart disease, stroke and many forms of cancer.

According to WHO and FAO, the required intake for optimal health benefits is 400 grams of fruits and vegetables a day, which equates approximately to five daily serves of fruit and vegetable a day. The 2002 RMI/WHO STEPwise NCD risk factor Survey showed that overall 91.0% (± 2.0) consumed less than 5 serving of fruit and vegetable per day. This means that only 9.0% of the population would have consumed 5 or more servings of fruit and vegetables per day.

Results for adults aged 15-64 yrs	Total	Males	Females
Fruit and Vegetable Consumption (in a typical week)			
Mean number of day fruit consumed	2.6	2.6	2.7
Mean number of servings of fruit consumed per day	0.9	0.9	1
Mean number of days vegetables consumed	2.7	2.6	2.8
Mean number of serving of vegetables consumed per day	1	0.9	1.1
Percentage who ate less than 5 of combined servings of fruit & vegetables per day	91	91.9	90.1

More alarming, 73.7% of males and 73.3% of females consumed less than 1 serving of fruit per day. Males (73.7%) and females (71.7%) consumed less than 1 serving of vegetable per day.¹³

The 2007 Youth Risk Behavior Survey showed:

Youth Risk Behavior Surveillance - Pacific Island United States Territories (January—June 2007)			
Dietary Behaviors Among RMI High School Students	1522 students surveyed	Prevalence among female students	Prevalence among male students
Ate fruits and vegetables five or more times per day	No data available for RMI		
Had drunk three or more glasses per day of milk during the 7 days before the survey	12.9%	13.0%	12.8%
Drank soda or pop at least one time per day	No data available for RMI		

Historical Context

Food supplementation was necessary for those who were displaced from their land due to nuclear testing and for those whose lands and food sources were contaminated with radiation. For many years, the U.S. government provided U.S. Department of Agriculture (USDA) foods (mostly white rice and other processed foods) to the people of the four atolls. Adverse health impacts following the introduction of a Western diet are evident throughout the Pacific. However, the rate of change from traditional to Western diet caused by forced relocation was extreme in the recipient communities.

The traditional diet has been altered. The available Western diet is high in fat and carbohydrates, low in fiber, and lacks vitamin A and iron. There has been a loss of the cultural activities and norms surrounding food gathering and preparation. The industriousness and work ethic required to prepare local foods from coral atolls with few natural resources has been stifled. The loss of the physical activities surrounding food preparation has resulted in a more sedentary lifestyle. Diseases, such as diabetes, atherosclerotic diseases, and hypertension have been exacerbated by the Westernized diet and more sedentary lifestyle. Dependency on food supplementation has become the norm, destroying the fabric of a once self-reliant community.^{13,2}

Disparities

The average Marshallese person is likely to be overweight and/or obese, which ultimately lead to more serious illnesses such as diabetes, hypertension and cancer. The rising number of diabetic cases in the RMI is attributed to the citizenry’s poor lifestyle, diet and their apparent lack of knowledge of the serious complications associated to the illness.¹⁵

Examples of Current Activities to Promote a Healthy Diet

The Ministry of Health’s Diabetes Wellness Program was established in Majuro in 2005. The goal of the program is to transform the health of the Marshall

Islands people by reversing the effects of diabetes, a deadly trend that began 60 years ago when western occupation brought refined western foodstuffs to the tiny nation.

The Diabetes Wellness Center is an outpatient clinic occupying a vacant wing at the Majuro Hospital.

Although hard statistics are lacking, the government of the Marshall Islands estimates that at least 30% of its people have diabetes. To realize this vision of health for the island people, the Marshall Islands Ministry of Health Services has partnered with Loma Linda University, the Guam Micronesia Mission, and Canvasback Missions in an approved scientific study to track the long-term results of lifestyle intervention.

Loma Linda University is overseeing the research aspects of the program, which is intended to prove whether or not lifestyle intervention can work for people in poverty circumstances and in an environment where food sources and cooking techniques are limited.

Agriculture

The agriculture sector mainly remains subsistence-based. The main agricultural crop is copra production. Other agriculture production includes fruits and vegetables including: bananas, breadfruit, pandanas, coconut and taro. Meat production includes pigs and chickens.¹²⁵

Effective Interventions to Improve Nutrition

The Nutrition Program goals of the *Republic of the Marshall Islands Ministry of Health Strategic and Operational Plan 2001 to 2015* include:

1. Encourage people to eat healthier foods

- a. Conduct nutrition education activities using media and church/club promotions

2. Increase consumption of healthier foods

- a. Survey food stock and range in stores with prices

- b. Survey patrons of stores
- c. Work with store owners to encourage people to eat healthier foods
- d. Provide education posters to encourage purchase of healthier foods
- e. Conduct food campaigns for healthier food choices
- f. Increase consumption of local foods

3. Improve nutritional status of vulnerable and high-risk groups

- a. Lobby for removal of tax from food
- b. Reduce the prevalence of obesity in adults 18 years and over.¹²⁶

Gaps

Evidence shows a relationship between diet and cancer; However, it appears that at least part of the problem is the Marshallese consumers' attitudes toward eating fruits and vegetables. Barriers mentioned frequently in two studies, including one of the general population of adults in Marshall Islands, were cost, availability, and personal and family preference.^{40, 41}

Physical Activity

Physical activity is defined as bodily movement produced by the contraction of skeletal muscle that substantially increases energy expenditure.⁴² Physical activity includes normal daily activities such as walking, climbing stairs, or doing yard work, as well as recreational activities and other more structured forms of exercise. Physical activity has been associated with reductions in the risk of developing and dying from some cancers.

Examples of Current Efforts to Promote Physical Activity

The Marshall Islands National Olympic Committee (MINOC) was officially recognized by the

Primary Prevention

International Olympic Committee (IOC) in February, 2006. MINOC has 12 affiliated sports, nine of which have international affiliation.

Each community has a sport club, which is involved with year-round and seasonal sports. A number of sports have structured junior leagues and tournaments, which run at various times of the year but are largely league and competition based.

Non-government organizations (NGOs) also have a presence. There are unique ways NGOs have leveraged funding for sport development.

Non-government organizations provide sport leagues targeting “youth at risk.” The statistics in delinquency where these sport programs exist show notable evidence of their success. Sport in the Marshall Islands is seen to contribute to social cohesion, international recognition and socio-economic growth. Sport is also considered a motivator to help youth at risk and to offer participants alternatives to antisocial behavior. For example, in some community-based programs, participants cannot compete if they are using alcohol, tobacco products or drugs and must remain drug free for the entire playing season.

Sport is used as an incentive in education. If children miss school or fail to complete an assignment, they are put on probation for sports activities. This has proved to be a successful motivator. Sport is considered to be the main way to help with social issues such as teen suicide (the Marshall Islands has the highest rate of teen suicide in the Pacific).

Prevalence of Physical Activity

The 2002 RMI/WHO STEPwise NCD risk factor Survey showed the total prevalence of low physical activity is 66.1% (± 4.1), which is higher than those who take moderate physical activity (11.5% ± 3.5), while 22.4% (± 3.5) take vigorous physical activity.

Results for adults aged 15-64 yrs	Total	Males	Females
Physical Activity			
Percentage with low levels of activity (defined as <600MET)	66.1	61.3	70.3
Percentage with high levels of activity (defined as ≥ 200 MET)	22.4	27	18.4
Mean time spent in physical activity per day (minutes)	75.3	90.8	61.7

Although not statistically significant, women in general are notable less active with low total physical activity (70.3% ± 2.8) compared to men (61.3% ± 6.8). In general, women and men in the youngest age group are more active than the older age groups.

The 2007 Youth Risk Behavior Survey showed:

Youth Risk Behavior Surveillance - Pacific Island United States Territories (January—June 2007)			
Results for adults aged 15-64 yrs	Total	Males	Females
Met Recommended Levels of Physical Activity	No data for RMI		
Did Not Participate in 60 or More Minutes of Physical Activity on Any Day	No data for RMI		
Used Computers 3 or More Hours per Day	No data for RMI		
Watched television 3 or more hours per day on an average school day	19.30%	18.10%	20.40%
Attended a physical education (PE) classes on 1 or more days in an average week when they were in school	55.90%	50.80%	61.10%
Attended PE classes 5 days in an average week when they were in school	14.70%	13.70%	15.80%
Played on at least one sports team (run by their school or community groups) during the 12 months before the survey	66.30%	64.40%	68.20%

Effective Interventions to Improve Physical Activity

The goal of the *Health Education and Promotion Section of the Republic of the Marshall Islands Ministry of Health Strategic and Operational Plan 2001 to 2015* is to provide support for all promotive activities to all programs and produce IEC resources.

- 1. Increase percentage of schools that implement health education classes**
 - a. Collaborate with MOH Health Promotion Unit on health education activities in all schools
 - b. Collaborate with MOE on production of PHC educational materials on Health & Physical Education
- 2. Develop IEC materials including pamphlets, posters and videos**
 - a. Widen the range and scope of Health Education and Promotion materials
 - b. Develop and produce locally Health Education videos

Gaps

Although there are various efforts to promote physical activity at the national and community level in Marshall Islands, there are no comprehensive, nationwide programs. At the school level, there are no nationwide standards for the types of activities students do for physical education or for the length of time that students are actually physically active during physical education classes.

An effective cancer prevention curriculum should be skills-driven, standards-based, science-based, learner-centered, strength-based, authentic, integrated into the total educational program, taught by qualified, skilled teachers, part of a coordinated school health approach and supported by school and community.¹²⁸ The RMI Ministry of Education is an NCCCCP Coalition member for this

cancer prevention initiative and fully supports the development of such a curriculum.

Obesity

Overweight in youth and obesity in adults are leading health indicators for Healthy People 2010. Currently no basic wellness statistics (i.e. height and weight) are assessed in schools. The total number of people who participated and were screened in the wellness program during 2005 was 897. Out of the total participants, almost 90% are either overweight (29%) or obese (59%). A mere 12% were in the healthy weight category.

Prevalence of Obesity

For the 2002 RMI/WHO STEPwise NCD risk factor Survey, body mass index (BMI) was calculated for each participant as the weight in kilograms over the height in meters². Risk categories were calculated for BMI as follows (WHO standards):

Underweight	BMI <18.5
Normal weight	BMI =18.5-24.9
Overweight	BMI >25.0 to 29.9 (Risk)
Obese	BMI >30.0 (Risk)

On average both men and women of the Marshall Islands are overweight according to the international classification with the mean BMI of 28.5 (±0.7) for females and 26.7 (±0.5) for males. There was a trend of increasing BMI with age for both genders, and declining in the oldest age group.

Primary Prevention

Results for adults aged 15-64 yrs	Total	Males	Females
Physical Measurement			
Mean body mass index - BMI (kg/m ²)	27.6	26.7	28.5
Percentage who are overweight or obese (BMI ≥ 25 kg/m ²)	62.5	59.8	65.4
Percentage who are obese (BMI ≥ 30 kg/m ²)	31.6	26.6	37.1
Average waist circumference (cm)	89.3	88.8	89.9
Mean systolic blood pressure-SBP (mmHg), excluding those currently on medication for raised BP	113	117.8	107.8
Mean diastolic blood pressure -DBP (mmHg), excluding those currently on medication for raised BP	68	69.3	66.7
Percentage with raised BP (SBP ≥ 140 and /or DBP ≥ 90 mmHg or currently on medication for raised BP)	10.5	11.6	9.3
Percentage with raised BP (SBP ≥ 160 and /or DBP ≥ 100 mmHg or currently on medication for raised BP)	4.4	4	4.8

Overall 62.5% of the population was either overweight or obese, increasing with age with a higher prevalence amongst females (65.4%) compared to males (59.8%). The survey revealed a fourfold increase in obesity in the surveyed population: from 10.6% (±2.4) among 15-24 year olds to 41.9% (±3.8) among 25-34 years. This trend persisted across both gender groups with more marked effect in males where there is almost a five-fold increase. In a country where there is

coexistence of under- and over nutrition this is an expected trend as population picks up weight at late adolescent years after puberty. Rapid weight gain after the first post-natal period for women may explain the sharp increase in obesity but the increase in men needs to be further explored.

The 2007 Youth Risk Behavior Survey showed:

Youth Risk Behavior Surveillance - Pacific Island United States Territories (January—June 2007)			
Obesity, Overweight, and Weight Control Among RMI High School Students	1522 students surveyed	Prevalence among female students	Prevalence among male students
Students who were obese	25.60%	24%	27.20%
Students who were overweight	15.00%	17.30%	12.80%
Students who described themselves as slightly or very overweight	9.20%	8.90%	9.60%
Students who were trying to lose weight	37.10%	40.80%	33.40%
Students who had eaten less food, fewer calories, or low-fat foods to lose weight or to keep from gaining weight during the 30 days before the survey	52.50%	50.90%	54.30%

Primary Prevention

Students who had exercised to lose weight or to keep from gaining weight during the 30 days before the survey	61.30%	60.40%	62.20%
Students who did not eat for 24 or more hours to lose weight or to keep from gaining weight during the 30 days before the survey	34.50%	34.70%	34.50%
Students who had taken diet pills, powders, or liquids without a doctor's advice to lose weight or to keep from gaining weight during the 30 days before the survey	24.40%	22.00%	26.90%
Students who had vomited or taken laxatives to lose weight or to keep from gaining weight during the 30 days before the survey	25.00%	23.60%	26.50%

Disparities

The total number of patients that participated in wellness activities – such as blood glucose and blood pressure control, participation in weight loss

program, smoking cessation program and early detection, screening and prevention of diabetes and its complications – was less than expected.

What may be concluded from the data is that the average Marshallese person is likely to be overweight and/or obese, which ultimately lead to more serious illnesses such as diabetes, hypertension and cancer. The low number of participants, attributed to the large portion of the people in the community who continued to be in denial and/or have refused to accept the fact that they have acquired the illness. The rising number of diabetic cases in the RMI is attributed to the citizenry's poor lifestyle, diet and their apparent lack of knowledge of the serious complications associated to the illness.

Gaps

Despite the recently awarded “STEPS” grants and existing efforts at the Ministry of Health, there are no comprehensive, nationwide programs that address obesity prevention and control in Marshall Islands. In addition, more research is needed to better understand the effect of obesity on the development of cancer.⁵²

Goal 3: Reduce the impact of poor diet, physical inactivity and obesity on cancer incidence and mortality in Marshall Islands.

Objective 3.1: By 2013, develop programs and projects that educate the public about the importance of fruit and vegetable consumption.

Baseline/Data Source:

- 91.0% of the population consumed less than 5 servings of fruit & vegetable per day / 2002 RMI/WHO STEPwise NCD risk factor Survey
- 73.7% of males and 73.3% of females consumed less than 1 serving of fruit per day / 2002 RMI/WHO STEPwise NCD risk factor Survey
- 73.7% of Males and 71.7% of females consumed

Primary Prevention

less than 1 serving of vegetable per day / 2002 RMI/WHO STEPwise NCD risk factor Survey

Strategies:

- Develop new and support existing programs focused on increasing fruit and vegetable intake.
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns about the relationship between eating two servings of fruits and vegetables each day and health.
 - Work with Coalition Members to promote and disseminate public education and awareness in community
- Introduce and use social marketing and behaviors change communication to promote healthy lifestyle
- Increase access to fruits and vegetables for all residents of Marshall Islands (e.g., in schools and worksites).
- Promote policies that reduce barriers to consumption of fruits and vegetables. (e.g., reduce sales tax on fresh produce)
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 3.2: By 2013, increase the awareness in the RMI community concerning the link between diet and exercise and cancer.

Baseline/Data Source:

- Out of the total participants, over 80% are either overweight (29%) or obese (59%) / STEPwise
- Overall 63.2% of the population was overweight and obese increasing with age with a higher

prevalence amongst females (67%) compared to males (60.1%) / STEPwise

Strategies:

- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns about healthy lifestyle
 - Work with Coalition Members to promote and disseminate public education and awareness in community
- Support efforts to increase access to healthy food and beverage choices and physical activity opportunities in workplaces and other institutional settings and reduce access to less healthy foods.
- Introduce and use social marketing and behaviors change communication to promote healthy lifestyle
- Support community-wide campaigns to promote healthy choices for food and beverages and physical activity.
- Support public health approaches to increasing access to and availability of obesity treatment.
- Develop and support programs that encourage and enable adults to engaging in regular (5 or more days per week) moderate-intensity physical activity for at least 30 minutes per day for at least 10 minutes at a time or vigorous-intensity physical activity 3 or more days per week for at least 20 minutes per day.
- Support the development and implementation of nationwide physical activity initiatives that employ effective interventions.
- Increase access to safe environments for physical activity.
- Mobilize Coalition members to generate and support greater community involvement
- Integrate new and existing programs into the

Primary Prevention

NCCCP Pathway to Care

- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 3.3: By 2013, develop and support programs that encourage and enable adolescents to engaging in at least 20 minutes of vigorous physical activity on three or more days per week.

Baseline/Data Source:

- 55.9% of students attended a physical education (PE) classes on 1 or more days in an average week when they were in school / 2007 Youth Risk Behavior Survey
- 14.7% of students attended PE classes 5 days in an average week when they were in school / 2007 Youth Risk Behavior Survey
- 66.3% of students played on at least one sports team (run by their school or community groups) during the 12 months before the survey / 2007 Youth Risk Behavior Survey

Strategies:

- Support implementation of the 15-year Strategic Plan
- Support the development and implementation of nationwide physical activity initiatives that employ effective interventions.
- Develop policy which promotes increased time requirement for physical activity during physical education classes in school.
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns about the importance of physical activity for improved health.
 - Work with Coalition Members to promote

and disseminate public education and awareness in community

- Introduce and use social marketing and behaviors change communication to promote healthy lifestyle
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 3.4: By 2013, decrease the number of children and adolescents who are overweight.

Baseline/Data Source:

25.6% of students were obese / 2007 Youth Risk Behavior Survey

15% of students were overweight / 2007 Youth Risk Behavior Survey

Strategies:

- Support the implementation of the 15-Year Strategic Plan.
- Support efforts to increase access to healthy food and beverage choices in schools and other institutional settings and reduce access to less healthy foods.
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns promoting healthy choices for food and beverages and physical activity.
 - Work with Coalition Members to promote and disseminate public education and awareness in community
- Introduce and use social marketing and behaviors change communication to promote healthy lifestyle

- Promote increased time requirement for physical activity during physical education classes in school.
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Infectious Agents

The rates on sexually transmitted diseases and infections are still high in the Marshall Islands. The number of individuals who have positive test for sexually transmitted infection increases each year. There are more male with positive tests than females. However, there are more females positive for syphilis and Chlamydia. Ebeye lab is not yet set-up for Chlamydia so data is only available for Majuro. It must be noted that the reason why more females are tested for Chlamydia is because Chlamydia tests are required for pregnant women. Most positive cases are discovered in the prenatal clinics and other public health programs.

2007 Sexually Transmitted Diseases/Infection Program:

Syphilis		
	Majuro	Ebeye
Male	56	20
Female	65	70
Total	121	90
Gonorrhea		
	Majuro	Ebeye
Male	12	3
Femal	1	5
Total	13	7
Chlamydia		
	Majuro	
Male	2	
Female	38	
Total	40	

HIV

Studies illustrate a marked increase in risk for some cancers for individuals with STIs. Cancer is a common co-infection with HIV.

Since 1984, when the first reported case of HIV was detected in the Marshall Islands, there have been 16 accumulated diagnosed cases of HIV and six AIDS-related deaths in the Marshall Islands. Additionally,

Primary Prevention

we have received reports that HIV was detected amongst Marshallese living in the United States. In most cases, Marshallese learn of their HIV/AIDS status only when they are already very sick, consequently, failing to receive adequate diagnosis and early treatment and presenting a continuing health threat.

2008 HIV Counseling, Testing & Referral (CTR) Data		
Reasons for CTR	Frequency	Percent
Contact w/ suspected HIV+	7	0.90%
Food Handlers	9	1.20%
Immigrant	184	24.40%
Others	13	1.70%
Pre-employment	104	13.80%
Pregnant	253	33.60%
School Student	84	11.20%
STD client	64	8.50%
TB Client	26	3.50%
Voluntary	9	1.20%
Total	753	100.00%

Source: RMI STI Program

Due to the high levels of sexually transmitted infections (STIs) and the fact that transmission methods are the same, there are HIV/AIDS cases in the Marshall Islands who are unaware of their status. For every one diagnosed HIV case, there are at least ten cases that remain undiagnosed. Marshallese people are dying of HIV/AIDS.

The 2007 Youth Risk Behavior Survey showed:

Youth Risk Behavior Surveillance - Pacific Island United States Territories (January—June 2007)			
Sexual Behaviors Among RMI High School Students	1522 students surveyed	Prevalence among female students	Prevalence among male students
Ever had sexual intercourse	59.00%	47%	72.00%

Had sexual intercourse for the first time before age 13 yrs	8.30%	3.00%	14.30%
Had sexual intercourse with four or more persons during their life	19.20%	10.40%	29%
Had sexual intercourse with at least one person during the 3 months before the survey (i.e., currently sexually active)	39.30%	34.00%	45.40%
Among students who were currently sexually active, the percentage of students who reported that either they or their partner had used a condom to prevent pregnancy during last sexual intercourse	50.20%	47.50%	52.80%
Among students who were currently sexually active, the percentage of students who reported that either they or their partner had used birth control pills to prevent pregnancy before last sexual intercourse	7.80%	6.20%	9.20%
Among students who were currently sexually active, the percentage of students who had drunk alcohol or used drugs before last sexual intercourse	33.80%	26.20%	40.50%
Had ever been taught in school about acquired immunodeficiency syndrome (AIDS) or HIV infection	46.00%	44.60%	47.30%

HPV

Cervix cancer was once the number one cause of death due to cancer in women. Thanks to the Pap test, which helps doctors find cervix cancer, it can be detected early and need not be fatal.

Human papilloma virus (HPV) causes a temporary infection; most people will never know they have it because it most often goes away on its own. There are many types of this common virus, and only a few types can lead to cervix cancer. These are spread through sex. If certain HPV types don't go away on their own, they may cause cervix cells to become precancer cells. If these cells are not found and treated, they may turn into cancer.

Since almost all cervix cancers are caused by HPV, any woman who has had sex can get cervix cancer. Certain kinds of HPV, smoking, and having the HIV or AIDS virus increase a woman's chance of getting the disease. Women are most at risk if they don't have Pap tests at all or as often as they should.

Any man or woman who has ever had sex can get HPV. Doctors think that three out of four people will get HPV during their lifetime. It is spread by direct skin-to-skin contact during sex. HPV infection is more common in young people, like in women in their late teens and twenties.

Because HPV is spread mainly through sex, women who start having sex at a young age, who have sex with different partners, and whose partners have had many other partners are more likely to have HPV.

The HPV vaccine prevents infection with certain species of human papillomavirus associated with the development of cervical cancer, genital warts, and some less common cancers (e.g., anal, vulvar, vaginal, penile). Public health officials recommend vaccination of young women against HPV because of high infection rates worldwide, a desire to reduce the number of painful and costly treatments for cervical dysplasia, which is caused by HPV, and the desire to prevent genital warts and cervical cancer. Worldwide, HPV is the most common sexually transmitted infection in adults.

Disparities

Some populations are more susceptible to infections from specific infectious agents than others. For instance, during sexual intercourse between men and women, women are at higher risk for acquiring a sexually transmitted infection because these infections are more easily spread from male to female.

Examples of Current Activities to Reduce Risks Associated With Infectious Agents

Ministry of Health currently offers HPV Vaccines to teenaged girls and young women, which produce immunity to several types of HPV.

Effective Interventions to Reduce Infectious Agents

The goal of the Communicable Diseases Program Section of the Republic of the Marshall Islands Ministry of Health Strategic and Operational Plan 2001 to 2015 is to reduce the incidence of Communicable Diseases through IEC and to provide quality services to treat existing conditions

1) Reduce the prevalence of STD

- a. Develop a protocol to allow testing for Trichomonosis to be included in all STD/HIV tests
- b. Increase percentage of High School students Grade 10- 12 and College students tested for all STDs and HIV
- c. Increase percentage of High School students Grade 10- 12 and College students receiving HPV vaccine
- d. Increase percentage of males and females aged 15 – 19 tested for STD/HIV
- e. Increase percentage of males and females presenting for Family Planning/ Pre-natal/ Public Health Clinics tested for STD/HIV

Primary Prevention

- f. Increase percentage of Health Centers treating STDs
 - g. Increase percentage of Health Centers distributing condoms for the prevention of STDs. Improve treatment practices for STD in Outer Island Health Centers¹²⁶
- Among students who were currently sexually active, 50.2% percentage of students reported that either they or their partner had used a condom to prevent pregnancy during last sexual intercourse / 2007 Youth Risk Behavior Survey
 - We believe this statistic to be inaccurate; NCCCCP will develop surveillance tools to update accurate baseline data

Gaps

Facilities for STD tests are available only at the clinics at the Majuro and Ebeye hospitals. But in these clinics too, particularly at Ebeye, reagents are in short supply. Chlamydia tests were not carried out regularly because of the lack of reagents. On the whole, it has been found that the positive rates are higher for syphilis and gonorrhea at the Ebeye clinic than in Majuro. The results of the test also confirm that the incidence of STDs was comparatively higher for younger ages.¹²⁰

There is a need for increased awareness of the relationship between sexually transmitted infectious agents and cancer. Resources are needed to ensure that health care providers have access to the education and client materials needed to ensure good communication with patients regarding sexual health issues.

Additional funding is needed to develop culturally and linguistically appropriate targeted interventions for high-risk populations as well as to develop the capacity to assess sexual risk behaviors in all populations in the state. There is a need for continued enhancement of community social marketing campaigns that promote sexual health.

Goal 4: Reduce the impact of infectious agents on cancer incidence and mortality in Marshall Islands.

Objective 4.1: By 2013, increase youth awareness of sexual intercourse without the use of a condom associated with an increased risk for developing cancer.

Baseline/Data Source:

Strategies:

- Encourage health care providers to provide appropriate counseling on the prevention of sexually transmitted infectious agents.
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant youth-targeted public awareness campaigns promoting condom use
 - o Work with Coalition Members to promote and disseminate public education and awareness in community
- Introduce and use social marketing and behaviors change communication to promote healthy lifestyle
- Promote efforts to increase access to sexual health programs and services.
- Promote education and access to HPV Vaccine
- Develop surveillance capacity for determining high-risk sexual behavior in youth.
- Evaluate medical records to monitor incidence of cancer related STIs
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 4.2: By 2013, increase youth awareness of multiple sex partners associated with an increased risk for developing cancer.

Baseline/Data Source:

- 19.2% of high school students had sexual intercourse with four or more persons during their life / 2007 Youth Risk Behavior Survey
- We believe this statistic to be inaccurate; NCCCP will develop surveillance tools to update accurate baseline data

Strategies: See above

Objective 4.3: By 2013, increase adult awareness of sexual intercourse without the use of a condom associated with an increased risk for developing cancer.

Baseline/Data Source: To be tabulated from DHS survey when it is complete.

Strategies:

- Encourage health care providers to provide appropriate counseling on the prevention of sexually transmitted infectious agents.
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant youth-targeted public awareness campaigns about safer sex
 - Work with Coalition Members to promote and disseminate public education and awareness in community
- Introduce and use social marketing and behaviors change communication to promote healthy lifestyle
- Incorporate cancer risk information into public awareness campaigns and written materials addressing infectious agents used by existing programs.
- Promote efforts to increase access to sexual health

programs and services.

- Develop surveillance capacity for determining high-risk sexual behavior in adults.
- Evaluate medical records to monitor incidence of cancer related STIs
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 4.4: By 2013, increase adult awareness of multiple sex partners associated with an increased risk for developing cancer.

Baseline/Data Source: To be tabulated from DHS survey when it is complete.

Strategies: See above

Objective 4.5: By 2013, increase the number of women presenting for annual pap smears.

Baseline/Data Source: 2000 = 1394 pap smears conducted, 2001 = 1337, 2002 = 1605, 2003 = 1072, 2004 = 1364, 2005 = 1253, 2006 = 1647 / Majuro Hospital Laboratory

Strategies:

- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns about the importance of annual pap smears
 - Work with Coalition Members to promote and disseminate public education and awareness in community
- Introduce and use social marketing and behaviors change communication to promote healthy lifestyle
- Promote efforts to increase access to sexual health

- programs and services.
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 4.6: Integrate HPV vaccine as part of child immunization program.

Baseline/Data Source:

152 HPV vaccines were administered in 2008/ Public Health records

Strategies:

- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Track vaccine recipients to ensure administration of second and third doses.
- Monitor current studies showing possible need to HPV vaccine booster after five years of initial vaccination
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns expressing importance of annual pap smears for sexually active females even after receipt of HPV vaccine
 - Work with Coalition Members to promote and disseminate public education and awareness in community
- Introduce and use social marketing and behaviors change communication to promote healthy lifestyle
- Evaluate medical records to monitor incidence of HPV among young girls.
- Explore possibility of integration into school registration requirements

Environmental Carcinogens

Quantifying the cancer risk posed by environmental carcinogens and chemicals is challenging due to the difficulty in measuring exposure. Human exposure to any given environmental carcinogen is highly variable and depends on a number of factors including the concentration of the carcinogen in the environment, individual behaviors (e.g., location of residence, frequency of contact with soil), and how the carcinogen is taken into the body. Furthermore, each person's exposure to environmental carcinogens can vary greatly over a lifetime. For these reasons, it is not possible to provide a reliable estimate of the cancer burden associated with any particular environmental carcinogen in Marshall Islands.

Impact of U.S. Nuclear Testing in the Marshall Islands

Health considerations in nuclear testing are often distilled to the effects of radiation and excess cancers. However, the true health consequences of nuclear weapons testing include the entire human experience of the bomb blast, the deleterious by-products of the bomb, and the impact on the culture and social fabric of the people who lived through the nuclear weapons testing program.

Although a great deal is known about the health effects of short-and-long term exposure to radiation, it is difficult to quantify the direct health impact of nuclear testing in the RMI, because of the limited resources available for diagnosis and monitoring. Because of the multiple levels of disruption, from an individual's DNA to the relocation of entire communities, a holistic approach must be part of any discussion of the health consequences of nuclear testing.

In the Marshall Islands, isotopes of cesium, strontium and plutonium remain in the environment and continuously release potentially harmful radiation. Chronic exposure to low doses of ionizing radiation in the environment and food chain are responsible for at least 20 types of

cancers, including leukemia, multiple myeloma, lung, intestine, stomach, kidney, liver, bone, thyroid, skin and brain cancers. These cancers may be latent (i.e., an individual exposed to chronic low doses as a child or adolescent may develop a radiation-related cancer 20-70 years after the initial exposure).

The health systems must be able to provide comprehensive cancer care (prevention, screening, diagnosis, treatment, survivorship and palliative care) and healthcare for thyroid disease.

Provision of Nuclear-Related Cancer Care

The official Department of Energy (DOE) position is that only the peoples of the four Atolls (Bikini, Enewetak, Rongelap and Utrok) that were most directly affected by the nuclear weapons testing program should have access to these health programs. A 1987 publication in the Journal of the American Medical Association concluded that the radiation from the testing extended to at least 14 atolls in the Marshall Islands. Most significantly, the 2004 NCI study stated that the radiation exposure was enough to increase the risk of cancer in all the people of the RMI who were living between 1946-1958, albeit radiogenic cancers were predicted to occur in a higher proportion in the northern than the southern atolls. Since the 2004 NCI report found that the entire RMI is at risk for cancer from the U.S. Nuclear Weapons Testing Program (USNWTP), and because there is presently no method to differentiate cancers caused by radiation or other carcinogens, differential treatment for cancer care in the RMI is not reasonable or prudent.

The 2005 U.S. GAO report suggests that the funding of the second Compact will not allow the RMI to achieve the goal of self sufficiency. Notably the Compact is the primary source of healthcare dollars and resources. Funding from the Compact represents nearly half of the gross national product of the RMI and 40% of all healthcare funding (direct Compact funds, Section 177 funds, U.S. Federal Grants) in the RMI.

Cancer Estimates

Among the approximately 14,000 persons in the Marshall Islands during the 1946-1958 period of nuclear testing, the National Cancer Institute (NCI) estimated that about 6,130 cancers would occur over their lifetimes. About 5,600 of those cancers would have occurred even if the nuclear tests had not taken place (the baseline risk), and about 530 were estimated to be caused by fallout from the tests.^{117, 118} Therefore, the NCI study estimated that the nuclear testing program would increase the cancer rate for the entire exposed population by about 9% above the baseline.

In 2003, 56% of the 530 excess cancers had not yet manifested in the Marshall Islands population because of the latency period following the deleterious effects of ionizing radiation. Thyroid cancer prevalence was estimated to increase by 200% above the baseline. Notably, 85% of the stomach cancers and 75% of the colon cancers caused by the nuclear testing will manifest themselves in the next decades. Most of the excess cancers will occur in Marshallese exposed in the northern atolls. However, the NCI report notes that the ionizing radiation exposure from the testing extended throughout the Marshall Islands, including the southern atolls, and is expected to place populations previously considered not exposed at increased risk of cancer.¹³²

Estimates of the additional risk posed by the nuclear testing program were based on urine samples collected on two nearby atolls after the largest test (BRAVO), whole-body data collected years later, and a 1995 radiological survey of the entire Marshall Islands.

Thyroid Disease

1,322 Marshallese, born before 1965, were given a thyroid examination using neck palpation, fine needle aspiration biopsy, and high-resolution ultrasound imaging. Approximately 40% of the total population, at risk from exposure to radioactive fallout during the years 1946-1958, was screened.

Of that group, 815 were alive at the time of the BRAVO test on 1 March 1954. 266 people (32.6%) were found with thyroid nodules: 132 (16.2%) were palpable nodules, and 134 (15.7%) were nodules that could be diagnosed with ultrasound only. Prevalence of palpable nodules was particularly high in men and women older than 60 years, in men who were 6 to 15 years of age at the time of the BRAVO test, and in women 1 to 10 years of age at the time of the BRAVO test. The clinical diagnosis was most likely cancer though histo-pathological evidence was only available from 11 operated cases. Of the 11 operated cases, 10 were cancer. Cancer prevalence was particularly high in those women born between 1944 and 1953 (7/220 = 3.2%), who were children during the early years of nuclear testing.

Comparison with cancer rates elsewhere

The thyroid cancer rate in our study was not dissimilar to that observed in 2,587 atomic bomb survivors in Nagasaki where 21 (0.8%) cancers were reported compared to 1 in 935 (0.1 %) unexposed persons (Nagasaki et al. 1994). A cancer rate in unexposed adult women screened in Kamaishi, Japan was 0.6% (Takaya et al. 1982), intermediate to the Nagasaki control and exposed population rates.¹²³

Goal 5: Reduce the impact of environmental carcinogens on cancer incidence and mortality in Marshall Islands.

Objective 5.1: Improve tracking and regular screening of patients alive during nuclear testing period.

Baseline/Data Source:

- Approximately 40% of the total population living on this island who are at risk from exposure to radioactive fallout during the years 1946-1958 were screened / Nuclear Claims Tribunal

Strategies:

- Provide training/certification opportunities for

medical workforce to upgrade/update their skills.

- Work with physicians to create consistent habit of screening patients alive during nuclear testing period.
- Utilize 177 Health Plan and DOE data to locate patients.
- Decrease in number of thyroid cancer patients diagnosed at significantly later stage.
- Quality assurance monthly audit of patient chart
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns about nuclear era and the need for screening.
 - Work with Coalition Members to promote and disseminate public education and awareness in community
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Secondary Prevention

Some cancers can be detected early, improving the likelihood of survival.

Secondary prevention of cancer means reducing morbidity and mortality by identifying disease early and providing appropriate treatment. Early detection – identifying disease in its early stages – is a component of secondary prevention. Early detection usually involves the administration of various tests to identify cancer, or precursors to cancer, before the onset of symptoms. The rationale for early detection is that cancer is generally more treatable when identified in its early stages.

Screening is a method of attempting to detect cancer early. It is a public health strategy that refers to the routine administration of tests to the general population. The goal of cancer screening programs is to identify people with cancer, or at high risk of cancer (e.g., colon polyps, cervical dysplasia, persistent high-risk human papilloma virus infection), among people who are asymptomatic. Further diagnostic testing (e.g., biopsy) may be required to identify cancer or pre-cancerous lesions. Screening is an important public health approach to reducing cancer mortality. This section focuses on breast and cervical cancers for which screening tests are currently available and utilized.

Public Education and Awareness

As mentioned under “Primary Prevention,” due to the geographic isolation and low literacy rates, multimedia (television, radio, print and web) is the only possible way to fully disseminate prevention and health education messages throughout the nation.

Mobile teams partner with similar efforts by community partners and the Ministry of Health’s Health Promotion department, to reach the community with messages of cancer prevention, reduction of high-risk behavior and the need to seek cancer screening. Mobile outreach components should include: culturally and linguistically appropriate cancer education DVDs, brochures and posters; pre/post surveys to collect data about target audience’s knowledge of cancer and their involvement in high-risk behavior; and breast and prostate self-exam promotion pamphlets to help people determine if they should seek testing.

Mobile team outreaches are likely the only health education many will receive. Many young women are reluctant to seek screening and testing for breast and cervical cancer because they fear examination by male doctors or (as is the case in small, tight-knit communities like Majuro) by a family member or close family friend. Marshallese of all ages do not tend to proactively seek out preventative health services/testing, but instead tend to seek out doctors as a last resort. Even if they are inclined to seek out screening and testing, lack of access to culturally and linguistically appropriate testing services is a barrier. So the informal, impersonal atmosphere of a mobile outreach is an ideal screening/testing forum for those reluctant to visit the hospital.

The importance of high profile, targeted public awareness campaigns in the indigenous language, Marshallese, cannot be overstated. As described in “Primary Prevention,” because of the large TV and radio audiences, these campaigns are most effective when a variety of communication strategies are used including video, radio, and print resources. Effective

multimedia programs increase awareness, build community support, change attitudes, teach skills, encourage behavior change and reinforce healthy choices.

The best way to ensure that programs will be successful in their scope and tailored to the needs of the individual community, that they address the indicators cancer, and incorporate all stages and levels of prevention in programs that are developed is to use an indigenous language and cultural approach.

With increased public education and heightened awareness of cancer prevalence, it is expected that more of our target high-risk consumers will seek cancer screening (i.e. pap smears and mammograms). Initially, detection rates should increase dramatically in proportion to current statistics and increased testing. But after this initial increase we expect rates to level off as our awareness messages cause involvement in high-risk behavior to decrease.

Screening Breast Cancer

Burden of Breast Cancer in Marshall Islands

In 2006, breast cancer was the most common cancer in RMI, accounting for 20% of cases.¹²⁷

According to Majuro Hospital's Radiology Department records, there were 35 mammograms administered in 2006 and 38 in 2007. There has been little data collected regarding the number of clinic breast exams administered; however, one of Majuro Hospital's primary reproductive health physicians stated that CBEs are performed only when a patient complains of a breast-related problem.

Examples of Current Activities to Promote Screening

The Marshall Islands Ministry of Health is working to develop a breast and cervical cancer early detection program for eligible women. Services are available on Majuro Atoll and to a limited extent on Ebeye Island in Kwajalein Atoll. Ministry of Health is working to formulate an effective mobile screening and early detection plan for the outlying atolls of the Republic. Anticipated services will include screening (pap smears and clinical breast exams), public education, professional education, quality assurance, tracking/surveillance, case management, and evaluation of service delivery components. Community-based organizations help provide outreach activities including public education with community involvement.

Gaps

- Inadequate funding as a barrier to breast health services.
- Lack of providers trained to perform pap smears and clinical breast exams.
- Limited or lack of transportation.
- A climate of restrictive reimbursement and regulations related to the provision of

mammograms.

- Limited awareness of available information, education, and outreach opportunities among public and providers.
- Limited case management and follow-up.

Effective Interventions to Promote Mammography Screening

The CDC's Guide to Community Preventive Services has made recommendations regarding interventions that communities, policymakers, and public health providers can employ to promote mammography screening. The recommendations are based on systematic reviews of the evidence of intervention effectiveness from the scientific literature.

The goal of the Chronic Disease Program section of the Republic of the Marshall Islands Ministry of Health Strategic and Operational Plan 2001 to 2015 is to reduce the incidence of Chronic Diseases through IEC and minimize the effects of Chronic Diseases through the provision of quality services.

- 1) **Reduce the prevalence of breast cancer**
 - a. Train all women in self breast examination
 - b. Train Health care workers to administer clinical breast examinations.
 - c. Increase percentage of at risk women who have mammograms
 - d. Increase percentage of women on treatment and follow-up due to abnormal mammograms.¹²⁶

Goal 6: Screening

A. Reduce mortality from breast cancer in Marshallese women.

Objective 6a.1: By 2013, increase the number of women aged 40 and older who have had a screening mammogram within the past two years.

Baseline/Data Source:

35 mammograms administered in 2006 and 38 in 2007/ MOH Radiology Department

Strategies:

- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns regarding the value of screening mammography and risk factors for breast cancer.
 - o Work with Coalition Members to promote and disseminate public education and awareness in community
- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Educate physicians to identify women (seeking consultations for other medical problems) eligible for screening Mammograms and direct/ make appointments through the Radiology services
- Targeted screening clinics for women working in Government and Private organizations in RMI
- Monthly mammogram use record check
- Apply for CDC's National Breast and Cervical Cancer Early Detection Program grant and other relevant federal, international or regional funding
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 6a.2: Maintain mammogram machine and adequate supplies to run exams on Majuro and secure mammogram machine for Ebeye hospital.

Baseline/Data Source:

- Approximately 200 mammogram films kept in stock
- Cost of supplies to perform a mammogram is \$5.00 to \$8.00, depending on vendor / Radiology Department

Strategies:

- Secure funds either internally or from external grants for mammogram machine maintenance needs.
- Quarterly assessment of condition of machine and supplies
- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 6a.3: By 2013, increase the number of women receiving clinical breast exams.

Baseline/Data Source:

- No specific data currently available
- Clinical breast exams are performed only when a patient complains of a breast-related problem / Reproductive Health

Strategies:

- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness

campaigns regarding the value of regular clinical breast exams and risk factors for breast cancer.

- Work with Coalition Members to promote and disseminate public education and awareness in community
- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- The Pacific Regional Comprehensive Cancer Control Plan will establish a set of Minimal Regional Standards for breast cancer screening that each Pacific jurisdiction has agreed upon.
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 6a.4: By 2013, increase the number of health care providers trained to administer clinical breast exams.

Baseline/Data Source: To be determined.

Strategies:

- Seek training opportunities for health care providers to administer clinical breast exams.
- The Pacific Regional Comprehensive Cancer Control Plan will establish a set of Minimal Regional Standards for breast cancer screening that each Pacific jurisdiction has agreed upon.
- Develop surveillance tools to update baseline data

Objective 6a.5: Develop awareness programs educating women about the important of performing monthly self breast exams.

Baseline:

Awareness program deliverable

Strategies:

- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns about the risk factors for breast cancer and providing SBE instructions.
 - o Work with Coalition Members to promote and disseminate public education and awareness in community
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Screening Cervical Cancer

Burden of Cervical Cancer in Marshall Islands

For the years 2002 - 2004, the most common cancer was cervical cancer, accounting for 28%, 22% and 13% of cases respectively. And in 2006, cervical cancer was the second most common cancer with 17%.¹²⁷

Current Pap Smear Data							
Year	2000	2001	2002	2003	2004	2005	2006
Pap smears given	1394	1377	1605	1072	1364	1253	1647
Abnormal pap	34	37	51	15	56	74	133
Percent Abnormal	2.4%	3%	3.2%	1.4%	4.1%	6%	8.1%

Source: Majuro Laboratory

Gaps

A large number of women are still not consistently being screened. Outreach efforts are needed that focus on raising awareness of the importance of cervical cancer screening and educating the public regarding available services.⁹⁰

Effective Interventions to Promote Cervical Cancer Screening

The CDC's Guide to Community Preventive Services has made recommendations regarding interventions that communities, policymakers, and public health providers can employ to promote cervical cancer screening. The recommendations are based on systematic reviews of the evidence of intervention effectiveness from the scientific literature.

The goal of the Chronic Disease Program section of the Republic of the Marshall Islands Ministry of Health Strategic and Operational Plan 2001 to 2015 is to reduce the incidence of Chronic Diseases

Secondary Prevention

through IEC and minimize the effects of Chronic Diseases through the provision of quality services

1) Reduce the prevalence of cervical cancer

- a. Increase number of women aged 15 to 60 years who have pap smear tests
- b. Maintain at 100% women on follow-up and treatment (where appropriate) due to abnormal pap smear readings
- c. Reduce percentage of unsatisfactory pap smears¹²⁶

Goal 6: Screening

B. Reduce mortality from invasive cervical cancer among Marshallese women.

Objective 6b.1: By 2013, increase the number of women aged 14-65 years old who have had a Pap test in the previous 3 years.

Baseline/Data Source: 35 mammograms administered in 2006 and 38 in 2007/ MOH Radiology Department

2000 = 1394 pap smears conducted, 2001 = 1337, 2002 = 1605, 2003 = 1072, 2004 = 1364, 2005 = 1253, 2006 = 1647 / Majuro Hospital Laboratory

Strategies:

- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Educate providers on the importance of Pap tests and appropriate follow-up care during women's health exams.
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns about the importance of cervical cancer screening and encourage them to talk to their medical provider.
 - o Work with Coalition Members to promote

and disseminate public education and awareness in community

- Promote programs that focus on increasing knowledge of and access to cervical cancer screening services.
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 6b.2: Maintain adequate supply of pap smear kits.

Baseline/Data Source:

- Approximately 100 kits are kept in stock
- It costs \$3 to perform pap smear (slide, cover-slip, fixative, stains); \$4 for the pap smear kit (brush, speculum, gloves and spatula) / Majuro Hospital Administrator

Strategies:

- Secure funds either internally or from external grants for purchasing sufficient amount of pap smear kits.
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Early Detection

Early detection of cancer greatly increases the chances for successful treatment. There are two major components of early detection of cancer: education to promote early diagnosis and screening.

A screening test aims to be sure that as few as possible with the disease get through undetected (high sensitivity) and as few as possible without the disease are subject to further diagnostic tests (high specificity). Given high sensitivity and specificity, the likelihood that a positive screening test will give a correct result (positive predictive value) strongly depends on the prevalence of the disease within the population. If the prevalence of the disease is very low, even the best screening test will not be an effective public health program.

Goal 7: Early Detection

A. Reduce mortality from oral/nasal cancer in Marshall Islands

Objective 7a.1: Develop/improve protocols for screening of at risk oral cancer patients.

Baseline: Incorporated protocols

Strategies:

- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Work with physicians to create consistent habit of asking patients about smokeless tobacco and betelnut use coupled with visual examination of oral cavity.
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns about the importance of oral exams for early detection of oral cancers
 - o Work with Coalition Members to promote and disseminate public education and awareness in community

- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

B. Reduce mortality from thyroid cancer in Marshall Islands.

Objective 7b.1: Develop/improve protocols for screening of patients alive during nuclear testing period.

Baseline:

Incorporated protocols

Strategies:

- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Work with physicians to create consistent habit of screening patients alive during nuclear testing period.
- Utilize 177 Health Plan and DOE data to locate patients.
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns stressing the importance of thyroid exams for early detection of oral cancers
 - o Work with Coalition Members to promote and disseminate public education and awareness in community
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

C. Reduce mortality from colorectal cancer in Marshall Islands.

Objective 7c.1: Develop/improve protocols for screening of at-risk colorectal patients.

Baseline: Incorporated protocols

Strategies:

- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Work with physicians to create consistent habit of asking patients about their nutritional/eating habits coupled with digital examination of rectum.
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns stressing the importance of rectal exams for early detection of colorectal cancers
 - o Work with Coalition Members to promote and disseminate public education and awareness in community
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Medical Care

Quality cancer care is more than just medical treatment alone.

This section focuses on cancer issues related to medical care. NCCCCP used multiple sources of data and information to assess the issues and to set goals and objectives. Marshall Islands specific data were used when available as well as national data, reports and recommendations from national experts (e.g., Institute of Medicine), and local experts on cancer care issues. In general, less Marshall Islands-specific data were available for topics in this section compared to topics in the Primary Prevention or Secondary Prevention sections of the plan. Therefore, baseline data was not provided and measurable targets were not set for some of the objectives in this section. Since the scope of the plan is broad, priorities will need to be set among plan goals prior to implementation. Baseline data will be necessary to measure progress toward implementation goals and overall evaluation of comprehensive cancer control. Further assessment will be conducted as necessary to develop baselines for medical care goals identified as priorities. Objectives associated with priority goals may need to be refined.

Access to Cancer Care

The Marshall Islands Ministry of Health

The Ministry of Health (MOH) is one of nine governmental agencies instituted under the Government of the Marshall Islands. The head of MOH is an elected senator and a member of the President's Cabinet. The Minister exercises executive authority for health on behalf of the Cabinet, and he/she is responsible for the development of policies for the Ministry with recommendations from the Secretary of Health and the administration of MOH. The Secretary of Health is appointed as the permanent head of the Ministry. The Secretary of Health is responsible for the daily management and administration of the Ministry and reports directly to the Minister of Health. The Constitution of the Republic of the Marshall Islands has designated the Ministry of Health as the "state" health agency. It is the only authorized agency that provides health care services to the people of the Marshall Islands.¹²⁶

During fiscal year 2005, Ministry of Health annual budget was \$15,955,932. This is an equivalent of 13.68% of the nation's global budget. The Ministry continues to explore avenues to provide the best quality health care possible to the people despite its meager funding and limited human and capital resources. The current health indicators reveal a much improved health status and a steady progress with community participation in implementing this theme "Health is a Shared Responsibility."¹⁵

Availability of Cancer Care in Marshall Islands

The health care system, essentially, comprises two hospitals, one in Majuro and one in Ebeye, and 60 health centers in the outer atolls. The main hospital in Majuro is a 97-bed acute care facility, and the hospital on Ebeye has 43 beds. Both facilities provide primary and secondary care, but limited tertiary care. Patients who need tertiary care are referred to hospitals in Honolulu or the Philippines.

Majuro Hospital provides a wide range of inpatient and outpatient services from simple treatment of everyday illnesses to advanced laser eye surgery and trauma management. The hospital is staffed and equipped to provide for common and expected health care needs, with only infrequent or uncommon treatments needing to be referred overseas. Majuro hospital handles between 2,000 and 2,500 admissions each year with over 7,000 emergency room visits. Some 350 major and 650 minor surgical procedures are practiced each year.

The Bureau of Kwajalein Atoll Health Care Services provides comprehensive healthcare services to the community on Ebeye, the other six communities within Kwajalein Atoll, and serves as another referral facility for the Western atolls and Lib Island. Ebeye Hospital also provides a wide range of inpatient and outpatient services although less so than Majuro, referring approximately 25 patients each year from Ebeye to Majuro for more specialized care. Ebeye hospital handles approximately 1,800 admissions each year with over 6,000 emergency room visits. Some 70 major and 300 minor surgical procedures are practiced each year.

Health Centers in the outer islands are the focus for preventive, promotive and curative health care services. All health centers are permanently staffed by full time Health Assistants who provide primary care services, preventive services and who work with/in the community to promote and foster the concept of a shared responsibility for health. However, with 1,225 remote islands grouped in 29

atolls spread across 750,000 square miles of the Pacific Ocean, the widespread geographic isolation of these atolls makes delivery of health care services logistically challenging. The Primary Health Care Program continues to upgrade the level of care, which is relevant to the types of health problems found in the outer islands communities.¹⁵

Most of the health assistants are males whereas culturally women prefer services to be provided to them by women particularly in areas relating to prenatal, deliveries, postnatal care and family planning services.

Solar units are being installed in some of the health centers in order to store vaccines. Delivery of vaccination services and maintaining vaccination programs to the outer islands is difficult because of an over reliance on services from Majuro.

Disparities in Access to Cancer Care

It is important to recognize that the Marshallese people have developed expectations concerning health care that are inconsistent with the country's economic status. As a result of the RMI's longstanding ties to USA, and the referral of radiation victims to USA for treatment, there is an expectation that western style specialty and tertiary care will be available to all RMI citizens. Such expectations cannot be met within the resources of a country that has a per capita income of less than \$2,000 per year. The total amount of health spending by Government (including the U.S. radiation victims program) is estimated at 4% of GDP. The total expenditure on health in the Financial Year 1999 amounted to \$12,612,906. Based on a population of 50,840 (1999 census), this represents \$248 per capita.

Funds available for the purchase of drugs have, historically, been in short supply and the current situation is no different. In FY 1999 only \$1,524,000 (12% of total health expenditure and \$30 per capita) was expended on drugs and there were frequent occasions when common basic drugs were not available.

The shortage of funds available for maintenance is particularly acute, especially since much of the medical equipment being used is beyond the end of its useful life, so high maintenance costs can be expected. Maintenance expenditure of \$54,000 to support 2 hospitals and over 60 Health Centers is inadequate. This represents less than half of one percent.¹²⁶

The demand for overseas referrals arising from unrealistic and unsustainable expectations of the medical care system has put considerable pressure on the health care budget. On average, one referral costs \$19,000 covering expenditures for transportation, lodging and medical treatment. During the years 2001 and 2002, 313 patients were referred to hospitals in Honolulu and Manila involving an expenditure of \$12,886,698 over these two fiscal years.¹⁵

Examples of Current Activities to Improve Access to Cancer Care

The aim of the RMI government is to provide equity of access to a satisfactory system that promotes good health at a low cost. The pursuit of these four objectives - good health, low cost, equity and satisfaction through the country's health system is constrained by the history, culture, and resources of the nation.¹²⁶

There has been a realization on the part of the government that the improvement of treatment and diagnostic facilities within the country will avoid some of the high referral costs. Over the last few years, a number of specialist doctors have been added to Majuro hospital's staff and diagnostic facilities are getting a boost with the services of the anesthetist and pathologist and new equipment. This has already resulted in a decline of off-island referrals. As a result of these improvements, in 2004 there was only \$2,469,118 spent for 95 cases on overseas referrals. Needed equipment like a CT Scanner and other necessary laboratory equipment for various departments have been purchased and installed at the Majuro Hospital and this will help reduce the cost of overseas referrals even further.¹⁵

Existing Cancer-related Programs with Capacity to Support NCCCP

Existing Cancer-related programs	Capacity and Infrastructure to Support Proposed Program
Maternal/Child Health & Family Planning Programs	Provides pap smears and STI checks (including HPV) to every woman presenting for a prenatal clinic.
	Collects 25-30 pap smears and STI screenings each week from women who attend prenatal (routine), gynecology, family planning, and outpatient clinics.
	Statistics show sexual activity often begins as early as 12-13 years of age in RMI, meaning pap smear/STI screening should begin by 15-16 years of age.
Immunization Program	Required immunizations currently include Hepatitis A and B.
	Dialogue is currently in progress to develop a proposal requesting a donated/reduced cost HPV immunization program for teen girls from Merck & Co pharmaceuticals.
Human Services Program	Provides social, welfare and human support services to improve the quality of life by decreasing the incidence of alcohol abuse, reducing the percentage of stores selling alcohol and tobacco to children, implementing a substance abuse program, increasing vocational rehabilitation for disabled persons, and establishing women’s support groups.
Public Health	Mobile teams go to the communities to provide primary health services to the rural areas and outer islands and are an important facet of NCCCP
Outer Islands Community Health Centers	Make health services accessible to people of the outer islands by improving health service delivery and outreach services within and to outer island community health centers.
Dental program	Conducts preventive health programs and screening for oral cancers and pre-cancerous lesions, and increasing the number of regular dental check-ups.
Nutrition Program	Improve the nutritional status of the Marshall Islands, increase consumption of healthier foods, improve nutritional status of high-risk groups and increase awareness of food safety.
	A pilot Wellness Center project, focused on diabetes, is thriving and has demonstrated the great need for and interest in nutrition and physical exercise programs. Plans include high-risk cancer referrals for nutrition and physical activity training.
Health Promotions	Collaborates with all programs within the MOH strategic plan to provide health promotion support and education materials for outreach and activities
Laboratory	Capacity to process an extensive panel of blood tests related to cancer diagnosis and surveillance, including thyroid function tests, hormonal assays involved in pituitary or gonadal cancers, CA124 (for ovarian cancer), hepatitis B serology, prostate-specific antigen (PSA), and AFP (an indicator for risk of liver cancer).
Radiology	The radiology department at Majuro Hospital is well-equipped, enhancing our ability to utilize mammogram, CT Scan and ultrasound machines, enabling improved screening and early detection
Overseas Referrals	Reduce the annual number of overseas referrals by strengthening the capacity of local staff and obtaining needed equipment.
	Cancer treatment must be referred off-island as RMI does not have the capacity to provide chemotherapy or radiotherapy
	Due to prohibitive costs, late-stage cancer cases that only require palliative treatment and any cases with a five year survival rate of less than 50% are “excluded medical conditions,” meaning they are not eligible for approved off-island medical referrals, emergency off-island medical care, or supplemental medical care.
	In the absence of hospice facilities, cancer patients live at home in the care of their families; there is a great need for training and counseling for the family members who serve as caregivers.
	NCCCP has organized a Support Team composed of medical staff, faith-based leaders, counselors, traditional healers, cancer survivors and others to offer support and encouragement during these difficult days.

Gaps

It is difficult to assess the health status of the people of the Marshall Islands due to a lack of adequate and reliable data. Great distances between atolls, cultural factors, communication difficulties and administrative challenges constrain the collection and transmission of reliable data. Only a broad assessment can be made on the basis of the mortality estimates the population census. On this basis it can be inferred that there has been a marked improvement in the health status of the population over the past decade.

Marshall Islands offers a comprehensive and reasonably affordable Supplemental Health Care Package, which enables members to access approved medical facilities in Hawaii and Philippines. Plan members may access services such as routine doctors visits not covered under the Basic Health Plan. The Supplement is funded exclusively by member premiums. It is open to all residents of the Marshall Islands and Marshallese working as Foreign Mission employees. However, due to prohibitive costs, late-stage cancer cases that only require palliative treatment and any cases with a five year survival rate of less than 50% based on current medical statistics and experiences in the Republic are “excluded medical conditions” under MIRC Title 7, Chapter 2, meaning they are not eligible for approved off-island medical referrals, emergency off-island medical care, or supplemental medical care.¹⁶

Improving access to health care in rural communities is one of the top priorities of the Marshall Islands Ministry of Health. Cancer care resources are concentrated in urban areas creating a distance barrier for those individuals living in outer island communities. These patients must travel by plane or boat and reside in the district center for the duration of their treatment. In addition, many cancer patients may be physically unable to travel the long distance in order to access needed services.

Quality of Cancer Care

Quality of Cancer Care in Marshall Islands

The President’s Advisory Commission on Consumer Protection and Quality in the Health Care Industry noted that there is a large need for coordination of quality-of-care efforts and, therefore, encourages that issues related to quality of cancer care be addressed at the state and national levels. The commission’s recommendations included the development of broad national aims with specific measurable objectives for quality improvement and the development and use of standardized sets of quality indicators in all sectors of the health care system.⁹³

The indicators of quality cancer care are continually changing as knowledge and technology improve, making it difficult to assess quality specific to cancer care. However, according to the National Cancer Policy Board (NCPB), the highest quality of care, including care known to be effective for specific conditions, is not provided to all cancer patients. The magnitude of the problem is not known at the national or local level, but is thought to be significant.

Disparities in the Quality of Cancer Care

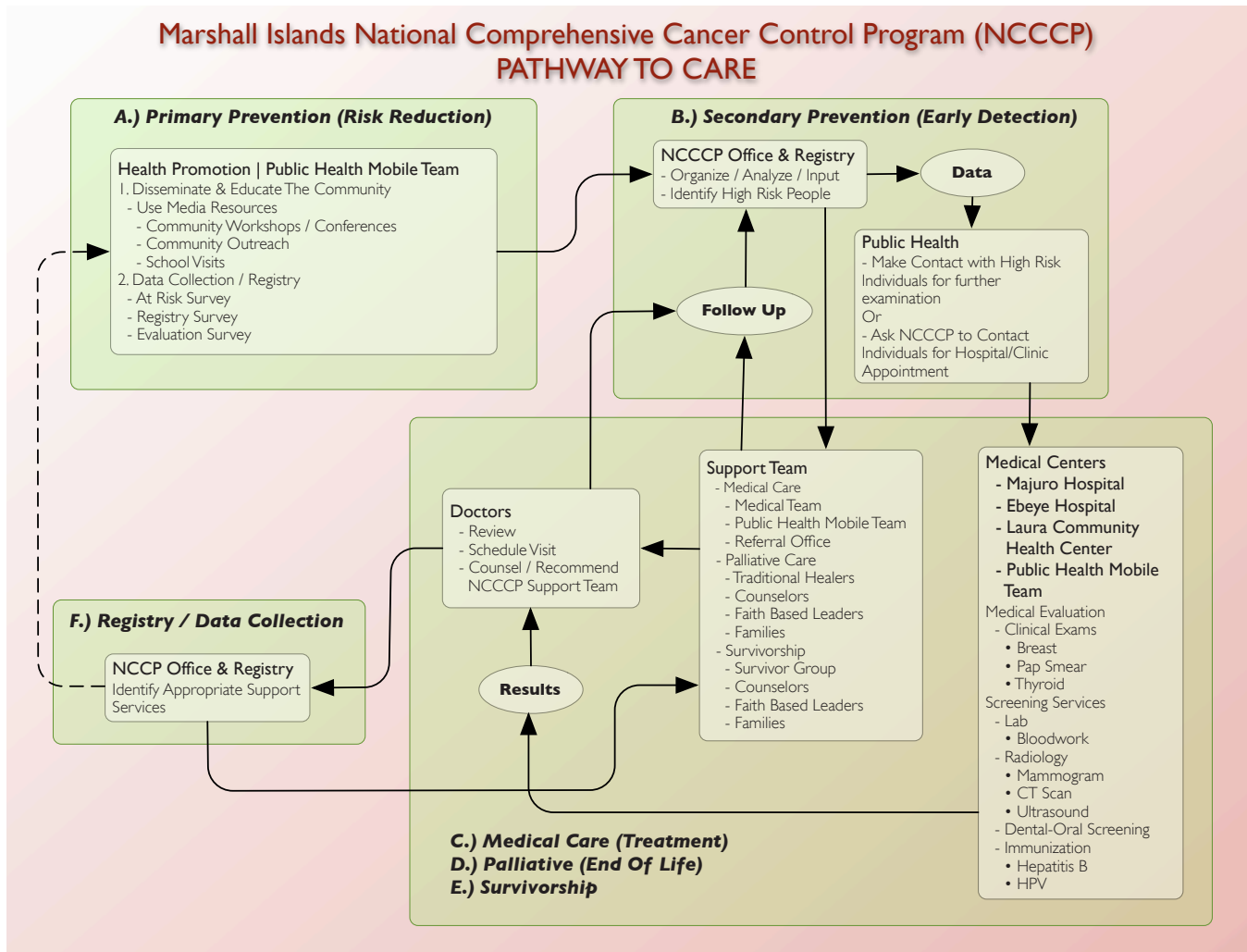
Disparities in quality of care have been noted in many studies. In general, people in racial and ethnic minority groups and people with lower income having poorer outcomes. Most Marshallese fall into both of these categories; however, data specific to Marshall Islands is limited.

Pathway to Care

The RMI Ministry of Health and NCCCP staff facilitate the coordination of services across health providers at the primary, secondary and tertiary levels. The NCCCP helps bring the various providers and consumer organizations together to ensure effective communication, cooperation and the integration of services addressing the full continuum of cancer care. Together they create a mechanism for organizations and communities to work with each other to plan and coordinate services in line with our NCCCP Plan, and will provide accessibility through the “Pathway to Care.”

Gaps

A critical obstacle faced by the cancer care community is that improvement in quality of care issues is difficult to assess in the absence of data. The RMI National Cancer Registry has the potential to increase assessment capabilities, however this resource has been in existence for only a year. There is a need for studies focusing on the reasons high-quality care is not consistently delivered and on the patient-to-patient variability of appropriate standards.⁹⁴



Goal 8: Improve access to and quality of cancer care provided in Marshall Islands.

Objective 8.1: By 2013, reduce financial barriers to cancer care.

Baseline/Data Source: To be determined

Strategies:

- Include cancer medical and palliative care in the Supplemental Health Care Package
- Develop surveillance tools to update baseline data

Objective 8.2: By 2013, reduce geographic barriers to cancer care.

Baseline/Data Source: To be determined.

Strategies:

- Extend improved cancer care to rural and other geographically underserved areas.
- Assess medically underserved areas to identify whether there is an insufficiency of cancer care.
- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Increase incentives to practice in medically underserved areas.
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns to help communities coordinate, promote, and support community-based programs, including patient navigator programs that help people obtain cancer information, screening, treatment, and supportive services.
 - Work with Coalition Members to promote and disseminate public education and awareness in community
- Increase numbers/ frequency on mobile teams to outer islands

- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 8.3: By 2013, reduce cultural and educational barriers to cancer care.

Baseline/Data Source: To be tabulated from DHS survey when it is complete.

Strategies:

- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns
 - Work with Coalition Members to promote and disseminate public education and awareness in community
- Enhance cultural competency of health care providers.
- Ensure appropriate translation and interpreter services are provided for all who need it.
- Promote framework for ethical decision-making on information and service provision.
- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Promote educational standards for cancer awareness and literacy in medical educational systems.
- Encourage minorities and members of other underserved populations to enter cancer care professions.
- Promote responsible, accurate, and balanced media coverage of cancer-related issues.
- Use innovative and culturally relevant approaches to reach minority and medically underserved communities.

- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 8.4: Establish a Pathway to Care (PTC) to ensure timely and coordinated cancer care with Majuro Hospital and off island care facilities.

Baseline/Data Source: To be determined

Strategies:

- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Collaborate with MOH to create a cancer patient tracking system that provides a coordinator for all cancer patients.
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns to introduce the Pathway to Care and how to navigate through it
 - Work with Coalition Members to promote and disseminate public education and awareness in community
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 8.5: By 2013, increase the ability of cancer patients to make informed decisions regarding their care.

Baseline/Data Source: To be determined

Strategies:

- Provide training/certification opportunities for medical workforce to upgrade/update their skills.

- Encourage medical care providers to define a process to assist all patients in understanding their care options (i.e., patient navigator).
- Encourage medical care providers to develop and disseminate information on navigating the cancer care system that is geared especially toward those with special needs (e.g., low medical literacy).
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 8.6: By 2013, improve cancer care coordination and delivery.

Baseline/Data Source: To be determined

Strategies:

- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Encourage consultation between the medical care team and patient to identify an individual designated as responsible for coordinating care at any point in time during the course of treatment.
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 8.7: Ensure physicians are well informed of new cancer care treatment information as they become available.

Baseline/Data Source: To be determined

Strategies:

- Collaborate with MOH to secure funds to ensure up to date continuing medical education for

physicians and healthcare workers.

- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- The Pacific Regional Comprehensive Cancer Control Plan will establish a set of Minimal Regional Standards for medical education and training that each Pacific jurisdiction has agreed upon.
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 8.8: By 2013, increase access to nationally recognized treatment guidelines among health care providers.

Baseline/Data Source: To be determined

Strategies:

- Develop national standardized treatment guidelines
- Establish a website to provide links to online information that provides current evidence-based cancer treatment guidelines.
- Utilize the NCI Physician Data Query to provide links to online cancer information.
- Encourage medical care organizations to promote the development of ongoing educational programs for all levels of cancer care providers that address best practices in screening, diagnosis, and treatment.
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 8.9: By 2013, improve recognized quality of standardized care practices among medical care organizations.

Baseline/Data Source: To be determined

Strategies:

- Promote the provision of all primary cancer care by physicians and other caregivers who are affiliated with an accredited program.
- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- The Pacific Regional Comprehensive Cancer Control Plan will establish a set of Minimal Regional Standards for medical education and training that each Pacific jurisdiction has agreed upon.
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 8.10: Supplement Western treatment methods with traditional Marshallese medicine.

Baseline/Data Source: To be determined

Strategies:

- Work to create dialogue between local healers and cancer care coordinators to ensure safe and holistic care of the patient.
- Educate patients and care givers about informing doctors of traditional medicines being administered
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries

- Develop surveillance tools to update baseline data

Objective 8.11: Provide counseling for family members of patients to provide information about the cancer and the treatment.

Baseline/Data Source: To be determined

Strategies:

- Train cancer care coordinators to work with family members, and especially children of patients, to provide information and counseling before, during, and after treatment.
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 8.12: Provide training, supplies, and support to Outer Island Health Centers and health assistants. Increase in number of outer island health assistants and Health Centers capable of addressing cancer burden by increasing awareness and increasing screening by.

Baseline/Data Source: To be determined

Strategies:

- Partner with MOH Outer Island Health Program to ensure necessary workshops, equipment, and supplies are given to outer island health assistants.
- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Training HQ will be located in Majuro and will train Ebeye program to train other outer atoll health assistants.
 - o Majuro will be responsible for training and maintaining cancer education on

Jabot, Alinglaplap, Arno, Mili, Namorik, Ebon, Jaluit, Kili, Mejit, Wotje, Maloelap, Erikub, Likiep, Jemo, Ailuk, and Aur.

- o Whereas Ebeye will be responsible for training and maintaining cancer education on Namu, Lip, Ujae, Lae, Bikini, Woto, Ujelang Enewetok, and Utirik.

- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Survivorship

Because of advances in early detection and treatment, cancer has become a curable disease for some and a chronic illness for others. Increases in the number of persons surviving for longer periods after a diagnosis of cancer have resulted from 1) earlier diagnoses through increased screening, 2) more effective treatment, 3) prevention of secondary disease and cancer recurrence, and 4) decreases in mortality from other causes. This increase has led to a broader definition for cancer survivors. Cancer survivors are people who have been diagnosed with cancer and those who are affected by the diagnosis, including family members, friends, and caregivers.

Major advances in cancer prevention, early detection and treatment have resulted in longer survival. However, surviving cancer can leave a host of problems in its wake. Physical, emotional, and financial hardships often persist for years after diagnosis and treatment. Survivors may face many challenges including access to cancer specialists and promising new treatments, denial of health and life insurance coverage, financial hardships long after the initial diagnosis and treatment, employment problems, psychological struggles and the strain on personal relationships and the profound fear of recurrence. However, cancer survivors can live active, productive lives even though they still face many challenges.

Survivorship is a unique journey for each person. There is no single prescription for good survivorship. A cancer diagnosis often leads to a change in priorities. Relationships, as a source of happiness, take on greater meaning. Many make lifestyle changes or modify their goals. Survivors speak of a greater appreciation of life, a greater acceptance of self, and, for many, spiritual growth.

Cancer survivorship is a day-to-day, ongoing process that begins with diagnosis and continues through the rest life. Surviving cancer is more complicated than simply being sick or well, having cancer or being cancer-free. Instead, it is a continual process that is constantly changing.

A comprehensive cancer program supports and promotes research that examines and addresses the long- and short-term effects of cancer and its treatment. These include physical, psychological, social, and economic effects among pediatric and adult survivors and their families. Survivorship research focuses on the physical, emotional, social, and financial outcomes, beyond the treatment phase, and seeks to optimize the health and wellbeing of persons living with a history of cancer. Survivorship research also seeks to provide a knowledge base regarding optimal follow-up care and surveillance of new or recurrent cancers.

Goal 9: Ensure the provision of adequate, culturally appropriate support for cancer survivors.

Objective 9.1: Establish a cancer care follow-up system to monitor patients through survivorship to minimize recurrences, detect secondary cancers early, and ensure maximum years of quality of life.

Baseline/Data Source: To be determined

Strategies:

- Collaborate with MOH to train cancer care coordinators in survivorship monitoring and care.
- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Increase in number of quality years of life for cancer survivors.
- Patient questionnaires
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns to illustrate how survivorship programs integrate into PTC
 - o Work with Coalition Members to promote and disseminate public education and awareness in community

- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 9.2: Establish a cancer survivors group or network.

Baseline/Data Source: To be determined

Strategies:

- Work in partnership with cancer survivors, local community groups, women's groups, church groups, and MOH to create a cancer survivors group or network.
- Increase in amount number of cancer survivors who can find confidence and empathy in others and thus increase the number of quality years of life.
- Monthly attendance audit of survivors group.
- Work with Health Promotion staff to develop and disseminate effective, appropriate, and culturally and linguistically relevant public awareness campaigns about cancer survivors group/network
- Work with Coalition Members to promote and disseminate public education and awareness in community
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Psychosocial Services, Palliative Care, and End-of-Life Care

The field of palliative care, once largely confined to providing comfort to the dying, has broadened to include the physical, social, psychological, and spiritual aspects of coping with cancer over the entire continuum of cancer care. This change in perspective is due to medical advances that have resulted in more people experiencing cancer as a chronic disease.

Cancer is a chronic disease with an insidious onset and an unpredictable course of indefinite duration. The disease has sustained a strong negative stigma for decades. An individual's adaptation after a diagnosis of cancer is influenced by biological, environmental, social, cultural and psychological components.

A diagnosis of cancer and its subsequent treatment can have a devastating impact on the quality of a person's life, as well as on the lives of families and other carers. Patients face new fears and uncertainties and may have to undergo unpleasant and debilitating treatments. They and their families and carers need access to support from the time that cancer is first suspected, through all stages of treatment to recovery or death and bereavement.

Accessible, high quality psychosocial services, palliative care and end-of-life care are related and integral components of a comprehensive cancer control plan. There must be an ongoing and evolving effort to guarantee patient-centered care with quality of life at its core, especially in supportive and palliative care.

Psychosocial Services

Psychosocial cancer care services provide education and support for patients and family members following a diagnosis of cancer. Emotional responses to cancer diagnosis vary and therefore a variety of services including support groups, spiritual care, and psycho-oncology counseling for patients and their family members are important

aspects of cancer care. Financial counseling and social work may also be appropriate.

Psychological distress is common among people affected by cancer and is an understandable and natural response to a traumatic and threatening situation. Patients, at every stage of the Pathway to Care, find themselves dealing with difficult and distressing issues. They can develop problems ranging from sadness or worry to psychological symptoms sufficiently intense to interfere with their ability to function on a day-to-day basis.

Psychological support services assess and help patients with psychological problems of all types and levels of severity, including anxiety, depression, problems with personal relationships, and alcohol and drug-related problems. The psychological needs of the patient should be assessed on a regular basis throughout the Pathway to Care, with attention given to those points known to be particularly challenging, such as around the time of diagnosis, as treatment ends and at recurrence.

Palliative Care

Palliative care helps a person have the best possible quality of life as his or her cancer progresses, through the prevention and relief of suffering by means of early identification and assessment and treatment of pain and other problems, physical, psychosocial and spiritual. The focus of palliative care is not on dying. Instead the focus is on living each remaining day as fully as possible.

Palliative care is based on a number of principles, and aims to provide relief from pain and other distressing symptoms, integrate the psychological and spiritual aspects of patient care, and offer a support system to help patients to live as actively as possible until death and to help the family to cope during the patient's illness and in their own bereavement. Palliative care should be applied early in the course of illness in conjunction with other therapies intended to prolong life (such as chemotherapy or radiation therapy), including investigations to better understand and manage

distressing clinical complications.

A diagnosis of cancer and its subsequent treatment can have a devastating impact on the quality of a person's life. From the moment someone is diagnosed with cancer, their world is very much changed. Their priorities change and their principal concern is to obtain treatment quickly. Although people are living longer than ever with cancer, diagnosis can bring great anxiety and a sense of loss of control. This means that patients and their families need good information and a lot of support. These needs start with the first thought of cancer, and continue when people go for tests, get a firm diagnosis, have treatment and find themselves living with the impact of the disease. The need for support can become even greater if a person is close to death or, for families and other care-givers, if someone has died.

Palliative care involves a partnership between the person who has cancer, his or her family and friends, and the members of the health care team, which may include the services of a doctor, nurse, social worker, counselor and spiritual advisor. It is about providing support, through the Pathway to Care, at all stages of a person's experience with cancer. Palliative care helping patients and their families cope with cancer and its treatment, and alleviating pain and discomfort to improve a person's quality of life when it's not possible to cure the cancer.

Patients, families and other care-givers should play the central role in making decisions about the care they receive. They may need support from health and social care professionals to help them to make decisions, to plan and evaluate their care, and to explore whether earlier decisions might need to be changed. User empowerment must therefore underpin supportive palliative care. Not all patients have close family and care givers, however. Health and social care professionals should be sensitive to the needs of patients and be prepared to encourage their potential to contribute to their own care.

Studies have consistently shown that, in addition

to receiving the best treatments, patients want to be treated as individuals, with dignity and respect, and to have their voices heard in decisions about treatment and care. Most patients want detailed information about their condition, possible treatments and services. Good face-to-face communication is highly valued. Patients expect services to be of high quality and to be well coordinated. Should they need it, they expect to be offered optimal symptom control and psychological, social and spiritual support. They wish to be enabled to die in the place of their choice, often their own home. They want to be assured that their families will receive support during their illness and, if they die, following bereavement.

End-of-Life Care

Despite progress in cancer care, many cancer patients will not survive their disease. When a person's cancer can no longer be controlled, cancer treatment often stops. But the care continues with a new focus: making the patient as comfortable as possible and providing emotional support. A focus on quality of life and community-based supportive care, rather than cure, is appropriate at this time.

In the Marshall Islands, most patients return home during this time, due to the lack of hospice or other care facilities. However, caring for the incurable and the dying is an important part of the NCCCP plan. The Pathway to Care health care workforce must remain integral participants in patient care throughout the dying process. And we must expand our capacity and overcome the challenges facing us in the delivery of adequate quality end-of-life care.

Barriers to more effective end-of life care are common and varied. They range from a reluctance to discuss death, to the denial of grief stricken family members, to societal attitudes on dying. Health care practitioners need further training to become more comfortable and effective in managing care at the end-of-life. Most doctors report competency in managing symptoms such as pain, nausea, and constipation, but are less confident

in handling depression and anxiety associated with death. Unrealistic patient and family expectations often formed a barrier to better palliative care, more so than most structural barriers. Family members often serve as the primary providers for dying patients, and therefore the role of compassion, honesty, and integrity for physicians in discussing death with patients and their families cannot be overstated.

People seek end-of life care that is compassionate, holistic and sensitive to the whole person's needs. But because of limited resources and money, NCCCP is constrained to deliver the best care we can for our population suffering with a diagnosis of cancer. With improved care and treatments, more people will live longer and feel better while trying to get the most out of the last few weeks, months, and years of life.

NCCCP is dedicated to promoting better end-of-life care through awareness, information, better healing processes, and a strong movement for mind-and-body care. Total patient care takes awareness, understanding, healing and thoughtful consideration of the needs of the patient, family, and friends to help put together a total patient Pathway to Care. Family caregivers play a vital role in providing palliative and end-of-life care. This is particularly evident for patients with advanced cancer who are dying at home. While much attention is given to the burdens of care giving, little has been given to the positive aspects of the care giving experience and on those factors that facilitate positive family caregiver coping. It is our hope that by promoting better end-of-life care, we can ease suffering and provide better comfort for those entering into this last phase of life.

Goal 10: Ensure the provision of adequate, culturally appropriate psychosocial services, palliative care and end-of-life care starting from diagnosis throughout the continuum of care.

Objective 10.1: By 2013, increase awareness of the need for and value of psychosocial services.

Baseline/Data Source: To be determined

Strategies:

- Promote demonstration projects to assess the value of psychosocial services.
- Educate individuals – patients, physicians, and caregivers – on issues related to psychosocial services.
- Educate organizations – public and private payers, government, and employers – on issues related to psychosocial services.
- Conduct a public media campaign addressing psychosocial services.
- Involve community, faith-based and women’s groups in counselor training
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 10.2: By 2013, increase the availability and utilization of psychosocial services.

Baseline/Data Source: To be determined

Strategies:

- Assess current geographic availability and provider capacity.
- Work with Regional CCC Program to create a clearinghouse of information on available services nationwide.
- Review license and certification regulations for providers of psychosocial services.

- Promote utilization of available services.
- Involve community, faith-based and women’s groups in counselor training
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 10.3: By 2013, establish palliative care services

Baseline/Data Source: To be determined

Strategies:

- Develop national standardized guidelines for palliative care
- Assess and promote best practices for removing barriers (e.g., medical, political, economic, and social).
- Assess current geographic availability and provider capacity.
- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Work with Regional CCC Program to create a clearinghouse of information on available services nationwide.
- Increase awareness and promote utilization of available services.
- Educate providers about effective pain management procedures.
- Educate patients about effective pain management
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries

- Develop surveillance tools to update baseline data

Objective 10.4: Insure all cancer patients are provided with an adequate amount of pain management medication and therapy to improve comfort and quality of life.

Baseline/Data Source:

- Demerol, Tylenol with codeine, and Morphine are available in pills and shots.

Strategies:

- Work with physicians to ensure patients are receiving appropriate and sufficient pain management to include medications and additional therapies including traditional medicine.
- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Develop anonymous pain surveys
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 10.5: All necessary health care personnel will be trained on the proper and most up to date methods of providing palliative care to cancer patients. By 2013, increase in number of health care personnel trained in palliative care.

Baseline/Data Source: To be determined

Strategies:

- Work with MOH to send all necessary health care personnel to either off island workshops on palliative care or use outside consultant to provide training.
- Provide training/certification opportunities for

medical workforce, traditional healers, faith-based and community volunteers, family members and other caregivers to upgrade/update their skills.

- The Pacific Regional Comprehensive Cancer Control Plan will establish a set of Minimal Regional Standards for pain management training that each Pacific jurisdiction has agreed upon.
- Develop Patient questionnaire
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 10.6: Improve emotional wellbeing of cancer patients and their family members providing care end of life care from home. Provide counseling for family members and terminal cancer patients after end of life.

Baseline/Data Source: To be determined

Strategies:

- Establish care team comprised of a nurse, a faith-based leader, a traditional healer, and a counselor to provide support and end of life care for patients and family members.
- Provide training/certification opportunities for medical workforce to upgrade/update their skills.
- Number of patients wishing to spend end of life in home setting under family care increased.
- Patient and family questionnaire
- Work in partnership with faith-based leaders and hospital counseling services to provide necessary support and counseling for families preparing for death and those grieving a loss.
- Help alleviate patient worry concerning family members and thus increase in quality time of life

for terminal cancer patients.

- Follow-up visits with family members
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 10.7: By 2013, establish standards for end-of-life care.

Baseline/Data Source: To be determined

Strategies:

- Develop national standardized guidelines for end-of-life care options.
- Improve the provision of advanced directive services.
- Educate providers about strategies for discussing end-of-life care with cancer patients and their families.
- Educate providers, care givers and family members about effective pain management procedures.
- The Pacific Regional Comprehensive Cancer Control Plan will establish a set of Minimal Regional Standards for end-of-life care objectives that each Pacific jurisdiction has agreed upon.
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Integrating Complementary Therapy into Cancer Care

The terms "alternative" or "complementary" are used to refer to non-traditional methods of diagnosing, preventing, or treating cancer. These methods focus on the mind, body, and spirit. They do not take the place of medical therapies, but complement them. Most people with cancer who use complementary medicine don't expect the treatments to cure their cancer. They can reduce stress, treat the pain associated with their cancer and control the side effects of treatment, such as nausea and weakness, and enhance wellbeing. Another important aspect is that they help the patient feel more in control.

There are many complementary methods that can safely be used along with standard treatment to help relieve symptoms or side effects, to ease pain, and to help the person enjoy life more. Examples might include meditation to reduce stress, peppermint tea for nausea, acupuncture for chronic back pain, massage therapy, yoga, and meditation. The best approach is to carefully evaluate all choices and discuss them with the health care team before beginning any alternative method.

In the absence of hospice care and with limited pharmaceutical pain management options, the majority of Marshallese adults with cancer utilize alternative therapies, including massage, spiritual therapy, and other traditional healing practices.

Goal 11: Ensure the opportunity for safe and effective use of traditional complementary medicine in cancer care.

Objective 11.1: By 2013, increase patient, provider, and institutional awareness of available complementary cancer therapies.

Baseline/Data Source: To be determined

Strategies:

- Provide training/certification opportunities for

medical workforce to upgrade/update their skills.

- Educate allopathic/osteopathic medical providers on the potential contribution of complementary therapies in cancer care.
- Educate patients on the potential harm associated with self-prescribed care.
- Educate allopathic/osteopathic medical providers and patients about the difference between licensed and unlicensed naturopathic providers.
- Establish a method that will enable allopathic/osteopathic providers and patients to easily identify and access licensed naturopathic providers and other licensed or certified complementary care providers.
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Cancer Registry

Surveillance and Data Collection

Cancer has consistently been one of the top five leading causes of death. However, serious qualitative and quantitative data deficiencies make accurate cancer data currently unavailable. The National Registry is in its infancy and has requested additional training in epidemiology, biostatistics, ICD-10 coding and SAS software to better analyze data. Obtaining reports from the widespread, isolated outer islands is a challenge, and protocol must be streamlined to facilitate transfer of information between various offices.

The first two years of grant funding will support and strengthen the Cancer Registry by determining baseline data, performance measures, outcomes, and lessons learned to adapt programs and interventions to the needs of specific communities. In the absence of empirical evidence of what works, it is necessary to plan interventions based on what is logical and is compatible with available resources and community aspirations.

Examples of Current Activities to Improve

The Cancer Registry Act has been drafted and was submitted to the Cabinet in July 2008. It will be introduced in the Nitijela (National Parliament) during its January 2009 Session. The NCCCCP Cancer Registrar is confident that this ACT will improve reporting of cancer cases to the Cancer Registry.

The Data Exchange Agreement Document was signed by the Directors or Ministers of Health of each jurisdiction during the Pacific Islands Health Officers Association (PIHOA) meeting which was

hosted by Marshall Islands January 19-22, 2009.

The RMI Cancer Registry is linked to the Regional Central Cancer Registry, which is located in Guam. University of Guam, University of Hawaii, CDC and the Hawaii Tumor Registry facilitate and provide technical assistant and registry training. RMI's NCCCCP Cancer Registrar attended her first training on the Abstract plus database in April 2008. Another training will be conducted in March 2009.

Gaps

It is likely that the number of cancer cases in RMI is higher than what has actually been reported. The reasons for this are two-fold:

1. Problems associated with Cancer Diagnosis

Definitive cancer diagnosis is made only thru Histo-Pathological confirmation either on tissue samples taken from patients or from Autopsy specimens. While autopsies are not performed at all in either of the two major urban health care centers, tissue sampling in RMI is limited due to following reasons,

- a) Limitation of instruments and equipments available for tissue sampling. Ex: Biopsies of suspected Liver or Lung lesions are NOT done due to lack of needles, Bronchoscopy, US scan guidance, training for physicians etc...Majority of tissue biopsies are limited to Fine Needle Aspiration Biopsies, Incision Biopsies and Excision biopsies that are surgically accessible in superficial lesions or intra-

operative lesions such as in Laparotomy.

- b) Late presentations of patients who are not fit or most often NOT willing to undergo a surgical procedure to obtain tissue samples
- c) A staff pathologist conducts histopathology, cytology and autopsy pathology. However, an autopsy is performed for only two reasons:
 - a. An unknown cause of death - when a person dies outside of the hospital and the cause of death cannot be determined (i.e. drowning, car accidents, murder and so forth). This type of autopsy is performed only upon police request.
 - b. To determine the extent of a disease - the doctor has the legal right to request an autopsy for an uncertain diagnosis (i.e. a biopsy from a tumor showed no cancerous cells, however the patient died). The doctor can request an autopsy to determine the extent of the disease and its primary cause.

Consequently, causes of death are commonly unknown contributing to incomplete and inaccurate mortality statistics.

2. Problems associated with Cancer Reporting

Cancer reporting was not compulsory at Majuro Hospital until a policy decision in late 2005. Before that date, data on cancer cases ended up in multiple end points including Nuclear Claims Tribunal, off-island medical referral office, hospital medical records database and Health Planners office at the Ministry of Health. Now all suspected or diagnosed cases of cancers are reported to NCCCP Office and incidence and

prevalence data is compiled both prospectively as well as retrospectively.

Lack of surveillance expertise is one of the primary challenges. There are serious data deficiencies in key areas pertaining to the situation of cancer in terms of both quantitative and qualitative information. This leads to assertions based on perceptions and anecdotes rather than on evidence, which can result in scarce resources being misdirected and wasted. Surveillance is needed to assess the magnitude cancer in our community, to obtain information on behaviors, which put persons at increased risk of acquiring cancer, and to monitor changes in high-risk behaviors over time.

The Cancer Registry assesses need, develops strategies and recommendations to report statistics on cancer and associated high-risk behaviors, and helps strengthen data management processes for cancer; with particular emphasis on improving baseline data collection and more rigorous monitoring and reporting of performance based outcomes by all health promotion and education focused agencies. The framework of our surveillance strategies is appropriate to our community and provides adequate information for planning and decision-making without expending more resources than are necessary.

There is a need for careful research over time to determine performance measures, outcomes, and lessons learned to adapt programs and interventions to the needs of specific communities. Surveillance guidelines must be practical and realistic. Complete documentation of all strategies, programs, initiatives, whether they be successful or not, is necessary to best plot our future course of action.

In the absence of empirical evidence of what works, it is necessary to plan interventions based on what makes sense and is compatible with available resources and community aspirations. An effective culturally and linguistically fitting surveillance system is being developed, which will assess need, develop strategies and recommendations to

report statistics on cancer and associated high-risk behaviors, and help strengthen data management processes for cancer; with particular emphasis on improving baseline data collection and more rigorous monitoring and reporting of performance based outcomes by all health promotion and medical agencies.

Data Collection: Data collection will occur via multiple complementary methods, including high-risk self-tests, pre/post surveys, parent/community surveys for cancer prevention training efforts, workshop/conference evaluation forms, key stakeholder interviews, focus groups and community-level data. Evaluation tools include measures of knowledge gained in facts concerning cancer prevention, high-risk indicators, where to receive cancer screening, information about local clinics for screening and counseling, and levels of understanding about health education and cancer prevention.

Community data sources will be used to monitor the impact of prevention efforts on cancer, referrals for testing, and related high-risk indicators. To collect the needed cancer surveillance data, the NCCCCP will partner with a variety of sources, Ministry of Education (Youth Risk Behavior Survey, Health Curriculum Specialist), Ministry of Internal Affairs (Outer Island Services, Children and Youth Services), U.S. Department of Health and Human Services and Centers for Disease Control and Prevention (National benchmarks). These data sources will be compiled with particular attention to trending in populations targeted by NCCCCP outreach efforts. It is expected that project efforts will decrease cancer risk factors and increase community awareness and understanding.

Goal 12: Improve data collection and establish quality baseline data

Objective 12.1: Expand national cancer registry.

Baseline/Data Source:

- The Cancer Registry Act will be introduced in the Nitijela (National Parliament) during its January 2009 Session, which will improve reporting of cancer cases to the Cancer Registry.
- The Data Exchange Agreement Document was signed by the Directors or Ministers of Health of each jurisdiction during the PIHOA meeting which was hosted by Marshall Islands January 19-22, 2009.
- The RMI Cancer Registry is linked to the Regional Central Cancer Registry, which is located in Guam.
- University of Guam, University of Hawaii, CDC and the Hawaii Tumor Registry facilitate and provide technical assistant and registry training.
- RMI's NCCCCP Cancer Registrar attended her first training on the Abstract plus database in April 2008. Another training will be conducted in March 2009. / NCCCCP Cancer Registrar

Strategies:

- Use CDC issued and Pacific Regional Comprehensive Cancer Control Plan recommended registry software and maintain training of current cancer registrar.
- Creation of accurate and meaningful cancer biostatistics for use to obtain future grants and monitor success of implemented program.
- The Pacific Regional Comprehensive Cancer Control Plan will establish a set of Minimal Regional Standards for national registry objectives that each Pacific jurisdiction has agreed upon.
- Make "Cancer or suspected Cancer" cases a reportable condition in RMI and require all HCPs

to report such cases to Cancer Registrar

- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 12.2: By 2013, improve the accessibility and utility of cancer registry data for quality assessment and improvement purposes.

Baseline/Data Source:

- The Cancer Registry Act will be introduced in the Nitijela (National Parliament) during its January 2009 Session, which will improve reporting of cancer cases to the Cancer Registry.
- RMI's NCCCCP Cancer Registrar attended her first training on the Abstract plus database in April 2008. Another training will be conducted in March 2009. / NCCCCP Cancer Registrar

Strategies:

- Identify data elements required to assess optimal patient care and outcomes.
- Identify the costs and barriers associated with the collection of such data.
- Establish and maintain an accessible online information system that provides information from the nationwide cancer registry, which has been identified by health care providers as most appropriate for their needs.
- Work with Pacific Regional Comprehensive Cancer Control Plan and Registry
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries

- Develop surveillance tools to update baseline data

Objective 12.3: By 2013, increase the capacity of the pathology department to conduct autopsies.

Baseline/Data Source: Number of Qualified Pathology Personnel

Strategies:

- Provide training/certification opportunities for medical workforce to identify and train a pathology assistant
- Procure additional pathology equipment and instruments
- Renovate Pathology Lab to meet current needs
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 12.4: By 2009, increase public and health workforce awareness on the importance of supporting the cancer registry

Baseline/Data Source:

- The Cancer Registry Act will be introduced in the Nitijela (National Parliament) during its January 2009 Session, which will improve reporting of cancer cases to the Cancer Registry / NCCCCP Cancer Registrar

Strategies:

- Conduct educational sessions on the importance of establishing and maintaining a cancer registry, the important role that each member of the health team plays (patients and health technicians) so that training and quality improvement activities are better accepted.

- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 12.5: By 2009, begin providing relevant foundational, health information management (HIM) and registry-specific training to appropriate personnel that would be involved in the flow of information to a cancer registry.

Baseline/Data Source:

- The Cancer Registry Act will be introduced in the Nitijela (National Parliament) during its January 2009 Session, which will improve reporting of cancer cases to the Cancer Registry.
- The Data Exchange Agreement Document was signed by the Directors or Ministers of Health of each jurisdiction during the PIHOA meeting which was hosted by Marshall Islands January 19-22, 2009.
- The RMI Cancer Registry is linked to the Regional Central Cancer Registry, which is located in Guam / NCCCP Cancer Registrar

Strategies:

- Work with the local community college and/or other experts to conduct basic foundational training in human anatomy, physiology, medical terminology, chart review and health record coding for the medical records personnel
- Work with National Bioterrorism, PIHOA Regional lab coordinator and/or other experts to conduct quality improvement training for hospital and public health staff and to develop data flow/management protocols
- Utilize the training modules from the CDC/NAACR website for medical records staff and

physicians.

- Utilize the WebPlus abstract fields in the development/modifications of existing HIM database
- Integrate new and existing programs into the NCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Objective 12.6: By 2010, establish a reliable in-country centralized cancer database which is linked to a Regional Central Cancer Registry.

Baseline/Data Source:

- The Cancer Registry Act will be introduced in the Nitijela (National Parliament) during its January 2009 Session, which will improve reporting of cancer cases to the Cancer Registry.
- The RMI Cancer Registry is linked to the Regional Central Cancer Registry, which is located in Guam.

Strategies:

- Hire an in-country data clerk/registrar (who would serve as the primary point of contact for the Regional Cancer Registry) and designate a lead medical records technician
- With the guidance of the USAPIN Regional Cancer Registry staff, establish formal data sharing agreements with referral hospitals and laboratories, and established Central Cancer Registries in Hawaii, Guam and Manila
- Develop policies and procedures to enhance reporting of cancer cases diagnosed in private hospital or clinicians
- Establish appropriate protocol and procedures to ensure accurate recording of risk factors, screening efforts/results, diagnostic work-up of

suspected and known cancer cases, treatment rendered, outcome of treatment, and other co-morbidities for all identified and suspect cancer patients.

- With the assistance of the Regional Cancer Registrar, develop a quality assurance program for verifying that information recorded in the registry is accurate
- Integrate new and existing programs into the NCCCCP Pathway to Care
- Coordinate data input/output with National and Regional Registries
- Develop surveillance tools to update baseline data

Evaluation

Data collected for evaluation will integrate with local evaluation domains as follows:

Key Evaluation Domains and Data Collection Elements		
Domain	Data Type/Instrument	Data Source
Demographic Information	Demographic data of target group (age, sex, domicile)	High-risk Self-test Survey, Registry Survey, Evaluation Survey
	Perceived benefits of mobile team outreaches, peer-to-peer education, school curriculum, conferences, workshops, multimedia components	High-risk Self-test Survey, Registry Survey, Evaluation Survey, Outreach & Activity reports, Coalition Focus Groups
Process Measures	Number of forums, workshops, training sessions, conferences or focal groups held; number of participants	Training logs/sign-in sheets, High-risk Self-test Survey, Registry Survey, Evaluation Survey, Outreach & Activity reports, Coalition Focus Groups
	Number of Mobile Team outreaches; number of target audience reached	Training logs/sign-in sheets; Program Director and Mobile Team Coordinator records, High-risk Self-test Survey, Registry Survey, Evaluation Survey,
	Number of cancer screening, referral, testing, counseling activities conducted	Training logs/sign-in sheets; trainer records; MOH intake records
	Number/Type of multi-media resources and materials developed; number disseminated	Archive copies of all resource materials; Program records; Distribution list
	Number of students and teachers who complete school cancer prevention curriculum	Teacher's class attendance records; Test scores reflecting comprehension
	Project barriers & associated solutions	High-risk Self-test Survey, Registry Survey, Evaluation Survey, Outreach & Activity reports; Minutes from project meetings; Summary of barriers analysis; Statistician reports
Outcome Measures	Target audience/ general community increased knowledge of cancer and relevant high-risk indicators	Training logs/sign-in sheets, High-risk Self-test Survey, Registry Survey, Evaluation Survey, Outreach & Activity reports, Coalition Focus Groups
	Target audience's increased knowledge and acceptance of NCCCCP and other available services	Training logs/sign-in sheets; High-risk Self-test Survey, Registry Survey, Evaluation Survey; Coalition Focus groups; Outreach & Activity reports
	Target audience's reporting positively about outcomes	High-risk Self-test Survey, Registry Survey, Evaluation Survey; Coalition Focus groups; Outreach & Activity reports
	Students' increased knowledge of cancer and relevant high risk-indicators, based on curriculum	Teacher's class attendance records; Test scores reflecting comprehension
	Use of evidence-based practices	Statistician
Impact Measures	Target audience's decreased involvement in high-risk behavior; change in behavior patterns	High-risk Self-test Survey, Registry Survey, Evaluation Survey; Coalition Focus groups; Outreach & Activity reports
	Target audience's increased access/ utilization of cancer testing and counseling services; number of persons served by age, gender and domicile	MOH intake records; Service utilization data; High-risk Self-test Survey, Registry Survey, Evaluation Survey; Coalition Focus groups
	Changes in baseline data over time	MOH intake records; Service utilization data; High-risk Self-test Survey, Registry Survey; Coalition Focus groups
	Coalition membership	Member listing; Key Informant Interviews

Data Analysis and Interpretation

Data Reporting: All NCCCP programs, activities and outreaches will require reports. Project Director and Evaluator will meet all federal reporting requirements, including detailed quarterly and six-month reports, annual reports, and other documentation as requested.

In addition to Ministry of Health efforts, we anticipate that research findings will be of interest to key stakeholders in the community, national policy, prevention, and research agencies. The NCCCP will provide review of evaluation plans and subsequent findings to ensure appropriate sensitivity to consumer and cultural issues.

Documenting Lessons, Barriers, & Suggested

Improvements: The Ministry of Health staff, NCCCP staff and Coalition members have extensive experience with similar projects and know that project implementation occasionally deviates from the initial plan. External circumstances change, unanticipated challenges occur, staff come and go, new opportunities arise, and project success typically depends on quickly identifying and responding to barriers and opportunities. One of the most important aspects of the evaluation plan is, therefore, to document lessons learned, barriers encountered, strategies used to overcome those barriers, their effectiveness, and how these findings should shape future efforts at cancer prevention.

To facilitate reporting of barriers, opportunities, and even minor changes to planned project implementation, the Evaluator shall work collaboratively with the Project Director, notifying the Program Officer to gain approval for any changes to project objectives and activities specified in the NCCCP Work-plan. Project progress toward stated measures will be monitored continuously and reported no less than quarterly. Every deviation from a project objectives will be documented, barriers identified, and solutions generated. Each barrier will then be tracked to document whether the proposed solutions achieve success. Progress

reports on barriers will be completed no less than monthly, and more frequently as needed, as rapid response is paramount on a time-limited project such as the CDC NCCCP grant. All barriers and solutions generated through this process will be reported to the Ministry of Health and key Coalition stakeholders to facilitate dissemination of strategies to learn from successful (and unsuccessful) experiences.

Summarizing Findings In Interim Reports and

Annual Performance Report: Interim reports will be organized according to project objectives and activities as specified in the NCCCP Work-plan. Where possible, each objective and activity has specific, measurable performance benchmarks that indicate success or failure. Regular progress reports will be organized into distinct sections, 1) identifying each objective and activity, 2) listing the proposed timeline for that objective, 3) reporting on progress toward the objective, and 4) any barriers/solutions relevant to that objective. These reports will be made available to the Ministry of Health no less than quarterly, or as otherwise required.

The Annual Performance Report will use a similar structural format; however, it will further summarize evaluation findings and project accomplishments for the entire grant period. The final project report will identify achievement of specific project objectives and activities, factors leading to deviations, barriers/solutions encountered, and list all significant project activities from implementation to closure to facilitate understanding and future replication of project efforts.

Appendices

Appendix A: Ministry of Health Fifteen-Year Strategic Plan (2001-2015)

**Appendix B: Comprehensive Cancer Control Coalition
Executive Committee
Cancer Plan Editors & Writers**

**Appendix C: 2002 RMI/WHO STEPwise NCD Risk Factor Survey
Description of the Sample
Survey Sample Characteristics**

Appendix A: Ministry of Health Fifteen-Year Strategic Plan (2001-2015)

This Strategic Plan, for the period 2001 to 2015, has been created internally within the Ministry of Health. The content and scope has been determined by Divisional Managers, Project Managers and Section Heads, This Strategic Plan, for the period 2001 to 2015, has been created internally within the Ministry of Health. The content and scope has been determined by Divisional Managers, Project Managers and Section Heads, in consultation with individual staff members. It has been overseen by a Steering Committee, chaired by the Secretary of Health and comprising Assistant Secretaries and other senior staff members. It is genuinely a plan created by those who will be required to put it into effect.

The Plan is based upon the Mission Statement of the Ministry of Health and Environment of the Republic of the Marshall Islands:

"To provide high quality, effective, affordable and efficient health services to all peoples of the Marshall Islands, through a primary health care program to improve health status and build the capacity of each community, family and individual to care for their own health. To the maximum extent possible, the Ministry of Health and Environment pursues these goals using the national facilities, staff and resources of the Republic of the Marshall Islands."

The Plan is designed to be simple, straightforward and realistic. While it is a substantial document, it is not complicated. It is not overly ambitious, neither is it overly innovative. It has been created with a recognition and acknowledgement of all the limitations which pertain in the Marshall Islands. Current skill levels with realistic expectations

of progress which is achievable, financial and other resource constraints; staffing problems and supervisory problems have all been taken into account when aims and objectives have been set. Many of the strategies have been in effect for some years and are proving successful, some have been amended in the light of a lack of success, and some have been changed as new, innovative ideas have been learned through experience or through training. In short, the Plan is designed to be used.

The Plan is a tool which will be used by managers and planners to monitor and evaluate progress against set aims and objectives. It will be used by supervisors to measure the performance of their health teams and it will be used by all staff members to identify tasks which they must perform and achievements against which their performance will be measured.

The Republic of the Marshall Islands National Comprehensive Cancer Control Plan is the result of the efforts of many individuals and organizations across the nation that volunteered significant time, energy, expertise, and other resources. The NCCCP Coalition is the nationwide group that assisted in the developed the plan. This document involved the input of many individuals and we acknowledge this community effort and hope this will be an excellent example to follow for other pressing health care issues in the RMI.

Appendix B: Comprehensive Cancer Control Coalition

The Republic of the Marshall Islands National Comprehensive Cancer Control Plan is the result of the efforts of many individuals and organizations across the nation that volunteered significant time, energy, expertise, and other resources. The NCCCP Coalition is the nationwide group that assisted in the developed the plan. This document involved the input of many individuals and we acknowledge this community effort and hope this will be an excellent example to follow for other pressing health care issues in the RMI.

Executive Committee

The Executive Committee provided management, oversight, and leadership for the plan development process. They also provided the final review of the plan. Their contribution of time and expertise is greatly appreciated.

1. Hon. Iroj Speaker Jurelang Zedkaia, Speaker of the Nitijela
2. Hon. Iroj Senator Michael Kabua, Council of Iroj
3. Hon. Sec. Justina R. Langidrik, Ministry of Health
4. Hon. Asst. Sec. Russell Edwards, Ministry of Health
5. Hon. Sec. Biram Stege, Ministry of Education
6. Hon. Rev. Enja Enos, Council of Churches
7. Dr. Kamal Gunawardane, Ministry of Health

8. Ms. Neiar Kabua, Coordinator NCCCP
9. Mr. Calvin Judah, Ebeye Ministry of Health
10. Ms. Camilla Ingram, Cancer Survivor
11. Ms. Amy Sasser, CARE Program
12. Mr. Terry Sasser, Mission Pacific
13. Ms. Marie Maddison, Women United Together Marshall Islands (WUTMI), National Training Council
14. Ms. Julia Afred, Youth to Youth in Health
15. Mr. Julian Alik, Environmental Protection Agency

Cancer Plan Editors & Writers

- Hon. Minister Amenta Matthew
- Hon. Former Minister Alvin T. Jacklick
- Hon. Secretary Justina R. Langidrik
- NCCCPRMI Coordinator Neiar Kabua
- Amy H. Sasser, CARE Program
- Terry Sasser, Mission Pacific
- Former NCCCPRMI Coordinator Esther Lokboj
- Suzanne Philipppo, NCCCP Registrar

Appendix C: 2002 RMI/WHO STEPwise NCD Risk Factor Survey

Description of the sample

The targeted sample size was 3067 from 11 clusters. Data were obtained from 3097 individuals (15-64 years) with the data being reduced to 3045 following the data cleaning process. Total number of respondents for each step:

- Step 1 = 3045
- Step 2 = 2073
- Step 3 = 1067

Survey Sample Characteristics

Of the 3045 respondents:

- Total Males = 1234 (40.5%)
- Total Females = 1811 (59.5%)
- Total from Majuro = 1150 (50.9%)
- Total from Ebeye = 631 (20.7%)
- Total from Outer Islands = 656 (21.5%)
- Total from 177 Atoll = 208 (6.8%)
- Total by Age group:
 - o 15-24 = 1155
 - o 25-34 = 751
 - o 35-44 = 567
 - o 45-54 = 395
 - o 55-64 = 177

Endnotes/References

1. EPPSO 1999, Census Final Report, RMI
2. World Bank Draft Education Report, 2006
3. EPPSO, 2003, Statistical Yearbook – 2003, RMI
4. Ministry of Health. Fiscal Year 2004 Annual Report. RMI
5. EPPSO, 2006, Policy Implications Resulting from the 2006 Community Survey. RMI
6. Asian Development Bank (August 2005). Preparing the Youth Social Services Project. ADB Manila TA: 4219-RMI.
7. Asian Development Bank, Juumemmej: REPUBLIC OF THE MARSHALL ISLANDS SOCIAL AND ECONOMIC REPORT 2005: A Summary of Key Issues and Findings
8. FRANCIS X. HEZEL, S. J., Is That the Best You Can Do? A Tale of Two Micronesian Economies. PACIFIC ISLANDS POLICY 1. East West Center
9. Harper AP. Mammography utilization in the poor and medically underserved. *Cancer*. 1993;72(4 Suppl):1478-82.
10. Glasgow RE, Whitlock EP, Valanis BG, Vogt TM. Barriers to mammography and Pap smear screening among women who recently had neither, one or both types of screening. *Ann Behav Med*. 2000;22:223-28.
11. Colditz G, DeJong D, Hunter D, Trichopoulos D, Willett W. Harvard Report on Cancer Prevention Volume 1: Causes of Human Cancer. *Cancer Causes and Control*. 1996;7:S55-S58.
12. Centers for Disease Control and Prevention. Annual smoking-attributable mortality, years of potential life lost, and economic costs—United States, 1995-1999. *MMWR Morb Mortal Wkly Rep*. 2002;51(14):300-3.
13. RMI/WHO STEPwise NCD risk factor Survey, 2002
14. National Cancer Institute. Health Effects of Exposure to Environmental Tobacco Smoke: The Report of the California Environmental Protection Agency. Smoking and Tobacco Control Monograph no.10. Bethesda, MD. US Department of Health and Human Services, National Institutes of Health. NIH Pub. No.99-4645. Available from: <http://cancercontrol.cancer.gov/tcrb/monographs/10/>
15. Ministry of Health. Fiscal Year 2005 Annual Report. RMI
16. MARSHALL ISLANDS REVISED CODE, 2004 EDITION Smyser M, Krieger J, Solet D. The King County Ethnicity and Health Survey. Public Health – Seattle and King County. Seattle, Washington. 1998.
17. Centers for Disease Control and Prevention. Best Practices for Comprehensive Tobacco Control Programs. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. August 1999.
18. The Guide to Community Preventive Services. Increasing the unit price for tobacco products is effective in reducing initiation of tobacco use and in increasing cessation. January 2003. Available from: <http://www.thecommunityguide.org/tobacco/tobac-int-unit-price.pdf>
19. Federation of Tax Administrators. State Excise Tax Rates on Cigarettes. July 2003. Available from: <http://www.taxadmin.org/fta/rate/cigarette.html>
20. Campaign for Tobacco-Free Kids. New State-Specific Tobacco's Toll Data from CDC. April 2002. Available from: <http://www.tobaccofreekids.org/research/factsheets/pdf/0195.pdf>
21. The Guide to Community Preventive Services. Effectiveness of Smoking Bans and Restrictions to Reduce Exposure to Environmental Tobacco

- Smoke (ETS). Available from: <http://www.thecommunityguide.org/tobacco/tobac-int-smoke-bans.pdf>
22. RMI stat
 23. US Department of Health and Human Services. National Toxicology Program. Report on Carcinogens, Tenth Edition. Washington D.C. US Department of Health and Human Services. December 2002.
 24. Bagnardi V, Blangiardo M, La Vecchia C, Corrao G. Alcohol Consumption and the Risk of Cancer: A Meta-Analysis. National Institute on Alcohol Abuse and Alcoholism. Available from: <http://www.niaaa.nih.gov/publications/arh25-4/263-270-text.htm>
 25. Thomas D, Uhl C, Hartge P. Bladder Cancer and Alcoholic Beverage Consumption. *Am J Epidemiol.* 1983;118(5):720-7.
 26. National Institute on Alcohol Abuse and Alcoholism. Alcohol Alert. Maryland. No. 21 PH 345, July 1993. Available from: <http://www.niaaa.nih.gov/publication/aa21.htm>
 27. World Cancer Research Fund (WCRF) and the American Institute for Cancer Research (AIRC). Food, Nutrition and the Prevention of Cancer: a Global Perspective. Available from: <http://www.wcrf.org/pdfs/englishsummary.pdf> and http://www.aicr.org/reportssummaicr_res.html
 28. Curry SJ, Byers T, Hewitt M, editors. Fulfilling the Potential of Cancer Prevention and Early Detection. National Cancer Policy Board. Institute of Medicine National Research Council of the National Academies. Washington, D.C.: The National Academies Press; 2003.
 29. Behavioral Risk Factor Surveillance System [database on the Internet]. Atlanta (GA): The Centers for Disease Control and Prevention. 2003. Available from: <http://apps.nccd.cdc.gov/brfss/Trends/trendchart.asp?qkey=10110&state=WA>
 30. US Department of Health and Human Services. 10th Special Report to the US Congress on Alcohol and Health: Highlights from Current Research. US Department of Health and Human Services. 2000. NIH Pub. No. 00-1583.
 31. Miller WR, Brown JM, Simpson TL, et al. What works? A methodological analysis of alcoholism treatment outcome literature. In RK Hester & WR Miller, editors. Handbook of alcoholism treatment approaches: Effective alternatives. 2nd Edition. Boston:Allyn & Bacon; 1995. p 12-40.
 32. Wilk AL, Jensen NM, Havighurst TC. Meta-analysis of randomized control trials addressing brief interventions in heavy alcohol drinkers. *J Gen Intern Med.* 1997;12:274-83.
 33. Baer JS, Kivlahan DR, Blume AW, McKnight P, Marlatt GA. Brief intervention for heavy-drinking college students: 4-year follow-up and natural history. *Am J Pub Health.* 2001; 91: 1310-16.
 34. The Health of Washington State – A statewide assessment of health status, health risks, and health care services. Nutrition. Washington State Department of Health, July 2002.
 35. National Cancer Institute. 5 A Day for Better Health Program Evaluation Report: Evidence. Available from: http://dccps.nci.nih.gov/5ad_2_evi.html
 36. Slavin JL. Mechanisms for the impact of whole grain foods on cancer risk. *J Am Coll Nutr.* 2000;19(3 Suppl):300S-307S.
 37. American Cancer Society. American Cancer Society Guidelines on Diet and Cancer Prevention. 1997. Available from: http://www.cancer.org/docroot/MED/content/MED_2_1X_American_Cancer_Society_guidelines_on_diet_and_cancer_prevention.asp

38. US Preventive Services Task Force. Recommendations and Rationale: Behavioral Counseling in Primary Care to Promote a Healthy Diet. 2002. Available from: <http://www.ahcpr.gov/clinic/3rduspstf/diet/dietrr.htm>
39. Bensley LS, VanEenwyk J, Bruemmer BA. Measuring fruit and vegetable consumption: Providing serving size information doubles estimated percent eating 5 a day. *J Am Diet Assoc* 2003;103:1530-32.
40. Quan T, Salomon J, Nitzke S, Reicks M. Behaviors of low-income mothers related to fruit and vegetable consumption. *J Am Diet Assoc* 2000;100(5):567-576.
41. Dittus KL, Hillers VN, Beerman KA. Benefits and barriers to fruit and vegetable intake: relationship between attitudes and consumption. *J Nutr Ed* 1995;27:120-6.
42. Casperson CJ. Physical activity epidemiology: concepts, methods, and applications to exercise science. *Exerc Sport Sci Rev*. 1989(17):423-473.
43. US Department of Health and Human Services. Physical Activity and Health: A Report of the Surgeon General. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 1996.
44. Paffenbarger RS, Hyde RT, Wing AL, Lee IM, Jung DL, Kampert JB. The association of changes in physical activity level and other lifestyle characteristics with mortality among men. *N Engl J Med*. 1993;328(8):538-545.
45. Paffenbarger RS, Kampert JB, Lee IM, Hyde RT, Leung RW, Wing AL. Changes in physical activity and other lifeway patterns influencing longevity. *Medicine and Science in Sports and Exercise* 1994;26(7):857-865.
46. Blair SN, Kohl HW III, Barlow CE, Paffenbarger RS, Gibbons LW, Macera CA. Changes in physical fitness and all-cause mortality: a prospective study of healthy and unhealthy men. *JAMA*. 1995;273(14):1093-1098.
47. International Agency for Research on Cancer. 2002. IARC Handbooks of Cancer Prevention: Weight Control and Physical Activity. Lyon, France: IARC Press.
48. Harvard Center for Cancer Prevention. Harvard Reports on Cancer Prevention Volume 1: Human Causes of Cancer. Available from: http://www.hsph.harvard.edu/cancer/publications/reports/vol1_summary.html
49. National Heart, Lung, and Blood Institute. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. 1998. Available from: http://www.nhlbi.nih.gov/guidelines/obesity/ob_gdlns.pdf
50. The Expert Committee on Clinical Guidelines for Overweight in Adolescent Preventive Services, 1994. Guidelines for overweight in adolescent preventive services: Recommendations from an expert committee. *Am J Clin Nutr*. 1994;59(2):307.
51. The Health of Washington State – A statewide assessment of health status, health risks, and health care services. Obesity and Overweight. Washington State Department of Health, July 2002.
52. National Cancer Institute: Cancer Facts. Obesity and Cancer. 2001. Available from: http://cis.nci.nih.gov/fact/3_70.htm
53. Calle E, Rodriguez C, Walker-Thurmond K, Thun M. Overweight, Obesity, and Mortality from Cancer in a Prospectively Studied Cohort of US Adults. *N Engl J Med*. 2003;248(17):1625-38.
54. RMI Stats
55. National Cancer Institute. Cancer Facts: Human Papillomaviruses and Cancer. 2002. Available from:

- http://cis.nci.nih.gov/fact/3_20.htm
56. Bosch F, Lorincz A, Munoz N, Meijer C, Shah K. The causal relationship between human papillomavirus and cervical cancer. *J Clin Pathol* 2002;55:244-65
 57. Saslow D, Runowicz C, Solomon D, Moscicki A, Smith R, Eyre H, Cohen C. American Cancer Society Guideline for the Early Detection of Cervical Neoplasia and Cancer. *CA Cancer J Clin* 2002;52:342-362.
 58. The Health of Washington State – A statewide assessment of health status, health risks, and health care services. Hepatitis B. Washington State Department of Health, July 2002.
 59. International Agency for Research on Cancer. Evaluation of Carcinogenic Risks to Humans: Human Immunodeficiency Viruses. Available from: <http://www.cie.iarc.fr/htdocs/monographs/vol67/67-hiv.html>
 60. Ministry of Health World AIDS Day 2006 Press Release, RMI
 61. International Agency for Research on Cancer. Evaluation of Carcinogenic Risks to Humans: Infection with *HELICOBACTER PYLORI*. Available from: <http://www.cie.iarc.fr/htdocs/monographs/vol61/m61-3.htm>
 62. International Agency for Research on Cancer. Evaluation of Carcinogenic Risks to Humans: Human T-Cell Lymphotropic Viruses. Available from: <http://www.cie.iarc.fr/htdocs/monographs/vol67/67-htlv.html>
 63. The Health of Washington State – A statewide assessment of health status, health risks, and health care services. Sexual Behavior. Washington State Department of Health, July 2002.
 64. American Cancer Society: What's New in Cervical Cancer Research and Treatment. Available from: http://www.cancer.org/docroot/CRI/content/CRI_2_4_6X_Whats_new_in_cervical_cancer_research_and_treatment_8.asp
 65. California Environmental Protection Agency. For the Proposed Identification of Diesel Exhaust as a Toxic Air Pollutant Part B: Health Risk Assessment for Diesel Exhaust. Office of Environmental Health Hazard Assessment. Air Toxicology and Epidemiology Section, May 1998.
 66. United States Environmental Protection Agency. Final Emission Standards for 2004 and Later Model Year Highway Heavy-Duty Vehicles and Engines. Available from: <http://www.epa.gov/otaq/regs/hd-hwy/2000frm/f00026.pdf>
 67. International Agency for Research on Cancer. Diesel and Gasoline Engine Exhaust and Some Nitroarenes. IARC monograph on the evaluation of carcinogenic risks to humans. Lyon: IARC, 1989. Vol. 45.
 68. Korenstein S, Piazza B. An exposure assessment of PM10 from a major highway interchange: are children in nearby schools at risk?. *J Environ Health* 2003;65(2):9-17.
 69. Brauer M, Hoek G van Vliet P, Meliefste K, Fischer P, et al. Estimating long-term average particulate air pollution concentrations: application of traffic indicators and geographic information systems. *Epidemiology*. 2003;14(2):228-39.
 70. RMI stat
 71. Pharoah PD, Day NE, Duffy S, Easton DE, Ponder BA. Family history and the risk of breast cancer: a systematic review and meta-analysis. *Int J Cancer*. 1997;71(5):800-9.
 72. Kerlikowske K, Brown JS, Grady DG. Should women with familial ovarian cancer undergo prophylactic oophorectomy? *Obstet Gynecol*. 1992;80(4):700-7.
 73. Fuchs CS, Giovannucci EL, Colditz GA, Hunter

- DJ, Speizer FE, Willett WG. A prospective study of family history and the risk of colorectal cancer. *N Engl J Med.* 1994;331(25):1669-74.
74. Slattery ML, Kerber RA. Family history of cancer and colon cancer risk: the Utah Population Database. *J Natl Cancer Inst.* 1994;86(21):1618-26.
75. Negri E, Braga C, La Vecchia C, Franceschi S, Filiberti R, et al. Family history of cancer and risk of colorectal cancer in Italy. *Br J Cancer.* 1998;77(1):174-9.
76. St John DJ, McDermott FT, Hopper JL, Debney EA, Johnson WR, Hughes ES. Cancer risk in relatives of patients with common colorectal cancer. *Ann Intern Med.* 1993;118(10):785-90.
77. Duncan JL, Kyle J. Family incidence of carcinoma of the colon and rectum in north-east Scotland. *Gut.* 1982;23(2):169-71.
78. Rozen P, Fireman Z, Figer A, Legam C, Ron E, Lynch HT. Family history of colorectal cancer as a marker of potential malignancy within a screening program. *Cancer.* 1987;60(2):248-54.
79. International Agency for Research on Cancer. 2002 Mar. Press Releases: Mammography Screening Can Reduce Deaths from Breast Cancer. Available from: <http://www.iarc.fr/>
80. US Preventive Services Task Force. Screening for Breast Cancer. Recommendations and Rationale. 2002 Feb. Available from: <http://www.ahcpr.gov/clinic/3rduspstf/breastcancer/brcanrr.htm>
81. Thomas DB, Gao DL, Ray RM, Wang WW. Randomized trial of breast self-examination in Shanghai: final results. *J Natl Cancer Inst.* 2002;94(19):1445-57.
82. American Cancer Society. 2003. Updated Breast Cancer Screening Guidelines Released. URL: American Cancer Society. Updated Breast Cancer Screening Guidelines Released. 2003 May 15. Available from: http://www.cancer.org/docroot/NWS/content/NWS_1_1x_Updated_Breast_Cancer_Screening_Guidelines_Released.asp
83. RMI stat
84. The Health of Washington State – A statewide assessment of health status, health risks, and health care services. Invasive Cervical Cancer. Washington State Department of Health, July 2002.
85. Walboomers JM, Jacobs MV, Bosch FX, Kummer JA, et al. Human papillomavirus is a necessary cause of invasive cervical cancer worldwide. *J Pathol.* 1999;189(1):12-9.
86. RMI stat
87. RMI stat
88. Austin RM, McLendon WW. The Papanicolaou smear. *JAMA.* 1997;277:754-755.
89. US Preventive Services Task Force. Screening for Cervical Cancer. Recommendations and Rationale. Available from: <http://www.ahcpr.gov/clinic/3rduspstf/cervcan/cervcanrr.htm>
90. RMI stat
91. Office of Community and Rural Health. Washington Rural Health Assessment Project: Access to Primary Care Services. Washington State Department of Health. 2002.
92. Lohr KN, editor. Institute of Medicine. Medicare: A Strategy for Quality Assurance, Volume I. Washington, D.C.: National Academy Press. 1990.
93. Presidents Advisory Commission on Consumer Protection and Quality in the Health Care Industry. Quality First: Better Health Care for All Americans. Washington, D.C. 1998. Available from: <http://www.hcqualitycommission.gov/final/>

94. Schneider EC, Zaslavsky AM, Epstein AM. Racial disparities in the quality of care for enrollees in medicare managed care. *JAMA*. 2000;287(10):1288-94.
95. Institute of Medicine, National Cancer Policy Board. 2001. *Improving Palliative Care for Cancer*. Washington, D.C. : National Academies Press; 2001.
96. National Hospice and Palliative Care Organization. NHPCO Facts and Figures. Updated July 2003. Available at URL: http://www.nhpco.org/files/public/facts_and_figures_0703.pdf
97. Cancer pain relief and palliative care. *World Health Organ Tech Rep Ser*. 1990;804:1-75.
98. RMI stat
99. RMI stat
100. National Institutes of Health. Acupuncture. NIH Consensus Statement Online 1997;15(5):1-34. Available at URL: http://consensus.nih.gov/cons/107/107_statement.htm#7_Conclus
101. Eisenberg DM, Davis RB, Ettner SL, Appel S, et al. Trends in alternative medicine use in the United States, 1990-1997: results of a follow-up national survey. *JAMA*. 1998;280(18):1569-75.
102. RMI stat
103. National Cancer Institute. National Center for Complementary and Alternative Medicine. Available from: http://cis.nci.nih.gov/fact/9_14.htm
104. National Cancer Institute. Office of Cancer Complementary and Alternative Medicine. Available from: <http://www3.cancer.gov/occam/>
105. White House Commission on Complementary and Alternative Medicine Policy: final report. 2002 Mar. Available from: http://www.whccamp.hhs.gov/pdfs/fr2002_document.pdf
106. Hough HJ, Dower C, O'Neil EH. *Profile of a Profession: Naturopathic Practice*. Center for the Health Professions University of California. California. 2001.
107. Viejo A, Standish L, Greene K, Greenlee H, Kim J, Grosshans C. Complementary and alternative medical treatment of breast cancer: A survey of licensed North American naturopathic physicians. *Alternative Therapies in Health and Medicine*. 2002;8(4):74-81.
108. Joffe S, Cook EF, Cleary PD, Clark JW, Weeks JC. Quality of informed consent in cancer clinical trials: A cross-sectional survey. *Lancet*. 2001;358(9295):1772-7.
109. Perkins J. Overcoming Language Barriers to Health Care. *Popular Government*. 1999;65(1):38-44.
110. December 2001, *Pacific Magazine*, It's Official AIDS Now Declared an Emergency: Leaders urged to take issue seriously
111. Prepared by Thomas Lum, Specialist in Asian Affairs.
112. Including one detonation 100 kilometers west of Bikini.
113. Gary Lee, "Postwar Pacific Fallout Wider than Thought," *Washington Post*, February 24, 1994.
114. Holly M. Barker, Ph.D., "Staff Briefing on the RMI's Changed Circumstances Petition," *ibid*.
115. "Health Effects of Exposure to Low Levels of Ionizing Radiation, Report of the Advisory Committee on the Biological Effects of Ionizing Radiation" (BEIR V), National Academy of Sciences-National Research Council, Washington, D.C.
116. Changed Circumstances Petition, "Attachment II: Scientific Analysis — An Overview of the Technical Basis for Changed Circumstances," by John Mauro, Ph.D. and Hans Behling, Ph.D.

117. Prepared by Mark Holt, Specialist in Energy Policy.
118. U.S. Dept. of Health and Human Services, National Institutes of Health, National Cancer Institute, Estimation of the Baseline Number of Cancers Among Marshallese and the Number of Cancers Attributable to Exposure to Fallout from Nuclear Weapons Testing Conducted in the Marshall Islands, September 2004. Prepared for Senate Committee on Energy and Natural Resources.
119. Ibid., p. 14.
120. Economic Policy, Planning and Statistics Office, RMI Statistical Yearbook, 2004, Chapter 3 – Health
121. HISTORICAL EVENTS ASSOCIATED WITH FALLOUT FROM BRAVO SHOT—OPERATION CASTLE AND 25 Y OF MEDICAL FINDINGS E. P. Cronkite, R. A. Conard, and V. P. Bond, July 1997. Volume 73. Number 1
122. <http://www.canvasback.org/news/current.html>
123. AN INVESTIGATION INTO THE PREVALENCE OF THYROID DISEASE ON KWAJALEIN ATOLL, MARSHALL ISLANDS T. Takahashi,* K. R. Trott,”” K. Fujimori, * S. L. Simon,† H. Ohtomo,* N. Nakashima,* K. Takaya, * N. Kimura, * S. Satomi, * and M. J. Schoemaker, July 1997. Volume 73. Number 1
124. FIFTY-SIXTH WORLD HEALTH ASSEMBLY, RESOLUTIONS AND DECISIONS, WHO Framework Convention on Tobacco Control
125. Economic Policy, Planning and Statistics Office, RMI Statistical Yearbook, 2004, Chapter 15 – Agriculture, Fisheries and Rural Development
126. Republic of the Marshall Islands Ministry of Health– Strategic and Operational Plan 2001 to 2015
127. NCCCPRMI Cancer Registry
128. Klien, Joel I., 2005, HIV/AIDS Curriculum: A Supplement to a Comprehensive Health Curriculum, New York
129. <http://www.nuclearclaimstribunal.com/>
130. The National Cancer Institute, May 2005, “Estimation of the Baseline Number of Cancers Among Marshallese and the Number of Cancer Attributable to Exposure Fallout from Nuclear Weapons Testing Conducted in the Marshall Islands.”
131. Ministry of Health. Fiscal Year 2007 Annual Report. RMI
132. N. Palafox, S. Riklon, W. Alik, A. Hixon, “Health Consequences and Health Systems Response to the Pacific U.S. Nuclear Weapons Testing Program,” Developing Human Resources For Health in the Pacific, Vol 14. No 1. 2007