Republic of the Marshall Islands Hybrid Survey

FINAL REPORT

2018

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Iakwe.

On behalf of Honorable Kalani R. Kaneko, Minister of Health & Human Services, and all members of the Senior Leadership Team, we acknowledge all project partners and all who supported the RMI Hybrid Survey. We acknowledge the tremendous effort in the planning, coordination, implementation and data validation to ensure that the Hybrid Survey provides valuable information for relevant and timely implementation of interventions to prevent and control non-communicable diseases affecting all the people of the Republic of the Marshall Islands.

Project RMI Partners including MIEPI, EPPSO, KUMIT, Department of Interior, Mayors and council men/women from MALGOV, JALGOV, Wotje local government, KBE local government, Arno local government, KALGOV, Alaps and other traditional leaders from Majuro, Arno, Ebeye, Wotje, Kili, Jaluit, School and Churches for survey sites, Taiwan Health Center, and Hybrid Surveyors

Project External Partners including Centers for Disease Control and Prevention (CDC)- Stacy De Jesus, Pacific Islands Team Lead, World Health Organization- Dr. Wendy Snowdon, Team Coordinator-Pacific NCD and Health through the Life-Course, Pacific Island Health Officers' Association Dr. Haley Cash, Regional USAPI Epidemiologist and Emi Chutaro, Executive Director, Association of State and Territorial Health Officials -Leah Silva, JD, Director, State and Territorial Performance Improvement, University of Hawaii, Children's Healthy Living Program (CHL) Dr. Rachel Novotny, Interim Dean of CTAHR, CHL Principal Investigator, Professor, Graduate Chair, Nutrition PhD Program Dr. Marie Kainoa Fialkowski Revilla, Dietetics Program Director & Assistant Professor in Human Nutrition.

The survey results paint a clear picture of the current core risk factors for non-communicable diseases and one most obvious of the risk factors is that 73% of adults in the Marshall Islands are overweight or obese, that only 5% of adults consume 5 or more servings of fruits and vegetables per day. The survey revealed that 77% of adults DO NOT SMOKE cigarettes, however 23% of smoke cigarettes, 87% DO NOT CHEW BETELNUT however 13% chew betelnut with tobacco and that has increased from 1.8% in 2002. The survey also shows that 27% of adults have diabetes and 21% of adults have high blood pressure and more important to note is that 65% and 68% of the people respectively, go undiagnosed. When it comes to cancer screening, the survey found that 66% of women (age 21-65 yo) do not meet the USPTF guidelines for pap smear or VIA every three years, and that 78% of women (age 50-74 yo) do not meet the USPTF guidelines for mammogram every 2 years and 52% of RMI adults have NOT had a medical checkup in the past year.

The prevalence of NCD risk factors in the Marshall Islands is quite high and seems to indicate that there has been none to very little improvement since the 2002 WHO STEPs Survey. The Ministry of Health & Human Services is in full agreement that every effort must increase to address core risk factors at individual, community and national level. We need everybody's help. Thank you for all you do.

Julia M. Alfred
Secretary of Health & Human Services

Summary

The aim of this report is to assess the current prevalence of non-communicable diseases (NCDs) and selected risk factors in The Republic of Marshall Islands (RMI). We hope this report enables RMI to better understand its burden of disease, monitor trends, and determine who is at greatest risk for poor health in order to improve health through the development of targeted evidence-based interventions.

Non-Communicable Diseases (NCDs) such as heart disease, cancer, and diabetes are global issues that result in high burdens of disability and premature death. NCDs, substance use, and poor mental health are highly linked to several key risk factors, such as cigarette smoking, tobacco chewing, excessive alcohol consumption, unhealthy diet, lack of physical activity, and overweight/obesity. Diabetes is a major concern in RMI, although the outdated data previously available may not support that. The hospital is overburdened with diabetes patients, often presenting at late stages and requiring amputation and dialysis (not available in-country). The outer islands present a challenge for healthcare delivery and data collection, especially for NCDs. A lot of resources are used for late-stage diabetes treatment. Nutrition is a real challenge due to limited land and very little food produced locally. There is a significant reliance on imported foods that are often processed, nutrient poor, and calorie dense. Although NCDs are a priority in RMI, other health issues should not be overlooked, to include maternal-child health issues, child malnutrition, sexually transmitted infections, mental health, and infectious disease.

The Republic of the Marshall Islands undertook a novel population-based household survey that combined NCD and associated risk factor indicators and substance use from July 2017 – April 2018. A total of 2,869 individuals aged 18 years or older participated in the survey from the islands of Majuro, Kwajalein, Arno, Jaluit, Wotje, and Kili. Although all islands were not surveyed, the islands included make up 83% of the overall population of RMI. Respondents answered questions about their alcohol and tobacco use, other substance use, dietary habits, physical activity, health access, oral health, health conditions, and cancer screening. Additionally, height and weight, fasting blood glucose, total cholesterol, and blood pressure were measured.

RMI vs. USA

Here are RMI's 2018 Hybrid Survey prevalence data compared to U.S. prevalence data using the most comparable sources available.

	RMI %	US %	Comparison
Current tobacco use (past 30 days)			
Cigarette smoking	22.5	17.0	↑
Smokeless tobacco use*	21.6	4.0	↑
Current alcohol use (past 30 days)			
Alcohol use (any)	16.3	54.0	↓
Binge drinking (5+ drinks per day)	14.8	16.9	↓
Nutrition			
<5 servings of fruits and vegetables (per day)	94.5	76.5[1]	↑
Health and healthcare			
Fair or poor health (self-reported)	31.6	16.7	↑
No medical checkup in the past year	51.5	29.2	↑
Oral health			
No dental visit within past year	61.5	33.7	↑
Extracted permanent teeth due to decay/disease	79.9	43.4	↑
Chronic conditions			
Overweight/obesity	72.5	65.4	↑
Diabetes (self-reported + undiagnosed)**	26.8	12.2[2]	↑
Hypertension (self-reported + undiagnosed)**	21.0	33.5[3]	↓
Measured high cholesterol (≥240mg/dL)	4.9	12.1[4]	↓
Cancer screening			
No Pap smear in the past 3 years (women 21-65 yo)	66.4	17.5	↑
No mammogram in the past 2 years (women 50-74yo)	78.0	21.9	↑

*Smokeless tobacco use in RMI is defined as use of smokeless tobacco and/or chewing betel nut with tobacco.

**Diabetes prevalence is estimated based on either a self-report of diabetes for which the patient is taking medication and/or a single fasting blood sugar of 126mg/dL during the survey; Hypertension prevalence is estimated based on either a self-report of hypertension for which the patient is taking medication and/or a measured average blood pressure (of 3 readings) of ≥140/90.

Source for US comparison: BRFSS 2016 unless noted with [1]BRFSS 2009 or [2]Estimation of U.S. (diagnosed + undiagnosed) 18+ prevalence based on NHANES 2011-2014 or [3] NHANES 2013-2014 (adults 20+). [4]NHANES 2011-2014 (adults 20+). Note that the US BRFSS overweight/obesity measures are based on self-report.

Surveillance in RMI:

The table below compares the 2002 RMI STEPS prevalence data to the 2018 RMI Hybrid prevalence data for adults 18-64 years old. Note that the 2002 RMI STEPS data and the 2018 RMI Hybrid data both include data from ages 18-64 only so that trends can be directly compared. Chi-square tests were used to generate p-values to test for significant changes.

	2002%	2018%	p-value	Comparison
Current tobacco use				
Cigarette smoking	24.6	23.3	0.28	○
Chewing betel nut (with or without tobacco)	2.5	14.6	<0.01	↑
Current alcohol use				
Alcohol use in past 30 days	20.5	17.0	<0.01	↓
Chronic conditions				
Overweight/obesity	68.5	72.8	<0.01	↑
Diabetes (self-reported on meds or ≥126mg/dL)	20.7	25.3	<0.01	↑
Hypertension (self-reported on meds or ≥140/90)	11.6	19.2	<0.01	↑
Measured elevated cholesterol (≥200mg/dL)	22.5	13.2	<0.01	↓

Introduction

Non-communicable diseases (NCDs) are the leading causes of morbidity and mortality for adults in the United States Affiliated Pacific Islands (USAPIs) (American Samoa, Guam, Commonwealth of the Northern Mariana Islands [CNMI], Federated States of Micronesia [FSM], Republic of Palau, and Republic of Marshall Islands [RMI]) [1].

On May 25, 2010 the Pacific Island Health Officers Association (PIHOA) declared a Regional State of Health Emergency due to the epidemic of non-communicable diseases in the USAPI due to the fact that NCDs account for around 70-75% of all deaths in the region [2]. The NCDs of concern in the USAPIs include diabetes, heart disease, stroke, cancer, and chronic obstructive pulmonary disease [2,3]. Risk factors for developing NCDs within these island jurisdictions are among the highest in the world. This includes tobacco use, poor diet, sedentary lifestyles, and binge drinking [2]. In most of the USAPI, betel nut (which is carcinogenic to human) chewing with or without tobacco is also identified as a significant health problem [4].

Diabetes is a major concern in the RMI. The diabetes epidemic has been linked to lifestyle changes such as, increased dietary fat intake, reduced fiber intake, and reduced physical activity. Other factors such as socioeconomic status, degree of urbanization, and access to health care have also been shown to affect the prevalence of diabetes on these islands [5]. Hospitals are overburdened with diabetes patients, who often present at late stages, oftentimes requiring amputation and dialysis.

Key components of PIHOA's response to the NCD crisis include strengthening NCD surveillance systems and building epidemiologic capacity to improve data quality and reporting in the USAPIs. The last NCD adult population-based survey in RMI was conducted in 2002. Due to the need for current NCD and risk factor prevalence data, the Marshall Islands Epidemiology Prevention Initiative (MIEPI), a local NGO, and the RMI Ministry of Health combined efforts to develop and implement an adult population-based Hybrid survey. Other support was provided by PIHOA, the Centers for Disease Control and Prevention (CDC), the World Health Organization (WHO), the Association of State and Territorial Health Officials (ASTHO), and the Pacific Community (SPC). The Hybrid survey was developed to assess NCD risk factors and NCD conditions through self-diagnosis, as well as physical and biochemical measurements.

The Republic of the Marshall Islands (RMI) is comprised of 24 coral atolls, with a total of 1,156 individual islands and islets located in the North Pacific Ocean. The major district centers are Majuro, Ebeye, Wotje, and Jaluit. The islands are made up of coral caps set on the rims of submerged volcanoes. RMI has a total land area of 70 square miles that are scattered over the country's Exclusive Economic Zone of over 750,000 square miles [6].

Image source: http://www.spc.int/our-members/marshall-islands/

The Republic of Marshall Islands has been a sovereign nation since 1986 with a Compact of Free Association with the U.S. Majuro is the capitol and largest city of RMI. Majuro and Kwajalein are accessible by international airlines. Flights between these islands and 26 other outer islands are also available through Air Marshall Islands airlines. [6]. The population of RMI is 52,158 (2011 Census). A majority of the population (74%) resides on Majuro and Kwajalein atolls. The poulation density on these two atolls is quite high. Majuro has a total land mass of 3.75 square miles with a population of 27,797 (7,413 people/m^2). Kwajalein is comprised of 97 islands and islets and has a land area of 6.33 square miles [7]. Ebeye, an island on Kwajalein atoll is the most populous with 9,614 people on 0.12 square miles (80,117 people/m^2). Although the fertility rate in RMI is quite high, the population is decreasing due to out migration.

Accessibility to healthcare for the residents of RMI is mixed. While private clinics are available, the majority of RMI residents use the public healthcare system. There are two hospitals, one in Majuro and one in Ebeye. The are 56 outer island health centers managed by the hospital in Majuro by the Office of Outer Islands. Information from these offices are communicated to the Majuro Hospital via radio. Lastly, there are 5 outer island health centers that are managed by the 177 healthcare program for victims of nuclear fallout. The 177 healthcare program is a U.S. federal grant that supports U.S. doctors to manage these health centers.

Survey Methodology

The RMI Hybrid Survey aimed to assess the prevalence of selected NCDs, risk factors, and substance use, which includes questions from validated instruments such as the Behavioral Risk Factor Surveillance System (BRFSS), STEPwise approach to Surveillance (STEPS), and National Health and Nutritional Examination Survey (NHANES), as well as locally developed questions as needed.

Objectives

1. Inform the community on NCD and risk factor prevalence

2. Use these data to prioritize and tailor NCD prevention programs

3. Support further research on NCD risk and protective factors in RMI

4. Use these data to monitor progress in the fights against NCDs in RMI

Target group

Participants eligible for the RMI Hybrid survey will include all RMI residents aged 18 years and over residing in Majuro, Kwajalein, Arno, Jaluit, Wotje, and Kili who were able to comprehend either English or Marshallese and provide consent.

Data collection

Data collection began on July 7, 2017 and ended on April 5, 2018. A total of 2,869 respondents completed the survey and measurements. All interviews and measurements were performed by trained surveyors recruited by the Marshall Islands Epidemiology Prevention Initiative (MIEPI).

Sample size	The original sample included 3107 adults. Sample size was determined based on overall adult populations on selected islands in the Republic of the Marshall Islands. (Majuro = 1659; Ebeye = 627; Kili = 200; Wotje = 207; Jaluit = 207; Arno = 207). The final response rate was 92.3%).
Sampling procedures	Stage 1: Households were identified at random according to geographical stratification in Majuro and Ebeye. The country was stratified into two major groups, Urban (Majuro and Ebeye) and Rural (all outer islands). In Majuro and Ebeye, household cluster sampling was used to randomly select households in these areas. Stage 2: In Majuro and Ebeye, one individual was selected at random from each household using the KISH table method. All adults in Kili, Arno, Wotje, and Jabwor, Jaluit atolls were included in the sample because the adult populations are about 200 each on these atolls.
Data collection	Surveys were translated and available in Marshallese and English. Data were collected by trained surveyors using face-to-face questionnaires followed by physical and biochemical measurements conducted at central locations the following morning for fasting measurements. Quality control of completed questionnaires was ensured at different stages during the questionnaire-processing phase.
Data entry	All data were collected electronically using a tablet. Tablets were uploaded on a weekly basis at the MIEPI Office. A data dictionary was created to explain the indicators and data codes.
Data cleaning	Descriptive statistics were produced for all variables. Values that did not match the data codes defined in the data dictionary were verified against the original questionnaire and rectified. Outliers were also checked, validated, and rectified.
Data analysis	Descriptive data analysis was conducted. Chi-squared analysis was used to analyzed differences by: • **age group** (18-24 years old, 25-34 yo, 35-44 yo, 45-55 yo, 55-64 yo, 65+ yo) • **gender** (male, female) • **location** (Majuro, Kwajalein, and other Outer Atolls) • **education** (high school education or less, more than high school education) [The decision was made to not weight these data due to low non-response and lack of recent census data to develop weights.]

Sample Summary

The sample randomly selected to participate in the Republic of the Marshall Islands (RMI) Hybrid Survey appears to be representative of the total population in RMI. The demographic distributions of the 2011 Census are relatively similar to the distributions of the survey sample demographics. Note that the most recent Census data available are seven years old therefore may not be completely accurate.
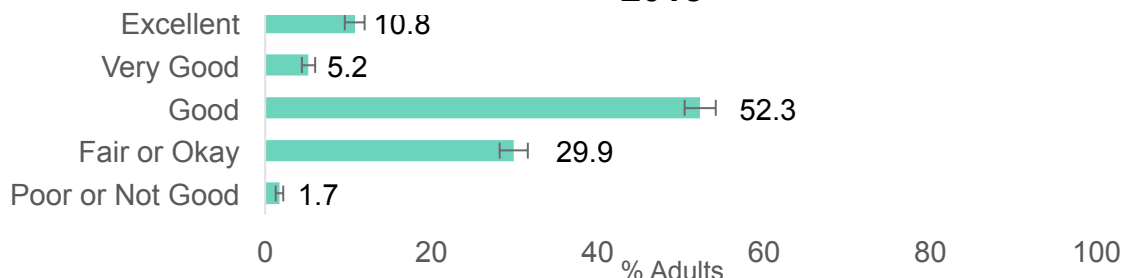
	Survey sample	2011 Census data (ages 18+)
	n=2869	n=28,884
Gender		
Male	1359 (47%)	(51%)*
Female	1510 (53%)	(49%)
Age group		
18-24 years	458 (16%)	6804 (24%)
25-34 years	761 (27%)	8193 (28%)
35-44 years	697 (24%)	5921 (20%)
45-54 years	498 (17%)	4274 (15%)
55-64 years	305 (11%)	2628 (9%)
65+ years	150 (5%)	1064 (4%)
Atoll		
Majuro	1360 (47%)	(52%)*
Kwajalein	549 (19%)	(22%)
Outer Atolls	960 (34%)	(26%)

* Census data reported for all ages
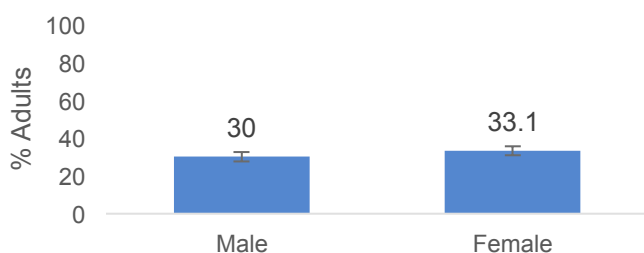
General Health

About one-third of adults in RMI (31.6%) self-reported their general health to be fair or poor.

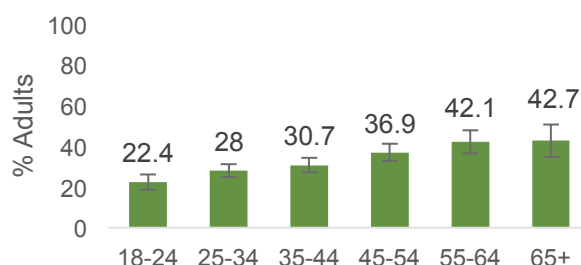**Self-reported health status among adults in RMI, 2018**

Category	% Adults
Excellent	10.8
Very Good	5.2
Good	52.3
Fair or Okay	29.9
Poor or Not Good	1.7

% Adults

When we examine self-report of fair or poor health by demographics, we find females self-report worse health than men, people with more education self-report worse health than people with less education, self-report of worse health increases with age, and adults in in the Outer Atolls report the highest prevalence of fair or poor health.
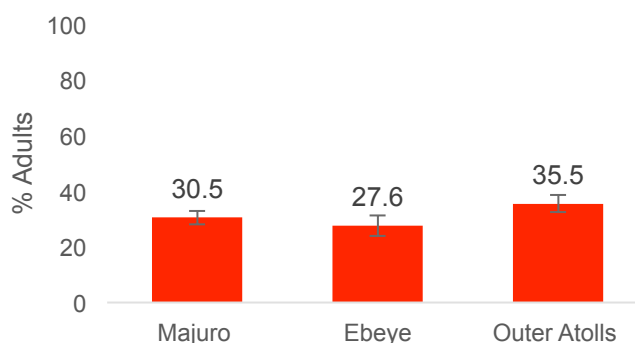
Fair or poor health, by gender

Male	Female
30	33.1

Fair or poor health, by age

18-24	25-34	35-44	45-54	55-64	65+
22.4	28	30.7	36.9	42.1	42.7

Fair or poor health, by education

Highschool or less	More than High School
30.8	35.2

Fair or poor health, by atoll

Majuro	Ebeye	Outer Atolls
30.5	27.6	35.5

11
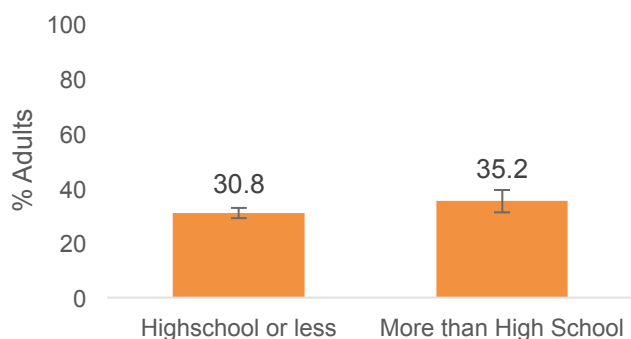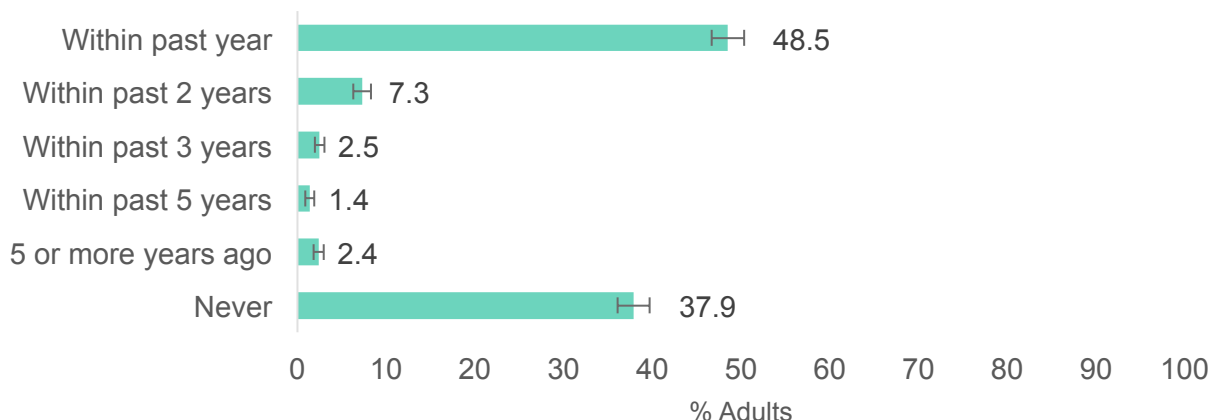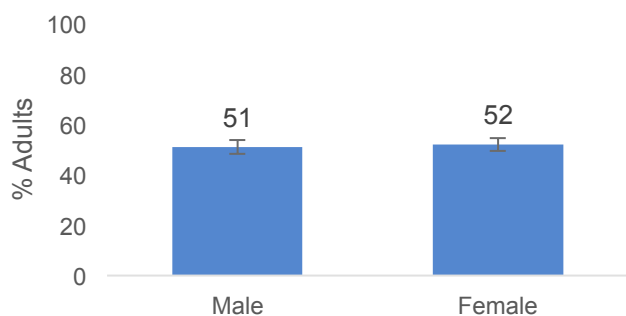
Access to Care

Overall, over half (51.5%) of adults in RMI did not receive an annual checkup in the past year, and two out of five (37.9%) adults have never had an annual checkup.
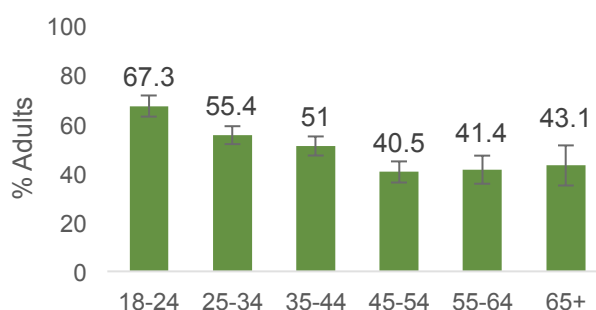
Last Annual Exam among Adults in RMI, 2018

Category	% Adults
Within past year	48.5
Within past 2 years	7.3
Within past 3 years	2.5
Within past 5 years	1.4
5 or more years ago	2.4
Never	37.9

Younger adults, less educated adults, and adults living in Majuro and the Outer Atolls were less likely to have had their annual exams.
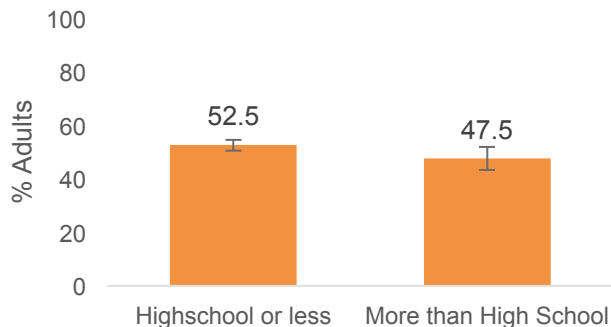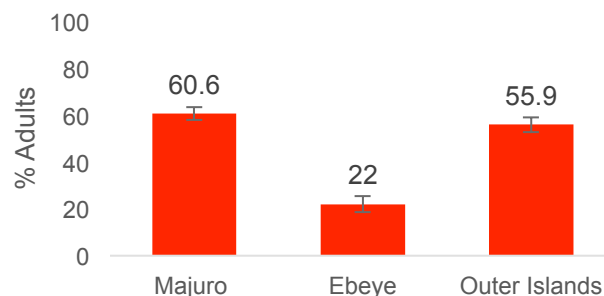
No annual exam, by gender

Male	Female
51	52

No annual exam, by age

18-24	25-34	35-44	45-54	55-64	65+
67.3	55.4	51	40.5	41.4	43.1

No annual exam, by education

Highschool or less	More than High School
52.5	47.5

No annual exam, by atoll

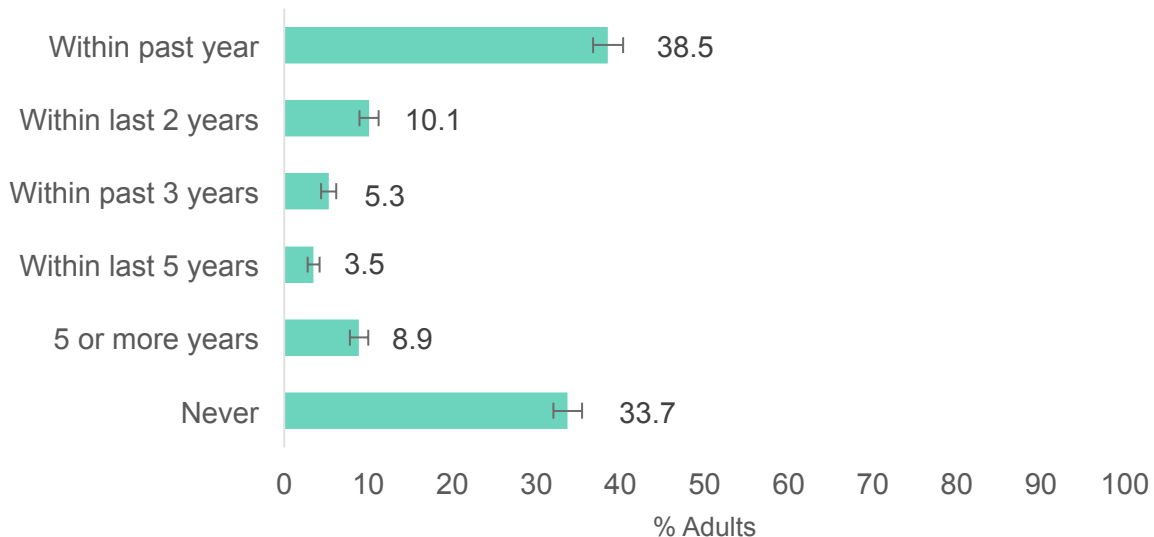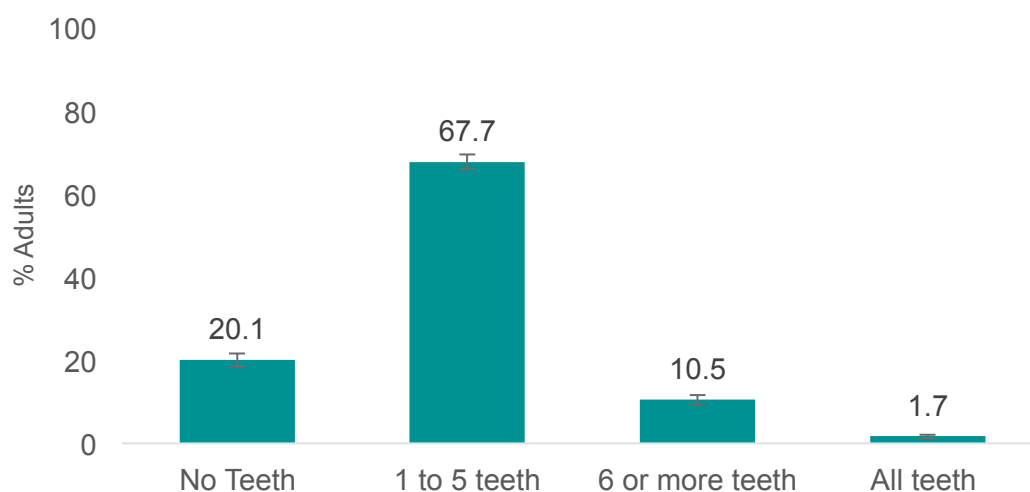| Majuro	Ebeye	Outer Islands
60.6	22	55.9

Oral Health

Two out of every five adults in RMI (38.5%) had a dental visit in the past year. One out of three adults (33.7%) in RMI have never seen a dentist. About four out of every five (79.9%) adults in RMI have had at least one tooth removed due to tooth decay or gum disease.

**Last Dental Exam among Adults in RMI, 2018**

Category	% Adults
Within past year	38.5
Within last 2 years	10.1
Within past 3 years	5.3
Within last 5 years	3.5
5 or more years	8.9
Never	33.7

% Adults

Number of Permanent Teeth Removed due to Tooth Decay or Gum Disease among Adults in RMI, 2018

| Category	% Adults
No Teeth	20.1
1 to 5 teeth	67.7
6 or more teeth	10.5
All teeth	1.7

Overweight/Obesity

Body Mass Index (BMI) is calculated based on height and weight measurements. Based on these measurements, almost three out of every four (72.5%) adults in RMI are overweight or obese.

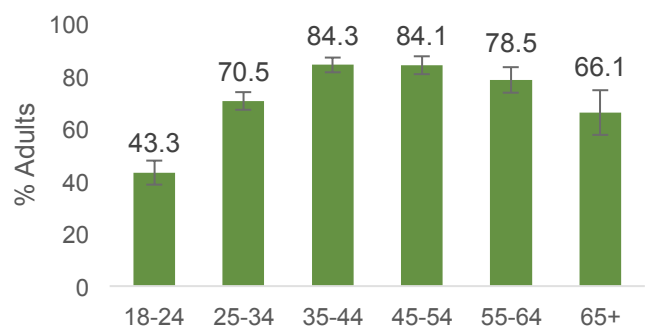### BMI Categories among Adults in RMI, 2018
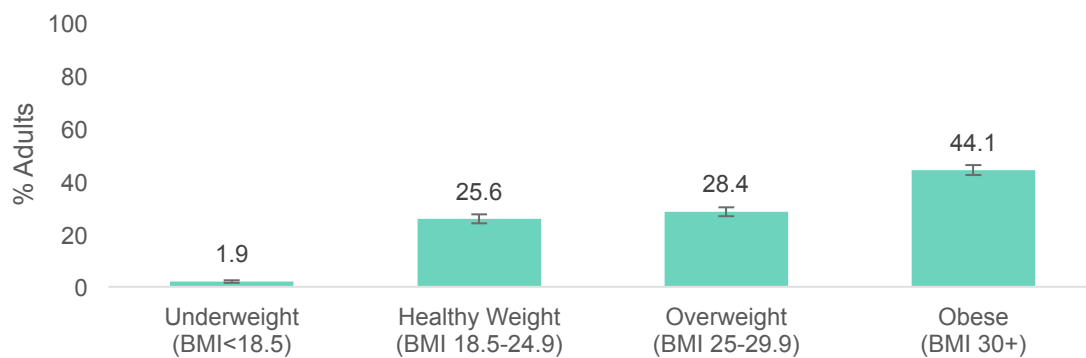
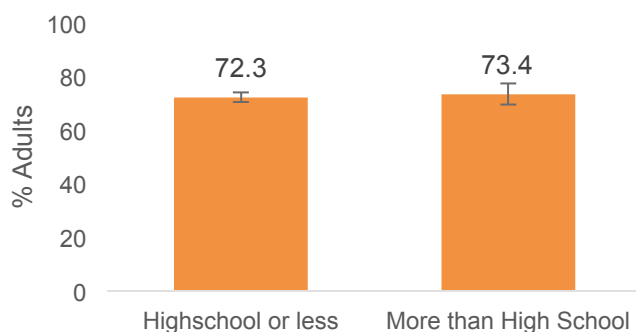**Women and middle age groups have the highest prevalence of overweight/ obesity.**
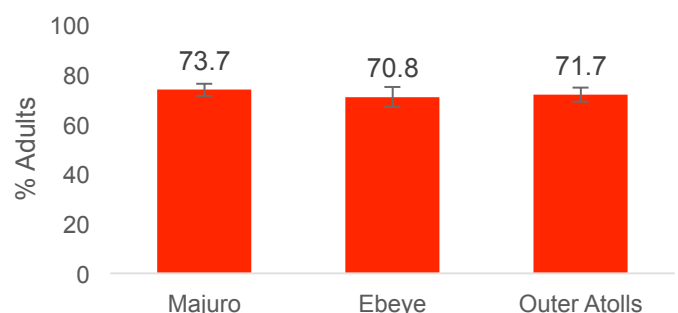
Overweight/obesity, by gender
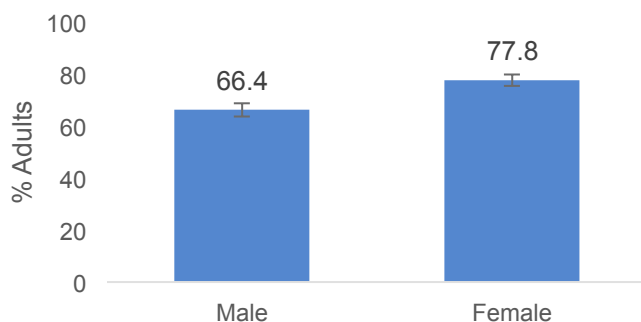
Overweight/obesity, by age

### Overweight/obesity, by education

Overweight/obesity, by atoll

Hypertension

One out of every five adults (21%) in RMI had high blood pressure (≥140/90) during screening or self-reported having hypertension* for which they took medication.
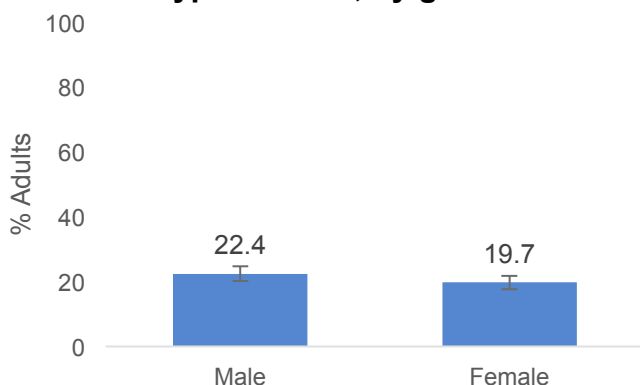
* Hypertension prevalence is estimated based on either a self-report of hypertension for which the patient is taking medication and/or a measured average blood pressure (of 3 readings) of ≥140/90.

Adult Hypertension in RMI, 2018
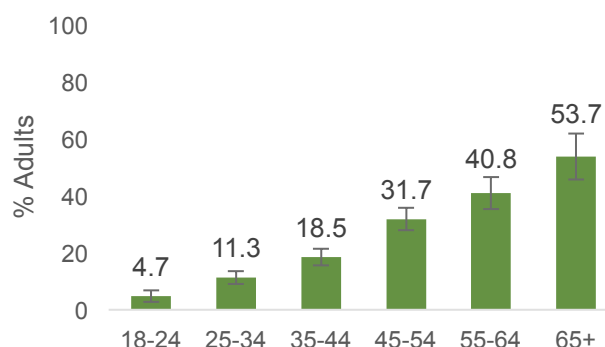

Hypertension 21%
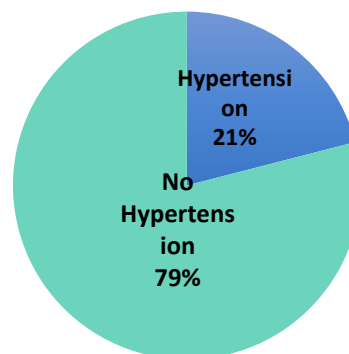
No Hypertension 79%

Hypertension prevalence increases with age, with about half (53.7%) of adults 65 and older having hypertension. Hypertension prevalence was slightly higher in men. Additionally, hypertension prevalence was higher for less educated adults, and lowest in Majuro.

Hypertension, by gender

Male 22.4
Female 19.7

Hypertension, by age

18-24: 4.7
25-34: 11.3
35-44: 18.5
45-54: 31.7
55-64: 40.8
65+: 53.7

Hypertension, by education

Highschool or less: 21.5
More than High School: 18.8

Hypertension, by atoll

Majuro: 19
Ebeye: 22
Outer Atolls: 23.1
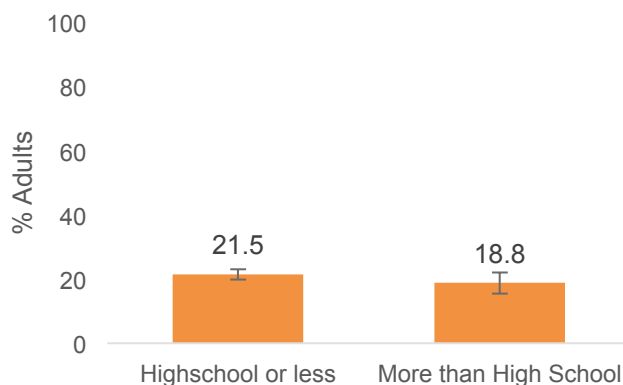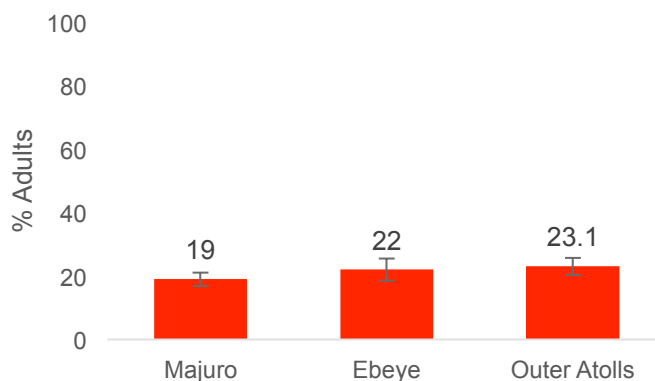
Hypertension Diagnosis & Control

21% of the adult population in RMI is estimated to have hypertension. Among those adults in RMI estimated to have hypertension, about two-thirds (63.3%) are undiagnosed.

Diagnosis Status among Adults with Hypertension in RMI, 2018

22%
Diagnosed, on medication

14%
Diagnosed, not on medication

63%
Undiagnosed
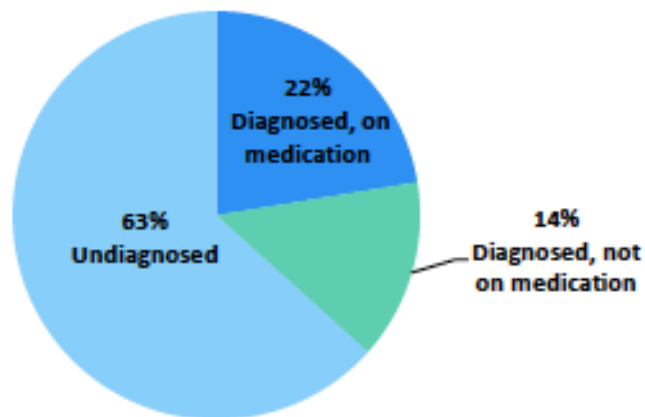
Among those adults who are diagnosed and taking medication, about half (49.2%) remain uncontrolled (average blood pressure [of 3 measurements] during survey was ≥140/90).

Control Status among Adults Diagnosed with Hypertension and on Medication in RMI, 2018

Diagnosed on meds, uncontrolled
49%

Diagnosed on meds, controlled
51%
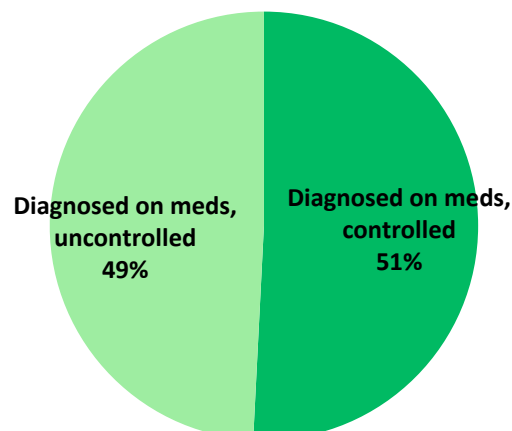
Diabetes

26.8% of adults had measured high fasting blood sugar (≥126mg/dL) or self-reported having diabetes* for which they were taking medication.

*Diabetes prevalence is estimated based on either a self-report of diabetes for which the patient is taking medication and/or a single fasting blood sugar of 126mg/dL during the survey. Pre-diabetes is estimated based on either a self-report of pre-diabetes and/or a single fasting blood sugar of 100-125 mg/dL during the survey.

Adult Diabetes in RMI, 2018

Pie chart:
- No Diabetes 52%
- Diabetes 27%
- Pre-diabetes 21%

Diabetes prevalence increases with age, with a prevalence of 53.7% among those 65 and older. In addition, there is a higher prevalence of diabetes among women, less educated adults, and adults living in Majuro.

Diabetes, by gender

- Male: 25.6
- Female: 27.9

Diabetes, by age

- 18-24: 5.7
- 25-34: 11.6
- 35-44: 26.1
- 45-54: 42
- 55-64: 57.9
- 65+: 53.7

Diabetes, by education

- Highschool or less: 27.8
- More than High School: 22.5

Diabetes, by atoll

- Majuro: 28.2
- Ebeye: 23.2
- Outer Atolls: 26.9

17
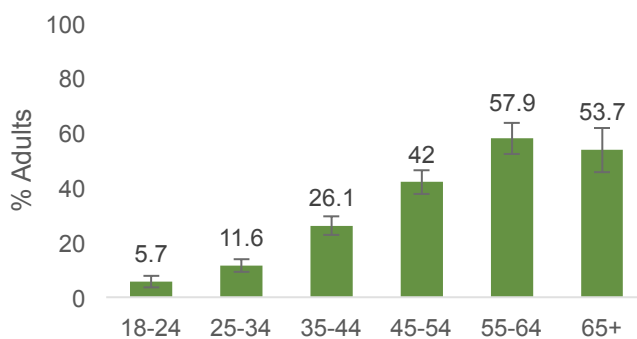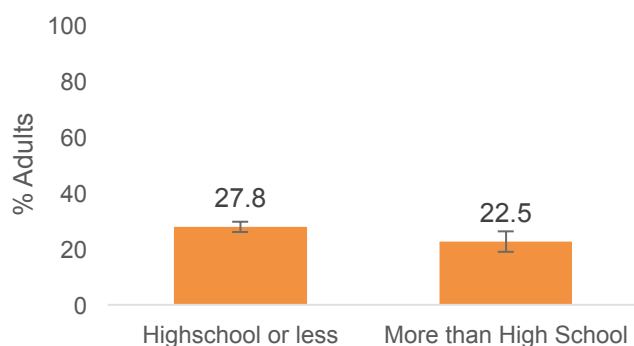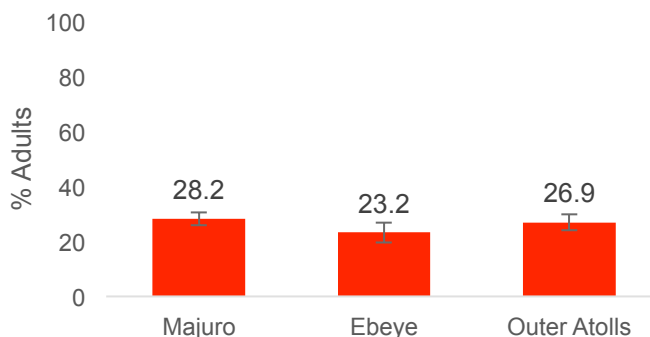
Diabetes Diagnosis & Control

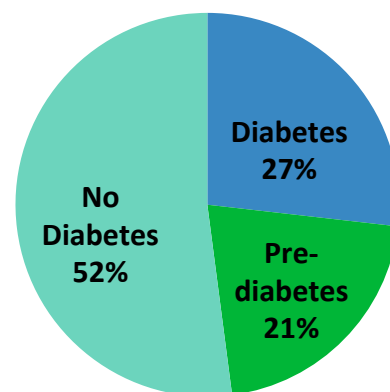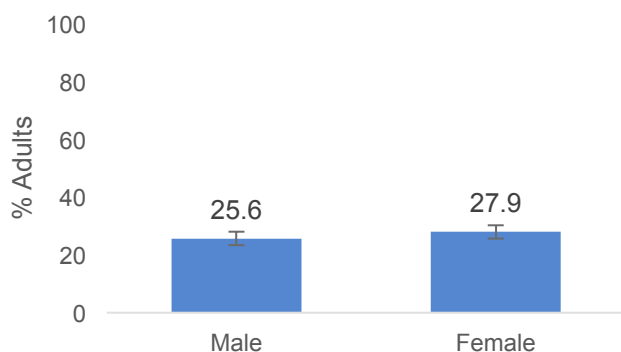**26.8% of the adult population in RMI is estimated to have diabetes. Among those adults estimated to have diabetes, about three in five (60.2%) are undiagnosed.**

Diagnosis Status among Adults with Diabetes in RMI, 2018

- 25% Diagnosed, on medication
- 14% Diagnosed, not on medication
- 60% Undiagnosed
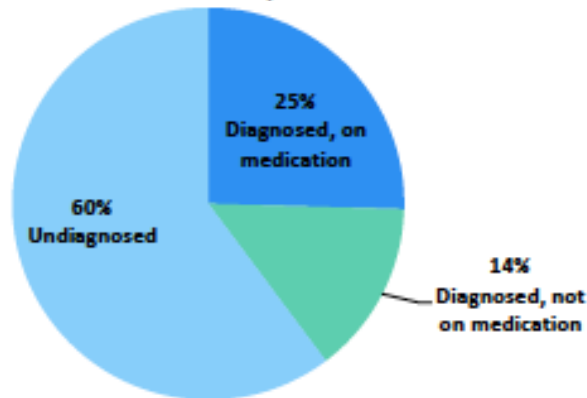
Among those adults in RMI who are diagnosed and taking medication for diabetes, the majority of them (83.7%) remain uncontrolled (fasting blood sugar was 126mg/dL or higher during survey).

Control Status among Adults Diagnosed with Diabetes and on Medication in RMI, 2018

- Diagnosed on meds, controlled 16%
- Diagnosed on meds, uncontrolled 84%
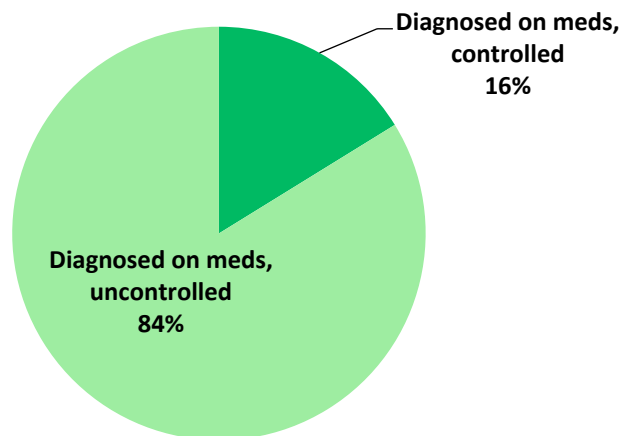
Diabetes Management

Among adults with who self-reported having diabetes in RMI, about one in three adults (36.5%) have not seen a health professional for their diabetes in the past year.

Doctors Appointment for Diabetes in the past year, among Adults in RMI, 2018
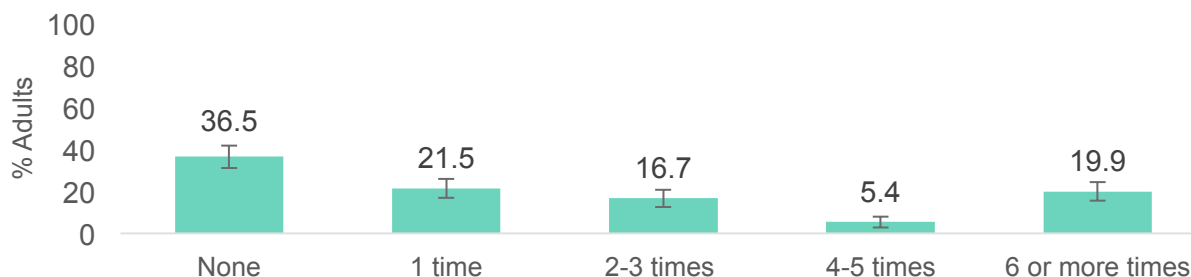
About two out of every five (42.1%) adults with self-reported diabetes in RMI did not check their blood sugar levels in the past year. 67.5% of adults in RMI with self-reported diabetes have not had their HbA1c check by a health professional in the past year.

Blood Sugar Self-Check in the past year, among Adults in RMI, 2018
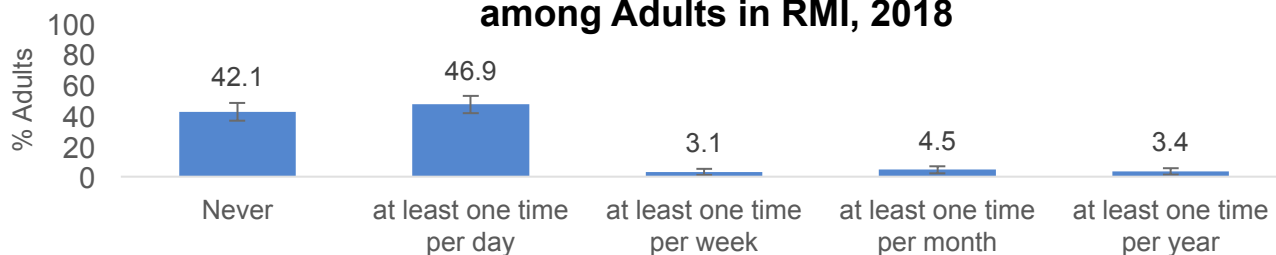
HbA1c check by Professional in the past year, among Adults in RMI, 2018
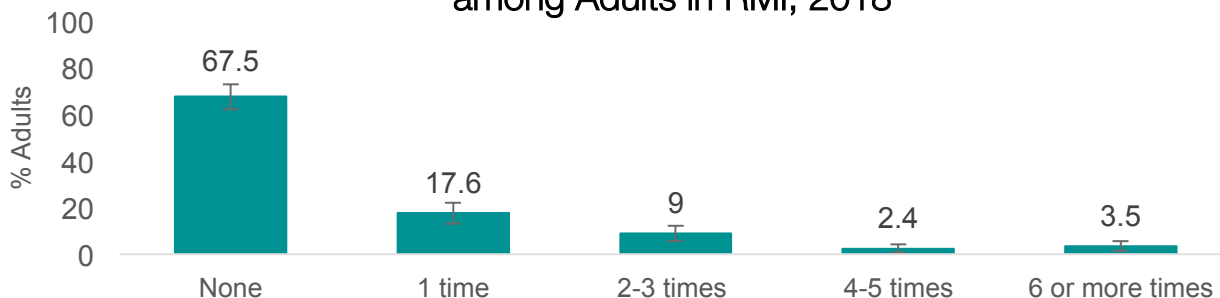
Diabetes Management

Among adults who self-reported as having diabetes in RMI, 63.4% have never checked their feet for sores or irritations; 69.4% have not had a health professional check their feet for any sores or irritations in the past year.

Frequency of Foot Self-Check for Sores or Irritations, among Adults in RMI, 2018
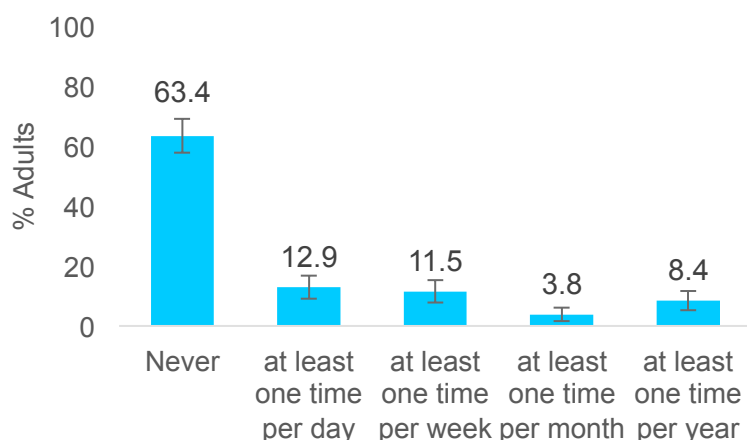
Foot Check by Professional in the past year, among Adults in RMI, 2018
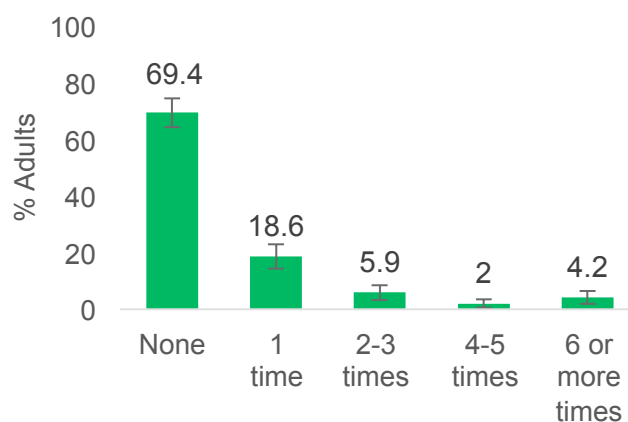
Among adults who self-reported as having diabetes in RMI, about half (53.2%) had never had an eye exam in which their pupils were dilated; 81.1% have not ever taken a course or class on how to manage diabetes themselves.

Last Eye Exam, among Adults in RMI, 2018
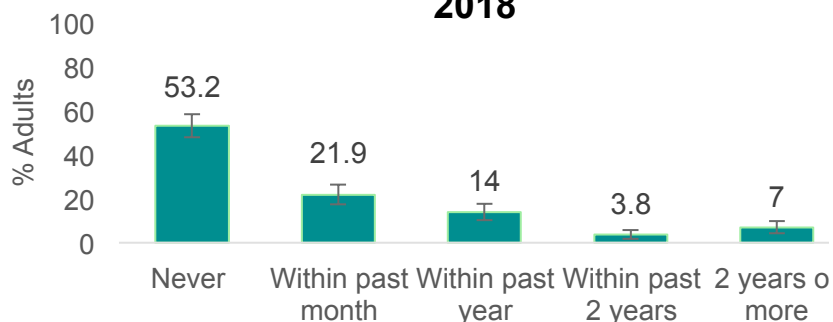
Diabetes Management Class, among Adults in RMI, 2018

20
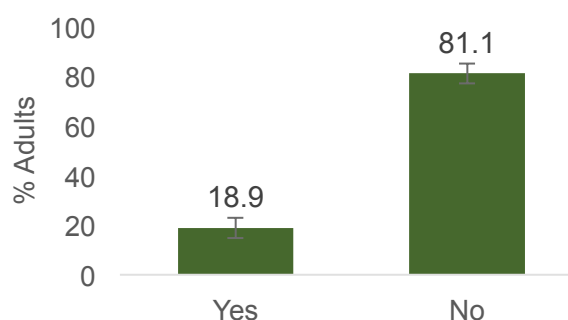
Total Cholesterol

Almost one out of every five adults (18.8%) in RMI had "elevated" total cholesterol (≥190mg/dL) during screening. However, only 4.9% had "high" total cholesterol (≥240mg/dL).

**Adult Total Cholesterol in RMI, 2018**

≥190 19%

<190 81%
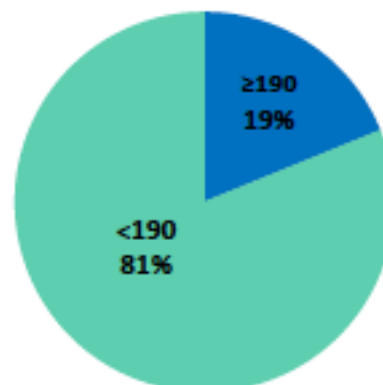
Elevated total cholesterol prevalence was highest among women, older adults, and residents of the Outer Atolls.

Elevated Cholesterol (≥190 mg/dL), by gender

Male: 13.2
Female: 23.7

Elevated Cholesterol (≥190 mg/dL), by age

18-24: 6.5
25-34: 11.4
35-44: 16.1
45-54: 29
55-64: 36
65+: 38.3
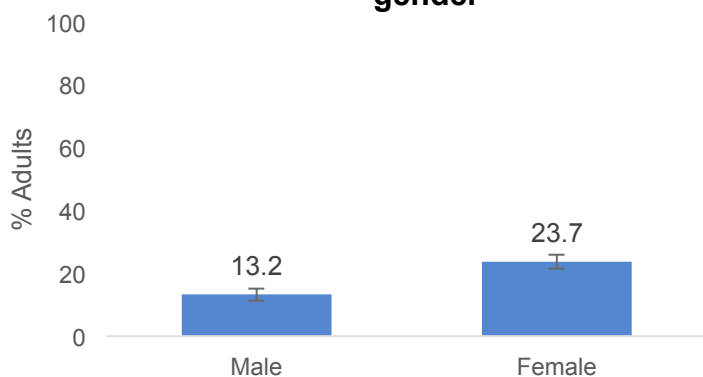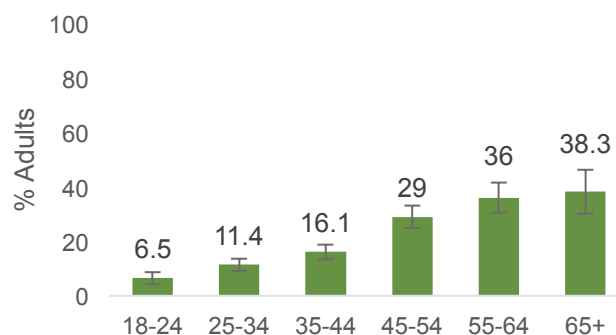
Elevated Cholesterol (≥190 mg/dL), by education

Highschool or less: 18.9
More than High School: 18.6

Elevated Cholesterol (≥190 mg/dL), by atoll

Majuro: 15.9
Ebeye: 15.5
Outer Atolls: 24.5
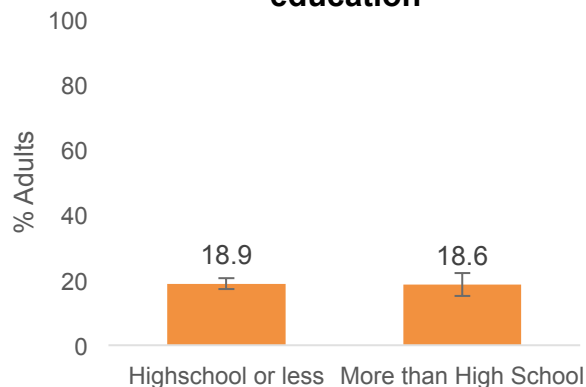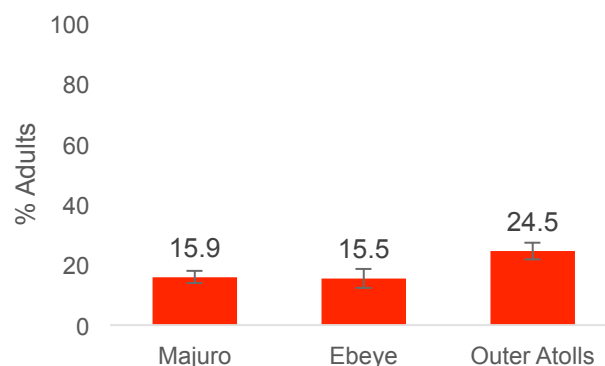
Self-Reported Chronic Disease

Self-reported chronic disease is organized below by most prevalent to least.

	%	95% Confidence Interval	
Ulcer	6.8	5.9	7.7
Gout	5.9	5.0	6.8
Arthritis	4.4	3.6	5.1
Chronic Kidney Disease	4.2	3.4	4.9
Asthma	3.5	2.8	4.2
Other Heart Condition	2.7	2.1	3.3
Heart Disease	2.1	1.6	2.7
Hepatitis B	1.1	0.7	1.5
Tuberculosis	1.1	0.7	1.4
Emphysema	0.6	0.3	0.9
Stroke	0.6	0.3	0.9
Cancer	0.6	0.3	0.9
Heart Attack	0.5	0.3	0.8
Angina	0.5	0.2	0.7
COPD	0.3	0.1	0.4
Hepatitis C	0.2	0.0	0.4

Cigarette Smoking

About one out of five (22.5%) adults in RMI reported cigarette smoking in the last 30 days. A majority of these adults (83.1%) smoke every day. Over half (57.4%) of these smokers reported that they want to quit. The average age adults started smoking among every day smokers in RMI was 19 years old.

Smoking Status among Adults in RMI, 2018
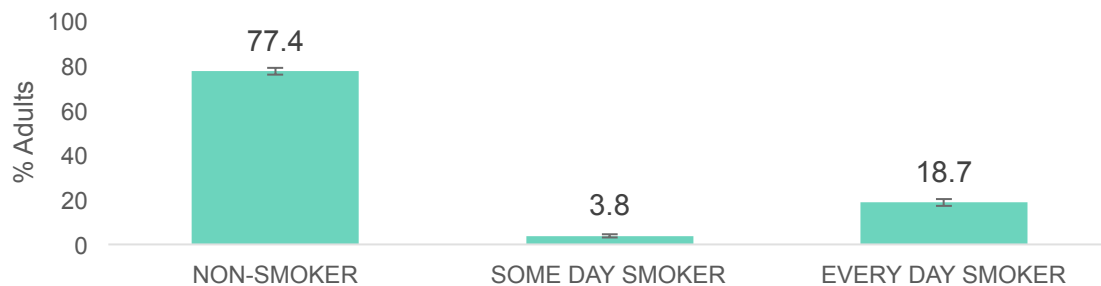
Smoking prevalence was highest among men, young adults, and adults living in the Outer Atolls.

Smoking Status, by gender
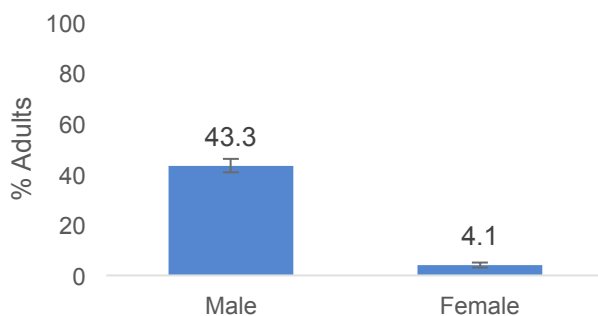
Smoking Status, by age
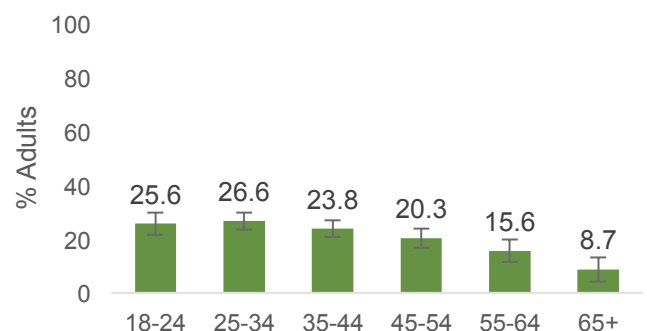
Smoking Status, by education

Smoking Status, by atoll

23
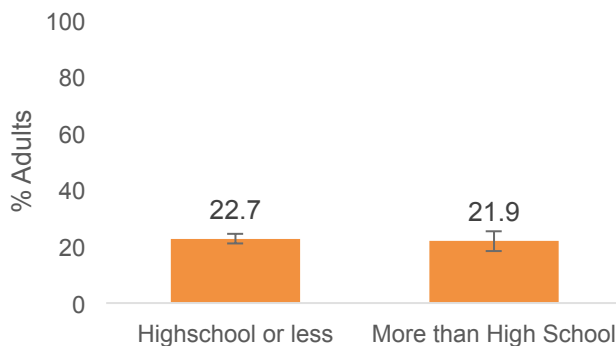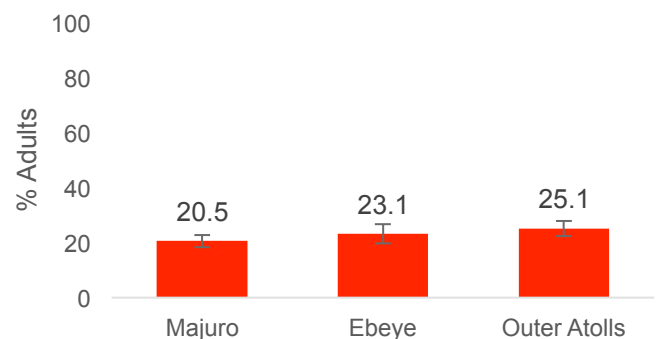
E-Cigarette Use

5.5% of adults in RMI reported use of e-cigarettes in the past 30 days, and 68.6% of these adults were every day users.

E-cigarette Use among Adults in RMI, 2018
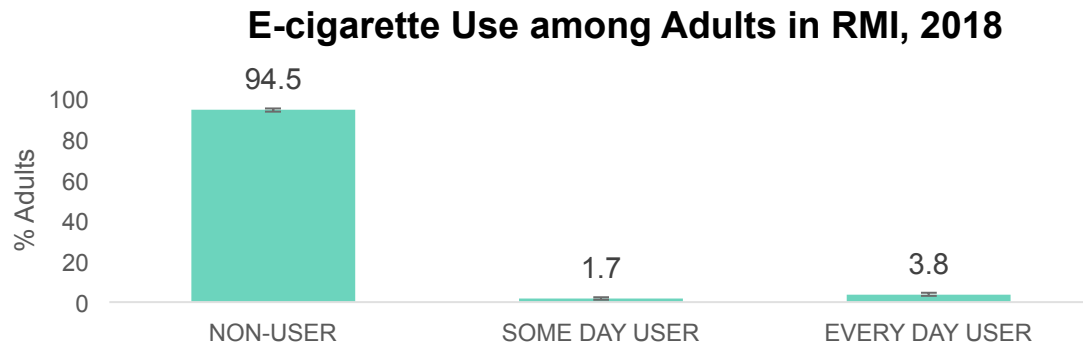
Although e-cigarette use prevalence is relatively low in RMI compared to cigarette smoking, it appears that men, young adults, more educated, and adults living in Majuro are taking up this habit.

E-cigarette Use, by gender

E-cigarette Use, by age

E-cigarette Use, by education

E-cigarette Use, by atoll

24
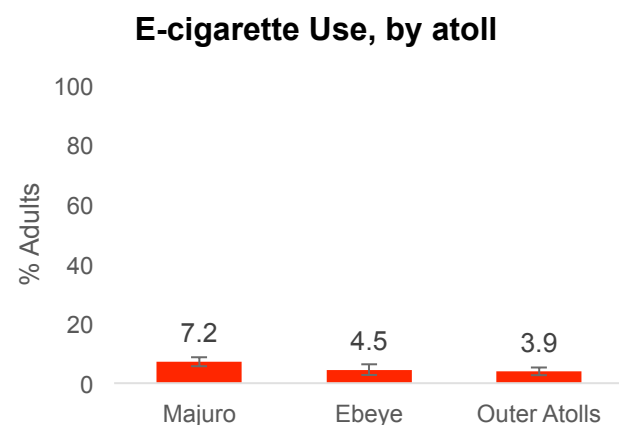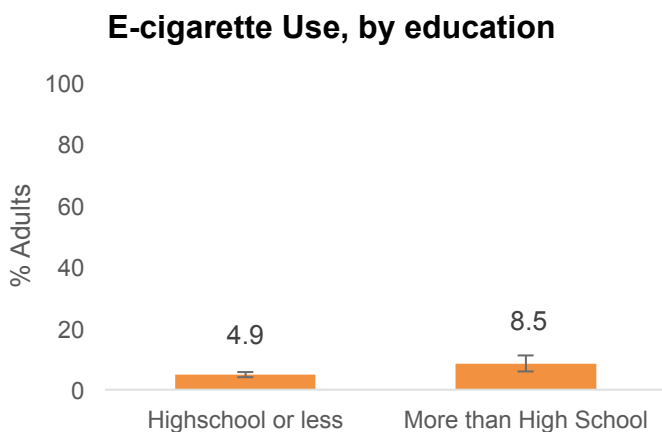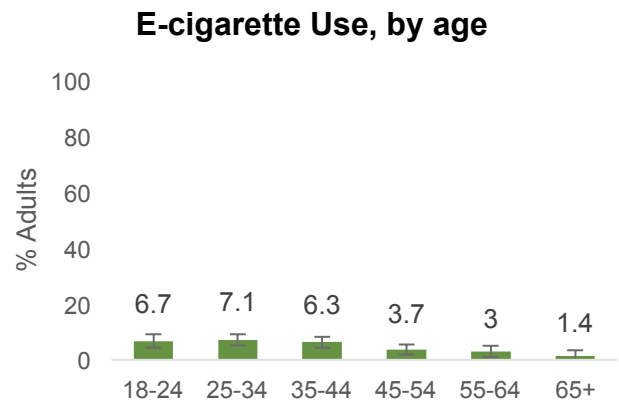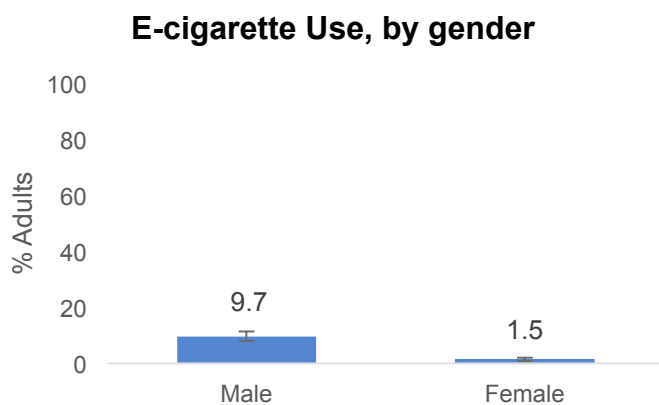
Second-Hand Smoke Exposure

About one-third (31.6%) of all adults in RMI reported some sort of exposure to second-hand smoke (SHS) at home, in a vehicle, or at work in the past 7 days.

Adult second-hand smoke exposure in RMI, 2018

Any SHS exposure in past 7 days
32%

No SHS exposure in past 7 days
68%
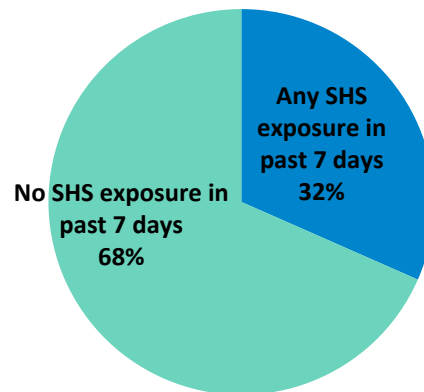
The most common place of second-hand smoke exposure was in a vehicle (20.1%). 10.3% of adults reported second-hand smoke exposure at work and 15.4% of adults reported second-hand smoke exposure at home.

SHS Exposure among Adults in RMI, 2018

% Adults

	Home	Vehicle	Work
	15.4	20.1	10.3

25
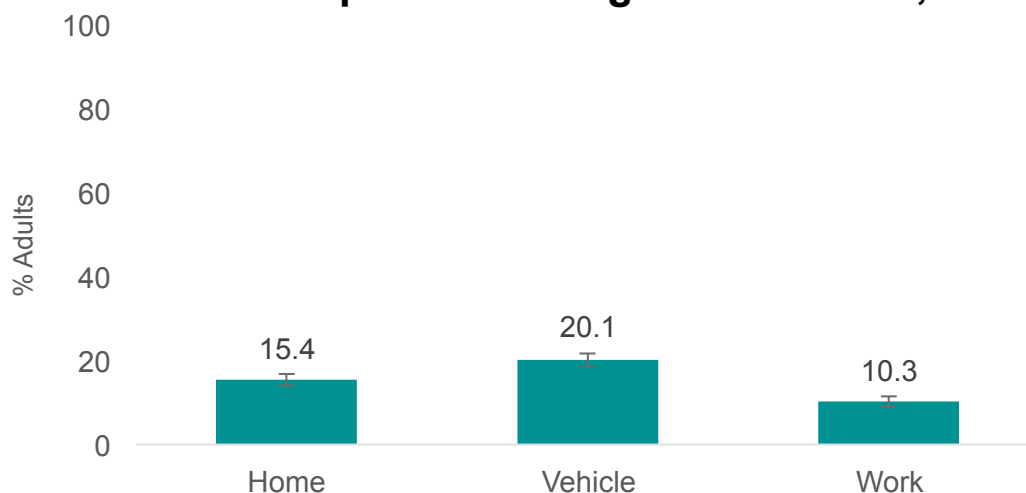
Betel Nut Use

13.8% of adults in RMI reported betel nut use in the past 30 days. Over half (57.8%) of adults who chew betel nut, chew every day. A majority of respondents (96.5%) who use betel nut add tobacco. About 75% of respondents who used betel nut said they wanted to quit.

Betel Nut Chewing Status in RMI, 2018
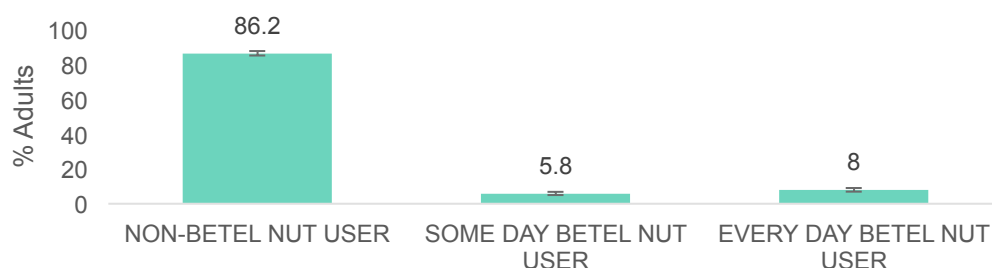
Betel nut chewing is most prevalent among men, young adults, those with a higher education, and adults living in Majuro.

Betel Nut Chewing Status, by gender
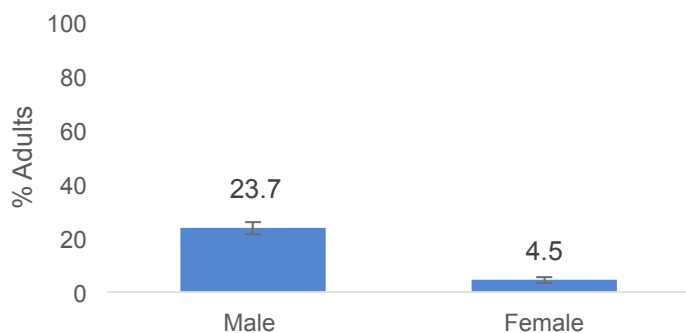
Betel Nut Chewing Status, by age
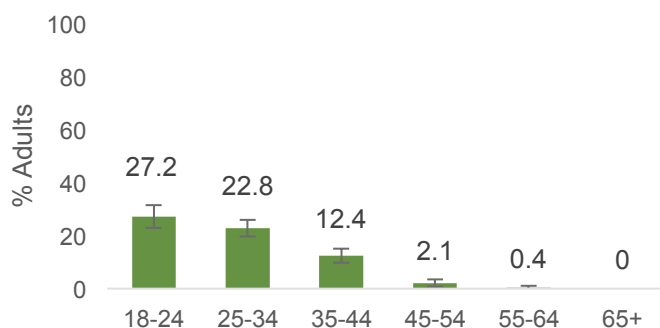
Betel Net Chewing Status, by education

Betel Nut Chewing Status, by atoll

26
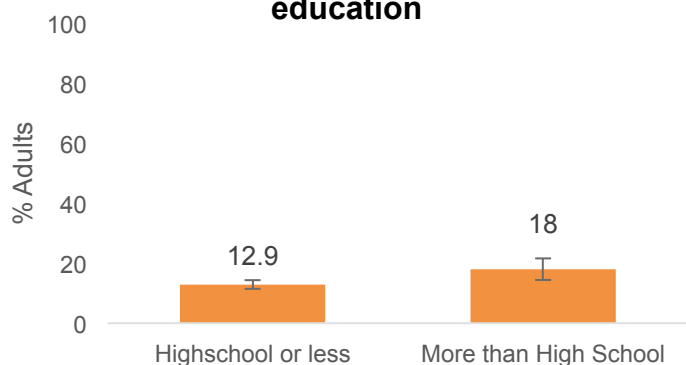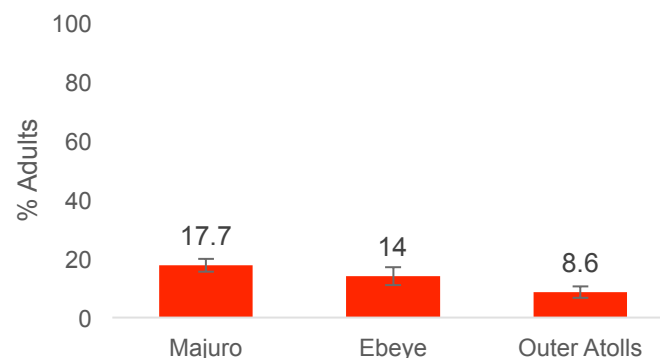
Overall Tobacco Use

Over one-third (37.8%) of adults in RMI reported using any form of tobacco (smoke, chewing tobacco, or chewing betel nut with added tobacco).

Any Tobacco Use among Adults in RMI, 2018

Yes
38%

No
62%
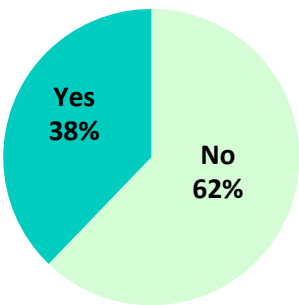
Tobacco use was more prevalent among men, young adults, more educated individuals, and those living in Ebeye.

Any Tobacco Use, by gender
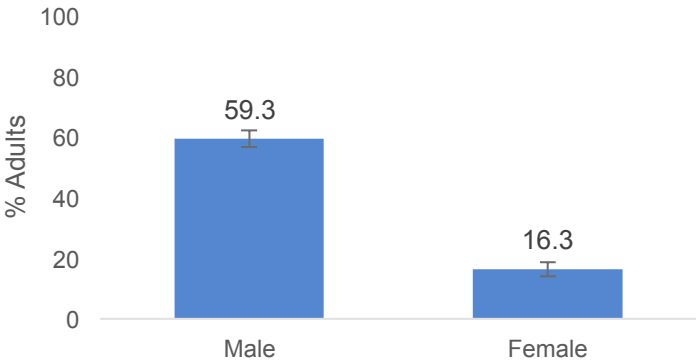
Male 59.3
Female 16.3

Any Tobacco Use, by age

18-24: 47.3
25-34: 50.9
35-44: 38.9
45-54: 28.4
55-64: 19.7
65+: 9.4

Any Tobacco Use, by education

Highschool or less: 37.3
More than High School: 40.1

Any Tobacco Use, by atoll

Majuro: 37.1
Ebeye: 42.8
Outer Atolls: 35.5
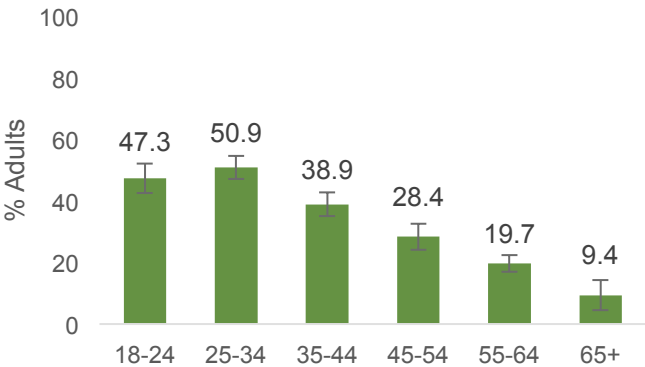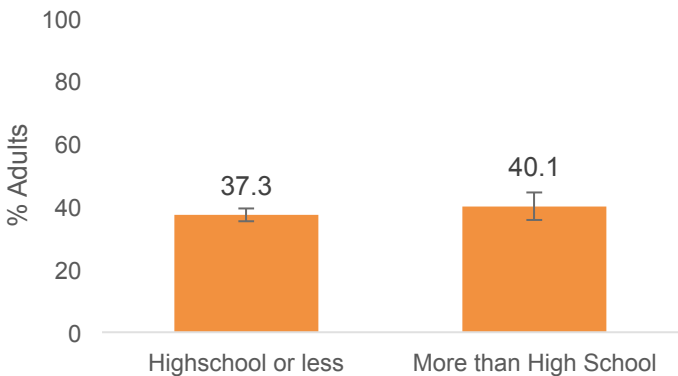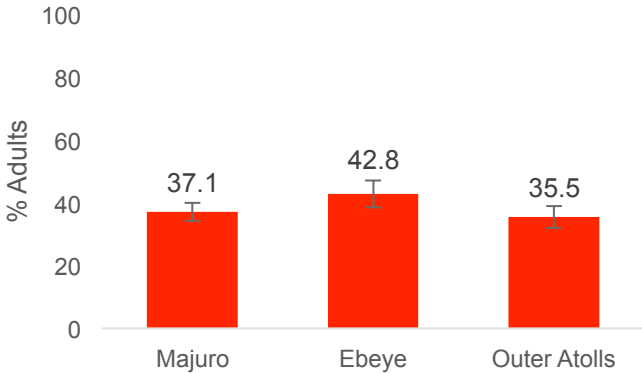
Alcohol Use and Binge Drinking

16.3% of adults in RMI reported alcohol use in the past 30 days. Only 0.8% of adults reported drinking alcohol every day in the past 30 days. 14.8% of adults reported binge drinking* in the past 30 days. The average age that adults start drinking among those who drank in the past 30 days in RMI was 20 years old.

*(binge drinking is defined as drinking 4 or more standard drinks on one occasion for women and 5 or more standard drinks on one occasion for men)

Alcohol Status among Adults in RMI, 2018

Binge drinking is more prevalent among men and more educated adults. Additionally, binge drinking is most prevalent in Ebeye.

Binge Drinking, by gender
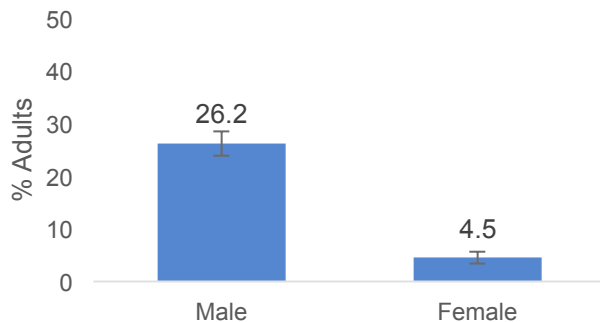
Binge Drinking, by age
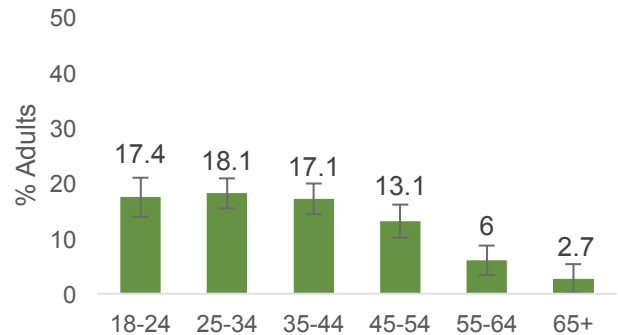
Binge Drinking, by education
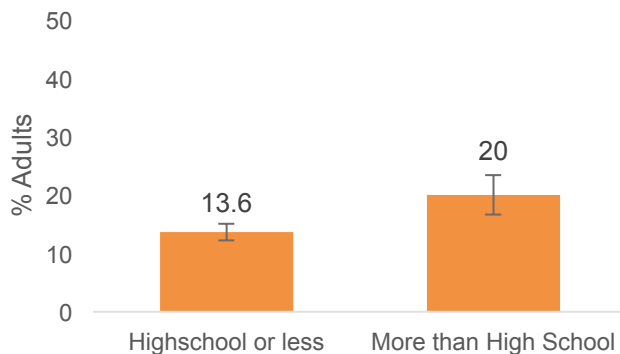
Binge Drinking, by atoll
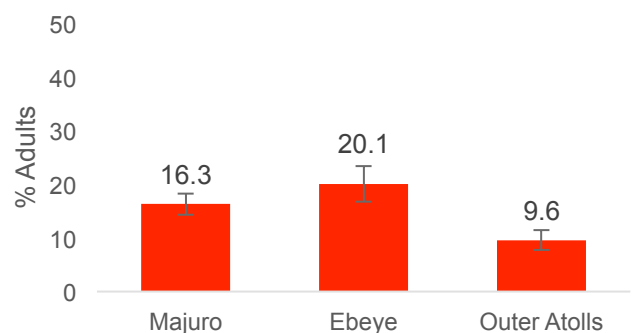
Regular Diet

Over one-third of adults in RMI (37.4%) reported eating a majority imported food or all or mostly all imported food. Another third of adults (37.4%) reported eating about half local food and half imported food. It was estimated that only 6.5% of adults in RMI eat all or mostly all local food.

Regular Diet among Adults in RMI, 2018

Category	% Adults
All or mostly all local food	6.5
Majority local food but some imported food	18.6
About half local and half imported food	37.4
Majority imported food but some local food	30.9
All or mostly all imported food	6.5
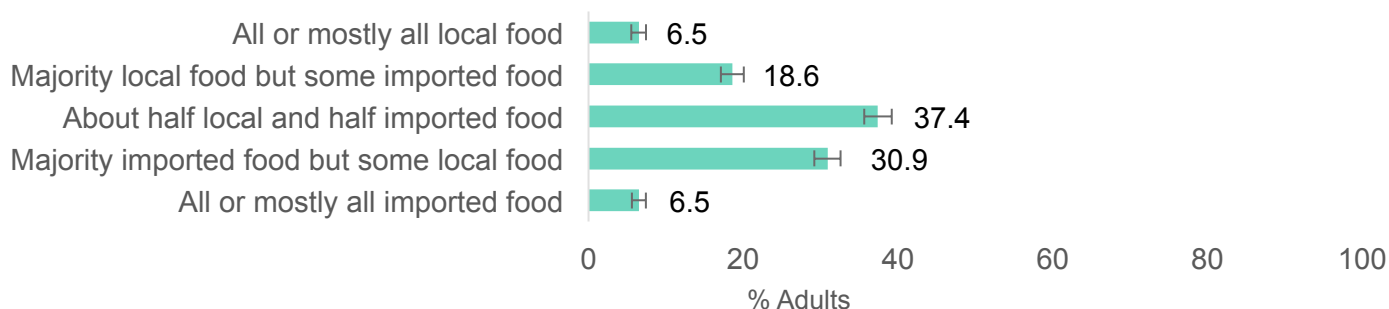
A diet consisting of a majority of imported food was more prevalent among adults who were more educated, and those living in Ebeye.

Majority Imported Food, by gender
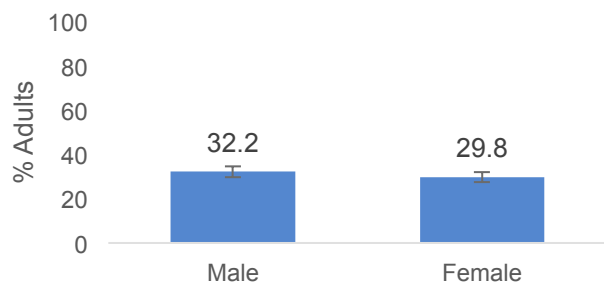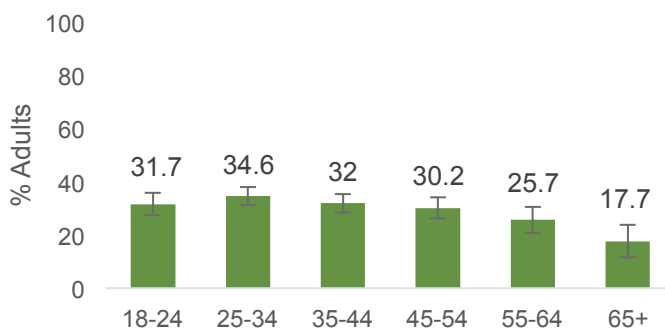
Male	Female
32.2	29.8

Majority Imported Food, by age

18-24	25-34	35-44	45-54	55-64	65+
31.7	34.6	32	30.2	25.7	17.7

Majority Imported Food, by education

Highschool or less	More than High School
30.3	33.2

Majority Imported Food, by atoll

Majuro	Ebeye	Outer Atolls
26	48.5	27.7

29
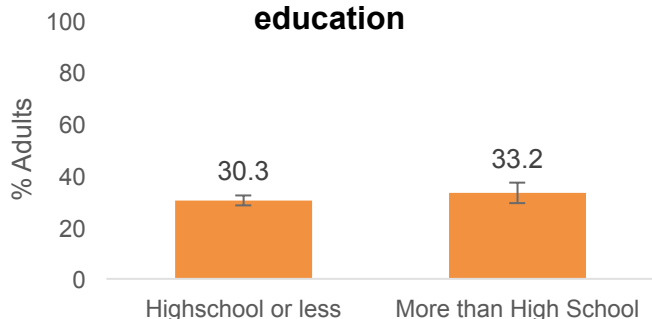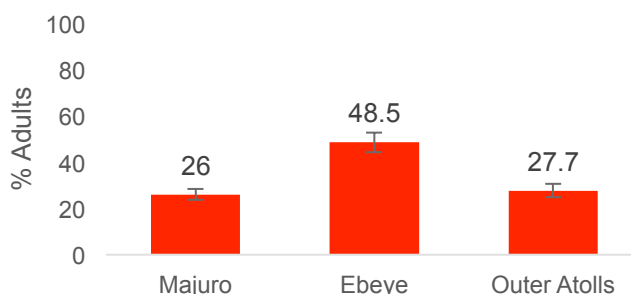
Fruit and Vegetable Consumption

A majority of adults in RMI (94.5%) consume less than the recommended daily servings of fruits and vegetables (at least 5 per day), and about half (48.8%) consume <1 serving of fruits and vegetables daily.

Daily Fruit and Vegetable Consumption among Adults in RMI, 2018
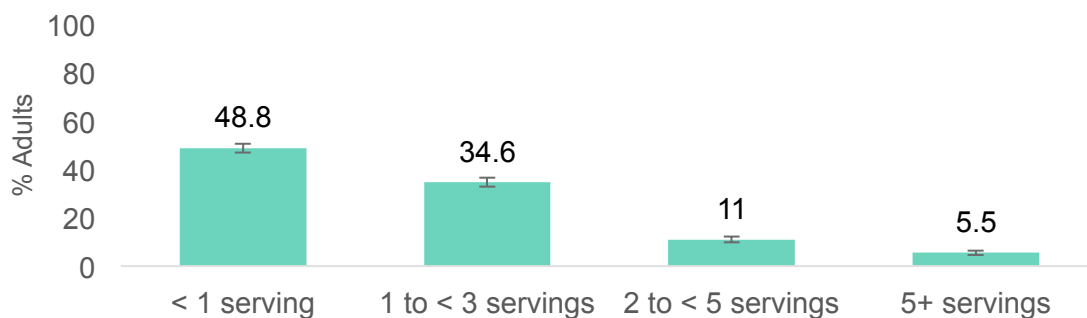
Very low fruit and vegetable consumption (<1 serving per day) was more prevalent among younger adults, less educated individuals, and those living in the outer atolls.

<1 F&V serving/day, by gender
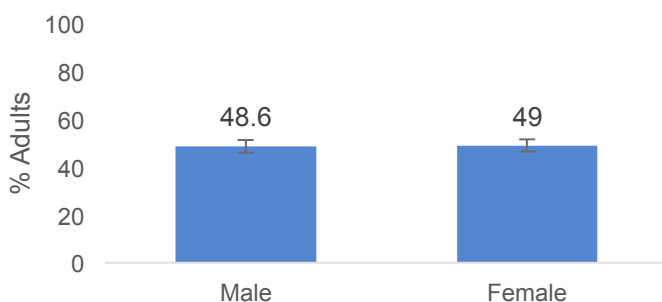
<1 F&V serving/day, by age
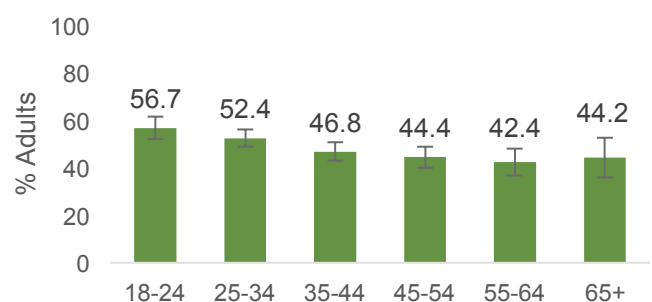
<1 F&V serving/day, by education
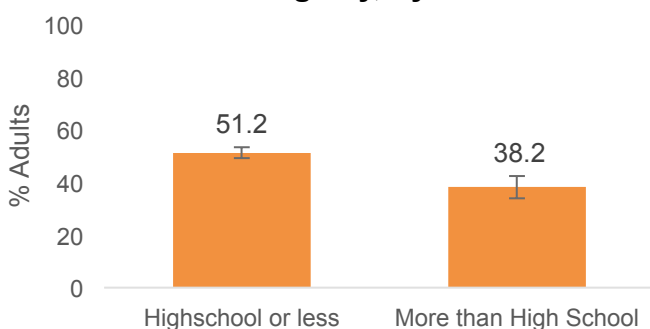
<1 F&V serving/day, by atoll

30
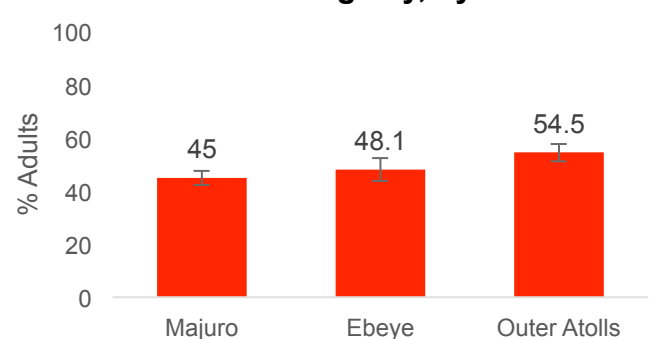
Sodium

81.8% of adults in RMI say they are currently watching their salt intake. Over half (61.7%) of adults in RMI feel that lowering their dietary salt intake is very important.

Adult sodium intake in RMI, 2018
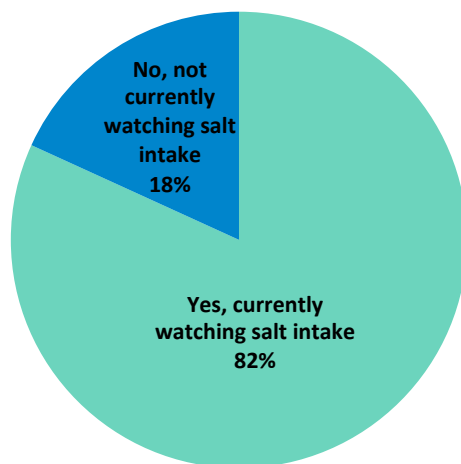
Self-reported Importance of Lowering Dietary Salt among Adults in RMI, 2018
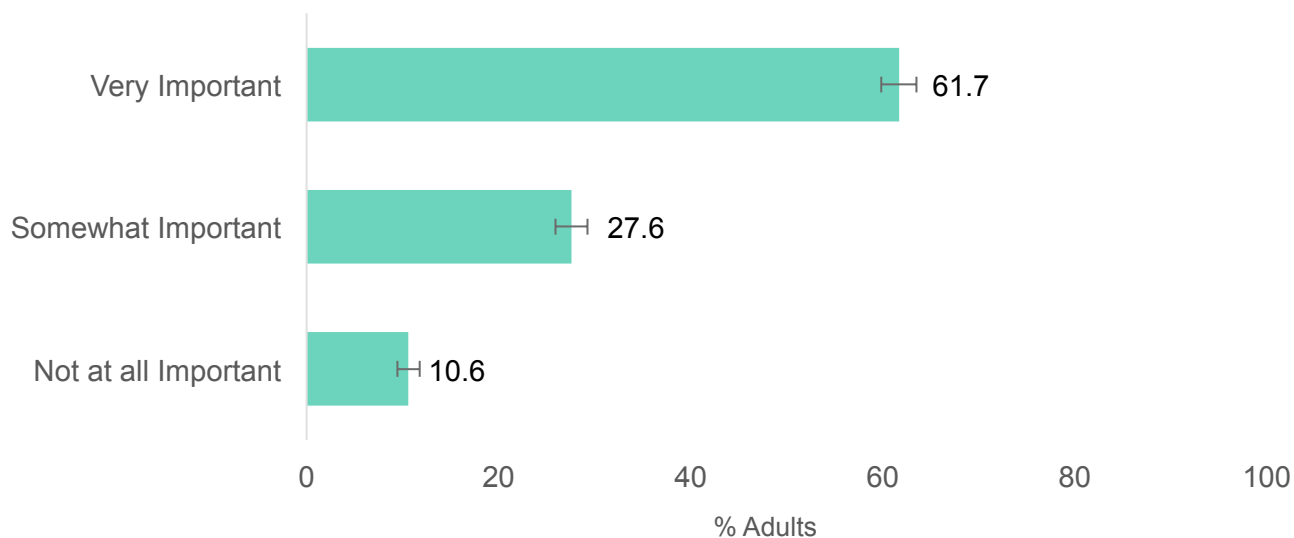
Processed Meat Consumption

Most adults in RMI (92.6%) consume processed meat (defined as packaged or canned modified meat products such as spam, hotdogs, vienna sausages, etc.) at least once per day.

Times Processed Meats are Consumed Daily among Adults in RMI, 2018

H
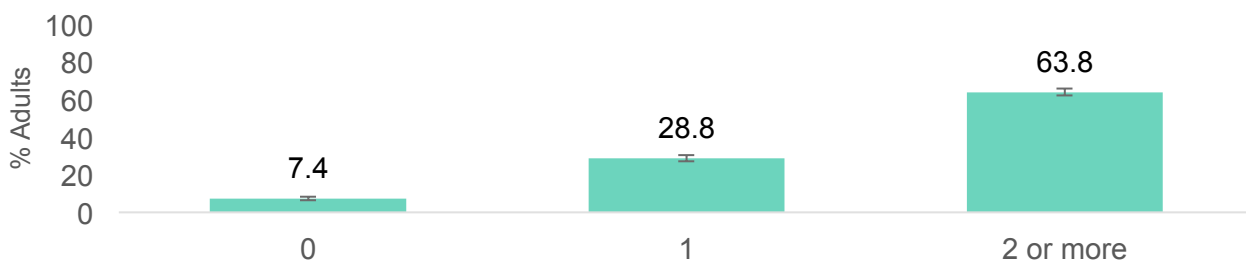
eavy consumption of processed meats (2+ times per day) is more prevalent among men and younger adults. Majuro has the highest prevalence of heavy consumption of processed meats (71.6%), followed by Ebeye (61.9%), and the Outer Atolls (53.8%).

Processed Meats 2+ Times per Day, by gender
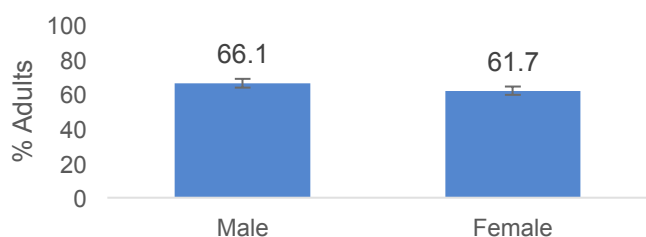
Processed Meats 2+ Times per Day, by age
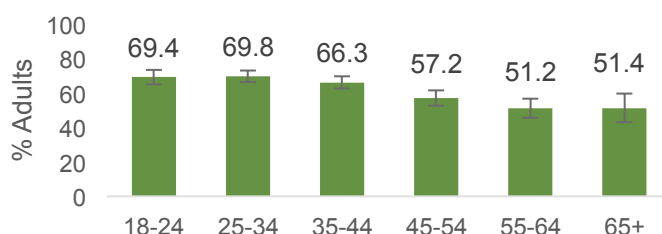
Processed Meats 2+ Times per Day, by education
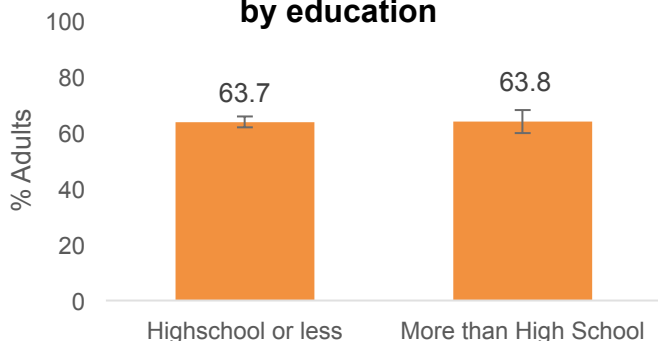
Processed Meats 2+ Times per Day, by atoll
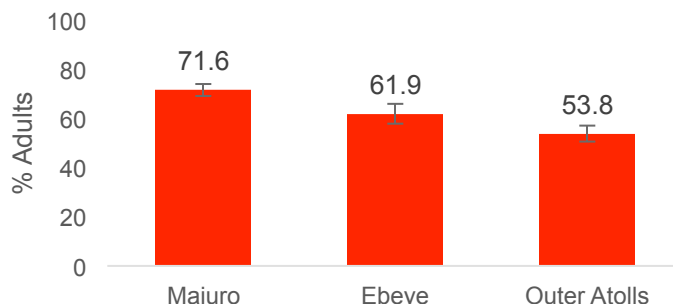
Sugar-Sweetened Beverages

Most adults (89.2%) in RMI consume at least one serving of a sugar-sweetened beverage (SSB) each day. Over half (54.6%) consume 2 or more servings of SSBs daily.

SSBs Consumed Daily among Adults in RMI, 2018
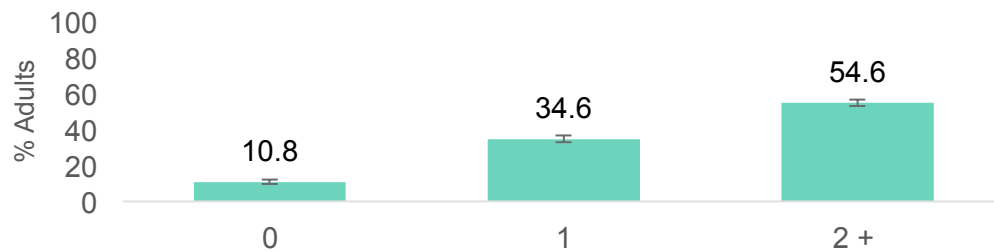
Heavy consumption of SSBs (2+ SSB servings daily) is most prevalent among less educated adults, and those living in the outer atolls.

2+ SSBs Daily, by gender
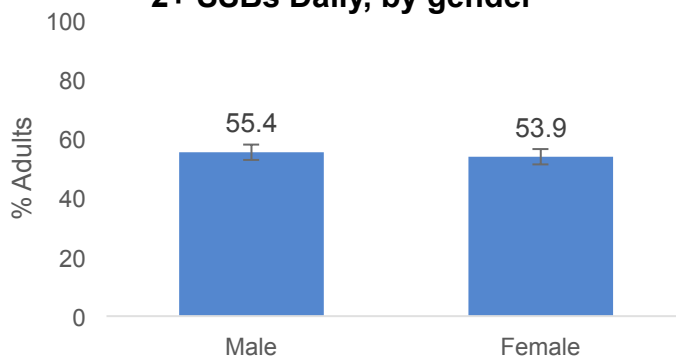
2+ SSBs Daily, by age
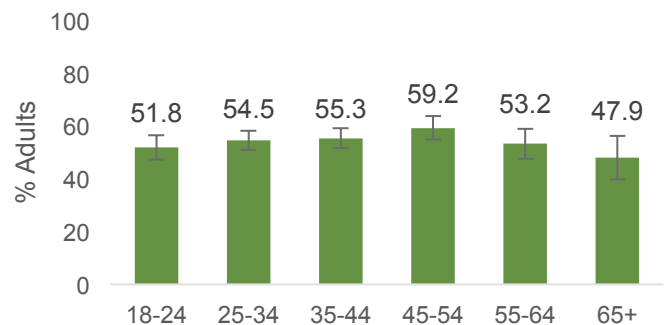
2+ SSBs Daily, by education
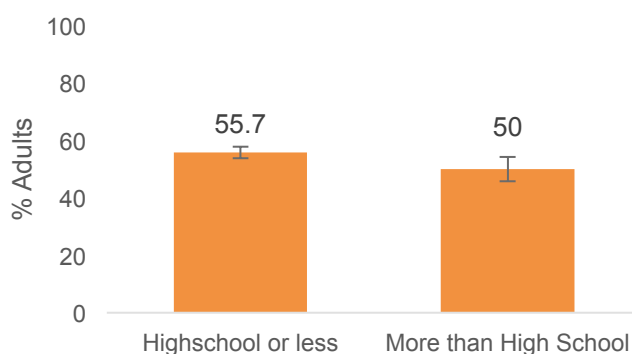
2+ SSBs Daily, by atoll
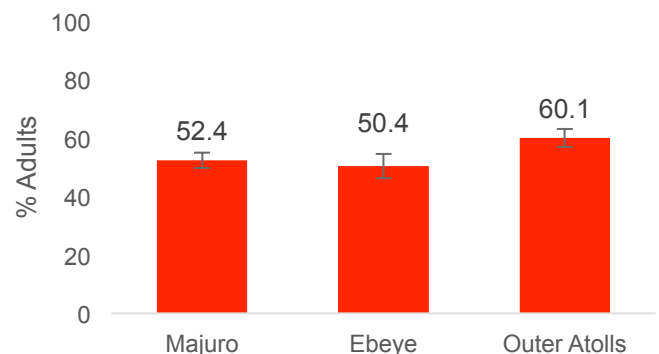
Physical Activity

In RMI, about one-third (29.5%) of adults did not engage in any physical activity specifically for exercise in the past month. Less than half (43.5%) participated in physical activity for exercise every day in the past 30 days.

Days of Physical Activity for Exercise in Past Month among Adults in RMI, 2018
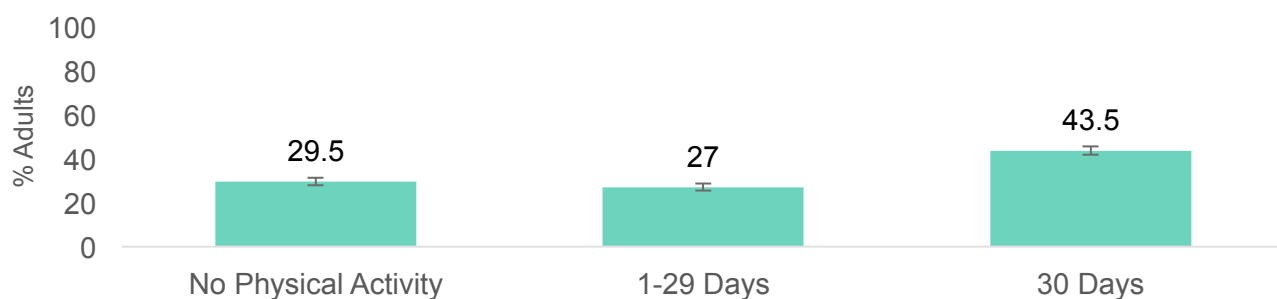
No physical activity specifically for exercise is most prevalent among women, older adults, less educated adults, and those living in Ebeye.

No Physical Activity for exercise, by gender
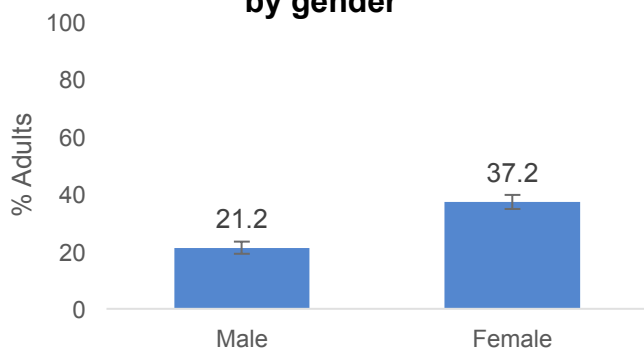
No Physical Activity for exercise, by age
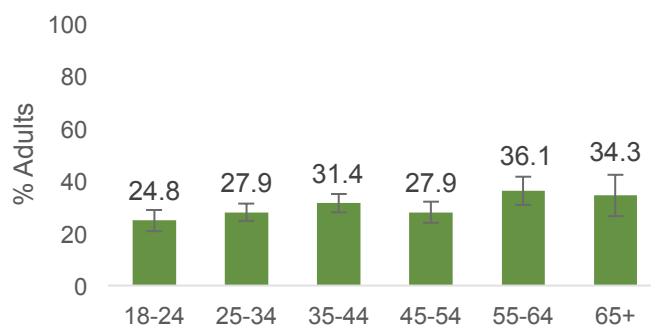
No Physical Activity for exercise, by education
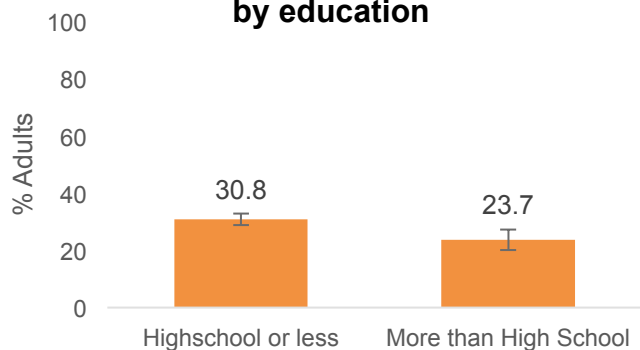
No Physical Activity, by atoll

34
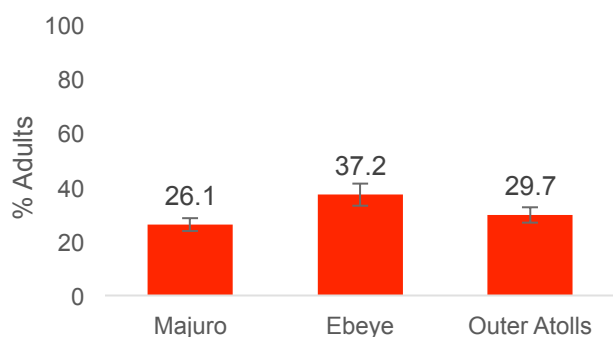
Type of Physical Activity

Among adults who were physically active, specifically for exercise in the past 30 days in RMI, walking was the most prevalent form of physical activity done for exercise (60.7%). In addition, 26.5% of adults in RMI play sports to stay physically active.

Types of Physical Activity, among Adults in RMI, 2018
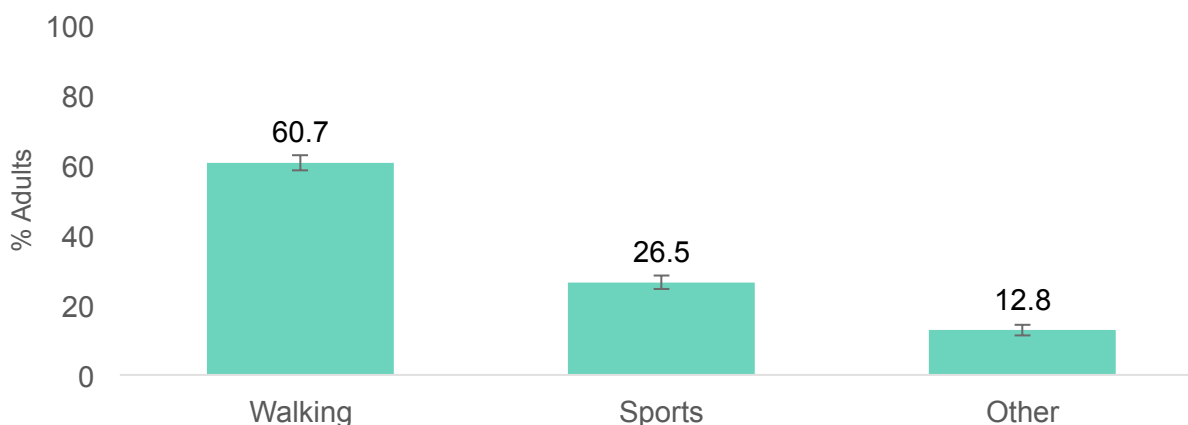
Among adults in RMI who play sports, the most common sports reported were basketball (35.6%) and volleyball (27.3%).

Types of Sports Played among Adults in RMI, 2018
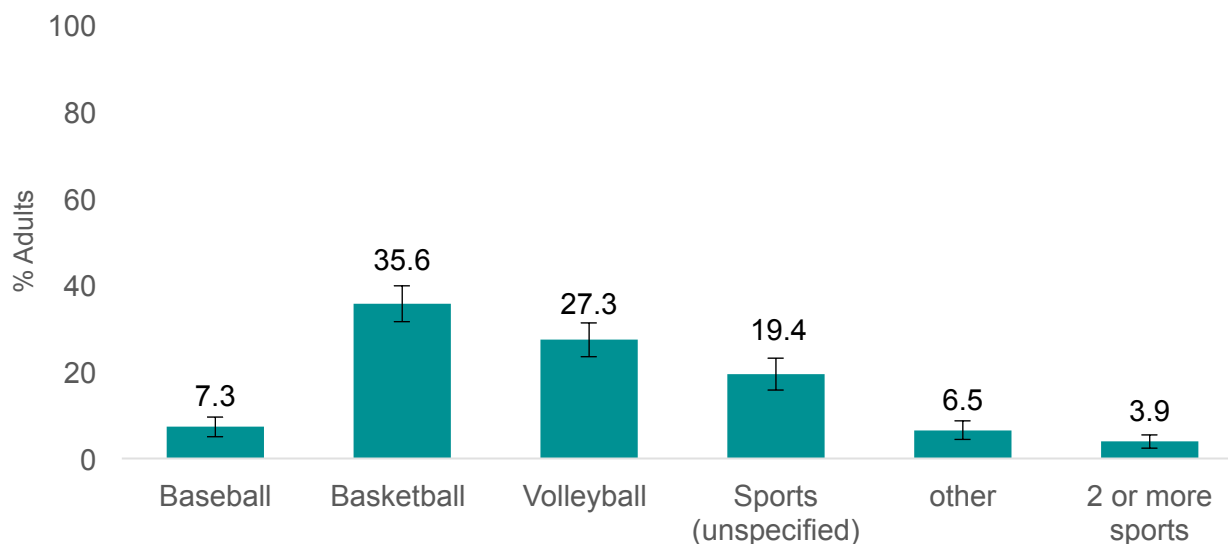
Colon Cancer Screening: Colonoscopy

Most adults 50 to 75 years old in RMI (92%) have never received a colonoscopy. Only 7.9% of adults 50 to 75 years meet the American Cancer Society recommendation of receiving a colonoscopy every 10 years.

Last Colonoscopy among Adults (50-75 years) in RMI, 2018

The recommendation for receiving a colonoscopy is met more by women, older adults, more educated adults and those living in Ebeye.

Colonoscopy in past 10 years, by gender
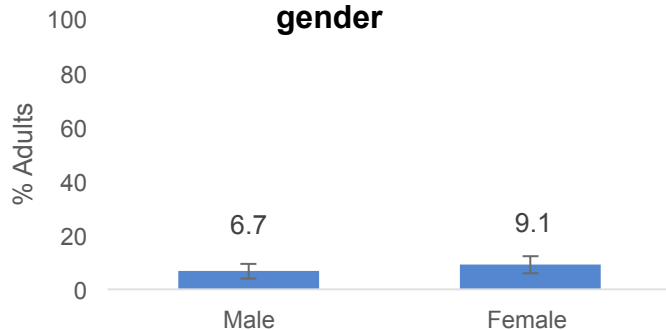
Colonoscopy in past 10 years, by age
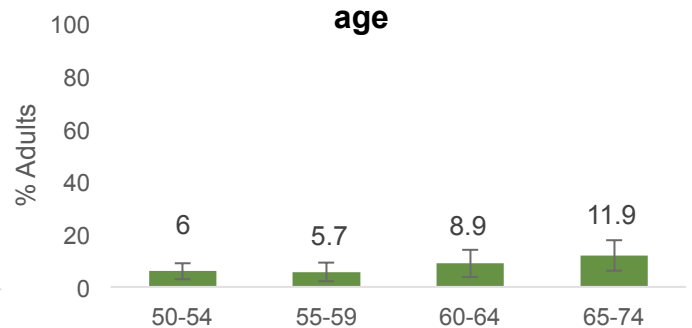
Colonoscopy in past 10 years, by education
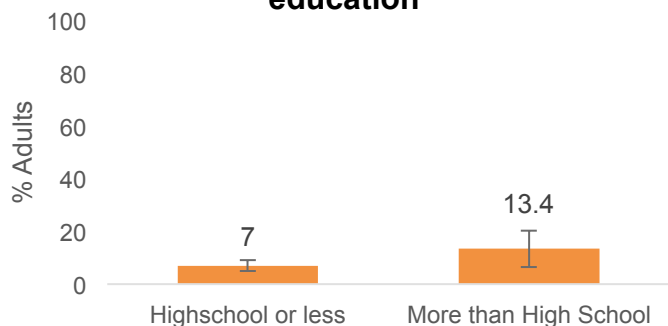
Colonoscopy in past 10 years, by atoll
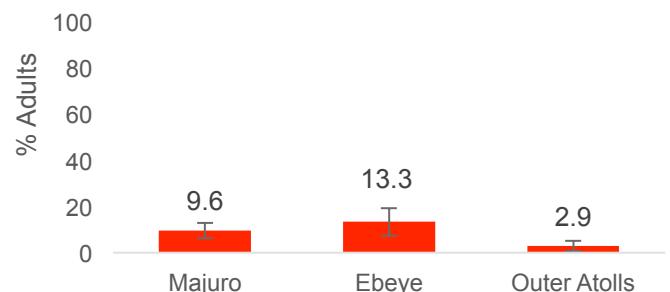
Colon Cancer Screening: Blood Stool Test

Over half (59.6%) of adults in RMI have never received a Blood Stool Test. About 1 in 5 adults (22.7%) 50-75 years old in RMI meet the American Cancer Society recommendation of receiving a Blood Stool Test once per year.

Last Blood Stool Test among Adults (50-75 years) in RMI, 2018
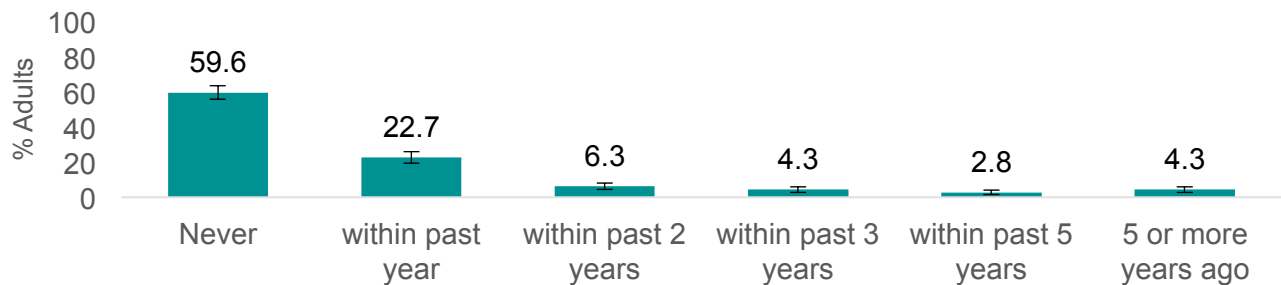
Ebeye had the highest prevalence (34.6%) of adults meeting the recommendation of receiving a blood stool test every year.

Blood Stool Test in past year, by gender
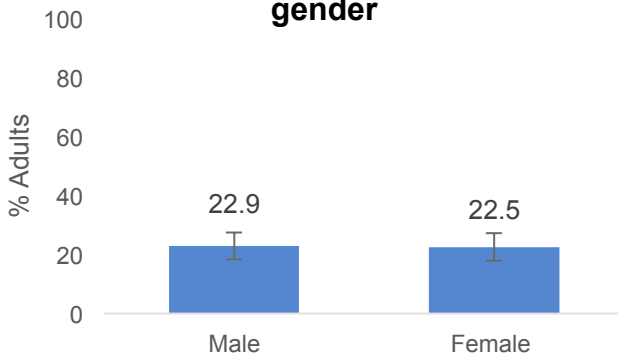
Blood Stool Test in past year, by age
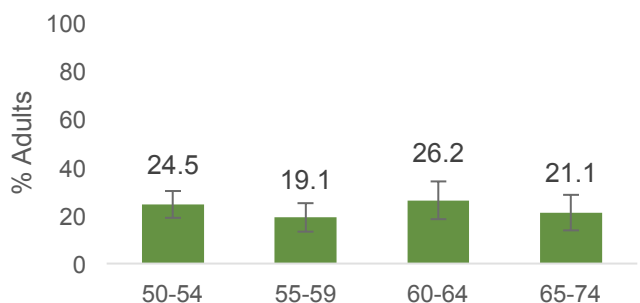
Blood Stool Test in past year, by education

Blood Stool Test in past year, by atoll

37
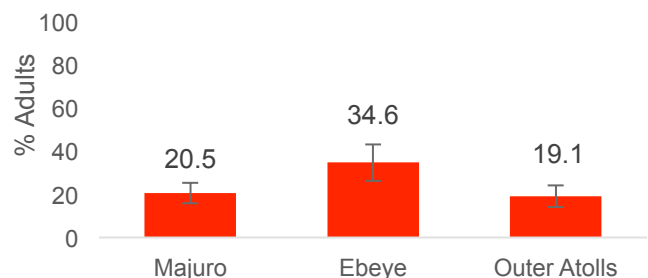
Female Cancer Screening: Mammogram

About 1 in 5 women (22%) aged 50-74 years in RMI have received a mammogram in the past two years per US Prevention Task Force (USPTF) recommendation; 70.6% have never received a mammogram.

Last Mammogram among Women (50-74 years) in RMI, 2018
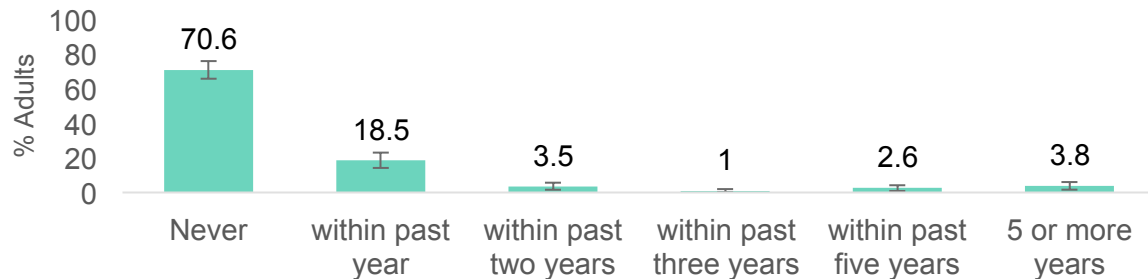
The recommendation for receiving a mammogram is met more by more educated women, women 50-54 years old, and those living in Ebeye.

Mammogram in past 2 years, by age
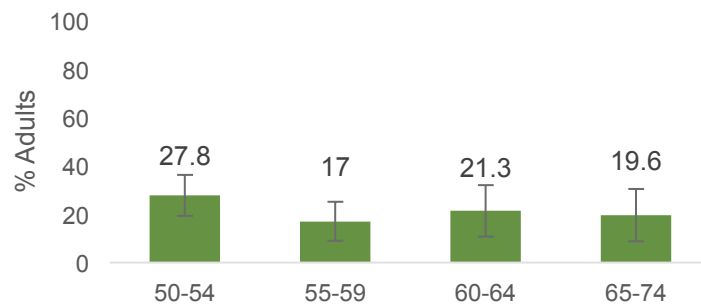
Mammogram in past 2 years, by education
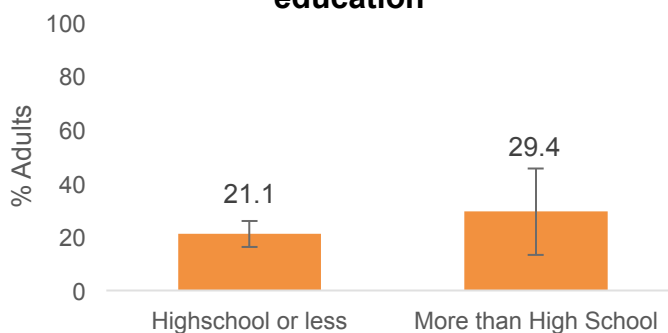
Mammogram in past 2 years, by atoll
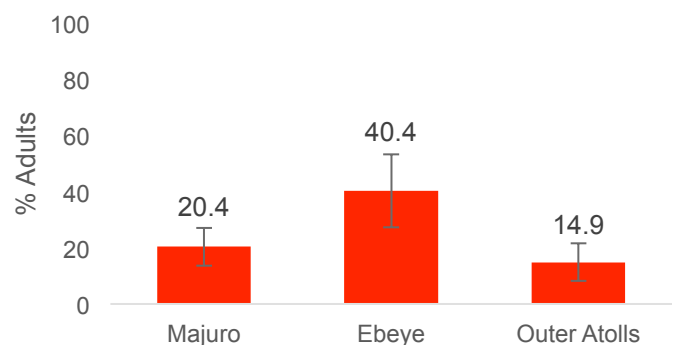
Female Cancer Screening: Pap/VIA

About 1 in 3 women (33.6%) aged 21-65 years in RMI have had a Pap Smear or Vaginal Inspection with Acetic Acid (VIA) in the past 3 years (per USPTF recommendation); Over half (54.2%) have never had a Pap Smear or VIA.

Last Pap or VIA among Women (21-65 years) in RMI, 2018

Category	% Adults
Never	54.2
within past year	19.4
within past two years	9.5
within past three years	4.7
within past five years	4
five or more years	8.2
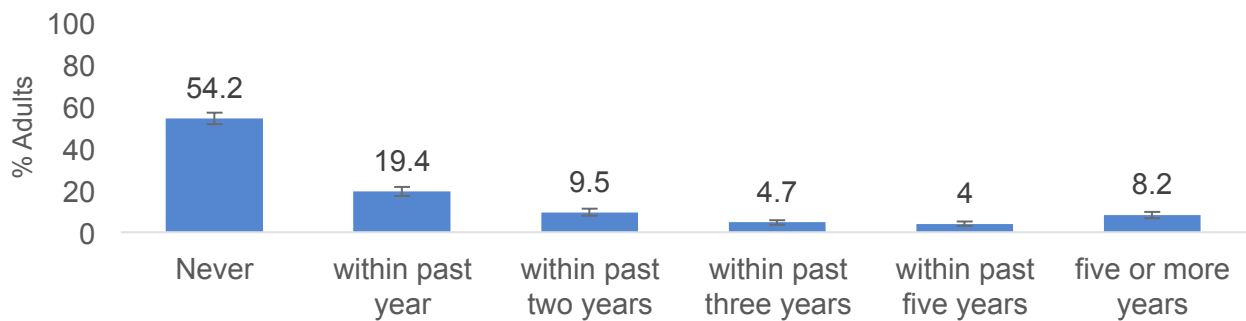
The recommendation for receiving a Pap or VIA is met more often by more educated women and women living in Ebeye.

Pap Smear or VIA in past 3 years, by age

Age	% Adults
21-30	33.6
31-40	37.7
41-50	30.3
51-65	30.7
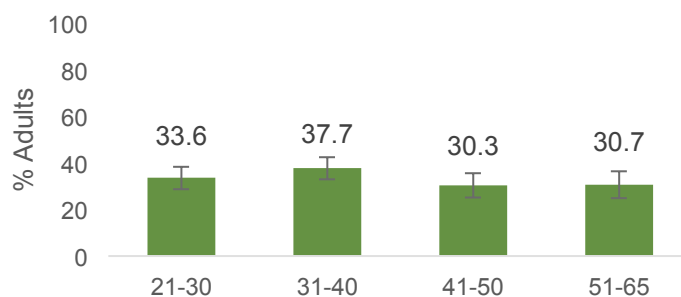
Pap Smear or VIA in past 3 years, by education

Education	% Adults
Highschool or less	32.9
More than High School	37.4

Pap Smear or VIA in past 3 years, by atoll

Atoll	% Adults
Majuro	29.6
Ebeye	42
Outer Atolls	34.6

39
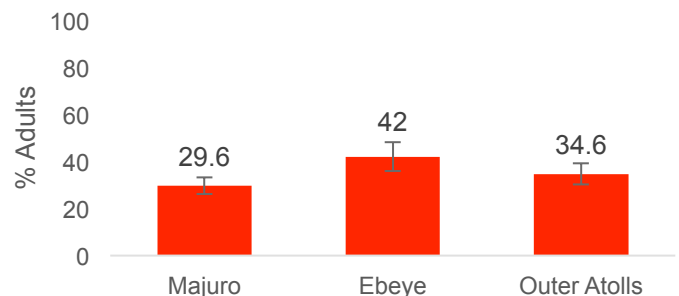
Female Cancer Screening: Clinical Breast Exam

About three out of four women (76.5%) have never had a clinical breast exam. There are currently no set recommendations for receiving a clinical breast exam.

Last Clinical Breast Exam (CBE) among Women in RMI, 2018
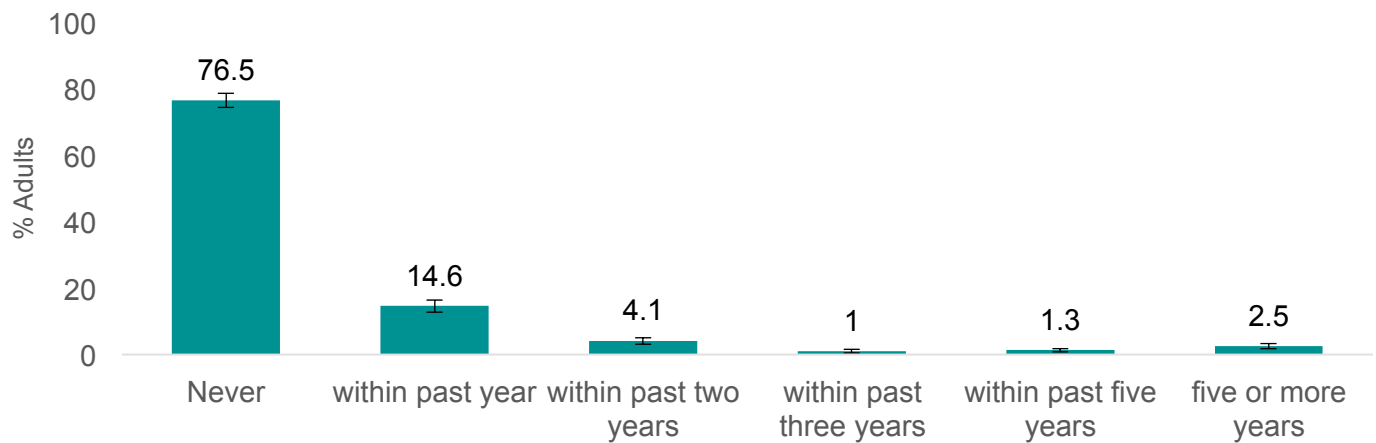
Important notes about survey

Limitations:

- A good portion of the data collected are self-reported, thus bias may exist.
- Not all of the outer atolls could be surveyed, therefore these data do not represent all of the RMI. However, the majority of the population (83%) was eligible for sampling, and some of the outer atolls (Arno, Jaluit, Wotje, and Kili) were sampled to reflect all outer atolls.

Strengths:

- Physical and biochemical measurements were conducted for NCD prevalence estimation rather than just self-report.
- Sample size was exceptionally large and included approximately 10% of all adults residing in RMI.
- Quality and thorough training provided for all surveyors and partners (including standardization of anthropometric measures - height and weight).
- Use of tablets ensured data collection was clean, efficient, and timely.
- There were successful partnerships and collaboration between internal and external stakeholders.
- The majority of the randomly selected participants were agreeable to taking part in the survey, resulting in a high response rate of 92.3%.
- To ensure quality and authentic collection of data, surveyors were required to take photos of selected participant, participant's home, and attain signatures from participants each time a section of the survey was completed (participants were informed photos would not be used publicly but only seen by survey managers for auditing purposes only).

Challenges:

- The original methodology requested that after the interview, participants fast that evening and show up at designated locations nearby the following day for fasting measurements. Unfortunately, participant turn-out was low using this methodology. Therefore, a slight adjustment to survey methodology was initiated three months into collection, in which surveyors came back to the participant's home for fasted measurements.
- Securing funds and lengthy processes for procurement caused survey delays.
- There were about 44 trained surveyors. Within three months, more than half of the surveyors were lost to various factors like full time jobs, school, and travel. A handful of surveyors who were not following proper protocol of data collection also had their contracts terminated. In the end, there were only about 10 reliable surveyors.
- For Majuro and Ebeye (urban centers), it was a challenge to find selected participants who had a full-time job or who were attending school. Surveyors found it difficult to find them at home during the day and during revisits in the evening. Multiple house visits were therefore necessary.
- Participants occasionally forget to fast for the biochemical measurement portion of the survey, therefore surveyors were obligated to reschedule visits.

Recommendations

As previously mentioned, non-communicable diseases are the leading causes of morbidity and mortality in the U.S. Affiliated Pacific Islands, which includes the RMI [1]. Based on the results found, it is apparent that many RMI residents are currently suffering from various NCDs and their lifestyle may be contributing to these morbidities. Overweight/obesity, tobacco use, and poor diet have been identified as prevalent risk factors for developing NCDs in the RMI. Evidence-based programs and policies targeting adults as well as youth may be particularly effective in reducing the prevalence of NCDs in the RMI.

High prevalence of NCDs, specifically diabetes is apparent. Additionally, there appear to be many individuals with undiagnosed NCDs in the population. Among those diagnosed with diabetes or hypertension, control of these conditions appears to be poor. Programs that encourage individuals to seek professional care for screening and treatment of NCDs are recommended. Additionally, evidence-based self-management programs could be considered.

Prevalence of NCDs may also be impacted by limited medical resources in this small island nation such as lack of medical specialists, lack of appropriate equipment and technicians, and lack of laboratory testing supplies and capacity. This is especially true in the smaller outer islands. These limited resources may be contributing to the low prevalence of medical screenings, including mammograms, pap smear/VIA, and colonoscopies.

Priority areas for health improvement in the RMI include:

1. Reducing overweight and obesity by improving diet/nutrition education and healthy food access and increasing physical activity using evidence-based programs.
2. Strengthening NCD clinical screening and management programs among adults in RMI.
3. Providing appropriate cessation services for substance use, specifically tobacco and alcohol.
4. Consider policy approaches to reduce certain risk factors, especially those in the Monitoring Alliance for NCD Action (MANA) framework.
5. Support chronic disease self-management programs to help individuals with NCDs control their disease.

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  - Dr. Lusi Manoa, Public Health Doctor
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  - Molly Murphy, Sr. Data Analyst
  - Joie Heine, Admin/Financial Officer
  - Cendaniel Milne, Data Associate

- **RMI Economic Policy and Planning Statistics Office**
  - John Henry, Statistician

- **Mayors, Council Members and traditional leaders from:**
  - Majuro Atoll Local Government
  - Jaluit Atoll Local Government
  - Wotje Atoll Local Government
  - Arno Atoll Local Government
  - KBE Local Government

- **School and Churches for survey sites**
  - Rita Christian Academy
  - Rita Protestant Church
  - Rita Elementary School
  - Tiete Protestant Church
  - Youth to Youth in Health
  - Majuro Assumption School
  - Canvasback Wellness Center
  - DUD Head Start Program
  - Church of the Latter-Day Saints
  - University of the South Pacific, Majuro Campus
  - Rairok Full Gospel Church
  - Rairok Baptist Church

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  - Janet Nemra Schmidt
- **Taiwan Health Center**
- **UNICEF Nutrition Survey Technical Team**
- **NCD Hybrid Surveyors**

<u>External Partners</u>

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    - o Stacy De Jesus, Pacific Islands Team Lead

- World Health Organization
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    - o Nola Vanualailai, Data Manager

- The Pacific Community
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    - o Dr. Si Thu Win Tin, Team Leader- NCDs
    - o Karen Fukofuka, NCD Advisor
    - o
- Pacific Island Health Officers' Association
    - o Dr. Haley Cash, Regional USAPI Epidemiologist
    - o Dr. Mark Durand, Health Information Systems Coordinator
    - o Emi Chutaro, Executive Director

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- University of California, Los Angeles
    - o Sarah Ritz, MPH graduate student

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1. World Health Organization, *Noncommunicable diseases country profiles 2014*. 2014, WHO: Geneva.

2. Pacific Islands Health Officers Association, *Declaring a Regional State of Health Emergency Due to the Epidemic of Non-Communicable Diseases in the United States-Affiliated Pacific Islands- Board Resolution* #48-01. 2010.

3. World Health Organization*, Global action plan for the prevention and control of noncommunicable diseases 2013-2020.* 2014, WHO: Geneva.

4. World Health Organisation*, Review of Areca (Betel) Nut and Tobacco Use in the Pacific: A Technical Report*. 2012: WHO Western Pacific Region.

5. Cortes, Leslie M., et al. *Formative Research to Inform Intervention Development for the Diabetes Prevention in the Republic of the Marshall Islands*. Health Education and Behavior, vol. 28, no. 6, 2001, pp. 696-715., doi:10.1177/109019810102800604.

6. Ichiho, H.M., et al., *An assessment of non-communicable diseases, diabetes, and related risk factors in the Republic of the Marshall Islands, Majuro Atoll: a systems perspective.* Hawaii J Med Public Health, 2013. 72(5 Suppl 1): p. 87-97.

7. Ichiho, H.M., et al., *An assessment of non-communicable diseases, diabetes, and related risk factors in the Republic of the Marshall Islands, Kwajelein Atoll, Ebeye Island: a systems perspective.* Hawaii J Med Public Health, 2013. 72(5 Suppl 1): p. 77-86.

8. American Cancer Society. *American Cancer Society Guideline for Colorectal Cancer Screening*. www.cancer.org/cancer/colon-rectal-cancer/detection-diagnosis-staging/acs-recommendations.html.

APPENDIX: Details on indicators

Variable	Source question	Classifications used in this report
General Health	Would you say that your general health is…	The following responses were used: • Excellent • Very good • Good • Fair or okay Poor or not good
Last doctor visit	About how long has it been since you last visited a medical provider for an annual checkup? An annual checkup is a general physical exam, not an exam for a specific injury, illness, or condition.	The following responses were used: • Within past year • Within past 2 years • Within last 5 years • 5 or more years ago • Never
Last dental visit	How long has it been since you last visited a dentist or a dental clinic for any reason? Include visits to dental specialists, such as orthodontists.	The following responses were used: • Within past year • Within past 2 years • Within last 5 years • 5 or more years ago • Never
Teeth missing	How many of your permanent teeth have been removed because of tooth decay or gum disease? Include teeth lost to infection, but do not include teeth lost for other reasons, such as injury or orthodontics.	• 1 to 5 • 6 or more but not all • All • None
Body Mass Index Category	Measured height and weight were used.	BMI is calculated by taking your weight (in kilograms) over your height squared (in centimeters). We used CDC categories: • Underweight <18.5 • Normal 18.5-24.9 • Overweight 25-29.9 • Obese 30+
Hypertension	Measured blood pressure and self-reported high blood pressure and medication status was used to categorize hypertension.	Individuals were categorized as having hypertension if their measured BP was ≥140/90 and/or if they self-reported being diagnosed with hypertension and were taking medication for their hypertension
High blood sugar or diabetes	Measured fasting blood glucose and self-reported diagnosis of diabetes and medication status was used to categorize high blood sugar/diabetes.	Individuals were categorized as having diabetes if their fasting blood glucose was ≥126mg/dL and/or if they self-reported being diagnosed

		with diabetes and were on medication for their diabetes.
DM Doctors' Appointments per year	How many times in the past 12 months have you seen a doctor, nurse, or other health professional for your diabetes?	The following responses were used: • None • 1 time • 2-3 times • 4-5 times • 6 or more times
Blood Sugar Self-Check	How often do you check your blood for glucose or sugar? Include times when checked by family member or friend, but do NOT include times when checked by a health professional.	The following responses were used: • Never • At least one time per day • At least one time per week • At least one time per month • At least one time per year
HbA1c Check by Professional	A test for "A one C" (HbA1c) measures the average level of blood sugar over the past three months. How many times in the past 12 months has a doctor or nurse, or other health professional checked you for "A one C"?	The following responses were used: • None • 1 time • 2-3 times • 4-5 times • 6 or more times
Foot Self-Check	About how often do you check your feet for any sores or irritations? Include times when checked by a family member or friend, but do NOT include times when checked by a health professional.	The following responses were used: • Never • At least one time per day • At least one time per week • At least one time per month • At least one time per year
Professional Foot-Check	About how many times in the past 12 months has a health professional checked your feet for any sores or irritations?	The following responses were used: • None • 1 time • 2-3 times • 4-5 times • 6 or more times
Last Eye Exam	When was the last time you had an eye exam in which the pupils were dilated? This would have made you temporarily sensitive to bright light.	The following responses were used: • Within the past month • Within the past year • Within the past 2 years • 2 or more years ago • never
Diabetes Management Class	Have you ever taken a course or class in how to manage your diabetes yourself?	Yes or No
Elevated Total Cholesterol	Measure total cholesterol was used.	If total cholesterol was ≥190mg/dL the individual was classified as having elevated total cholesterol. If total cholesterol was ≥240mg/dL the individual was classified as having high total cholesterol.

Ulcer	Have you ever been told by a doctor that you have _____?	Yes or no
Gout		
Arthritis		
Chronic Kidney Disease		
Asthma		
Other Heart Condition		
Heart Disease		
Hepatitis B		
Tuberculosis		
Stroke		
Cancer		
Cigarette Smoking	During the past 30 days, on how many days did you smoke tobacco products, such as cigarettes, cigars or pipes?	0 days = Non-smoker 1-29 days = some days 30 days = everyday
Age first started smoking regularly	How old were you when you first started regularly smoking tobacco?	Age ____
Quit Smoking	Do you want to quit smoking tobacco?	Yes or no
E-cigarette use	During the past 30 days, how may days did you use E-Cigarettes or a personal vaporizer (PV), or electronic nicotine?	0 days = Non-smoker 1-29 days = some days 30 days = everyday
Home 2nd hand smoke exposure	During the past 30 days, on how many days did someone other than you smoke tobacco inside your home while you were at home?	0 days = no exposure 1-30 days = some exposure
Work 2nd hand smoke exposure	During the past 30 days, on how many days did someone smoke in closed areas in your workplace (in the building, in a work area or a specific office?)	0 days = no exposure 1-30 days = some exposure
Vehicle 2nd hand smoke exposure	During the past 30 days, on how many days did you ride in a vehicle where someone other than you was smoking tobacco?	0 days = no exposure 1-30 days = some exposure
Any 2nd hand smoke exposure	Answered yes to any of the 2nd hand smoke questions	Yes or no
Betel nut use	During the past 30 days, on how many days did you chew betel nut?	0 days= non-betel nut chewer 1-29 days= some use 30 days= Everyday use
Use tobacco in betel nut use	What kind of tobacco do you most often add to your betel nut chew?	If they answered yes to any of the following they were categorized as using tobacco with betel nut: • Cigarette Sticks • Imported loose tobacco • Locally grown tobacco • Other type of tobacco
Quit betel nut use	Do you want to quit chewing betel nut with tobacco?	Yes or no
Any tobacco use	Did individual use any form of tobacco (smoke, chew, or betel nut use)?	Yes or no
Alcohol consumption	During the past 30 days, on how many days did you have at least one standard	0 days = non-drinker 1-29 days = some days

	drink of any alcohol?	30 days = every day
Age first starting drinking alcohol	How old were you when you first started drinking alcohol?	Age _____

Binge alcohol frequency	During the past 30 days, how many days did you have:
	• for men:
	  o Five or more standard alcoholic drinks?
	• for women:
	  o Four or more standard alcoholic drinks?
		0 days = no binge
		1-30 days = binge

Regular Diet	How much of your regular diet is made up of local/traditional foods (such as local fish, taro, breadfruit, banana, pandanus, etc.)?	The following responses were used: • Majority local food but some imported food • About half local and half imported food • Majority imported food but some local food • All or mostly all imported food
Fruit and vegetable consumption	Some of usual daily fruit consumption and daily vegetable consumption	<1 servings 1-<3 servings 3-<5 servings 5 or more servings
Watching salt intake	Most of the sodium or salt we eat comes from processed foods and foods prepared in restaurants. Salt also can be added in cooking or at the table. Are you currently watching or reducing your sodium or salt intake?	Yes or no
Importance of lowering salt in diet	How important is lowering salt in your diet?	Very important Somewhat important Not at all important
Processed meat consumption	In a typical day, how many times do you eat processed meats? This does not include canned fish.	0 servings 1 serving 2 or more servings
Sugar-sweetened beverage consumption	In a typical day, how many sugary drinks do you drink? This does not include diet drinks made with artificial sweeteners.	0 servings 1 serving 2 or more servings
Physical Activity	During the past 30 days, other than your regular job, on how many days did you participate in any physical activities or exercises such as running, sports, walking, or going to the gym, specifically for exercise?	0 = no physical activity 1-29 days = some days 30 days = every day
Type of Physical Activity	What type of physical activity or exercise did you spend the most time doing during the past 30 days?	The following categories were used: • Walking • Sports • Other
Hours spent per day	How much time do you usually spend	The following categories were used:

sitting	sitting or reclining on a regular day? (This does not include time spent sleeping)	• <3 hours per day • ≥3 hours per day
Colonoscopy Screening	How long has it been since your last colonoscopy?	The following responses were used for adults 50-75: • Never • Within the past year • Within the past 2 years • Within the past 3 years • Within the past 5 years • Within the past 10 years • 10 or more years ago
Blood Stool Test	How long has it been since you had your last blood stool test?	The following responses were used for adults 50-75: • Never • Within the past year • Within the past 2 years • Within the past 3 years • Within the past 5 years • 5 or more years ago
Mammogram screening	How long has it been since you had your last mammogram?	The following responses were used for those women 50-74: • Never • Within the past year • Within the past 2 years • Within the past 3 years • Within the past 5 years • 5 or more years
Clinical breast exam	How long has it been since your last clinical breast exam?	The following responses were used for all women: • Never • Within the past year • Within the past 2 years • Within the past 3 years • Within the past 5 years • 5 or more years
Pap smear screening	How long has it been since you had your last Pap or VIA test?	The following responses were used form women 21-65: • Never • Within the past year • Within the past 2 years • Within the past 3 years • Within the past 5 years • 5 or more years

APPENDIX: Prevalence and 95% Confidence Intervals

General Health	%	95% Confidence Interval	
General Health			
Poor or Not Good	1.7%	1.2	2.2
Fair or Okay	29.9%	28.2	31.6
Good	52.3%	50.5	54.2
Very Good	5.2%	4.4	6.0
Excellent	10.8%	9.7	12.0
Fair or Poor Health by Gender			
Male	30.0%	27.5	32.4
Female	33.1%	30.7	35.5
Fair or Poor Health by Education			
Highschool or less	30.8%	29.0	32.7
More than High School	35.2%	31.1	39.3
Fair or Poor Health, by age			
18-24	22.4%	18.6	26.3
25-34	28.0%	24.8	31.2
35-44	30.7%	27.3	34.2
45-54	36.9%	32.6	41.2
55-64	42.1%	36.5	47.7
65+	42.7%	34.7	50.7
Fair or Poor health, by atoll			
Majuro	30.5%	28.0	32.9
Ebeye	27.6%	23.8	31.4
Outer Atolls	35.5%	32.5	38.5

Access to Care	%	95% Confidence Interval	
Last Annual Exam			
Never	37.9%	36.1	39.7
5 or more years ago	2.4%	1.8	3.0
Within past 5 years	1.4%	1.0	1.9
Within past 3 years	2.5%	1.9	3.0
Within past 2 years	7.3%	6.3	8.3
Within past year	48.5%	46.6	50.3
No annual exam, by gender			
Male	51.0%	48.3	53.7

Female	52.0%	49.4	54.6

No annual exam, by education

Highschool or less	52.5%	50.4	54.5
More than High School	47.5%	43.2	51.8

No annual exam, by age

18-24	67.3%	62.9	71.7
25-34	55.4%	51.8	59.0
35-44	51.0%	47.2	54.8
45-54	40.5%	36.1	44.9
55-64	41.4%	35.8	47.1
65+	43.1%	34.9	51.2

No annual exam, by atoll

Majuro	60.6%	58.0	63.3
Ebeye	22.0%	18.5	25.5
Outer Islands	55.9%	52.7	59.1

Oral Health	%	95% Confidence Interval	
Last Dental Exam			
Never	33.7%	31.9	35.4
5 or more years	8.9%	7.9	10.0
Within last 5 years	3.5%	2.8	4.2
Within past 3 years	5.3%	4.5	6.2
Within last 2 years	10.1%	9.0	11.2
Within past year	38.5%	36.7	40.3
Number of Permanent Teeth Removed			
No Teeth	20.1%	18.6	21.6
1 to 5 teeth	67.7%	66.0	69.5
6 or more teeth	10.5%	9.4	11.6
All teeth	1.7%	1.2	2.1

Overweight/Obesity	%	95% Confidence Interval	
BMI Categories among Adults in RMI, 2017			
Underweight	1.9%	1.4	2.4
Health Weight	25.6%	24.0	27.3
Overweight	28.4%	26.7	30.1
Obese	44.1%	42.2	45.9
Overweight/obesity, by gender			
Male	66.4%	63.8	69.0
Female	77.8%	75.7	80.0

Overweight/obesity, by age

18-24	43.3%	38.6	47.9
25-34	70.5%	67.1	73.8
35-44	84.3%	81.6	87.1
45-54	84.1%	80.8	87.5
55-64	78.5%	73.8	83.3
65+	66.1%	57.7	74.6

Overweight/obesity, by education

Highschool or less	72.3%	70.4	74.2
More than High School	73.4%	69.5	77.3

Overweight/obesity, by atoll

Majuro	73.7%	71.2	76.1
Ebeye	70.8%	66.9	74.8
Outer Atolls	71.7%	68.8	74.6

Hypertension	%	95% Confidence Interval	
Hypertension	21.0%	19.5	22.5
No Hypertension	79.0%	77.5	80.5

Hypertension, by gender

Male	22.4%	20.1	24.6
Female	19.7%	17.7	21.8

Hypertension, by age

18-24	4.7%	2.8	6.7
25-34	11.3%	9.0	13.6
35-44	18.5%	15.6	21.5
45-54	31.7%	27.4	35.6
55-64	40.8%	35.2	46.3
65+	53.7%	45.6	61.8

Hypertension, by education

Highschool or less	21.5%	19.8	23.2
More than High School	18.8%	15.4	22.2

Hypertension, by atoll

Majuro	19.0%	16.9	21.1
Ebeye	22.0%	18.5	25.5
Outer Atolls	23.1%	20.5	25.8

Diagnosis Status among adults with Hypertension

Diagnosed and on meds	31.7%	27.2	36.2

	%	63.8	72.8
Undiagnosed	68.3%	63.8	72.8

Control Status among adults diagnosed with Hypertension

Diagnosed on meds, controlled	50.8%	41.9	59.7
Diagnosed on meds, uncontrolled	49.2%	40.3	58.1

High Blood Sugar / Diabetes	%	95% Confidence Interval	
Diabetes	26.8%	25.2	28.4
No Diabetes	73.2%	71.6	74.8
Diabetes, by gender			
Male	25.6%	23.2	27.9
Female	27.9%	25.6	30.2
Diabetes, by age			
18-24	5.7%	3.5	7.9
25-34	11.6%	9.3	13.9
35-44	26.1%	22.8	29.5
45-54	42.0%	37.6	46.4
55-64	57.9%	52.3	63.5
65+	53.7%	45.6	61.8
Diabetes, by education			
Highschool or less	27.8%	26.0	29.7
More than High School	22.5%	18.9	26.1
Diabetes, by atoll			
Majuro	28.2%	25.7	30.6
Ebeye	23.2%	19.6	26.8
Outer Atolls	26.9%	24.1	29.8
Diagnosis Status among adults with Diabetes			
Diagnosed and on meds	34.7%	30.7	38.7
undiagnosed	65.3%	61.3	69.3

Control Status among adults diagnosed with Diabetes

Diagnosed on meds, controlled	16.2%	10.8	21.7
Diagnosed on meds, uncontrolled	83.8%	78.3	89.2

Diabetes Management	%	95% Confidence Interval	
Doctor's Appointments for Diabetes in the past year			
None	36.5%	31.2	41.9

	%	95% Confidence Interval	
1 time	21.5%	16.9	26.1
2-3 times	16.7%	12.5	20.8
4-5 times	5.4%	2.9	8.0
6 or more times	19.9%	15.4	24.3
Frequency of Blood Sugar Self-Check			
Never	42.1%	36.4	47.8
at least one time per day	46.9%	41.2	52.7
at least one time per week	3.1%	1.1	5.1
at least one time per month	4.5%	2.1	6.8
at least one time per year	3.4%	1.3	5.5
Yearly Blood Sugar Check by Professional			
None	67.5%	62.0	72.9
1 time	17.6%	13.2	22.1
2-3 times	9.0%	5.7	12.3
4-5 times	2.4%	0.6	4.2
6 or more times	3.5%	1.3	5.6
Frequency of Self-Foot Check for Sores or Irritations			
Never	63.4%	57.8	69.0
at least one time per day	12.9%	9.0	16.8
at least one time per week	11.5%	7.8	15.2
at least one time per month	3.8%	1.6	6.1
at least one time per year	8.4%	5.1	11.6
Yearly Foot Check by Professional			
None	69.4%	64.2	74.6
1 time	18.6%	14.2	22.9
2-3 times	5.9%	3.2	8.5
4-5 times	2.0%	0.4	3.5
6 or more times	4.2%	2.0	6.5
Last Eye Exam			
Never	53.2%	47.9	58.5
Within past month	21.9%	17.5	26.3
Within past year	14.0%	10.3	17.7
Within past 2 years	3.8%	1.8	5.8
2 years or more	7.0%	4.3	9.7
Diabetes Management Class			
Yes	18.9%	14.9	23.0
No	81.1%	77.0	85.1

Cholesterol	%	95% Confidence Interval	

Total Cholesterol

	%	95% CI
≥190	18.8%	17.4	20.3
<190	81.2%	79.7	82.6

Elevated Cholesterol, by Gender

	%		
Male	13.2%	11.4	15.1
Female	23.7%	21.5	25.9

Elevated Cholesterol, by age

	%		
18-24	6.5%	4.1	8.8
25-34	11.4%	9.0	13.7
35-44	16.1%	13.3	18.9
45-54	29.0%	24.8	33.1
55-64	36.0%	30.5	41.5
65+	38.3%	30.2	46.4

Elevated Cholesterol, by education

	%		
Highschool or less	18.9%	17.3	20.6
More than High School	18.6%	15.1	22.1

Elevated Cholesterol, by atoll

	%		
Majuro	15.9%	13.8	17.9
Ebeye	15.5%	12.4	18.7
Outer Atolls	24.5%	21.8	27.3

Self-Reported Chronic Disease	%	95% Confidence Interval	
Ulcer	6.8%	5.9	7.7
Gout	5.9%	5.0	6.8
Arthritis	4.4%	3.6	5.1
Chronic Kidney Disease	4.2%	3.4	4.9
Asthma	3.5%	2.8	4.2
Other Heart Condition	2.7%	2.1	3.3
CHD	2.1%	1.6	2.7
Hepatitis B	1.1%	0.7	1.5
Tuberculosis	1.1%	0.7	1.4
Stroke	0.6%	0.3	0.9
Cancer	0.6%	0.3	0.9
Heart Attack	0.5%	0.3	0.8
Angina	0.5%	0.2	0.7
COPD	0.3%	0.1	0.4
Emphysema	0.3%	0.3	0.9
Hepatitis C	0.2%	0.0	0.4

Smoking	%	95% Confidence Interval	

Smoking Status

	%		
non-smoker	77.4%	75.9	79.0
SOME DAYS	3.8%	3.1	4.5
EVERY DAY	18.7%	17.3	20.2

Smoking Status, by gender

Male	43.3%	40.6	45.9
Female	4.1%	3.1	5.1

Smoking Status, by age

18-24	25.6%	21.6	29.6
25-34	26.6%	23.4	29.8
35-44	23.8%	20.6	27.0
45-54	20.3%	16.8	23.9
55-64	15.6%	11.5	19.8
65+	8.7%	4.1	13.2

Smoking Status, by education

Highschool or less	22.7%	21.0	24.4
More than High School	21.9%	18.4	25.4

Smoking Status, by atoll

Majuro	20.5%	18.4	22.7
Ebeye	23.1%	19.5	26.6
Outer Atolls	25.1%	22.4	27.9

E-Cigarette Use	%	95% Confidence Interval	
E-Cigarette Use			
non-smoker	94.5%	93.6	95.4
SOME DAYS	1.7%	1.2	2.2
EVERY DAY	3.8%	3.0	4.5
E-Cigarette Use, by gender			
Male	9.7%	8.0	11.4
Female	1.5%	0.8	2.2
E-Cigarette Use, by age			
18-24	6.7%	4.2	9.1
25-34	7.1%	5.1	9.1
35-44	6.3%	4.4	8.3
45-54	3.7%	1.9	5.5
55-64	3.0%	0.9	5.0
65+	1.4%	0.0	3.5
E-Cigarette Use, by education			
Highschool or less	4.9%	3.9	5.8

More than High School	8.5%	5.9	11.1

E-Cigarette Use, by atoll

Majuro	7.2%	5.7	8.8
Ebeye	4.5%	2.7	6.3
Outer Atolls	3.9%	2.6	5.2

Second-Hand Smoke Exposure	%	95% Confidence Interval	
Second-Hand Smoke Exposure Status			
Any SHS exposure in past 7 days	31.6%	29.8	33.4
No SHS exposure in past 7 days	68.4%	66.6	70.2
SHS exposure among Adults in RMI, 2017			
Home	15.4%	13.9	16.8
Vehicle	20.1%	18.5	21.6
Work	10.3%	9.1	11.5

Betel Nut Use	%	95% Confidence Interval	
Betel Nut Chewing Status among Adults in RMI, 2017			
non-betel nut chewer	86.2%	84.8	87.5
some days	5.8%	4.9	6.8
everyday	8.0%	7.0	9.1
Betel Nut Chewing Status, by gender			
Male	23.7%	21.3	26.1
Female	4.5%	3.3	5.6
Betel Nut Chewing Status, by age			
18-24	27.2%	22.9	31.5
25-34	22.8%	19.6	25.9
35-44	12.4%	9.8	15.1
45-54	2.1%	0.7	3.4
55-64	0.4%	0.0	1.1
65+	0.0%		
Betel Nut Chewing Status, by education			
Highschool or less	12.9%	11.4	14.3
More than High School	18.0%	14.5	21.6
Betel Nut Chewing Status, by atoll			
Majuro	17.7%	15.5	19.9
Ebeye	14.0%	11.0	17.0
Outer Atolls	8.6%	6.8	10.5

Any Tobacco Use	%	95% Confidence Interval	
No	62.2%	60.3	64.1
Yes	37.8%	35.9	39.7
Any Tobacco Use, by gender			
Male	59.3%	56.6	62.0
Female	16.6%	14.6	18.7
Any Tobacco Use, by age			
18-24	47.3%	42.5	52.1
25-34	50.9%	47.1	54.6
35-44	38.9%	35.0	42.7
45-54	28.4%	24.2	32.7
55-64	17.9%	13.3	22.4
65+	9.4%	4.5	14.4
Any Tobacco Use, by education			
Highschool or less	37.3%	35.2	39.3
More than High School	40.1%	35.6	44.6
Any Tobacco Use, by atoll			
Majuro	37.1%	34.4	39.9
Ebeye	42.8%	38.5	47.1
Outer Atolls	35.5%	32.6	39.0

Alcohol	%	95% Confidence Interval	
Alcohol Status among Adults in RMI, 2017			
DRANK IN PAST 30 DAYS	16.3%	14.9	17.6
DRANK EVERYDAY IN PAST 30 DAYS	0.8%	0.5	1.1
BINGE DRINK IN PAST 30 DAYS	14.8%	13.5	16.1
Binge Drinking, by gender			
Male	26.2%	23.8	28.5
Female	4.5%	3.5	5.6
Binge Drinking, by age			
18-24	17.4%	13.9	20.9
25-34	18.1%	15.3	20.8
35-44	17.1%	14.3	19.9
45-54	13.1%	10.1	16.1
55-64	6.0%	3.3	8.6
65+	2.7%	0.1	5.3

Binge Drinking, by education

Highschool or less	13.6%	12.2	15.0
More than High School	20.0%	16.6	23.4

Binge Drinking, by atoll

Majuro	16.3%	14.3	18.3
Ebeye	20.1%	16.7	23.4
Outer Atolls	9.6%	7.7	11.5

Food Type	%	95% Confidence Interval	
Food Type			
All or mostly all imported food	6.5%	5.6	7.4
Majority imported food but some local food	30.9%	29.2	32.6
About half local and half imported food	37.4%	35.6	39.2
Majority local food but some imported food	18.6%	17.2	20.1
All or mostly all local food	6.5%	5.6	7.4

Majority imported Food, by gender

Male	32.2%	29.7	34.7
Female	29.8%	27.4	32.1

Majority imported Food, by age

18-24	31.7%	27.4	36.0
25-34	34.6%	31.2	38.0
35-44	32.0%	28.5	35.5
45-54	30.2%	26.1	34.2
55-64	25.7%	20.8	30.7
65+	17.7%	11.4	23.9

Majority imported Food, by education

Highschool or less	30.3%	28.5	32.2
More than High School	33.2%	29.2	37.2

Majority imported Food, by atoll

Majuro	26.0%	23.7	28.3
Ebeye	48.5%	44.3	52.7
Outer Atolls	27.7%	24.8	30.6

Fruit and Vegetable Consumption	%	95% Confidence Interval	
Average servings of fruits and veggies per day			
< 1 serving	48.8%	46.9	50.7
1 to < 3 servings	34.6%	32.8	36.4
2 to < 5 servings	11.0%	9.8	12.2
5+ servings	5.5%	4.7	6.4

<1 F+V servings/day, by gender

		95% Confidence Interval	
Male	48.6%	45.8	51.3
Female	49.0%	46.4	51.6

<1 F+V servings/day, by age

18-24	56.7%	51.9	61.5
25-34	52.4%	48.7	56.1
35-44	46.8%	43.0	50.6
45-54	44.4%	39.9	48.9
55-64	42.4%	36.7	48.0
65+	44.2%	35.8	52.6

<1 F+V servings/day, by education

Highschool or less	51.2%	49.1	53.3
More than High School	38.2%	34.0	42.5

<1 F+V servings/day, by atoll

Majuro	45.0%	42.3	47.7
Ebeye	48.1%	43.8	52.4
Outer Atolls	54.5%	51.3	57.8

Sodium	%	95% Confidence Interval	
Yes, currently watching salt intake	81.8%	80.4	83.2
No, not currently watching salt intake	18.2%	16.8	19.6

Self-reported importance of lowering dietary salt

Not at all Important	10.6%	9.5	11.8
Somewhat Important	27.6%	26.0	29.3
Very Important	61.7%	59.9	63.5

Processed Meat	%	95% Confidence Interval	
Times Processed Meats are Consumed Daily			
0	7.4%	6.4	8.4
1	28.8%	27.1	30.5
2 or more	63.8%	62.0	65.6

Processed Meats 2+ Times per day, by gender

Male	66.1%	63.6	68.7
Female	61.7%	59.2	64.2

Processed Meats 2+ Times per day, by age

18-24	69.4%	65.1	73.6
25-34	69.8%	66.5	73.1
35-44	66.3%	62.7	69.8
45-54	57.2%	52.8	61.6

	%	95% Confidence Interval	
55-64	51.2%	45.5	56.9
65+	51.4%	43.1	59.7
Processed Meats 2+ Times per day, by education			
Highschool or less	63.7%	61.7	65.7
More than High School	63.8%	59.6	67.9
Processed Meats 2+ Times per day, by atoll			
Majuro	71.6%	69.2	74.1
Ebeye	61.9%	57.8	66.0
Outer Atolls	53.8%	50.6	57.0

Sugar-Sweetened Beverage (SSB)	%	95% Confidence Interval	
SSBs Consumed Daily			
0 SSBs	10.8%	9.6	11.9
1 SSB	34.6%	32.9	36.4
2 or more SSBs	54.6%	52.8	56.4
2+ SSBs daily, by gender			
Male	55.4%	52.7	58.0
Female	53.9%	51.4	56.5
2+ SSBs daily, by age			
18-24	51.8%	47.1	56.5
25-34	54.5%	50.9	58.1
35-44	55.3%	51.5	59.0
45-54	59.2%	54.8	63.6
55-64	53.2%	47.5	58.9
65+	47.9%	39.7	56.1
2+ SSBs daily, by education			
Highschool or less	55.7%	53.6	57.7
More than High School	50.0%	45.7	54.3
2+ SSBs daily, by atoll			
Majuro	52.4%	49.7	55.1
Ebeye	50.4%	46.1	54.6
Outer Atolls	60.1%	57.0	63.2

Physical Activity	%	95% Confidence Interval	
Days of Physical Activity in Past Month			
No Physical Activity	29.5%	27.7	31.2
1-29 Days	27.0%	25.4	28.7
30 Days	43.5%	41.6	45.4

No Physical Activity, by gender

	%		
Male	21.2%	19.0	23.4
Female	37.2%	34.7	39.7

No Physical Activity, by age

	%		
18-24	24.8%	20.7	28.9
25-34	27.9%	24.7	31.2
35-44	31.4%	27.8	34.9
45-54	27.9%	23.8	31.9
55-64	36.1%	30.5	41.6
65+	34.3%	26.4	42.1

No Physical Activity, by education

	%		
Highschool or less	30.8%	28.9	32.8
More than High School	23.7%	20.0	27.4

No Physical, by atoll

	%		
Majuro	26.1%	23.7	28.5
Ebeye	37.2%	33.0	41.3
Outer Atolls	29.7%	26.7	32.6

Types of Physical Activity

	%		
Walking	60.7%	58.5	62.9
Sports	26.5%	24.5	28.5
Other	12.8%	11.3	14.3

Types of Sports

	%		
Baseball	7.3%	5.0	9.6
Basketball	35.6%	31.4	39.8
Volleyball	27.3%	23.4	31.2
Sports (unspecified)	19.4%	16.1	23.0
other	6.5%	4.4	8.7
2 or more sports	3.9%	2.1	5.4

Sedentary Activity	%	95% Confidence Interval	
Time Spent Sitting			
< 3hours/day	60.0%	58.1	61.9
≥3hours/day	40.0%	38.1	41.9
Sitting ≥ 3hours/day, by gender			
Male	35.1%	32.5	37.8
Female	44.5%	41.9	47.2
Sitting ≥ 3hours/day, by age			
18-24	38.7%	33.8	43.5

63

	%	95% Confidence Interval	
25-34	40.4%	36.7	44.1
35-44	40.7%	36.8	44.6
45-54	37.4%	32.9	42.0
55-64	38.8%	33.1	44.6
65+	50.4%	41.8	58.9

Sitting ≥ 3hours/day, by education

Highschool or less	38.3%	36.2	40.4
More than High School	47.0%	42.6	51.4

Sitting ≥ 3hours/day, by atoll

Majuro	38.0%	35.2	40.8
Ebeye	42.2%	37.9	46.5
Outer Atolls	41.5%	38.3	44.8

Cancer Screening	%	95% Confidence Interval	
Last Colonoscopy among Adults (50-75) in RMI, 2017			
Never	92.0%	89.9	94.0
within past year	5.0%	3.3	6.7
within past 2 years	0.9%	0.2	1.6
within past 3 years	0.5%	0.0	1.0
within past 5 years	0.9%	0.2	1.6
within past ten years	0.6%	0.0	1.2
ten or more years ago	0.2%	0.0	0.4

Colonoscopy in past 10 years, by gender

Male	6.7%	4.1	9.4
Female	9.1%	5.9	12.3

Colonoscopy in past 10 years, by age

50-54	6.0%	2.9	9.1
55-59	5.7%	2.3	9.2
60-64	8.9%	3.8	14.1
65-74	11.9%	6.2	17.6

Colonoscopy in past 10 years, by education

Highschool or less	7.0%	4.8	9.1
More than High School	13.4%	6.5	20.3

Colonoscopy in past 10 years, by atoll

Majuro	9.6%	6.2	13.0
Ebeye	13.3%	7.3	19.2
Outer Atolls	2.9%	0.8	5.1

Last Blood Stool Test among Adults (50-75 years) in RMI, 2017

Never	59.6%	55.8	63.4
within past year	22.7%	19.5	26.0
within past 2 years	6.3%	4.4	8.2
within past 3 years	4.3%	2.7	5.9
within past 5 years	2.8%	1.5	4.0
5 or more years ago	4.3%	2.7	5.9
Blood Stool Test in past year, by gender	22.9%	18.4	27.4
Male	22.5%	17.8	27.2
Female			
Blood Stool Test in past year, by age	24.5%	18.8	30.1
50-54	19.1%	13.2	25.0
55-59	26.2%	18.3	34.1
60-64	21.1%	13.8	28.5
65-74			
Blood Stool Test in past year, by education	23.1%	19.5	26.6
Highschool or less	21.3%	12.8	29.7
More than High School			
Blood Stool Test in past year, by atoll	20.5%	15.8	25.2
Majuro	34.6%	26.3	43.0
Ebeye	19.1%	14.0	24.1
Outer Atolls			
Last Mammogram among Women (50-74 years)			
Never	70.6%	65.5	75.7
within past year	18.5%	14.2	22.9
within past two years	3.5%	1.5	5.6
within past three years	1.0%	0.0	2.0
within past five years	2.6%	0.8	4.3
5 or more years	3.8%	1.7	6.0
Mammogram in past 2 years, by age			
50-54	27.8%	19.2	36.4
55-59	17.0%	9.0	25.1
60-64	21.3%	10.7	31.9
65-74	19.6%	8.9	30.4
Mammogram in past 2 years, by education			
Highschool or less	21.1%	16.3	26.0
More than High School	29.4%	13.3	45.5
Mammogram in past 2 years, by atoll			
Majuro	20.4%	13.7	27.1
Ebeye	40.4%	27.2	53.5

Outer Atolls	14.9%	8.3	21.6

Last Pap Smear among Women in RMI (21-65 years)

Never	54.2%	51.5	56.9
within past year	19.4%	17.3	21.5
within past two years	9.5%	7.9	11.1
within past three years	4.7%	3.6	5.9
within past five years	4.0%	2.9	5.0
five or more years	8.2%	6.7	9.7

Pap Smear in past 2 years, by age

21-30	33.6%	28.7	38.5
31-40	37.7%	33.1	42.4
41-50	30.3%	25.0	35.6
51-65	30.7%	24.8	36.6

Pap Smear in past 2 years, by education

Highschool or less	32.9%	30.1	35.7
More than High School	37.4%	31.0	43.8

Pap Smear in past 2 years, by atoll

Majuro	29.6%	26.0	33.2
Ebeye	42.0%	35.8	48.2
Outer Atolls	34.6%	30.2	39.1

Last Clinical Breast Exam among women

Never	76.5%	74.4	78.7
within past year	14.6%	12.8	16.4
within past two years	4.1%	3.1	5.1
within past three years	1.0%	0.5	1.5
within past five years	1.3%	0.7	1.8
five or more years	2.5%	1.7	3.3