

# Substance Abuse Epidemiological Profile 2008 Republic of the Marshall Islands



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## ACKNOWLEDGEMENTS

This profile resulted from the collaborative efforts of the various agencies and institutions that comprise RMI Epidemiological Outcomes Workgroup (Epi Workgroup). The data contained in this profile were contributed by the members of the Epi Workgroup from primary sources within each specific department or institution.

The RM Epi Workgroup was formed under a State Epidemiological Outcomes Workgroup (SEOW) grant provided by the US Substance Abuse and Mental Health Services Administration (SAMHSA) in partnership with Synectics for Management Decisions, Inc.

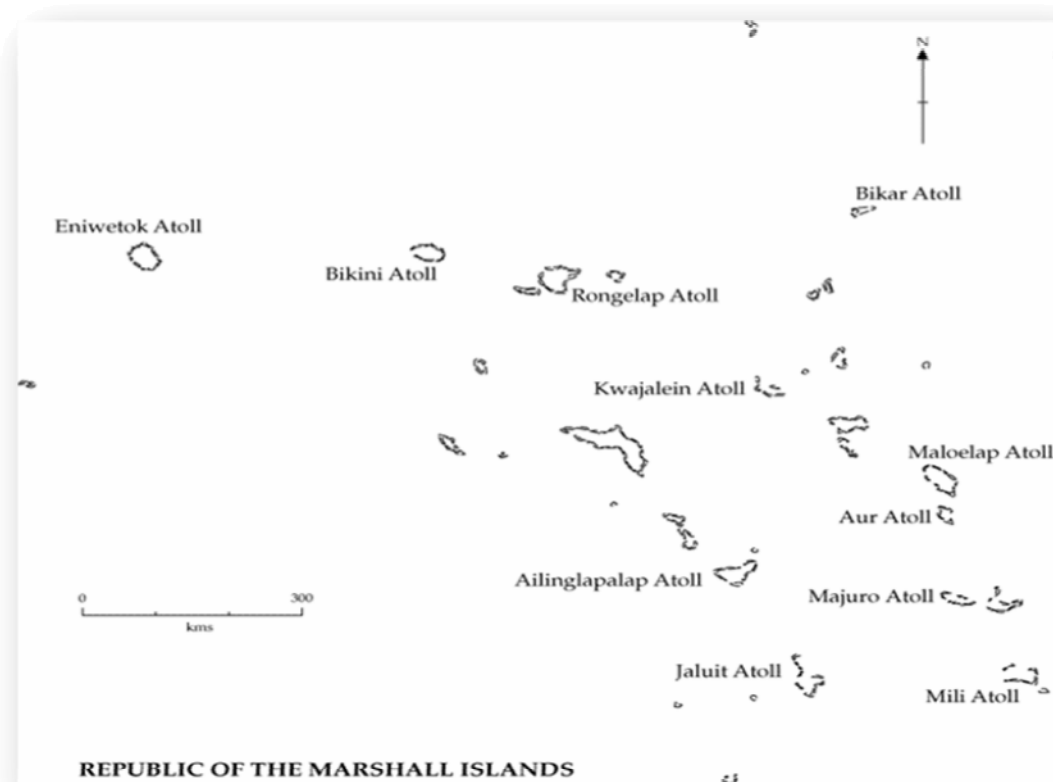
## ABBREVIATIONS

CDC	Centers for Disease Control and Prevention
CCP	Cancer Comprehensiveness Program
EPPSO	Economic Policy, Planning and Statistics Office
MOE	Ministry of Education
MOH	Ministry of Health
MOJ	Ministry of Justice
RMI	Republic of the Marshall Islands
SPC	Secretariat of the Pacific Community
YRBS	Youth Risk Behavior Survey
WHO	World Health Organization

## MARSHALL ISLANDS GENERAL INFORMATION

### **Geography**

The Republic of the Marshall Islands is located in the central northern Pacific, approximately half-way between Hawaii and Australia. The RMI is made up of a vast archipelago of coral atolls and single coral islands, with an Exclusive Economic Zone of approximately 750,000 square miles.



Source: Marshall Islands Visitors Authority

### **Population**

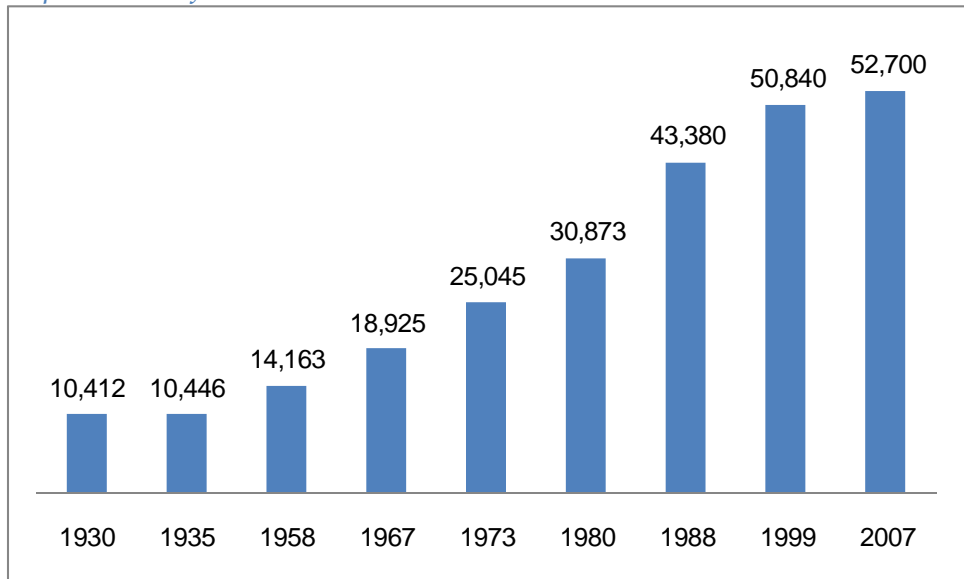
The mid 2007 population estimate for the RMI stood at 52,700<sup>1</sup>. While the RMI has relatively high fertility rates, with a crude birth rate of 35.3 and a total fertility rate of 4.5<sup>2</sup>, fertility has fallen over time (albeit slowly). Infant and child mortality remain relatively high at 33 and 14, respectively<sup>3</sup>. As illustrated by the population pyramid graph below, the RMI has a very young population structure. The population under the age of 20 makes up some 52 percent of the total population as of 2007.

<sup>1</sup> Current population estimate provided by EPPSO and SPC

<sup>2</sup> CBR and TFR estimates from Demographic Health Survey 2007, EPPSO

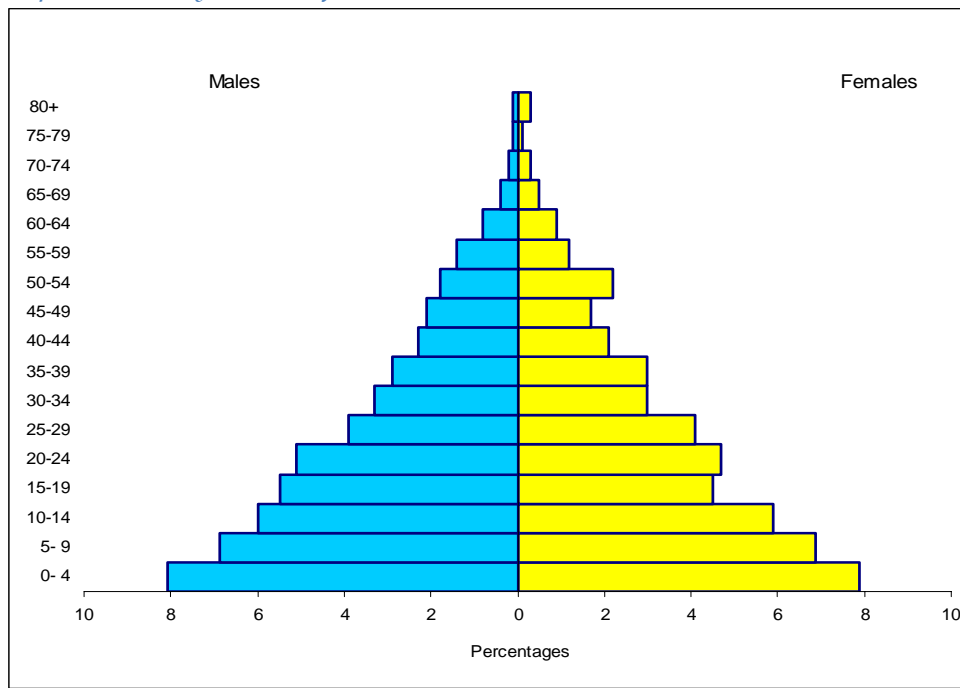
<sup>3</sup> IMR and CMR estimates from Demographic Health Survey 2007, EPPSO. Mortality rates for the 10-year period preceding the survey.

*Population of the Marshall Islands: 1930 to 2007*



Source: RMI Censuses, 2007 estimate by SPC and EPPSO

*Population Pyramid of the Marshall Islands: 2007*



Source: RMI Demographic Health Survey 2007, EPPSO

High and sustained rates of outmigration is another prominent demographic feature of the RMI, with an average of around 1,000 Marshallese migrating to the US every year since 2000 (this is equivalent to nearly 2 percent of the total population).

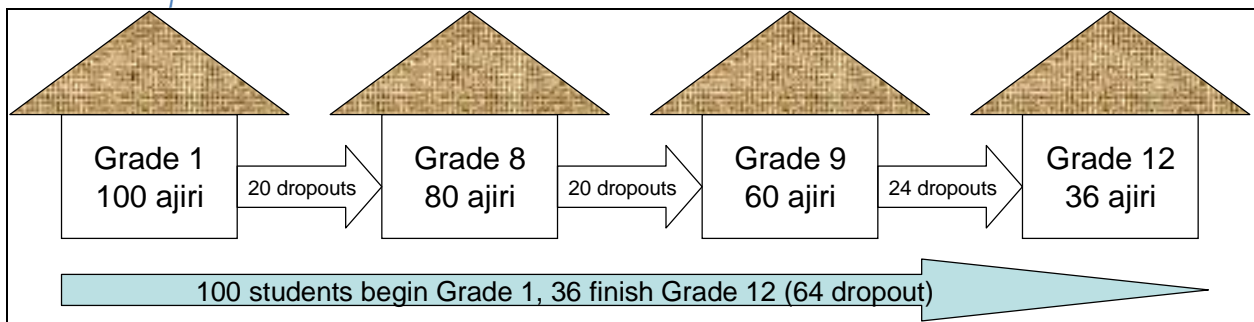
**Ethnicity**

The ethnic makeup of the RMI is mostly Marshallese, with over 90 percent of the population claiming Marshallese ethnicity and citizenship as of the last census (1999).

**Education**

The RMI struggles to meet its human development goals and the provision of basic education (as required by the Constitution) remains a major challenge. Drop out rates remain extremely high, such that for every 100 children that enter Grade 1, only 36 will go onto finish Grade 12 (a 64 percent non-completion rate). Only around 40 percent of adults have completed the full cycle of primary and secondary schooling.

*School Drop-out Illustration*



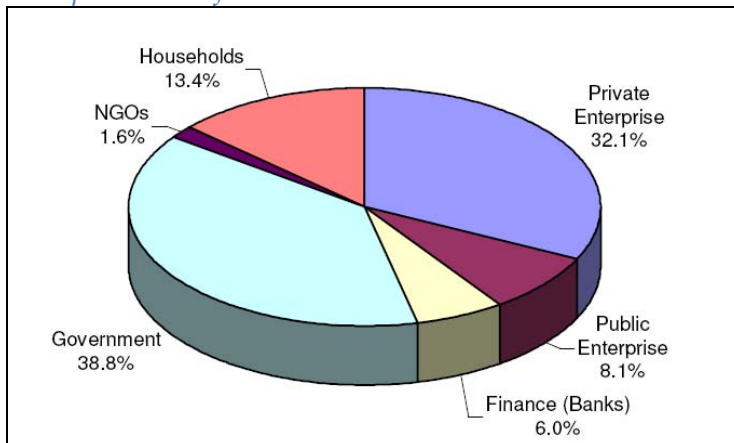
Source: World Bank 2005 Human Development Review, Marshall Islands

**Economy and Employment**

The RMI economy relies heavily on foreign grants as well as on public (government) expenditure. Nearly two-thirds of the national budget is funded by grants from the US (under the Compact of Free Association) and Republic of China (through a bilateral agreement).

The government accounts for nearly 40 percent of GDP and remains the largest institutional sector in the economy (see pie chart below).

*Composition of Gross Domestic Product: FY2006*



Source: EPPSO

Employment data trends from the past two censuses (1988 and 1999) show a rapidly increasing working age population and labor force, but at the same time almost no growth in total employed persons. From 1988 to 1999, the number of persons self-reporting employment (formal and non-formal workers) grew only very slightly, from 10,056 to 10,141 (see table below). This pushed the unemployment rate over this period from 12.5 to 30.9 percent. An estimated in 2004 pegged unemployment at around 34 percent.<sup>4</sup>

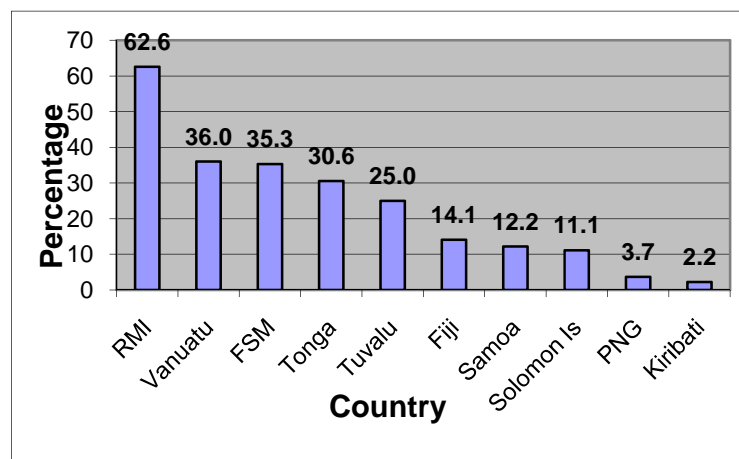
*Labor Force Data: 1988 and 1999*

	Numbers		Percent	
	1988	1999	1988	1999
Working age population	21,244	28,698		
Economically active	11,488	14,677	54.1%	51.1%
Economically inactive	9,546	14,015	44.9%	48.8%
Not stated	210	6		
Employed	10,056	10,141	87.5%	69.1%
Employee - public sector	3392	3,106	33.7%	30.6%
Employee - private sector	3369	4,115	33.5%	40.6%
Self employed	2484	2,622	24.7%	25.9%
Employer in own farm or business		115		1.1%
Paid family worker		96		0.9%
	811		8.1%	
Unpaid family worker		87		0.9%
Unemployed	1,432	4,536	12.5%	30.9%

Source: 1988 and 1999 RMI Censuses

Unemployment is more prevalent among Marshallese women and youth. As shown below, the RMI has the highest estimated rates of youth (ages 15 to 24) unemployment in the Pacific.

*Youth Unemployment Rates (ages 15 to 24): 1999–2000*



Source: ADB 2005. Hardship and Poverty in the Pacific Manila.

<sup>4</sup> RMI 2005 Social and Economic Report, Juumemmej.

Formal sector employment has grown steadily over the past decade (although not fast enough to lower the unemployment rate). Public sector employment data again show a dominance of government, with over 4,500 government jobs in FY06 and an estimated 4,600 in FY07 (this includes the national government, public agencies and enterprises, and local governments). Private sector jobs (including the financial sector and banks) have shrunk in recent years, from a peak of nearly 5,300 jobs in FY03 to an estimated 5,100 or so in FY07.

*Formal Sector Employment: FY1997 to FY2007*

Sectors	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07 proj
Public Sector	3,866	3,753	3,706	3,736	3,828	4,051	4,162	4,310	4,441	4,534	4,600
Private Sector and Banks	3,743	3,929	3,941	4,510	4,893	4,974	5,295	5,163	4,535	4,870	5,090
NGOs and others	348	355	361	371	391	387	373	395	398	407	423
Public Sector	49%	47%	46%	43%	42%	43%	42%	44%	47%	46%	45%
Private Sector and Banks	47%	49%	49%	52%	54%	53%	54%	52%	48%	50%	50%
NGOs and others	4%	4%	5%	4%	4%	4%	4%	4%	4%	4%	4%

Source: EPPSO and MISSA, FY2007 projection



## CONSTRUCTS AND INDICATORS

This 2008 Epidemiological Profile presents a wide array of constructs and indicators, organized as follows:

AREA	CONSTRUCTS/INDICATORS	
<b>CONSUMPTION</b>	<p><b>ALCOHOL</b></p> <ul style="list-style-type: none"> <li>▪ Alcohol ever consumed</li> <li>▪ Current alcohol use</li> <li>▪ Alcohol consumption per drinking day</li> <li>▪ Current heavy drinking</li> <li>▪ Binge drinking</li> <li>▪ Influencing factors for starting alcohol consumption</li> <li>▪ Place alcohol obtained from</li> <li>▪ Current alcohol use among female adults prior to pregnancy</li> <li>▪ Youth lifetime alcohol use</li> <li>▪ Youth current alcohol use</li> <li>▪ Youth episodic heavy drinking</li> <li>▪ Youth alcohol use before age 13</li> <li>▪ Youth alcohol use on school property</li> </ul> <p><b>OTHER SUBSTANCES</b></p> <ul style="list-style-type: none"> <li>▪ Lifetime other substances use among female adults prior to pregnancy</li> </ul>	<p><b>TOBACCO</b></p> <ul style="list-style-type: none"> <li>▪ Current smokers</li> <li>▪ Mean age of smoking initiation</li> <li>▪ Mean number of years smoking</li> <li>▪ Types of cigarettes</li> <li>▪ Mean consumption of manufactured cigarettes</li> <li>▪ Smokeless tobacco use</li> <li>▪ Lifetime tobacco use among female adults prior to pregnancy</li> <li>▪ Youth lifetime cigarette use</li> <li>▪ Youth lifetime daily cigarette use</li> <li>▪ Youth current cigarette use</li> <li>▪ Youth current frequent cigarette use</li> <li>▪ Youth more than 10 cigarettes per day</li> <li>▪ Youth tried to quit smoking</li> <li>▪ Youth current smokeless tobacco use</li> <li>▪ Youth current tobacco use</li> <li>▪ Youth cigarette smoking before age 13</li> <li>▪ Youth purchased cigarettes at store or gas station</li> <li>▪ Youth cigarette use on school property</li> <li>▪ Youth smokeless tobacco use on school property</li> <li>▪ Regional comparison of youth tobacco use</li> </ul>
<b>CONSEQUENCES</b>	<p><b>MORTALITY</b></p> <ul style="list-style-type: none"> <li>▪ Leading causes of mortality</li> <li>▪ Estimated deaths attributable to alcohol and tobacco</li> <li>▪ Cancer mortality</li> </ul> <p><b>SUICIDE</b></p> <ul style="list-style-type: none"> <li>▪ Completed suicides</li> <li>▪ Attempted suicides</li> <li>▪ Youth seriously considered attempting suicide</li> <li>▪ Youth made suicide plan</li> <li>▪ Youth attempted suicide</li> <li>▪ Youth suicide attempt required medical attention</li> </ul> <p><b>ACCIDENTS, VIOLATIONS AND OFFENSES</b></p> <ul style="list-style-type: none"> <li>▪ Traffic accidents and DUI violations</li> <li>▪ Alcohol related offenses</li> </ul> <p><b>OTHER CONSEQUENCES</b></p> <ul style="list-style-type: none"> <li>▪ Teenage pregnancy</li> <li>▪ Mental health substance abuse cases</li> </ul>	

## EXECUTIVE SUMMARY AND KEY FINDINGS

**Background.** This profile was produced by the RMI Epidemiological Outcomes Workgroup (Epi Workgroup). The Epi Workgroup was formally established by the RMI President and Cabinet on September 20, 2007. Its mission is to collect, analyze and report on substance use incidence, prevalence, and related data and National Outcome Measures (NOMs) to be used by government, non-government, and community organizations for the purposes of planning, ongoing monitoring, and evaluation.

**Limitations of this report.** Limited substance abuse data are currently available, severely constraining the carrying out of a full and comprehensive diagnosis of substance consumption and consequences in the RMI. On many occasions information was not standardized and therefore, statistics are presented in context of varying forms at national levels, with some data not meeting basic criteria for validity. Regular and periodic constant data collection needs to be strengthened, and methods of collection reviewed.

**Data sources and methodologies.** This Epi Profile draws on and synthesizes a number of data sources, including World Health Organization Non Communicable Disease STEPS Survey (2002), Secretariat of the Pacific Community Second Generation Surveillance Survey (2006-2007), RMI and Centers for Disease Control Youth Risk Behavioral Survey (2003 and 2007), Ministry of Health (MOH) Annual reports (2001-2006), Police and Criminal Justice Department Reports, other administrative records and data sources.

**Substance abuse a major issue.** It is well known that the abuse of substances, whether it is alcohol, tobacco, illicit drugs, kava/sakau, or betel nut, does exist to varying degrees in our communities. In fact, in the RMI a survey in 2006 of 1,205 households showed that almost two-thirds of residents feel that substance abuse is worsening in their communities. This substance abuse has affected our communities, changed lifestyles and health consequence issues, resulting in emerging and re-emerging infections, like HIV/AIDS, other sexually transmitted infections (STI), and alcohol/tobacco related cancers and other conditions. Tuberculosis (TB) has also increased steadily in the last few years in RMI and the Centers for Disease Control (CDC) states that substance abuse is one of the factors causing this.

**How this profile will be used.** From the data collection, analysis and interpretation, of the Epi Profile, the information will then be used as evidence based science in the dissemination process, and towards prevention of Substance Abuse in our communities. The workgroup will then be able to continue to make progress with issues that will be evident in the evaluation. Capacity building and training will be available at community level to use this evidence based information for grass root participation in the prevention of Substance Abuse.

**Substance abuse and quality of life.** Quality of life is affected by conditions of social health. One indicator of increasing significance in RMI is substance abuse. The use of alcohol, tobacco, and illicit drugs (e.g. marijuana) is emerging, as a serious problem contributing to, decreased health status and low quality of life. In addition to contributing to disease and death, abuse of substances is associated with an array of social ills, such as domestic violence, low educational

achievements, low income, unemployment, and crime. In the Marshall Islands substance abuse is both a precursor to, and a result of an array of other human problems. Child neglect, homelessness, gang activities, mental illness have all been linked with substance abuse.

## **KEY FINDINGS - CONSUMPTION**

Consumption can be defined as the use and high-risk use of alcohol, tobacco and illicit drugs.

**Alcohol Ever Consumed.** The WHO STEPS Survey revealed that 30.7 percent of adults had ever consumed alcohol in 2002.

**Current Alcohol Use.** Current alcohol use was defined in the WHO STEPS Survey as having any alcohol consumption in the past 12 months. Overall, 19.3 percent were current consumers, meaning that over 80 percent of adults in the RMI (ages 15 to 64) were current abstainers from alcohol.

**Alcohol Consumption Per Drinking Day.** Among current drinkers, 61.3 percent consumed 6 or more standard drinks per day during the past 12 months, suggesting that most current drinkers are heavy consumers of alcohol.

**Current Heavy Drinking.** Among current drinkers, 2.2 percent drank alcohol on 4 or more days in the week prior to the survey.

**Binge Drinking.** Binge drinking is defined as having a mean of 5 or more standard drinks per day for males and a mean of 4 or more standard drinks per day for females. Overall 65.7 percent of current alcohol consumers were binge drinkers.

**Influencing Factors for Starting Alcohol Consumption.** The most common factor that influenced current drinkers to start consuming alcohol was a friend who drank alcohol. Among current consumers, 87.4 percent said that they started drinking because a friend drank.

**Place Alcohol Obtained From.** The most common source of alcohol for current drinkers was stores, where 76.4 percent of alcohol beverages were consumed. Friends and family was the second most common source.

**Current Alcohol Use Among Female Adults Prior to Pregnancy.** Of the 302 women who responded to SGS survey on pre-natal women, 232 (76.8 percent) reported never consuming alcohol in the 12 months before becoming pregnant (see table below). This result, like that from the WHO STEPS survey which showed that nearly 95 percent of females are not current alcohol users) suggests that the vast majority of women in the RMI do not consume alcohol.

**Youth Lifetime Alcohol Use.** The 2003 YRBS reported an overall 59.6 percent of students had at least one drink of alcohol on 1 or more days during their lifetime (i.e., lifetime alcohol use). The YRBS 2007 showed an overall decrease to 55.0 lifetime alcohol use.

**Youth Current Alcohol Use.** The 2003 YRBS reported an overall 45.7 percent of students had had at least one drink of alcohol on 1 or more of the 30 days preceding the survey (i.e. current alcohol use). The YRBS 2007 showed an overall decrease to 41.7 percent.

**Youth Alcohol Use Before Age 13.** The 2003 YRBS reported an overall 10.5 percent of students had their first drink of alcohol (other than a few sips) for the first time before age 13. The YRBS 2007, showed a slight increase 10.9 percent of students that had their first drink of alcohol other than a few sips before age 13 years.

**Youth Episodic Heavy Drinking.** The 2003 YRBS reported an overall 31.9 percent of students had had five or more drinks of alcohol in a row (i.e., within a couple of hours) on 1 or more of the 30 days preceding the survey (i.e., episodic heavy drinking). The YRBS 2007 showed an overall decrease to 26.6 percent.

**Youth Alcohol Use Before Age 13.** The 2003 YRBS reported an overall 10.5 percent of students had their first drink of alcohol (other than a few sips) for the first time before age 13. The YRBS 2007, showed a slight increase 10.9 percent of students that had their first drink of alcohol other than a few sips before age 13 years.

**Youth Alcohol Use on School Property.** The 2003 YRBS reported an overall 17.7 percent of students had had at least one drink of alcohol on school property on 1 or more of the 30 days preceding the survey. The 2007 YRBS showed a decrease to 15.3 percent.

**Current Smokers.** The WHO STEPS Survey defined current smokers as those who have smoked any tobacco products within the past 12 months. The survey showed that overall 23.1 percent of adults smoke, with 19.8 percent currently daily smokers and 3.3 percent current but non-daily. Around 77 percent had never smoked at all (abstainers).

**Mean Age of Smoking Initiation.** The survey revealed that the mean age of initiation among current smokers was lower among males, whose mean age for starting smoking was 17.6 compared to 19.9 for females.

**Mean Number of Years Smoking.** The mean number of years a current smoker has smoked for is 13.3 with the mean for males at 13.2 and females at 14.2.

**Types of Cigarettes.** The vast majority (98.4 percent) of current smokers smoked manufactured cigarettes.

**Mean Consumption of Manufactured Cigarettes.** The mean number of manufactured cigarettes smoked daily was 11.4. More cigarettes were smoked by males (11.9 per day) compared to females (7.3 per day).

**Smokeless Tobacco Use.** The overall percentage of smokeless (chewing) tobacco users was 8.9 percent.

**Lifetime Tobacco Use Among Female Adults Prior to Pregnancy.** Lifetime tobacco use, including chewing tobacco, was reported by 64 (19 percent) of women in the SGS survey.

**Youth Lifetime Cigarette Use.** The YRBS 2003 showed that 70.1 percent of students had ever tried cigarette smoking, even one or two puffs (i.e. lifetime cigarette use). YRBS 2007 indicated a decrease to 62.2 percent in total students.

**Youth Lifetime Daily Cigarette Use.** YRBS 2003 showed 23.6 percent of students had ever smoked at least one cigarette every day for 30 days (i.e. lifetime daily cigarette use). A significant decrease was seen in the 2007 YRBS, showing 17.6 percent.

**Youth Current Cigarette Use.** YRBS 2003 showed that 37.5 percent of all students had smoked cigarettes on one or more of the 30 days preceding the survey (i.e. current cigarette use). The 2007 YRBS has shown a decrease in trend at 32.4 percent.

**Youth Current Frequent Cigarette Use.** The YRBS 2003 showed that 15.9 percent of students had smoked cigarettes on at least 20 of the 30 days preceding the survey (i.e. current frequent cigarettes use). The YRBS 2007 showed a decrease in trend to 13.1 percent.

**Youth More Than 10 Cigarettes Per Day.** The 2003 YRBS indicated that 4.1 percent of students had smoked more than 10 cigarettes per day on the days they smoked during the 30 days preceding the survey. However the 2007 YRBS, showed an increase in trend to overall 6.9 percent.

**Youth Tried To Quit Smoking.** Among the 37.5 percent of students who reported current cigarette use in 2003, 83.7 percent tried to quit smoking cigarettes use during the past 12 months. The 2007 YRBS showed that of the 32.4 percent of students who reported current cigarette use, 89.3 percent tried to quit smoking cigarette during the past 12 months.

**Youth Current Smokeless Tobacco Use.** The 2003 YRBS showed that 37.5 percent of students had used smokeless tobacco (e.g. chewing tobacco, snuff, or dip) on 1 or more of the 30 days preceding the survey (i.e. current smokeless tobacco use). The 2007 YRBS showed an overall decrease in trend to 32.0 percent.

**Youth Current Tobacco Use.** The 2003 YRBS showed that 40.3 percent of students had reported current cigarette use, current smokeless tobacco use, or current cigar use on 1 or more of the 30 days preceding the survey (i.e. current tobacco use). In 2007 the YRBS showed an overall decrease to 38.8 percent.

**Youth Cigarette Smoking Before Age 13.** The 2003 YRBS showed that 9.6 percent of students had smoked a whole cigarette for the first time before the age 13 years. However the 2007 YRBS showed an overall decrease to 6.9 percent.

**Youth Purchased Cigarettes At Store or Gas Station.** Data regarding access to cigarettes are reported only for 37.9 percent of students under the age of 18 years who reported current cigarette use in the YRBS 2003. Nearly one-third (32.0 percent) of these students had usually

gotten their own cigarettes by purchasing them in a store or gas station during the 30 days preceding the survey.

**Youth Cigarette Use on School Property.** The 2003 YRBS showed that 17.3 percent of students had smoked cigarettes on school property on 1 or more of the 30 days preceding the survey. The 2007 YRBS showed an overall decrease to 16.3 percent.

**Youth Smokeless Tobacco Use on School Property.** The 2003 YRBS showed that 24.9 percent of students had used smokeless tobacco on school property on 1 or more of the 30 days preceding the survey. In 2007 the YRBS trend showed an overall decrease to 21.1 percent.

**Regional Comparison of Youth Tobacco Use.** A comparison of the RMI results to CNMI and the Republic of Palau shows that in general, the RMI youth show lower prevalence than youth in Palau and CNMI in terms of: lifetime cigarette use, current cigarette use, current smokeless tobacco use, cigarette smoking before age 13.

**Lifetime Other Substances Use Among Female Adults Prior to Pregnancy.** The most common substance other than alcohol and tobacco to be used (lifetime) by the surveyed women included betel nut (6.4 percent), marijuana (2.6 percent), kava/sakau (1.7 percent) and other drugs (1.2 percent).

## **KEY FINDINGS - CONSEQUENCES**

Substance-related consequences can be defined as adverse social, health, and safety consequences associated with alcohol, tobacco, or illicit drug use. Consequences include mortality and morbidity and other undesired events for which alcohol, tobacco, and/or illicit drugs are clearly and consistently involved.

**Leading Causes of Mortality.** Currently, detailed mortality records from the Ministry of Health are not arranged in a fashion that would lend itself easily to identification of specific alcohol or tobacco related deaths. Nevertheless, some general estimates on the total number of deaths (and rates) attributable to alcohol and tobacco can be made from the existing records.

**Estimated Deaths Attributable to Alcohol and Tobacco.** In FY2005, FY2006, and FY2007, there were at least 20, 13, and 18 deaths (respectively) caused by conditions linked to alcohol (this translates into estimated annual alcohol-related death rates as a percentage of all registered deaths of 7.4, 4.5, and 7.2 percent. Over the same three years, there were at least 16, 7 and 5 registered deaths caused by conditions linked to tobacco. This translates into tobacco related death rates of 5.9, 2.4, and 2.0 percent.

**Cancer Mortality.** As reported by the Cancer Comprehensiveness Program (CCP), cancer remains a top five cause of death in the RMI. Cancer related deaths accounted for 18.2 percent of registered total deaths in 2005 and 15.6 percent in 2006. Over the two year period, there were 17 lung cancer deaths (11 in 2005 and 6 in 2006).



**Completed Suicides.** The number of recorded completed suicides over the past eight years has steadily fallen. In 2007, only 4 completed suicides were on record, compared to a high of 28 in 2003.

**Attempted Suicides.** Over the past eight years, the numbers of attempted suicides have followed the completed suicides trend. In 2007 only 8 attempted suicides were on record, compared to 42 in 2003.

**Youth Seriously Considered Attempting Suicide.** Overall 26.4 percent of students had seriously considered suicide during the 12 months preceding the survey (2003). The YRBS 2007 showed a slight decrease (25.6 percent).

**Youth Made A Suicide Plan.** During the 12 months preceding the YRBS (2003), 31.8 percent of students had made plans about how they would attempt suicide. The YRBS 2007 showed an overall decrease to 30.1 percent.

**Youth Attempted Suicide.** The 2003 YRBS showed that 30.9 percent of students had actually attempted suicide at one or more times during the 12 months preceding the survey (2003). The 2007 YRBS showed an overall decrease to 25.0 percent.

**Youth Suicide Attempt Required Medical Attention.** During the 12 months preceding the YRBS (2003) 14.3 percent of students had made a suicide attempt that resulted in an injury, poisoning, or overdose that had to be treated by a doctor or nurse. The YRBS 2007 showed a slight decrease to 14.2 percent.

**Traffic Accidents and DUI Violations.** Total reported traffic accidents fell over the 2002 to 2004 period for the entire RMI, from 416 to 350. Drunken driving violations numbered 191, 155, and 154 over the period, again generally falling (in absolute terms). Percentagewise, drunken driving violations have accounted for 6.0, 4.0, and 4.9 percent of all violations.

**Alcohol Related Offenses.** Drunken and disorderly conduct and disturbing the peace cases in Majuro have nearly doubled from just under 500 in 1999 to nearly 1,000 in 2006 (data for Ebeye and other areas not currently available). The percentage of drunken disorderly offenses out of total offenses has risen steadily from just over 50 percent to around 80 percent.

**Teenage Pregnancy.** Teenage pregnancies remain high and steady in the RMI. As a percentage of total births, teen births have hovered between 17 and 18 percent since 2001, with no clear downward trend.

**Mental Health Substance Abuse Cases.** Mental Health statistics for 2007 show that there were 21 cases treated for substance abuse: 17 for alcohol and 4 for marijuana (all males).

## LIMITATIONS OF THIS REPORT

This profile, the first of its kind for the RMI, has a number of limitations.

Authors experienced difficulty in collecting relevant and reliable data. Both quantity and quality issues arose during data collection and analysis. In some cases, more recent estimates are needed, meaning new surveys must be undertaken. On many occasions information was not standardized and, therefore, statistics are presented in context of varying forms at national levels, with some data not meeting basic criteria for validity. In other cases, data existed but were simply unreliable and requiring further vetting.

Additional difficulties were experienced in collecting and report the NOMS and the Synar related statistics – this is the first year in which the RMI will report on these data sets so they will form part of this Epi Profile in the future (sections for NOMS and compliance will be included in the next version of this report).

Collecting and analyzing the data contained herein allowed the authors to identify where the data gaps are and what needs to happen to fill these gaps in the future. Technical assistance will be requested in 2008 to ensure that the 2009 Epi Profile is more comprehensive and complete.



## DATA SOURCES AND METHODOLOGIES

This Epi Profile draws on and synthesizes a number of data sources. The five primary data sources from which this report's substance abuse consumption and consequences analyses were developed are as follows:

- World Health Organization Non Communicable Disease STEPS Survey, 2002
- Secretariat of the Pacific Community Second Generation Surveillance Survey, 2006-2007
- RMI and Centers for Disease Control Youth Risk Behavioral Survey, 2003 and 2007
- Ministry of Health (MOH) Annual reports, 2001-2007
- Police and Criminal Justice Department Reports
- Other administrative records and data sources

### ***World Health Organization Non Communicable Disease STEPS Survey, 2002***

The World Health Organization Non Communicable Disease STEPS Survey (STEPS Survey) sampling was based on the 1999 census. Two major strata (urban and rural) were chosen and later it became necessary to further subdivide the two main strata into four sub-strata. The urban stratum was sub-divided into Majuro and Ebeye and the rural stratum was also sub-divided into two substrata, the nuclear exposed 177 atolls and the rest of the outer islands.

Since the four zones were pre-determined, clusters were identified within each stratum, using systemic random cluster sampling resulting in 11 clusters identified throughout the RMI. An overall sample size of 3,064 people in the ages 15 to 64 was targeted.

The survey collected information on some key non-communicable disease risk factors that are linked to many chronic health consequences, including alcohol and tobacco use.

### ***Secretariat of the Pacific Community Second Generation Surveillance Survey, 2006-2007***

The Secretariat of the Pacific Community (SPC) has supported 'second generation surveillance' (SGS) surveys across the region to provide baseline data on the prevalence of HIV, STDs and risk behaviors in various population groups. In RMI, three SGS surveys were conducted on: 1) pregnant women; 2) youth (15-24 years); and 3) commercial sex workers. This report summarizes the results of the survey of pregnant women only.

The SGS Prenatal Survey was conducted from May through September, 2006 among pregnant women at first booking to the Majuro Hospital prenatal clinic (PNC). A target sample size of 350 women was established. All women who attended the weekly Majuro Hospital prenatal clinic were asked to participate.

All pregnant women presenting to the PNC for their first prenatal visit were eligible to participate. Participation in the survey was voluntary. After obtaining informed consent, participants were interviewed by trained staff using a standard 24 page questionnaire. The questionnaire is based on the Family Health International 2000 HIV/AIDS/STD Behavioral Survey for Adults and the Centers for Disease Control and Prevention's Pregnancy Risk Assessment Monitoring System Phase 5 core questionnaire. It was modified for use in the Pacific by the University of New South Wales in association with WHO and SPC and further adapted for use in RMI by SPC. The questionnaire included questions on demographic information, sexual history, STD history and current symptoms, alcohol and drug use, and HIV knowledge and attitudes.

Survey data and laboratory results were entered into an Epi-Info version 3.4.3 database. Data were entered by three persons trained by the MOH. To ensure data quality, a 10 percent random sample of interview forms was double entered and checked for errors.

### ***RMI and Centers for Disease Control Youth Risk Behavioral Survey, 2003 and 2007***

The Youth Risk Behavior Survey (YRBS) targets high school students in grades 9 to 12. It is engineered by the Center for Disease Control and Prevention (CDC) and conducted by the Ministry of Education (MOE). The 2003 and 2007 report summaries of the YRBS are used in this report. Data from both surveys had been and weighted by CDC (allowing for national estimates).

The table below illustrates the sample size, response rates, and demographic characteristics of the 2003 and 2007 YRBS.

<b>RMI YRBS</b>	<b>2003 (%)</b>	<b>2007 (%)</b>
Student sample size	928	1522
Number of High schools response rate	100	100
Student response rate	99	82
Overall response rate	99	82
Male response rate	49.2	49
Female response rate	50.8	51
Grade 9 response rates	22.2	32.8
Grade 10 response rates	27.5	24.2
Grade 11 response rates	26.2	25.4
Grade 12 response rates	24.4	17.4
Race / Ethnicity participation rates		
Marshallse	90.6	90.4
Other races	9.4	9.6

***Ministry of Health (MOH) Annual Reports, 2001-2007***

The department of Health Planning and Statistics of the MOH compiles major health indicators annually. These reports do not provide detailed substance abuse consequence data, but do offer overall health consequence information.

***Police and Criminal Justice Department Reports***

The annual reports of the police departments cover the two urban areas of Majuro and Ebeye, based on annual police records. These reports provide limited substance consumption and consequence information. An additional issue stems from the fact that both urban areas also have local government police forces. Analysis of the local police data also revealed inconclusive and incomplete information.

The Ministry of Justice, through its police forces, is required to enforce all alcohol, tobacco and other substance related legislation. This includes enforcement of the legal drinking age (21 years) and the legal tobacco age (18 years).

***Other Administrative Data***

This report also draws on administrative records and data from other public and non-public sources. These data are vetted by the Epi Workgroup to ensure that they are reliable.

## CONSUMPTION ANALYSIS

Consumption can be defined as the use and high-risk use of alcohol, tobacco and illicit drugs. Consumption indicators can illustrate patterns of use, initiation of use, regular use, and high-risk use.<sup>5</sup>

### ALCOHOL CONSUMPTION

**Alcohol Ever Consumed.** The WHO STEPS Survey revealed that 30.7 percent of adults had ever consumed alcohol. Males had a higher ever consumed rate at 48.8 percent compared to females at 11.7 percent. Alcohol ever consumed rates generally declined with age.

#### *Percentage of Population That Ever Consumed Alcohol: 2002*

Age	TOTAL	MALE	FEMALE
15-24	31.8	49.5	13.9
25-34	33.2	53.9	11.7
35-44	32.1	52.6	11.1
45-54	22.6	33.4	9.7
55-64	24.3	44.5	1.9
TOTAL	30.7	48.8	11.7

Source: WHO STEPS Survey 2002

**Current Alcohol Use.** Current alcohol use was defined in the WHO STEPS Survey as having any alcohol consumption in the past 12 months. Overall, 19.3 percent were current consumers, meaning that over 80 percent of adults in the RMI (ages 15 to 64) were abstainers. As with ever consumers, there was a higher proportion of males (33.5 percent) who had ever consumed alcohol compared to females (4.5 percent). Nearly half of males in the 25-34 age group (42.7 percent) were current consumers. The percentage of current consumers also decreased with age.

#### *Percentage of Current Alcohol Consumers: 2002*

Age	TOTAL	MALE	FEMALE
15-24	21.9	37.1	6.2
25-34	23.7	42.7	4.0
35-44	17.0	30.1	3.7
45-54	11.3	18.4	2.8
55-64	6.8	12.4	0.6
TOTAL	19.3	33.5	4.5

Source: WHO STEPS Survey 2002

**Alcohol Consumption Per Drinking Day.** Among current drinkers, 61.3 percent consumed 6 or more standard drinks per day during the past 12 months.

<sup>5</sup> As described in the publication “Developing A State Epidemiological Profile for Substance Abuse Prevention: Guidance for State Epidemiological Outcome Workgroups” by the Pacific Institute for Research and Evaluation, February 2008.

*Alcohol Consumption Per Drinking Day During the Past 12 Months, For Current Consumers (standard drinks per day): 2002*

	<b>1 drinks</b>	<b>2-3 drinks</b>	<b>4-5 drinks</b>	<b>6+ drinks</b>
TOTAL	10.0	16.9	11.9	61.3
MALE	8.8	15.2	12.0	64.0
FEMALE	15.3	29.6	11.7	43.4

Source: WHO STEPS Survey 2002

**Current Heavy Drinking.** Among current drinkers, 2.2 percent drank alcohol on 4 or more days in the week prior to the survey. The percentage of females who drank alcohol on 4 or more days in the week prior to the survey was slightly higher at 3.4 percent was slightly higher than the percentage of males, 2.7 percent.

*Percentage Who Drank Alcohol on 4 or More Days in the Last Week, For Current Consumers: 2002*

	<b>TOTAL</b>	<b>MALE</b>	<b>FEMALE</b>
Percentage who drank alcohol on 4 or more days In the last week (heavy current drinkers)	2.2	2.7	3.4

Source: WHO STEPS Survey 2002

For the entire population (and not just current drinkers), around .4 percent were heavy drinkers.

**Binge Drinking.** Binge drinking is defined as having a mean of 5 or more standard drinks per day for males and a mean of 4 or more standard drinks per day for females. Overall 65.7 percent of current alcohol consumers were binge drinkers, with a higher proportion for males (67.1 percent) compared to females (55.0 percent).

*Percentage of Binge Drinkers, For Current Consumers: 2002*

<b>AGE</b>	<b>TOTAL</b>	<b>MALE</b>	<b>FEMALE</b>
15-24	59.4	60.9	50.9
25-34	67.3	68.6	53.4
35-44	76.9	78.6	63.2
45-54	72.5	72.9	69.2
55-64	59.9	57.8	100.0
TOTAL	65.7	67.1	55.0

Source: WHO STEPS Survey 2002

For the entire population (and not just current drinkers), 12.5 percent were binge drinkers.

**Influencing Factors for Starting Alcohol Consumption.** The most common factor that influenced current drinkers to start consuming alcohol was a friend who drank alcohol. Among current consumers, 87.4 percent said that they started drinking because a friend drank. Nearly one quarter started drinking because they just wanted to try it, the second biggest factor.

*Percentage of Things That Influenced Alcohol Consumers To Start Consuming Alcohol, For Current Drinkers: 2002*

	<b>Friend drank</b>	<b>Family member drank</b>	<b>Just wanted To try</b>	<b>No influence</b>	<b>Other reasons</b>
TOTAL	87.4	3.3	24.8	2.5	0.6
MALE	87.6	3.4	24.6	2.9	0.6
FEMALE	86.2	2.8	26.0	0	0.9

Source: WHO STEPS Survey 2002

**Place Alcohol Obtained From.** The most common source of alcohol for current drinkers was stores, where 76.4 percent of alcohol beverages were consumed. Friends and family was the second most common source.

*Place From Which Alcohol Beverages Are Commonly Obtained From, For Current Drinkers: 2002*

	<b>Store</b>	<b>Friends and family</b>	<b>Home Brew</b>
MALE	78.0	16.3	5.7
FEMALE	65.0	30.4	4.6
TOTAL	76.4	18.1	5.5

Source: WHO STEPS Survey 2002

**Current Alcohol Use Among Female Adults Prior to Pregnancy.** Of the 302 women who responded to SGS survey on pre-natal women, 232 (76.8 percent) reported never consuming alcohol in the 12 months before becoming pregnant (see table below). This result, like that from the WHO STEPS survey which showed that nearly 95 percent of females are not current alcohol users) suggests that the vast majority of women in the RMI do not consume alcohol. However, the difference between the 2002 WHO STEPS survey and this 2006-2007 SGS survey suggests that perhaps the percentage of women who can be considered current drinkers has risen over the past few years. Anecdotal evidence suggests this to be true.

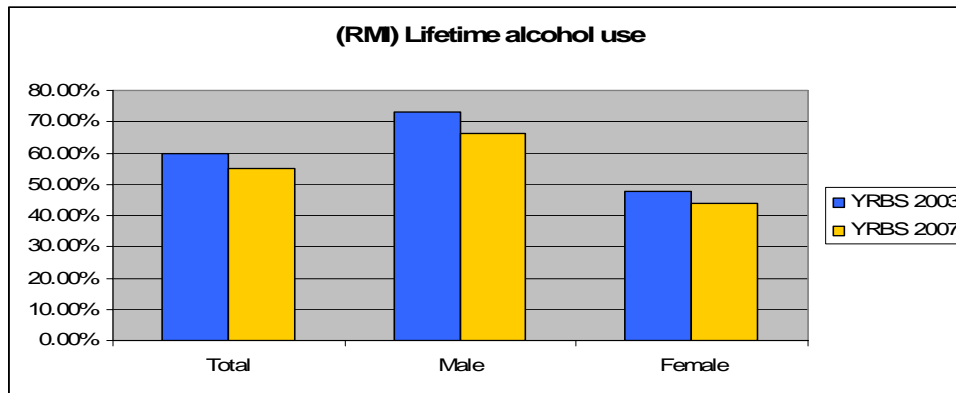
Among the 70 women who reported any alcohol consumption in the 12 months before becoming pregnant, 22 (31.9 percent) reported 5 or more drinks on a typical day and 21 (30.4 percent) had 5 or more drinks on one occasion either daily or weekly.

*Results of SGS Prenatal Survey for Alcohol, 2006-2007*

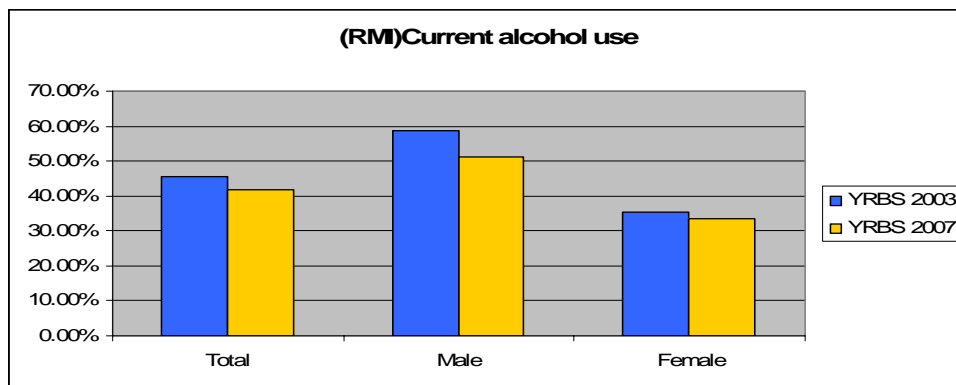
	<b>Number</b>	<b>(Percent)</b>
Alcohol use in the 12 months before pregnancy		
4 or more times a week	5	(1.7)
2 to 3 times a week	26	(8.6)
2 to 4 times a month	11	(3.6)
Monthly or less	25	(8.3)
Never	232	(76.8)
Don't know/no answer/refused	3	(1.0)

Source: SGS Survey 2006-2007

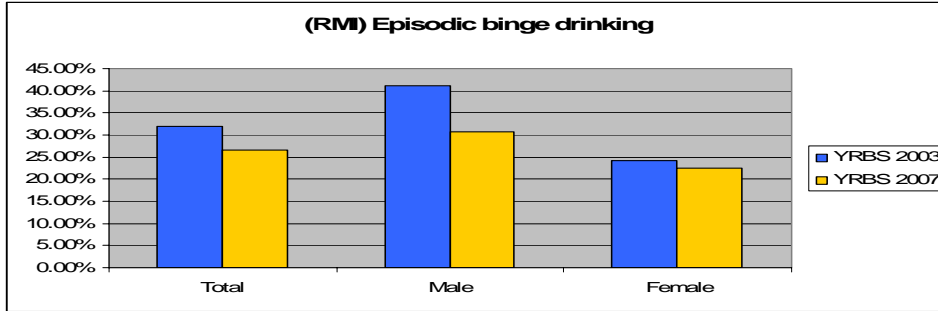
**Youth Lifetime Alcohol Use.** The 2003 YRBS reported an overall 59.6 percent of students had at least one drink of alcohol on 1 or more days during their lifetime (i.e., lifetime alcohol use). The prevalence of lifetime alcohol use was substantially higher among male (73.0 percent) than female (47.9 percent) students. The YRBS 2007 showed an overall decrease to 55.0 lifetime alcohol use, with prevalence still showing higher in males (66.4 percent) than in females (44.0 percent).



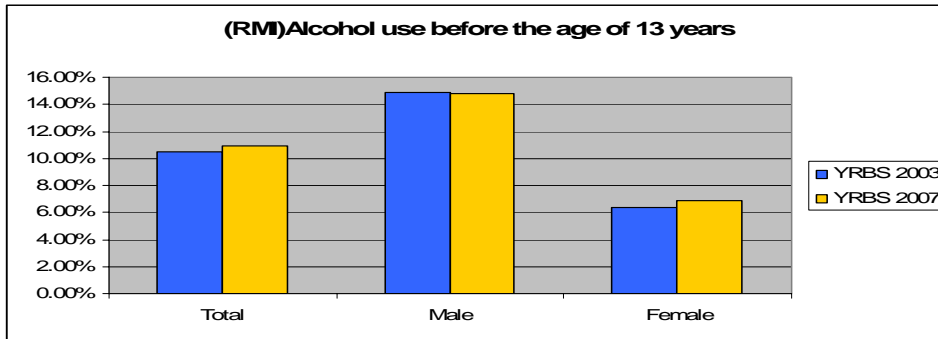
**Youth Current Alcohol Use.** The 2003 YRBS reported an overall 45.7 percent of students had had at least one drink of alcohol on 1 or more of the 30 days preceding the survey (i.e. current alcohol use). The prevalence of current alcohol use was substantially higher among males (58.7 percent) than females (35.4 percent). The YRBS 2007 showed an overall decrease to 41.7 percent, with prevalence still showing higher in males (51.0 percent) than females (33.4 percent).



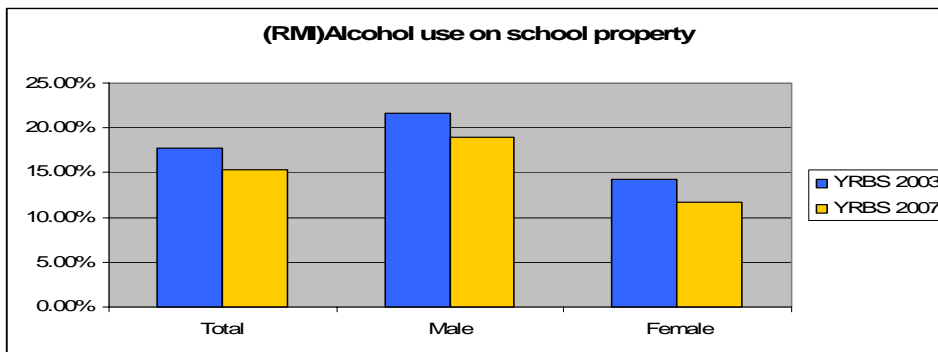
**Youth Episodic Heavy Drinking.** The 2003 YRBS reported an overall 31.9 percent of students had had five or more drinks of alcohol in a row (i.e., within a couple of hours) on 1 or more of the 30 days preceding the survey (i.e., episodic heavy drinking). The prevalence of episodic heavy drinking was higher among males (41.1 percent) than females (24.3 percent). The YRBS 2007 showed an overall decrease to 26.6 percent. Although there is a decrease in the trend prevalence is still higher in males (30.8 percent) than females (22.6 percent).



**Youth Alcohol Use Before Age 13.** The 2003 YRBS reported an overall 10.5 percent of students had their first drink of alcohol (other than a few sips) for the first time before age 13. The prevalence of having drunk alcohol before the age 13 years was 14.9 percent among males and 6.4 percent among female students. The YRBS 2007, showed a slight increase 10.9 percent of students that had their first drink of alcohol other than a few sips before age 13 years. The prevalence showed a slight decrease in males (14.8 percent) compared to females (6.9 percent).



**Youth Alcohol Use on School Property.** The 2003 YRBS reported an overall 17.7 percent of students had had at least one drink of alcohol on school property on 1 or more of the 30 days preceding the survey. The prevalence of having drunk alcohol on school property was 21.6 percent among males and 14.2 percent among female students. The 2007 YRBS showed a decrease to 15.3 percent of students who had at least one drink of alcohol on school property in the past 30 days. Although there was a decrease, the prevalence for males was still higher (18.9 percent) than for female (11.7 percent).





## TOBACCO CONSUMPTION

**Current Smokers.** The WHO STEPS Survey defined current smokers as those who have smoked any tobacco products within the past 12 months. The survey showed that overall 23.1 percent of adults smoke, with 19.8 percent currently daily smokers and 3.3 percent current but non-daily. Around 77 percent had never smoked at all (abstainers).

There were a greater proportion of male current smokers (39.5 percent) than female current smokers (6.0 percent). Amongst current smokers, there were also a higher proportion of daily smokers among males (34.7 percent) than females (4.2percent).

The greatest proportion of current daily smokers among males was in the age group 25-34 (40.6 percent). For females the greatest proportion of current daily smokers was in the age group 35-44 (7.7 percent).

### *Current Smoking Status: 2002*

AGE	CURRENT DAILY TOTAL	CURRENT NON-DAILY	DAILY &NON-DAILY	NEVER
15-24	18.2	4.5	22.7	77.3
25-34	22.7	2.0	24.7	75.3
35-44	22.9	3.1	26.0	74.0
45-54	17.5	3.1	20.6	79.4
55-64	11.4	2.2	13.6	86.4
TOTAL	19.8	3.3	23.1	76.9
	<b>MALE</b>			
15-24	33.8	7.0	40.8	59.2
25-34	40.6	2.3	42.9	57.1
35-44	37.9	5.3	43.2	56.8
45-54	28.0	3.5	31.2	68.8
55-64	18.6	3.4	22.0	78.0
TOTAL	34.7	4.9	39.5	60.4
	<b>FEMALE</b>			
15-24	2.4	2.1	4.5	95.5
25-34	4.3	1.6	5.9	94.1
35-44	7.6	.9	8.5	91.5
45-54	5.0	2.8	7.8	92.2
55-64	3.3	.9	4.2	95.8
TOTAL	4.2	1.8	6.0	94.0

Source: WHO STEPS Survey 2002

**Mean Age of Smoking Initiation.** This survey revealed that the mean age of initiation among current smokers was lower among males, whose mean age for starting smoking was 17.6 compared to 19.9 for females. Among males, the earliest mean age for initiation (16.2) was among the 15-24 group. This was also the case for females, where the mean age for initiation

(15.9) was among the 15-2 group. This suggests that younger Marshallese are starting to smoke at earlier ages than did older generations.

*Mean Age of Smoking Initiation, For Current Smokers: 2002*

AGE	TOTAL	MALE	FEMALE
15-24	16.2	16.2	15.9
25-34	18.7	18.5	20.2
35-44	18.4	17.8	21.2
45-54	19.6	19.5	20.3
55-64	18.3	16.9	27.3
TOTAL	17.8	17.6	19.9

Source: WHO STEPS Survey 2002

**Mean Number of Years Smoking.** The mean number of years a current smoker has smoked for is 13.3 with the mean for males at 13.2 and females at 14.2.

*Mean Number of Years Smoking, For Current Smokers: 2002*

AGE	TOTAL	MALE	FEMALE
15-24	3.9	3.9	3.4
25-34	10.9	11.1	9.5
35-44	20.6	21.1	18.2
45-54	29.0	29.3	27.3
55-64	39.2	40.2	32.6
TOTAL	13.3	13.2	14.2

Source: WHO STEPS Survey 2002

**Types of Cigarettes.** The vast majority of current smokers smoked manufactured cigarettes.

*Percentage of Total Population Smoking Various Types of Cigarettes, For Current Smokers: 2002*

AGE	Manufactured cigarettes	Hand-rolled cigarettes	Pipe tobacco	Cigars, cheroots cigarillos
15-24	98.5	0.5	0.5	0.4
25-34	98.5	0.6	0.5	1.5
35-44	99.0	-	0.6	-
45-54	95.9	-	-	-
55-64	100.0	-	-	-
TOTAL	98.4	0.3	0.5	0.6

Source: WHO STEPS Survey 2002

**Mean Consumption of Manufactured Cigarettes.** The mean number of manufactured cigarettes smoked daily was 11.4. More cigarettes were smoked by males (11.9 per day) compared to females (7.3 per day).

*Mean Consumption of Manufactured Cigarettes Per Day, For Current Smokers of Manufactured Cigarettes: 2002*

AGE	TOTAL	MALE	FEMALE
15-24	8.9	9.3	4.3
25-34	13.2	14.0	5.6
35-44	12.8	13.5	9.3
45-54	11.5	11.7	10.3
55-64	14.5	15.4	8.9
TOTAL	11.4	11.9	7.3

Source: WHO STEPS Survey 2002

**Smokeless Tobacco Use.** The overall percentage of smokeless (chewing) tobacco users was 8.9 percent. Males had a higher use of smokeless tobacco (13.7 percent) compared to females (4.0 percent).

*Smokeless Tobacco Use: 2002*

AGE	USERS (DAILY&NON-DAILY) TOTAL	NON-USERS
15-24	13.4	86.6
25-34	11.9	88.1
35-44	3.2	96.8
45-54	.8	99.2
55-64	.6	99.4
TOTAL	8.9	91.1
	<b>MALE</b>	
15-24	20.0	80.0
25-34	20.2	79.8
35-44	4.5	95.5
45-54	0.7	99.3
55-64	1.2	98.8
TOTAL	13.7	86.3
	<b>FEMALE</b>	
15-24	6.9	93.1
25-34	3.3	96.7
35-44	1.8	98.2
45-54	1.0	99.0
55-64	0.0	100.0
TOTAL	4.0	96.0

Source: WHO STEPS Survey 2002

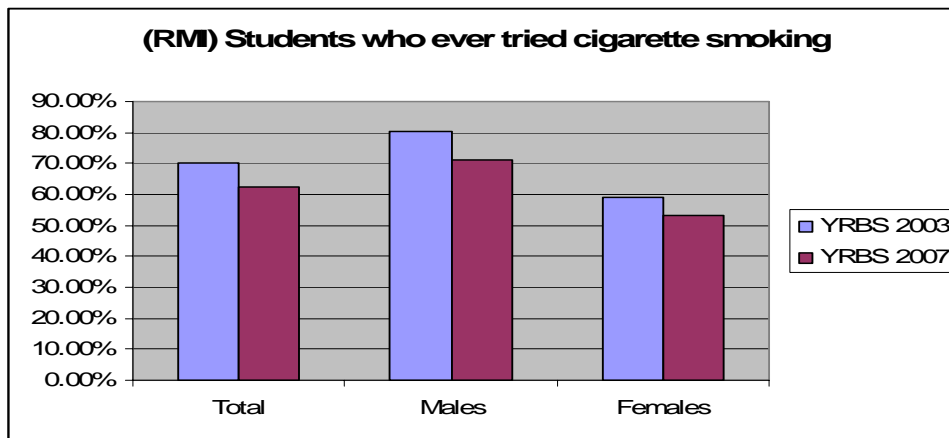
**Lifetime Tobacco Use Among Female Adults Prior to Pregnancy.** Lifetime tobacco use, including chewing tobacco, was reported by 64 (19 percent) of women in the SGS survey.

*Results of SGS Prenatal Survey for Tobacco: 2006-2007*

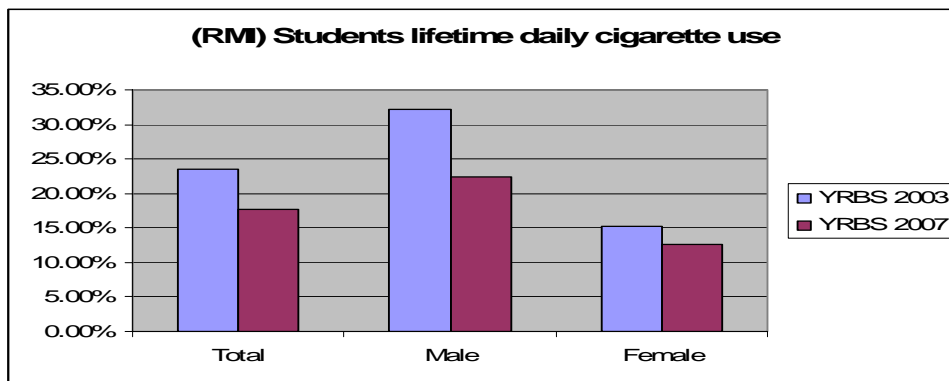
	Number	(Percent)
Lifetime use		
Tobacco (including chewing)	64	(18.5)

Source: SGS Survey 2006-2007

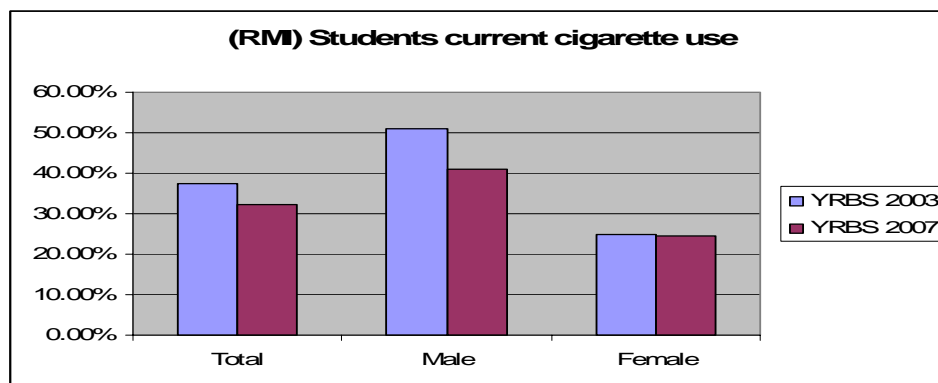
**Youth Lifetime Cigarette Use.** The YRBS 2003 showed that 70.1 percent of students had ever tried cigarette smoking, even one or two puffs (i.e. lifetime cigarette use). The prevalence of lifetime cigarette use was substantially higher among male (80.4 percent) than females (59.1 percent) students. YRBS 2007 indicated a decrease to 62.2 percent in total students and still substantially higher among males (71.2 percent) than females (53.1 percent). The overall trend has significantly decreased since the 2003 survey.



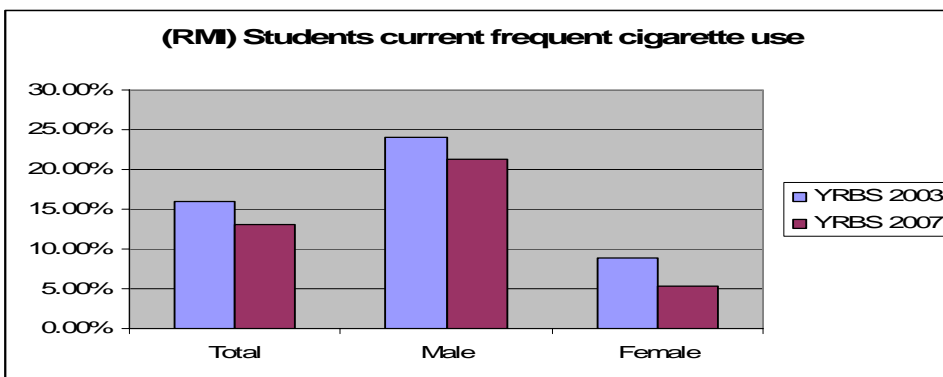
**Youth Lifetime Daily Cigarette Use.** YRBS 2003 showed 23.6 percent of students had ever smoked at least one cigarette every day for 30 days (i.e. lifetime daily cigarette use). The prevalence of lifetime daily cigarette use was higher among males (32.2 percent) than females (15.3 percent) students. A significant decrease was seen in the 2007 YRBS, showing 17.6 percent, with males higher (22.3 percent) than females (12.6 percent).



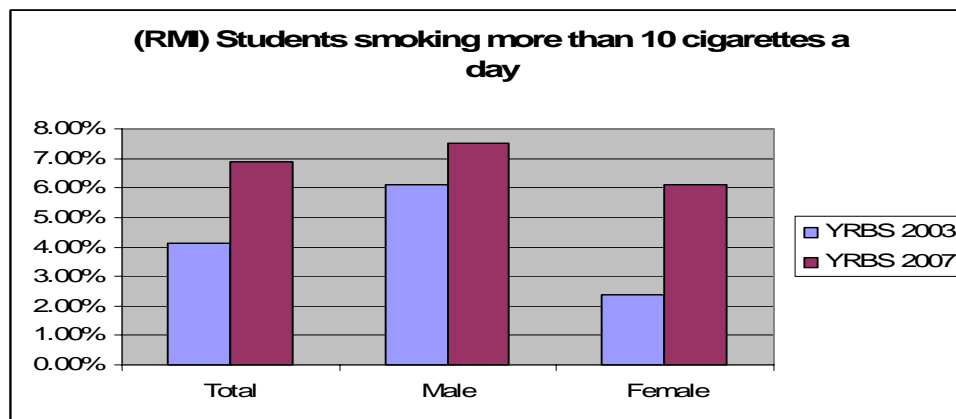
**Youth Current Cigarette Use.** YRBS 2003 showed that 37.5 percent of all students had smoked cigarettes on one or more of the 30 days preceding the survey (i.e. current cigarette use). The prevalence of current cigarettes use was substantially higher among males (51 percent) than females (25 percent). The 2007 YRBS has shown a decrease in trend at 32.4 percent, and still showing substantially higher in males (40.9 percent) than females (24.4 percent).



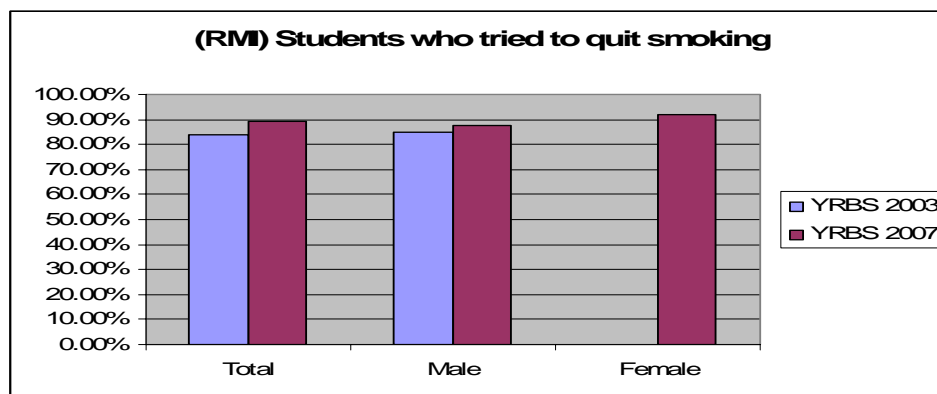
**Youth Current Frequent Cigarette Use.** The YRBS 2003 showed that 15.9 percent of students had smoked cigarettes on at least 20 of the 30 days preceding the survey (i.e. current frequent cigarettes use). The prevalence of current frequent cigarettes use was higher among males (24.1 percent) than females (8.9 percent). YRBS 2007 showed a decrease in trend to 13.1 percent, with the prevalence still higher in males (21.3 percent) than females (5.3 percent).



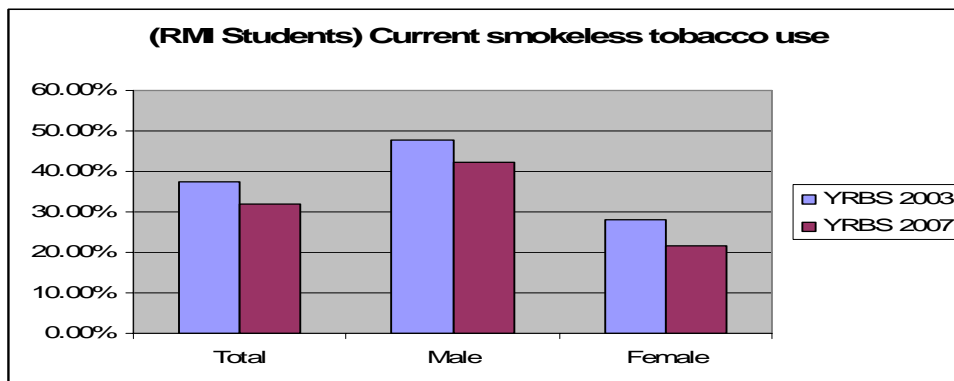
**Youth More Than 10 Cigarettes Per Day.** The 2003 YRBS indicated that 4.1 percent of students had smoked more than 10 cigarettes per day on the days they smoked during the 30 days preceding the survey. The prevalence of having smoked more than 10 cigarettes per day was 6.1 percent among males and 2.4 percent among females. However the 2007 YRBS, showed an increase in trend to overall 6.9 percent, with the prevalence still higher in males (7.5 percent) than females (6.1 percent).



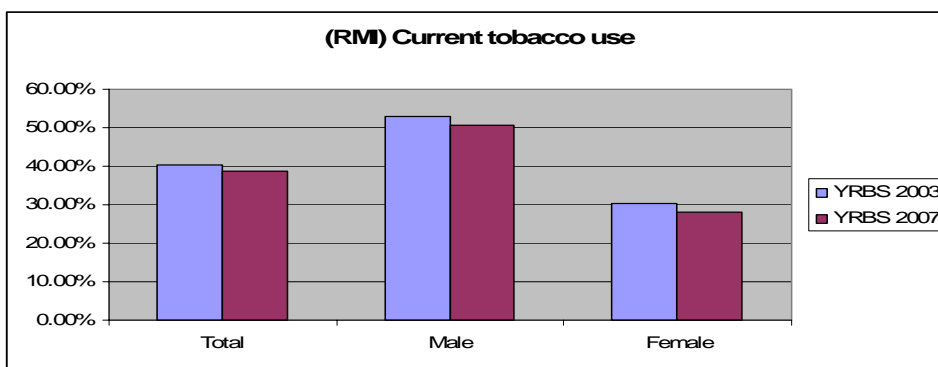
**Youth Tried To Quit Smoking.** Among the 37.5 percent of students who reported current cigarette use in 2003, 83.7 percent tried to quit smoking cigarettes use during the past 12 months. The prevalence of having attempted to quit smoking cigarettes was 84.8 percent among male students (data not available for female students). The 2007 YRBS showed that of the 32.4 percent of students who reported current cigarette use, 89.3 percent tried to quit smoking cigarette during the past 12 months. The prevalence of having attempted to quit cigarettes was however higher in female (91.7 percent) than male (87.6 percent) students. The trend identified an overall improvement in the attempt to quit smoking. Although there was no data available for females in the YRBS 2003, the 2007 data showed a remarkable rate, which showed to be much higher than the male students’ improvement trend.



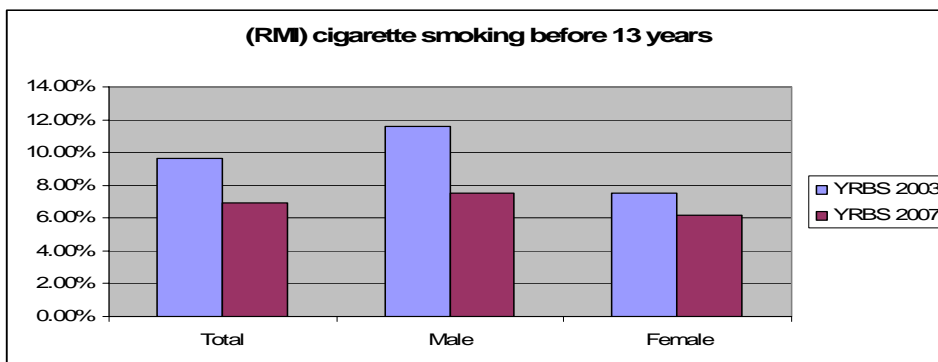
**Youth Current Smokeless Tobacco Use.** The 2003 YRBS showed that 37.5 percent of students had used smokeless tobacco (e.g. chewing tobacco, snuff, or dip) on 1 or more of the 30 days preceding the survey (i.e. current smokeless tobacco use). The prevalence of current smokeless tobacco use was higher among males (47.7 percent) than females (28.1 percent) students. The 2007 YRBS showed an overall decrease in trend to 32.0 percent, with the prevalence still showing a higher trend in males (42.3 percent) than females (21.6 percent).



**Youth Current Tobacco Use.** The 2003 YRBS showed that 40.3 percent of students had reported current cigarette use, current smokeless tobacco use, or current cigar use on 1 or more of the 30 days preceding the survey (i.e. current tobacco use). The prevalence of current tobacco use was substantially higher among males (53.0 percent) than females (30.2 percent) students. In 2007 the YRBS showed an overall decrease to 38.8 percent. The prevalence was still higher in males (50.0 percent) than females (28.1 percent).



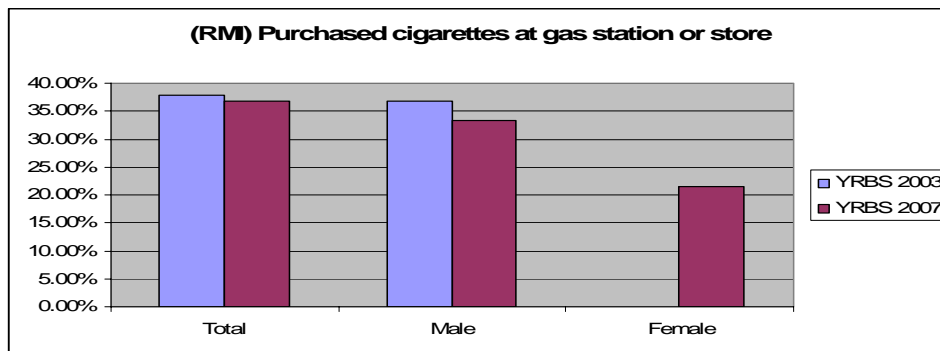
**Youth Cigarette Smoking Before Age 13.** The 2003 YRBS showed that 9.6 percent of students had smoked a whole cigarette for the first time before the age 13 years. The prevalence of having smoked a whole cigarette before the age 13 years was 11.6 percent among males and 7.5 percent among female students. However the 2007 YRBS showed an overall decrease to 6.9 percent, with a higher prevalence still showing in males (7.5 percent) than females (6.2 percent).



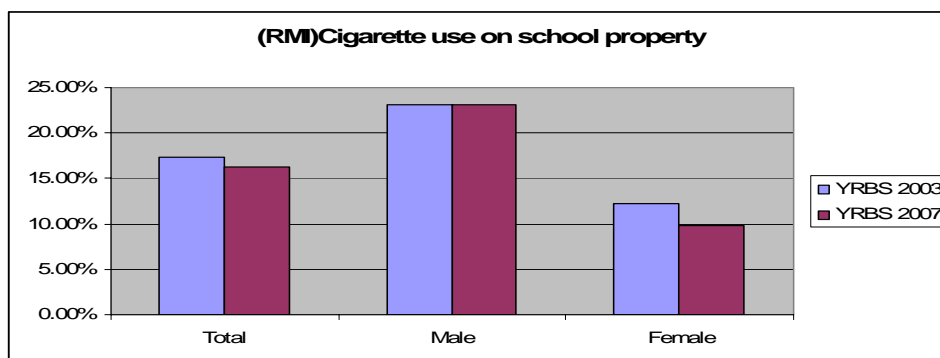
**Youth Purchased Cigarettes At Store or Gas Station.** Data regarding access to cigarettes are reported only for 37.9 percent of students under the age of 18 years who reported current cigarette use in the YRBS 2003. Nearly one-third (32.0 percent) of these students had usually gotten their own cigarettes by purchasing them in a store or gas station during the 30 days preceding the survey.

Note that the minimum legal age for purchase of cigarettes is 18 – meaning all of these purchases were done illegally.

The prevalence of having purchased cigarettes in a store or gas station was 36.8 percent amongst male students (data not available for female students). The overall prevalence of purchasing cigarettes from a store or gas station decreased to 28.1 percent in the 2007 YRBS. The male prevalence of male students decreased to 33.4. There was no female student data available in 2003 but the prevalence in 2007 was 21.4 percent.



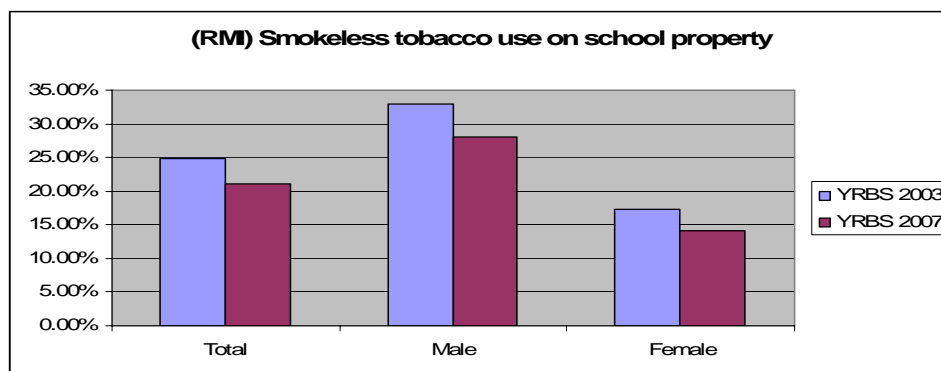
**Youth Cigarette Use on School Property.** The 2003 YRBS showed that 17.3 percent of students had smoked cigarettes on school property on 1 or more of the 30 days preceding the survey. The prevalence of having smoked cigarettes on school property was higher among males (23.1 percent) than females (12.2 percent). The 2007 YRBS showed an overall decrease to 16.3 percent, with no change in males (23.1 percent) and a decrease in females (9.8 percent).



**Youth Smokeless Tobacco Use on School Property.** The 2003 YRBS showed that 24.9 percent of students had used smokeless tobacco on school property on 1 or more of the 30 days preceding the survey. The prevalence of having used smokeless tobacco on school property was



higher among males (33.0 percent) than females (17.4 percent). In 2007 the YRBS trend showed an overall decrease to 21.1 percent, with a higher prevalence still showing in males (28.0 percent) than females (14.1 percent).



**Regional Comparison of Youth Tobacco Use.** A comparison of the RMI results to CNMI and the Republic of Palau is shown in the table below. In general, the RMI youth show lower prevalence than youth in Palau and CNMI in terms of:

- Lifetime cigarette use
- Current cigarette use
- Current smokeless tobacco use
- Cigarette smoking before age 13

*Regional Comparison on Youth Tobacco Use, 2003*

<i>YRBS 2003</i>	<i>RMI</i>	<i>PALAU</i>	<i>CNMI</i>
Lifetime Cigarette Use	70.1%	79.9%	87.9%
Lifetime Daily Cigarette Use	23.6%	13.7%	25.0%
Current Cigarette Use	37.5%	38.6%	48.8%
Current Frequent Cigarette Use	15.9%	7.1%	16.8%
Smoked more than 10 Cigarettes per day	4.1%	2.0%	2.0%
Current Smokeless Tobacco Use	37.5%	40.9%	42.5%
Current Cigar Use	30.1%	N/A	10.0%
Cigarette smoking before Age 13 years	9.6%	24.9%	40.1%
Current Tobacco use	40.3%	N/A	61.2%

Source: 2003 YRBS

## **OTHER SUBSTANCES CONSUMPTION**

**Lifetime Other Substances Use Among Female Adults Prior to Pregnancy.** The most common substance other than alcohol and tobacco to be used (lifetime) by the surveyed women included betel nut (6.4 percent), marijuana (2.6 percent), kava/sakau (1.7 percent) and other drugs (1.2 percent).

### *Results of SGS Prenatal Survey for Other Substances: 2006-2007*

	Number	(Percent)
Lifetime use		
Betel Nut	22	(6.4)
Marijuana	9	(2.6)
Kava/Sakau	6	(1.7)
Other drugs	4	(1.2)

Source: SGS Survey 2006-2007

## CONSEQUENCES ANALYSIS

Substance-related consequences can be defined as adverse social, health, and safety consequences associated with alcohol, tobacco, or illicit drug use. Consequences include mortality and morbidity and other undesired events for which alcohol, tobacco, and/or illicit drugs are clearly and consistently involved. Although a specific substance may not be the single cause of the consequence, scientific evidence must support a link to alcohol, tobacco, or illicit drugs as a contributing factor to the consequence.<sup>6</sup>

### MORTALITY

**Leading Causes of Mortality.** The Ministry of Health provides an annual summary of the leading causes of mortality in the RMI. The table below, from the Ministry of Health's annual reports, show the top 10 leading causes of mortality for the 2004 to 2006 period. A number of these causes can be directly or indirectly attributable to either alcohol or tobacco consumption.

#### *Leading Causes of Mortality: 2004 to 2006*

2004	2005	2006
Sepsis	Cardio respiratory arrest / failure	Sepsis / Septicemia
Cancers all types	Sepsis	Pneumonia
Myocardial Infarction	End stage renal failure	Cardiopulmonary arrests
Suicide	Cancer all types	Cardiorespiratory failure / arrests
End stage renal failure	Hepatic liver failure	Cancer all types
Drowning	Pneumonia	CHD / CHF
Prematurity	Asphyxia	Birth asphyxia
Trauma	Cerebrovascular arrests	Suicide
CHD / CHF	CHD / CHF	Acute renal failure
Hepatitis B	Hepatitis B	Hepatitis B

Source: MOH

Currently, detailed mortality records from the Ministry of Health are not arranged in a fashion that would lend itself easily to identification of specific alcohol or tobacco related deaths.<sup>7</sup> This should be a major area of focus for improvement in future profiles.

**Estimated Deaths Attributable to Alcohol and Tobacco.** Nevertheless, some general estimates on the total number of deaths attributable to alcohol and tobacco can be made from the existing records. As shown in the table below, annual numbers of registered deaths have ranged from 250 to 289 over the past three fiscal years.

<sup>6</sup> As described in the publication "Developing A State Epidemiological Profile for Substance Abuse Prevention: Guidance for State Epidemiological Outcome Workgroups" by the Pacific Institute for Research and Evaluation, February 2008.

<sup>7</sup> Current death records use data categories for each mortality case such as "main cause of death," "due to, or as a consequence of" and "immediate cause of death." However, it remains difficult to tally different causes of death due to coding and classification inconsistencies. This will be a major area of focus for future profiles.

Close inspection of the death records indicate that in FY2005, FY2006, and FY2007, there were at least 20, 13, and 18 deaths (respectively) caused by conditions linked to alcohol. This translates into estimated annual alcohol-related death rates (as a percentage of all registered deaths) of 7.4, 4.5, and 7.2 percent for the three years.

For tobacco related deaths, close inspection of the death records shows that over the same three year period, there were at least 16, 7 and 5 registered deaths caused by conditions linked to tobacco. This translates into tobacco related death rates of 5.9, 2.4, and 2.0 percent over the period.

Again, these are broad estimates only and further work will be done in the future to refine the causes of mortality analysis.

#### *Estimated Deaths Attributable to Alcohol and Tobacco: 2005 to 2007*

Year	Total Registered Deaths	Deaths Attributable to Alcohol	% of total deaths	Deaths Attributable to Tobacco	% of total deaths
FY2007	250	18	7.2	5	2.0
FY2006	289	13	4.5	7	2.4
FY2005	269	20	7.4	16	5.9

Note: deaths attributed to alcohol include suicide (nearly all suicides in RMI are linked with alcohol)

Source: MOH, with Epi Workgroup estimates

**Cancer Mortality.** As reported by the Cancer Comprehensiveness Program (CCP), cancer remains a top five cause of death in the RMI. The MOH has taken the initiative to establish in 2005 the CCP which will develop the cancer regulatory framework and related work for cancer education and prevention.

Current cancer related deaths by type are illustrated in the table below for 2005 and 2006. Over the two year period, there were 17 lung cancer deaths (11 in 2005 and 6 in 2006).

#### *Cancer Deaths Data: 2005 and 2006*

CANCER TYPE	2005			2006		
	EBEYE	MAJURO	RMI	EBEYE	MAJURO	RMI
BREAST	0	2	2	2	5	7
CERVICAL	0	4	4	0	6	6
LUNG	0	11	11	1	5	6
COLON / RECTAL	0	0	0	0	4	4
THYROID	0	4	3	0	3	3
NASOPHARYNGEAL	0	2	2	0	2	2
STOMACH	0	0	0	0	2	2
BONE	0	0	0	1	1	2
LARYNGEAL	1	1	2	0	2	2

UNKOWN ORIGIN	2	0	2	0	2	2
LYMPHOMA	1	1	2	0	1	1
OVARY	0	2	2	0	1	1
UTERUS	1	4	5	0	1	1
SALIVARY GLAND	0	0	0	0	1	1
VULVA	0	0	0	0	1	1
ORAL	0	1	1	0	1	1
KIDNEY	0	3	3	0	1	1
GASTRIC	0	0	0	1	0	1
PROSTATIC	0	0	0	0	1	1
LEUKEMIA	1	1	2	0	0	0
LIVER	1	1	2	0	0	0
PANCREASE	0	1	1	0	0	0
BLADDER	0	1	1	0	0	0
ESOPHAGEUS	0	1	1	0	0	0
SKIN	0	3	3	0	0	0
TOTAL CANCER DEATHS	6	43	49	5	40	45
% OF TOTAL DEATHS			18.2			15.6

As shown above, cancer related deaths accounted for 18.2 percent of registered total deaths in 2005 and 15.6 percent in 2006.

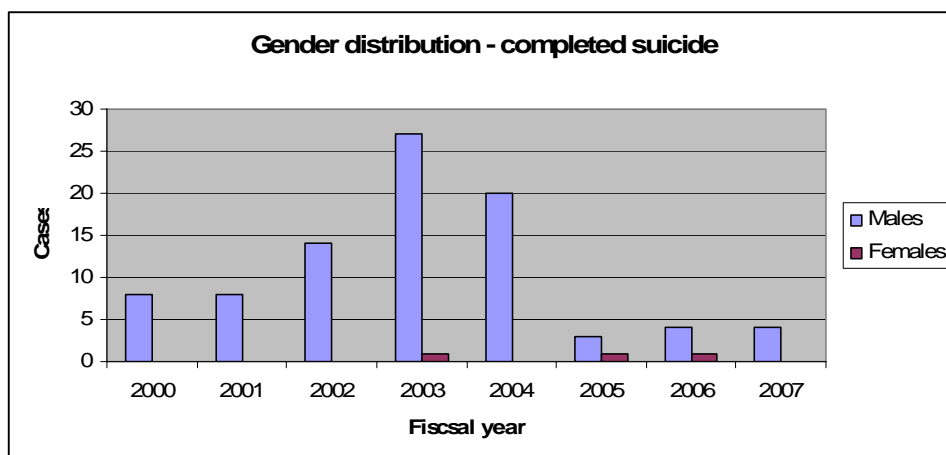
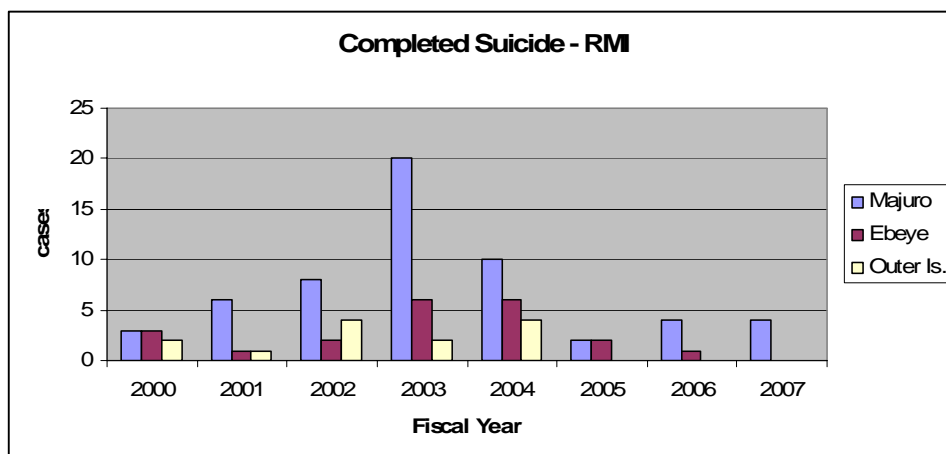
## SUICIDE

**Completed Suicides.** It has been established that suicide, especially among youth, is many times higher in the RMI than it is in the US and other counties. The Mental Health Program at the MOH reported that alcohol was the number one contributing factor of suicidal attempts in the Marshall Islands for the 2007. However, the number of recorded completed suicides over the past eight years has steadily fallen (see table below). In 2007, only 4 completed suicides were on record, compared to a high of 28 in 2003.

### Completed Suicides: 2000 to 2007

YEAR	MAJURO	EBEYE	OUTER IS.	MALE	FEMALE	TOTAL
2000	3	3	2	8	0	8
2001	6	1	1	8	0	8
2002	8	2	4	14	0	14
2003	20	6	2	27	1	28
2004	10	6	4	20	0	20
2005	2	2	0	3	1	4
2006	4	1	0	4	1	5
2007	4	0	0	4	0	4

Source: MOH



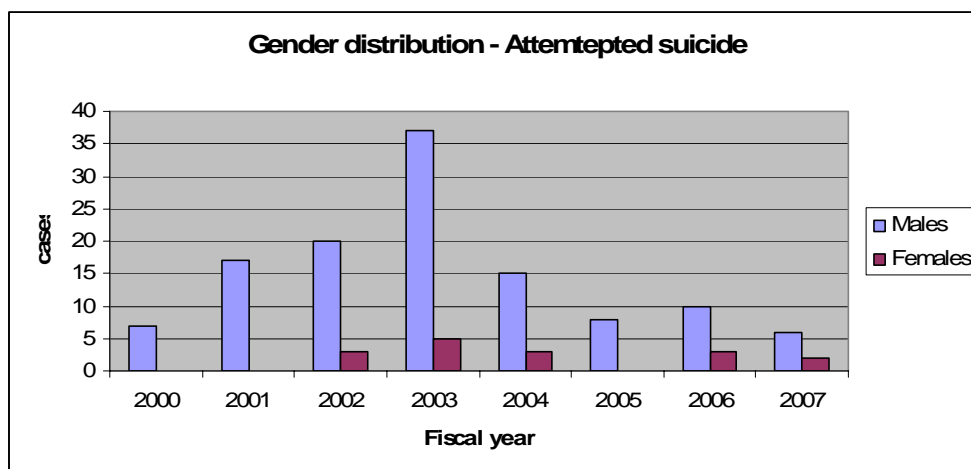
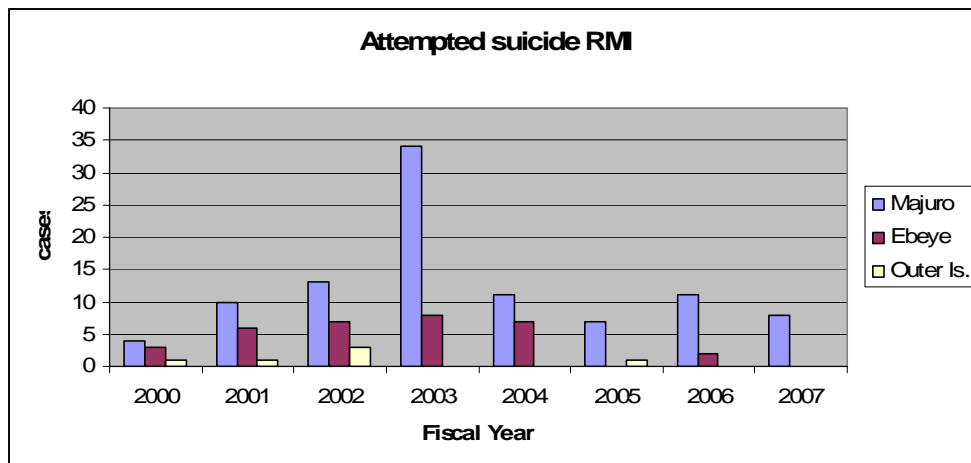
Completed suicides were far more common among males than among females (see graph above).

**Attempted Suicides.** Over the past eight years, the numbers of attempted suicides have followed the completed suicides trend. In 2007 only 8 attempted suicides were on record, compared to 42 in 2003.

*Attempted Suicide: 2000 to 2007*

YEAR	MAJURO	EBEYE	OUTER IS.	MALE	FEMALE	TOTAL
2000	4	3	0	7	0	7
2001	10	6	1	17	0	17
2002	13	7	3	20	3	23
2003	34	8	0	37	5	42
2004	11	7	0	15	3	18
2005	7	0	1	8	0	8
2006	11	2	0	10	3	13
2007	8	0	0	6	2	8

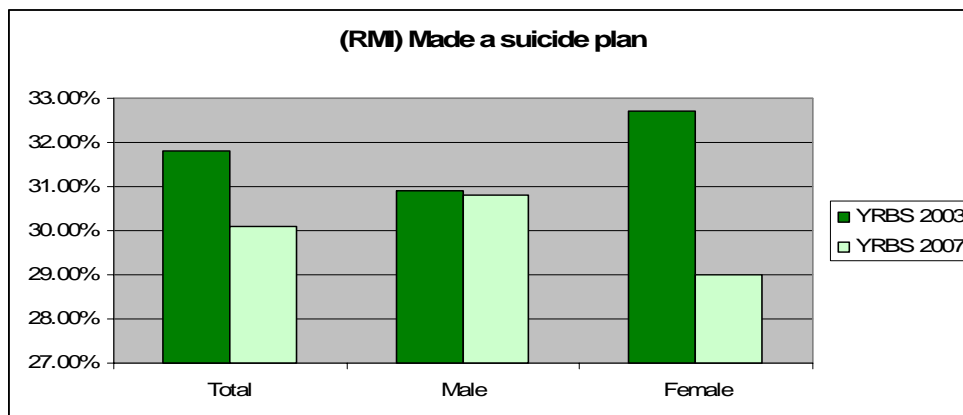
Source: MOH



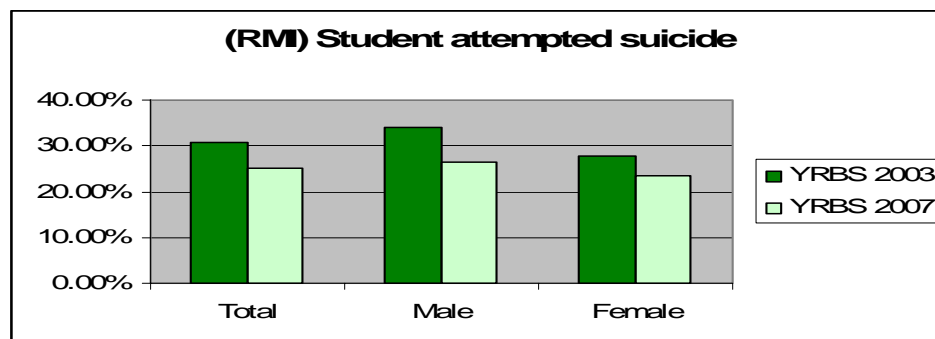
Attempted suicides were far more common among males than among females (see graph above).

**Youth Seriously Considered Attempting Suicide.** Overall 26.4 percent of students had seriously considered suicide during the 12 months preceding the survey (2003). The prevalence of having considered attempting suicide was 28.5 percent among male and 24.4 percent among female students. The YRBS 2007 showed a slight decrease (25.6 percent) in students that had seriously considered suicide during the 12 months preceding the survey (2007). The trend showed a decrease in male students (25.3 percent) and an increase in female (25.9 percent) students.

**Youth Made A Suicide Plan.** During the 12 months preceding the YRBS (2003), 31.8 percent of students had made plans about how they would attempt suicide. The prevalence of having made a suicide plan was 30.9 percent among male and 32.7 percent among female students. The YRBS 2007 showed an overall decrease to 30.1 percent in the students who made plans about how to commit suicide. The prevalence was still higher in male (30.8 percent) than female (29.0 percent) students.



**Youth Attempted Suicide.** The 2003 YRBS showed that 30.9 percent of students had actually attempted suicide at one or more times during the 12 months preceding the survey (2003). The prevalence of having attempted suicide was 34.2 percent among male and 27.7 percent among female students. The 2007 YRBS showed an overall decrease to 25.0 percent. Although there was a decrease in trend, the prevalence of having attempted suicide was still higher in male (26.5 percent) than female (23.5 percent) students.



**Youth Suicide Attempt Required Medical Attention.** During the 12 months preceding the YRBS (2003) 14.3 percent of students had made a suicide attempt that resulted in an injury, poisoning, or overdose that had to be treated by a doctor or nurse. The prevalence of having made a suicide attempt that required medical attention was 15.6 percent among male and 13.1 percent among female students. The YRBS 2007 showed a slight decrease to 14.2 percent in the overall trend of suicides requiring medical attention. The trend showed prevalence in male students remained the same (15.6 percent) and a slight decrease in female (12.9 percent) students.

## ACCIDENTS, VIOLATIONS AND OFFENSES

**Traffic Accidents and DUI Violations.** The table below summarizes different types of violations recorded for Majuro, Ebeye and the entire RMI for 2002 to 2004 (more recent data still being evaluated for credibility). Total reported traffic accidents fell slightly over the period for the entire RMI from 416 to 350. Drunken driving violations numbered 191, 155, and 154 over the period, again generally falling (in absolute terms). Percentagewise, drunken driving violations have accounted for 6.0, 4.0, and 4.9 percent of all violations.



*Accidents, DUI, Other Traffic Violation: 2002 to 2004*

Type of Violation	2002			2003			2004		
	Maj	Ebeye	RMI	Maj	Ebeye	RMI	Maj	Ebeye	RMI
Traffic accidents	384	32	416	318	27	345	342	8	
Drunken driving	155	36	191	134	21	155	140	14	
Other traffic violations	2,183	419	2,602	2,523	821	3,344	2,129	525	2,
TOTAL	2,722	487	3,209	2,975	869	3,844	2,611	547	3,
% DUI	5.7	7.4	6.0	4.5	2.4	4.0	5.4	2.6	

Source: MOJ

**Alcohol Related Offenses.** Drunken and disorderly conduct and disturbing the peace cases in Majuro have nearly doubled from just under 500 in 1999 to nearly 1,000 in 2006 (data for Ebeye and other areas not currently available). The percentage of drunken disorderly offenses out of total offenses has risen steadily from just over 50 percent to around 80 percent.

While the number of all other offenses has declined over the period (from 496 to 283), the number of drunken disorderly cases has grown dramatically.

*Offenses Known to the National Police, Majuro: 1997-2006*

Offenses	1999	2000	2001	2002	2003	2004	2005	2006
Drunken and disorderly/disturbing peace	454	931	730	460	704	713	1213	981
All other offenses	496	521	457	444	320	288	242	283
TOTAL	950	1452	1187	904	1024	1001	1455	1264
% Drunken and disorderly/disturbing peace	47.8	64.1	61.5	50.9	68.8	71.2	83.4	77.6

Source: MOJ

**OTHER CONSEQUENCES**

**Teenage Pregnancy.** Teenage pregnancies remain high and steady in the RMI. Over the past decade or so, the number of teens who have become pregnant has ranged between 200 to 300. As a percentage of total births, teen births have hovered between 17 and 18 percent since 2001, with no discernible downward trend overall.

*Teenage Pregnancy Cases: 2001 to 2006*

YEAR	2001	2002	2003	2004	2005	2006
TEEN BIRTHS	282	239	266	253	299	269
TOTAL BIRTHS	1,561	1,355	1,565	1,502	1,623	1,568
TEENS % OF TOTAL BIRTHS	18.1	17.6	17.0	16.8	18.4	17.2

Source: MOH

**Mental Health Substance Abuse Cases.** The Mental Health program has been successful in securing partnership networks with several leaders including Salvation Army, Reformed Congregational Church, Assembly of God Church, and the Full Gospel Church. Through collaboration with the churches the Mental Health staff serves about 318 clients annually.

Mental Health statistics for 2007 show that there were 21 cases treated for substance abuse: 17 for alcohol and 4 for marijuana (all males).

*Mental Disorder Data: 2007*

<b>MENTAL DISORDER</b>	<b>MALE</b>	<b>FEMALE</b>	<b>TOTAL</b>
Alcohol / Substance abuse -	21	0	21
Alcohol	17	0	
Marijuana	4	0	

Source: MOH

## GAPS IDENTIFIED IN SUBSTANCE ABUSE DATA

**Ministry of Health** – Health statistics obtained were general, with specific statistics relating to substance abuse impossible to identify. Emergency room statistics relating to alcohol admissions and treatment were not available although given more time we would have been able to identify records. Alcohol emergency records emerging from outpatient departments and the emergency departments need to be better identified and channeled appropriately for future statistical use.

**Ministry of Education** – The YRBS is the only survey that is done regularly in the RMI related to substance use. It has take place from 1999 to 2007 (4 surveys). Collaboration of appropriate questions, to be incorporated in the CDC based survey, would improve the results and sharpen the analysis. Dissemination of the analysis would better the performance showing reliable trends. This dissemination process needs to be put in place.

**Ministry of Justice** – A uniform reporting on substance abuse offenses and prosecution needs to be strengthened. Records of victims and deaths from road accidents cannot be verified clearly, either from MOH or MOJ.

Other data gaps will be identified and suggestions made in a separate document.

**NOMS** – many of the NOMs for substance abuse prevention require data that come from the NSDUH, which the RMI currently does not administer. Substitute data will need to be provided, however even substitute data is thin in the RMI. Technical assistance will be required to fulfill the NOMs reporting requirements.