BRFSS

Guam Behavioral Risk Factor Surveillance System

2007-2010

1ST GUAM BRFSS ANNUAL REPORT

"Utilizing Guam's Data for a Healthier Life."

GOVERNMENT OF GUAM
DEPARTMENT OF PUBLIC HEALTH AND SOCIAL SERVICES
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Buenas yan Hafa Adai! The Department of Public Health and Social Services is proud to present the first Guam Behavioral Risk Factor Surveillance System (BRFSS) Annual Report. The BRFSS state-based telephone survey was designed to assess and document current health trends and issues among the Guam adult population.

This report provides data results from the 2007-2010 Guam BRFSS survey on behaviors and conditions that are associated with chronic diseases and other leading causes of death such as heart disease, stroke, diabetes, cancer, and other health issues. It also provides data that compares our health behaviors with those of the other states and territories which can assist us to identify and address emerging health issues or problems.

The data collected through the BRFSS is used as a tool to support policies and programs that promote health and prevent disease such as the Tobacco Free Guam Program and the Diabetes Prevention and Control Program, develop prevention activities and programs, measure the effectiveness of initiatives, and provide the basis for future funding. Additionally, the data is used to support research projects such as the Betel Nut Study conducted by the University of Guam Cancer Research Center.

We appreciate the relentless efforts of many individuals both within the government and non-government partners, most especially the Guam Comprehensive Cancer Control Coalition, Data and Research Action Team who was always available and willing to share their expertise with the Guam BRFSS. We hope that you find this report useful in helping you plan and execute your public health activities. *Si Yu'os Ma'ase.*

JAMES W. GILLAN
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LEO G. CASIL
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Buenas! The Guam Comprehensive Cancer Control (CCC) Coalition is a diverse group of public and private sector stakeholders and individuals who work collaboratively to reduce the burden of cancer and eliminate gaps in cancer services in Guam. The Coalition is delighted to join the Department of Public Health and Social Services in presenting the first publication of the Guam Behavioral Risk Factor Surveillance System (BRFSS) Report.

The Data and Research Action Team of the Coalition worked closely with the Department of Public Health and Social Services to analyze, report and edit the Guam BRFSS Report. This comprehensive report combines data on health risk behaviors, chronic diseases, clinical preventive health care practices, and health care practices in Guam for 2007-2010. The Coalition will continue to work with the Guam BRFSS Program to disseminate the report, as well as to translate the report into meaningful priorities that will improve the overall health of the community of Guam.
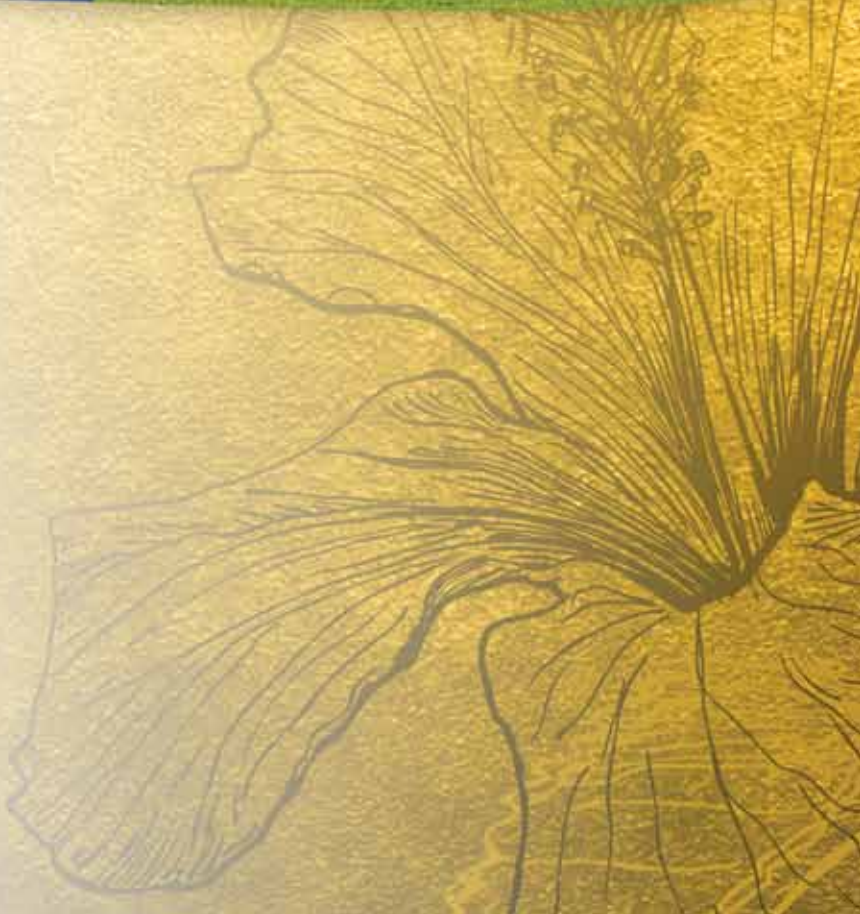
We are grateful for the opportunity to work collaboratively with the Guam Department of Public Health and Social Services on this report. We would like to thank the many individuals who made this publication possible, most especially the residents of Guam who participated in the BRFSS survey. ***Si Yu'os Ma'ase.***

Marisha Artero
Chair

Yvette C. Paulino
Vice-Chair

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The Behavioral Risk Factor Surveillance System (BRFSS) is the largest health-risk behavior telephone survey in the world and provides the only nationwide health-risk data in the country. All 50 states, the District of Columbia, Guam, Puerto Rico, the U.S. Virgin Islands and Palau participate in the BRFSS. It is a cooperative project between the Centers for Disease Control and Prevention (CDC) and the Guam Department of Public Health and Social Services (DPHSS).

The BRFSS objective is to collect uniform, state-specific data on preventive health practices and risk behaviors that are linked to chronic diseases, injuries, and preventable infectious diseases that affect the adult population. Factors assessed by the BRFSS included tobacco use, health care coverage, HIV/AIDS knowledge and prevention, physical activity, and fruit and vegetable consumption. Data are collected from a random sample of adults (one per household) through a telephone survey.

Guam has used the BRFSS to capture, collect, and maintain data to support public health programs and policies that are instrumental in meeting the health needs of its residents. The survey is significant in its use for needs assessments and planning, informed policy decisions and legislation, and to monitor the effectiveness of implemented programs. In the past, Guam has used BRFSS to provide data for legislative policies which resulted in the successful passage of several tobacco control mandates such as the Natasha Protection Act of 2006 (Public Law 28-80) which prohibits smoking in enclosed public places including restaurants, increase of cigarette (Public Law 27-05) and tobacco (Public Law 30-80) taxes, and the prohibition of no smoking within 20 feet of public places where smoking is prohibited (Public Law 30-63). Interventions and strategies for health promotion and resource allocation are established from data collected through the BRFSS as the data will provide the basis for future funding and support by key stakeholders for at-risk underserved populations.

Users of these data include policy-makers, health-care providers, public health professionals and organizations at the local, state, and national levels, academic professors and students, and the general public. The wide use of the BRFSS data and the increasing demand for the surveillance system to generate more data and information is an indication that the BRFSS remains a critical tool for public health.

The first BRFSS survey was done in 2001 and continued through 2003. The survey was repeated in 2007 using the same methodology and continued uninterruptedly. This report includes results of Guam BRFSS data collection from 2007 to 2010 and data collected nationally from 2001 to 2010. The U.S. averages can be viewed at this website: http://apps.nccd.cdc.gov/brfss/.

There are three parts in BRFSS: 1) Core Components, 2) Optional Modules, and 3) State-Added Questions. The "core" component consists of a standard set of questions, designed by the CDC, that are included in the survey for every state and territory. Some of these questions are asked every year (fixed core), some are asked every other year (rotating core), and others are added to address emerging health issues and are evaluated year by year. The questions are standardized and comparable across all states and territories, and can also be merged to

Core Components				
Topics	2007	2008	2009	2010
General Health Status	✓	✓	✓	✓
Health Care Coverage	✓	✓	✓	✓
Disability	✓	✓	✓	✓
Tobacco Use	✓	✓	✓	✓
Alcohol Consumption	✓	✓	✓	✓
HIV/AIDS	✓	✓	✓	✓
Diabetes	✓	✓	✓	✓
Overweight and Obesity	✓	✓	✓	✓
Cardiovascular Disease	✓	✓	✓	✓
Fruit and Vegetable Consumption	✓	N/A	✓	N/A
Hypertension	✓	N/A	✓	N/A
Cholesterol	✓	N/A	✓	N/A
Physical Activity	NA	✓	NA	✓
Breast Cancer Screening	N/A	✓	N/A	✓
Cervical Cancer Screening	N/A	✓	N/A	✓
Prostate Cancer Screening	N/A	✓	N/A	✓
Colorectal Cancer Screening	N/A	✓	N/A	✓
Cancer Survivorship	N/A	N/A	✓	N/A
Caregiver Status	N/A	N/A	✓	N/A

provide national estimates. They cannot be altered or omitted by individual states or territories. The core components administered between 2007 and 2010 are listed in the table below.

The "optional" modules (also designed by the CDC) are sets of questions organized by topic. Each year, states and territories may select which topic to include as part of their questionnaire based on the priorities and needs of specific state programs. The questions may not be modified in any way. The Cancer Survivorship questions were included in the 2010 Guam BRFSS survey as an optional module. The American Cancer Society has used this module to conduct territory-wide surveillance related to adult cancer survivors.

The "state-added" questions (SAQ) were created by the state/territory and incorporated in the BRFSS questionnaire annually based on priority data needs. These questions may address issues of particular interest to a state/territory that are not covered by the existing BRFSS modules. Guam started including SAQ in the 2007 survey and recurred in 2009 and 2010. The questions covered topics such as areca (betel) nut, diabetes, tobacco use, illicit drug and substance abuse, and ethnicity. In all three years, the University of Guam, Cancer Research Center (UOG/CRC) has utilized the Guam BRFSS survey in support of the research project on areca (betel) nut chewing and related practices on Guam which is unique to the island.

2008 State-Added Questions*				
Topics	2007	2008	2009	2010
Betal Nut Use	✔	N/A	✔	✔
Ethnicity	✔	N/A	✔	✔

*SAQ data are not weighted by CDC.

In each year, interviews were conducted monthly from January to December. Only adults' age 18 years and older residing in households were interviewed. All adults living in the household were enumerated, and one adult was selected for an interview using list-assisted random-digit dialing. This method provides a list of randomly chosen phone numbers from the pool of all existing phone numbers. These numbers are not drawn in a simple random fashion, but use what is known as the Disproportionate Stratified Sampling (DSS) technique.

Interviews were conducted by telephone using Computer-Assisted Telephone Interviewing (CATI) software to assist interviewers in presenting the questionnaire and recording the responses. If the person selected was not available during the interview period, or if the person refused to participate, no other member of that household was interviewed. Attempts were made to convert initial refusals into completed interviews. The interviews were conducted daytime, evenings, and weekends with appointments made as needed to schedule or complete the interviews.

The survey population excludes adults:

In correctional, mental, or other institutions;
- Living in group quarters such as dormitories, barracks, convents, or boarding houses;
- Contacted at a second home during a stay of less than 30 days;
- Who do not speak English well enough to be interviewed;
- Living in households without telephones.

The data collected for the Guam BRFSS was compiled and weighted by CDC. In this report, data were weighted to Guam's population. Weighting took into consideration the facts that the number of adults per household and the number of phone numbers per household influence a person's likelihood of being included in the survey. Weights were adjusted to match Guam's population by age and gender. The population estimates were derived from the most currently available census data files.

The demographic characteristics displayed in the tables for each section of this report represent the respondents of the survey. The income levels describe income for the entire household, not the respondent alone. If respondents did not know an answer, refused to answer, or did not respond for whatever reason, they were not included in the calculations of the percentages. The percentages calculated were specific to the respective category.

All of the percentages reported were calculated with weighted data and should be representative of the adult population of Guam residents. When calculating the percentages for each category, responses of "Don't know/Not sure" and "Refused" were removed from the denominators.

The tables also display the 95% confidence intervals that are associated with each percentage. The 95% confidence interval represents the range of values within which it would be expected to find the true value of the percentage or point estimate 95 times out of 100 attempts. For the smaller sample sizes, the confidence intervals will be wider compared to large sample sizes.

Sample sizes by question and response category may vary because of non-response and skip patterns within the survey instrument. Some estimates may be based on responses from less than 50 respondents. Interpreting estimates that are based on a small number of respondents can mislead the reader into believing that a given finding is much more precise than it actually is. The BRFSS recommends not interpreting percentages where less than 50 respondents were surveyed. In the tables of the report, such results are marked with "N/A" for none available that indicates a sample size less than 50.

All information in this survey is self-reported; people may not remember essential information, a question may not mean the same thing to different respondents, and some individuals may not respond at all. For example, respondents are known to under-report their weight and inaccurately recall socially undesirable habits. The potential for bias must always be kept in mind when interpreting self-reported data.
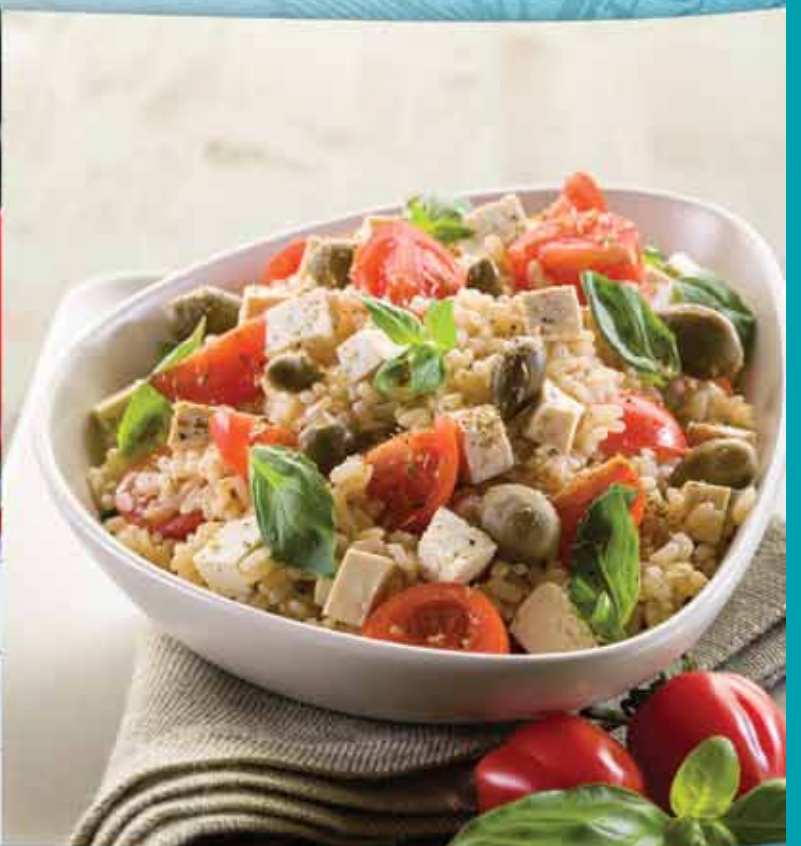
General Health Status

Survey Question:

Would you say that in general your health is excellent, very good, good, fair or poor?

The overall condition of general health is an important indicator for evaluating the level of health disparities that exist within a population. A comprehensive review and analysis of the health status of the Guam population is essential in determining if demographic inconsistencies exist.

Health disparities appear in the reported general health status of Guam adults who responded to the survey. The proportion of Guam adults who reported fair or poor health was above the U.S. median over the past 10 years (Figure 1). The trend remained mostly consistent across the last four years (2007: 20.9%, 2008: 18.4%, 2009: 19.9%, 2010: 18.1%). A variety of factors seem to contribute differentially to health status including ethnicity, income, education, and age while females and males seem to be affected similarly.
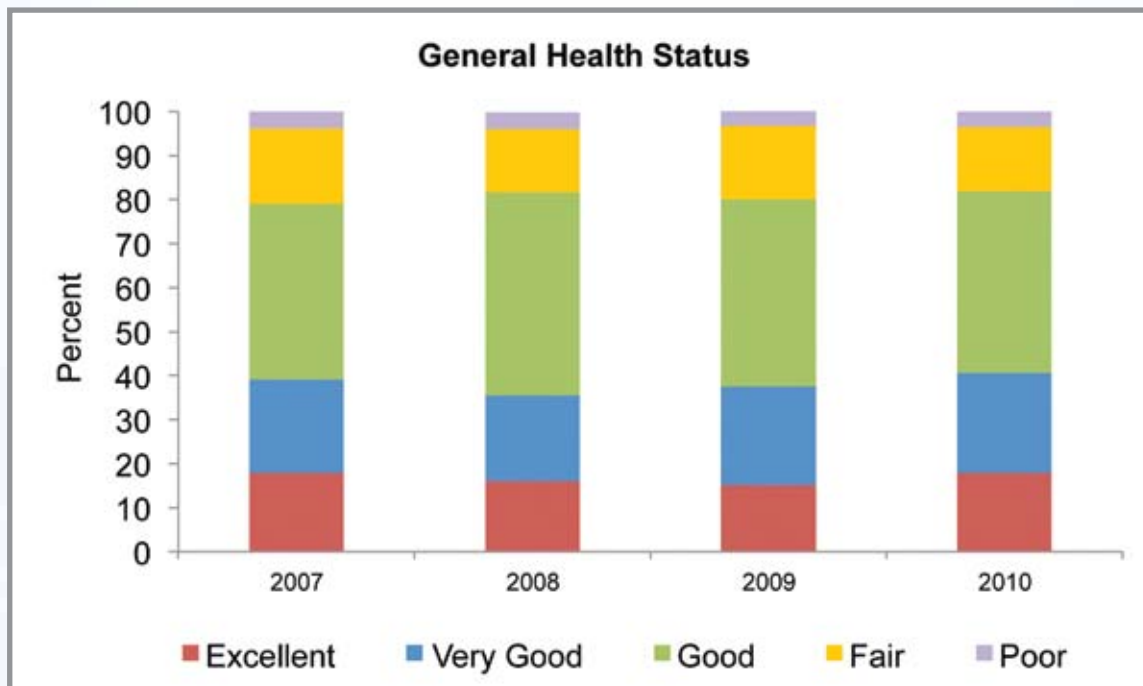
Figure 1

From 2007 to 2010, most Guam adults reported being in good, very good, or excellent health (Figure 2). In 2010, more than 40% of the adults reported being in good health while over 80% reported being in good or better health. About 1 in 5 adults indicated they were in fair or poor health.
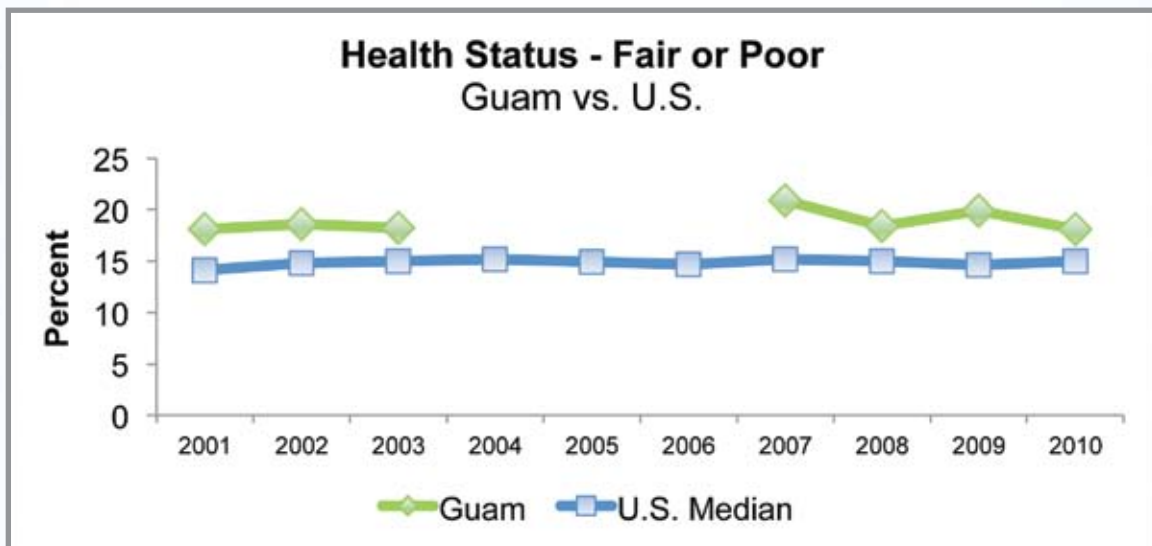
Figure 2

Guam adults over aged 65 years reported the highest prevalence of fair or poor health in 2009 at 37.0% and 2010 at 31.1%. The prevalence of fair or poor health status decreased with decreasing age. In all four years, males and females reported being in fair or poor health about equally (2007: 21.1% vs. 20.7%, 2008: 18.1% vs. 18.7%, 2009: 20.6% vs. 19.2%, 2010: 16.4% vs. 19.7%). Those with lower education and income levels reported to have experienced poorer health status. Chamorros reported the highest rate in fair or poor health among the other ethnic groups in 2009 (26.4%) and 2010 (25.0%) (Figure 3.)
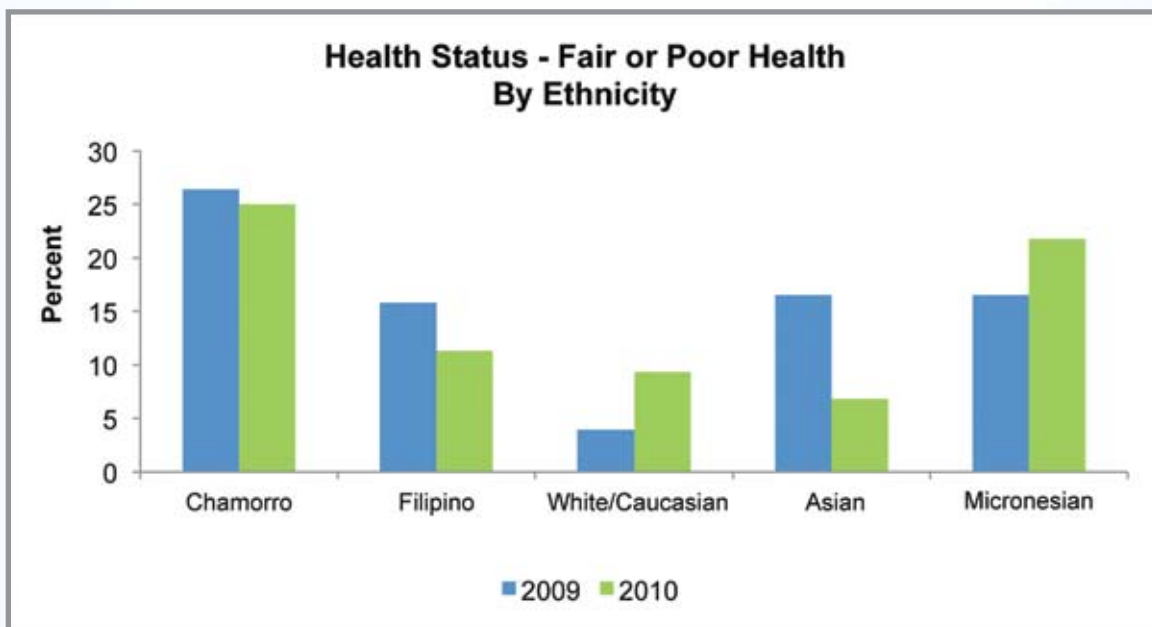
Figure 3

Table 1: General Health Status

Demographic Characteristics	2007				2008			
	Good or Better Health		Fair or Poor Health		Good or Better Health		Fair or Poor Health	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval
Total	**79.1**	**(75.6-82.6)**	**20.9**	**(17.4-24.4)**	**81.6**	**(78.4-84.8)**	**18.4**	**(15.2-21.6)**
Age								
18 - 24	91.5	(84.2-98.8)	8.5	(1.2-15.8)	87.6	(81.8-93.4)	12.4	(6.6-18.2)
25 - 34	85.4	(79.1-91.7)	14.6	(8.3-20.9)	79.6	(70.7-88.5)	20.4	(11.5-29.3)
35 - 44	82.3	(74.9-89.7)	17.7	(10.3-25.1)	86.3	(80.7-92.0)	13.7	(8.0-19.3)
45 - 54	78	(69.6-86.4)	22	(13.6-30.4)	79.5	(72.6-86.4)	20.5	(13.6-27.4)
55 - 64	N/A	N/A	N/A	N/A	71.5	(62.3-80.6)	28.5	(19.4-37.7)
65 +	N/A	N/A	N/A	N/A	79.5	(71.0-88.7)	20.2	(11.3-29.0)
Gender								
Male	78.9	(73.4-84.4)	21.1	(15.6-26.6)	81.9	(77.0-86.8)	18.1	(13.2-23.0)
Female	79.3	(74.8-83.8)	20.7	(16.2-25.2)	81.3	(77.2-85.5)	18.7	(14.5-22.8)
Education								
< High School	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
H.S. or G.E.D.	77.1	(71.2-83.0)	22.9	(17.0-28.8)	79	(73.9-84.1)	21	(15.9-26.1)
Some post H.S.	84.9	(78.4-91.4)	15.1	(8.6-21.6)	84.2	(78.1-90.4)	15.8	(9.6-21.9)
College graduate	83.3	(76.8-89.8)	16.7	(10.2-23.2)	86.9	(81.3-92.5)	13.1	(7.5-18.7)
Income								
< $15,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
$15,000 - $24,999	N/A	N/A	N/A	N/A	75.1	(67.6-82.6)	24.9	(17.4-32.4)
$25,000 - $34,999	78.1	(68.9-87.3)	21.9	(12.7-31.1)	81.9	(72.8-90.9)	18.1	(9.1-27.2)
$35,000 - $49,999	83	(75.0-91.0)	17	(9.0-25.0)	89.1	(83.2-94.9)	10.9	(5.1-16.8)
$50,000 +	87.4	(81.5-93.3)	12.6	(6.7-18.5)	85.5	(79.8-91.2)	14.5	(8.8-20.2)

Table 1 (continued): General Health Status

Demographic Characteristics	2009				2010			
	Good or Better Health		Fair or Poor Health		Good or Better Health		Fair or Poor Health	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval
Total	**80.1**	**(77.4-82.7)**	**19.9**	**(17.3-22.6)**	**81.9**	**(78.7-85.2)**	**18.1**	**(14.8-21.3)**
Age								
18 - 24	85.4	(79.1-91.7)	14.6	(8.3-20.9)	89.1	(80.9-97.3)	10.9	(2.7-19.1)
25 - 34	86.5	(80.7-92.3)	13.5	(7.7-19.3)	86.0	(78.1-93.8)	14.0	(6.2-21.9)
35 - 44	79.1	(72.8-85.3)	20.9	(14.7-27.2)	86.0	(80.3-91.7)	14.0	(8.3-19.7)
45 - 54	78.5	(73.1-83.8)	21.5	(16.2-26.9)	73.5	(65.4-81.7)	26.5	(18.3-34.6)
55 - 64	77.2	(70.7-83.7)	22.8	(16.3-29.3)	77.9	(69.5-86.4)	22.1	(13.6-30.5)
65 +	63.0	(54.2-71.8)	37.0	(28.2-45.8)	68.9	(59.2-78.6)	31.1	(21.4-40.8)
Gender								
Male	79.4	(75.0-83.7)	20.6	(16.3-25.0)	83.6	(79.1-88.0)	16.4	(12.0-20.9)
Female	80.8	(77.7-83.9)	19.2	(16.1-22.3)	80.3	(75.4-85.1)	19.7	(14.9-24.6)
Education								
<High School	71.0	(61.9-80.0)	29.0	(20.0-38.1)	N/A	N/A	N/A	N/A
H.S. or G.E.D.	78.3	(73.6-82.9)	21.7	(17.1-26.4)	80.7	(75.4-86.0)	19.3	(14.0-24.6)
Some post H.S.	77.8	(72.4-83.3)	22.2	(16.7-27.6)	85.4	(78.7-92.2)	14.6	(7.8-21.3)
College graduate	88.6	(84.6-92.5)	11.4	(7.5-15.4)	88.0	(83.3-92.7)	12.0	(7.3-16.7)
Income								
<$15,000	71.8	(63.2-80.5)	28.2	(19.5-36.8)	N/A	N/A	N/A	N/A
$15,000 - $24,999	69.7	(60.4-78.9)	30.3	(21.1-39.6)	78.7	(70.2-87.3)	21.3	(12.7-29.8)
$25,000 - $34,999	80.7	(73.1-88.4)	19.3	(11.6-26.9)	75.9	(65.9-85.9)	24.1	(14.1-34.1)
$35,000 - $49,999	81.8	(76.1-87.6)	18.2	(12.4-23.9)	92.1	(86.7-97.6)	7.9	(2.4-13.3)
$50,000 +	84.8	(80.5-89.1)	15.2	(10.9-19.5)	86.5	(80.5-92.5)	13.5	(7.5-19.5)
Ethnicity								
Chamorro	73.6	(68.9-78.2)	26.4	(21.8-31.1)	75.0	(68.9-81.0)	25.0	(19.0-31.1)
Filipino	84.3	(80.1-88.4)	15.8	(11.6-20.0)	88.7	(84.2-93.2)	11.3	(6.8-15.8)
White/Caucasian	96.1	(92.4-99.9)	3.9	(0.1-7.6)	90.7	(83.7-97.8)	9.3	(2.2-16.3)
Asian	83.5	(5.4-72.9)	16.5	(5.9-27.1)	93.2	(87.5-99.0)	6.8	(1.0-12.5)
Micronesian	82.9	(73.0-92.7)	16.5	(6.8-26.3)	77.2	(65.9-88.4)	21.8	(10.7-32.9)
Other	84.8	(73.5-96.2)	15.2	(3.8-26.5)	N/A	N/A	N/A	N/A

Disability

Survey Questions:

1) **"Are you limited in any way in any activities because of physical, mental, or emotional problems?"**
2) **"Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?"**

Limited by Health Problems

An individual with a disability is defined by the Americans with Disabilities Act (ADA) as a person who has a physical or mental impairment that substantially limits one or more major life activities, a person who has a history or record of such impairment, or a person who is perceived by others as having such impairment.

The proportion of Guam adults who reported limited activities due to physical, mental, or emotional problems was below the U.S. median over the last 10 years. From 2007 to 2010, the overall prevalence for Guam was consistent (2007: 11.1%, 2008: 10.0%, 2009: 11.0%, 2010: 10.8%). The rates were highest among the older age group from 55 and above, those with no high school diploma, lowest income bracket, and Chamorro ethnic group.
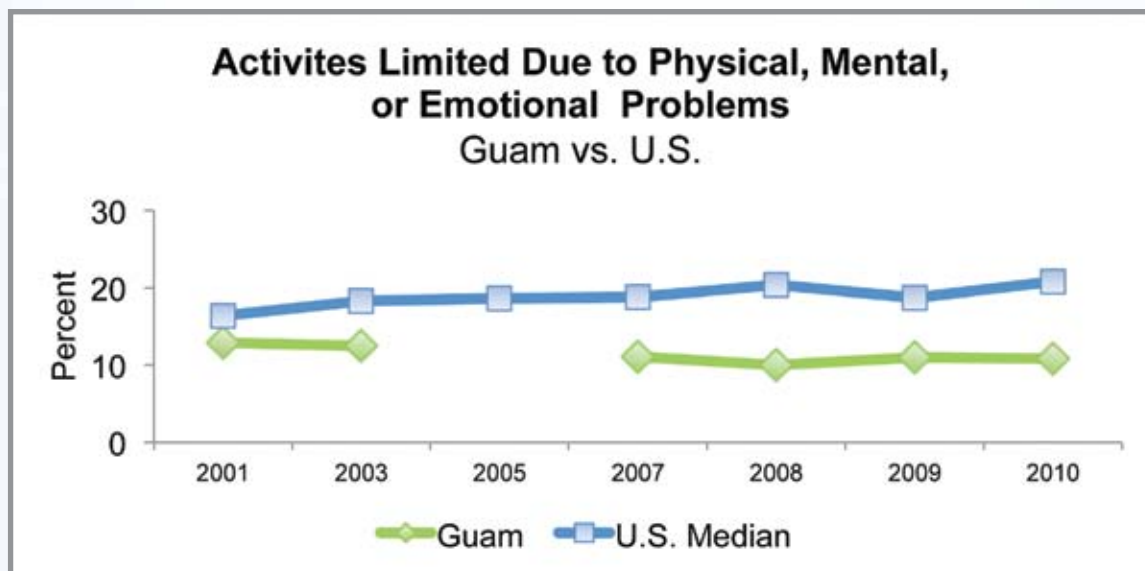
Figure 4

Health Problem Requiring Special Equipment

The proportion of Guam adults who use special equipment such as a cane, a wheelchair, a special bed, or a special telephone due to a health problem remained below the U.S. median over the past 10 years (Figure 5). From 2007 to 2010, the prevalence was relatively similar in both males and females (2007: 3.4% vs. 4.3%, 2008: 5.6% vs. 3.6%, 2009: 4.7% vs. 3.5%, 2010: 3.3% vs. 2.3%). The rates were mostly highest in the older age category, those with less than a high school diploma, and the Chamorros.
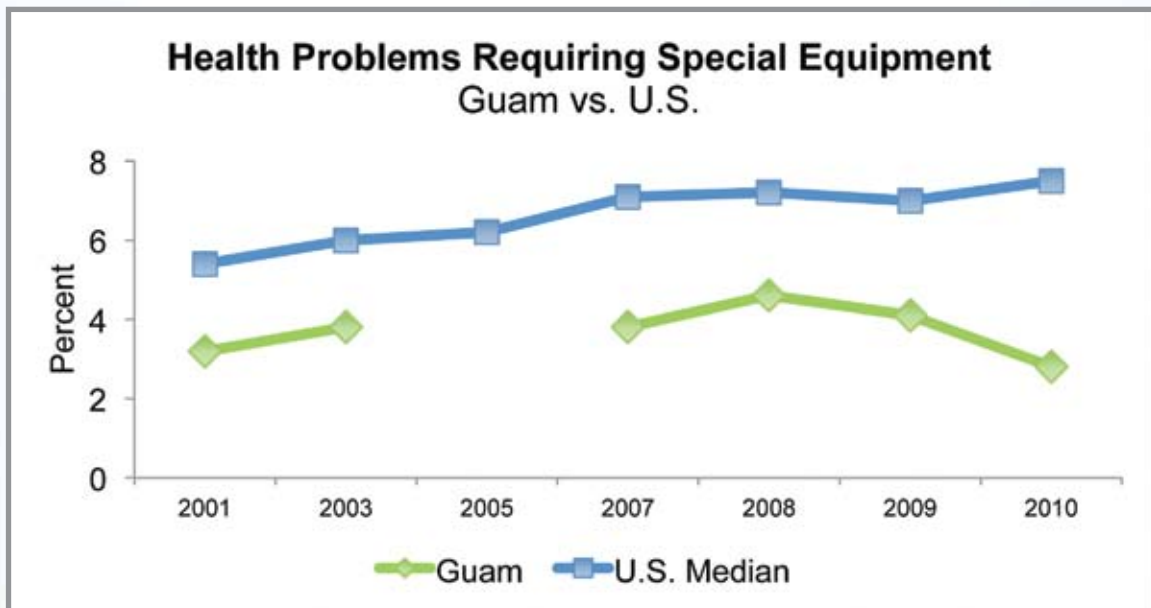
Figure 5

Table 2. Activities Limited Due to Physical, Mental, or Emotional Problems

Demographic Characteristics	2007 %	2007 95% Confidence Interval	2008 %	2008 95% Confidence Interval	2009 %	2009 95% Confidence Interval	2010 %	2010 95% Confidence Interval
Total	11.1	(8.4-13.8)	10.0	(7.7-12.3)	11.0	(9.1-12.9)	10.8	(8.2-13.5)
Age								
18 - 24	4.2	(0.0-9.9)	7.4	(2.2-12.6)	5.0	(1.5-8.5)	N/A	N/A
25 - 34	4.4	(1.3-7.5)	5.3	(0.5-10.1)	5.8	(2.4-9.3)	4.2	(0.8-7.6)
35 - 44	8.5	(3.4-13.6)	7.1	(3.2-11.0)	6.4	(2.8-10.0)	7.8	(3.7-11.8)
45 - 54	11.9	(5.6-18.2)	11.4	(6.2-16.6)	14.0	(9.6-18.3)	13.6	(7.3-19.8)
55 - 64	N/A	N/A	21.1	(13.0-29.2)	20.3	(14.0-26.7)	12.4	(6.0-18.8)
65 +	N/A	N/A	19.1	(9.7-28.6)	30.1	(21.8-38.5)	22.3	(13.9-30.6)
Gender								
Male	9.2	(5.5-12.9)	10.6	(7.0-14.2)	10.1	(7.3-13.0)	11.2	(7.6-14.7)
Female	13.1	(9.2-17.0)	9.4	(6.6-12.2)	11.9	(9.4-14.3)	10.5	(6.7-14.4)
Education								
< High School	17.2	(8.0-26.4)	13.3	(6.1-20.6)	19.2	(11.4-27.1)	11.7	(4.3-19.0)
H.S. or G.E.D.	11.7	(7.0-16.4)	9.7	(6.2-13.2)	9.9	(6.9-12.8)	12.3	(7.6-17.1)
Some post H.S.	7.9	(3.4-12.4)	7.9	(3.3-12.4)	11.0	(7.3-14.6)	8.8	(4.3-13.2)
College graduate	8.6	(4.1-13.1)	11.0	(6.4-15.6)	9.1	(5.9-12.2)	9.7	(5.3-14.1)
Income								
< $15,000	N/A	N/A	12.0	(3.9-20.0)	17.3	(10.6-24.1)	16.6	(8.8-24.4)
$15,000 - $24,999	N/A	N/A	11.1	(5.6-16.7)	19.2	(11.4-26.9)	8.6	(3.9-13.4)
$25,000 - $34,999	12.0	(5.5-18.5)	3.4	(0.1-6.7)	11.5	(5.8-17.3)	N/A	N/A
$35,000 - $49,999	6.4	(1.5-11.3)	10.2	(4.4-15.9)	9.7	(5.0-14.4)	6.2	(1.6-10.8)
$50,000 +	8.2	(3.9-12.5)	12.4	(7.4-17.5)	8.0	(5.4-10.7)	8.9	(4.4-13.4)
Ethnicity								
Chamorro	12.8	(8.3-17.2)			13.5	(10.3-16.8)	13.8	(8.9-18.6)
Filipino	7.3	(3.6-11.1)			10.7	(7.5-13.8)	11.1	(6.8-15.4)
White/Caucasian	14.6	(6.9-22.3)			9.5	(2.9-16.1)	6.7	(1.5-11.9)
Asian	N/A	N/A			8.2	(0.5-15.9)	4.7	(0.0-10.8)
Micronesian	N/A	N/A			6.8	(0.3-13.2)	4.4	(0.0-9.0)

Table 3: Health Problems Requiring Special Equipment

Demographic Characteristic	2007 %	2007 95% Confidence Interval	2008 %	2008 95% Confidence Interval	2009 %	2009 95% Confidence Interval	2010 %	2010 95% Confidence Interval
Total	3.8	(2.2-5.4)	4.6	(3.1-6.1)	4.1	(2.9-5.2)	2.8	(1.7-4.0)
Age								
18 - 24	N/A	N/A	2.2	(0.0-5.2)	1.2	(0.0-3.5)	0.7	(0.0-2.2)
25 - 34	0.5	(0.0-1.5)	1.4	(0.0-3.2)	0.1	(0.0-0.4)	N/A	N/A
35 - 44	0.2	(0.0-0.6)	3.2	(0.3-6.0)	1.9	(0.0-4.1)	1.9	(0.0-4.0)
45 - 54	5.0	(1.1-8.9)	7.6	(2.9-12.3)	7.1	(3.7-10.6)	1.5	(0.0-3.1)
55 - 64	13.9	(4.7-23.1)	7.6	(2.4-12.8)	7.4	(3.5-11.3)	4.6	(0.1-9.1)
65 +	15.1	(6.3-23.9)	12.0	(5.2-18.8)	15.3	(9.1-21.4)	16.5	(8.5-24.6)
Gender								
Male	3.4	(1.4-5.4)	5.6	(3.1-8.1)	4.7	(2.8-6.6)	3.3	(1.5-5.2)
Female	4.3	(1.9-6.7)	3.6	(1.9-5.3)	3.5	(2.3-4.7)	2.3	(1.1-3.6)
Education								
< High School	7.1	(1.4-12.8)	9.1	(3.2-15.1)	6.2	(2.4-10.1)	2.9	(0.0-6.8)
H.S. or G.E.D.	4.6	(1.7-7.5)	4.4	(2.2-6.6)	4.0	(2.1-5.8)	2.7	(0.9-4.5)
Some post H.S.	1.2	(0.0-2.6)	3.6	(0.7-6.4)	5.3	(2.5-8.1)	2.9	(0.9-5.0)
College graduate	2.8	(0.3-5.3)	3.1	(0.7-5.5)	2.1	(0.9-3.4)	2.9	(0.9-5.0)
Income								
< $15,000	N/A	N/A	3.0	(0.0-7.7)	3.5	(1.4-5.7)	3.5	(0.0-7.0)
$15,000 - $24,999	3.1	(0.0-6.2)	8.2	(4.0-12.5)	8.8	(3.1-14.6)	2.9	(0.0-5.8)
$25,000 - $34,999	10.3	(4.0-16.6)	2.6	(0.0-5.2)	4.3	(0.7-7.9)	1.9	(0.0-4.0)
$35,000 - $49,999	6.1	(1.2-11.0)	3.4	(0.0-7.2)	4.1	(1.2-7.0)	3.2	(0.0-6.3)
$50,000 +	0.2	(0.0-0.6)	4.0	(1.3-6.7)	2.3	(0.9-3.6)	3.0	(0.2-5.7)
Ethnicity								
Chamorro	3.8	(1.6-6.1)			5.2	(3.1-7.3)	4.6	(2.3-7.0)
Filipino	3.8	(1.1-6.6)			4.1	(2.3-5.9)	2.5	(0.9-4.1)
White/Caucasian	6.1	(0.5-11.7)			3.1	(0.0-6.7)	N/A	N/A
Asian	N/A	N/A			2.2	(0.0-4.7)	0.8	(0.0-2.3)
Micronesian	N/A	N/A			2.1	(0.0-5.2)	N/A	N/A

Health Care Coverage

Survey Question:

"Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?"

The overall availability of access to health care is an essential indicator for determining both the health needs and health disparities of a population. A comprehensive review and analysis of the health care access of the Guam population is vital in determining if demographic inconsistencies to access exist. Long-term systemic health care disparities can exist if subsets of the population remain underserved and underrepresented.

No Health Care Coverage

The proportion of Guam adults with no health insurance was below the U.S. median over the past 10 years (Figure 6). The overall prevalence in the last four years was 18.1% in 2007, 25.3% in 2008, 20.3% in 2009, and 22.2% in 2010. In 2009, the percent of no health care coverage among Guam adults was most prevalent in the younger age category, lower education and income brackets, and Micronesians.
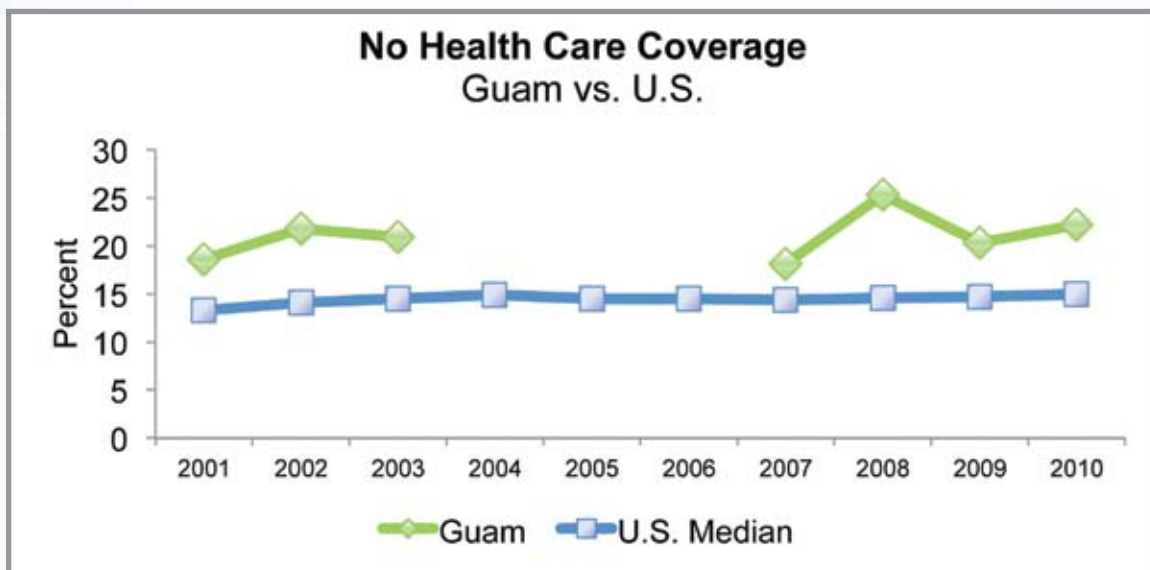
Figure 6

Have Health Care Coverage

Insurance coverage from 2007 to 2010 was more than 70% across all age groups, sex categories, education levels (except for 2009 when insurance coverage was 69.8% for residents with less than high school education), and income brackets (except for 2008 when insurance coverage was 55.8% for households earning $15,000 to $24,999 per year).   When grouped by ethnicity, insurance coverage was highest among White/Caucasians, followed by Chamorros and Filipinos. Results for insurance coverage were available for Asians and Micronesians in 2009 and 2010 only, and revealed these two ethnic groups had the lowest percentage of insurance coverage among the other ethnic groups.

Table 4: No Health Care Coverage[*]

Demographic Characteristics	2007 %	2007 95% Confidence Interval	2008 %	2008 95% Confidence Interval	2009 %	2009 95% Confidence Interval	2010 %	2010 95% Confidence Interval
Total	**18.1**	**(14.6-21.6)**	**25.3**	**(21.4-29.1)**	**20.3**	**(17.2-23.4)**	**22.2**	**(18.3-26.0)**
Age								
18 - 24	N/A	N/A	N/A	N/A	27.0	(18.6-35.4)	N/A	N/A
25 - 34	22.0	(13.8-30.2)	N/A	N/A	22.3	(15.0-29.7)	N/A	N/A
35 - 44	8.3	(3.8-12.8)	24.1	(16.3-31.8)	19.4	(11.7-27.1)	18.5	(11.7-25.3)
45 - 54	11.2	(5.3-17.1)	19.9	(13.0-26.8)	19.6	(14.4-24.9)	25.2	(17.1-33.4)
55 - 64	17.4	(8.4-26.4)	15.5	(8.4-22.6)	16.9	(11.0-22.9)	23.4	(15.0-31.9)
65 +	10.2	(2.4-18.0)	11.0	(3.9-18.1)	11.2	(5.5-16.9)	3.9	(0.3-7.4)
Gender								
Male	18.6	(12.9-24.3)	26.2	(20.4-32.0)	23.0	(17.9-28.1)	19.7	(14.4-25.0)
Female	17.5	(13.2-21.8)	24.4	(19.4-29.3)	17.6	(14.2-20.9)	24.7	(19.1-30.3)
Education								
<High School	18.0	(8.0-28.0)	N/A	N/A	30.2	(20.3-40.0)	22.2	(12.4-32.0)
H.S. or G.E.D.	23.3	(16.8-29.8)	29.0	(22.9-35.1)	19.9	(15.0-24.8)	24.4	(18.0-30.8)
Some post H.S.	16.5	(9.6-23.4)	18.5	(12.1-25.0)	22.8	(16.5-29.0)	19.7	(11.8-27.5)
College graduate	12.2	(5.7-18.7)	16.1	(8.8-23.4)	14.4	(8.3-20.5)	20.5	(12.8-28.2)
Income								
<$15,000	N/A	N/A	N/A	N/A	24.8	(16.3-33.4)	N/A	N/A
$15,000 - $24,999	N/A	N/A	44.2	(35.3-53.1)	29.8	(19.9-39.6)	20.5	(12.8-28.2)
$25,000 - $34,999	22.3	(12.5-32.1)	19.1	(9.3-28.9)	25.5	(16.5-34.5)	N/A	N/A
$35,000 - $49,999	9.0	(1.8-16.0)	10.1	(3.6-16.6)	18.1	(11.4-24.8)	15.0	(5.4-24.6)
$50,000 +	7.4	(2.1-12.7)	11.9	(5.8-18.1)	9.7	(5.3-14.2)	12.6	(6.1-19.1)
Ethnicity								
Chamorro	19.1	(13.3-24.8)			15.9	(11.7-20.1)	15.5	(10.0-21.1)
Filipino	20.2	(13.6-26.8)			21.5	(15.7-27.3)	28.6	(21.3-35.9)
White/Caucasian	3.0	(0.0-6.0)			3.1	(0.4-5.9)	3.2	(0.0-6.6)
Asian	N/A	N/A			39.9	(25.8-54.0)	29.9	(16.3-43.6)
Micronesian	N/A	N/A			41.9	(28.7-55.0)	42.2	(28.1-56.3)

[*]Any kind of health coverage

Table 5: Have Health Care Coverage[*]

Demographic Characteristics	2007 %	2007 95% Confidence Interval	2008 %	2008 95% Confidence Interval	2009 %	2009 95% Confidence Interval	2010 %	2010 95% Confidence Interval
Total	81.9	(78.4-85.4)	74.7	(70.9-78.6)	79.7	(76.6-82.8)	77.8	(74.0-81.7)
Age								
18 - 24	N/A	N/A	N/A	N/A	73.0	(64.6-81.4)	N/A	N/A
25 - 34	78.0	(69.8-86.2)	N/A	N/A	77.7	(70.3-85.0)	N/A	N/A
35 - 44	91.7	(87.2-96.2)	75.9	(68.2-83.7)	80.6	(72.9-88.3)	81.5	(74.7-88.3)
45 - 54	88.8	(82.9-94.7)	80.1	(73.2-87.0)	80.4	(75.1-85.6)	74.8	(66.6-82.9)
55 - 64	82.6	(73.6-91.6)	84.5	(77.4-91.6)	83.1	(77.1-89.0)	76.6	(68.1-85.0)
65 +	89.8	(82.0-97.6)	89.0	(81.9-96.1)	88.8	(83.1-94.5)	96.1	(92.6-99.7)
Gender								
Male	81.4	(75.7-87.1)	73.8	(68.0-79.6)	77.0	(71.9-82.1)	80.3	(75.0-85.6)
Female	82.5	(78.2-86.8)	75.6	(70.7-80.6)	82.4	(79.1-85.8)	75.3	(69.7-80.9)
Education								
< High School	82.0	(72.0-92.0)	N/A	N/A	69.8	(60.0-79.7)	77.8	(68.0-87.6)
H.S. or G.E.D.	76.7	(70.2-83.2)	71.0	(64.9-77.1)	80.1	(75.2-85.0)	75.6	(69.2-82.0)
Some post H.S.	83.5	(76.6-90.4)	81.5	(75.0-87.9)	77.2	(71.0-83.5)	80.3	(72.5-88.2)
College graduate	87.8	(81.3-94.3)	83.9	(76.6-91.2)	85.6	(79.5-91.7)	79.5	(71.8-87.2)
Income								
< $15,000	N/A	N/A	N/A	N/A	75.2	(66.6-83.7)	N/A	N/A
$15,000 - $24,999	N/A	N/A	55.8	(46.9-64.7)	70.2	(60.4-80.1)	79.5	(71.8-87.2)
$25,000 - $34,999	77.7	(67.9-87.5)	80.9	(71.1-90.7)	74.5	(65.5-83.5)	N/A	N/A
$35,000 - $49,999	91.0	(84.0-98.2)	89.9	(83.4-96.4)	81.9	(75.2-88.6)	85.0	(75.4-94.6)
$50,000 +	92.6	(87.3-97.9)	88.1	(81.9-94.2)	90.3	(85.8-94.7)	87.4	(80.9-93.9)
Ethnicity								
Chamorro	80.9	(75.2-86.7)			84.1	(80.0-88.3)	84.5	(78.9-90.0)
Filipino	79.8	(73.2-86.4)			78.5	(72.8-84.3)	71.4	(64.1-78.7)
White/Caucasian	97.0	(94.0-100.0)			96.9	(94.1-99.6)	96.8	(93.4-100.0)
Asian	N/A	N/A			60.1	(46.0-74.2)	70.1	(56.4-83.7)
Micronesian	N/A	N/A			58.1	(45.0-71.3)	57.8	(43.7-71.9)

[*]Any kind of health coverage

Caregiver Status

Survey Question:

"People may provide regular care or assistance to a friend or family member who has a health problem, long-term illness, or disability. During the past month, did you provide any such care or assistance to a friend or family member?"

Caregivers provide a vital service to their family and friends, and to the healthcare system as well. A caregiver might assist with daily living and transportation or provide needed consolation and vital consultation. A caregiver's service often allows a patient to maintain a relatively normal routine despite a distressing diagnosis and debilitating treatment. Caregivers become particularly important in isolated places like Guam. The value of caregiver services will likely only increase as the general population ages.

In 2009, 29.4% of Guam adults reported they provide care to a loved one, with males and females providing it about equally (29.9% and 28.8%, respectively). The proportion of caregivers was highest in adults aged 45-54 years (33.4%), those with no high school diploma (33.8%), and the group with an annual income between $35,000 and $49,999 (34.0%). When broken down by ethnicity, the prevalence was highest in Chamorros (38.0%), followed by Filipinos (24.8%), Micronesians (23.3%), Asians (23.2%), and White/Caucasians (16.8%) (Figure 7).
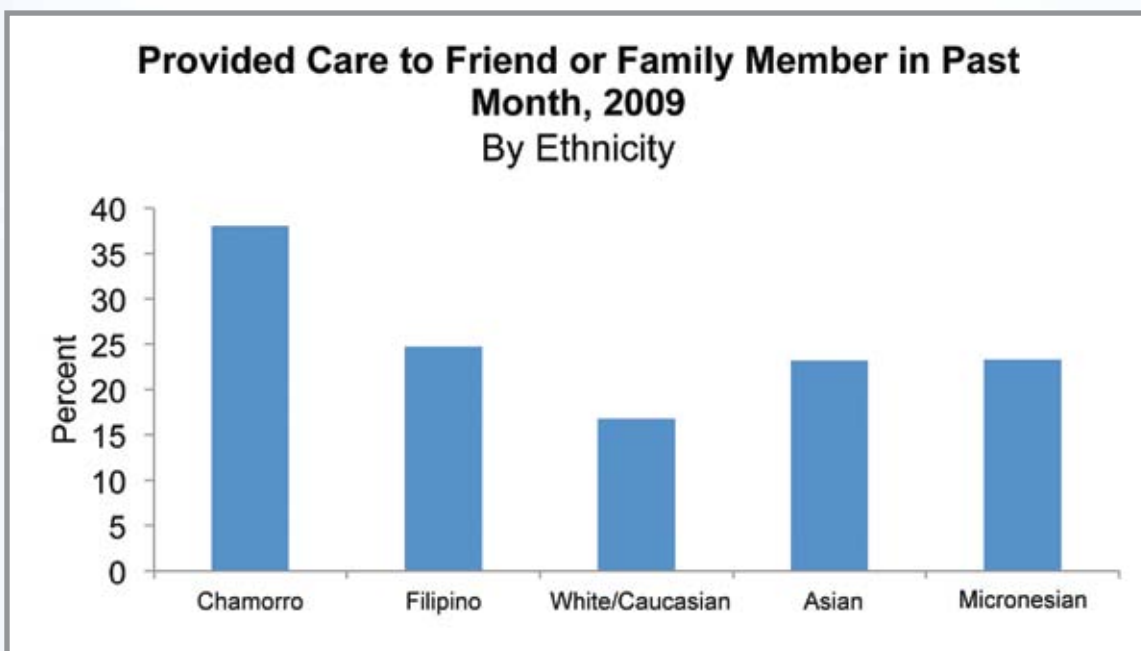
Figure 7

Table 6: Provided Care to Friend or Family Member in the Past Month[*]

Demographic Characteristics	2009 %	95% Confidence Interval
Total	29.4	(26.3-32.5)
Age		
18 - 24	22.5	(14.7-30.3)
25 - 34	29.3	(21.9-36.7)
35 - 44	32.8	(25.2-40.4)
45 - 54	33.4	(26.9-39.9)
55 - 64	31.4	(24.1-38.7)
65 +	22.1	(13.7-30.5)
Gender		
Male	29.9	(24.8-35.0)
Female	28.8	(25.1-32.5)
Education		
<High School	33.8	(23.8-43.8)
H.S. or G.E.D.	31.3	(26.0-36.6)
Some post H.S.	24.1	(18.6-29.6)
College graduate	30.5	(23.8-37.2)
Income		
<$15,000	31.0	(22.4-39.6)
$15,000 - $24,999	29.9	(20.9-38.9)
$25,000 - $34,999	19.7	(12.4-27.0)
$35,000 - $49,999	34.0	(26.0-42.0)
$50,000 - $74,999	28.2	(20.4-36.0)
$75,000 +	32.2	(24.8-39.6)
Ethnicity		
Chamorro	38.0	(33.0-43.1)
Filipino	24.8	(18.9-30.7)
White/Caucasian	16.8	(8.4-25.2)
Asian	23.2	(7.8-38.6)
Micronesian	23.3	(12.9-33.7)

*People may provide regular care or assistance to a friend or a family member who has a health problem, long-term illness, or disabitlity.

Cancer Survivorship

Survey Question:

"Have you ever been told by a doctor, nurse, or other health professional that you had cancer?"

Cancer is a general term used to label abnormal and uncontrolled cell development anywhere in the body. Medical professionals use the organ of origin to identify cancer even if it metastasizes to other parts of the body. Detecting a cancer in the early stages before it grows or spreads is vital to survival. Effective treatment increases the chances of surviving and living even after a positive diagnosis, but the survival rates of different cancers vary widely.

The overall prevalence of adults on Guam who reported that they were diagnosed with cancer was 3.0% in 2009 and 2.7% in 2010. Those who reported having had cancer increased with age. This was not surprising, as cancer is a disease of age. When stratified by ethnicity, the percentages of those who reported having had cancer was relatively stable for the two years with Whites/Caucasians reporting about twice the prevalence (2009: 7.5%, 2010: 6.7%) (Figure 8). The percentage of male cancer survivors increased from 1.6% in 2009 to 3.2% in 2010, whereas, the percentage of female cancer survivors decreased from 4.3% in 2009 to 2.1% in 2010. In both years, cancer survivor prevalence was relatively similar across income and education categories.
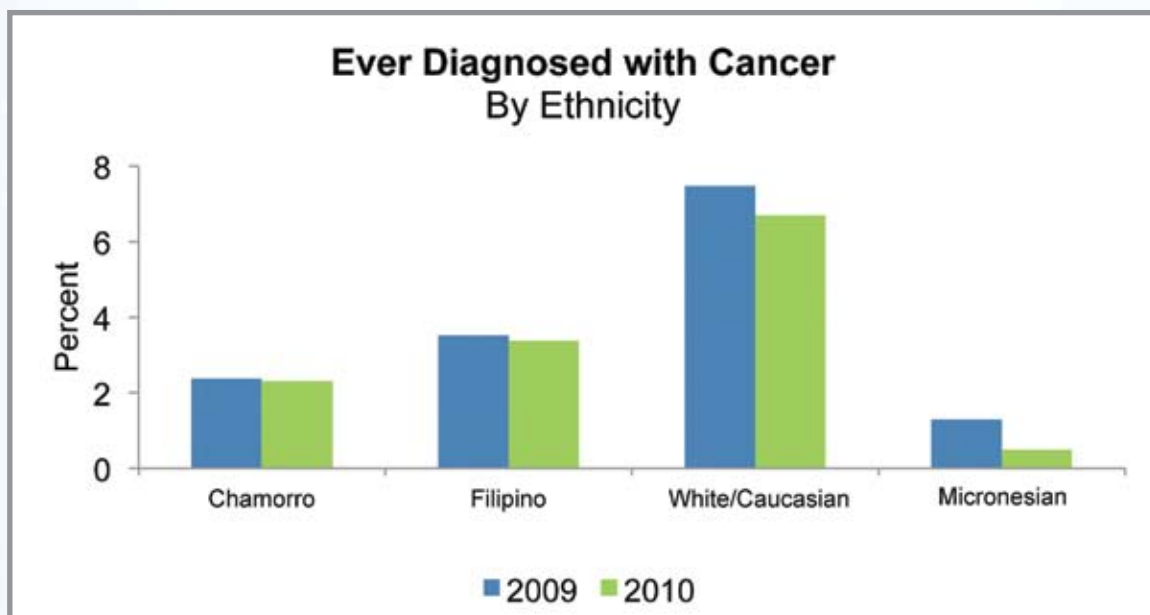
Figure 8

Table 7: Ever Diagnosed with Cancer

Demographic Characteristic	2009		2010	
	%	95% Confidence Interval	%	95% Confidence Interval
Total	3.0	(2.2-3.8)	2.7	(1.6-3.8)
Age				
18 - 24	N/A	N/A	1.2	(0.0-3.4)
25 - 34	1.5	(0.1-2.9)	1.3	(0.0-3.7)
35 - 44	2.7	(0.7-4.7)	0.8	(0.0-1.8)
45 - 54	3.3	(1.1-5.5)	1.2	(0.0-3.1)
55 - 64	7.2	(3.3-11.1)	5.2	(1.0-9.5)
65 +	6.9	(3.4-10.4)	13.7	(6.9-20.5)
Gender				
Male	1.6	(0.6-2.6)	3.2	(1.4-5.1)
Female	4.3	(2.9-5.7)	2.1	(0.9-3.4)
Education				
< High School	2.1	(0.0-4.3)	3.2	(0.0-7.1)
H.S. or G.E.D.	2.8	(1.4-4.2)	1.8	(0.5-3.1)
Some post H.S.	2.5	(0.9-4.1)	3.0	(0.0-6.1)
College graduate	4.1	(2.1-6.1)	3.7	(1.5-5.9)
Income				
< $15,000	3.4	(0.5-6.3)	3.4	(0.0-7.2)
$15,000 - $24,999	2.1	(0.1-4.1)	2.2	(0.1-4.3)
$25,000 - $34,999	2.6	(0.1-5.1)	2.8	(0.4-5.3)
$35,000 - $49,999	4.4	(1.9-6.9)	3.1	(0.0-7.7)
$50,000 - $74,999	2.0	(0.2-3.8)	2.3	(0.0-5.6)
$75,000+	4.0	(1.5-6.5)	3.9	(0.6-7.1)
Ethnicity				
Chamorro	2.4	(1.2-3.5)	2.3	(0.8-3.8)
Filipino	3.5	(1.9-5.2)	3.4	(0.8-6.0)
White/Caucasian	7.5	(2.9-12.1)	6.7	(1.8-11.5)
Asian	1.9	(0.0-4.8)	N/A	N/A
Micronesian	1.3	(0.0-3.8)	0.5	(0.0-1.5)

Diabetes

Survey Question:
"Have you ever been told by a doctor that you have diabetes?"

Diabetes exacts a significant burden on Guam's people. Over the past decades, diabetes has risen in prevalence and currently is the fourth leading cause of mortality and morbidity on the island.[1] Diabetes also directly contributes to two of the top three causes of death in Guam, namely, heart disease and stroke. The health burden from this chronic and disabling condition is compounded by the economic costs of treatment and care and the impaired quality of life that results from uncontrolled diabetes.[2]

The data reflect the percentage of individuals who recall being informed by their physician that they have the disease. The undiagnosed and those without recall would be excluded and, therefore, the numbers likely underestimate diabetes prevalence. In 2010, 11.0% of adults in Guam reported a physician diagnosis of diabetes. Reported prevalence for Guam appeared to be increasing faster when compared to the U.S. median (Figure 9).
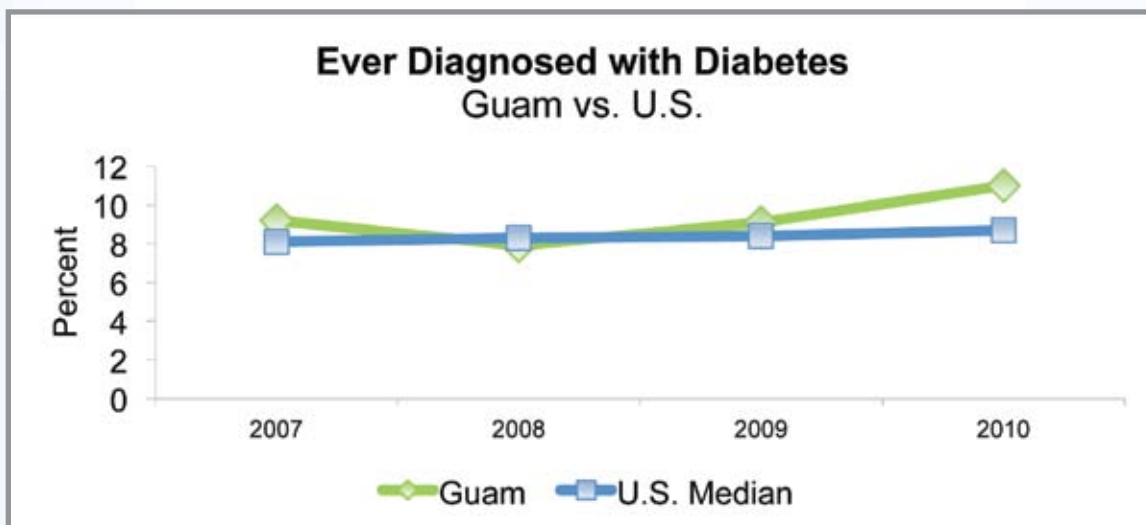
Figure 9

In Guam, for 2010, male and female adults reported equal rates of diabetes, similarly to the U.S. median. Overall, about 1 in 10 males and females recalled being told by their physician that they had diabetes.

For all four years, the likelihood of reporting a diagnosis of diabetes tends to decrease with higher income and educational attainment while it increases with advancing age. For 2009, a greater likelihood of diagnosis with age was consistent with the chronic nature of the disease: those 65 years and older were over 10 times more likely to report diabetes than those aged 18 to 24 years (22.0% vs. 1.7%). About 20% of Guam adults aged 55 or older were diabetic.

Pregnancy-related diabetes appeared to be declining over time in Guam. Because of this decline, in 2010, the rate of pregnancy-related diabetes was similar to the U.S. median. Less than 1% of Guam BRFSS respondents reported a diagnosis of pregnancy-related diabetes in 2010, down from 2.7% in 2007 (Figure 10).
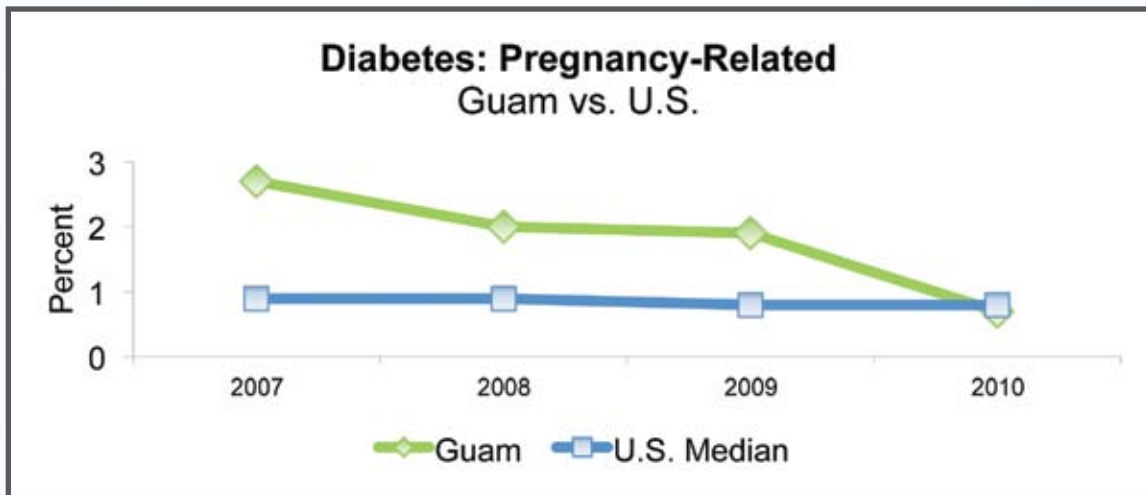
Figure 10

Table 8: Ever Diagnosed with Diabetes

Demographic Characteristics	2007				2008			
	Yes		Yes, pregnancy-related		Yes		Yes, pregnancy-related	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval
Total	9.2	(6.7-11.7)	2.7	(1.3-4.1)	7.9	(1.0-3.0)	2.0	(1.0-3.0)
Age								
18 - 24	N/A	N/A	2.6	(0.0-6.1)	N/A	N/A	1.4	(0.0-3.4)
25 - 34	0.9	(0.0-2.1)	4.1	(1.2-7.0)	3.7	(0.0-8.1)	4.7	(1.3-8.2)
35 - 44	6.2	(1.3-11.1)	3.1	(0.2-6.0)	5.4	(1.7-9.2)	1.9	(0.0-3.9)
45 - 54	12.2	(4.8-19.6)	1.4	(0.0-3.4)	8.3	(3.6-12.9)	0.6	(0.0-1.7)
55 - 64	N/A	N/A	0.4	(0.0-1.2)	23.7	(14.6-32.8)	1.0	(0.0-2.5)
65 +	N/A	N/A	3.6	(0.0-8.7)	19.8	(10.8-28.8)	N/A	N/A
Gender								
Male	8.0	(4.5-11.5)	N/A	N/A	7.8	(4.5-11.1)	N/A	N/A
Female	10.5	(7.2-13.8)	5.4	(2.9-7.9)	8.0	(5.4-10.5)	4.0	(2.0-6.0)
Education								
< High School	11.2	(4.5-17.9)	2.7	(0.0-6.4)	7.6	(2.6-12.5)	2.6	(0.0-5.9)
H.S. or G.E.D.	9.8	(5.9-13.7)	3.6	(1.1-6.1)	7.7	(4.3-11.1)	2.2	(0.5-3.9)
Some post H.S.	10.8	(4.9-16.7)	2.0	(0.2-3.8)	8.3	(3.8-12.9)	0.8	(0.0-2.2)
College graduate	5.1	(1.2-9.0)	1.3	(0.0-2.9)	8.1	(3.7-12.5)	2.5	(0.2-4.8)
Income								
< $15,000	N/A	N/A	N/A	N/A	7.4	(1.4-13.4)	5.8	(0.0-12.7)
$15,000 - $24,999	7.4	(2.5-12.3)	2.9	(0.0-6.6)	11.0	(5.0-16.9)	2.0	(0.1-3.9)
$25,000 - $34,999	9.9	(4.4-15.4)	1.2	(0.0-3.0)	12.1	(4.9-19.3)	3.2	(0.0-6.8)
$35,000 - $49,999	9.7	(3.6-15.8)	2.4	(0.0-5.9)	5.5	(1.4-9.6)	N/A	N/A
$50,000 +	6.3	(2.0-10.6)	0.8	(0.0-2.0)	7.2	(3.5-10.9)	1.6	(0.0-3.3)
Ethnicity								
Chamorro	11.9	(7.8-16.1)	3.2	(1.1-5.4)				
Filipino	9.2	(4.6-13.7)	1.4	(0.1-2.8)				
White/Caucasian	N/A	N/A	N/A	N/A				
Asian	N/A	N/A	N/A	N/A				
Micronesian	N/A	N/A	N/A	N/A				

Table 8 (continued): Ever Been Diagnosed with Diabetes

Demographic Characteristics	2009				2010			
	Yes		Yes, pregnancy-related		Yes		Yes, pregnancy-related	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval
Total	**9.1**	**(1.1-2.7)**	**1.9**	**(1.1-2.7)**	**11.0**	**(8.6-13.4)**	**0.7**	**(0.1-1.3)**
Age								
18 - 24	1.7	(0.0-3.8)	1.2	(0.0-2.8)	0.6	(0.0-1.7)	0.6	(0.0-1.7)
25 - 34	3.2	(0.0-6.8)	3.5	(1.1-5.9)	4.8	(0.4-9.2)	1.5	(0.0-3.8)
35 - 44	8.3	(3.7-13.0)	2.9	(1.0-4.8)	5.3	(2.1-8.4)	0.8	(0.0-1.8)
45 - 54	11.7	(7.6-15.7)	0.4	(0.0-1.1)	19.2	(12.1-26.3)	0.5	(0.0-1.3)
55 - 64	19.9	(13.7-26.0)	0.5	(0.0-1.3)	21.9	(13.8-30.1)	N/A	N/A
65 +	22.0	(14.4-29.5)	0.7	(0.0-1.8)	N/A	N/A	N/A	N/A
Gender								
Male	9.3	(6.2-12.4)	N/A	N/A	11.0	(7.4-14.5)	N/A	N/A
Female	8.9	(6.7-11.0)	3.8	(2.2-5.4)	11.0	(7.9-14.1)	1.4	(0.1-2.7)
Education								
< High School	13.5	(6.7-20.2)	1.1	(0.0-2.5)	13.2	(6.6-19.9)	N/A	N/A
H.S. or G.E.D.	9.9	(6.4-13.3)	1.1	(0.1-2.2)	12.3	(8.5-16.1)	0.2	(0.0-0.7)
Some post H.S.	10.7	(6.7-14.6)	2.2	(0.5-3.9)	9.0	(3.7-14.2)	0.8	(0.0-1.9)
College graduate	4.6	(2.6-6.6)	2.9	(1.0-4.9)	9.4	(5.0-13.7)	1.8	(0.0-4.1)
Income								
< $15,000	10.2	(5.0-15.4)	2.3	(0.0-4.7)	11.9	(6.0-17.9)	0.7	(0.0-2.2)
$15,000 - $24,999	16.0	(9.2-228)	3.0	(0.0-6.7)	16.9	(10.2-23.5)	0.5	(0.0-1.4)
$25,000 - $34,999	7.0	(0.4-13.6)	1.6	(0.0-3.5)	8.2	(1.7-14.7)	3.1	(0.0-7.2)
$35,000 - $49,999	10.0	(5.4-14.7)	3.1	(0.6-5.6)	11.4	(4.7-18.1)	0.6	(0.0-1.9)
$50,000 +	9.3	(5.7-12.9)	1.5	(0.3-2.8)	9.8	(5.2-14.4)	N/A	N/A
Ethnicity								
Chamorro	10.7	(7.5-13.9)	1.7	(0.6-2.9)	11.6	(8.1-15.2)	N/A	N/A
Filipino	7.7	(5.3-10.1)	1.6	(0.4-2.8)	12.2	(7.6-16.8)	N/A	N/A
White/Caucasian	N/A	N/A	N/A	N/A	5.9	(0.1-11.7)	N/A	N/A
Asian	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Micronesian	14.7	(4.6-24.8)	5.0	(0.2-9.8)	12.9	(4.0-21.8)	N/A	N/A

Cardiovascular Disease

Survey Question:
"Has a doctor, nurse, or other health professional ever told you that you had any of the following: A heart attack, also called a myocardial infarction? Angina or coronary heart disease? A stroke?"

Cardiovascular disease (CVD) is the disease that involves the heart or blood vessels (arteries and veins) which usually refers to atherosclerosis (arterial disease). Types of CVD include coronary heart disease, stroke, complications with hypertension, and disease of arterial blood vessels. Coronary heart disease (CHD) is the narrowing of the small blood vessels that supply blood and oxygen to the heart. CHD occurs when a substance called plaque builds up in the arteries that supply blood to the heart (called coronary arteries). Plaque is made up of cholesterol deposits, which can accumulate in your arteries. When this happens, your arteries can narrow over time. This process is called atherosclerosis.
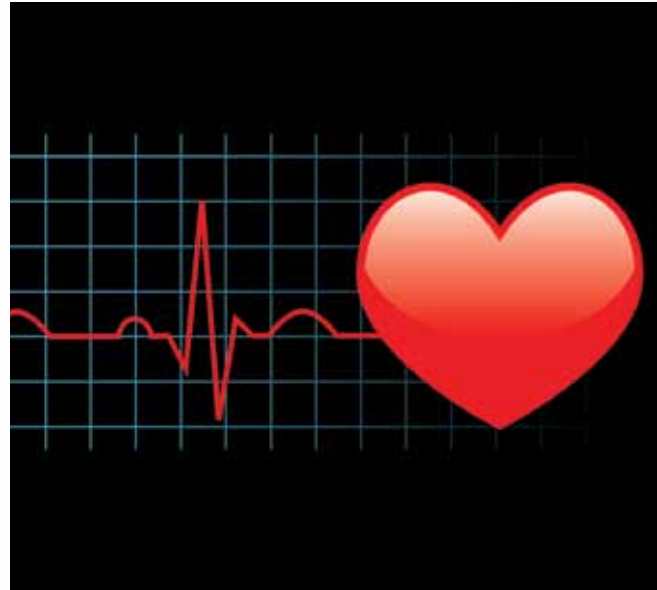
CVD may be prevented through choosing a healthier lifestyle and managing any medical conditions you may have. Managing your medical condition includes having your cholesterol check, monitoring your blood pressure, taking your medicine, and talking with your health care provider.

Heart Attack
In Guam, the proportion of adults who reported ever being told by a doctor they had a heart attack remained below the U.S. median and was consistent over the past four years (2007: 2.8%, 2008: 2.1%, 2009: 2.4%, 2010: 2.7%) (Figure 11).
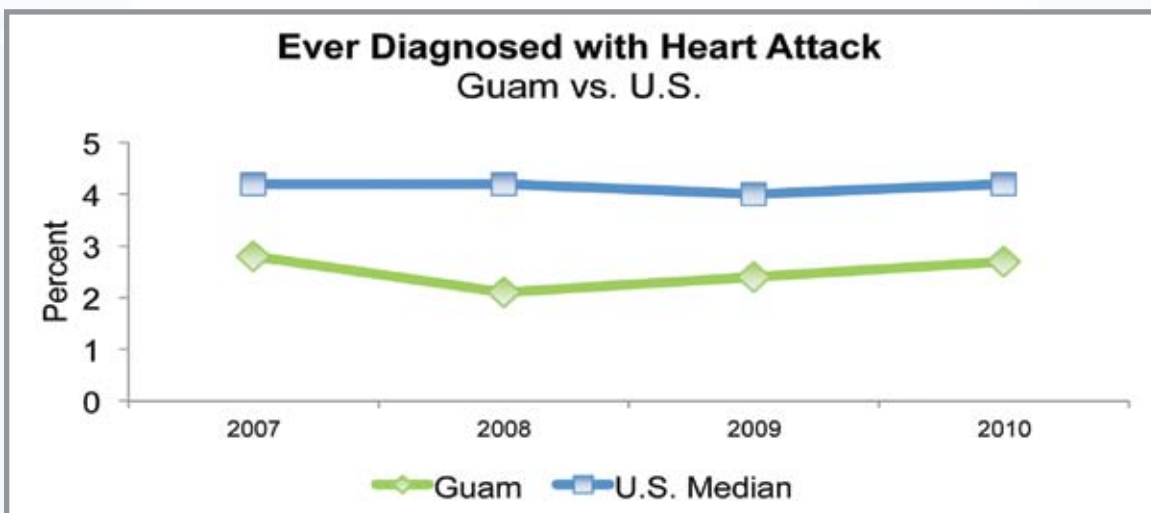
Figure 11

The proportion of females who have ever been diagnosed with a heart attack increased from 1.1% in 2007 to 2.8% in 2010, whereas, the percent of males decreased from 4.5% to 2.7% in the same years (Figure 12).
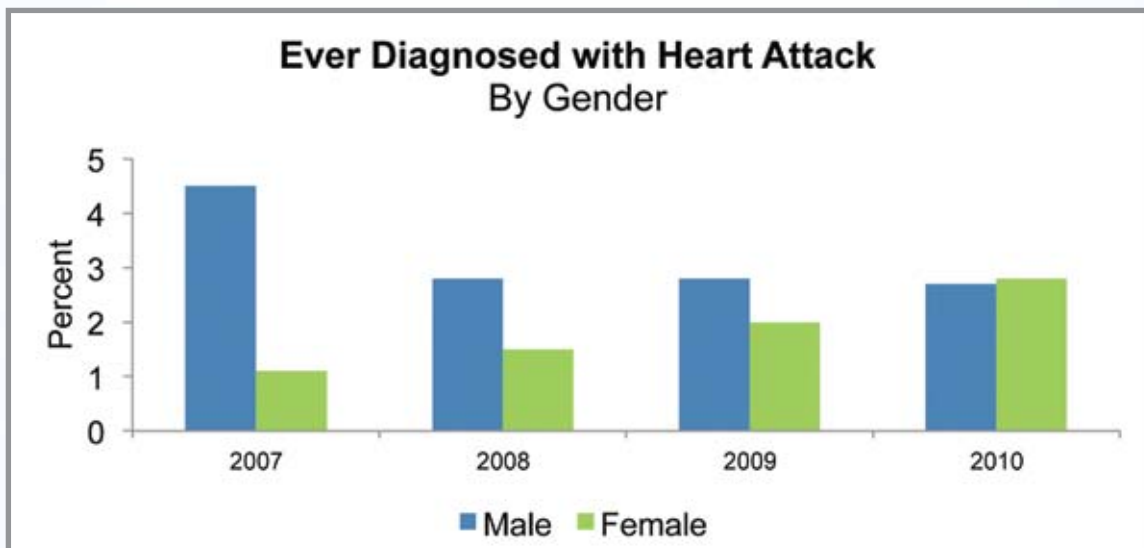
Figure 12

In 2009 and 2010, the prevalence was highest among those with lower income (less than $25,000) and those with less than a high school education. In 2010, the heart attack rate was highest in the 55-64 year old group (10.0%), and was more than double the rate the year before in the same age group (4.6%). When stratified by ethnicity, the prevalence of heart attack was highest in Filipinos in 2007 at 3.8% and among Chamorros in 2009 and 2010 at 3.6% and 4.3%, respectively.

Coronary Heart Disease
In 2007 and 2008, the prevalence of Guam adults who have been diagnosed as having coronary disease were reported at 3.0% and 3.4%, respectively. However, it had decreased to 2.0% in 2009 and slightly increased to 2.7% in 2010. Guam remained below the U.S. median in all four years (Figure 13). The percentage of adults diagnosed by a doctor with heart disease was higher in males than females from 2007 to 2009 (2007: 4.0% vs. 1.9%, 2008: 4.1% vs. 2.6%, 2009: 2.3% vs. 1.7%) but higher in females in 2010 (3.0% vs. 2.4%) (Figure 14).

In 2010, the groups with the highest percent of adults who reported having had an angina or coronary heart disease were those 65 years and older (11.8%), those with less than a high school education (3.9%), and Chamorros and Filipinos (both at 3.3%).
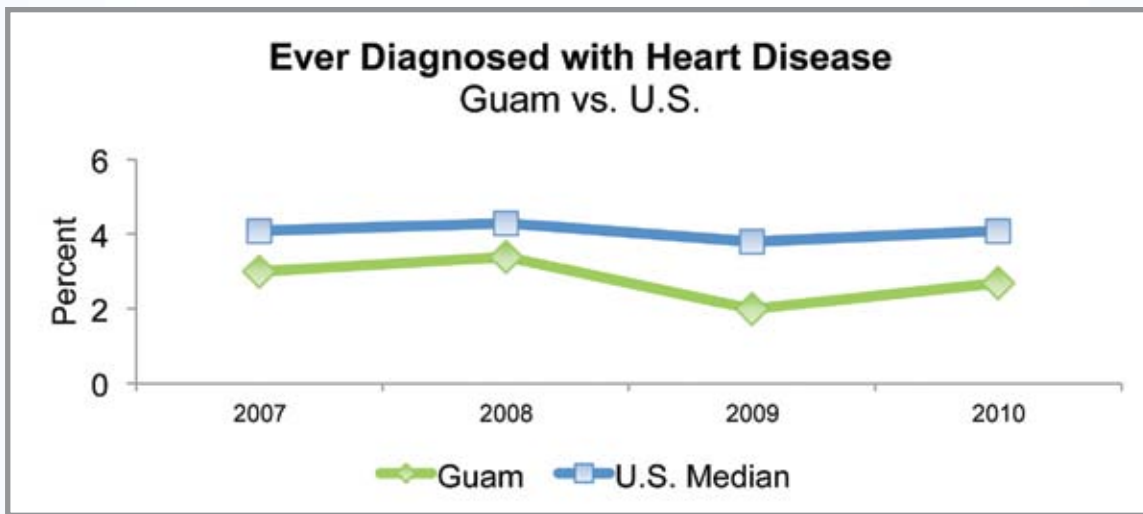
Figure 13
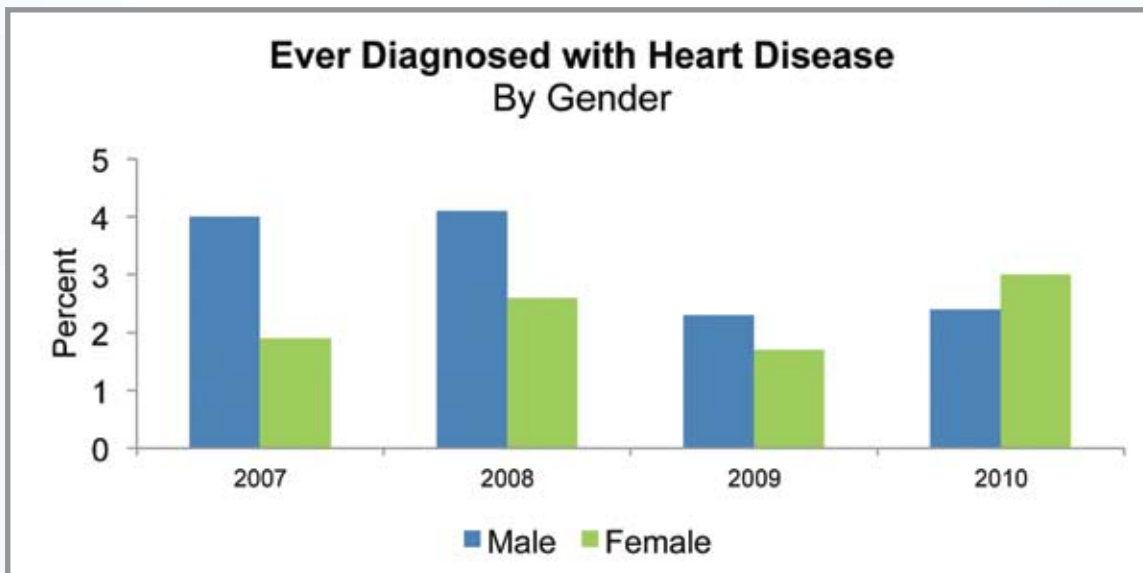
Figure 14

Stroke

The overall percentage of Guam adults who reported having a stroke was consistent from 2007 to 2009 (Figure 15). Compared to the female prevalence, the proportion of males who reported having a stroke was higher in 2007 (2.2% vs. 1.8%) and 2008 (3.2% vs. 3.0%), but lower in 2009 (2.0% vs. 2.3%) and 2010 (1.6% vs. 2.8%) (Figure 16). Between 2009 and 2010, the proportion of Guam adults who were diagnosed with a stroke generally increased with age (except for the 35 to 44 age group), and was most prevalent among adults with less than a high school education and in the lowest income bracket.
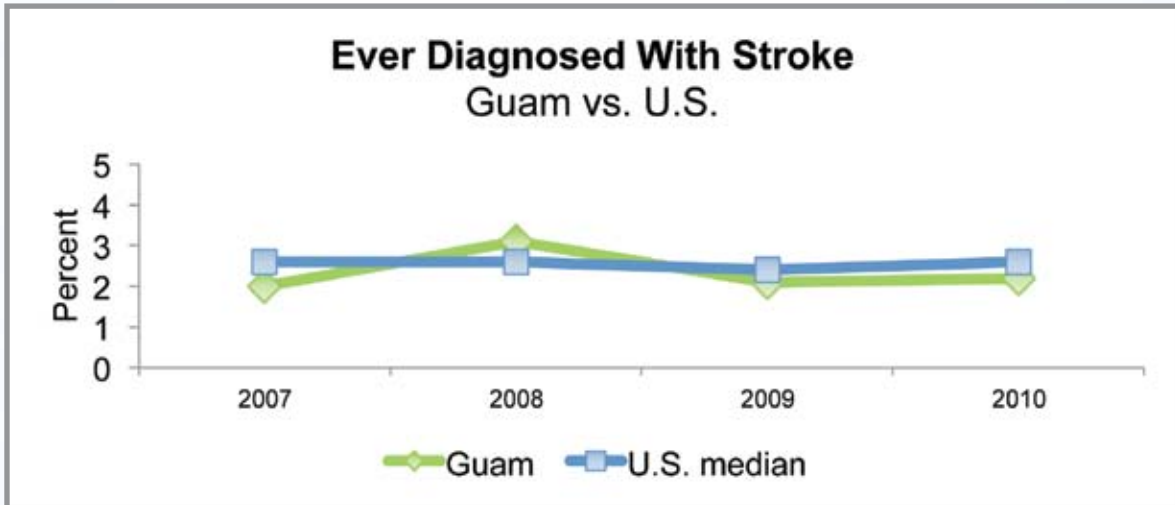
Figure 15
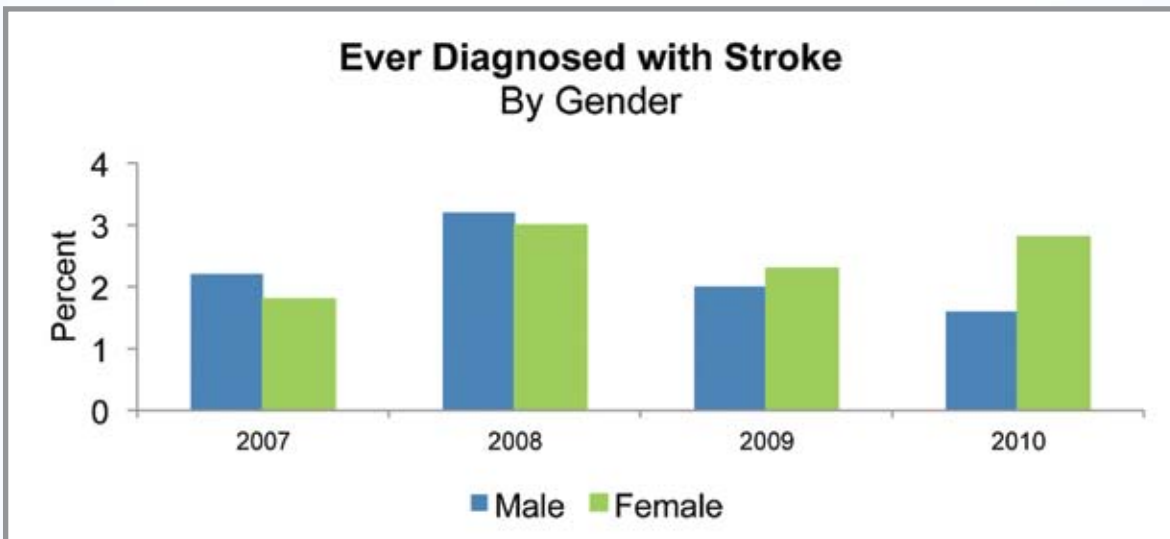
Figure 16

Table 9: Ever Diagnosed with Heart Attack

Demographic Characteristics	2007 %	2007 95% Confidence Interval	2008 %	2008 95% Confidence Interval	2009 %	2009 95% Confidence Interval	2010 %	2010 95% Confidence Interval
Total	2.8	(1.4-4.2)	2.1	(1.1-3.2)	2.4	(1.5-3.3)	2.7	(1.5-3.9)
Age								
18 - 24	N/A	N/A	1.1	(0.0-2.6)	0.7	(0.0-1.7)	N/A	N/A
25 - 34	N/A	N/A	0.5	(0.0-1.4)	N/A	N/A	1.1	(0.0-3.3)
35 - 44	N/A	N/A	0.4	(0.0-1.1)	1.5	(0.0-3.6)	2.3	(0.0-4.7)
45 - 54	9.6	(3.1-16.1)	2.6	(0.3-4.9)	5.9	(2.5-9.3)	1.8	(0.0-3.6)
55 - 64	2.7	(0.0-6.4)	8.5	(1.9-15.0)	4.6	(1.2-8.0)	10.0	(3.2-16.7)
65 +	9.6	(2.3-16.9)	4.6	(0.0-9.7)	4.4	(1.2-7.6)	6.7	(1.9-11.5)
Gender								
Male	4.5	(2.0-7.0)	2.8	(1.0-4.5)	2.8	(1.2-4.3)	2.7	(1.0-4.4)
Female	1.1	(0.1-2.1)	1.5	(0.5-2.5)	2.0	(1.0-2.9)	2.8	(1.1-4.5)
Education								
< High School	2.1	(0.0-5.0)	1.7	(0.0-3.5)	4.8	(0.3-9.2)	5.6	(0.5-10.7)
H.S. or G.E.D.	3.0	(0.6-5.4)	2.1	(0.5-3.7)	2.3	(1.0-3.7)	2.6	(0.8-4.4)
Some post H.S.	3.7	(0.2-7.2)	2.0	(0.0-4.3)	2.8	(0.8-4.9)	2.0	(0.0-4.4)
College graduate	2.2	(0.0-4.6)	2.7	(0.2-5.2)	1.0	(0.1-1.8)	2.0	(0.3-3.7)
Income								
< $15,000	N/A	N/A	1.3	(0.0-3.8)	3.4	(0.0-7.4)	5.8	(0.1-11.6)
$15,000 - $24,999	1.4	(0.0-3.6)	3.2	(0.9-5.6)	6.3	(2.5-10.1)	4.2	(1.3-7.1)
$25,000 - $34,999	3.3	(0.0-7.2)	0.8	(0.0-2.3)	2.7	(0.0-5.8)	1.2	(0.0-3.0)
$35,000 - $49,999	4.7	(0.0-9.4)	2.2	(0.0-4.5)	2.1	(0.1-4.2)	0.9	(0.0-2.4)
$50,000 +	0.6	(0.0-1.8)	3.3	(0.2-6.3)	0.9	(0.1-1.7)	2.3	(0.0-4.8)
Ethnicity								
Chamorro	2.2	(0.3-4.0)			3.6	(2.0-5.3)	4.3	(1.9-6.6)
Filipino	3.8	(0.9-6.8)			1.3	(0.2-2.3)	1.7	(0.0-3.4)
White/Caucasian	1.8	(0.0-4.5)			N/A	N/A	2.8	(0.0-6.2)
Asian	N/A	N/A			1.9	(0.0-4.9)	1.3	(0.0-3.9)
Micronesian	N/A	N/A			3.4	(0.0-8.6)	N/A	N/A

Table 10: Ever Diagnosed with Heart Disease

Demographic Characteristics	2007 %	2007 95% Confidence Interval	2008 %	2008 95% Confidence Interval	2009 %	2009 95% Confidence Interval	2010 %	2010 95% Confidence Interval
Total	3.0	(1.4-4.6)	3.4	(1.8-4.9)	2.0	(1.2-2.8)	2.7	(1.5-3.9)
Age								
18 - 24	2.3	(0.0-5.8)	N/A	N/A	N/A	N/A	N/A	N/A
25 - 34	N/A	N/A	2.2	(0.0-5.5)	N/A	N/A	1.1	(0.0-3.3)
35 - 44	0.4	(0.0-1.2)	1.3	(0.0-3.0)	1.0	(0.0-2.9)	N/A	N/A
45 - 54	6.1	(0.6-11.6)	2.6	(0.0-5.3)	4.6	(1.9-7.4)	3.6	(0.0-7.5)
55 - 64	7.3	(0.0-14.9)	13.6	(5.9-21.3)	5.1	(1.6-8.6)	7.8	(1.4-14.3)
65 +	7.9	(1.6-14.2)	7.4	(0.0-16.5)	4.9	(1.4-8.3)	11.8	(5.3-18.2)
Gender								
Male	4.0	(1.5-6.5)	4.1	(1.3-6.8)	2.3	(0.9-3.6)	2.4	(0.6-4.1)
Female	1.9	(0.3-3.5)	2.6	(1.1-4.2)	1.7	(0.9-2.6)	3.0	(1.3-4.8)
Education								
< High School	1.0	(0.0-3.0)	0.8	(0.0-1.9)	4.3	(0.0-8.7)	3.9	(0.0-8.2)
H.S. or G.E.D.	3.1	(0.6-5.6)	3.6	(1.2-5.9)	1.7	(0.5-2.8)	3.1	(0.8-5.3)
Some post H.S.	4.1	(0.3-7.8)	2.1	(0.0-4.8)	2.0	(0.5-3.6)	2.1	(0.0-4.3)
College graduate	2.8	(0.3-5.3)	6.3	(1.2-11.5)	1.5	(0.4-2.5)	1.9	(0.3-3.5)
Income								
< $15,000	N/A	N/A	1.0	(0.0-3.0)	3.9	(0.0-8.0)	3.1	(0.0-7.5)
$15,000 - $24,999	1.0	(0.0-2.6)	3.2	(0.9-5.6)	1.8	(0.0-4.0)	3.5	(0.4-6.6)
$25,000 - $34,999	4.4	(0.1-8.7)	0.3	(0.0-0.8)	1.4	(0.0-3.0)	0.8	(0.0-2.1)
$35,000 - $49,999	1.5	(0.0-3.7)	5.7	(0.1-11.4)	2.0	(0.1-3.9)	3.4	(0.0-7.0)
$50,000 +	2.7	(0.0-5.6)	6.8	(2.0-11.6)	1.3	(0.4-2.3)	2.4	(0.0-4.9)
Ethnicity								
Chamorro	3.5	(0.9-6.1)			2.2	(0.9-3.4)	3.3	(1.1-5.5)
Filipino	2.1	(0.0-4.4)			1.9	(0.7-3.1)	3.3	(0.9-5.6)
White/Caucasian	5.2	(0.5-9.8)			0.7	(0.0-2.2)	2.5	(0.0-5.9)
Asian	N/A	N/A			2.3	(0.0-5.6)	N/A	N/A
Micronesian	N/A	N/A			3.8	(0.0-9.1)	N/A	N/A

Table 11: Ever Diagnosed with Stroke

Demographic Characteristics	2007 %	2007 95% Confidence Interval	2008 %	2008 95% Confidence Interval	2009 %	2009 95% Confidence Interval	2010 %	2010 95% Confidence Interval
Total	2.0	(0.8-3.2)	3.1	(1.7-4.5)	2.1	(1.2-3.0)	2.2	(1.1-3.2)
Age								
18 - 24	N/A	N/A	2.2	(0.0-5.2)	N/A	N/A	N/A	N/A
25 - 34	N/A	N/A	1.1	(0.0-2.6)	1.9	(0.0-4.2)	1.1	(0.0-3.3)
35 - 44	N/A	N/A	2.4	(0.0-6.4)	1.4	(0.0-3.4)	0.3	(0.0-0.9)
45 - 54	2.8	(0.0-6.3)	3.2	(0.6-5.7)	2.5	(0.3-4.6)	2.4	(0.0-4.9)
55 - 64	2.7	(0.0-6.4)	6.3	(1.6-10.9)	4.3	(1.5-7.0)	5.5	(1.2-9.8)
65 +	13.7	(3.9-23.5)	7.9	(1.7-14.2)	5.1	(1.7-8.6)	9.3	(2.5-16.1)
Gender								
Male	2.2	(0.4-4.0)	3.2	(0.9-5.6)	2.0	(0.4-3.5)	1.6	(0.2-2.9)
Female	1.8	(0.2-3.4)	3.0	(1.4-4.6)	2.3	(1.3-3.2)	2.8	(1.1-4.4)
Education								
< High School	1.0	(0.0-3.0)	4.6	(0.0-11.0)	4.6	(0.2-8.9)	4.9	(0.0-10.1)
H.S. or G.E.D.	3.3	(0.9-5.7)	3.6	(1.6-5.7)	2.3	(0.7-4.0)	1.4	(0.2-2.7)
Some post H.S.	1.3	(0.0-3.8)	1.3	(0.0-2.8)	2.2	(0.5-3.9)	1.5	(0.0-3.0)
College graduate	1.5	(0.0-3.7)	3.0	(0.5-5.5)	0.7	(0.0-1.4)	2.5	(0.4-4.5)
Income								
< $15,000	N/A	N/A	N/A	N/A	4.6	(0.3-8.8)	4.0	(0.0-8.8)
$15,000 - $24,999	N/A	N/A	4.4	(1.5-7.4)	4.6	(1.5-7.8)	3.7	(0.8-6.6)
$25,000 - $34,999	3.1	(0.2-6.0)	2.3	(0.0-4.9)	3.3	(0.0-6.9)	0.2	(0.0-0.5)
$35,000 - $49,999	3.7	(0.0-8.0)	1.5	(0.0-3.6)	0.8	(0.0-1.8)	2.2	(0.0-4.8)
$50,000 +	0.2	(0.0-0.6)	1.4	(0.0-2.9)	0.9	(0.1-1.7)	1.0	(0.0-2.3)
Ethnicity								
Chamorro	2.0	(0.6-3.4)			3.1	(1.4-4.8)	2.8	(0.8-4.9)
Filipino	2.8	(0.0-5.6)			1.3	(0.2-2.4)	1.8	(0.3-3.4)
White/Caucasian	N/A	N/A			N/A	N/A	2.5	(0.0-5.9)
Asian	N/A	N/A			1.8	(0.0-5.4)	0.6	(0.0-1.7)
Micronesian	N/A	N/A			2.6	(0.0-7.6)	1.4	(0.0-3.3)

Overweight and Obesity

Survey Question:

"There is no survey question that solicits the respondent to provide his Body Mass Index (BMI), rather it is calculated from the self-reported height and weight."

Overweight and obesity increase a person's risk for chronic diseases, such as diabetes, heart disease, and some cancers. In addition to the health consequences, obesity places a great burden on the health care delivery system.[3] The Body Mass Index (BMI) is one way of measuring overweight and obesity in populations. The classifications of BMI are as follows.

BMI	Category
Below 18.5 kg/m^2	Underweight
18.5 – 24.9 kg/m^2	Healthy weight
25.0 – 29.9 kg/m^2	Overweight
30.0 – 39.9 kg/m^2	Obese

Overweight and obesity trends in Guam are similar to the trends in the United States. The percentage of adults on Guam categorized as overweight has gradually decreased from 2001 to 2010, while the percentage of Guam adults categorized as obese has increased over the same time period (Figure 17). As of 2010, 32.6% of Guam adults were considered overweight and 27.6% of Guam residents were considered obese.

Figure 17
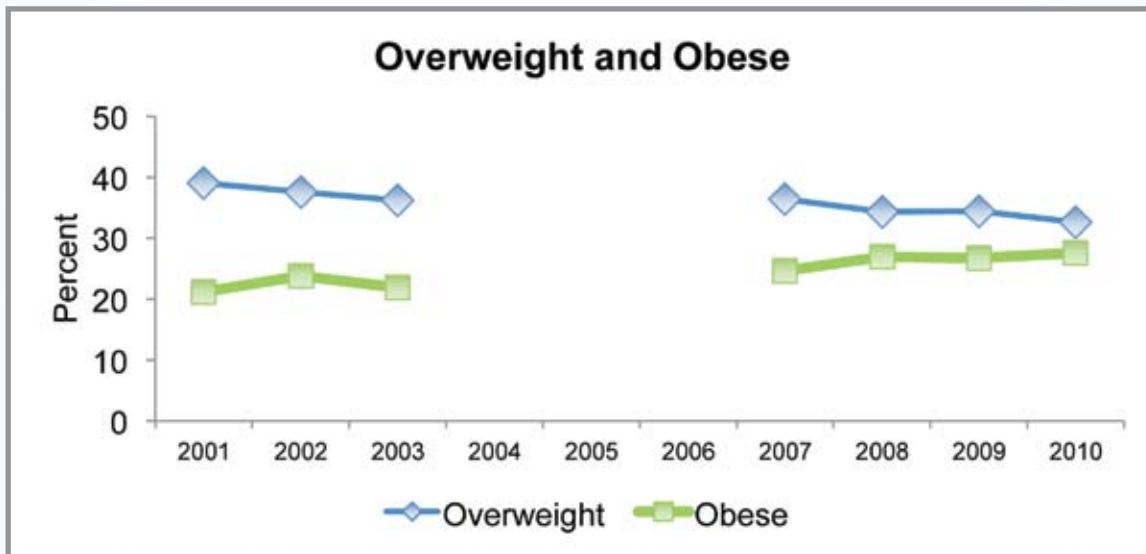
The percentage of males categorized as obese was higher than the percentage of obese females from 2007 to 2010. In 2010, approximately 1 in 3 male adults (30.0%) and 1 in 4 female adults (25.1%) in Guam were categorized as obese. When disaggregated by ethnicity, in 2009 and 2010, obesity was highest among Chamorros followed by Micronesians and lowest for Asians (Figure 18).
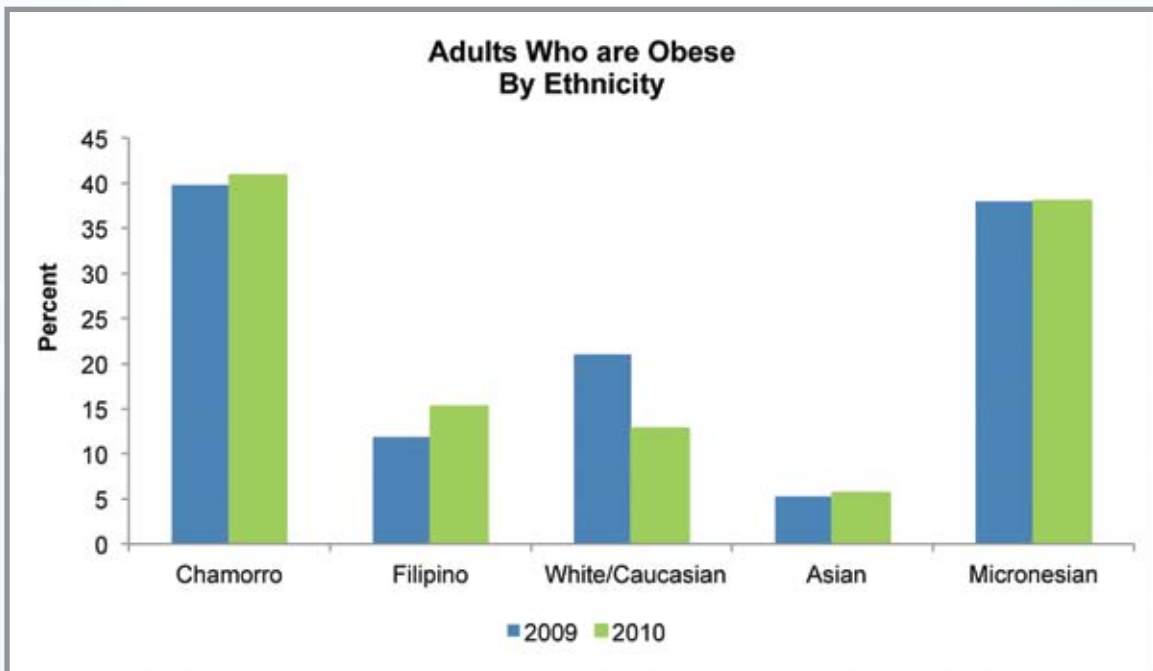
Figure 18

Table 12: Overweight and Obese

Demographic Characteristics	2007				2008			
	Overweight		Obese		Overweight		Obese	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval
Total	**36.4**	**(31.5-41.3)**	**24.6**	**(20.3-28.9)**	**34.3**	**(30.3-38.2)**	**27.0**	**(23.2-30.9)**
Age								
18 - 24	N/A	N/A	N/A	N/A	26.6	(17.4-35.8)	19.4	(11.3-27.5)
25 - 34	N/A	N/A	26.0	(16.4-35.6)	28.3	(18.8-37.8)	N/A	N/A
35 - 44	N/A	N/A	27.8	(18.2-37.4)	42.9	(34.5-51.3)	25.9	(18.1-33.7)
45 - 54	36.2	(26.6-45.8)	25.4	(16.4-34.4)	31.4	(23.5-39.4)	32.3	(23.8-40.8)
55 - 64	N/A	N/A	N/A	N/A	39.0	(29.2-48.7)	26.6	(17.3-35.9)
65 +	N/A	N/A	16.1	(6.9-25.3)	N/A	N/A	19.0	(9.5-28.4)
Gender								
Male	41.7	(34.1-49.3)	26.1	(19.4-32.8)	39.6	(33.7-45.6)	30.8	(24.9-36.8)
Female	30.6	(25.3-35.9)	22.9	(18.0-27.8)	28.4	(23.4-33.4)	22.9	(18.2-27.6)
Education								
< High School	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
H.S. or G.E.D.	33.7	(26.3-41.1)	27.5	(20.4-34.6)	34.9	(28.7-41.0)	27.4	(21.6-33.2)
Some post H.S.	N/A	N/A	20.2	(12.2-28.2)	36.6	(28.2-45.0)	23.5	(15.9-31.1)
College graduate	43.9	(34.1-53.7)	18.9	(11.8-26.0)	33.7	(25.2-42.3)	26.8	(18.6-35.0)
Income								
< $15,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
$15,000 - $24,999	N/A	N/A	N/A	N/A	39.9	(31.1-48.7)	21.2	(13.9-28.5)
$25,000 - $34,999	24.8	(15.2-34.4)	N/A	N/A	N/A	N/A	17.1	(8.1-26.1)
$35,000 - $49,999	N/A	N/A	17.9	(8.5-27.3)	N/A	N/A	28.5	(18.6-38.4)
$50,000 +	N/A	N/A	19.2	(12.3-26.1)	34.7	(26.9-42.5)	34.5	(26.3-42.8)

Table 12 (continued): Overweight and Obese

Demographic Characteristics	2009				2010			
	Overweight		Obese		Overweight		Obese	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval
TOTAL	34.4	(31.0-37.8)	26.8	(23.6-29.9)	32.6	(28.5-36.7)	27.6	(23.5-31.8)
Age								
18 - 24	32.1	(23.2-41.0)	18.1	(11.3-24.9)	N/A	N/A	N/A	N/A
25 - 34	33.9	(25.8-42.0)	31.9	(23.9-39.8)	27.8	(18.7-36.8)	N/A	(23.9-39.8)
35 - 44	31.9	(24.0-39.8)	35.8	(28.2-43.4)	37.7	(29.3-46.1)	25.8	(18.7-32.9)
45 - 54	38.0	(31.2-44.7)	23.5	(17.6-29.3)	34.6	(25.8-43.5)	29.2	(20.2-38.1)
55 - 64	42.4	(34.7-50.1)	25.5	(18.6-32.4)	39.3	(29.5-49.2)	26.6	(17.7-35.5)
65 +	29.6	(21.5-37.8)	14.3	(8.1-20.4)	27.5	(18.1-36.9)	16.6	(8.8-24.5)
Gender								
Male	41.7	(36.2-47.2)	29.0	(23.9-34.0)	36.6	(30.7-42.5)	30.0	(24.0-36.0)
Female	26.4	(22.8-30.0)	24.4	(20.8-28.0)	28.4	(22.6-34.1)	25.1	(19.4-30.7)
Education								
< High School	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
H.S. or G.E.D.	32.8	(27.2-38.3)	30.9	(25.3-36.5)	32.3	(25.7-38.8)	26.8	(20.2-33.4)
Some post H.S.	34.4	(27.9-40.9)	26.7	(20.4-33.0)	30.5	(22.0-39.1)	35.9	(26.4-45.4)
College graduate	37.5	(30.6-44.3)	17.6	(12.7-22.5)	30.6	(22.8-38.4)	20.4	(12.9-28.0)
Income								
< $15,000	26.3	(18.2-34.4)	30.1	(21.1-39.2)	N/A	N/A	17.4	(9.9-25.0)
$15,000 - $24,999	29.8	(20.3-39.3)	29.9	(20.3-39.5)	26.2	(17.5-34.8)	N/A	N/A
$25,000 - $34,999	30.8	(21.7-39.8)	24.3	(16.0-32.7)	N/A	N/A	N/A	N/A
$35,000 - $49,999	38.3	(30.0-46.6)	25.8	(17.8-33.7)	N/A	N/A	N/A	N/A
$50,000 +	33.4	(27.7-39.2)	29.3	(23.5-35.2)	36.9	(28.1-45.7)	25.8	(17.5-34.1)
Ethnicity								
Chamorro	37.8	(32.5-43.0)	39.8	(34.5-45.1)	31.9	(25.1-38.8)	40.9	(33.6-48.2)
Filipino	30.6	(24.5-36.6)	11.9	(7.5-16.4)	31.3	(24.5-38.1)	15.3	(9.3-21.2)
White/Caucasian	33.2	(21.9-44.4)	21.0	(12.3-29.8)	41.0	(28.4-53.6)	12.9	(5.3-20.5)
Asian	33.0	(19.9-46.2)	5.3	(0.0-11.9)	24.7	(10.4-39.1)	5.7	(0.0-12.4)
Micronesian	34.0	(21.4-46.6)	38.0	(24.7-51.2)	33.1	(19.8-46.5)	38.1	(24.2-51.9)

Hypertension

Survey Question:

"Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?"

Hypertension is a significant risk factor for coronary artery disease, heart failure, stroke and kidney disease. Lifestyle factors such as diet, sodium intake, stress and physical activity play an important role in maintaining a healthy blood pressure and preventing hypertension. Prevention of uncontrolled hypertension can substantially reduce morbidity and mortality as well as allay the related financial costs.

Blood pressure is measured by 2 numbers: the systolic pressure (when the heart is beating) over the diastolic pressure (when the heart is at rest between beats) and is measured in millimeters of mercury (mmHg). Normal blood pressure is when the systolic blood pressure is less than 120 mmHg and the diastolic blood pressure is less than 80 mmHg (120/80 mmHg).

- Prehypertension is when the systolic blood pressure is between 120-139 and the diastolic blood pressure is between 80-89.
- Hypertension is when the systolic blood pressure is higher than 140 and diastolic blood pressure is higher than 90.

In Guam, the overall prevalence of hypertension has remained below the U.S. average and was consistent in 2007 (22.1%) and 2009 (22.2%) (Figure 19). In 2007, female adults were more likely than male adults to report having been diagnosed with high blood pressure (24.3% vs. 19.9%), while in 2009, the percentage of males were higher than females (23.6% vs. 20.7%).
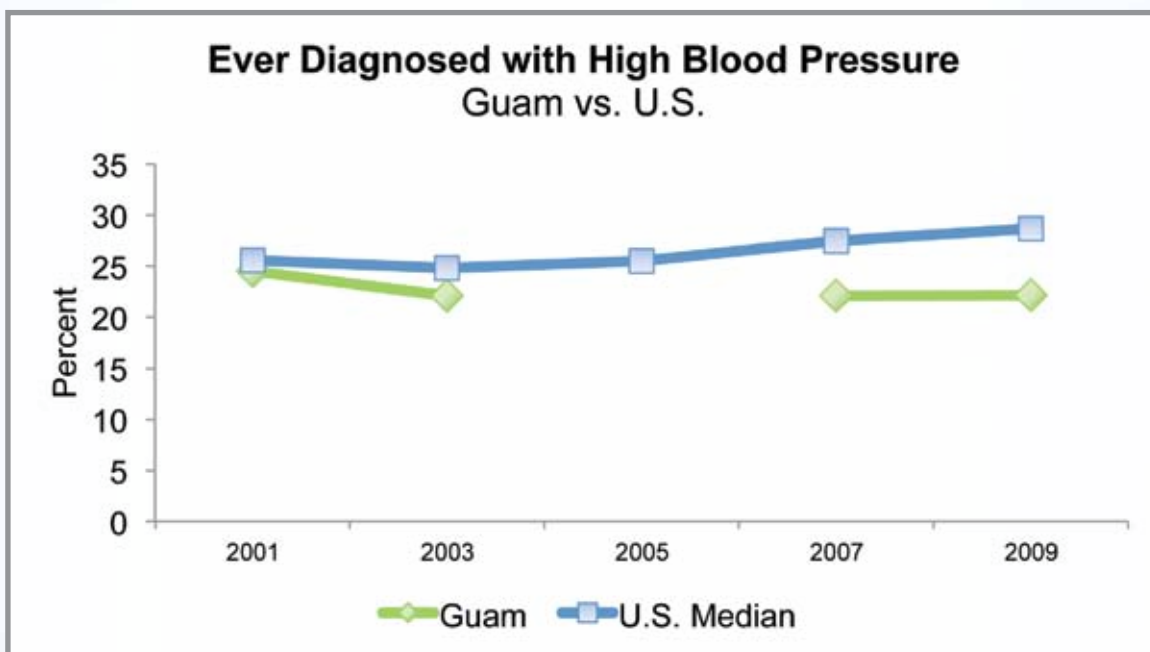
Figure 19

In 2009, the percent reporting a positive diagnosis of hypertension increased 10 fold from about 6% for the youngest adults to about 56% for the oldest adults. In the same year, those with no high school diploma and an annual income between $15,000 and $24,999 reported the highest prevalence of high blood pressure. The Filipino (25.1%), Chamorro (23.1%) and White/Caucasian (17.9%) ethnic groups reported the highest rates (Figure 20).
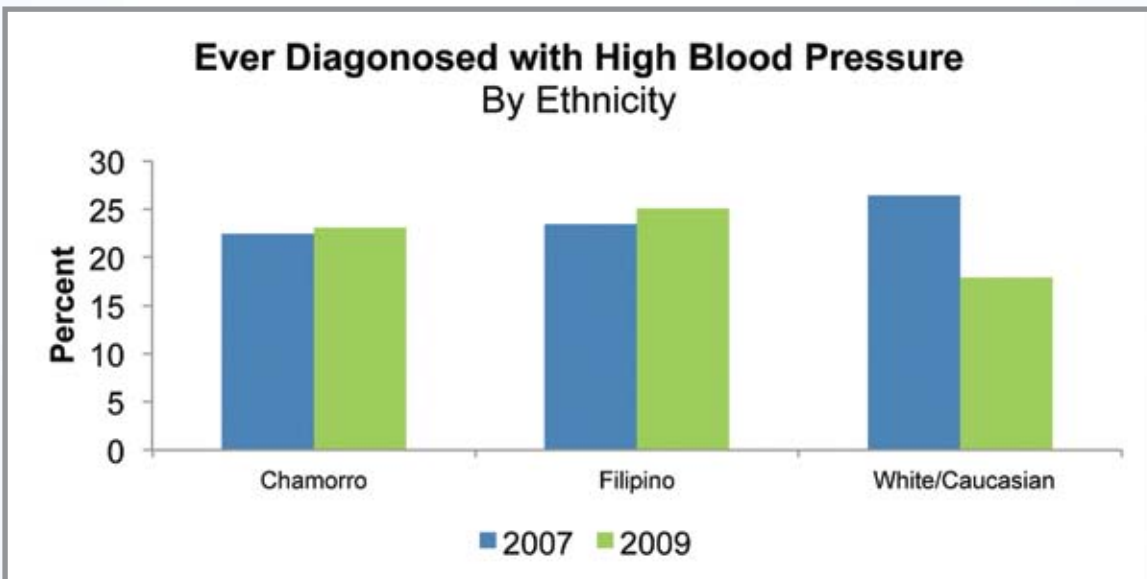

Figure 20

Table 13: Ever Diagnosed with High Blood Pressure

Demographic Characteristics	2007		2009	
	%	95% Confidence Interval	%	95% Confidence Interval
Total	22.1	(18.6 - 25.6)	22.2	(19.5-24.9)
Age				
18 - 24	5.8	(0.0-12.9)	5.5	(1.5-9.6)
25 - 34	15.1	(8.2-22.0)	10.0	(4.8-15.3)
35 - 44	12.4	(6.5-18.3)	17.1	(11.1-23.1)
45 - 54	27.2	(18.6-35.8)	34.5	(28.0-40.9)
55 - 64	N/A	N/A	36.5	(29.2-43.8)
65 +	N/A	N/A	55.8	(46.8-64.8)
Gender				
Male	19.9	(14.6-25.2)	23.6	(19.2-28.0)
Female	24.3	(19.6-29.0)	20.7	(17.6-23.8)
Education				
< High School	N/A	N/A	27.6	(18.3-36.8)
H.S. or G.E.D.	18.6	(13.3-23.9)	18.6	(14.6-22.6)
Some post H.S.	15.5	(9.0-22.0)	24.5	(19.0-30.0)
College graduate	29.7	(21.5-37.9)	21.8	(16.5-27.1)
Income				
< $15,000	N/A	N/A	21.2	(13.8-28.7)
$15,000 - $24,999	N/A	N/A	31.8	(22.5-41.1)
$25,000 - $34,999	22.7	(13.9-31.5)	22.6	(14.4-30.8)
$35,000 - $49,999	22.0	(13.0-31.0)	23.1	(16.2-30.1)
$50,000 +	20.6	(13.3-27.9)	21.5	(16.8-26.2)
Ethnicity				
Chamorro	22.4	(17.0-28.0)	23.1	(18.8-27.4)
Filipino	23.4	(16.7-30.1)	25.1	(20.1-30.1)
White/Caucasian	26.4	(15.4-37.3)	17.9	(4.6-9.0)
Asian	N/A	N/A	12.5	(4.9-20.1)
Micronesian	N/A	N/A	16.4	(7.4-25.5)

Cholesterol

Survey Question:

1. "Have you ever had your blood cholesterol checked?"

2. "Have you ever been told by a doctor, nurse or other health professional that your blood cholesterol is high?"

High blood cholesterol is a significant risk factor for coronary artery disease and stroke. Management of healthy cholesterol levels may be achieved through weight loss, exercise, and a diet low in saturated fat and high in fiber. Blood cholesterol is measured in milligrams per deciliter (mg/dl) with normal levels ranging between 150 to 200 mg/dl. Associated risk factors include diabetes, hypertension, heart disease and stroke.

In both 2007 and 2009, about 70% of Guam adults reported having their blood cholesterol checked in the past 5 years. Guam remained below the U.S. median (Figure 21).
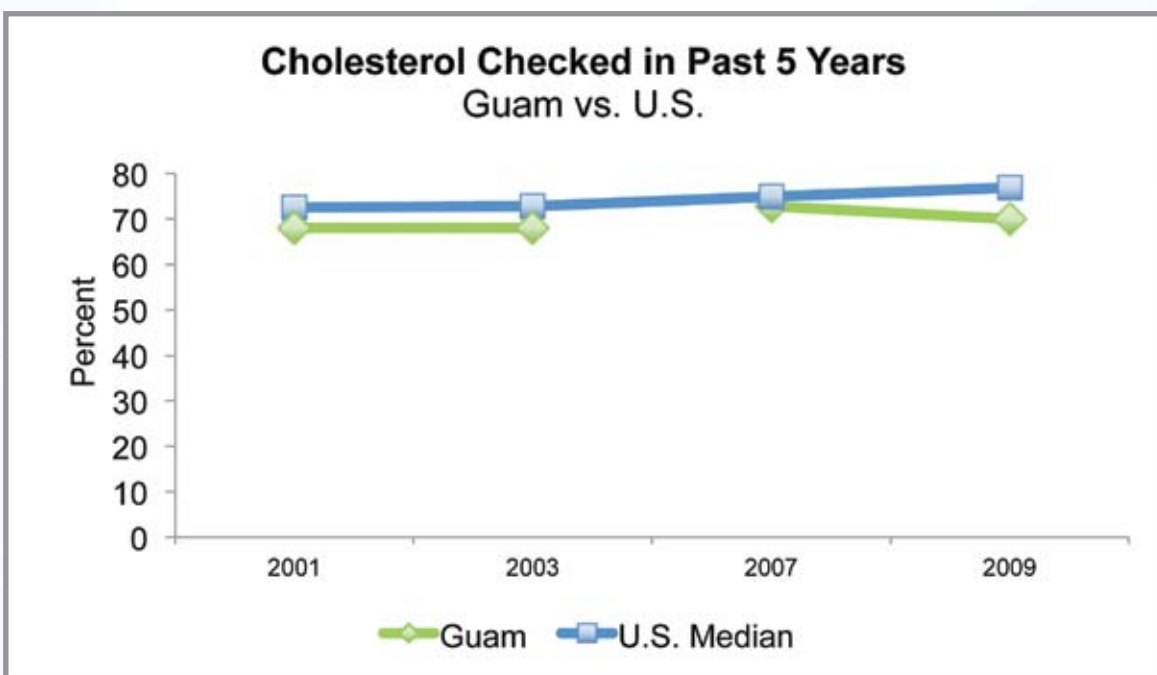
Figure 21

In Guam, reported high blood cholesterol percentages trend down from 30.3% in 2001 to 24.4% in 2009, opposite the U.S. median over those years (Figure 22). In 2007 and 2009, the highest rates of those diagnosed with high cholesterol were among the adults, females, and lower education and annual income levels. In 2009, Filipinos (25.8%) reported the highest percentage, followed by Chamorros (24.6%) and Asians (19.6%).

Ever Diagnosed with High Cholesterol
Guam vs U.S.
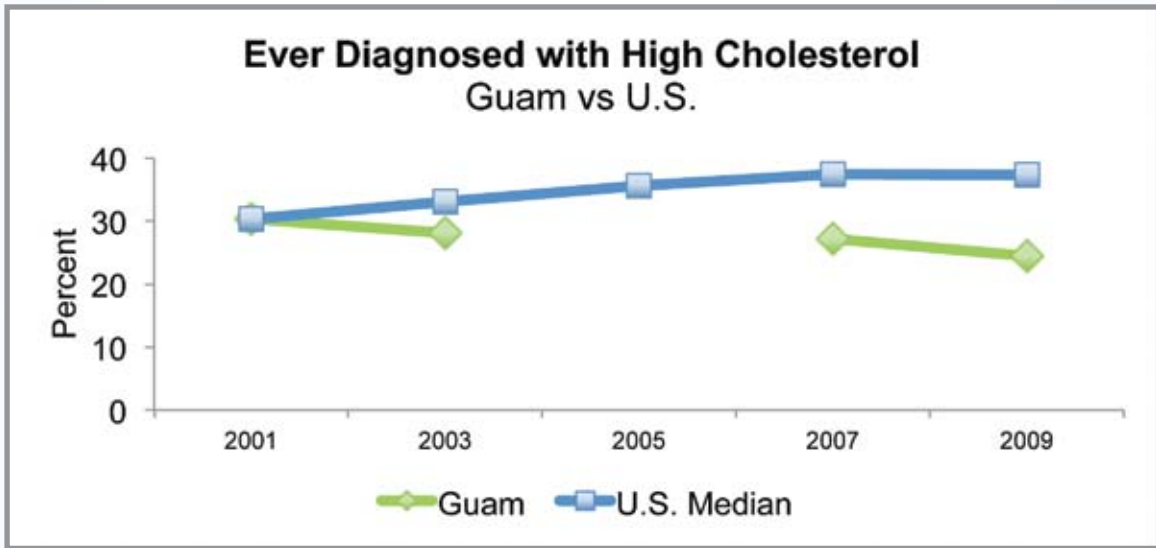
Figure 22

Table 14: Cholesterol Checked in Past 5 years

Demographic Characteristics	2007		2009	
	%	95% Confidence Interval	%	95% Confidence Interval
Total	**72.8**	**(68.5-77.1)**	**70.0**	**(66.5-73.5)**
Age				
18 - 24	N/A	N/A	48.2	(38.6-57.7)
25 - 34	66.5	(56.7-76.3)	64.5	(56.4-72.6)
35 - 44	75.7	(66.9-84.5)	69.5	(61.3-77.6)
45 - 54	81.1	(73.1-89.1)	78.2	(72.0-84.3)
55 - 64	96.6	(93.1-100.0)	87.6	(82.6-92.5)
65 +	N/A	N/A	86.3	(80.0-92.5)
Gender				
Male	70.9	(64.0-77.8)	67.0	(61.4-72.7)
Female	74.9	(70.0-79.8)	73.1	(69.1-77.0)
Education				
< High School	N/A	N/A	N/A	N/A
H.S. or G.E.D.	69.3	(62.0-76.6)	64.9	(59.2-70.7)
Some post H.S.	73.6	(65.2-82.0)	72.8	(65.9-79.6)
College graduate	81.5	(72.9-90.1)	79.7	(72.9-86.5)
Income				
< $15,000	N/A	N/A	58.2	(48.3-68.0)
$15,000 - $24,999	N/A	N/A	N/A	N/A
$25,000 - $34,999	N/A	N/A	71.4	(61.7-81.1)
$35,000 - $49,999	N/A	N/A	76.1	(68.2-84.1)
$50,000 +	87.1	(80.6-93.6)	76.2	(70.2-82.2)
Ethnicity				
Chamorro			72.4	(67.3-77.5)
Filipino			71.2	(64.9-77.6)
White/Caucasian			83.1	(74.2-91.9)
Asian			77.5	(65.6-89.5)
Micronesian			39.5	(27.2-51.9)

Table 15: Ever Diagnosed with High Cholesterol

Demographic Characteristics	2007		2009	
	%	95% Confidence Interval	%	95% Confidence Interval
Total	**27.2**	**(22.7-31.7)**	**24.4**	**(21.2-27.6)**
Age				
18 - 24	N/A	N/A	14.5	(5.0-24.0)
25 - 34	10.6	(4.1-17.1)	9.2	(2.6-15.9)
35 - 44	N/A	N/A	23.7	(16.7-30.6)
45 - 54	N/A	N/A	32.3	(25.4-39.2)
55 - 64	N/A	N/A	37.8	(29.9-45.6)
65 +	N/A	N/A	34.7	(25.7-43.8)
Gender				
Male	27.7	(20.4-35.0)	23.6	(18.4-28.7)
Female	26.7	(21.2-32.2)	25.2	(21.4-29.0)
Education				
< High School	N/A	N/A	N/A	N/A
H.S. or G.E.D.	31.6	(23.4-39.8)	25.0	(19.7-30.3)
Some post H.S.	18.3	(10.7-25.9)	28.0	(20.9-35.1)
College graduate	24.7	(16.9-32.5)	18.5	(13.8-23.2)
Income				
< $15,000	N/A	N/A	N/A	N/A
$15,000 - $24,999	N/A	N/A	N/A	N/A
$25,000 - $34,999	N/A	N/A	25.2	(16.1-34.2)
$35,000 - $49,999	N/A	N/A	19.3	(13.1-25.6)
$50,000 +	22.3	(14.9-29.7)	23.9	(18.2-29.7)
Ethnicity				
Chamorro			24.6	(19.9-29.4)
Filipino			25.8	(19.9-31.8)
White/Caucasian			15.2	(7.2-23.2)
Asian			19.6	(7.0-32.2)
Micronesian			N/A	N/A

Tobacco Use

Survey Question:

1. **"Have you smoked at least 100 cigarettes in your entire life and do you now smoke cigarettes every day, some days, or not at all?"**
2. **"Do you currently use chewing tobacco, snuff, or snus every day, some days, or not at all?"**

Tobacco use is likely the single largest preventable cause of premature death and disability in Guam. Four of the five top causes of death in the island are either directly caused or aggravated by tobacco use.[4] Lung and other tobacco-related cancers are the major contributors to cancer incidence and mortality in the population.[5] Additionally, exposure to second hand smoke likely contributes to the significant rates of asthma, lung infections, and ear infections in children.[6] Reducing tobacco use in Guam is a recognized public health priority, and is formally addressed in the Guam Prevention, Early Intervention and Community Empowerment (PEACE) substance abuse prevention plan, the Guam Non-Communicable Disease Control Plan, and the Guam Comprehensive Cancer Control Plan.[7,8,9]

Smoking

The prevalence in Guam continuously remained higher than the average smoking prevalence of all U.S. States and Territories (Figure 23). Smoking prevalence began trending down around the time the Government of Guam issued a 100% tobacco-free campus policy and launched the Guam Tobacco Cessation Quitline. However, the rate of decline has not been sufficient to eliminate the gap between Guam and U.S. prevalence.
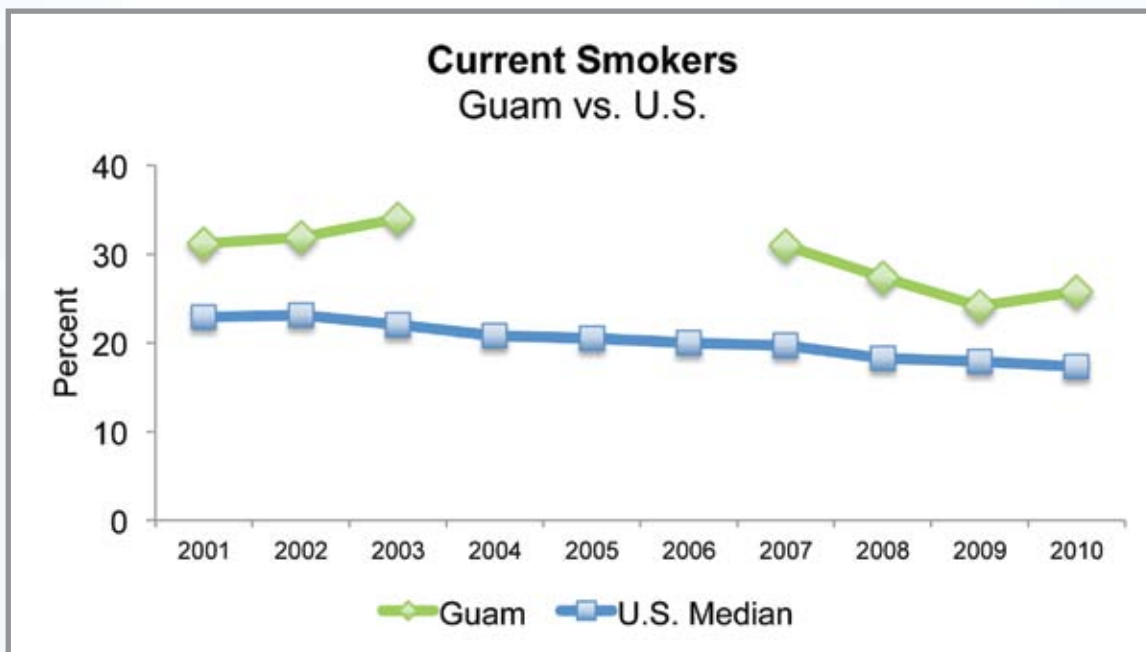

Figure 23

Daily smoking in Guam remained higher as compared to the combined prevalence of all U.S. States and Territories. In 2010, 1 in 5 adults in Guam was a daily smoker. In the same year, 6.0% percent of adults in Guam smoke some days, 16.6% are former smokers and 57.6% have never smoked. Altogether, close to three-fourths (74.2%) of the island's population were non-smokers.

In 2010, the sex difference in current smoking is substantially more in Guam (30.0% of males vs. 21.2% of females) than the U.S. prevalence with Guam females reporting a higher prevalence than U.S. males by nearly 3%. In Guam, close to 1 in 3 adult males and 1 in 5 adult females smoke (Figure 24).
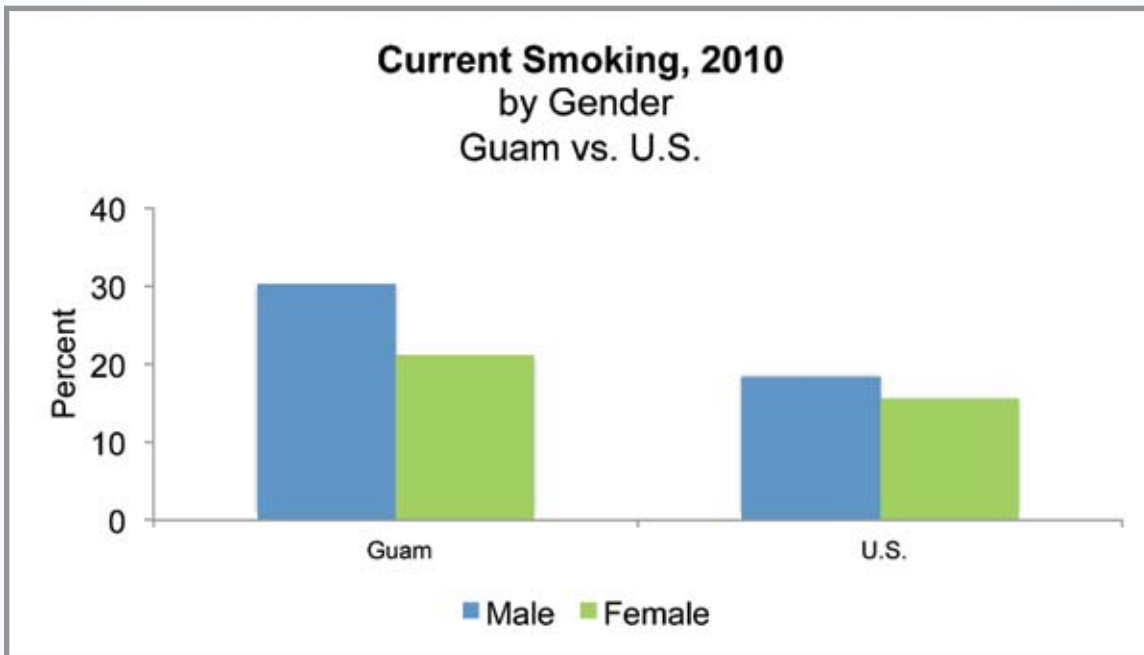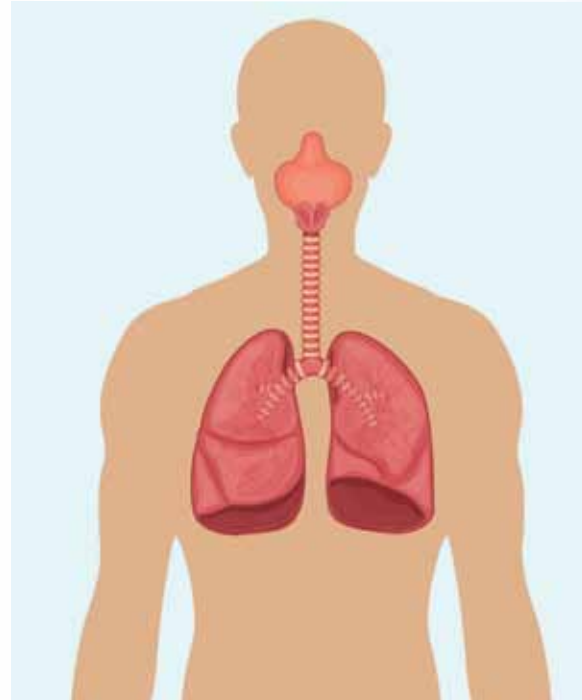
Figure 24

In Guam, smoking is inversely related to income and educational attainment, with current smoking reported more frequently by those with lower incomes and less years of education. Also, ethnic groups report smoking at substantially different percentages with 40.3% of Chamorro adults and 12.3% of Filipino adults classifying as current smokers. These differences may explain, in part, the disparity in lung cancer and cardiovascular prevalence and morbidity among ethnic group, income, and education.

Guam launched its Tobacco Cessation Quitline in 2007. In 2010, almost 70% of smokers attempted to quit smoking for at least 1 day because of a desire to stop smoking, compared to 61% in 2003, when there were very limited cessation resources on the island (Figure 25).
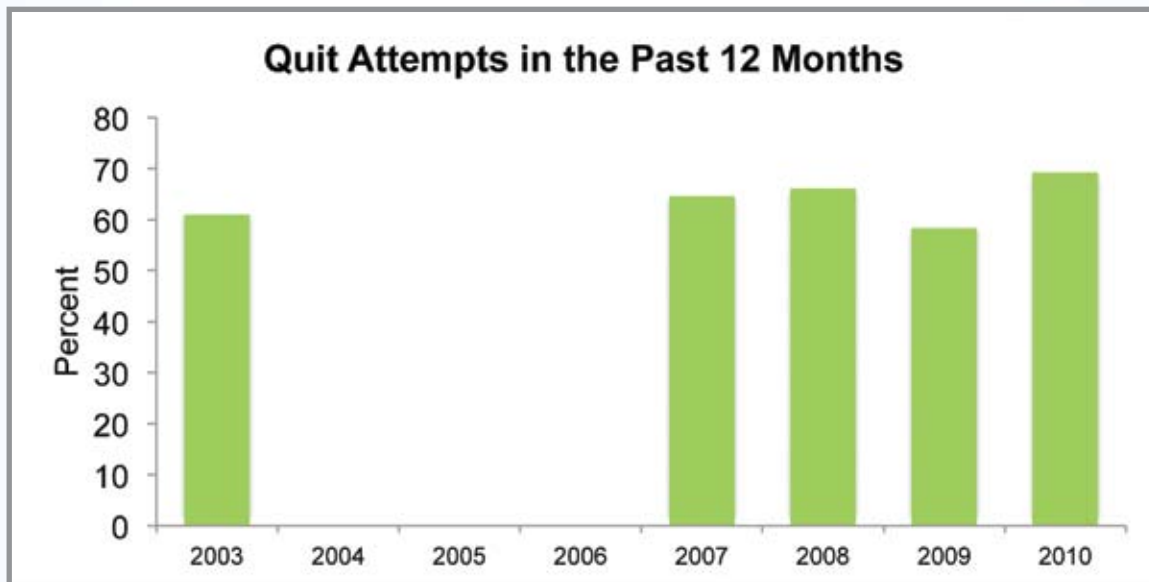
Figure 25

Smokeless Tobacco Use

In 2009, the Guam BRFSS started asking about smokeless tobacco use (specifically chewing tobacco, snuff and/or snus). Adults in Guam who reported current smokeless tobacco use increased from 4.2% in 2009 to 6.9% in 2010. Males were five times more likely than females to report using smokeless tobacco (11.5% vs. 2.2%). Smokeless tobacco use was lowest among those with the highest educational attainment and the highest annual income. Smokeless tobacco use remained low in prevalence, but appeared to have risen from 2009 (Figure 26).

Figure 26

Table 16: Current Smokers

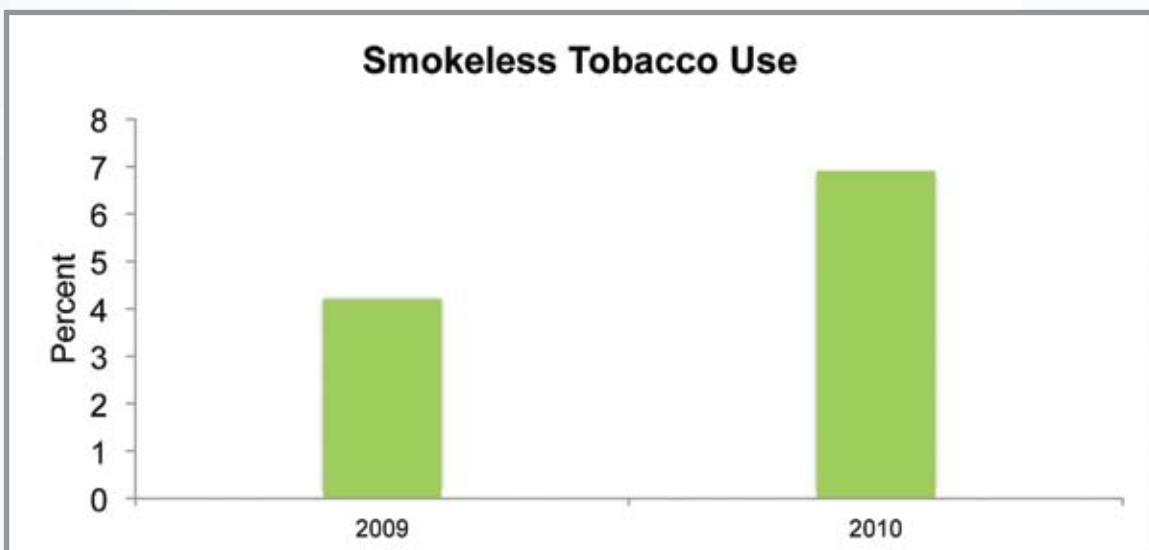| Demographic Characteristics	2007 %	2007 95% Confidence Interval	2008 %	2008 95% Confidence Interval	2009 %	2009 95% Confidence Interval	2010 %	2010 95% Confidence Interval
Total	**31.0**	**(26.5-35.5)**	**27.4**	**(23.6-31.2)**	**24.1**	**(21.1-27.1)**	**25.8**	**(21.7-29.9)**
Age								
18 - 24	N/A	N/A	22.6	(14.6-30.6)	16.5	(10.3-22.8)	N/A	N/A
25 - 34	35.8	(26.2-45.4)	N/A	N/A	29.3	(21.6-37.1)	N/A	N/A
35 - 44	N/A	N/A	28.8	(21.1-36.4)	27.2	(20.4-33.9)	25.2	(18.0-32.5)
45 - 54	34.3	(24.7-43.9)	29.2	(21.2-37.2)	29.0	(22.7-35.2)	29.8	(21.3-38.4)
55 - 64	20.3	(10.7-29.9)	16.3	(9.4-23.1)	17.7	(11.7-23.8)	20.0	(12.1-27.8)
65 +	14.1	(4.5-23.7)	13.4	(4.8-22.0)	14.5	(7.9-21.1)	11.3	(3.5-19.1)
Gender								
Male	38.5	(31.1-45.9)	33.3	(27.4-39.3)	30.9	(25.8-36.0)	30.3	(24.4-36.3)
Female	23.2	(18.5-27.9)	21.3	(16.7-25.9)	17.1	(14.2-20.1)	21.2	(15.7-26.6)
Education								
< High School	N/A	N/A	N/A	N/A	35.4	(25.5-45.2)	N/A	N/A
H.S. or G.E.D.	33.9	(26.6-41.2)	30.8	(24.8-36.7)	32.0	(26.7-37.4)	27.8	(21.3-34.4)
Some post H.S.	36.2	(26.2-46.2)	26.7	(19.1-34.4)	19.3	(13.5-25.0)	15.6	(9.9-21.4)
College graduate	20.1	(12.7-27.5)	12.8	(7.1-18.5)	13.3	(8.6-18.0)	15.9	(8.0-23.8)
Income								
< $15,000	N/A	N/A	N/A	N/A	33.6	(24.6-42.5)	N/A	N/A
$15,000 - $24,999	22.1	(12.5-31.7)	31.9	(23.7-40.1)	25.5	(16.2-34.8)	26.2	(17.0-35.4)
$25,000 - $34,999	N/A	N/A	15.7	(7.2-24.3)	27.4	(18.8-36.0)	21.1	(11.9-30.3)
$35,000 - $49,999	25.0	(15.0-35.0)	25.2	(16.2-34.3)	26.2	(18.6-33.8)	N/A	N/A
$50,000 +	N/A	N/A	26.2	(18.4-33.9)	21.5	(16.1-26.8)	19.3	(10.7-27.9)
Ethnicity								
Chamorro					37.7	(32.6-42.8)	40.3	(33.0-47.7)
Filipino					12.2	(7.6-16.9)	12.3	(7.5-17.4)
White/Caucasian					13.1	(5.4-20.9)	19.0	(9.3-28.7)
Asian					13.6	(4.9-22.2)	21.9	(9.1-34.7)
Micronesian					16.2	(6.0-26.3)	14.9	(5.0-24.8)

Alcohol Consumption

Survey Questions:

Current Drinking — "During the past 30 days, how many days per week or per month did you have at least one drink of any alcohol beverage?"

Heavy Drinking — This is a created variable from responses to the following questions. "During the past 30 days, how many days per week or per month did you have at least one drink of any alcohol beverage?" and "One drink is equivalent to a 12-ounce beer, a 5-ounce glass of wine, or a drink with one shot of liquor. During the past 30 days, on the days when you drank, about how many drinks did you drink on the average?"

Binge Drinking — "Considering all types of alcoholic beverages, how many times during the past 30 days did you have 5 or more drinks on an occasion?"

Alcohol is a major risk factor for liver cirrhosis, the ninth leading cause of death on Guam.[10] In addition, alcohol is implicated in some types of cancer (such as liver cancer), stroke, and can exacerbate diabetes. Thus, alcohol contributes to six of the top 10 causes of mortality in Guam.[11] Alcohol use is also implicated in criminal arrests, motor vehicle crashes, suicide, and violent crime including family violence. In 2006, alcohol-related arguments were associated with over one-third of murders. Alcohol was a factor in 44% of 2007 traffic accident fatalities[12] and about 30% of suicides were associated with the alcohol use.[13]

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In relation to health and social disparities, liver cancer incidence and mortality for Chamorros, and other Micronesians living in Guam are higher than U.S. rates. Other Micronesians have almost nine times the U.S. rate of dying from liver cancer, while Chamorros have over double the U.S. rate.[14] Other Micronesians make up over 43% of arrests for driving under the influence of alcohol (DUI), while Chamorros account for 29% of total arrests.[15]

Alcohol is recognized as an important risk factor for non-communicable diseases, including cancer, and for adverse socio-economic consequences that impact on families in Guam.

Current Drinking

The 2010 BRFSS defines current alcohol use as having had at least one drink of alcohol in the past 30 days. Current alcohol consumption appears unchanged from previous years. In 2010, 40.4% of adults on Guam reported having had at least one drink of alcohol within the past 30 days, lower than the national median of 54.1% (Figure 27). Overall, males drink more than females, but this sex difference is much more marked on Guam. Male adults were almost twice as likely to report recent consumption of alcohol as female adults (2007: 54.0% vs. 23.2%, 2008: 59.3% vs. 22.6%, 2009: 51.9% vs. 23.0%, 2010: 53.9% vs. 26.4%).
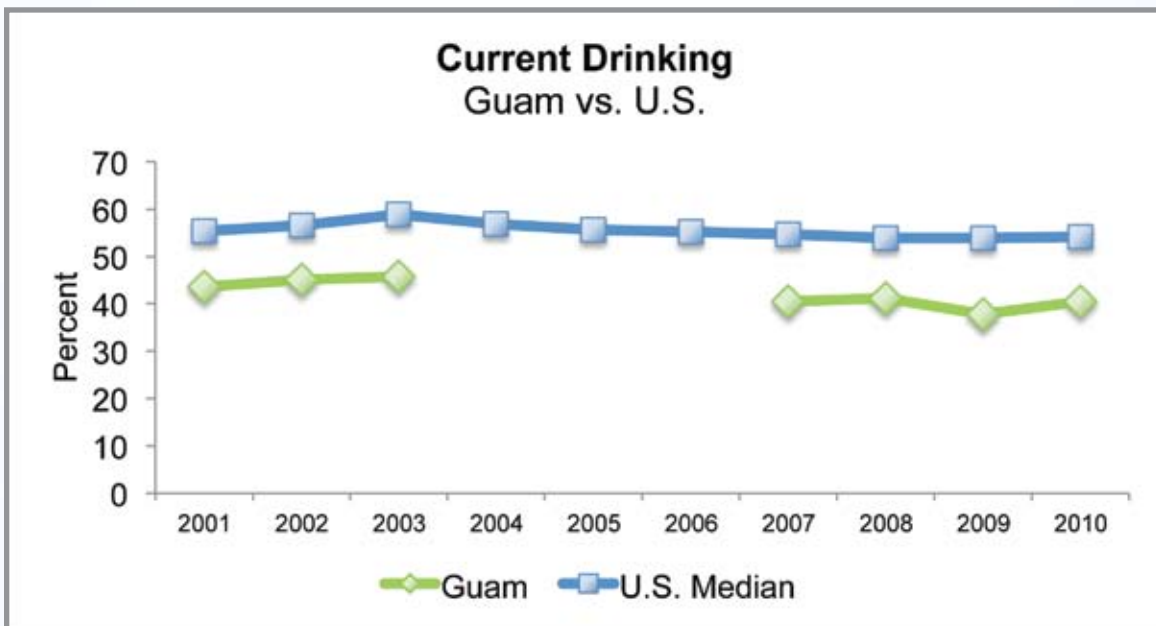

Figure 27

Heavy Drinking

Heavy drinking is defined in the BRFSS as adult men having more than two drinks per day and adult women having more than one drink per day. In 2009 and 2010, the prevalence of heavy drinking on Guam was similar to the U.S. average (Figure 28).
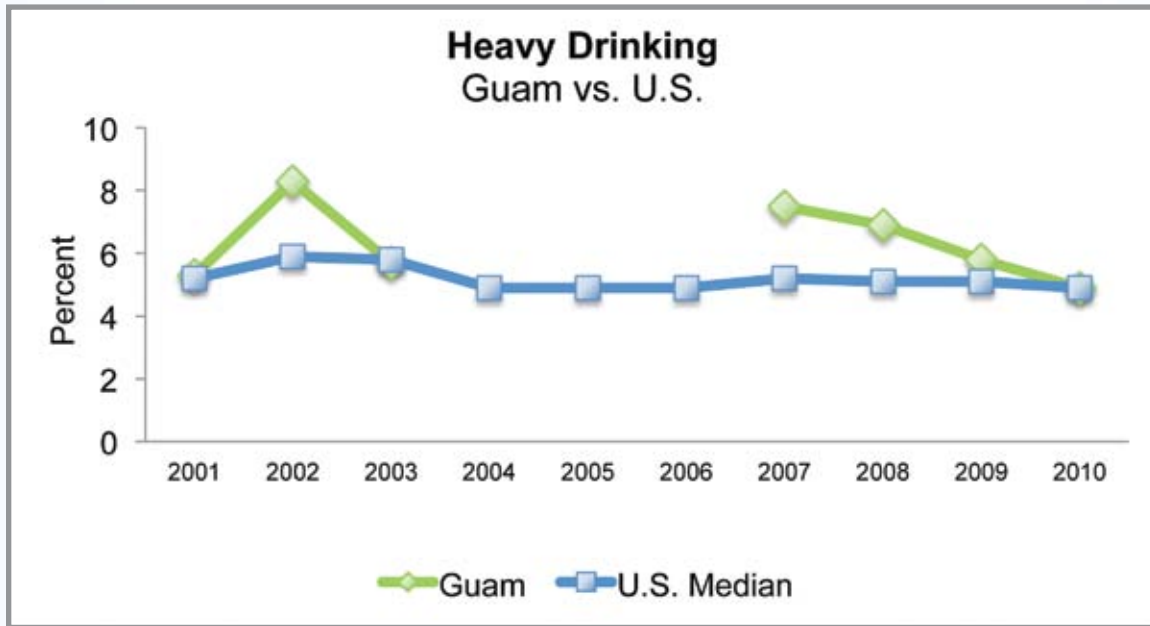
Figure 28

In the past four years, male adults who reported heavy drinking more than doubled the percentage than the female adults, but the percentages of males trend downward while the percentages of females remained mostly stable (2007: 11.8% vs. 3.1%, 2008: 10.7 vs. 3.1%, 2009: 8.1 vs. 3.6%, 2010: 7.5% vs. 2.2%) (Figure 29). In 2010, heavy drinking among males on Guam was about 50% higher than the U.S. median, while heavy drinking among females on Guam was half the U.S. median. The sex difference in heavy drinking was more marked in Guam.

For 2007 to 2010, heavy drinking on Guam was most likely to be reported by younger adults (less than 45 years of age) and those with lower educational attainment, while the relationship between heavy drinking and income was unclear. In 2009, heavy drinking was most prevalent among Chamorros (9.0%), followed by White/Caucasians (7.4%) and Asians (4.9%). Though, in 2010, Asians (8.2%) were most prevalent followed by Chamorro (6.5%) and White/Caucasian (6.2%) ethnicity with Filipino (1.1%) ethnic group reporting the lowest prevalence.
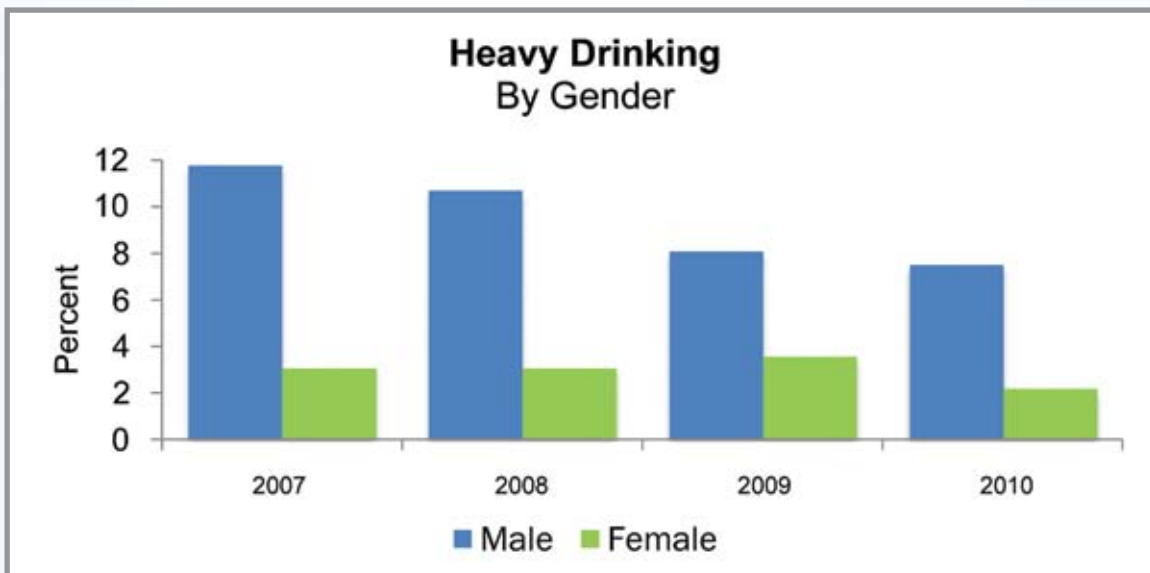
Figure 29

Binge Drinking

Binge drinking is defined in the survey as adult males who have five or more drinks on one occasion, or adult females who have four or more drinks on one occasion in the past month. Binge drinking was reported by 17.7% of adults on Guam in 2010. This was slightly higher than the U.S. national median at 15.0% (See Figure 30).
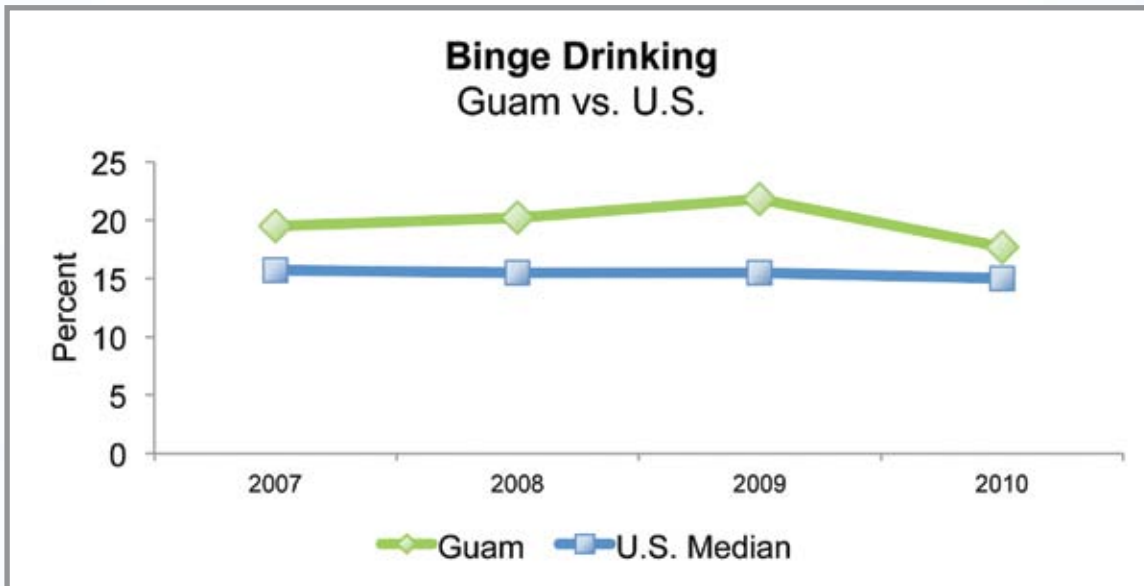
Figure 30

Like heavy drinking in 2007 to 2010, binge drinking was predominantly reported by younger adults less than 45 years but the relationships between binge drinking and education or income are less clear. Also, Guam male adults reported a substantially higher prevalence of binge drinking than female adults. In 2010 adults of Chamorro (22.2%) and Micronesian (20.8%) ethnic group reported the highest prevalence of binge drinking (Figure 31).

Figure 31

Table 17: Current Drinking[*]

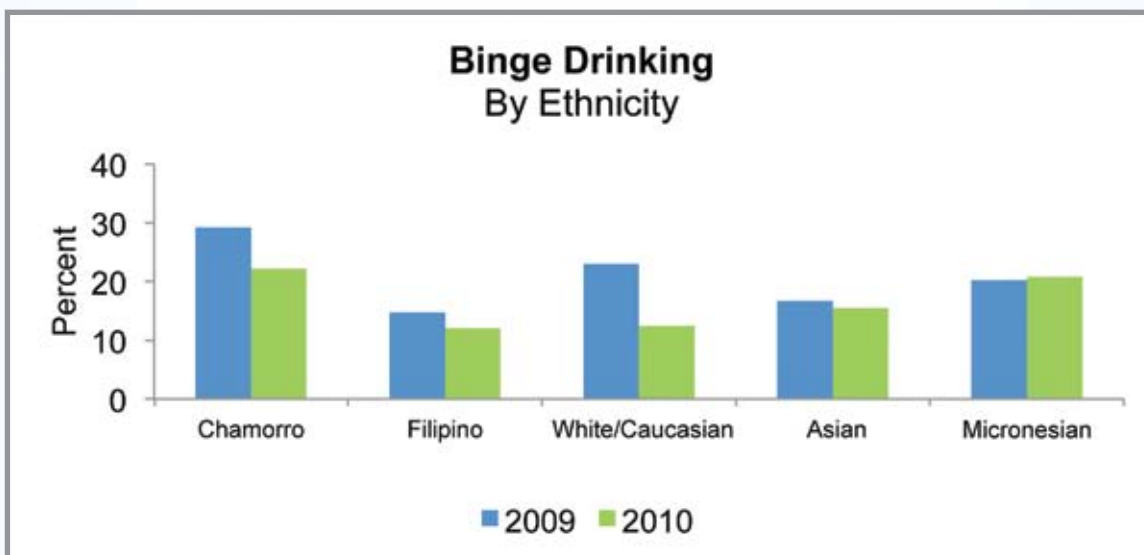| Demographic Characteristics	2007		2008		2009		2010	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval
Total	**40.4**	**(35.7-45.1)**	**41.2**	**(37.1-45.3)**	**37.7**	**(34.3-41.1)**	**40.4**	**(36.1-44.7)**
Age								
18 - 24	N/A	N/A	50.8	(41.0-60.6)	35.4	(26.9-44.0)	N/A	N/A
25 - 34	N/A	N/A	N/A	N/A	46.8	(38.7-54.9)	N/A	N/A
35 - 44	N/A	N/A	42.7	(34.2-51.1)	43.7	(35.9-51.5)	50.2	(41.9-58.5)
45 - 54	35.2	(25.8-44.6)	31.8	(23.9-39.7)	36.0	(29.4-42.5)	39.9	(30.7-49.1)
55 - 64	N/A	N/A	26.4	(17.8-35.0)	26.6	(19.6-33.5)	33.3	(24.0-42.7)
65 +	19.1	(9.1-29.1)	N/A	N/A	19.1	(12.2-26.1)	15.5	(8.2-22.8)
Gender								
Male	57.0	(49.4-64.6)	59.3	(53.3-65.2)	51.9	(46.5-57.4)	53.9	(47.7-60.2)
Female	23.2	(18.7-27.7)	22.6	(18.2-27.1)	23.0	(19.6-26.5)	26.4	(21.0-31.8)
Education								
< High School	N/A	N/A	N/A	N/A	28.5	(18.8-38.2)	N/A	N/A
H.S. or G.E.D.	40.8	(33.2-48.4)	38.6	(32.4-44.7)	38.0	(32.2-43.8)	34.5	(27.9-41.1)
Some post H.S.	41.7	(31.9-51.5)	46.8	(38.2-55.4)	44.4	(37.6-51.3)	46.5	(37.3-55.8)
College graduate	45.6	(36.2-55.0)	40.7	(31.9-49.4)	34.9	(28.6-41.2)	45.0	(36.3-53.7)
Income								
< $15,000	N/A	N/A	N/A	N/A	31.4	(22.2-40.5)	N/A	N/A
$15,000 - $24,999	N/A	N/A	38.0	(29.4-46.6)	23.8	(14.2-33.4)	N/A	N/A
$25,000 - $34,999	N/A	N/A	N/A	N/A	40.1	(30.3-49.8)	N/A	N/A
$35,000 - $49,999	N/A	N/A	N/A	N/A	35.9	(27.4-44.3)	N/A	N/A
$50,000 +	53.8	(44.0-63.6)	53.6	(45.3-61.9)	45.5	(39.3-51.6)	48.0	(38.8-57.2)
Ethnicity								
Chamorro	43.2	(36.3-50.3)			46.5	(41.2-51.8)	43.4	(36.2-50.6)
Filipino	29.7	(21.2-38.5)			25.9	(20.4-31.4)	34.4	(27.0-41.8)
White/Caucasian	65.2	(54.1-76.3)			43.9	(32.8-55.1)	60.9	(48.0-73.7)
Asian	47.0	(25.1-69.0)			39.1	(25.4-52.8)	43.4	(28.5-58.4)
Micronesian	N/A	N/A			29.0	(16.8-41.2)	26.2	(13.5-38.8)

* The portion who reported consuming at least one drink within the past 30 days.

Table 18: Heavy Drinking*

Demographic Characteristics	2007 %	2007 95% Confidence Interval	2008 %	2008 95% Confidence Interval	2009 %	2009 95% Confidence Interval	2010 %	2010 95% Confidence Interval
Total	7.5	(4.8-10.2)	6.9	(4.5-9.3)	5.8	(4.0-7.7)	4.9	(3.1-6.7)
Age								
18 - 24	14.2	(4.2-24.2)	9.4	(3.6-15.1)	6.1	(2.3-10.0)	4.1	(0.1-8.2)
25 - 34	11.2	(3.9-18.5)	10.4	(3.6-17.1)	9.5	(4.3-14.7)	6.1	(1.5-10.8)
35 - 44	3.4	(0.3-6.5)	7.6	(2.0-13.3)	7.3	(2.8-11.8)	5.3	(0.9-9.6)
45 - 54	7.5	(2.2-12.8)	5.1	(1.1-9.1)	2.2	(0.4-4.0)	5.6	(1.8-9.4)
55 - 64	2.2	(0.0-5.1)	1.8	(0.0-3.9)	2.5	(0.0-5.2)	3.5	(0.3-6.6)
65 +	3.0	(0.0-7.1)	1.6	(0.0-3.7)	2.9	(0.3-5.6)	2.5	(0.0-5.3)
Gender								
Male	11.8	(6.9-16.7)	10.7	(6.5-14.9)	8.1	(5.0-11.2)	7.5	(4.4-10.7)
Female	3.1	(1.1-5.1)	3.1	(1.0-5.2)	3.6	(1.8-5.4)	2.2	(0.4-4.0)
Education								
< High School	6.5	(0.2-12.8)	8.8	(1.0-16.6)	6.7	(0.5-12.8)	9.4	(1.5-17.4)
H.S. or G.E.D.	10.3	(4.8-15.8)	7.8	(3.9-11.7)	7.3	(3.9-10.8)	5.5	(2.5-8.5)
Some post H.S.	6.9	(2.0-11.8)	8.1	(2.7-13.6)	5.9	(2.7-9.2)	2.9	(0.6-5.1)
College graduate	5.0	(0.7-9.3)	2.6	(0.6-4.6)	3.5	(0.8-6.2)	3.2	(0.8-5.7)
Income								
< $15,000	N/A	N/A	N/A	N/A	7.1	(1.1-13.1)	2.5	(0.0-5.1)
$15,000 - $24,999	5.2	(0.0-10.7)	9.3	(3.3-15.2)	3.5	(0.0-8.0)	4.0	(0.0-8.1)
$25,000 - $34,999	14.1	(4.5-23.7)	8.0	(1.6-14.5)	3.2	(0.4-6.1)	7.0	(0.6-13.3)
$35,000 - $49,999	5.1	(0.0-11.2)	5.7	(0.4-10.9)	5.3	(1.0-9.6)	5.4	(0.0-11.0)
$50,000 +	7.1	(2.2-12.0)	7.3	(2.5-12.1)	7.7	(4.1-11.3)	4.7	(1.6-7.8)
Ethnicity								
Chamorro					9.0	(5.5-12.6)	6.5	(3.0-10.0)
Filipino					3.0	(0.7-5.2)	1.1	(0.0-2.3)
White/Caucasian					7.4	(1.7-13.1)	6.2	(0.2-12.2)
Asian					4.9	(0..0-12.1)	8.2	(0.0-17.4)
Micronesian					2.3	(0.0-5.4)	2.8	(0.0-6.0)

* The portion who reported consuming two drinks per day (for men) or one drink per day (for women).

Table 19: Binge Drinking*

Demographic Characteristics	2007 %	2007 95% Confidence Interval	2008 %	2008 95% Confidence Interval	2009 %	2009 95% Confidence Interval	2010 %	2010 95% Confidence Interval
Total	**19.5**	**(15.6-23.4)**	**20.2**	**(16.6-23.8)**	**21.8**	**(18.7-24.8)**	**17.7**	**(14.1-21.4)**
Age								
18 - 24	N/A	N/A	26.1	(17.2-35.0)	22.8	(15.3-30.3)	14.0	(5.6-22.4)
25 - 34	28.3	(18.7-37.9)	26.4	(16.8-36.0)	29.1	(21.4-36.7)	N/A	N/A
35 - 44	15.2	(7.4-23.0)	22.7	(15.0-30.3)	28.2	(20.9-35.6)	22.0	(14.8-29.3)
45 - 54	12.0	(5.1-18.9)	16.4	(9.5-23.2)	17.5	(12.1-22.8)	14.0	(6.9-21.1)
55 - 64	N/A	N/A	11.7	(5.3-18.1)	9.7	(5.1-14.3)	11.0	(4.5-17.6)
65 +	7.8	(1.7-13.9)	6.2	(1.4-11.1)	6.8	(2.3-11.2)	2.9	(0.0-6.2)
Gender								
Male	31.4	(24.3-38.5)	34.5	(28.3-40.7)	33.9	(28.6-39.2)	25.9	(20.1-31.8)
Female	7.4	(4.3-10.5)	5.9	(3.7-8.2)	9.6	(7.2-12.1)	9.4	(5.3-13.5)
Education								
< High School	10.4	(2.8-18.0)	N/A	N/A	18.0	(9.5-26.4)	N/A	N/A
H.S. or G.E.D.	23.1	(16.0-30.2)	21.1	(15.7-26.5)	23.3	(18.0-28.7)	15.4	(10.4-20.3)
Some post H.S.	16.6	(9.0-24.2)	23.5	(15.3-31.8)	23.9	(17.9-29.9)	18.5	(10.5-26.5)
College graduate	22.0	(13.4-30.6)	14.3	(8.3-20.3)	19.5	(13.8-25.1)	15.5	(7.4-23.6)
Income								
< $15,000	N/A	N/A	N/A	N/A	15.0	(8.0-22.0)	14.2	(6.9-21.5)
$15,000 - $24,999	N/A	N/A	21.7	(13.8-29.7)	15.5	(6.6-24.4)	21.2	(12.3-30.0)
$25,000 - $34,999	N/A	N/A	N/A	N/A	30.1	(20.6-39.7)	N/A	N/A
$35,000 - $49,999	17.9	(8.1-27.7)	N/A	N/A	21.7	(13.8-29.6)	19.5	(9.6-29.5)
$50,000 +	24.5	(15.7-33.3)	18.5	(12.2-24.8)	25.3	(19.9-30.8)	16.0	(7.3-24.7)
Ethnicity								
Chamorro					29.2	(24.0-34.4)	22.2	(15.8-28.6)
Filipino					14.8	(10.1-19.5)	12.0	(6.3-17.7)
White/Caucasian					23.0	(12.8-33.3)	12.5	(5.0-20.0)
Asian					16.7	(6.4-27.1)	15.5	(3.0-28.0)
Micronesian					20.2	(9.5-30.9)	20.8	(8.6-3 3.0)

* The proportion who reported consuming five or more drinks per occasion (for men) or four or more drinks per occasion (for women).

Physical Activity

Survey Questions:

1) "Do you do moderate activities for at least 10 minutes at a time, such as brisk walking, bicycling, vacuuming, gardening, or anything else that cause some increase in breathing or heart rate?"

2) "Do you do vigorous activities for at least 10 minutes at a time, such as running, aerobics, heavy yard work, or anything else that causes large increases in breathing or heart rate?"

Studies show that exercise can help prevent obesity and other chronic conditions such as heart disease, type 2 diabetes, and cancer. According to the United States Department of Health and Human Services' 2008 Physical Activity Guidelines for Americans, adults should do at least 150 minutes per week of moderate-intensity, or 75 minutes per week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate and vigorous-intensity activity.[16]

Types of Physical Activity:

1) Leisure time physical activity involves physical activities or exercises, other than a regular job, such as running, calisthenics, golf, gardening, or walking for exercise.
2) Moderate physical activity involves small increases in heart rate and breathing rate such as walking, gardening, vacuuming, etc.
3) Vigorous physical activity involves large increases in heart and breathing rate, e.g., running, aerobics, etc.

In 2009, an estimated 48% of Guam adults engaged in moderate activity, and 27% of Guam adults engaged in vigorous activity. This means that more than half of adults on Guam do not participate in any moderate physical activity; and almost three-fourths of adults on Guam do not participate in vigorous physical activity. These rates of moderate and vigorous physical activity in Guam were similar to that of the U.S. In the same year, there were more male adults than female adults who engaged in moderate physical activity (54.0% vs. 40.6%) and vigorous physical activity (36.2% vs. 16.5%) (Figure 32 and 33).
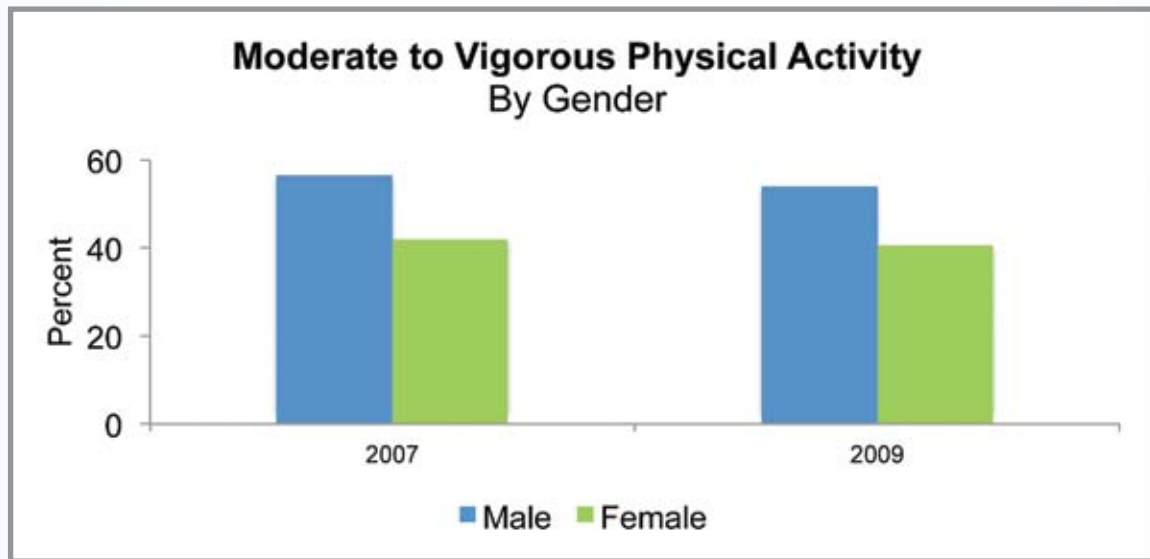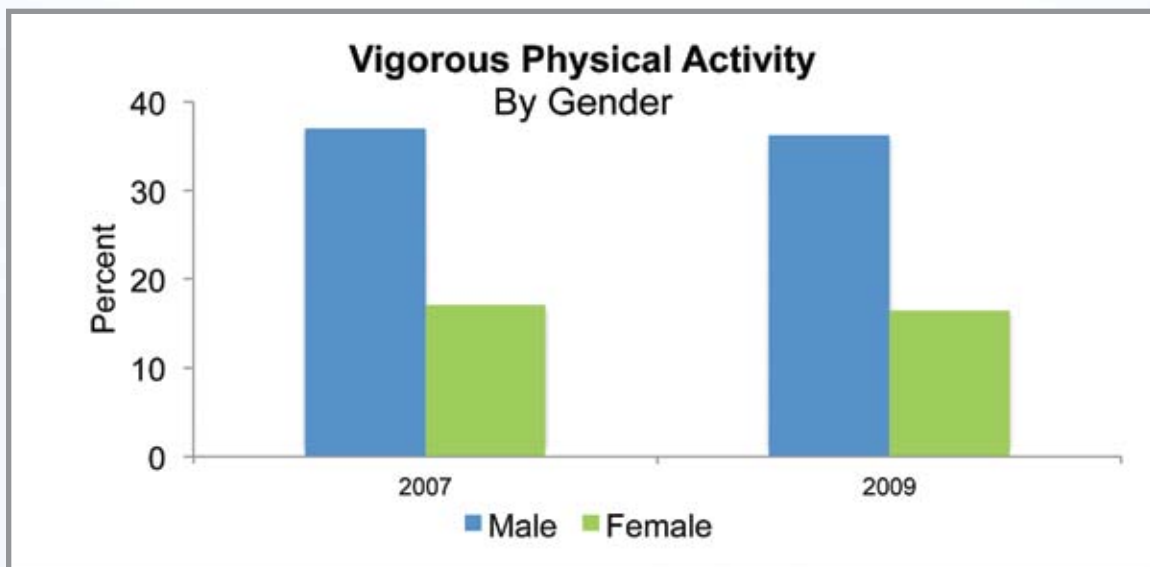

Figure 32

Figure 33

A higher proportion of White/Caucasians (39.4%) on Guam engaged in vigorous physical activity compared to other ethnic groups in 2009 (Figure 34). The same ethnic group, White/Caucasians, also reported the highest percentage who participated in moderate physical activity at 57.0%.
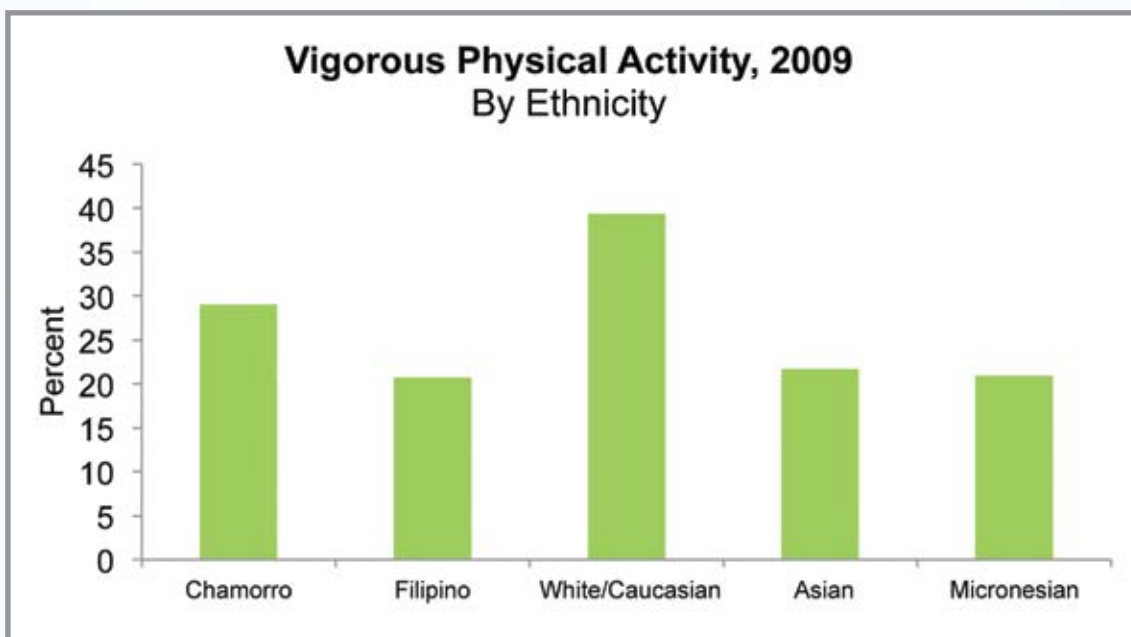

Figure 34

Table 20: Moderate to Vigorous Physical Activity*

Demographic Characteristics	2007		2009	
	%	95% Confidence Interval	%	95% Confidence Interval
Total	**49.5**	**(44.6-54.4)**	**47.4**	**(43.9-50.9)**
Age				
18 - 24	N/A	N/A	54.1	(44.7-63.4)
25 - 34	N/A	N/A	53.9	(45.9-62.0)
35 - 44	N/A	N/A	44.4	(36.5-52.4)
45 - 54	47.5	(37.5-57.5)	39.7	(33.1-46.3)
55 - 64	N/A	N/A	44.8	(37.0-52.5)
65 +	N/A	N/A	43.5	(34.1-52.9)
Gender				
Male	56.5	(48.9-64.1)	54.0	(48.4-59.5)
Female	42.0	(36.3-47.7)	40.6	(36.6-44.7)
Education				
< High School	N/A	N/A	N/A	N/A
H.S. or G.E.D.	50.7	(42.9-58.5)	51.5	(45.7-57.3)
Some post H.S.	54.8	(44.8-64.8)	45.2	(38.3-52.2)
College graduate	46.3	(36.9-55.7)	45.6	(38.9-52.3)
Income				
< $15,000	N/A	N/A	44.6	(35.0-54.2)
$15,000 - $24,999	N/A	N/A	N/A	N/A
$25,000 - $34,999	N/A	N/A	43.7	(34.2-53.2)
$35,000 - $49,999	N/A	N/A	49.7	(41.3-58.1)
$50,000 +	60.3	(50.5-70.1)	47.9	(41.7-54.0)
Ethnicity				
Chamorro			49.2	(44.0-54.5)
Filipino			42.1	(35.8-48.4)
White/Caucasian			57.0	(45.9-68.1)
Asian			36.7	(23.3-50.2)
Micronesian			51.0	(38.1-64.0)

*30+ minutes of moderate physical activity 5 or more days per week or 20+ minutes of vigorous activity 3 or more days per week

Table 21: Vigorous Physical Activity*

Demographic Characteristics	2007		2009	
	%	95% Confidence Interval	%	95% Confidence Interval
Total	**27.4**	**(22.0-31.9)**	**26.5**	**(23.2-29.8)**
Age				
18 - 24	N/A	N/A	34.6	(25.9-43.4)
25 - 34	N/A	N/A	34.5	(26.6-42.4)
35 - 44	N/A	N/A	28.7	(20.9-36.5)
45 - 54	26.4	(17.4-35.4)	19.1	(13.8-24.3)
55 - 64	N/A	N/A	17.4	(11.0-23.8)
65 +	4.4	(0.0-9.9)	10.0	(5.0-15.0)
Gender				
Male	37.0	(29.4-44.6)	36.2	(30.8-41.7)
Female	17.1	(13.0-21.2)	16.5	(13.4-19.6)
Education				
< High School	N/A	N/A	17.1	(8.6-25.6)
H.S. or G.E.D.	27.0	(19.4-34.6)	29.2	(23.6-34.7)
Some post H.S.	34.0	(24.8-43.2)	23.5	(17.6-29.5)
College graduate	24.5	(15.3-33.7)	30.0	(23.1-36.8)
Income				
< $15,000	N/A	N/A	18.0	(10.2-25.9)
$15,000 - $24,999	N/A	N/A	13.6	(5.7-21.5)
$25,000 - $34,999	17.7	(8.5-26.9)	26.5	(17.8-35.2)
$35,000 - $49,999	N/A	N/A	29.6	(21.6-37.6)
$50,000 +	N/A	N/A	30.3	(24.6-36.0)
Ethnicity				
Chamorro			29.0	(23.9-34.0)
Filipino			20.7	(14.9-26.6))
White/Caucasian			39.4	(28.0-50.8)
Asian			21.7	(9.7-33.7)
Micronesian			20.9	(11.0-30.9)

*20+ minutes of vigorous activity 3 or more days per week

Fruit and Vegetable Consumption

Survey Question:

There is no single question that elicits this information from a respondent. Rather the data is determined from a set of six questions that relate to the eating patterns of the respondent.

Eating a diet rich in fruits and vegetables is part of an overall healthy diet that reduces risk for heart disease, stroke, high blood pressure, obesity, certain types of cancer and type 2 diabetes.17 Adults should consume at least 5 servings of fruits and vegetables per day to reduce their risk of chronic disease.

The percentage of Guam adults who consumed 5 or more servings of fruits or vegetables per day was 22.4% in 2007 and 24.3% in 2009, similar to that of the U.S. Female adults were more likely to consume fruits and vegetables five or more times per day than male adults in 2007 (26.7% vs. 18.3%) and 2009 (25.8% vs. 22.9%) (Figure 35). Younger adults (Figure 36) and those with lower education and income were less likely to consume fruits and vegetables at least 5 times a day.
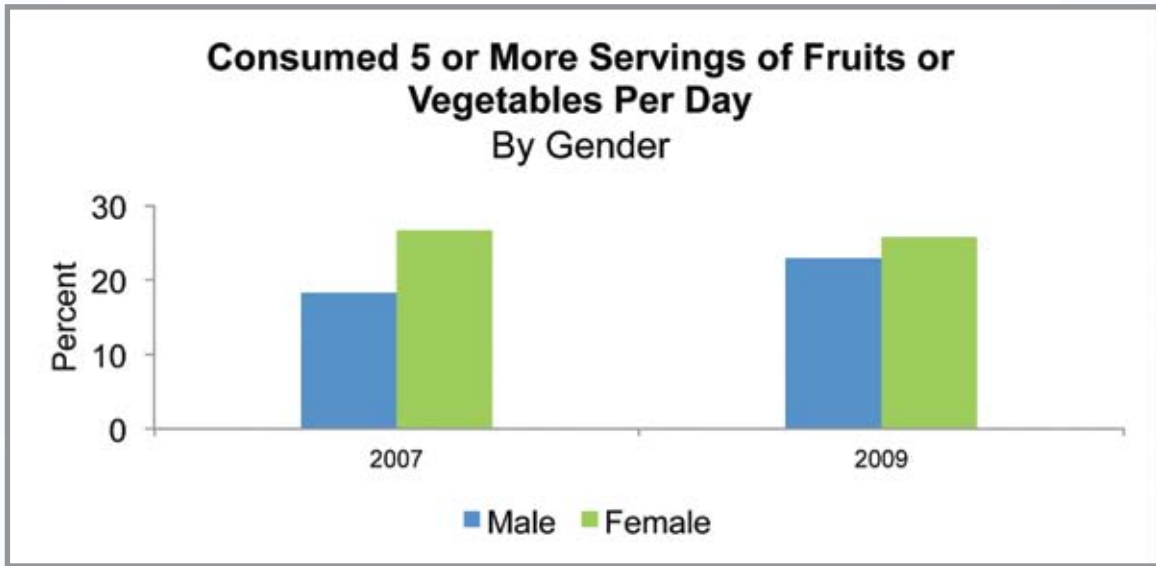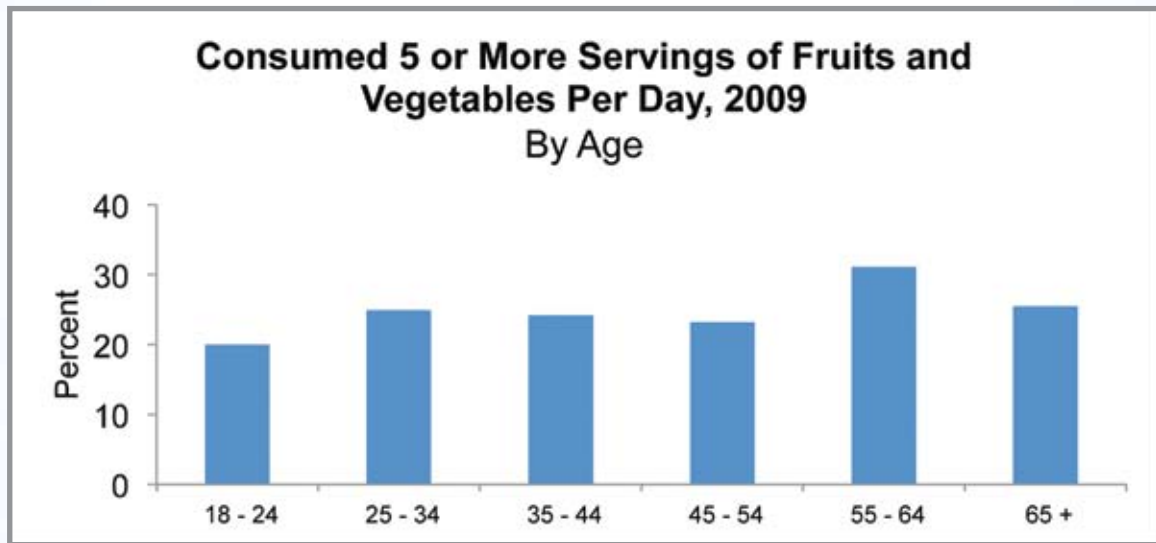
Consumed 5 or More Servings of Fruits or Vegetables Per Day
By Gender

Figure 35

Consumed 5 or More Servings of Fruits and Vegetables Per Day, 2009
By Age

Figure 36

Table 22: Consumed 5 or More Servings of Fruits and Vegetables Per Day

| Demographic Characteristics	2007				2009			
	Consumed ≥5 per day		Consumed <5 per day		Consumed ≥5 per day		Consumed <5 per day	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval
Total	**22.4**	**(18.7-26.1)**	**77.6**	**(73.9-81.3)**	**24.3**	**(21.5-27.2)**	**75.7**	**(72.8-78.5)**
Age								
18 - 24	15.1	(6.1-24.1)	84.9	(75.9-93.9)	20.0	(12.7-27.3)	80.0	(72.7-87.3)
25 - 34	19.0	(12.5-25.5)	81.0	(74.5-87.5)	25.0	(17.9-32.0)	75.0	(68.0-82.1)
35 - 44	26.2	(17.2-35.2)	73.8	(64.8-82.8)	24.2	(17.9-30.5)	75.8	(69.5-82.1)
45 - 54	26.3	(17.7-34.9)	73.7	(65.1-82.3)	23.2	(17.6-28.7)	76.8	(71.3-82.4)
55 - 64	N/A	N/A	N/A	N/A	31.1	(24.1-38.1)	68.9	(61.9-75.9)
65 +	N/A	N/A	N/A	N/A	25.5	(17.8-33.2)	74.5	(66.8-82.2)
Gender								
Male	18.3	(12.6-24.0)	81.7	(76.0-87.4)	22.9	(18.3-27.5)	77.1	(72.5-81.7)
Female	26.7	(21.8-31.6)	73.3	(68.4-78.2)	25.8	(22.4-29.3)	74.2	(70.7-77.6)
Education								
< High School	11.4	(4.3-18.5)	88.6	(81.5-95.7)	21.5	(13.3-29.8)	78.5	(70.2-86.7)
H.S. or G.E.D.	21.8	(15.5-28.1)	78.2	(71.9-84.5)	20.1	(15.4-24.7)	79.9	(75.3-84.6)
Some post H.S.	24.1	(16.1-32.1)	75.9	(67.9-83.9)	30.0	(23.7-36.2)	70.0	(63.8-76.3)
College graduate	27.4	(19.6-35.2)	72.6	(64.8-80.4)	25.3	(20.2-30.3)	74.7	(69.7-79.8)
Income								
< $15,000	N/A	N/A	N/A	N/A	21.8	(13.6-30.1)	78.2	(69.9-86.4)
$15,000 - $24,999	N/A	N/A	N/A	N/A	21.7	(13.5-29.9)	78.3	(70.1-86.5)
$25,000 - $34,999	24.2	(14.4-34.0)	75.8	(66.0-85.6)	20.0	(12.8-27.3)	80.0	(72.7-87.2)
$35,000 - $49,999	17.5	(9.1-25.9)	82.5	(74.1-90.9)	27.1	(19.9-34.3)	72.9	(65.7-80.1)
$50,000 +	28.7	(20.1-37.3)	71.3	(62.7-79.9)	24.0	(19.2-28.8)	76.0	(71.2-80.8)
Ethnicity								
Chamorro					23.2	(18.6-27.7)	76.8	(72.3-81.4)
Filipino					22.1	(17.4-26.7)	77.9	(73.3-82.6)
White/Caucasian					30.5	(20.4-40.1)	69.5	(59.3-80.0)
Asian					31.0	(18.5-43.5)	69.0	(56.5-81.5)
Micronesian					23.5	(12.8-34.1)	76.5	(65.8-87.2)

Colorectal Cancer Screening

Survey Question:

"Sigmoidoscopy and colonoscopy are exams in which a tube is inserted in the rectum to view the colon for signs of cancer or other health problems. Have you ever had either of these exams?"

Cancer that forms in the colon and/or in the rectum is called colorectal cancer. Approximately 90% of all colon cancer causes and deaths are thought to be preventable.[18] No one knows the exact causes of colon cancer, but research has shown that people with certain risk factors are more likely to develop this disease. The risk factors include: age; colorectal polyps; family history of colon cancer; genetic alterations; personal history of colon cancer; ulcerative colitis or Crohn's disease; diets high in fat and low in calcium, folate, and fiber; and cigarette smoking.[19] The National Cancer Institute states that the current guidelines recommend that people at average risk for this disease should be screened starting at age 50.
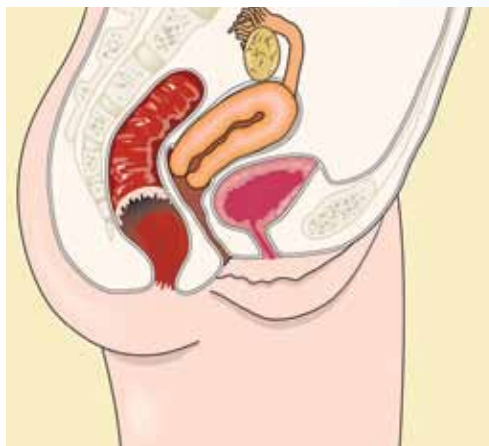
The proportion of Guam adults aged 50 years and older who have ever had a sigmoidoscopy or colonoscopy was 38.3% in 2008 and 37.8% in 2010. Guam remained below the U.S. median (Figure 37).
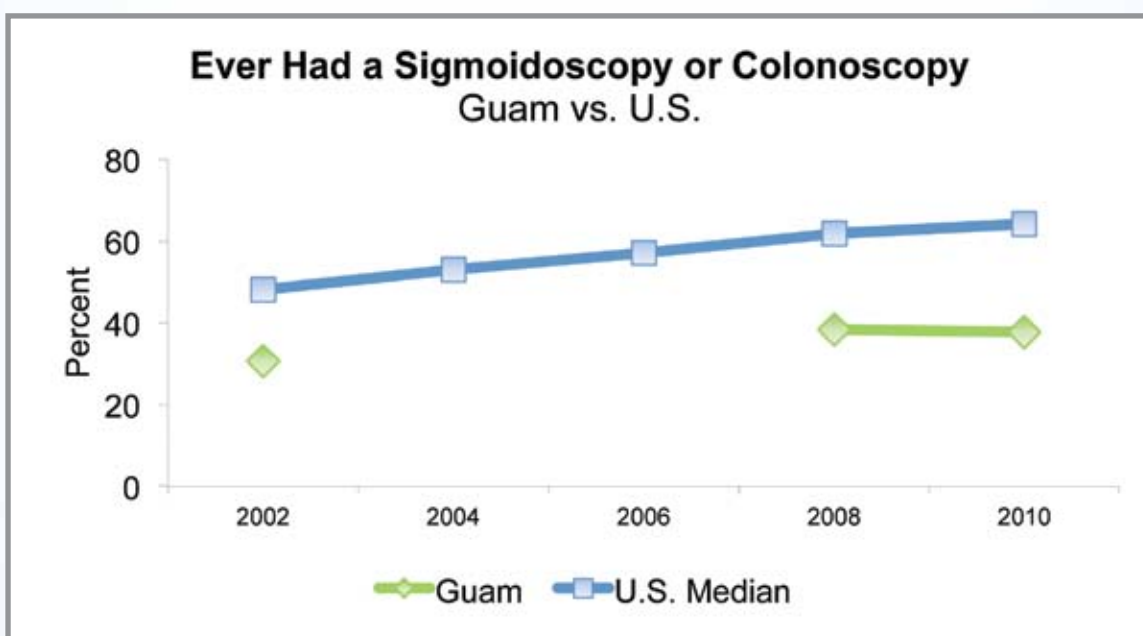

Figure 37

Prostate Cancer Screening

Survey Question:

"Have you ever had a Prostate-Specific Antigen test, also called a PSA test?"

Prostate cancer is the second most common type of cancer among men in the United States. Research has shown that men with certain risk factors are more likely than others to develop prostate cancer. It is not possible to prevent most cases of the disease. However, screening for prostate cancer through blood tests for prostate-specific antigen (PSA) and digital rectal exams (DRE) can help detect prostate cancer at an early stage, where there may be a better chance of curing the disease.[20]
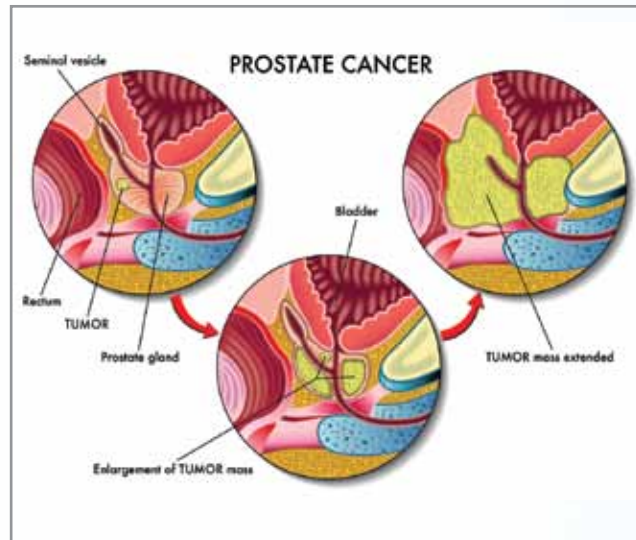
According to the American Cancer Society's screening recommendations, the PSA test and the DRE should be offered annually beginning at age 50 to men who have a life expectancy of at least 10 years. Men at high risk (men who have a first-degree relative diagnosed with prostate cancer at a young age) should begin testing at age 45. Early detection is vital in diagnosing prostate cancer.

The proportion of Guam males over 40 years who had a PSA test within the past two years was 34.1% in 2008 and 28.3% in 2010. Guam remained below the U.S. median (Figure 38).
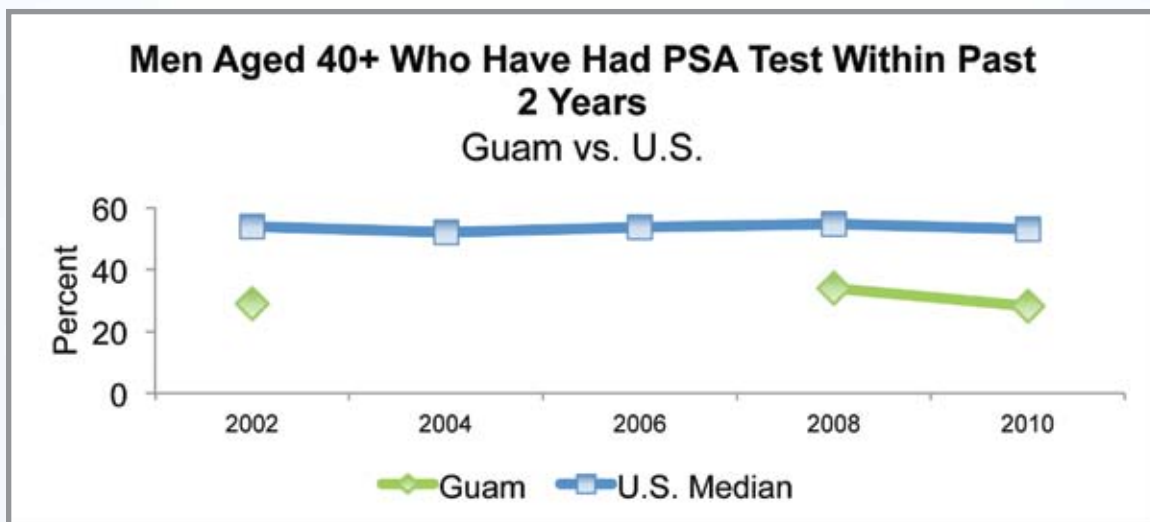

Figure 38

Breast Cancer Screening

Survey Questions:

"A mammogram is an X-ray of each breast to look for breast cancer. Have you ever had a mammogram?" "How long has it been since your last mammogram?"

Breast cancer is the most common cancer in women, regardless of race or ethnicity. Research has found several risk factors that may increase the chances of getting breast cancer, including older age, later age at menopause, personal history of breast cancer or some non-cancerous breast diseases, family history of breast cancer, treatment with radiation therapy to the breast/ chest, being overweight (increases risk for breast cancer after menopause), long-term use of hormone replacement therapy (estrogen and progesterone combined), having changes in the breast cancer-related genes, drinking alcohol (more than 1 drink a day) and not getting regular exercise.

A mammogram is an X-ray of the breast which is the best method to detect breast cancer early, before it is big enough to feel or cause symptoms. Women 50 years and older should have a screening mammogram every 1 to 2 years. Women between the ages of 40 to 49 years should discuss when and how often to have a screening mammogram with their doctor.

In 2002, an estimated 60.3% of Guam females aged 40 years and older had a mammogram within the past 2 years. The proportion in 2008 and 2010 was 63.8% and 64.4%, respectively. The proportion remained below the U.S. median (Figure 39).
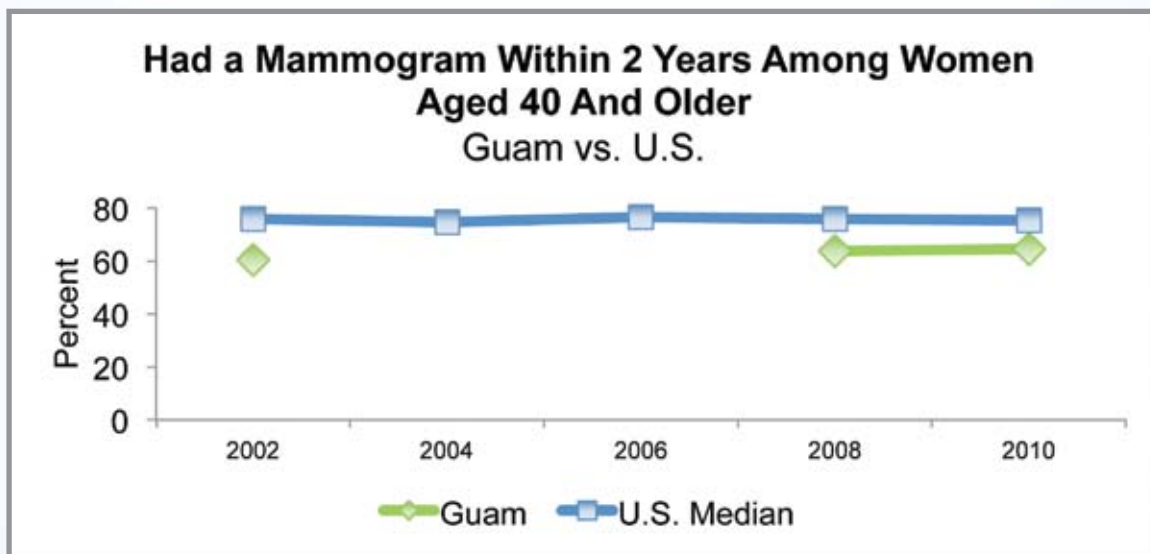

Figure 39

Cervical Cancer Screening

Survey Questions:

"A pap test is a test for cancer of the cervix. "Have you ever had a pap test?" How long has it been since you had your last pap test?"

Cervical cancer occurs most often in women over age 30 and is highly preventable when detected early. Cervical cancer can be caused by the human papillomavirus (HPV). The Pap test (or Pap smear) assesses the presence of pre-cancerous and cancerous cells in the cervix so that cervical cancer might be prevented altogether or treated early if detected. The Pap test is one of the most reliable and effective cancer screening tests available. It is recommended for women age 21, or within three years after becoming sexually active. Early treatment is associated with long survival and good quality of life.
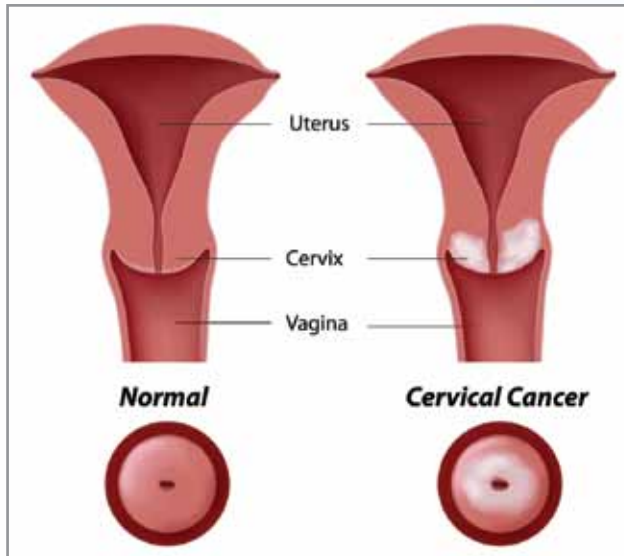
The percent of Guam females aged 18 years and older who reported having a Pap test in 2001 (77.6%), 2008 (66.6%), and 2010 (67.8%) followed the same downward trend as the U.S. median (Figure 40). However, Guam female adults were 16% lower than the U.S. average in 2008 and 13% lower in 2010.

Figure 40

HIV/AIDS Testing

Survey Question:
"Have you ever been tested for HIV?"

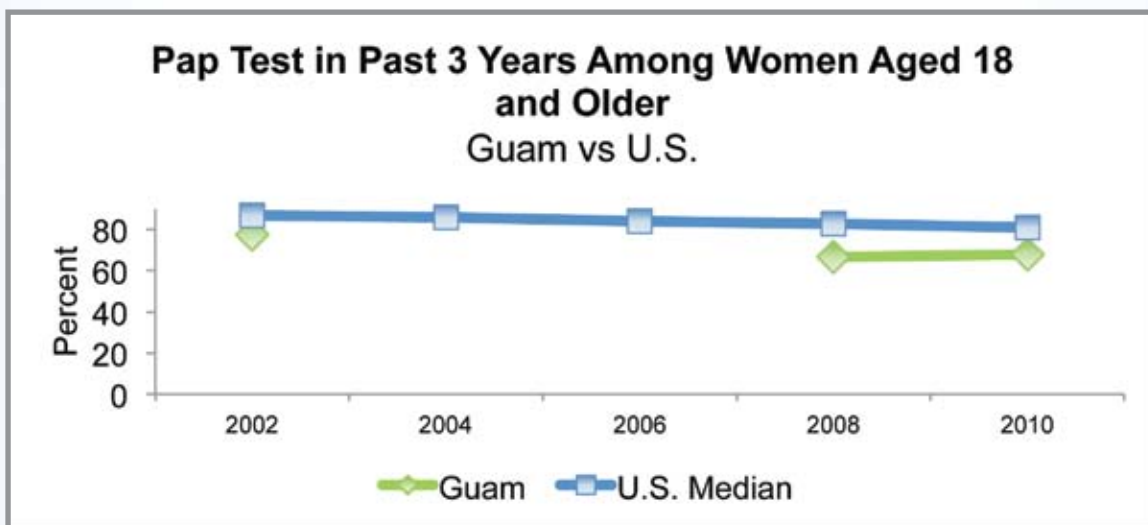HIV Testing is a high-impact HIV prevention strategy aimed to reduce HIV infection and AIDS in the Territory of Guam following the United States National HIV/AIDS Strategy (NHAS). In July 2010, the White House released the NHAS, a comprehensive roadmap for reducing the impact of HIV.

Testing is a critical component of prevention efforts because research shows that individuals take steps to protect their own health and prevent transmission to others when they learn they are infected. Linkage to care helps ensure people living with HIV receive life-saving medical care and treatment and helps reduce their risk of transmitting HIV. Efforts on the island are underway to expand HIV testing and linkage to care, especially in those populations in which new infections are occurring.

To enhance testing strategies, the STD/HIV Program, Bureau of Communicable Disease Control, Division of Public Health promoted HIV testing through the collaboration of community stakeholders. Also, *Prutehi Hao* or *Protect Yourself*, a public information campaign promoted the importance of testing. The Prutehi Hao Campaign increased its exposure through social media that included the development of a website to access HIV testing services; radio, television, and print public service announcements (PSAs); and social marketing techniques that promoted HIV testing and behavior changes (abstinence, monogamy and condom use).

Between 2007 and 2010, the percent of Guam adults who reported ever having had an HIV test remained consistently above 30%. The percent of males increased from 34.1% in 2007 to 40.1% in 2010, whereas, the percent of females decreased from 36.3% (2007) to 30.6% (2010) (Figure 41).
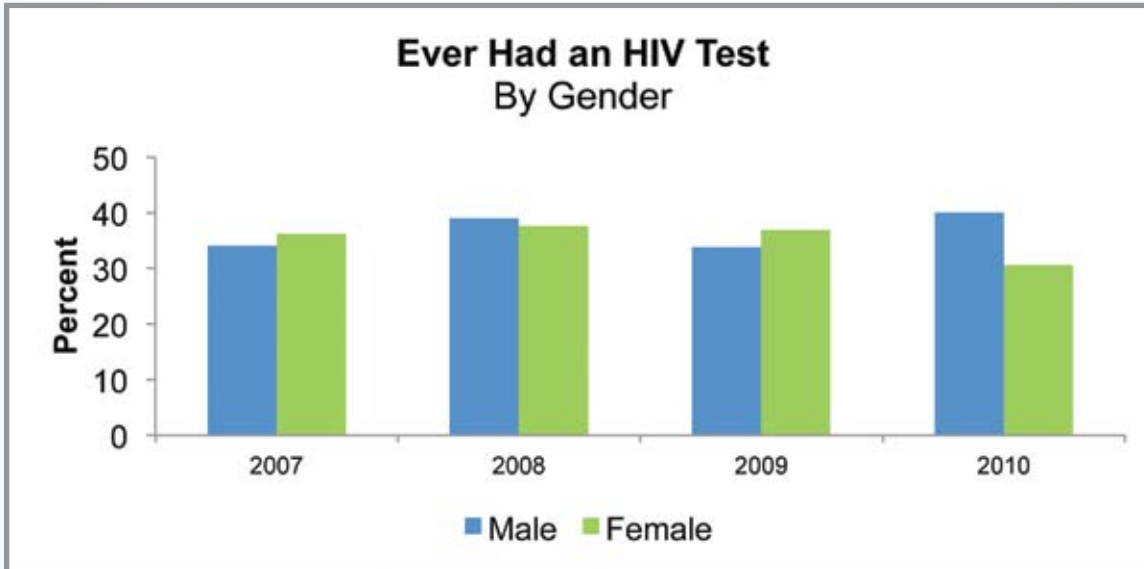

Figure 41

In 2009 and 2010, the proportion of adults who reported they had an HIV test was highest in those who have an education above high school and those aged 25-34 years old. Education attainment above a high school diploma and those age 25-34 years reported the highest percent of HIV testing in all four years. In the same years, White/Caucasian ethnicity consistently reported the highest percentage of HIV testing followed by Chamorro and Filipino ethnic groups (Figure 42).
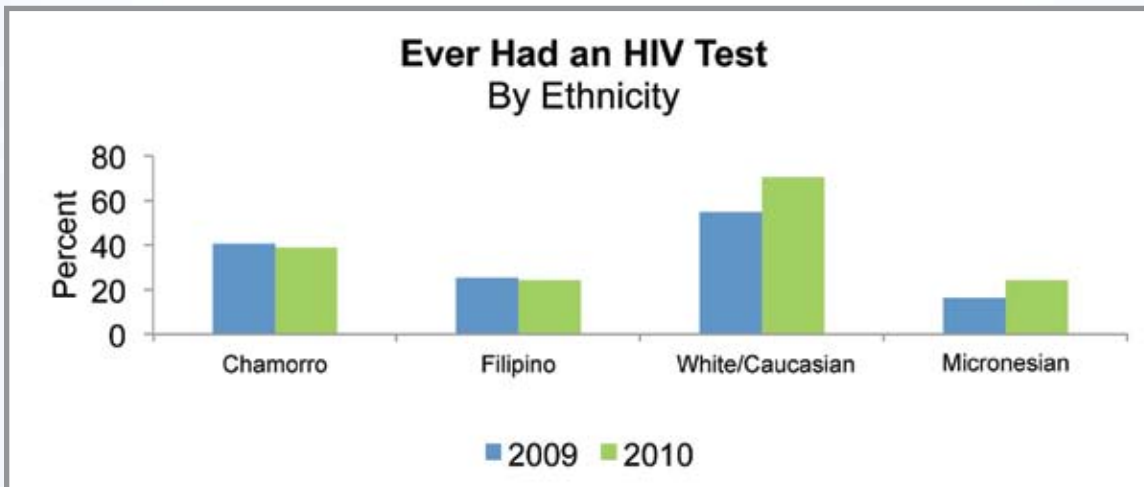

Figure 42

Table 23: Ever Had an HIV Test

Demographic Characteristics	2007 %	2007 95% Confidence Interval	2008 %	2008 95% Confidence Interval	2009 %	2009 95% Confidence Interval	2010 %	2010 95% Confidence Interval
Total	**35.2**	**(30.3-40.1)**	**38.4**	**(34.1-42.7)**	**35.4**	**(31.9-38.9)**	**35.5**	**(30.9-40.0)**
Age								
18 - 24	N/A	N/A	29.2	(20.2-38.2)	28.1	(20.1-36.1)	32.3	(20.2-44.3)
25 - 34	N/A	N/A	N/A	N/A	49.3	(41.1-57.5)	50.7	(39.7-61.7)
35 - 44	N/A	N/A	41.7	(33.5-49.9)	37.9	(30.1-45.7)	39.8	(31.7-47.8)
45 - 54	28.5	(19.7-37.3)	38.5	(30.1-46.9)	27.8	(21.5-34.1)	23.6	(16.2-30.9)
55 - 64	15.9	(8.3-23.5)	25.2	(16.4-34.0)	21.3	(14.8-27.8)	14.9	(8.1-21.7)
Gender								
Male	34.1	(26.5-41.7)	39.0	(32.7-45.3)	33.8	(28.1-39.5)	40.1	(33.4-46.8)
Female	36.3	(30.6-42.0)	37.7	(32.0-43.4)	37.0	(32.7-41.3)	30.6	(24.6-36.6)
Education								
H.S. or G.E.D.	34.0	(26.4-41.6)	32.1	(26.0-38.2)	31.1	(25.4-36.8)	31.9	(24.6-39.2)
Some post H.S.	N/A	N/A	41.5	(32.5-50.5)	41.0	(33.7-48.3)	42.3	(32.7-52.0)
College graduate	37.1	(27.7-46.5)	47.0	(37.6-56.4)	38.5	(31.2-45.8)	38.3	(29.0-47.6)
Income								
< $15,000	N/A	N/A	N/A	N/A	32.3	(22.3-42.3)	33.6	(21.3-45.9)
$15,000 - 24,999	N/A	N/A	31.6	(23.2-40.0)	N/A	N/A	37.9	(27.0-48.7)
$25,000 - 34,999	N/A	N/A	N/A	N/A	30.2	(21.0-39.4)	21.1	(11.5-30.8)
$35,000 - 49,999	N/A	N/A	N/A	N/A	39.5	(30.7-48.3)	36.5	(24.6-48.4)
$50,000 - 74,999	N/A	N/A	N/A	N/A	42.5	(33.3-51.7)	44.2	(30.1-58.3)
$75,000 +	N/A	N/A	N/A	N/A	42.1	(33.5-50.7)	51.6	(38.8-64.3)
Ethnicity								
Chamorro					40.6	(35.1-46.2)	39.0	(31.3-46.8)
Filipino					25.4	(18.8-32.1)	24.2	(17.0-31.5)
White/Caucasian					54.7	(42.5-66.8)	70.3	(57.5-83.1)
Asian					30.1	(16.2-45.9)	N/A	N/A
Micronesian					16.2	(7.7-24.8)	24.1	(12.2-36.0)

Areca (Betel) Nut

Survey Question:
"Do you now chew betel nut?"

Areca nut is the seed of the fruit of the palm Areca catechu. The term 'betel nut' is more commonly used because the areca nut is often chewed with the Piper betle, or betel leaf. In the scientific literature, another commonly referenced term is 'betel quid', which could contain areca nut, betel leaf, slaked lime, tobacco, and other substances depending on preferences.

The International Agency for Research on Cancer released its evaluation of the carcinogenicity of areca nut in 2004 concluding the following. [21]

- Betel quid with tobacco is carcinogenic to humans.
- Betel quid without tobacco is carcinogenic to humans.
- Areca nut is carcinogenic to humans.

Photo courtesy of Yvette Paulino

The prevalence of betel nut chewing on Guam was 12.5% in 2007, followed by 12.3% in 2009 and 10.6% in 2010. Over the years, the percentage of men who reported chewing betel nut was higher than the percentage of women; however, this difference was statistically significant only in 2009 (P=0.0035). The predominant chewers were Chamorros and Micronesians. The proportion of Chamorro betel nut chewers has decreased over the years, while the proportion of Micronesian betel nut chewers increased from 2007 to 2009 and decreased from 2009 to 2010 (Figure 43).
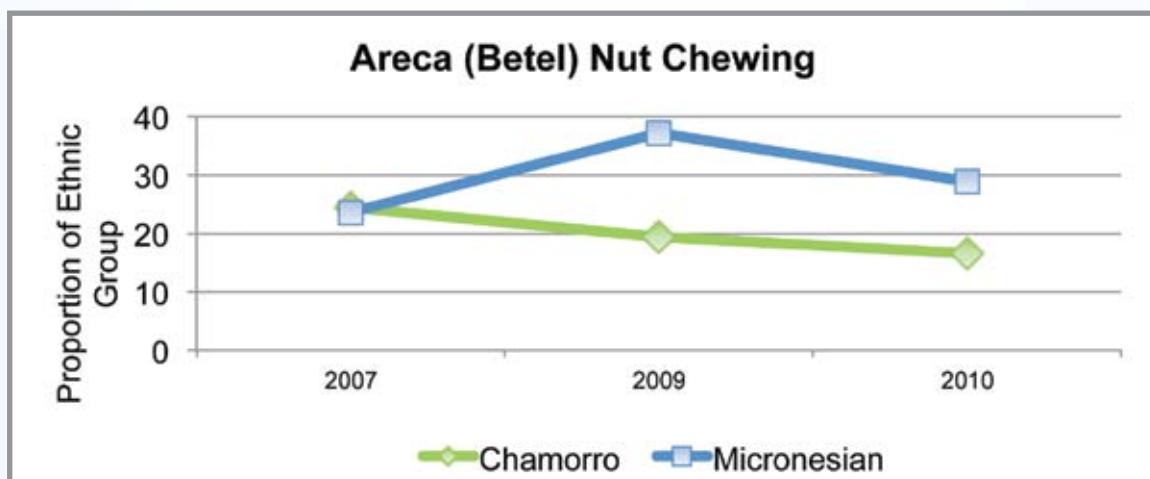

Figure 43

Table 24: Areca (Betal) Nut Chewing

Demographic Characteristics	2007 %	2007 95% Confidence Interval	2009 %	2009 95% Confidence Interval	2010 %	2010 95% Confidence Interval
Total	**12.5**	**(8.4-16.7)**	**12.3**	**(9.9-14.6)**	**10.6**	**(7.9-13.3)**
Age						
18 - 24	N/A	N/A	5.4	(0.9-9.9)	N/A	N/A
25 - 34	16.0	(5.6-26.5)	10.9	(5.7-16.2)	11.0	(4.4-17.7)
35 - 44	21.5	(9.7-33.3)	16.1	(9.9-22.2)	12.2	(6.4-18.0)
45 - 54	N/A	N/A	16.5	(12.0-22.3)	14.5	(8.1-20.9)
55 - 64	15.8	(5.2-26.5)	12.4	(7.4-17.4)	12.8	(5.6-20.0)
65+	14.9	(2.3-17.7)	9.0	(4.3-13.7)	6.4	(2.3-10.5)
Gender						
Male	14.7	(7.7-21.6)	15.7	(11.6-19.7)	12.1	(7.9-16.3)
Female	10.5	(5.9-15.3)	8.7	(6.6-10.9)	9.1	(5.8-12.4)
Education						
<High School	19.7	(6.9-32.5)	16.2	(8.5-23.9)	15.0	(7.3-22.7)
H.S. or G.E.D.	16.0	(8.4-24.2)	17.2	(12.6-21.8)	11.7	(7.0-16.4)
Some post H.S.	7.8	(1.1-14.5)	10.2	(6.0-14.4)	10.7	(4.8-16.7)
College graduate	8.5	(1.9-15.0)	5.9	(2.9-8.9)	6.2	(2.6-9.8)
Income						
< $15,000	N/A	N/A	16.9	(9.3-24.5)	16.9	(6.3-27.5)
$15,000 - 24,999	16.1	(5.9-26.3)	17.7	(9.3-26.1)	12.7	(6.0-19.4)
$25,000 - 34,999	15.7	(3.4-28.1)	15.7	(8.3-23.1)	10.9	(3.3-18.6)
$35,000 - 49,999	15.9	(3.4-28.5)	6.0	(2.2-9.8)	7.1	(2.1-12.0)
$50,000 +	9.0	(2.4-15.6)	11.9	(7.9-16.0)	11.8	(5.8-17.8)
Ethnicity						
Chamorro	24.4	(16.3-32.8)	19.4	(15.2-23.7)	16.6	(11.6-21.6)
Filipino	N/A	N/A	N/A	N/A	N/A	N/A
White/Caucasian	N/A	N/A	N/A	N/A	N/A	N/A
Asian	N/A	N/A	N/A	N/A	N/A	N/A
Micronesian	23.6	(3.8-43.4)	37.2	(24.4-50.1)	28.9	(16.0-41.8)

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BRFSS
Guam Behavioral Risk Factor Surveillance System

ATTENTION
ALL GUAM RESIDENTS

The Guam Behavioral Risk Factor Surveillance System (BRFSS) is:

- An ongoing telephone health survey coordinated through a cooperative agreement with the U.S. Centers for Disease Control and Prevention and the Department of Public Health and Social Services. BRFSS collects information on health risk behaviors, preventive health practices, and health care access primarily related to chronic disease and injury.
- Randomly administered to Guam residents who are 18 years of age and older.

How Guam BRFSS Data Are Used to Improve the Health of Our Community:

- Analyze health trends.
- Identify and address emerging health issues.
- Plan and measure the progress of prevention initiatives.
- Educate the public about risk behaviors and preventive health practices.
- Develop policies and legislation.
- Find additional funding, garner program support, and create programs.

Participation is strictly voluntary and personal information is not collected.

So, if you're lucky enough to be called, please participate in the survey and help achieve a healthier Guam!

Answer
the call
Today!
Help improve Guam's data for a healthier life!
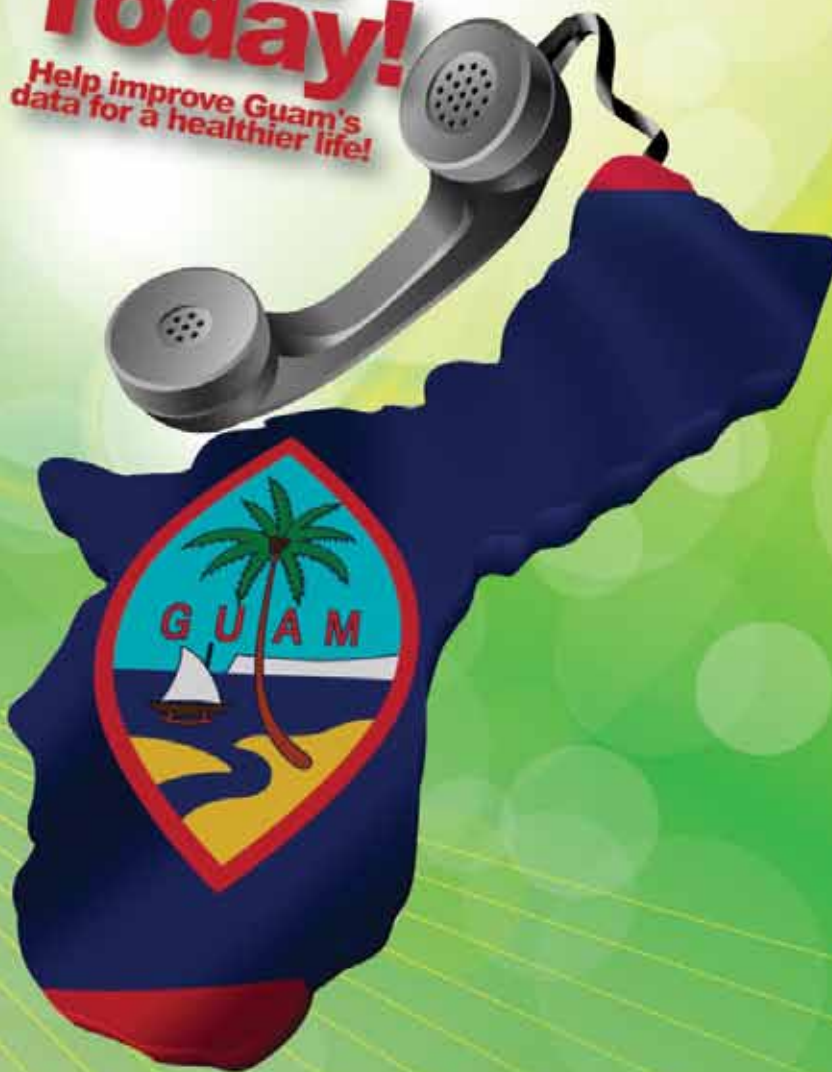
GOMH
Guam Office of Minority Health

DIABETES

1-800-QUIT-NOW

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