MICHIGAN TRIBAL HEATH DATA REPORT

2007-2013

Chronic Disease & Related Risk Factors

Bay Mills Indian Community
Brimley, Michigan 49715
Grand Traverse Band
of Ottawa & Chippewa Indians
Suttons Bay, Michigan 49682
Hannahville Indian Community
Wilson, Michigan 49896
Saginaw Chippewa Indian Tribe
Mt. Pleasant, Michigan 48858
Little Traverse Bay
Bands of Odawa Indians
Harbor Springs, Michigan 49740
Nottawaseppi Band of
Huron Potawatomi
Fulton, Michigan 49052

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Sault Ste. Marie, Michigan 49783
Pokagon Band of
Potawatomi Indians
Dowagiac, Michigan 49047
Match-E-Be-Nash-She-Wish
(Gun Lake Tribe)
Dorr, Michigan 49323

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June 3, 2014

Dear Fellow Tribal Leaders and Administrators:

This document is a compilation of data collection efforts and reports that have been conducted by the Inter-Tribal Council of Michigan over the past several years.

The purpose of the document is to provide needed health statistics specific to Michigan Native Americans for use in program planning, policy development and implementation, requests for funding, and ongoing surveillance efforts.

Each section includes a description of the methodology used and the time period for the data, as well as noted reference citations.

We hope you find this information useful and encourage you to use this document to foster collaboration across multiple tribal departments and programs as you see appropriate.

Sincerely,

L. John Lufkins
Executive Director

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EXECUTIVE SUMMARY

Michigan Native American specific health data has been difficult to obtain primarily due to small population numbers, racial misclassification, and lack of funding for reliable and rigorous data collection efforts. The Inter-Tribal Council of Michigan (ITCM) and member tribes have worked diligently to improve the availability and accuracy of this data for use by tribes and tribal agencies.

This Michigan Tribal Health Data Report is a compilation of Michigan Native American-specific health data collected in collaboration with member tribes and state and federal public health partners. These data reflect the improvements made through advocacy efforts to address race misclassification, limitations in population sampling, and culturally appropriate methods. Below are a few highlights of key health issues affecting Native Americans in Michigan.

Tobacco Use & Exposure

- Smoking rates across our data sources and communities vary greatly, but were all much higher than the rate of current smoking reported by the Michigan Behavioral Risk Factor Survey (BRFS), with an estimate of 23% of the Michigan American Indian population currently smoking. Rates of current smokers in these tribal communities ranged from 34% to 72% of the population.
- Former smokers fell within the range of 15% to nearly half (49%) of the tribal populations.
- Adults who had never smoked composed roughly 13% to 33% of the population.
- Age of cigarette smoking initiation ranged from 13.8 to 15.3 years of age. Overall, males had a younger initiation age than females in every Tribe.
- The majority of smokers in the American Indian Adult Tobacco Survey (AI ATS) surveyed communities began smoking *regularly* around 17 years of age.

Physical Activity & Nutrition

- Most participants (72%-73%) reported that they had been physically active in the past month, compared to 77% of the 2012 Michigan BRFS adults.
- Participants most frequently said they ate between 1 and 2 servings of fruits and vegetables per day (54% - 72%). A small proportion of participants from each tribe reported eating more than 5 servings per day (2% - 11%).

Cancer

- Higher rates of lung cancer for both AI males and females compared to the White population.
- Greater percentages of AI males and females with colon cancer are diagnosed at younger ages compared to whites, although the trend was more profound with males.

- Breast cancer rate for AI females ages 30 - 34 is higher at 32.2% compared to the white female rate of 28.3%
- The mean age of diagnosis for women with early or late stage breast cancer was 55.44 years for AI/AN women compared to 61.70 for white women.
- AI/AN persons are more often diagnosed with colorectal cancer at younger ages, and with advanced stages of disease compared to non-Hispanic White persons.

Chronic Disease

- Rates of asthma diagnoses ranged from 8% to 24%, the rate of current asthma ranged from 3% to 16%.
- Diabetes estimates were much higher among tribal participants, ranging from 18% to 31%, than reported on the Michigan BRFS (11%).
- Ranging from around one-quarter to just over half (27%-51%) of the population, a diagnosis of high blood pressure was common.
- Although estimates in some tribes were higher than the 2011 Michigan BRFS rate of high blood pressure (34%), overall the rates were very similar.
- Diagnosis of high cholesterol ranged from 32% to 48%, as compared to the 2011 Michigan BRFS estimate of 42%.
- Looking across all tribal data sources, surveyed participants in every tribe reported obesity more often with estimates ranging from 33% to 54%, compared to the Michigan BRFS (31%).
- The amount of participants with both high blood pressure and high blood cholesterol varied greatly across the tribes (13%-26%).
- The proportion of participants who had been diagnosed with both diabetes and cardiovascular disease (CVD), ranged from 5% to 9%.
- When looking at the participants who were obese and had diabetes and heart disease diagnoses, the estimates ranged from 2% to 9%.

While this report reflects much of the work that has been done to date to effectively gather and document chronic disease health data specific to Michigan Tribes, much work is yet to be done to address the health disparities and improve quality of life for Michigan's Tribal communities. The ITCM is committed to working collaboratively with the tribes to utilize this data, to inform Tribal leaders and key decision makers, and put the data into action for the purpose of advancing tribal health policies, programs and resource development.

The mission of the ITCM is to 1) advocate for member tribes in the development of programs and policies which will improve the economy, education, and quality of life for Michigan's Native Americans; and 2) provide technical assistance to member tribes, assisting in the development of tribal regulations, ordinances, and policies applicable to health and human services.

INTRODUCTION

Michigan Native American specific health data has been difficult to obtain primarily due to small population numbers, racial misclassification, and lack of funding for reliable and rigorous data collection efforts. The Inter-Tribal Council of Michigan (ITCM) and member tribes have worked diligently to improve the availability and accuracy of this data for use by tribes and tribal agencies.

This report is a compilation of Michigan Native American-specific health data collected across a variety of programs administered by the Inter-Tribal Council of Michigan in collaboration with member tribes and state and federal public health partners. The Inter-Tribal Council of Michigan is a 501C 3 non-profit tribally designated consortium of Michigan's federally recognized tribes and has been in existence since 1966. We believe this document will help to further our mission to promote the health, well-being and quality of life of Indian people in Michigan.

The content of this document reflects the improvements made through advocacy efforts leading to collaboration resulting in improved race classification within state registries and tribal surveillance efforts. This document also contains data from the implementation of culturally tailored standardized health survey instruments and methodology, as well as quantitative evaluation data collected via individual programs administered by the ITCM and partner agencies. A full description of the data collection methodology and limitations for each data source presented in this report can be found in the section, "Data Sources and Methods" beginning on page 50.

TOBACCO USE AND EXPOSURE

OVERVIEW

Tobacco has long played a significant role in the American Indian culture.[1] Sacred tobacco is a gift of the Creator; it is burned, and the rising smoke is used to cleanse and heal. Traditional tobacco is free of chemicals and poisons, as opposed to commercial tobacco products.

According to national survey data, commercial tobacco use is higher in American Indian (AI) populations than in any other racial/ethnic group in the U.S.[2] Commercial tobacco use has a serious impact on the health of AI people. Heart disease is the leading cause of death among American Indians, while lung cancer is the most common cause of cancer death.[3] Other health consequences associated with commercial tobacco abuse, such as infant mortality, also disproportionately burden AI communities. State and national estimates of tobacco use rates for American Indians can mask substantial variation between geographically, culturally, and politically distinct tribes. Tobacco use surveillance data collected by Tribes with their tribal members, like that presented in this report, can more accurately measure and identify priorities and result in more effective, culturally-appropriate commercial tobacco prevention and control strategies.

TOBACCO USE & EXPOSURE

This section of the report examines tobacco use through analysis of data collected by multiple Tribes in Michigan using the American Indian Adult Tobacco Survey[4] from 2010 through 2012. Data from ITCM Steps BRFS[5] and ITCM REACH RFS[6] are also included when comparisons can be made to survey questions. Comparison rates from the 2012 Michigan Behavioral Risk Factor Survey are also provided throughout this section. A description on the MBRFS methodology can be reviewed here: http://www.cdc.gov/brfss/factsheets/pdf/DBS_BRFSS_survey.pdf

CIGARETTE SMOKING

Adult smoking status is defined according to the standard definition used by the U.S. Centers for Disease Control and Prevention. A current smoker has smoked at least 100 cigarettes in his or her lifetime and now smokes every day or some days. A former smoker has smoked at least 100 cigarettes in his or her lifetime but now does not smoke at all. A never smoker has not

[1] Paper, (1988); Seig,(1971).
[2] http://www.cdc.gov/nchs/data/nhsr/nhsr020.pdf?
[3] "Cancer Mortality Among American Indians and Alaska Natives --- United States, 1994—1998" http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5230a4.htm
[4] http://www.cdc.gov/tobacco/data_statistics/surveys/american_indian/pdfs/ai_ats.pdf
[5] http://www.michigan.gov/mdch/0,4612,7-132-2945_5104_5279_39424_39425-263911--,00.html
[6] http://www.cdc.gov/features/dsreachus/

smoked at least 100 cigarettes in his or her lifetime. A nonsmoker is a combination of never smokers and all former smokers.

Smoking rates across data sources and communities vary greatly. From all data sources, the rates of current smokers in the community ranged from 34% to 72% of the population. These rates were much higher than the rate of current smoking reported by the Michigan Behavioral Risk Factor Survey, with an estimate of 23% of the population currently smoking. See Figure 1. Former smokers fell within the range of 15% to nearly half (49%) of the tribal populations. Those that had never smoked composed roughly 13% to 33% of the population, depending on the data source. See Figure 1 and Table 1.

TABLE 1. SMOKING STATUS.

Source	n	Current smoker	Former smoker	Never smoker
Steps BRFS	576	38%	30%	33%
REACH RFS	1067	49%	27%	24%
AI ATS Tribe 1	243	46%	32%	22%
AI ATS Tribe 2	216	72%	15%	13%
AI ATS Tribe 3	114	48%	29%	23%
AI ATS Tribe 4	53	34%	49%	17%
AI ATS Tribe 5	77	36%	39%	25%

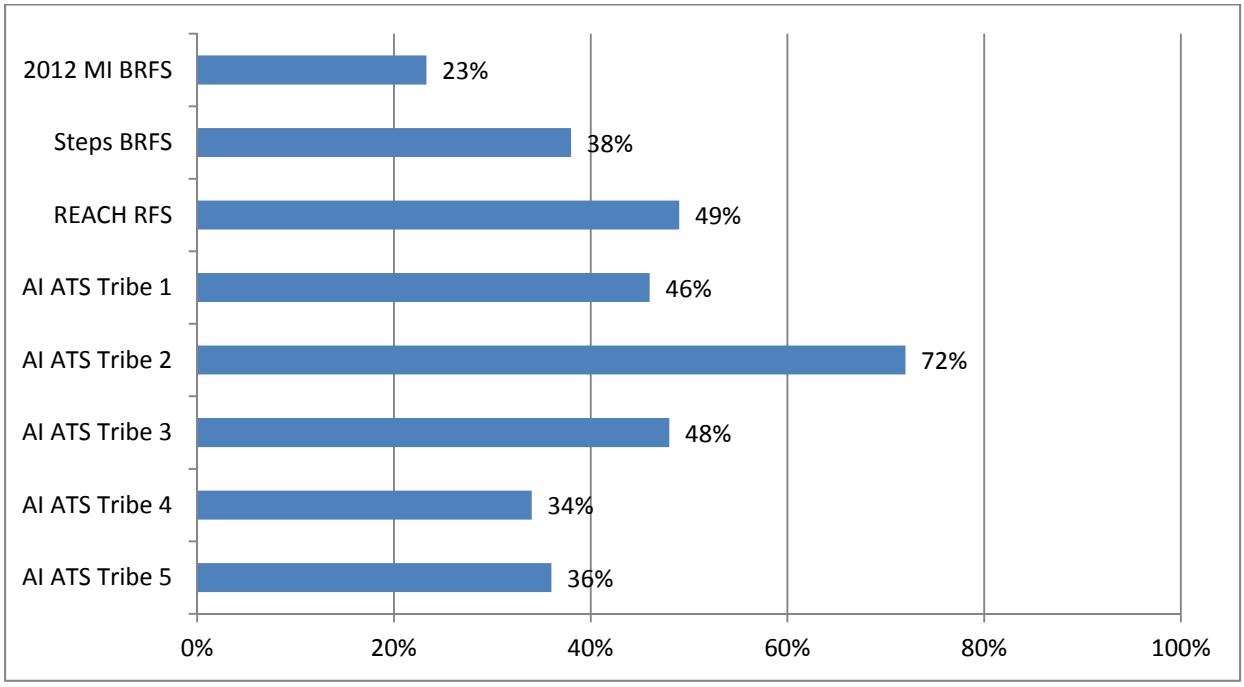

FIGURE 1. SMOKING STATUS, CURRENT SMOKERS.

Age of Smoking Initiation

Age of smoking initiation has a clear-cut definition that is easily communicated to survey participants: the age when they first tried a cigarette. Data collected from the AI ATS on the age of initiation ranged from 13.8 to 15.3 years of age. Although differences between males and females in age of cigarette smoking initiation differed across tribes, overall, males had a younger initiation age than females in every Tribe. See Table 2.

TABLE 2. AGE IN YEARS OF SMOKING INITIATION.

	Overall	Males	Females
AI ATS Tribe 1	14.1	13	14.9
AI ATS Tribe 2	13.8	13.7	13.9
AI ATS Tribe 3	14	13.5	14.7
AI ATS Tribe 4	14	13	15
AI ATS Tribe 5	15.3	14.8	15.7

Age of Regular Smoking

The transition between first trying cigarettes and becoming a regular smoker is more challenging to identify than age of initiation. The concept of "regular smoker" is subjective, but provides a plausible approximation of the age of transition from first experimenting to becoming a smoker.

Data collected from the AI ATS on the age in which community members became regular smokers found comparable ages across all sites. Ranging from 17 years of age to 20 years of age, the majority of smokers in these AI ATS surveyed communities began smoking regularly around 17 years of age. Following a similar trend to smoking initiation rates, the rates at which males and females started smoking regularly differed. Males tended to become regular smokers at an earlier age than females. See Table 3.

TABLE 3. AGE IN YEARS OF REGULAR SMOKING.

	Overall	Males	Females
AI ATS Tribe 1	17	16.9	17
AI ATS Tribe 2	17.5	17.1	17.9
AI ATS Tribe 3	17.4	16	18.5
AI ATS Tribe 4	20	21	19
AI ATS Tribe 5	17.8	17.7	17.8

Other Tobacco Products

The AI ATS results showed numerous forms of tobacco are initially tried and significantly used[7] in the surveyed communities. A broad range of commercial tobacco products was initially tried in these populations, with cigarettes and cigars being the two most popular forms of commercial tobacco ever tried. Cigarettes were the most popular form of tobacco initially tried in all communities, and they were also the dominant form of tobacco that was significantly used regularly in these populations. See Table 4. and Table 5. See Figures 2-6.

TABLE 4. TOBACCO PRODUCTS TRIED.

	Cigarette	Cigar	Pipe	Chew/Spit	Snuff/Dip
AI ATS Tribe 1	92%	56%	20%	37%	21%
AI ATS Tribe 2	92%	39%	10%	12%	4%
AI ATS Tribe 3	85%	50%	24%	18%	12%
AI ATS Tribe 4	83%	42%	18%	17%	12%
AI ATS Tribe 5	75%	60%	14%	18%	5%

TABLE 5. TOBACCO PRODUCTS SIGNIFICANTLY USED.

	Cigarette	Cigar	Pipe	Chew/Spit	Snuff/Dip
AI ATS Tribe 1	77%	17%	7%	20%	14%
AI ATS Tribe 2	87%	13%	3%	5%	2%
AI ATS Tribe 3	77%	20%	10%	11%	8%
AI ATS Tribe 4	64%	13%	8%	15%	8%
AI ATS Tribe 5	75%	17%	6%	8%	4%

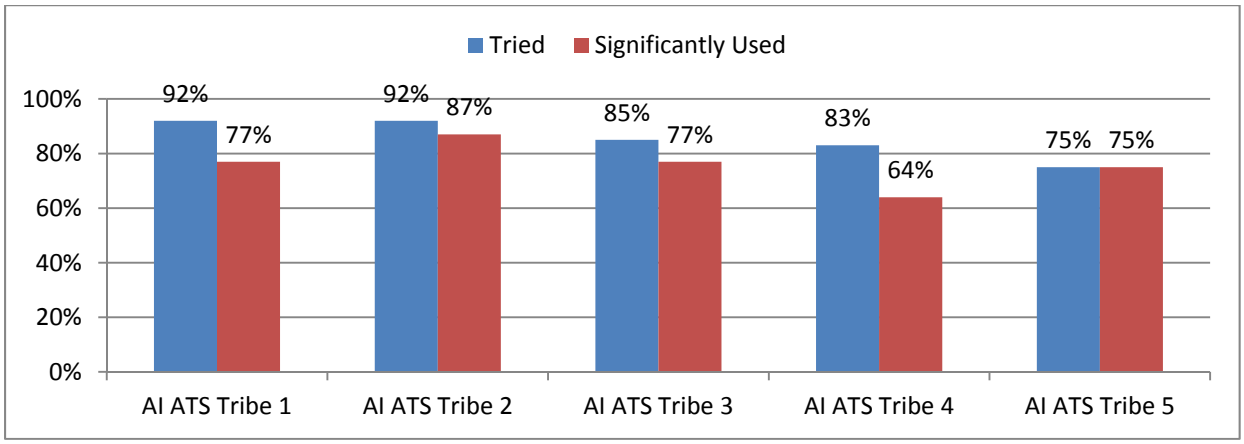

FIGURE 2. CIGARETTE USE.

[7] "Significantly used" means smoked at least 100 cigarettes, and/or smoked at least 20 cigars, and/or smoked at least 20 commercial pipes, and/or used chew/spit tobacco at least 20 times, and/or used dip/snuff tobacco at least 20 times in their lives.

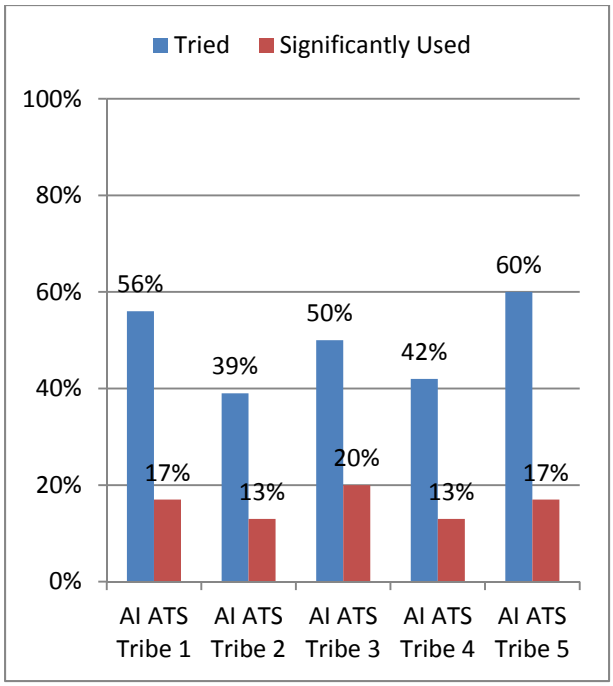

FIGURE 3. CIGAR USE.

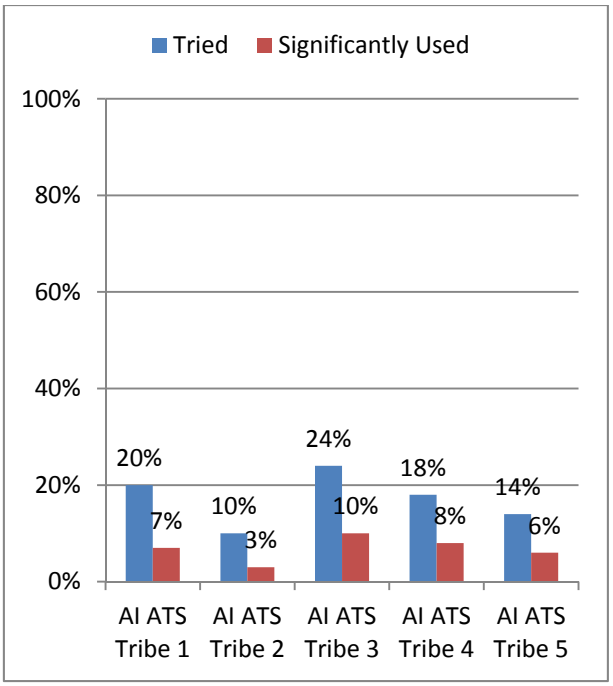

FIGURE 4. COMMERCIAL PIPE USE.

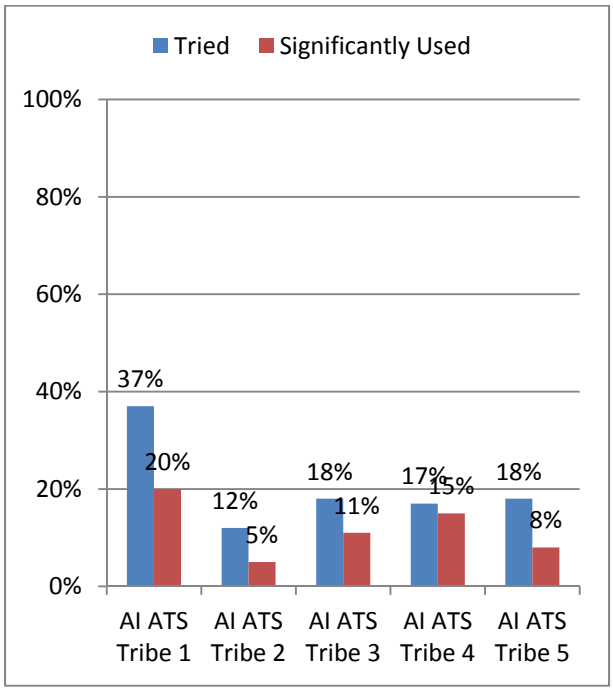

FIGURE 5. CHEW/SPIT USE.

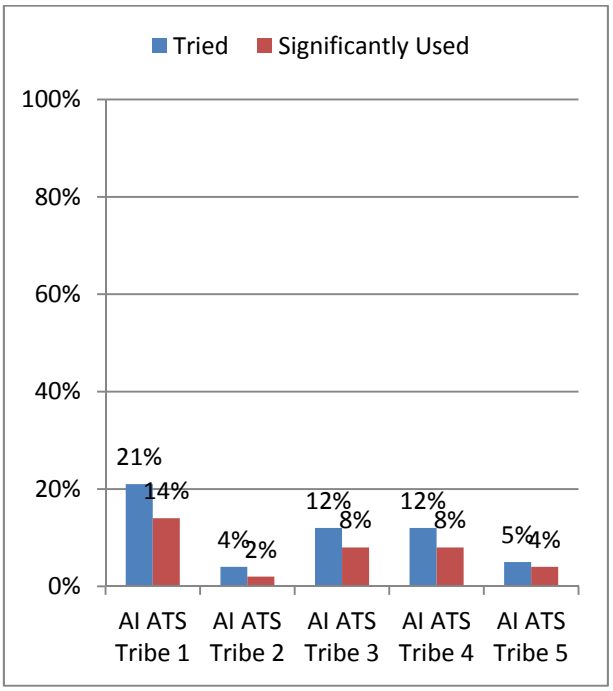

FIGURE 6. SNUFF/DIP USE.

Traditional Tobacco Use

The AI ATS asks participants if they have ever used tobacco for ceremonial, prayer, and/or traditional reasons. Ranging from 33% in Tribe 5 to 81% of the total population in Tribe 3, there was great variance in the percent of adults within the AI ATS communities that reported using tobacco for ceremonial, prayer, and/or traditional reasons. See Figure 7.

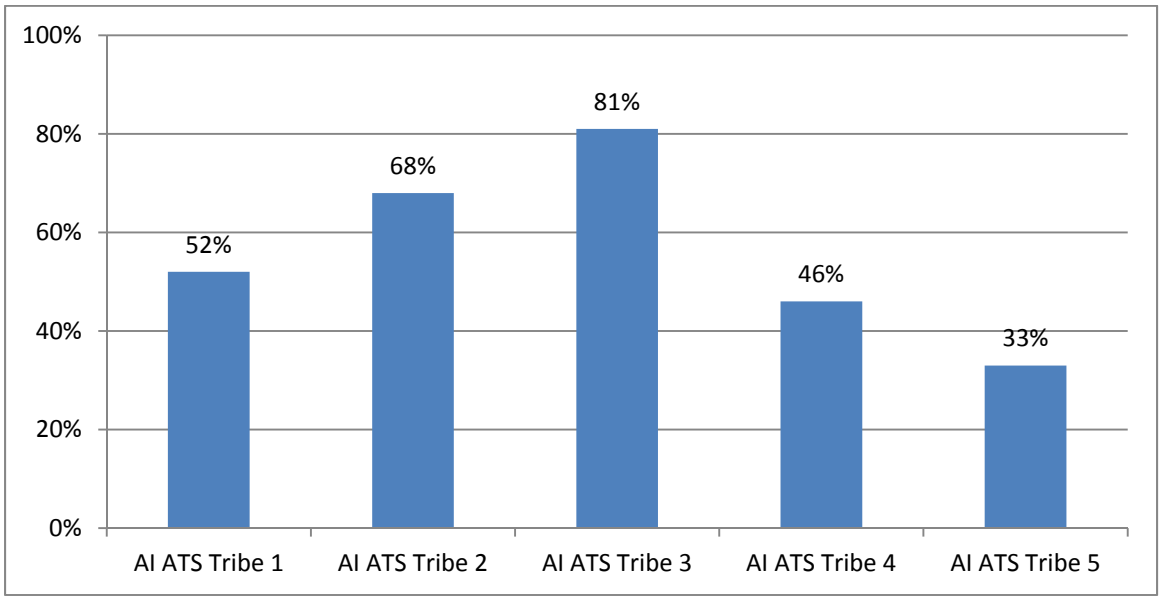

FIGURE 7. PARTICIPANTS WHO REPORTED USING TOBACCO FOR CEREMONIAL, PRAYER, AND/OR TRADITIONAL REASONS.

Tobacco Purchasing

The AI ATS asks participants about their purchasing habits of cigarettes in the past 12 months. More than one location could be selected. Adults reported purchasing cigarettes most frequently on tribal lands or on a reservation as well as in a tribal casino. Adults in two tribes purchased cigarettes most frequently on tribal lands or on a reservation, while adults in two other tribes most frequently made cigarette purchases in a tribal casino. See Table 6.

TABLE 6. CIGARETTE PURCHASING HABITS OF PARTICIPANTS IN THE PAST 12 MONTHS.

	AI ATS Tribe 1	AI ATS Tribe 2	AI ATS Tribe 3	AI ATS Tribe 4	AI ATS Tribe 5
In a neighboring state	21%	32%	11%	**29%**	8%
On tribal lands or on a reservation	**62%**	81%	**51%**	28%	18%
On the internet	1%	1%	0%	0%	0%
In a tribal smoke shop	51%	68%	42%	19%	9%
In a tribal casino	26%	**83%**	15%	21%	**23%**

SECONDHAND SMOKE EXPOSURE

Perceptions of Harm

There is a growing body of research which clearly indicates the negative relationship between smoking and health. Secondhand smoking occurs when the exhaled smoke from one person's cigarette is inhaled by other people. Non-smokers exposed to secondhand smoke are at greater risk for many of the health problems associated with direct smoking.[8] This section explores the personal, social, and environmental factors that may influence smoking behavior.

The AI ATS asks participants whether breathing smoke from other people's cigarettes is harmful. The majority of adults in all AI ATS communities believed that secondhand smoke inhalation was harmful to one's health. See Figure 8.

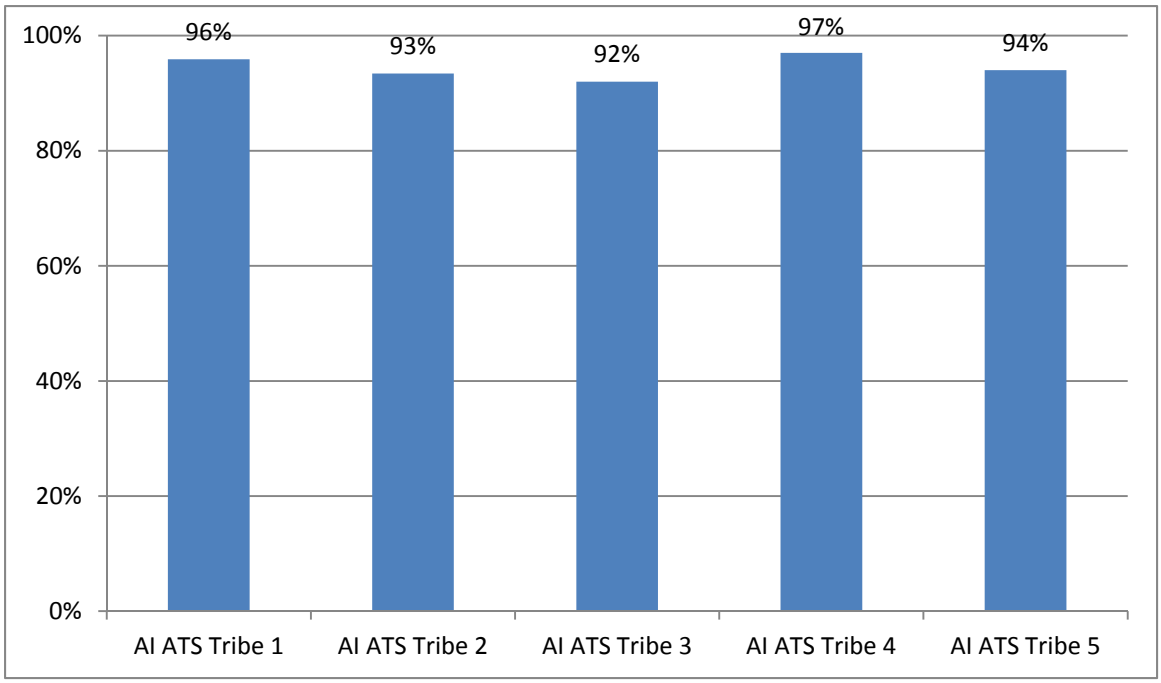

FIGURE 8. PARTICIPANTS WHO PERCEIVE SECONDHAND SMOKE INHALATION AS HARMFUL.

Among AI ATS participants, there were mixed beliefs about the health benefit of quitting smoking. While in some communities 90% of adults thought there were health benefits to smoking cessation, some communities had much lower rates of agreement. See Figure 9.

[8] In 1992, the *Journal of the American Medical Association* published a review of the evidence available from epidemiological and other studies regarding the relationship between second hand smoke and heart disease and estimated that passive smoking was responsible for 35,000 to 40,000 deaths per year in the United States in the early 1980s. See Steenland K. Passive Smoking and the Risk of Heart Disease. *JAMA.* 1992;267(1):94-99.

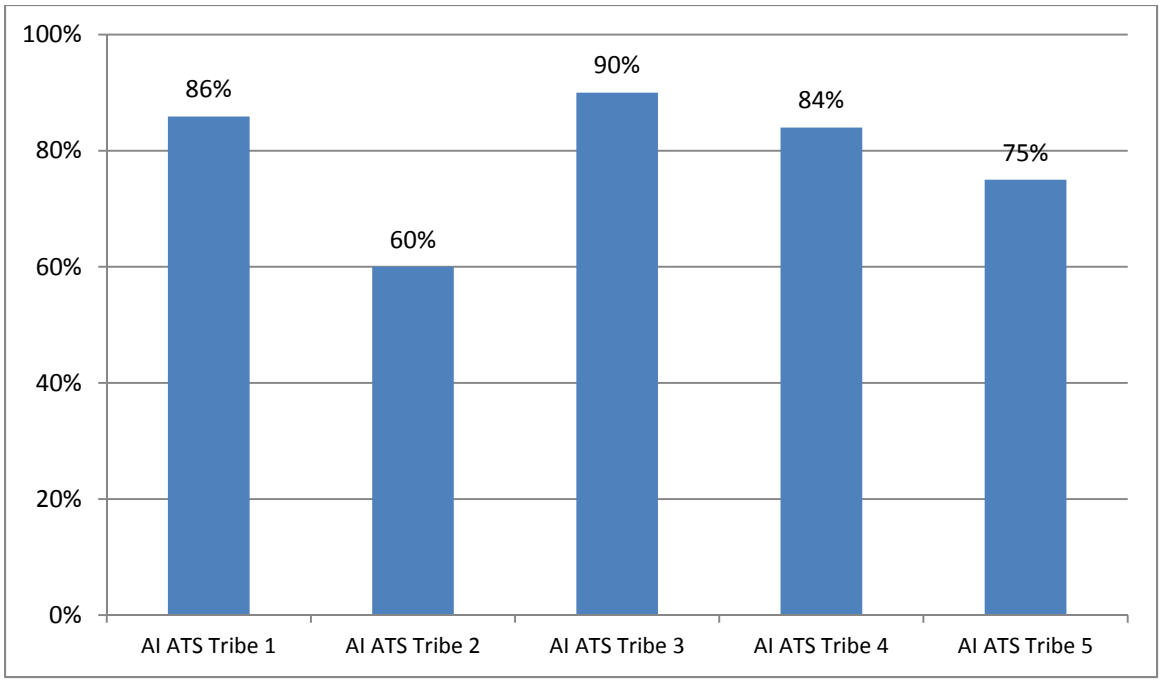

FIGURE 9. PARTICIPANTS' AGREEMENT THAT THERE ARE HEALTH BENEFITS TO QUITTING SMOKING.

AI ATS participants were asked if they believed secondhand smoked caused a variety of diseases. All communities followed a similar pattern in beliefs, with the majority believing secondhand smoke exposure causes respiratory problems in children. Slightly less believed exposure causes lung cancer in adults, heart disease in adults, and Sudden Infant Death Syndrome (SIDS). All communities were most unsure about their beliefs when asked if they thought secondhand smoke causes colon cancer. See Table 7.

TABLE 7. BELIEF IN THE DANGERS OF SECONDHAND SMOKE EXPOSURE.

	AI ATS Tribe 1	AI ATS Tribe 2	AI ATS Tribe 3	AI ATS Tribe 4	AI ATS Tribe 5
Respiratory problems in children	93%	94%	90%	96%	92%
Lung cancer in adults	76%	71%	79%	90%	77%
Heart disease in adults	57%	68%	62%	85%	62%
Sudden Infant Death Syndrome (SIDS)	31%	45%	30%	68%	36%
Colon cancer in adults	20%	29%	26%	52%	26%

Exposure to Secondhand Smoke

The AI ATS asks a series of questions regarding smoking in various settings. These questions address living conditions, as well as the permissibility of smoking in indoor work areas, restaurants, shopping malls, tribal buildings, community centers, and casinos or bingo halls.

The majority of participants in AI ATS communities had rules prohibiting smoking in the home. See Figure 10. Participants to the AI ATS were also asked if they had been in a car with someone smoking in the past seven days. The range of participants exposed to secondhand smoke in cars was between 35% and 76%. See Figure 11.

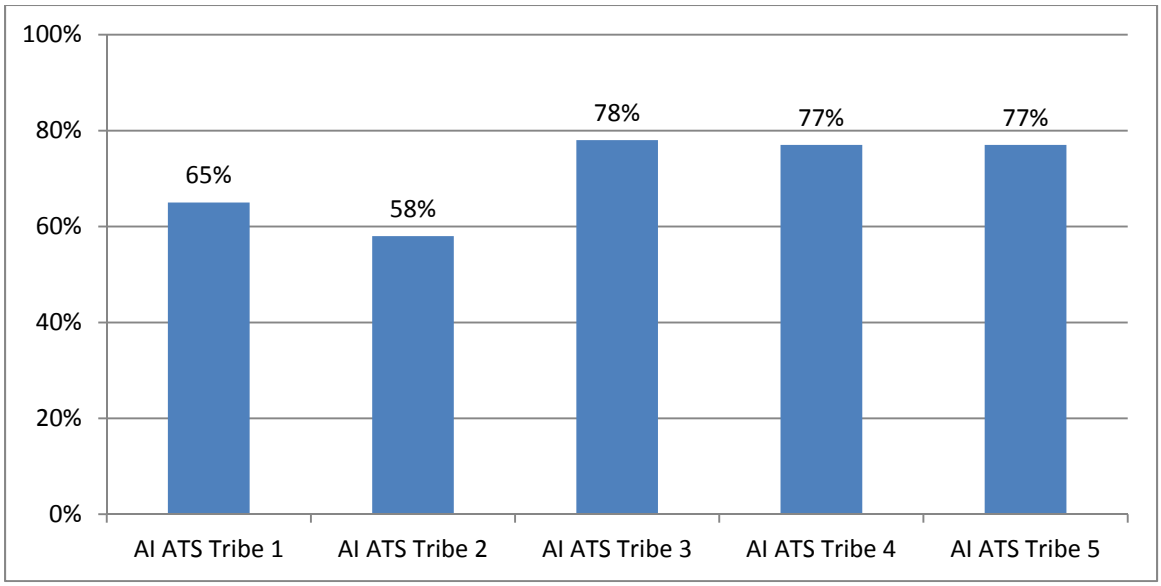

FIGURE 10. PARTICIPANTS WITH RULES PROHIBITING SMOKING IN THEIR HOME.

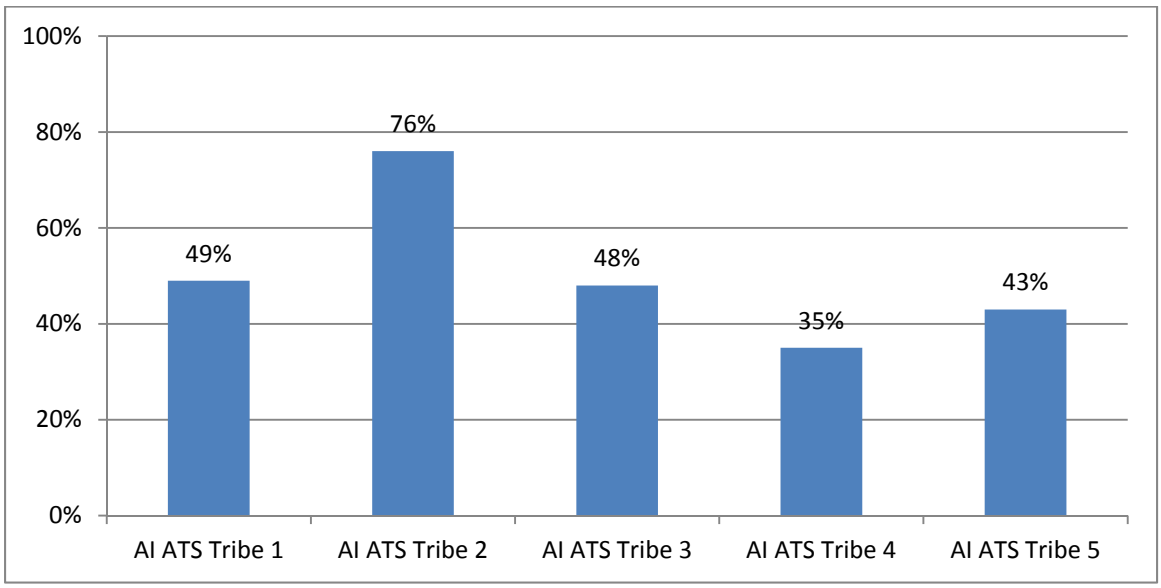

FIGURE 11. PARTICIPANTS EXPOSED TO SECONDHAND SMOKE IN CARS IN THE PAST 7 DAYS.

The AI ATS collected information about the smoking policies in the workplaces. All analyses of workplace policies are limited to survey participants who were employed at the time of the survey. Of the employed participants that worked indoors most the time, a large difference existed among communities with regards to workers exposed to secondhand smoke in the workplace, ranging from 5% to 46%. See Figure 12.

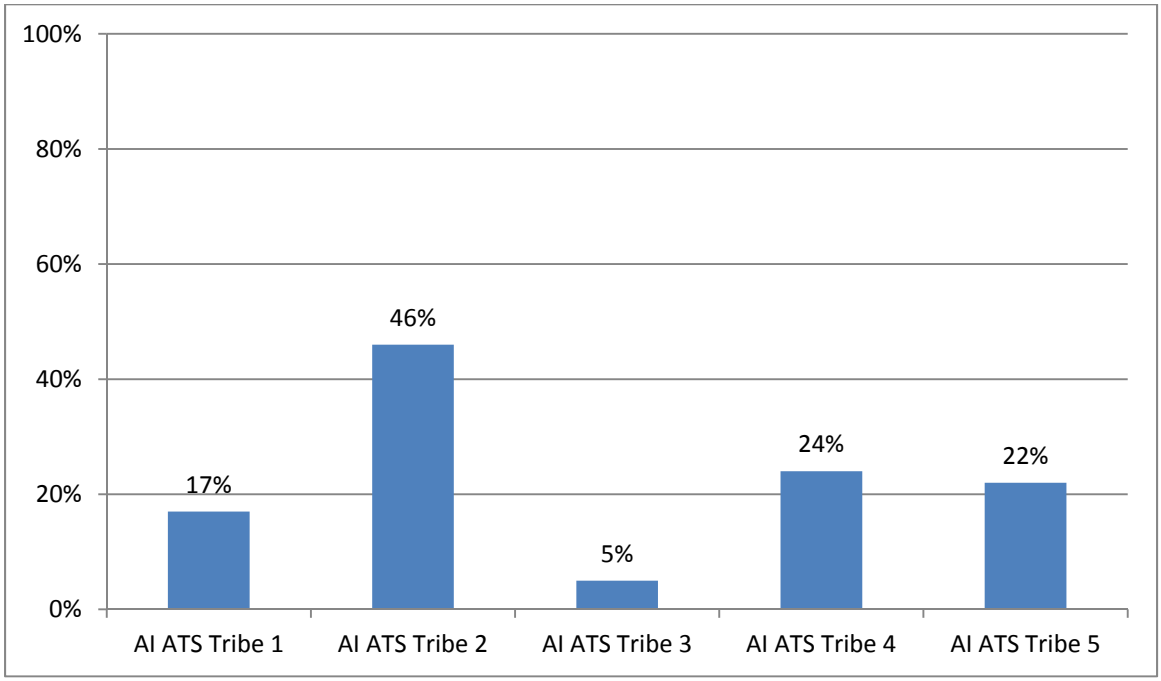

FIGURE 12. PARTICIPANTS EXPOSED TO SECONDHAND SMOKE IN THE WORKPLACE IN THE PAST 7 DAYS.

Opinions about Smoke-Free Policies

AI ATS participants in all five tribal surveyed communities were asked questions about their opinions on smoke-free policies. In indoor work areas, all communities had a majority of adults stating that smoking should not be allowed at all. See Figure 13. Opinions about smoking in restaurants also were consistent across all communities, with the majority of adults agreeing that smoking should be "not allowed at all" (68% - 71%). See Figure 14. Opinions on smoking in shopping malls ranged from 78% - 86% for smoking should be "not allowed at all." See Figure 15. The majority (67% - 84%) of participants also thought that smoking should not be allowed at all in the indoor areas of tribal buildings as well as in the indoor areas of community centers (65% - 99%). See Figure 16 and Figure 17. Participants from each community were mixed in their opinions about smoke-free casino or bingo hall policies, with a relatively smaller proportion in support of prohibiting smoking in all areas (19% - 31%). See Figure 18.

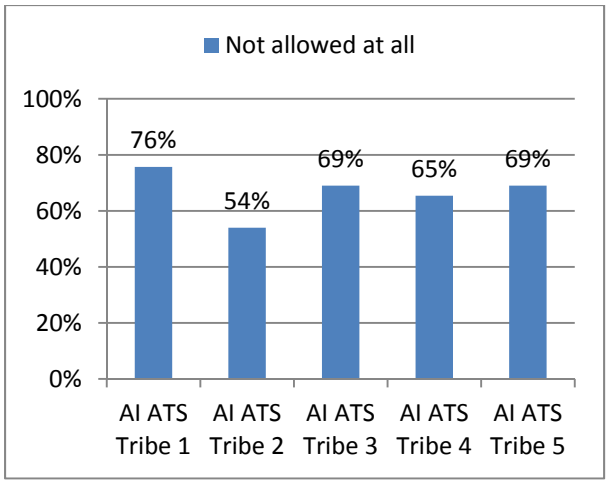

FIGURE 13. OPINIONS ON SMOKE-FREE POLICIES IN INDOOR WORK AREAS.

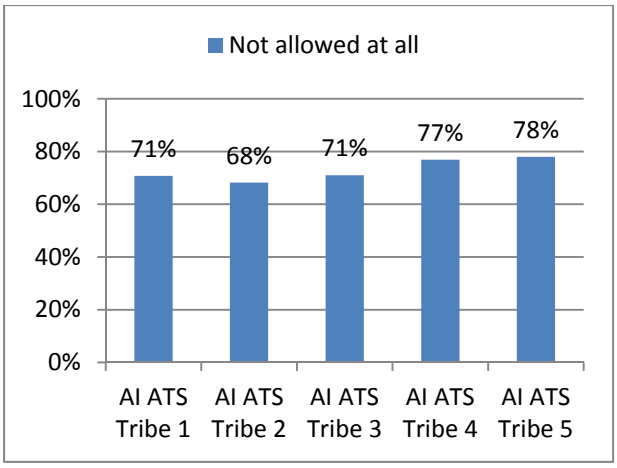

FIGURE 14. OPINIONS ON SMOKE-FREE POLICIES IN INDOOR AREAS OF RESTAURANTS.

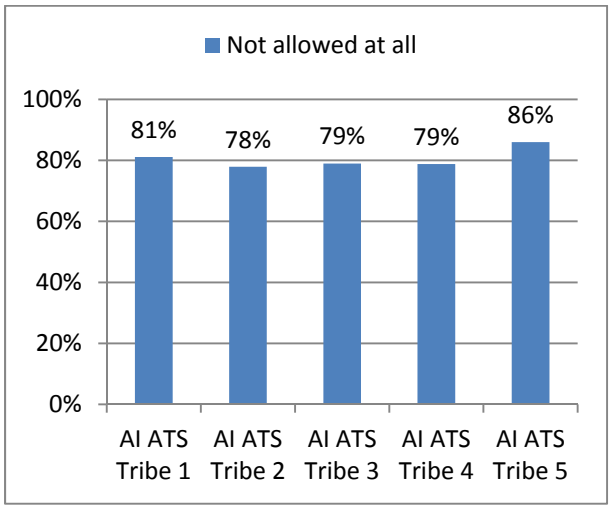

FIGURE 15. OPINIONS ON SMOKE-FREE POLICIES IN INDOOR AREAS OF SHOPPING MALLS.

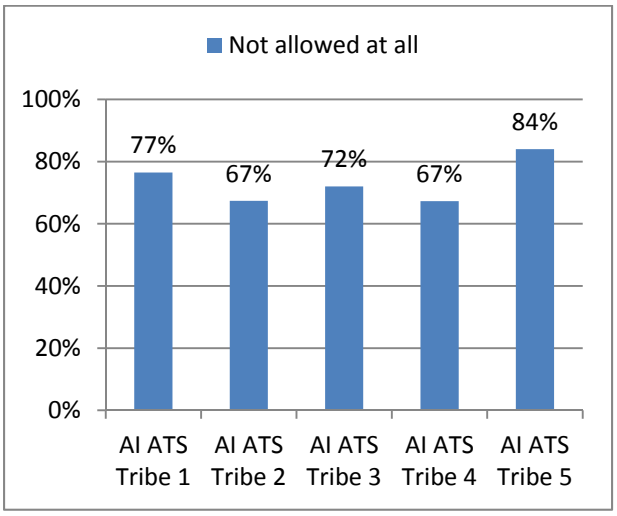

FIGURE 16. OPINIONS ON SMOKE-FREE POLICIES IN INDOOR AREAS OF TRIBAL BUILDINGS.

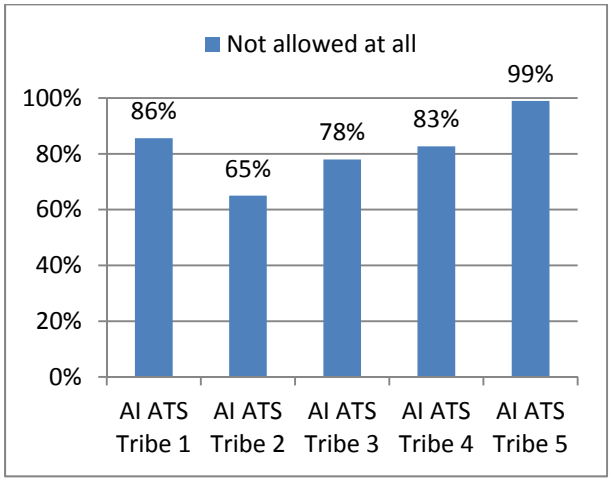

FIGURE 17. OPINIONS ON SMOKE-FREE POLICIES IN INDOOR AREAS OF COMMUNITY CENTERS.

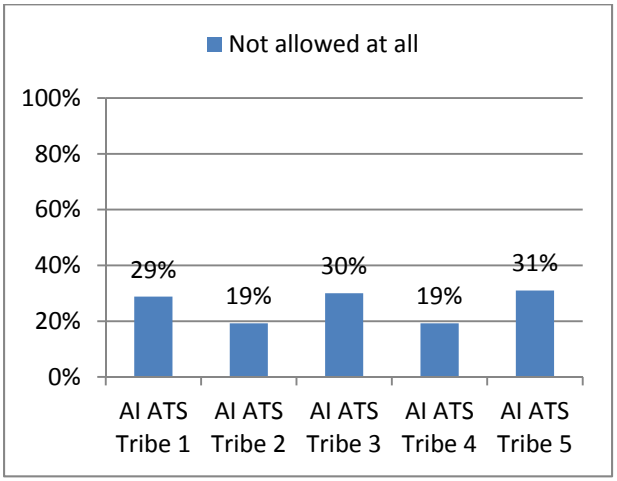

FIGURE 18. OPINIONS ON SMOKE-FREE POLICIES IN INDOOR AREAS OF CASINOS OR BINGO HALLS.

CESSATION & TREATMENT

Quit Ratio of Ever Smokers

The quit ratio characterizes the smoking or former smoking status of the total population who have ever smoked and provides some information to monitor trends in cessation. It is a snapshot of whether those who have ever smoked are currently smoking or not. The quit ratio is calculated by dividing the total number of former smokers by the total number of ever smokers.

The overall quit ratio among all ever smokers across all tribes completing the AI ATS ranged from 18% to 58%. This indicates that there is a large variance between tribes in the number of community members that have been smokers at some point in their life and successfully quit. In one tribe, the number of smokers that have quit is close to one-fifth (18%) whereas in some tribes the proportion of former smokers is over half (58%). See Figure 19.

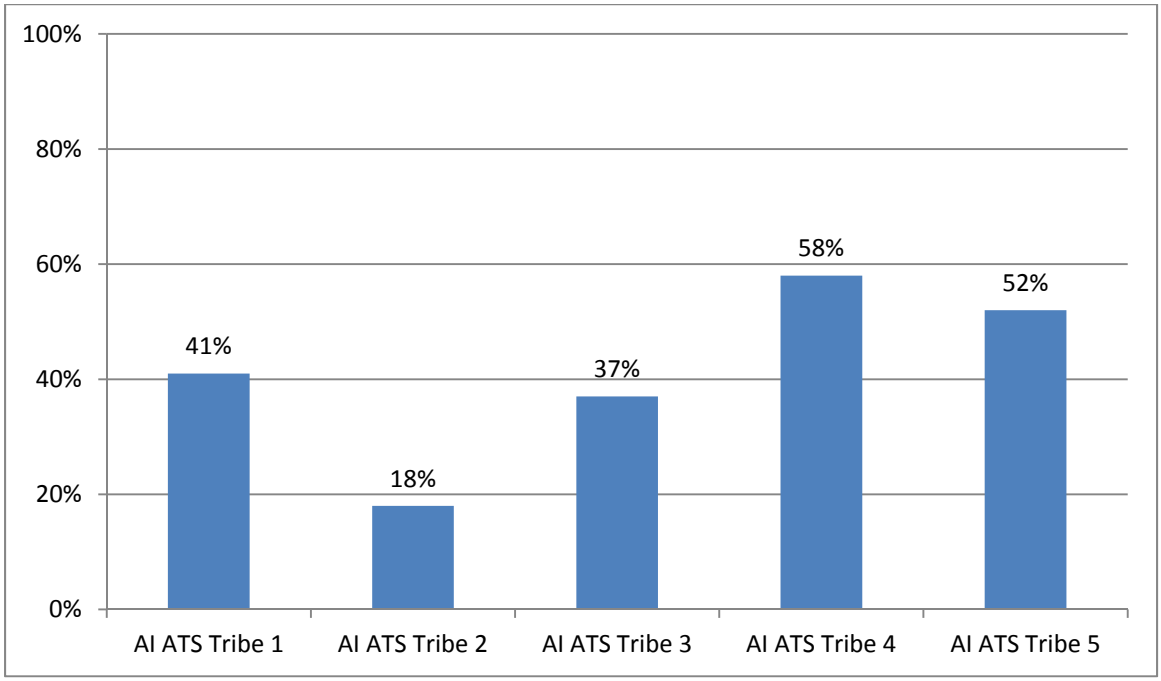

FIGURE 19. QUIT RATIO AMONG ALL 'EVER SMOKERS'.

Past Year Smokers: Quit Attempts and Methods

Past-year smokers include individuals who have smoked at any time during the past year; that is, all current smokers as of the date of interview, and former smokers if they last smoked regularly any time in the 12 months immediately preceding the interview. To examine the prevalence of past-year quitting, the AI ATS considers quit attempts and quits among past-year smokers.

Quit attempts of smokers is reported through multiple data sources. Rates of quit attempts were similar across RRFS data as well as AI ATS data; the range of quit attempts was 48% to 60% of the total past-year smokers. About half of all participants from all AI ATS and RRFS communities that had smoked in the past year reported having stopped smoking for one day or longer because they were trying to quit smoking in the past year. See Figure 20.

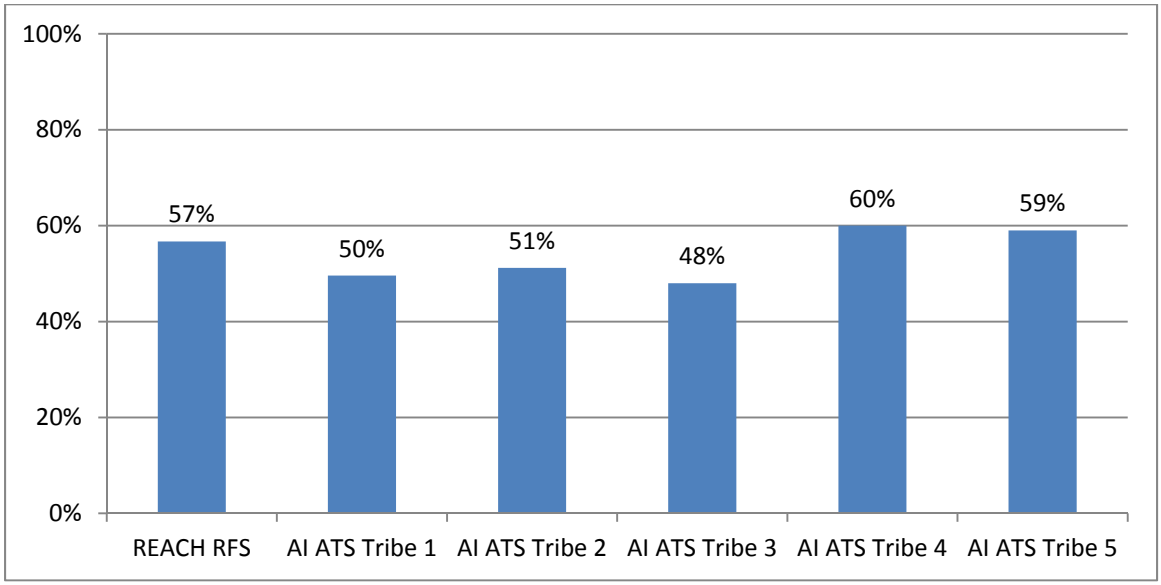

FIGURE 20. PAST YEAR QUIT ATTEMPTS AMONG PAST YEAR SMOKERS.

The AI ATS asks participants who had ever smoked or were currently smokers to report the types of cessation methods they had used to help them quit. Some participants reported using multiple methods. Across all surveyed tribes, the most common method by far was cold turkey (66% - 81%). The remaining methods were relatively uncommon; however medications like Zyban, Chantix, and the nicotine patch were generally used by a higher proportion of participants than other assistance such as cessation classes or counseling. See Table 8.

TABLE 8. METHODS OF SMOKING CESSATION ATTEMPTS.

	AI ATS Tribe 1	AI ATS Tribe 2	AI ATS Tribe 3	AI ATS Tribe 4	AI ATS Tribe 5
Cold turkey	81%	66%	73%	83%	81%
Medications (Zyban, Chantix)	16%	16%	18%	4%	10%
Nicotine patch	10%	17%	7%	8%	10%
Nicotine gum	4%	8%	5%	4%	4%
Other assistance	4%	4%	9%	0%	6%
Ceremonial prayer or traditional methods	7%	8%	19%	17%	6%

Stages of Change Model

The trans-theoretical "Stages of Change" model is used to characterize a current smoker's readiness to quit smoking. There are five stages in the model:

- Pre-contemplation: includes current smokers who are not planning to quit smoking
- Contemplation: includes current smokers who are planning to quit smoking in the next six months
- Preparation: includes current smokers who have made one quit attempt in the past 12 months and who are planning to quit smoking in the next 30 days
- Action: includes formers smokers who have not smoked within the last six months
- Maintenance: includes former smokers who have not smoked for longer than six months

The AI ATS asks participants who were current or former smokers a series of questions to determine what stage of change they were currently in at the time of the interview. The majority of current and former smokers in all surveyed communities were categorized in the maintenance stage, having been a former smoker for greater than six months (21% - 51%). A larger proportion of participants in all communities (16% - 35%) were in the contemplation stage compared to the pre-contemplation stage, indicating that they are thinking about quitting smoking in the upcoming six months. Ranging from 3% to 9%, the least amount of participants across all communities were in the action stage, or former smokers who had not smoked for up to six months. See Table 9.

TABLE 9. STAGES OF CHANGE AMONG CURRENT AND FORMER SMOKERS.

	AI ATS Tribe 1	AI ATS Tribe 2	AI ATS Tribe 3	AI ATS Tribe 4	AI ATS Tribe 5
Pre-Contemplation	24%	32%	25%	19%	10%
Contemplation	26%	**35%**	31%	22%	16%
Preparation	10%	10%	6%	13%	14%
Action	4%	3%	4%	9%	8%
Maintenance	**36%**	21%	**34%**	**38%**	**51%**

Ask, Advise, Refer Model

The AI ATS assessed the use of the three-step Ask, Advise, and Refer Model. This streamlined model encourages providers to ask their patients if they smoke and then to advise them to stop smoking if they do. "Refer" describes how health care providers made referrals to patients to use behavioral counseling and stop-smoking medications.

At least four-fifths of all participants surveyed had visited a healthcare professional in the past 12 months, although some tribes had much higher rates than others (81% - 93%). See Figure 21. Of those that had visited a doctor in the past 12 months, the majority of participants across all communities reported that they had been asked by the provider if they smoked, with rates ranging from 82% to 92%. See Figure 22. Of those that indicated that they smoked, 33% to 75% of current smokers were advised by their doctor not to smoke. See Figure 23. Notably, of those participants in each tribal community advised not to smoke, 20% to 52% were referred to cessation assistance. See Figure 24.

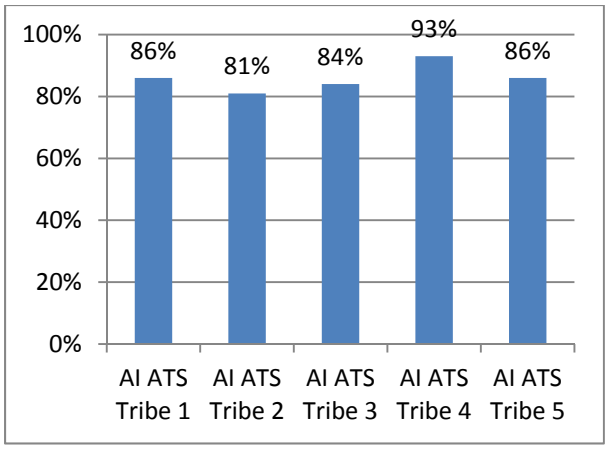

FIGURE 21. PARTICIPANTS WHO HAVE SEEN A DOCTOR IN THE PAST 12 MONTHS.

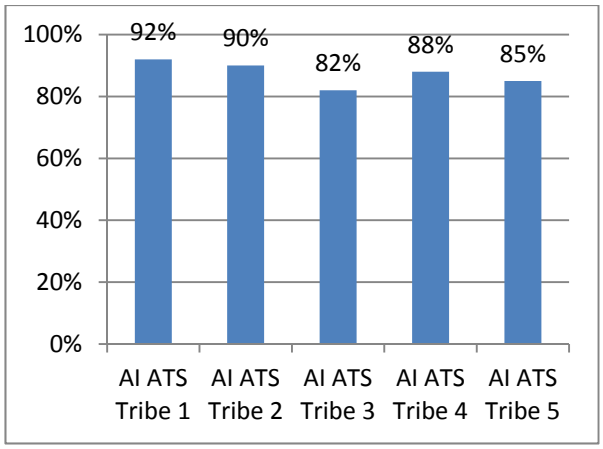

FIGURE 22. PARTICIPANTS WHO HAD BEEN ASKED BY THEIR DOCTOR IF THEY SMOKE.

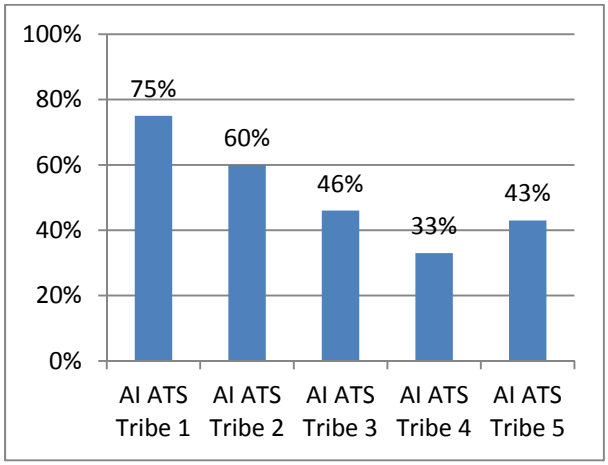

FIGURE 23. PARTICIPANTS WHO WERE ADVISED BY THEIR DOCTOR TO STOP SMOKING.

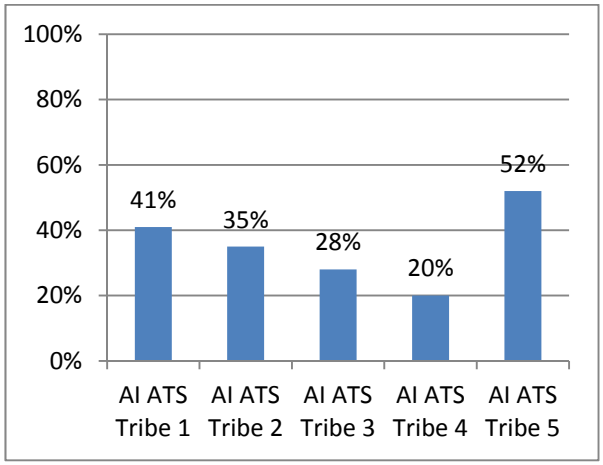

FIGURE 24. PARTICIPANTS WHO WERE REFERRED BY THEIR DOCTOR TO CESSATION ASSISTANCE.

PHYSICAL ACTIVITY AND NUTRITION

OVERVIEW

Regular physical activity and eating a healthy diet are important behaviors in leading a healthy life and reducing the risk for chronic disease. Some benefits of physical activity include weight control; reducing the risk of cardiovascular disease, type II diabetes, and some types of cancers; strengthening bones and muscles; and improving mental health. Proper nutrition also carries benefits, such as preventing high cholesterol and blood pressure; reducing the risk of developing chronic disease such as cardiovascular disease, cancer, and diabetes; and reducing the risk for developing obesity, osteoporosis, iron deficiency, and dental caries. The *2008 Physical Activity Guidelines for Americans* recommends 150 minutes of moderate-intensity aerobic activity or 75 minutes of vigorous-intensity aerobic activity every week to reap the full benefits of physical activity.

This section of the report examines physical activity and nutrition behaviors reported by adults in multiple tribes from 2007 through 2012. Results from the ITCM REACH Risk Factor Survey (ITCM RFS), the ITCM Steps Behavioral Risk Factor Survey (ITCM Steps BRFS), and the American Indian Adult Tobacco Survey (AI ATS) will be used to describe factors related to physical activity and nutrition across the participating tribes.

Comparison rates from the 2012 Michigan Behavioral Risk Factor Survey are used throughout this section. A full description on the survey methodology of the BRFS is described here: http://www.cdc.gov/brfss/factsheets/pdf/DBS_BRFSS_survey.pdf

PREVALENCE

PHYSICAL ACTIVITY

Data collected from the REACH Risk Factor Survey and ITCM Steps Behavioral Risk Factor Survey highlighted the average number of days participants reported having poor physical and mental health in the last 30 days. In regard to poor physical health, the range of participants that reported poor physical health on no days in the past 30 days was 54% to 65%. See Figure 25 and 26. According to the REACH Risk Factor Survey, 29% (n=1065) said they had 1 to 13 days of poor physical health in the past 30 days while 17% (n=1065) had 14 to 30 days of poor physical health. This was higher than the 2012 Michigan Behavioral Risk Factor Survey; 14% of Michigan participants reported more than 14 days of poor physical health in the past 30 days. See Figure 25.

Because of differences in ranges collected from the surveys on days reported, the Steps BRFS must be reported separately. The participants on the Steps BRFS most frequently reported no

days of poor physical health (65%, n=565), with 3 to 7 days being the next most frequent response (12%). See Figure 26.

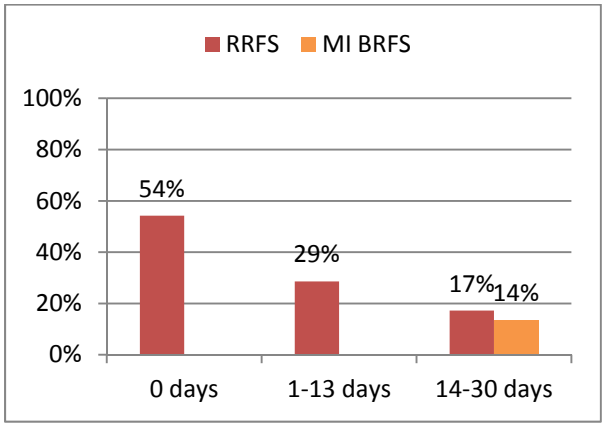

FIGURE 25. NUMBER OF DAYS OF POOR PHYSICAL HEALTH IN THE PAST 30 DAYS.

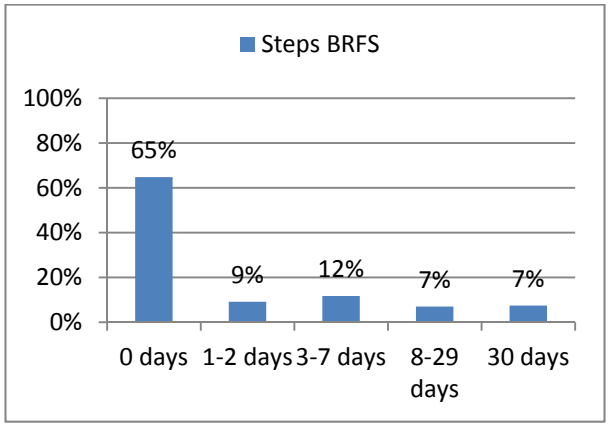

FIGURE 26. NUMBER OF DAYS OF POOR PHYSICAL HEALTH IN THE PAST 30 DAYS.

When asked about days in which they experienced poor mental health in the past 30 days, the range of participants that said they had no days of poor mental health fell between 55% and 65% on the two surveys. A small portion of REACH RFS participants said they had 1 to 13 days of poor mental health in the past 30 days at 27% (n=1060) while an even smaller portion (18%, n=1060) answered that they had experienced 14 to 30 days of poor mental health in the past 30 days. This rate was higher than the reported Michigan BRFS rates, which estimates 13% of the participants experiencing more than 14 days of poor mental health in the past 30 days. See Figure 27.

Because of differences in ranges collected from the surveys on days reported, the Steps BRFS must be reported separately. Steps BRFS participants most frequently reported no days with poor mental health in the past 30 days, with the second most frequent response being 8 to 29 days (13%, n=569). See Figure 28.

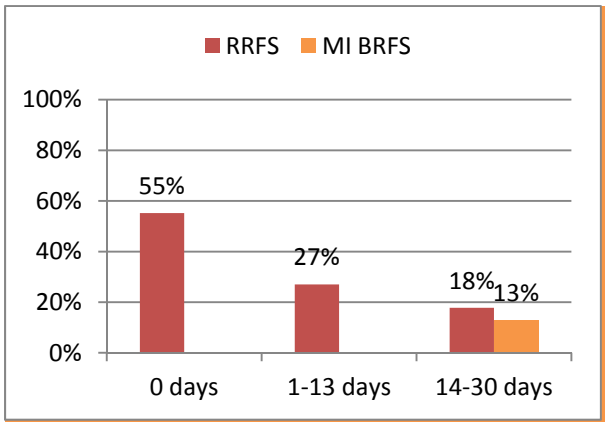

FIGURE 27. NUMBER OF DAYS OF POOR MENTAL HEALTH IN THE PAST 30 DAYS.

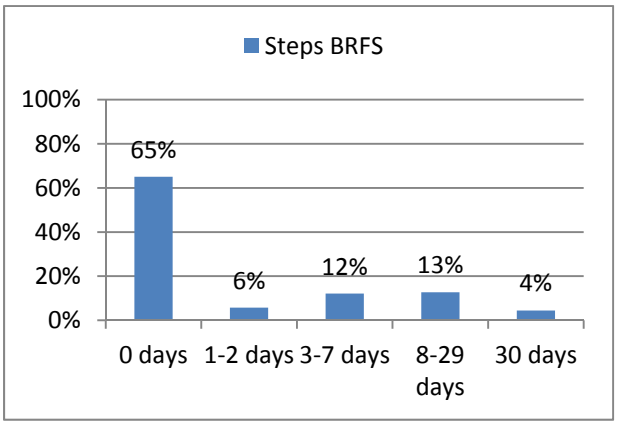

FIGURE 28. NUMBER OF DAYS OF POOR MENTAL HEALTH IN THE PAST 30 DAYS.

Participants were also asked about the number of days that poor physical activity or mental health kept them from doing their usual activities. Of those that reported any days of poor physical and mental health in the past 30 days, the majority (46% to 56%) of participants on both surveys said that their poor physical or mental health did not keep them from doing their usual activities on any day of the past 30 days. Only about one-fifth (21%, n=669) of participants from the REACH RFS reported their poor mental or physical health limited them from doing their daily activities for over half of the days in the past 30 days. See Figure 29. According to the Steps BRFS, the next most frequent response for days away from usual activities because of poor physical or mental health was 3 to 7 days (14%, n=334). See Figure 30.

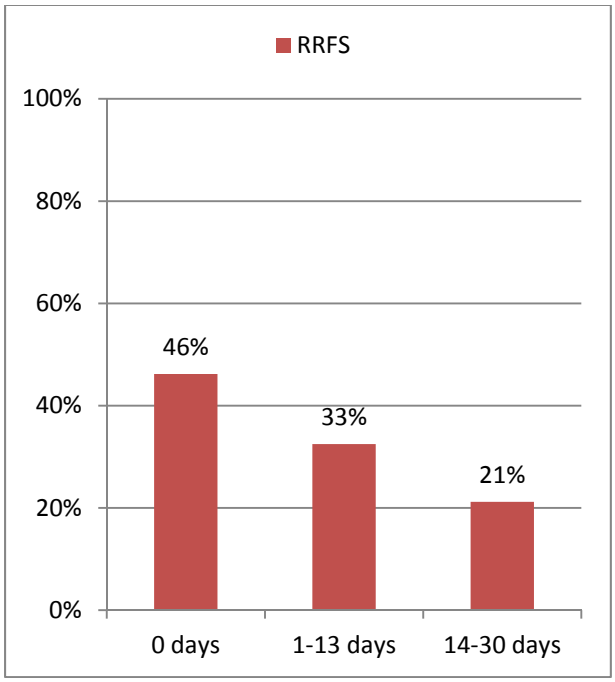

FIGURE 29. NUMBER OF DAYS AWAY FROM USUAL ACTIVITIES DUE TO POOR PHYSICAL OR MENTAL HEALTH.

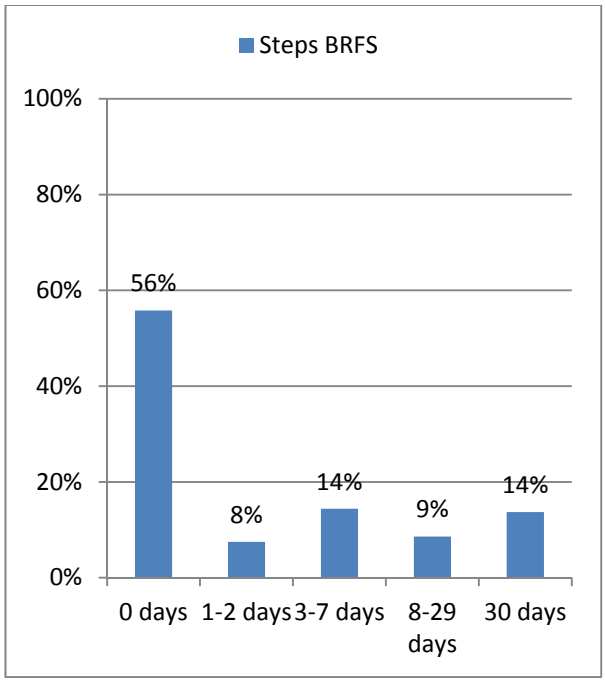

FIGURE 30. NUMBER OF DAYS AWAY FROM USUAL ACTIVITIES DUE TO POOR PHYSICAL OR MENTAL HEALTH.

On the REACH RFS, participants were asked to describe their job activity. Nearly three-fifths (59%, n=497) of participants had jobs that involved mostly sitting or standing while one-quarter (24%, n=497) of participants held jobs that required mostly walking. Only 17% (n=497) of participants performed mostly heavy labor or physically demanding work at their jobs. See Figure 31.

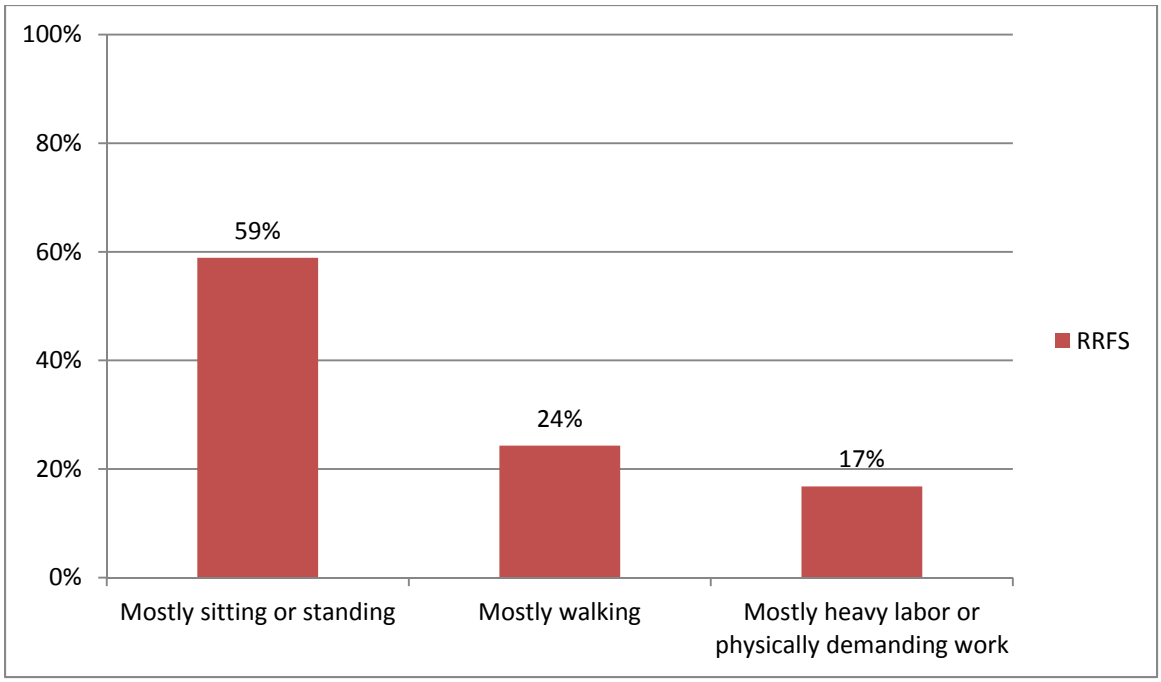

FIGURE 31. DESCRIPTION OF JOB ACTIVITY AMONG EMPLOYED PARTICIPANTS.

Participants on both the Steps BRFS and Reach RFS were asked about their leisure-time physical activity in the past month. Most participants (72%-73%) reported that they had been physically active in the past month, excluding physical activity from their job. By comparison, on the 2012 Michigan BRFS adults reported being physically active in slightly higher numbers, with 77% of the population having leisure-time for physical activity in the past month. See Figure 32.

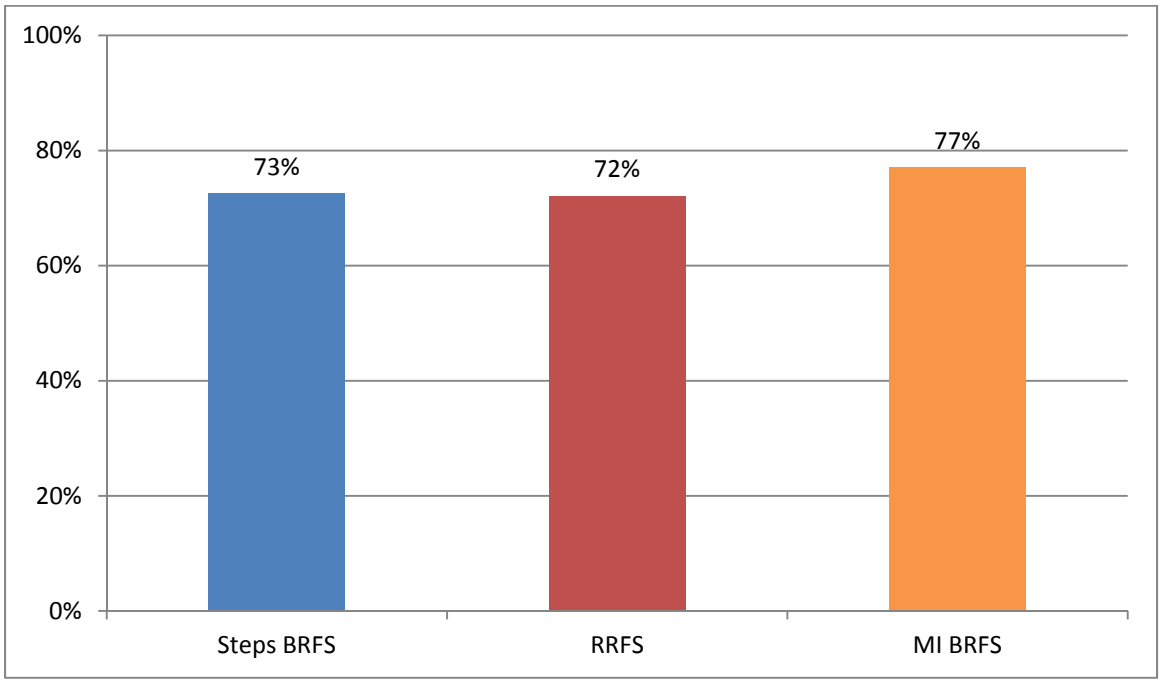

FIGURE 32. PARTICIPATION IN ANY LEISURE-TIME PHYSICAL ACTIVITY IN THE PAST MONTH.

The REACH RFS also collected information from participants on the type of physical activity they participated in by level of intensity. More participants took part in moderate activities for at least 10 minutes at a time (81%, n=1071) compared to vigorous activities (50%, n=1065). When assessed for whether or not they met the recommendations in both moderate activity and vigorous activity, less than one-third (32%, n=1079) met the moderate activity recommendations of 150 minutes every week and less than one-third (30%, n=1079) met the recommendations of 60 minutes every week of vigorous activity. See Figure 33. This suggests that although participants reported being physically active, recommendations were not being met in either category by the majority of the populations. However, those that participated in vigorous activity were more likely to meet the recommendations in that category than those that reported moderate activity participation.

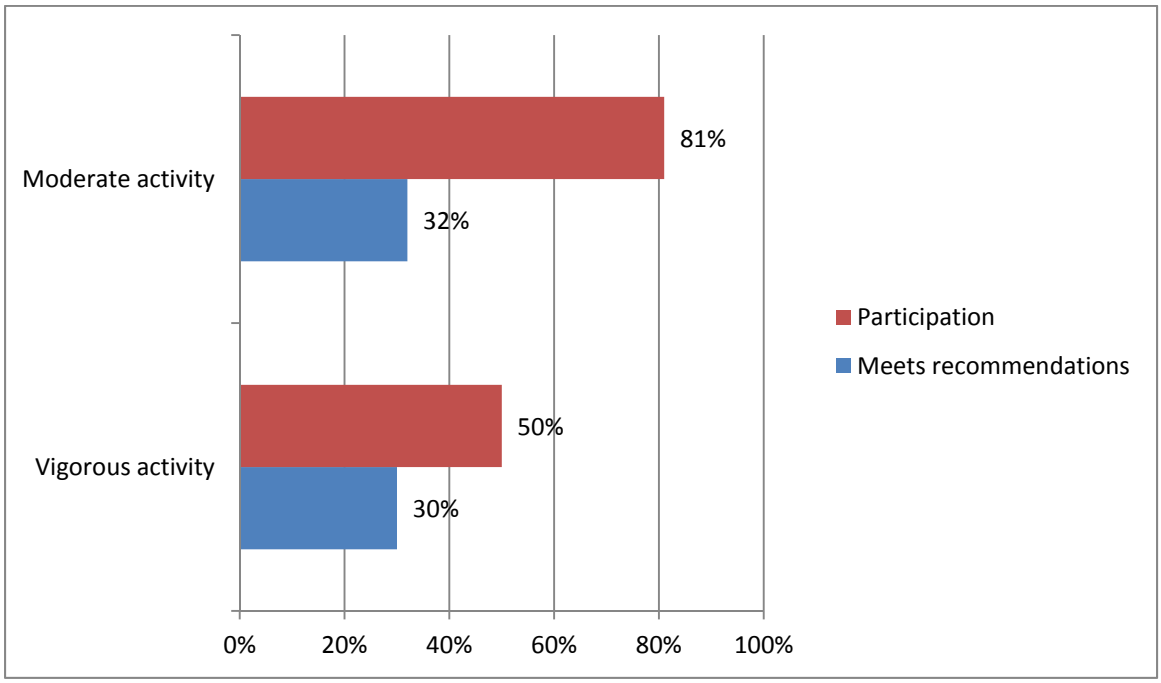

FIGURE 33. PARTICIPATION IN ANY LEISURE-TIME PHYSICAL ACTIVITY IN THE PAST MONTH, REACH RFS.

Questions from the American Indian Adult Tobacco Survey on physical activity asked participants the amount of days per week they were physically active for 30 minutes or more. The majority of participants in all tribes surveyed reported that they were active for 5 to 7 days out of the week, with frequencies ranging from 34% to 53%. See Figure 34. Few participants in all tribes reported that they had no days of physical activity per week (6% - 16%) See Table 10.

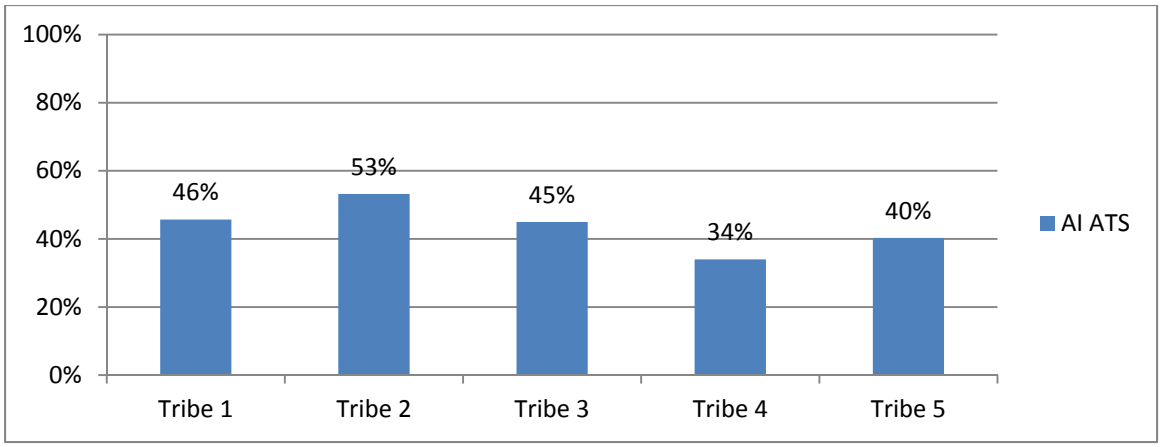

FIGURE 34. PHYSICALLY ACTIVE FOR 30 MINUTES OR MORE, 5 TO 7 DAYS PER WEEK.

TABLE 10. DAYS PER WEEK PHYSICALLY ACTIVE FOR 30 MINUTES OR MORE.

	AI ATS Tribe 1	AI ATS Tribe 2	AI ATS Tribe 3	AI ATS Tribe 4	AI ATS Tribe 5
None	10%	6%	10%	10%	16%
1-2 days per week	16%	18%	17%	24%	23%
3-4 days per week	27%	19%	28%	30%	21%
5-7 days per week	**46%**	**53%**	**45%**	**34%**	**40%**
Don't know	1%	3%	0%	2%	0%

When asked about participation in other types of physical activity such as dancing, gardening, golf, biking, and tennis, there was a range of participants from each tribe who reported their participation in such types of activities. See Figure 35.

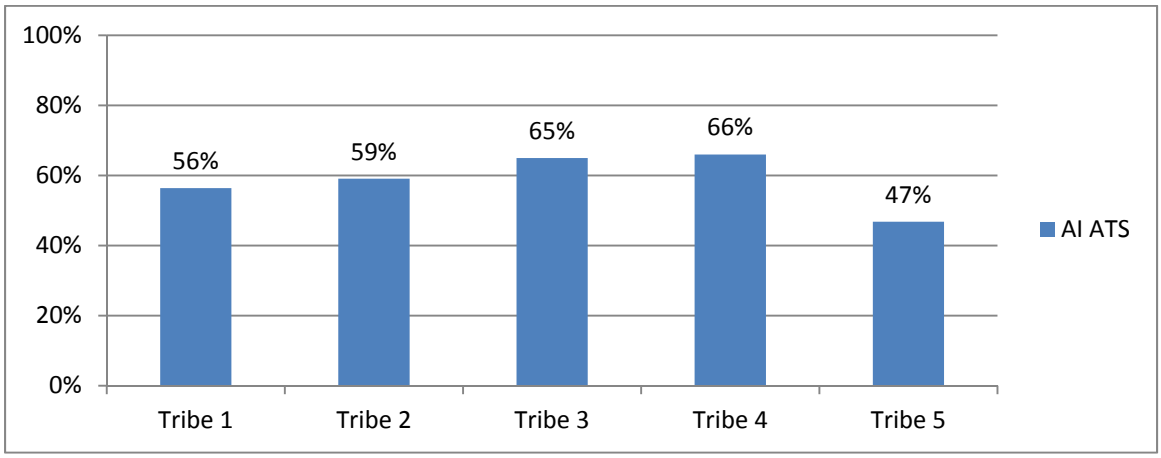

FIGURE 35. PARTICIPATION IN OTHER PHYSICAL ACTIVITY SUCH AS DANCING, GARDENING, GOLF, BIKING, OR TENNIS.

Nutrition

The Reach RFS asked participants about their consumption of fruits and vegetables. Fruit servings were separated into fruit juice servings and fruit servings. Vegetables were subcategorized into servings of green salad, potato, carrot, and other types of vegetables. See Figure 36-41. When combined, the majority (39%, n=1067) of participants reported consuming more than one but less than three servings of fruits and vegetables per week. Almost one-quarter (24%, n=1067) of participants had more than five servings of fruits and vegetables per week. See Figure 42.

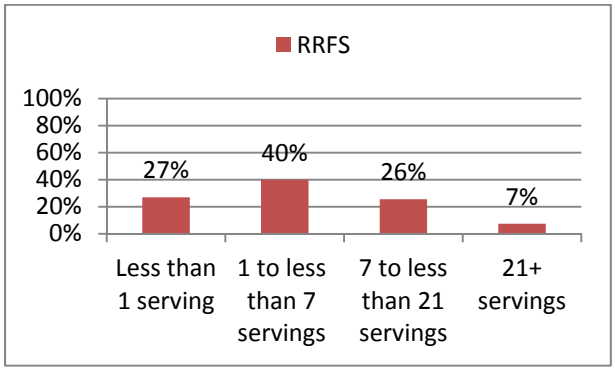

FIGURE 36. FRUIT JUICE SERVINGS PER WEEK.

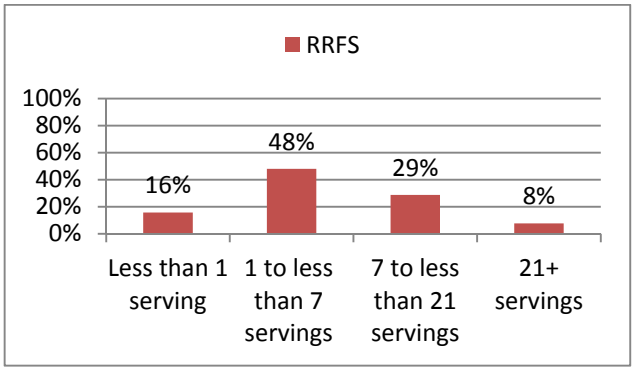

FIGURE 37. FRUIT SERVINGS PER WEEK.

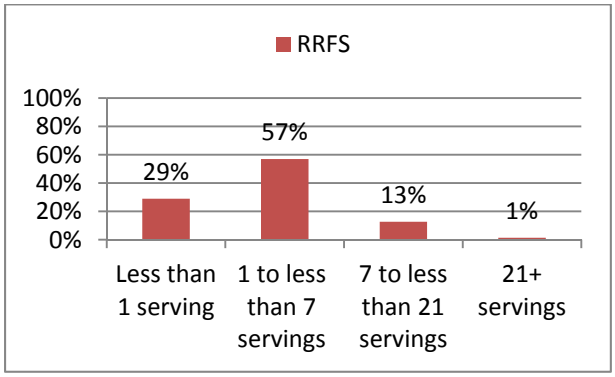

FIGURE 38. GREEN SALAD SERVINGS PER WEEK.

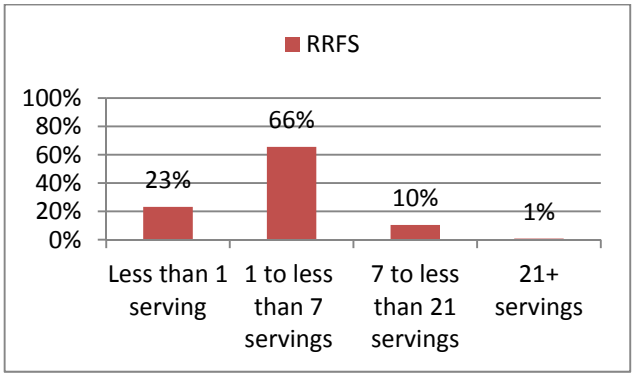

FIGURE 39. POTATO SERVINGS PER WEEK.

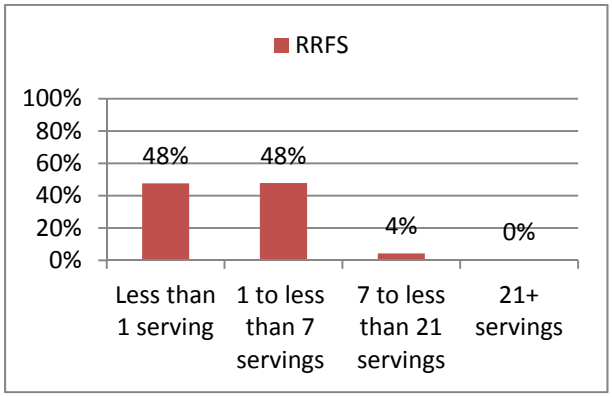

FIGURE 40. CARROT SERVINGS PER WEEK.

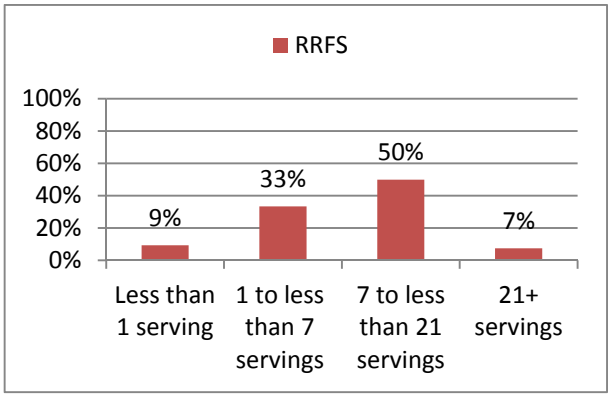

FIGURE 41. OTHER VEGETABLE SERVINGS PER WEEK.

Participants to the AI ATS were asked about their daily consumption of fruits and vegetables. In all tribes surveyed, participants most frequently said they ate between 1 and 2 servings of fruits and vegetables per day (54% - 72%). A small proportion of participants from each tribe reported eating more than 5 servings per day (range: 2% - 11%). See Table 11.

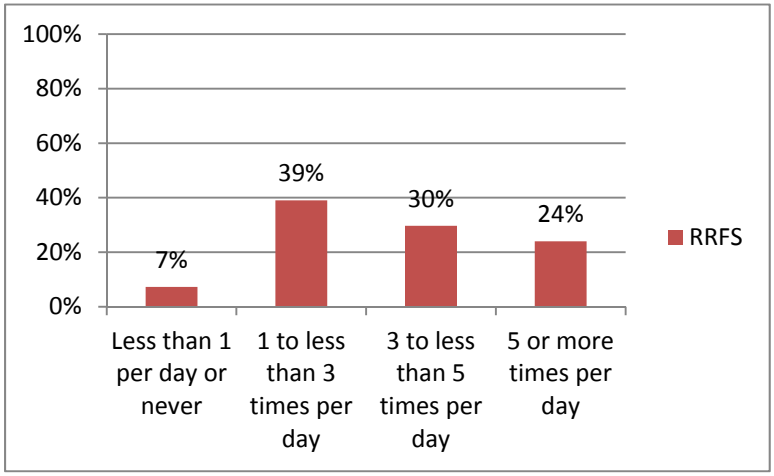

FIGURE 42. TOTAL FRUIT AND VEGETABLE SERVINGS.

TABLE 11. SERVINGS OF FRUITS AND VEGETABLES PER DAY.

	AI ATS Tribe 1	AI ATS Tribe 2	AI ATS Tribe 3	AI ATS Tribe 4	AI ATS Tribe 5
None	5%	3%	5%	2%	7%
1-2 servings per day	**61%**	**71%**	**54%**	**72%**	**55%**
3-5 servings per day	28%	17%	35%	24%	28%
5+ servings per day	5%	3%	5%	2%	11%
Don't know	2%	6%	0%	0%	0%

When asked about the number of times per week they cook meals at home, responses differed across the five tribes surveyed. The majority of participants in all tribes reported cooking meals at home at least 3 times per week. See Table 12.

TABLE 12. TIMES PER WEEK PARTICIPANTS COOK MEALS AT HOME.

	AI ATS Tribe 1	AI ATS Tribe 2	AI ATS Tribe 3	AI ATS Tribe 4	AI ATS Tribe 5
None	4%	6%	0%	8%	7%
1-2 times per week	11%	13%	21%	14%	16%
3-5 times per week	32%	28%	32%	**60%**	34%
5+ times per week	**53%**	**51%**	**48%**	18%	**43%**
Don't know	0%	1%	0%	0%	0%

CANCER

Overview

Cancer is a major public health problem in the United States and many other parts of the world. Currently one in four deaths in the United States is due to cancer.[9] Each year the American Cancer Society, National Cancer Institute, Centers for Disease Control and Prevention, and the North American Association of Central Cancer Registries provide a National report on the incidence and mortality rates due to cancer. Recent reports show significant declines in cancer incidence and mortality. Although progress has been made in reducing incidence and mortality rates and improving survival, cancer still accounts for more deaths than heart disease in persons younger than 85 years of age.[10] The 2009 National report is the most recent report publically available. This is because the most recent year for which incidence and mortality data are available lags 3-4 years behind the current year, due to time required for data collection and compilation.

Cancer Diagnoses

The 2009 National report indicates the most common cancers expected to occur in men are prostate, lung and bronchus, and colon and rectum. The most commonly diagnosed types of cancer for women are breast, lung and bronchus, and colon and rectum.

CANCER DISPARITIES

The 2009 National report highlights differences in cancer rates among racial and ethnic groups. The report acknowledges factors known to contribute to racial disparities in mortality vary by cancer site and include differences in exposure to underlying risk factors, such as smoking and lung cancer; access to high quality regular screening for breast, cervical and colorectal cancer; and timely diagnosis and treatment for all cancers. Specific to American Indians/ Alaska Natives (AI/AN), kidney cancer incidence and death rates are highest among this group, although obesity is the only factor known to contribute to this disparity. The report further sites that while the general population experiences declines in cancer incidence and mortality, among AI/AN residing in Indian Health Services (IHS) Contract Health Delivery Service Areas, mortality rates have remained stable; trends in incidence rates could not be examined because the linkage of cancer incidence between IHS and the Cancer Registry was not complete at the time of the report. The 2008 report stated, overall, cancer death rates declined in each racial and ethnic group ***except AI/AN men, women, and children***, among whom declines were not

[9] A Jenal, R Siegel, E Ward, Y Hao, J Xu and M Thun; Cancer Statistics, 2009; CA Cancer J Clin 2009,59.225-249 May 27,2009

[10] A Jenal, R Siegel, E Ward, Y Hao, J Xu and M Thun; Cancer Statistics, 2009; CA Cancer J Clin 2009,59.225-249 May 27,2009

significant. Similarly, among men, death rates for the most common cancer (lung, colorectal and prostate) decreased in all racial groups, ***except AI/AN men*** in whom the rates remained the same. [11]

CANCER RATES IN MICHIGAN

There are three sources of cancer data specific to Michigan Native Americans in this section. These include 1) SEER data from Michigan's State Cancer Registry; 2) The Manuscript entitled, Disparities of Cancer Incidence among Michigan American Indians which further analyzed incidence data from the Registry, and age of diagnosis compared with the general population for specific cancers; and 3) the Michigan Cancer Consortium Special Cancer Risk Behavior Survey.

SEER data from the Michigan State Cancer Registry: Data used follows a series of I.H.S. and Tribal linkages to the State Registry for the purpose of correcting racial misclassification. These linkages have helped to strengthen the accuracy within the State Registry allowing for calculation of AI/AN cancer incidence rates that can be more meaningfully compared to rates for other subpopulations. To date, the Michigan registry has been linked to rosters of 5 Michigan tribes and the IHS, increasing the number of known American Indian cases in the statewide registry by over 100 percent. The IHS link contributes 2/3 of these newly identified cases, with the tribal roster links uniquely contributing the remaining 1/3 of the misclassified cases. Because of the timing of the tribal links and the characteristics of the tribal rosters, the time period 1995 through 2004 represents the time period where ascertainment of the AI/AN population is most complete**.**

Disparities of Cancer Incidence among Michigan American Indians[12]: Analysis was conducted in 2012 utilizing the State Cancer Registry. AI status was based on reported race and linkage to IHS data and tribal enrollment rosters. Data with complete linkage on all incident cancer cases in Michigan from 1995 to 2004 was used to calculate age-standardized incidence estimates for invasive all-site and female breast cancers stratified by racial group. For female breast cancers, stage- and age-specific incidence and percent distributions of early- versus late-stage cancers and age of diagnosis were calculated.

The Michigan Cancer Consortium Special Cancer Risk Behavior Survey: In 2008, the Michigan Cancer Consortium (MCC) conducted a Statewide Special Cancer Behavior Risk Factor Survey (SCBRFS) and oversampled Native Americans in Michigan to obtain data that could identify

[11] C Ehelman, JHeny, R Ballrad-Barbush, E Jacobs, M Schymura, A Noone, L Pan, R Anderson, J Fulton, B Kohler, A Jemal, E Ward, M Plescia, L Ries, B Edwards; Cancer 2012; 000:000-000 2012 American Cancer Society

[12] Roen, E. L., Copeland, G. E., Pinagtore, N. L., Meza, R. and Soliman, A. S. (2014), Disparities of cancer incidence in Michigan's American Indians. Cancer. doi: 10.1002/cncr.28589

disparities in cancer screening behaviors. At the request of ITCM, the MCC pulled responses for the self identified Native American respondents and provided the total number of Native Americans in the sample (n=719) as well as their county of residence. This allowed ITCM to sort respondents by tribal service area and provide useful comparison data on screening behaviors. A full description of the SCRFS methodology and the full report can be found at http://www.michigancancer.org/PDFs/MCCReports/SCBRFS_2008-042910.pdf.

Leading Primary Sites by Race and Sex
Michigan Residents, 1995 - 2004

White Male			
Rank	Site	Number	Rate
1	Prostate	69214	183.8
2	Lung	36270	97.4
3	Colon	16537	46.0
4	Bladder	16500	45.7
5	Non-Hodgkin	9434	25.0
6	Melanoma	9127	23.7
7	Rectum	7494	20.0
8	Leukemia	6877	18.7
9	Kidney	6771	17.6
10	Oral	6313	16.3

American Indian Male			
Rank	Site	Number	Rate
1	Prostate	187	125.1
2	Lung	174	119.5
3	Colon	74	45.6
4	Rectum	42	25.3
5	Bladder	40	35.6
5	Oral	37	19.5
7	Kidney	33	17.1
8	Non-Hodgkin	30	15.8
9	Liver	26	15.7
	Leukemia	26	14.6

White Female			
Rank	Site	Number	Rate
1	Breast	62405	135.5
2	Lung	28413	59.6
3	Colon	17558	35.2
4	Corpus Uteri	12573	27.2
5	Non-Hodgkin	8864	18.6
6	Ovary	7825	17.0
7	Melanoma	7393	16.8
8	Rectum	6101	12.7
9	Bladder	5446	11.1
10	Leukemia	5358	11.3

American Indian Female			
Rank	Site	Number	Rate
1	Breast	236	95.9
2	Lung	176	84.8
3	Colon	68	35.1
4	Corpus Uteri	44	17.1
5	Ovary	28	11.8
6	Kidney	26	10.9
7	Cervix Uteri	25	9.5
8	Non-Hodgkin	24	9.0
9	Rectum	23	11.9
10	Leukemia	18	*
	Melanoma	18	*

* Rate is considered statistically unreliable.

FIGURE 43. LEADING PRIMARY SITES OF CANCER BY RACE AND SEX, MICHIGAN, 1995-2004 CANCER REGISTRY SEER DATA.

Figure 43 shows how the leading cancer types vary for white and for AI/AN males and females. Among American Indian females in the Cancer Registry, rates for cervical and lung cancers were higher than those for females all races. Among American Indian males, differences are noted for prostate and lung cancers.

Figures 44 and 45 show the improvements in that data between the SEER registry data, SEER registry linked to IHS, and the SEER data with IHS and Tribal roster linkage (green bar). The improved data reveal higher rates of lung cancer in males. The tribal linkage results also reveal higher rates for oral and rectal cancers in AI/AN males while the colon cancer rate is comparable to the white male rates. AI/AN prostate cancer rates increased to 2.7 times the unimproved rate, but remained well below the white male rate.

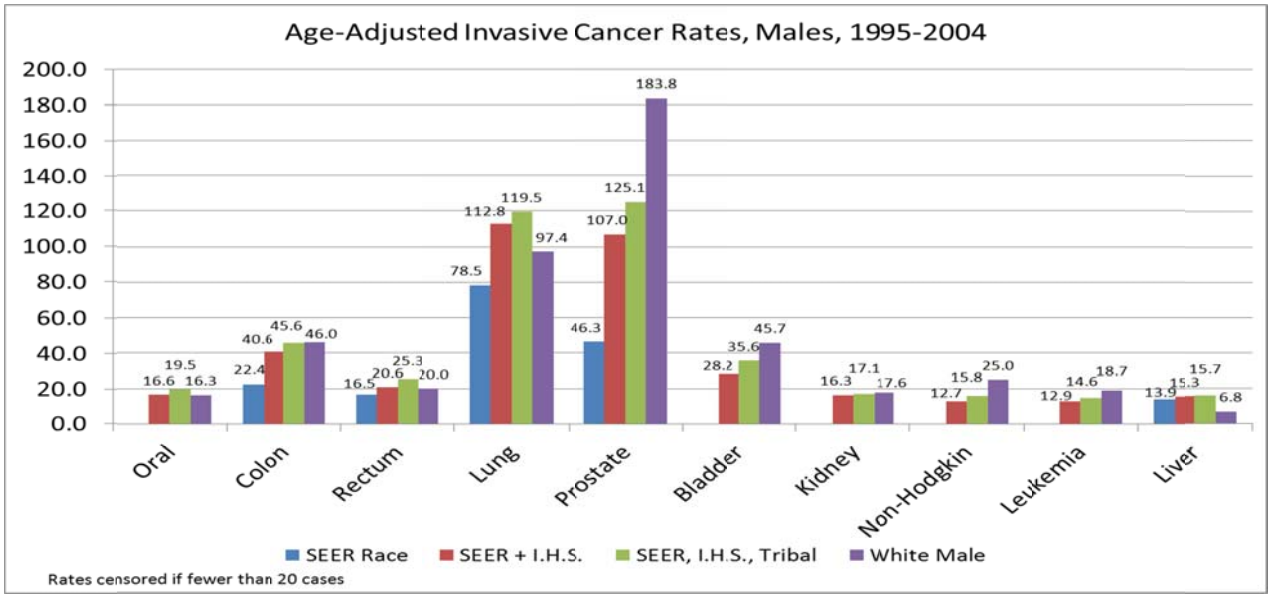

FIGURE 44. AGE-ADJUSTED INVASIVE CANCER RATES, MALES, 1995-2004 CANCER REGISTRY SEER DATA

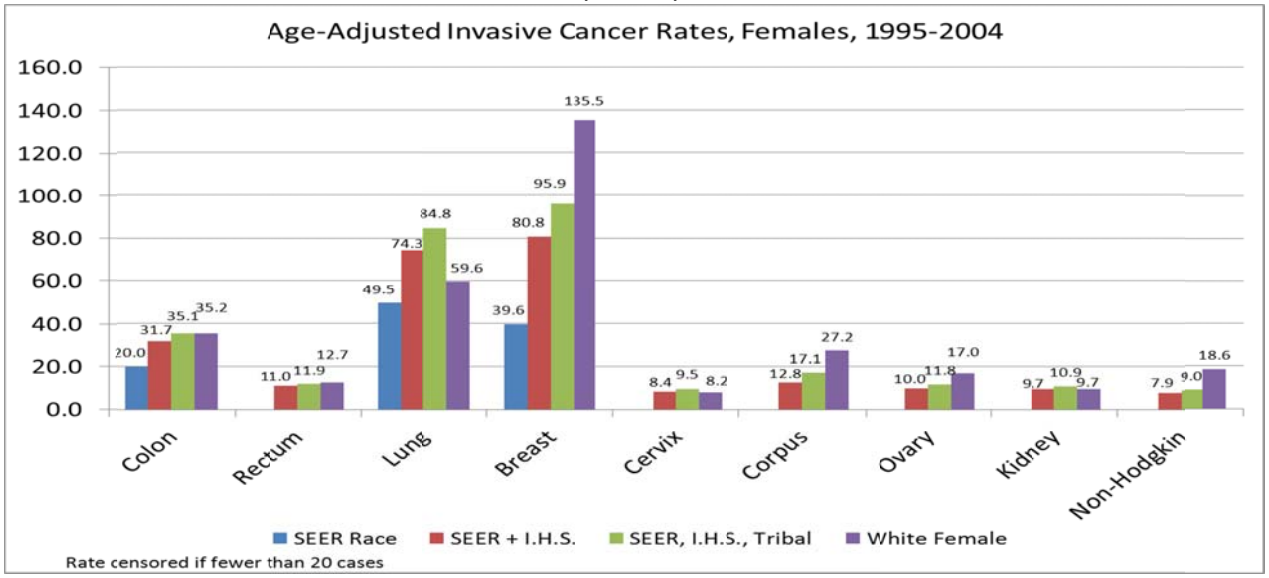

FIGURE 45. AGE-ADJUSTED INVASIVE CANCER RATES, FEMALES, 1995-2004 CANCER REGISTRY SEER DATA

Age-adjusted incidence rates for AI females rose to levels comparable to white female rates for colon, rectum, cervix and kidney and climbed well above the white female rate for lung cancer after the data improvement.

Further analysis conducted in 2012 and cited in the "Disparities of Cancer Incidence among Michigan American Indians[13]" article, found the mean age of diagnosis for all cancers was younger for the AI population, at 56.98 years compared to the all races ages of 62.23 years. Younger age diagnosis is also documented in specific cancers for the AI population compared to the general population. Findings from this analysis specific to Breast and Colon Cancers follow.

Breast Cancer

The 2012 article reports differences in age of diagnosis and late stage breast cancer for white women compared to AI women. The mean age of diagnosis for women with early or late stage breast cancer was 55.44 years for AI/AN women and 61.70 years for white women. Figure 46 below depicts a statistically significant difference in the percentage of cancer cases diagnosed at pre- and postmenopausal ages. Data reveal 36.51% of breast cancers in AI women were diagnosed at premenopause compared to 22.17% for white women. See Figure 46.

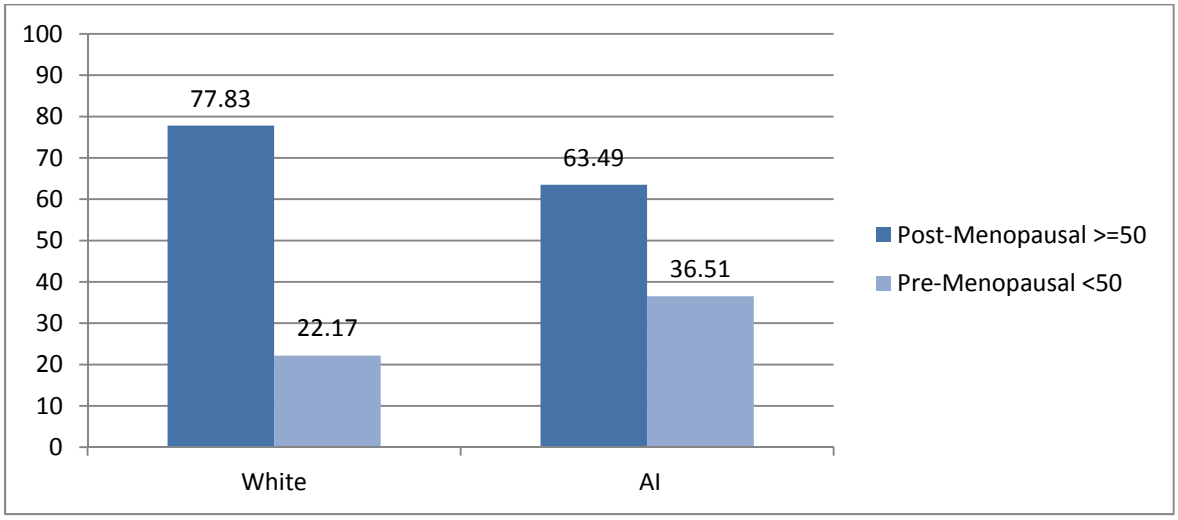

FIGURE 46. BREAST CANCER AMONG AI/AN WOMEN BY AGE OF DIAGNOSIS

Table 13 shows breast cancer incidence by age group. Note that for the 30-34 age range the rate for AI females is higher at 32.2% compared to the white female rate of 28.3%. This age range falls below the standard recommended screening guidelines which begin at age 40. This suggests more research may be needed on early age of diagnosis for AI women, and it could have implications for future breast cancer screening guidelines.

[13] Roen, E. L., Copeland, G. E., Pinagtore, N. L., Meza, R. and Soliman, A. S. (2014), Disparities of cancer incidence in Michigan's American Indians. Cancer. doi: 10.1002/cncr.28589

TABLE 13. INVASIVE BREAST CANCER AGE-SPECIFIC INCIDENCE BY RACE AND AGE GROUP

	AI			White				
Age Group	% of cases	Rate (per 100,000 persons)	95% CI	% of cases	Rate (per 100,000 persons)	95% CI	Hazard Ratio (AI:White)	95% CI
30-34	3.05	32.2	(11.17, 53.23)	1.33	28.3	(26.38, 30.23)	1.14	(0.57, 2.29)
35-39	6.64	45.12	(20.6, 69.65)	3.20	61.25	(58.56, 63.94)	0.74	(0.46, 1.18)
40-44	11.31	78.19	(45.53, 110.86)	6.48	120.51	(116.79, 124.23)	0.65	(0.46, 0.91)
45-49	13.82	116.75	(75, 158.51)	9.56	192.59	(187.7, 197.48)	0.61	(0.46, 0.8)
50-54	12.75	143.14	(91.08, 195.2)	10.92	258.37	(252.23, 264.5)	0.55	(0.42, 0.72)
55-59	12.57	158.28	(92.19, 224.38)	10.98	322.01	(314.39, 329.63)	0.49	(0.37, 0.66)
60-64	11.49	325.24	(212.73,437.74)	10.74	385.21	(376, 394.42)	0.84	(0.61, 1.16)
65-69	11.13	278.88	(159.77, 398)	11.06	431.29	(421.12, 441.45)	0.65	(0.46, 0.91)
70-74	6.82	331.9	(186.68, 477.11)	11.48	463.24	(452.53, 473.96)	0.72	(0.5, 1.04)
75-79	5.75	369.09	(188.57, 549.61)	10.56	485.13	(473.43, 496.83)	0.76	(0.5, 1.17)

COLON CANCER

The mean age of diagnosis for those with an early or late stage colon cancer was 59.6 years for AI males compared to 68.49 for white males. Among AI males with early or late stage colorectal cancer, 77% were diagnosed in the screening appropriate age group, compared to 92.35% of white males. See Figure 47.

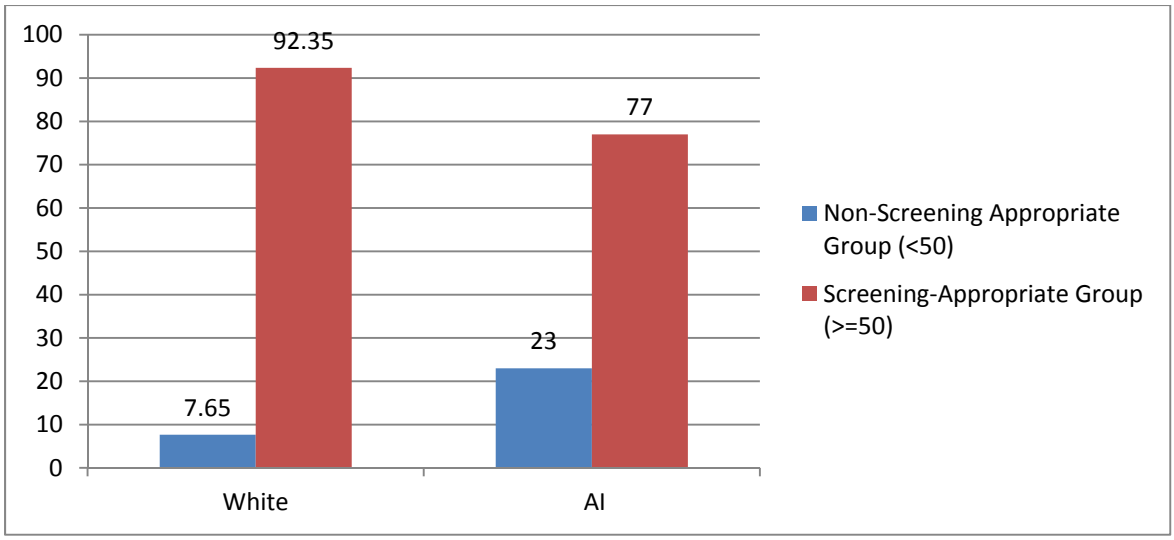

FIGURE 47. COLORECTAL CANCER DIAGNOSIS AMONG AI MALES BY SCREENING RECOMMENDATIONS

Table 14 shows Invasive Colorectal Cancer Age-Specific Incidence Rates (per 100,000 persons) by racial group and Hazard Ratios (AI: White) Males Only. Note the higher rates among males in the 30-34 and 35-39 age range, which is well below the recommended screening age of 50.

TABLE 14. AI COLORECTAL CANCER INCIDENCE RATES COMPARED TO WHITE RATES

Age Group	AI Specific Incidence Rate	95% Confidence Interval	White Specific Incidence Rate	95% Confidence Interval	Hazard Ratio (AI:White)	95% Confidence Interval
30-34	7.07	(0.00, 16.88)	3.41	(2.74, 4.07)	2.08	(0.29, 14.7)
35-39	14.3	(0.29, 28.32)	8.13	(7.15, 9.11)	1.76	(0.49, 6.36)
40-44	10.97	(0.00, 23.39)	13.91	(12.65, 15.18)	0.79	(0.29, 2.16)
45-49	37.83	(13.12, 62.54)	28.14	(26.27, 30.01)	1.34	(0.63, 2.87)
50-54	66.29	(28.8, 103.79)	56.11	(53.24, 58.98)	1.18	(0.64, 2.19)
55-59	111.8	(55.25, 168.34)	92.79	(88.64, 96.94)	1.2	(0.69, 2.1)
60-64	138.62	(63.32, 213.93)	160.02	(153.87, 166.18)	0.87	(0.52, 1.44)
65-69	225.84	(111.68, 340)	239.11	(230.99, 247.22)	0.94	(0.58, 1.55)
70-74	382.17	(205.95, 558.38)	317.17	(307.22, 327.12)	1.2	(0.73, 2)
75-79	239.89	(62.39, 417.39)	405.04	(392.16, 417.91)	0.59	(0.34, 1.04)

Greater percentages of AI males and females with colon cancer are diagnosed at younger ages compared to whites, although the trend was more profound with males. For males, the percentage of individuals younger than age 60 with colon cancer was twice as high for AI persons than white persons (48.5% and 22.6% respectively).

The median age of diagnosis for AI women with early or late stage colon cancer was 65.68 years compared to 71.67 years for white women. Among AI women diagnosed with early or late stage colon cancer, 85.9% were diagnosed within the age-appropriate group for screening, compared to 93.56% of white women. See Figure 48.

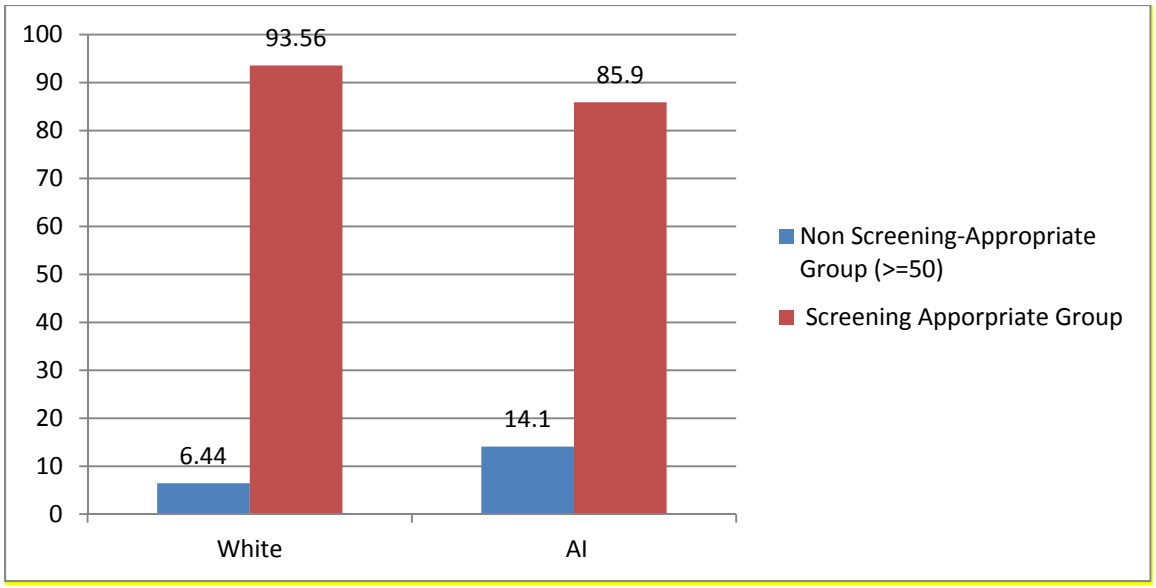

FIGURE 48. LATE STAGE COLORECTAL CANCER DIAGNOSIS AMONG WHITE FEMALES AND AI FEMALES

CANCER SCREENING RATES

In 2008, the Michigan Cancer Consortium (MCC) conducted a Special Cancer Behavior Risk Factor Survey (SCBRFS) and oversampled Native Americans in Michigan to obtain data that could identify disparities in cancer screening behaviors. At the request of ITCM, the MCC provided the responses for all Native American participants to enable ITCM to provide comparison data specific to Native Americans and tribal service area. More information on the SCRBS can be found at http://www.michigancancer.org/Resources/CancerData.cfm?nav=17.

BREAST CANCER (WOMEN AGED 40 YEARS OR OLDER)

In general, breast cancer is the most frequently diagnosed cancer and the second leading cause of cancer death among women. About 1,350 women are estimated to have died of breast cancer, and about 6,480 women are estimated to have been newly diagnosed with breast cancer in 2009 in Michigan.[14]

Results from the 2008 SCBRFS found that 59.4% (+ 4.5%) of Michigan women 40 years of age and older had an appropriate breast cancer screening, which includes a mammogram and clinical breast exam (CBE), within the past year compared to 48% of Native American women. When the time line is extended from 1 year to 2 years, the screening rate for the general population of Michigan women increases to 75% compared to 53.5% of Native American women. See Table 15.

[14] http://www.michigancancer.org/PDFs/MCCReports/CancerBurden-Sept2009/CancerBurdenInMichigan-Sept09-AllSections.pdf

TABLE 15. MAMMOGRAM AND CBE SCREENING, SPECIAL CANCER BEHAVIOR RISK FACTOR SURVEY

	Estimate AI Women	95% Confidence Interval		N
		Lower	Upper	
Mammogram and CBE within the past year	48.0%	25.7%	71.2%	185
Mammogram and CBE within the past 2 years	53.5%	30.4%	75.2%	219

CERVICAL CANCER (WOMEN AGED 40 YEARS AND OLDER)

Experts believe that virtually all cervical cancer deaths could be prevented by a combination of safe sex practices, routine Pap Tests, and appropriate follow-up of abnormal screening results. An estimated total number of 320 new cervical cancer cases occurred in Michigan in 2009.[15] Rates of cervical cancer and pre-invasive cervical lesions have been found to be higher for AI/AN women when compared to other populations.[16] The Michigan Cancer Consortium's (MCC) recommendation for cervical cancer screening is an annual Pap test among women aged 21 years and older and/or three years after the onset of sexual activity. Women who are not considered high risk may increase their screening interval to every two years after three consecutive annual negative Pap Tests.

The percent of women age 40 and over having a Pap Test for the general population was 99.2% compared to 57.9% for Native American women age 40 and over. When looking at having a Pap Test within the past three years, the percent among the general population of women decreases to 79% and the percent for Native American women increases to 89.6%. See Table 16.

TABLE 16. PAP TEST

	Estimate AI Women	95% Confidence Interval		N
		Lower	Upper	
Pap test within past year	57.9%	33.0%	79.3%	175
Pap test within past 3 years	89.6%	83.6%	93.5%	248

[15] http://www.michigancancer.org/PDFs/MCCReports/CancerBurden-Sept2009/CancerBurdenInMichigan-Sept09-AllSections.pdf
[16] Regional Differences in Cervical Cancer Incidence among American Indians and Alaska Natives, 1999-2004; Becker et al; Supplement to Cancer; published online 20 August 2008 in Wiley InterScience.

COLORECTAL CANCER (ADULTS AGED 50 YEARS AND OLDER)

Overall, colorectal cancer (CRC) is the third leading cause of cancer-related death in Michigan. An estimated total number of 5,020 men and women were diagnosed with invasive colorectal cancer and 1,720 men and women died from the disease in 2009 in Michigan.[17] AI/AN persons are more often diagnosed with CRC at younger ages, and with advanced stages of disease compared to non-Hispanic White persons.[18] Research shows that completing recommended cancer screening tests can decrease the CRC incidence and mortality.

The Michigan Cancer Consortium's (MCC) recommendation for colorectal cancer screening is for average risk individuals age 50 years or older to have either 1) annual fecal occult blood test (FOBT) or a sigmoidoscopy every five years, or 2) annual FOBT combined with a sigmoidoscopy every five years, or 3) a colonoscopy every ten years. Table 17 shows the percent of Native American adults who completed age-appropriate colorectal cancer screenings according to recommended screening guidelines. About 3 out of 5 Native American adults are having the recommended screenings completed that could detect colorectal cancer. Among Michigan adults in the general population 50 years of age and older, the percentage of those who received an appropriately timed colorectal cancer screening in 2008 was 60% which was the same as 60% among Native Americans. It is important to note that this percentage is well below the MCC screening goal of 75% of adults having appropriately-timed colorectal cancer screenings.

TABLE 17. ADULTS WITH AGE-APPROPRIATE COLORECTAL CANCER SCREENING

	Estimate AI Adults	95% Confidence Interval		N
		Lower	**Upper**	
Yes	60.0%	40.1%	77.1%	244
No	40.0%	22.9%	55.9%	204

PROSTATE CANCER SCREENING (MALES AGED 40 AND OLDER)

Research shows Northern and Southern Plains Native men have 15+ times more prostate cancer cases than Natives from other regions. [19] A Prostate Specific Antigen (PSA) test is used to screen for prostate cancer in men. At this time, there are insufficient data to recommend for or against routine testing for early prostate cancer detection with the PSA test. The screening rate among those who have had a PSA test within the past year for Michigan's general population is 69.3% compared to the lower screening rate of 44.5% for Michigan's Native American men ages 40 and older. See Table 18.

[17] http://www.michigancancer.org/PDFs/MCCReports/CancerBurden-Sept2009/CancerBurdenInMichigan-Sept09-AllSections.pdf
[18] Geographic Variation in Colorectal Cancer Incidence and Mortality, age of onset and state at diagnosis among AI/AN people, 1990-2009; Perdue, D et al, Am Journal of Public Health April 22, 2014.
[19] Burhansstipanov; www.natamcancer.org; Get on the Path to Prostate Health accessed May 8, 2014.

TABLE 18. AI MALES WITH A PSA TEST IN THE PAST YEAR

% of total	Estimate AI Males	95% Confidence Interval		N
		Lower	Upper	
Yes	44.5%	15.7%	77.5%	85
No	55.5%	22.5%	84.3%	40

CHRONIC DISEASE

OVERVIEW

Chronic diseases are among the most common, costly, and preventable of all health problems in the U.S. and are the leading causes of death and disability. Diseases such as heart disease, cancer and stroke account for over half of all deaths each year[20]. Four modifiable health risk behaviors—lack of physical activity, poor nutrition, tobacco use, and excessive alcohol consumption—are responsible for much of the illness, suffering, and early death related to chronic diseases.

This section of the report examines chronic disease prevention, incidence, and the management and treatment of chronic conditions through analysis of data collected by multiple Tribes using the American Indian Adult Tobacco Survey from 2010 through 2012. Data from the REACH Risk Factor Survey (2007-2012) and the Steps Behavioral Risk Factor Survey are also included in this section as well as comparable findings from the 2011 and 2012 Michigan Behavioral Risk Factor Survey. A full description on the survey methodology of the BRFS can be reviewed here: http://www.cdc.gov/brfss/factsheets/pdf/DBS_BRFSS_survey.pdf

PREVENTION

Having high blood cholesterol is a risk factor of heart disease; people with high cholesterol have about twice the risk of heart disease as people with lower levels.[21] High cholesterol has no symptoms and many people don't know their cholesterol is too high.

A large proportion of participants in all tribes surveyed reported that they had ever had their cholesterol checked. Ranging from 64% to 82%, the majority of tribes had reports from over three-quarters of participants that they received this preventive health screening. See Figure 49.

[20] Kung HC, Hoyert DL, Xu JQ, Murphy SL. Deaths: final data for 2005. National Vital Statistics Reports 2008;56(10). Available from: http://www.cdc.gov/nchs/data/nvsr/nvsr56/nvsr56_10.pdf

[21] CDC. Vital signs: prevalence, treatment, and control of high levels of low-density lipoprotein cholesterol. United States, 1999–2002 and 2005–2008. ***MMWR***. 2011;60(4):109–14.

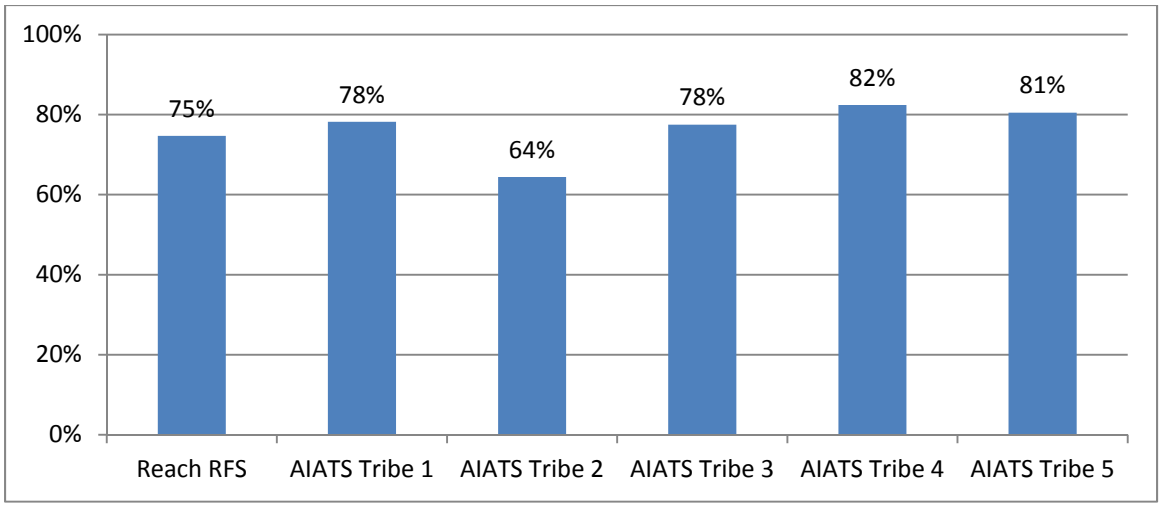

FIGURE 49. PARTICIPANTS WHO HAVE EVER HAD THEIR CHOLESTEROL CHECKED.

Among those that reported ever having their cholesterol checked, over three-quarters of all participants from all tribes surveyed had done so in the past year (76% to 84%). See Table 19 and Figure 50.

TABLE 19. LENGTH OF TIME SINCE LAST BLOOD CHOLESTEROL CHECK.

	REACH RFS	AI ATS Tribe 1	AI ATS Tribe 2	AI ATS Tribe 3	AI ATS Tribe 4	AI ATS Tribe 5
Within the past year	76%	80%	84%	78%	76%	84%
1-2 years ago	14%	13%	10%	16%	12%	7%
2-5 years ago	6%	4%	4%	3%	7%	3%
5 or more years ago	5%	2%	0%	1%	5%	5%

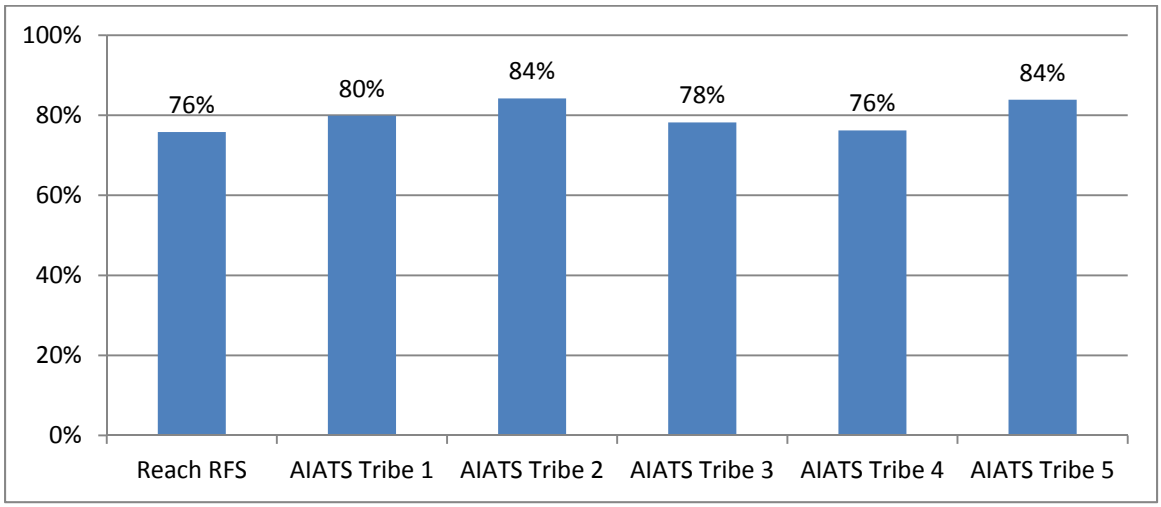

FIGURE 50. PARTICIPANTS WHO HAVE HAD THEIR CHOLESTEROL CHECKED IN THE PAST YEAR.

With timely treatment, the risk of death from myocardial infarction (heart attack) and death and disability from stroke can be lowered. It is very important to know the symptoms of a stroke or heart attack and act in time.

Participants were asked on the REACH RFS if they knew the signs and symptoms of a myocardial infarction. About one in ten (11%, n=1073) participants correctly identified the signs and symptoms. Participants were more likely to know the signs of a stroke, with 17% (n=1073) responding that they knew signs associated with strokes. See Figure 51.

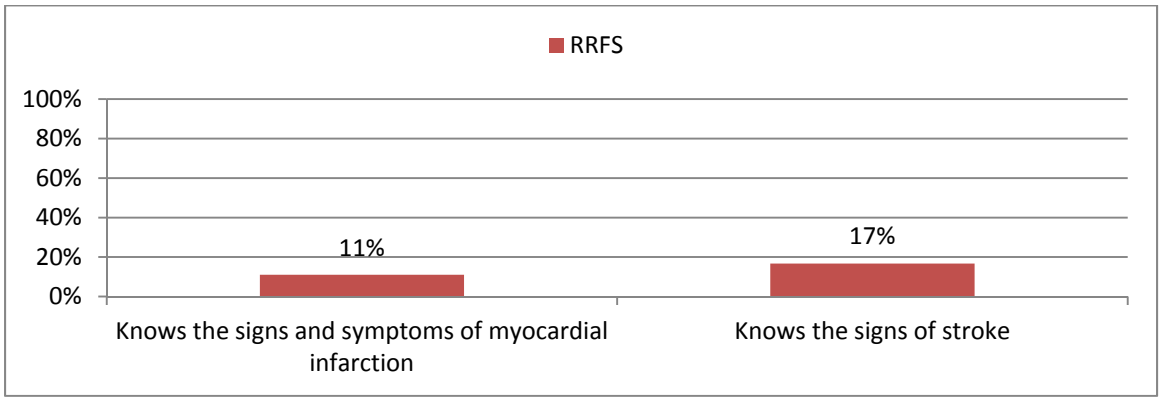

FIGURE 51. PARTICIPANTS WHO KNOW THE SIGNS AND SYMPTOMS OF MYOCARDIAL INFARCTION AND STROKE.

INCIDENCE

ASTHMA

Rates of asthma diagnoses ranged from 8% to 24% among the AI ATS surveyed tribes and the Steps BRFS surveyed tribes. Of the participants who had ever been told by a doctor, nurse, or other health professional that they have asthma, many still reported having the chronic disease. Out of all the participants, the rate of current asthma ranged from 3% to 16%. See Figure 52.

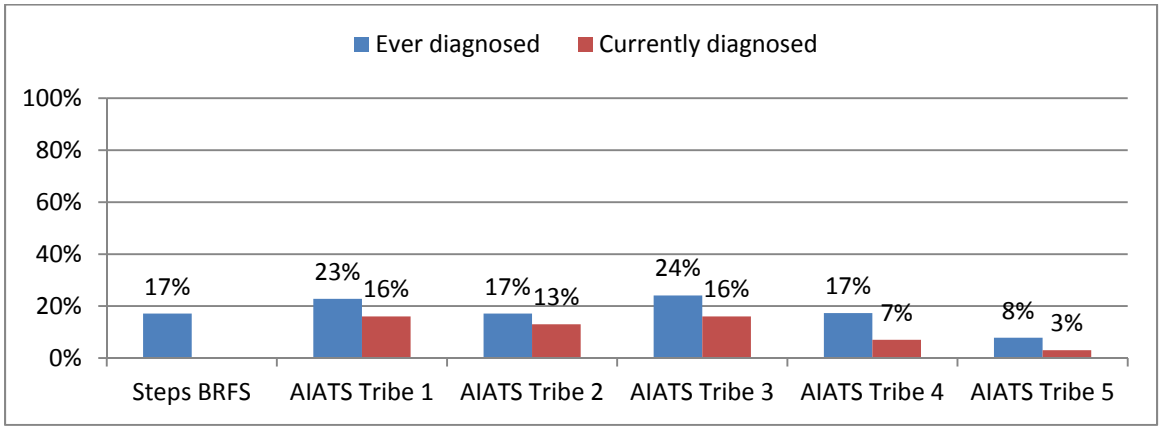

FIGURE 52. DIAGNOSES OF ASTHMA AMONG PARTICIPANTS, EVER AND CURRENT.

DIABETES

In 2010, diabetes was the seventh leading cause of death in the US.[22] Obesity, poor diet, physical inactivity, and high blood pressure are just a few of the known risk factors that are associated with the development of diabetes.[23]

Across all data sources, rates of diabetes were much higher among tribal participants than the reported rate of diabetes in Michigan compared to the 2012 BRFS data (11%). See Figure 53. The rate of diabetes diagnosis by a doctor, nurse, or other health professional among participants ranged from 18% to 31%. See Figure 53. A small proportion of participants from every data source reported being pre-diabetic (0% to 5%). The rate of diagnosis of gestational diabetes was also small among all tribes (0% to 4%). See Table 20.

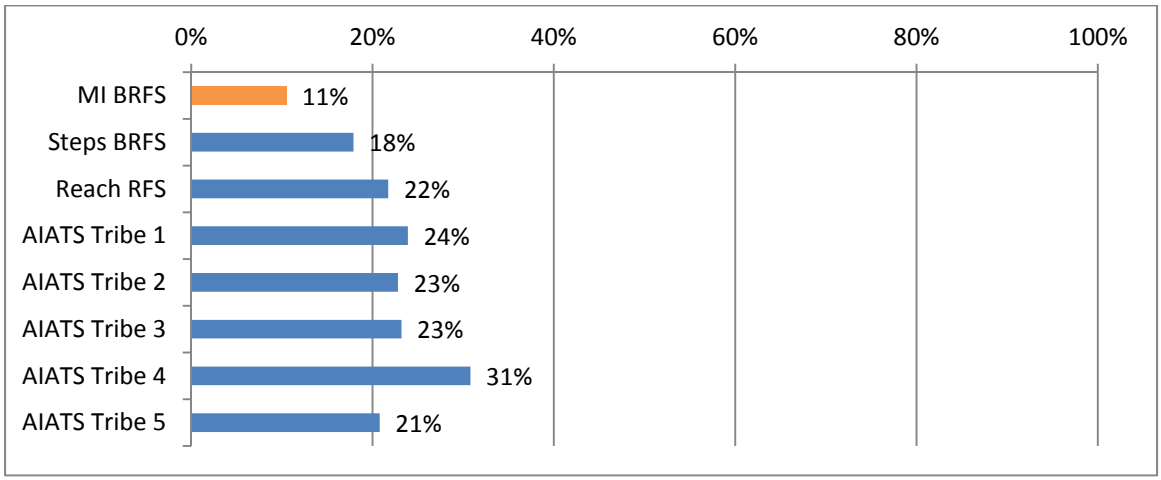

FIGURE 53. PARTICIPANTS WHO HAVE EVER BEEN TOLD BY A DOCTOR, NURSE OR OTHER HEALTH PROFESSIONAL THAT YOU HAVE DIABETES.

TABLE 20. DIABETES DIAGNOSIS

	Steps BRFS	REACH RFS	AI ATS Tribe 1	AI ATS Tribe 2	AI ATS Tribe 3	AI ATS Tribe 4	AI ATS Tribe 5
Yes	18%	22%	24%	23%	23%	31%	21%
Yes, but only when pregnant	1%	---	3%	2%	1%	4%	1%
No	80%	73%	72%	74%	75%	65%	74%
No, pre-diabetes	2%	5%	1%	0%	1%	0%	4%

[22] Michigan Department of Community Health, Division of Vital Records & Health Statistics. Deaths and Crude Death Rates for the Ten Leading Causes of Death, Michigan and United States Residents, 2010. http://www.mdch.state.mi.us/pha/osr/deaths/causrankcnty.asp. (August 2013).

[23] Centers for Disease Control and Prevention. 2012. Diabetes Public Health Resource - Basics About Diabetes. http://www.cdc.gov/diabetes/consumer/learn.htm. (August 2013).

High Blood Pressure

Ranging from around one-quarter to just over half (27%-51%) of the population, a diagnosis of high blood pressure from a doctor, nurse, or other health professional was common among surveyed tribal participants. Although rates in some tribes were higher than the 2011 Michigan BRFS rate of high blood pressure (34%), overall the rates were very similar. See Figure 54.

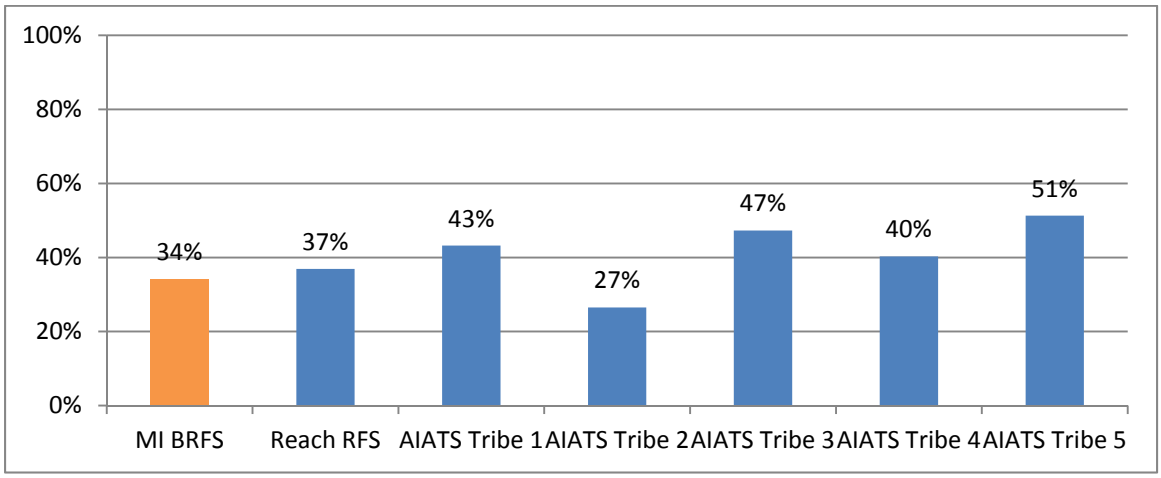

FIGURE 54. PARTICIPANTS WHO HAVE BEEN TOLD BY A DOCTOR, NURSE, OR OTHER HEALTH PROFESSIONAL THAT YOU HAVE HIGH BLOOD PRESSURE.

High Blood Cholesterol

Among the participants who have had their cholesterol checked, many reported being told by their doctor, nurse, or other health professional that they have high blood cholesterol. The rate of diagnosed high cholesterol ranged from 32% to 48%. Most adults in surveyed tribes reported a higher rate of high cholesterol diagnoses than the 2011 Michigan BRFS rate (42%). See Figure 55.

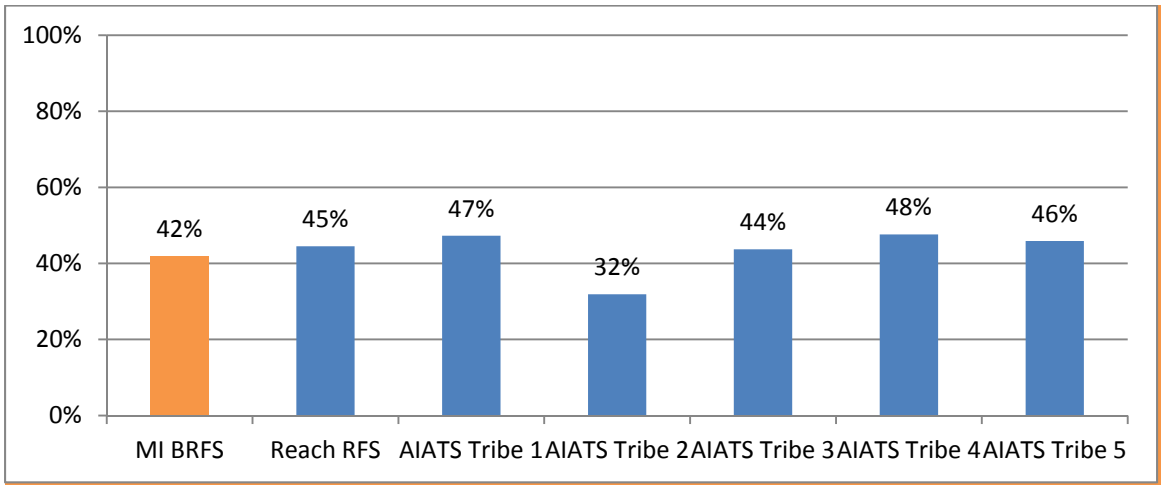

FIGURE 55. PARTICIPANTS WHO HAVE BEEN TOLD BY A DOCTOR, NURSE, OR OTHER HEALTH PROFESSIONAL THAT THEY HAVE HIGH BLOOD CHOLESTEROL.

Cardiovascular Disease

A small percentage of participants across all tribal data sources reported having been told by a doctor, nurse, or other health professional that they have had a myocardial infarction (heart attack). Ranging from 6% to 9% of the total population, surveyed adults in every tribe had a higher rate of heart attacks than the 2012 Michigan BRFS rate of 5%. See Figure 56.

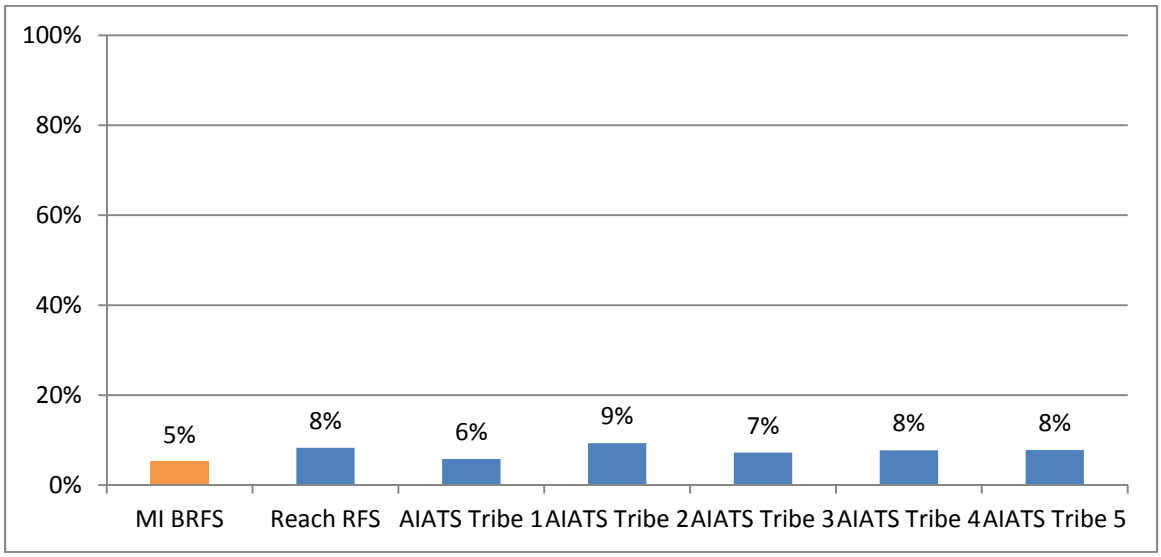

FIGURE 56. PARTICIPANTS WHO HAVE BEEN TOLD BY A DOCTOR, NURSE, OR OTHER HEALTH PROFESSIONAL THAT THEY HAVE HAD A HEART ATTACK (MYOCARDIAL INFARCTION).

When asked about angina or coronary heart disease, most tribal survey participants reported very similar rates to the 2012 Michigan BRFS rate of 5%, ranging from 5% to 10% of the total population. See Figure 57.

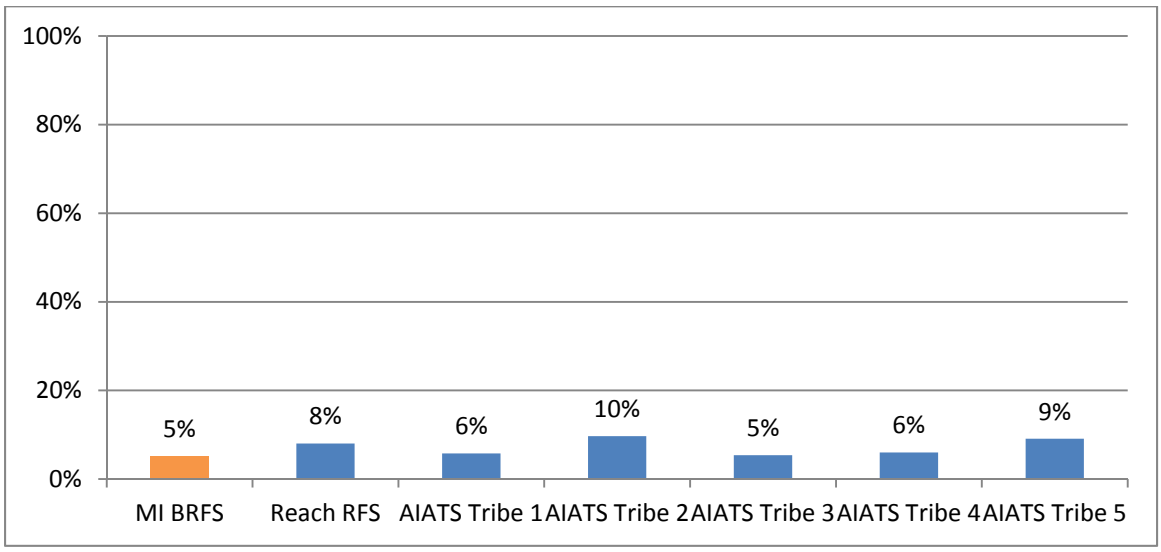

FIGURE 57. PARTICIPANTS WHO HAVE BEEN TOLD BY A DOCTOR, NURSE, OR OTHER HEALTH PROFESSIONAL THAT THEY HAVE ANGINA OR CORONARY HEART DISEASE.

The percentage of tribal survey participants who reported ever being told by a doctor, nurse, or other health professional that they have had a stroke was relatively equal across all data sources, ranging from 2% to 6%. Adults in most tribes reported similar rates to the 2012 Michigan BRFS rate of 4%. However, the margin of error for the estimates does not allow for any conclusions to be drawn about any true differences in the reported rates. See Figure 58.

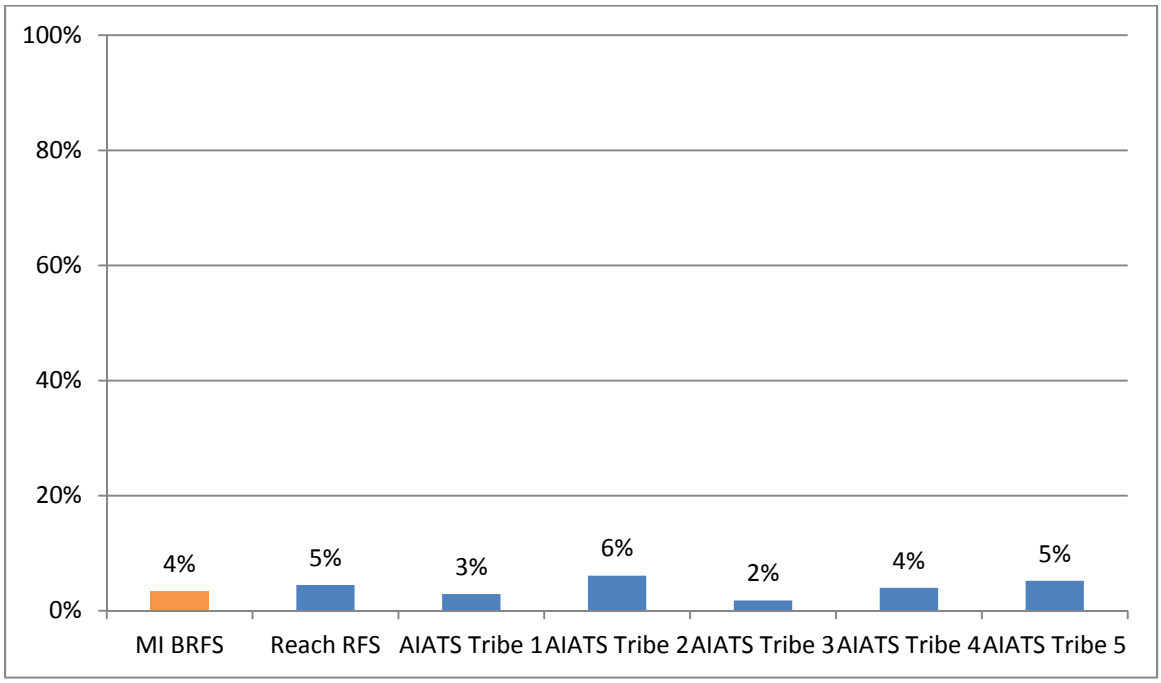

FIGURE 58. PARTICIPANTS WHO HAVE BEEN TOLD BY A DOCTOR, NURSE, OR OTHER HEALTH PROFESSIONAL THAT THEY HAVE HAD A STROKE.

Overweight and obesity have been proven to increase the risk of many diseases and health conditions, such as high blood pressure, diabetes, coronary heart disease, stroke, gallbladder disease, high cholesterol, and some forms of cancer.[24] Overweight is defined as having a body mass index (BMI) between 25.0 and 29.9, and obesity is defined as a BMI greater than or equal to 30.0. BMI is defined as weight in kilograms divided by height in meters squared (w/h^2) and is calculated based on self-reported height and weight.

Looking across all tribal data sources, surveyed participants in every tribe reported rates of obesity higher than the 2012 Michigan BRFS rate of 31%. See Figure 59. Ranging from 33% to 54%, the majority of participants in most surveyed tribes were considered obese. Some tribes had a higher rate of participants with a healthy weight than other tribes; this rate ranged from 11% to 29%. See Table 21 .

[24] Centers for Disease Control and Prevention. 2012. Overweight and Obesity - Causes and Consequences. http://www.cdc.gov/obesity/adult/causes/index.html. (August 2013).

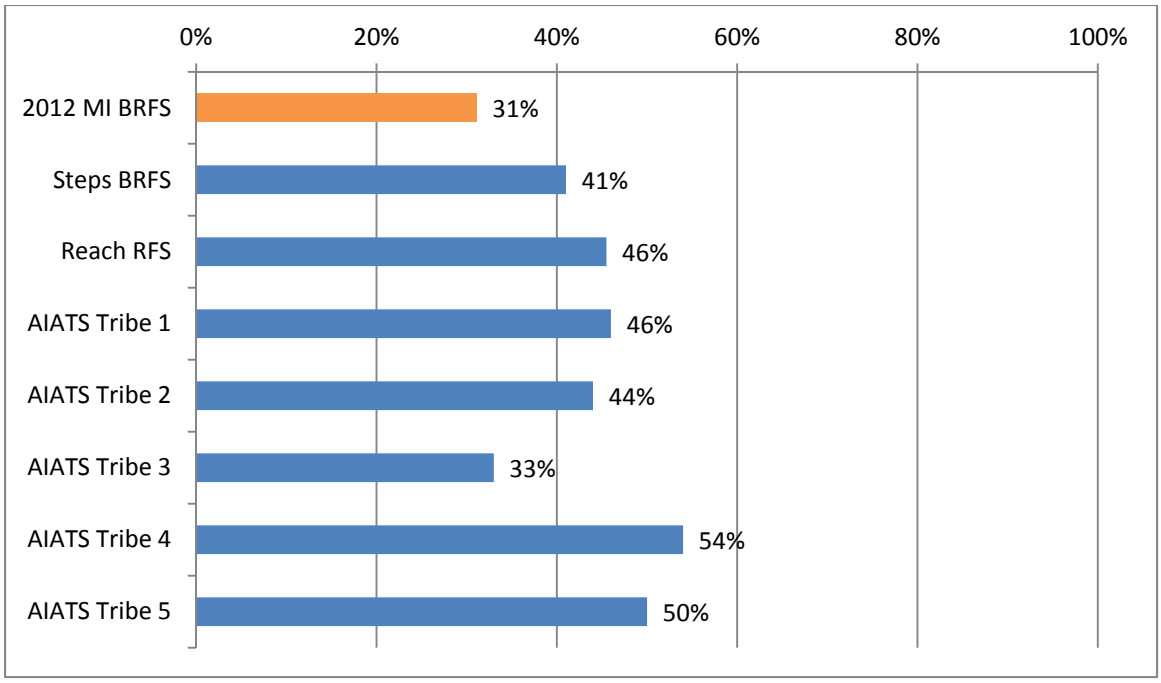

FIGURE 59. PARTICIPANTS CATEGORIZED AS OBESE.

TABLE 21. WEIGHT STATUS, BY BODY MASS INDEX CATEGORIES

	Steps BRFS	REACH RFS	AI ATS Tribe 1	AI ATS Tribe 2	AI ATS Tribe 3	AI ATS Tribe 4	AI ATS Tribe 5
Underweight	0%	0%	0%	0%	2%	0%	1%
Healthy	23%	24%	22%	24%	29%	15%	11%
Overweight	36%	31%	32%	32%	35%	31%	38%
Obese	41%	46%	46%	44%	33%	54%	50%

Multiple Chronic Conditions

The REACH Risk Factor Survey and the AI ATS data were analyzed to examine the co-morbidity of multiple chronic diseases among participants. Heart disease, defined as participants who had ever been told by their doctor that they have had a myocardial infarction or have coronary heart disease, ranged from 8% to 14%. See Figure 60. The amount of participants with both high blood pressure and high blood cholesterol varied greatly across the tribes (13%-26%). See Figure 61. The proportion of participants who had been diagnosed with both diabetes and cardiovascular disease (CVD), ranged from 5% to 9% in tribes surveyed. See Figure 62. When looking at the participants who were obese and had diabetes and heart disease diagnoses, the rate across all tribes ranged from 2% to 9%. See Figure 63.

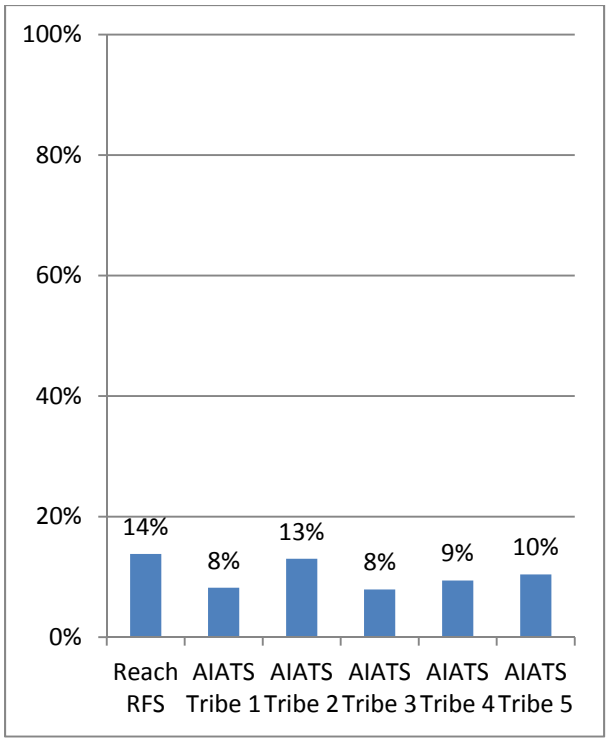

FIGURE 60. PARTICIPANTS WITH HEART DISEASE.

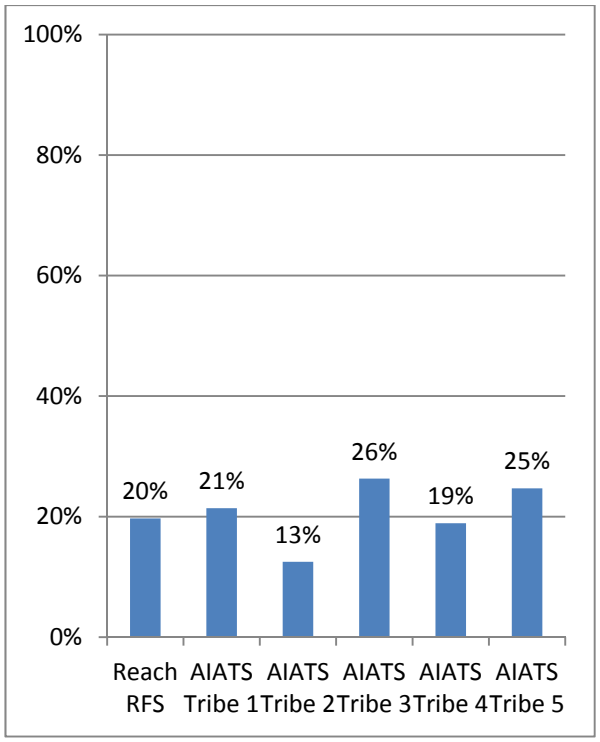

FIGURE 61. PARTICIPANTS WITH HIGH BLOOD PRESSURE AND HIGH CHOLESTEROL.

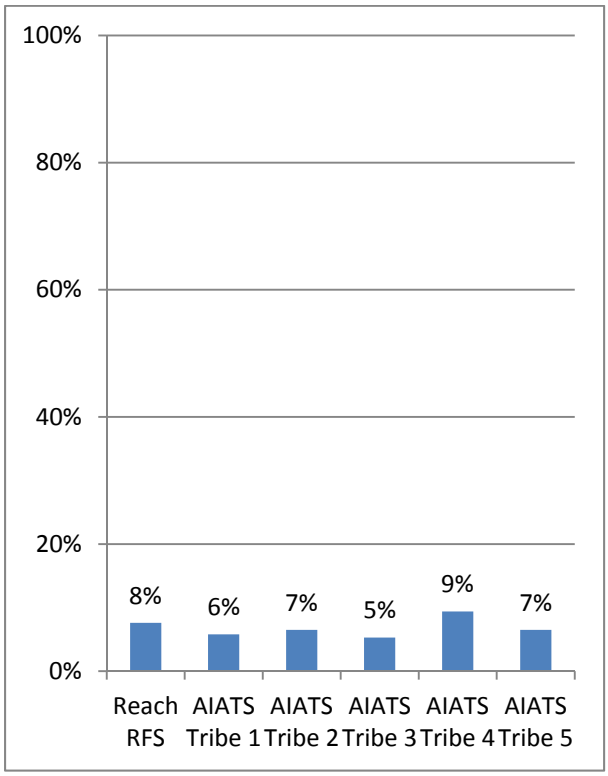

FIGURE 62. PARTICIPANTS WITH DIABETES AND CARDIOVASCULAR DISEASE.

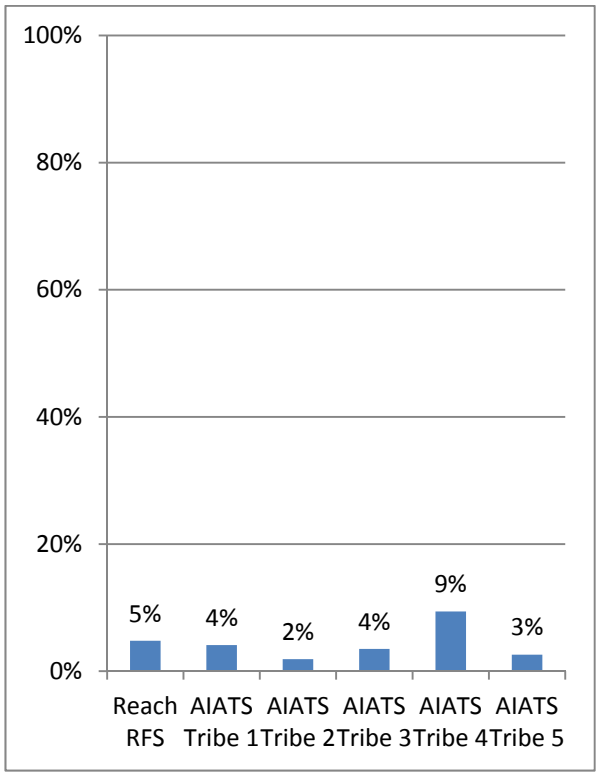

FIGURE 63. PARTICIPANTS WITH OBESITY, DIABETES, AND CARDIOVASCULAR DISEASE.

MANAGEMENT & TREATMENT

DIABETES

Disability and premature death are not inevitable consequences of diabetes. Physical activity and dietary interventions, self-management training, ongoing support, and, when necessary, medications can help control the effects of diabetes. By working with a support network and health care providers, a person with diabetes can prevent premature death and disability.

Questions about managing diabetes with medications were asked on the American Indian Adult Tobacco Survey. Participants who reported ever being diagnosed with diabetes were asked if they were taking insulin or medicine for diabetes. The majority of diabetics reported taking medicine or insulin, with rates ranging from 65% to 88% among the five surveyed tribes. See Figure 64.

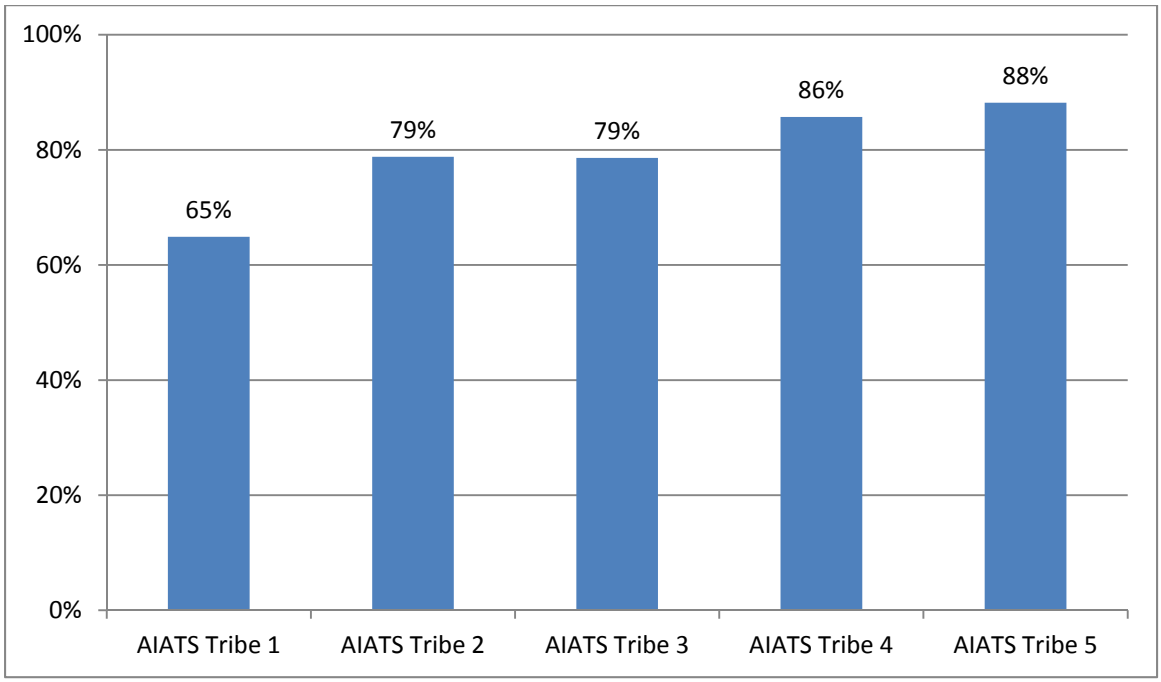

FIGURE 64. DIABETIC PARTICIPANTS TAKING INSULIN OR MEDICINE FOR DIABETES.

REACH Risk Factor Survey participants diagnosed with diabetes was asked questions regarding the self-management of their diabetes. About 3 out of 5 (57%, n=249) diabetics had ever taken a course or class to self-manage their diabetes. See Figure 65. When asked to report the frequency of checking their blood sugar per month, most diabetic participants said they checked their levels over 60 times per month (44%, n=221). See Figure 66. Over three-fifths (62%, n=143) of participants with diabetes reported checking their feet more than 30 times per month. See Figure 67.

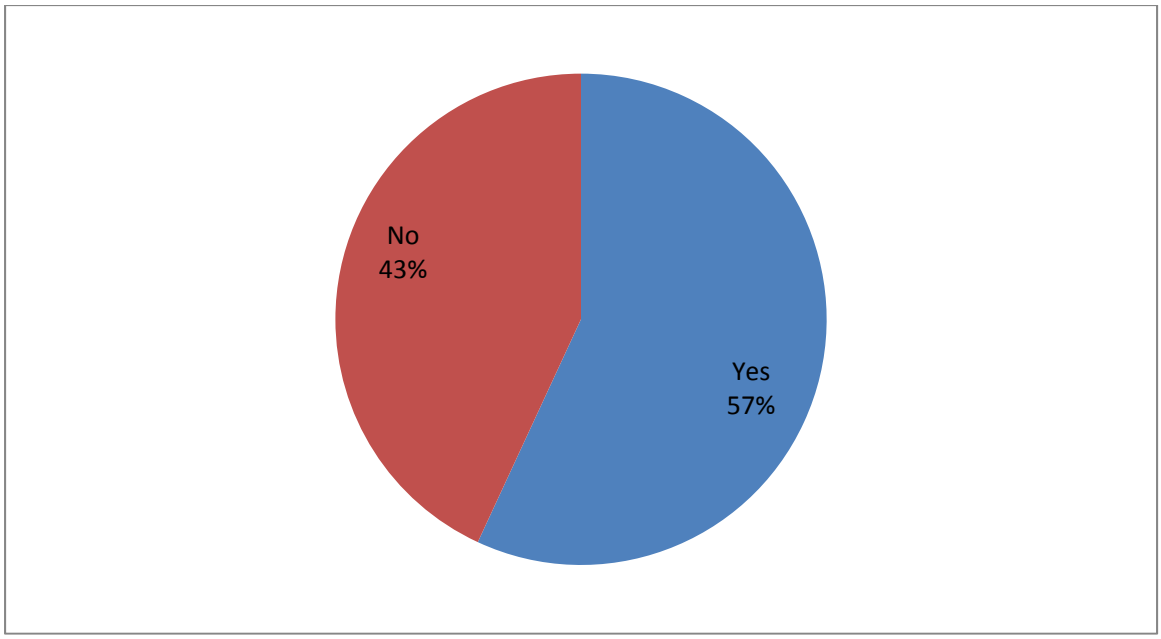

FIGURE 65. DIABETIC PARTICIPANTS WHO HAVE EVER TAKEN A COURSE/CLASS TO SELF-MANAGE DIABETES.

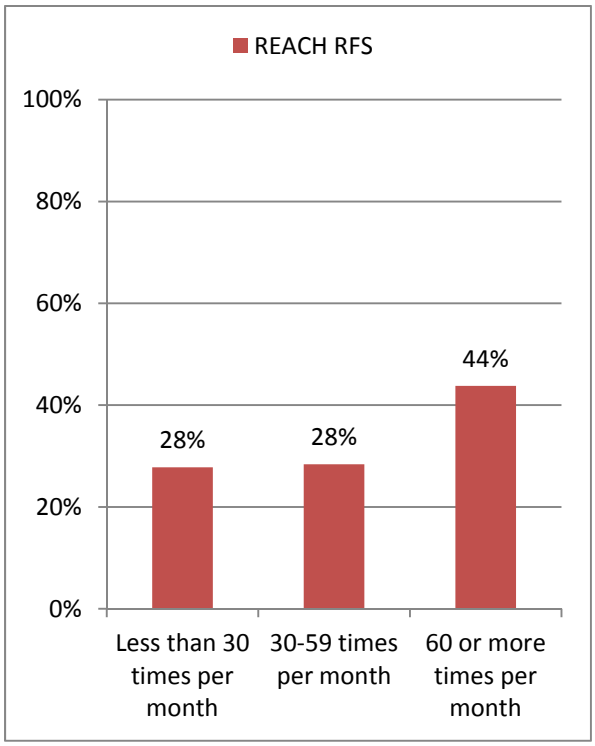

FIGURE 66. FREQUENCY OF CHECKING BLOOD SUGAR PER MONTH, NOT BY PROFESSIONAL, AMONG DIABETIC PARTICIPANTS.

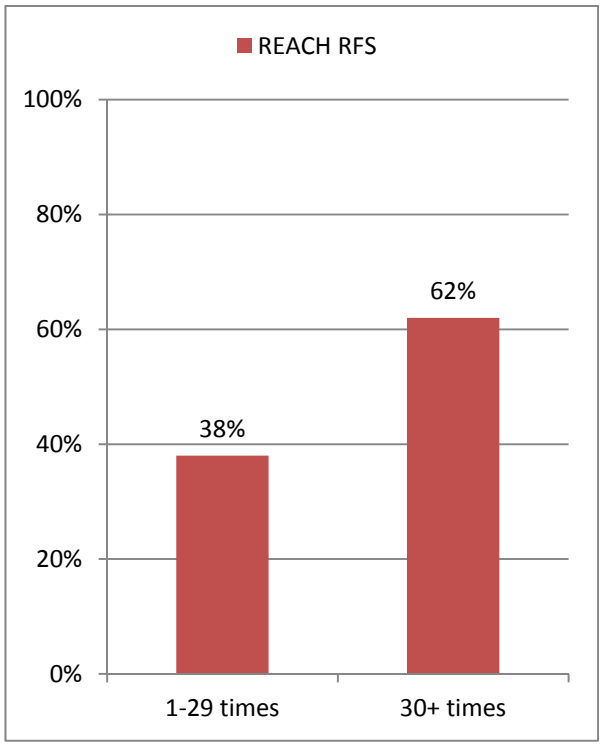

FIGURE 67. FREQUENCY OF CHECKING FEET PER MONTH, NOT BY PROFESSIONAL, AMONG DIABETIC PARTICIPANTS.

Participants were also asked about how many times in the past year they visited a health professional for their diabetes. About half (46%, n=248) had visited the doctor less than four times in the past year, while nearly one-quarter (23%, n=248) of diabetics had visited the doctor more than 4 times in the past year for diabetes-related care. See Figure 68. Participants were asked to report on the frequency of hemoglobin A1c tests performed by their doctor in the past 12 months. Participants most frequently had this test performed two to three times per year (35%, n=235), however about one-third (32%, n=235) had a hemoglobin A1c test more than four times per year. See Figure 69. Participants with diabetes were also asked about the frequency of foot checks by a health professional for sores or irritations in the past year. Although one-fifth (20%, n=204) reported that their provider did not check their feet, the majority (34%, n=204) had their feet checked three to four times. See Figure 70.

REACH Risk Factor survey participants diagnosed with diabetes were asked about the care they had received in the past year for their diabetes. Over four-fifths (83%, n=247) of participants reported foot checks, 80% reported having their hemoglobin A1c measured, and three-quarters (75%, n=251) reported having a dilated eye exam in the past year. See Figure 71.

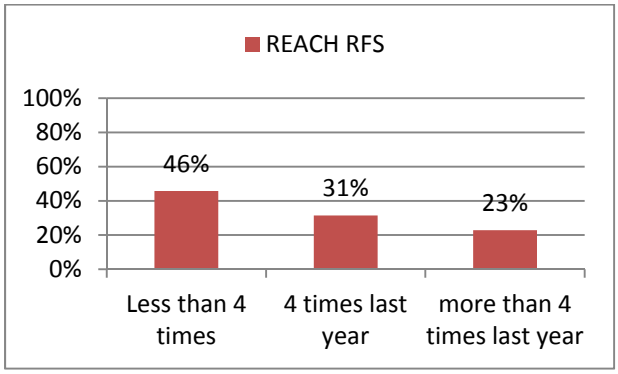

FIGURE 68. FREQUENCY OF VISITS WITH A HEALTH PROFESSIONAL IN THE PAST 12 MONTHS AMONG DIABETIC PARTICIPANTS.

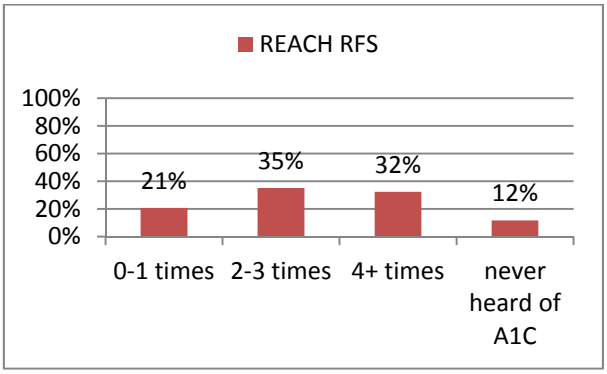

FIGURE 69. FREQUENCY OF HEMOGLOBIN A1C TESTS BY DOCTOR IN PAST 12 MONTHS AMONG DIABETIC PARTICIPANTS.

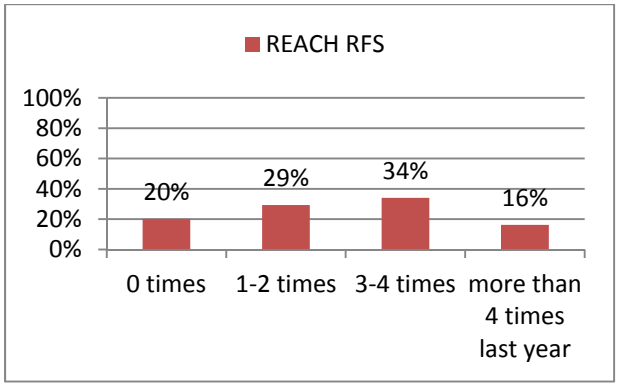

FIGURE 70. FREQUENCY OF FEET CHECKS BY HEALTH PROFESSIONAL FOR SORES OR IRRITATIONS IN PAST 12 MONTHS AMONG DIABETIC PARTICIPANTS.

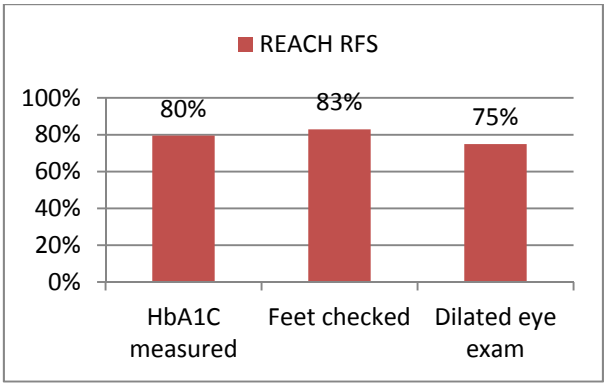

FIGURE 71. PAST YEAR DIABETES CARE AMONG DIABETIC PARTICIPANTS.

High Blood Pressure

High blood pressure can be managed and treated by making lifestyle changes. Eating a healthy diet, avoiding sodium, maintaining a healthy weight, and being physically active can help lower blood pressure. Although medications can be prescribed to help control blood pressure, lifestyle changes are just as important as taking medications.

Responses from the REACH RFS and AI ATS indicated the majority of participants with high blood pressure were taking medicine for their high blood pressure (63% to 82%). See Figure 72. REACH RFS participants were asked about lifestyle changes they were making to help lower or control their blood pressure. Of all the actions, changing eating habits was the most popular action reported by participants, with nearly three-quarters (71%, n=429) of participants with high blood pressure reporting taking this action. Participants were least likely to report reducing their alcohol use to help control or lower their blood pressure, with only 35% (n=429) reporting taking this action. Notably, almost two-thirds (64%) of participants reported they were reducing their salt intake (n=428) or reported they were exercising (n=427) to help control or lower their high blood pressure. See Figure 73.

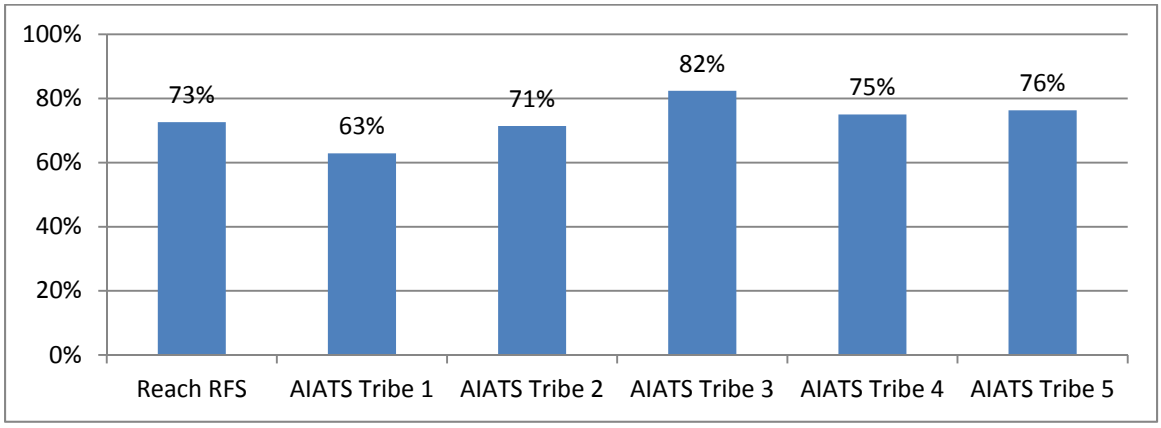

FIGURE 72. PARTICIPANTS WITH HIGH BLOOD PRESSURE TAKING MEDICINE FOR HIGH BLOOD PRESSURE.

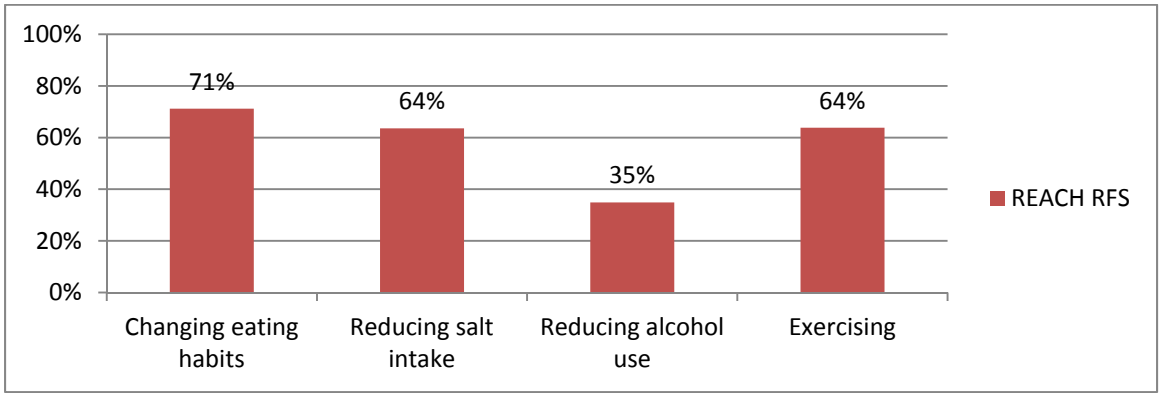

FIGURE 73. ACTIONS BEING TAKEN BY PARTICIPANTS WITH HIGH BLOOD PRESSURE TO HELP LOWER OR CONTROL HIGH BLOOD PRESSURE.

HIGH CHOLESTEROL

Participants of the AI ATS with diagnosed high cholesterol were asked about the management of their condition. Across all surveyed tribes, well over half of the participants with high cholesterol reported taking medicine prescribed for high blood cholesterol (range: 56% to 65%). See Figure 74.

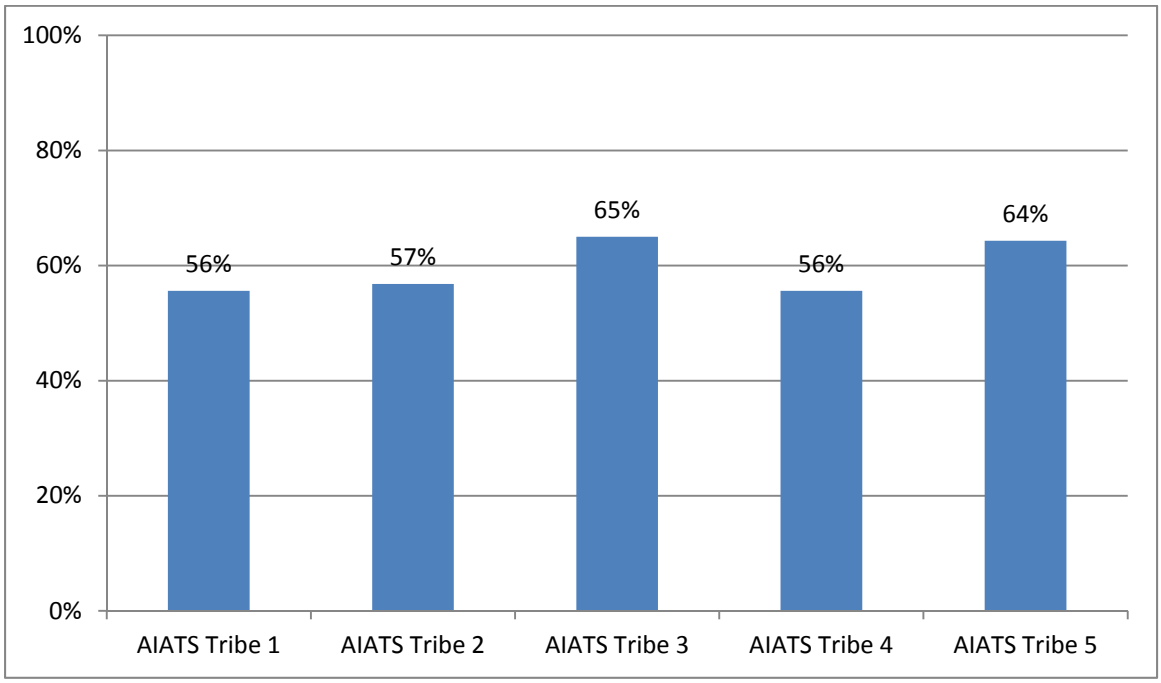

FIGURE 74. PARTICIPANTS WITH HIGH BLOOD CHOLESTEROL TAKING MEDICINE FOR HIGH BLOOD CHOLESTEROL.

Data Sources & Methods

Data in this report are compiled from multiple data sources, each with its own unique population, sampling methodology, data collection and analysis procedures. The following is a description of the methods and limitations of each data source. For more information, contact: Noel Pingatore at the Inter-Tribal Council of Michigan, noelp@itcmi.org

American Indian Adult Tobacco Survey

The AI ATS uses a combination of standard core questions and a set of optional supplemental questions. The AI ATS also allows tribes to add their own questions. The questionnaire is divided into topical sections, with each section containing a set of questions relevant to that topic. The CDC used the state-based Adult Tobacco Survey (from June 2003) for the general U.S. population as a template for the AI ATS. Tribal Support Centers for Tobacco Control Programs and CDC staff collected extensive input and conducted testing to create this adapted survey. Scientifically accepted methods and culturally appropriate strategies were used to ensure that the AI ATS would resonate with American Indian populations. A series of focus groups, talking circles, and cognitive interviews followed every version of the AI ATS in order to test it for scientific reliability, validity, and cultural appropriateness.

In 2011, each of the five SEMA-funded tribes developed a comprehensive list of enrolled tribal members within their service areas. Tribal members under the age of 18 were removed from the lists. Simple random sampling was used to select a proportion of the adult population from the revised enrollment lists. The selected participants were recorded on a participant tracking form and recruited to participate in the survey.

Between 2011 and 2013, trained American Indian/Alaska Native interviewers from each tribe contacted potential participants and invited them to participate in the survey. If they agreed to participate, a consent form was read to them and their signature was required to indicate consent. If interviewers could not conduct the interview with the respondent at that time, notes were made on the participant tracking form with necessary information for contacting them at a later date.

Most interviews were conducted face-to-face, with the exception of remotely located sites, where interviews were conducted via telephone. Each respondent was provided with an explanation of the survey purpose, general content, and time commitment involved in completing the survey with the assurance of confidentiality. Each respondent was given the opportunity to ask questions at the time of the interview and was provided with the name and contact information of the Interview Supervisor and the Project Coordinator who could answer

any questions before and after the interview was completed. Participants had the option to decline participation and/or refuse to answer any specific question without the loss of health care benefits or services.

Once the respondent consented to participate through signature, the interviewer read the instructions page of the survey and asked for verbal consent to begin the interview. The interviewer read each question verbatim and followed skip patterns in the interview guide, marking answers on a hard copy of the printed survey. At the conclusion of the interview, participants were compensated for their time with a $10 gift card. Compensation was tracked through the participant tracking form. Each member of the interview team tracked completed surveys using a survey tracking form and returned the hard copies of the survey to their supervisor with both the participant tracking form and survey tracking form. This procedure ensured that participants were compensated correctly and quality assurance measures were followed.

At the conclusion of the data collection, ITCM staff entered the data from the hard copy surveys into an SPSS database. The database, with all identifying information removed, was sent to MPHI staff who uploaded the database into SPSS v20 for analysis. Basic descriptive statistics, including frequencies and means were calculated for the dataset.

TABLE 22. AMERICAN INDIAN ADULT TOBACCO SURVEY SAMPLE SIZE AND COLLECTION PERIOD.

Site	N	Period of Data Collection
Tribe 1	243	October 2011 – January 2012
Tribe 2	216	May 2012 – August 2012
Tribe 3	114	May 2012 – March 2013
Tribe 4	53	September 2011 – April 2012
Tribe 5	77	May 2012 – January 2013

Because of the varying time periods and methods used in collecting the data at each site, AI ATS survey data from all tribes could not be combined and the results provided in this report are reported as separate tribes. Tribes are de-identified in the analysis and are referred to by Tribe number in the report. The sample size of each tribe and time period of data collection is shown in Table 22.

ITCM STEPS BRFS

The ITCM Steps to a Healthier Anishinaabe Behavioral Risk Factor Survey (Steps BRFS) was conducted to identify behavioral risk factors among Native American adults in the state of Michigan. The survey contained questions about health, chronic diseases, diet, exercise, preventive services, and adult immunizations. The survey data was intended to be used by the ITCM and the tribes to assist in planning and evaluating programs, establishing program priorities, developing specific interventions and policies, and assessing trends and disparities.

The ITCM BRFS is different from most Behavioral Risk Factor Surveys conducted across the US due to the unique composition of the population of interest. Most Behavioral Risk Factor Surveys rely on random digit dial (RDD) telephone interviewing methods to select participants from a specific geographic region. This method produces a random sample of adults selected from the population of interest. For the ITCM BRFS, the population of interest is limited to only adults who are Native American and members of one of eight participating Steps tribes. Sampling these communities cannot be accomplished with simple RDD methods due to varying geographic characteristics of the tribal communities. The ITCM tribes are dispersed throughout the state of Michigan, in rural and semi-urban areas. For some tribes the majority of the membership lives on a reservation, but for others they do not.

Permission to contact tribal members by telephone using tribal membership lists was requested from the tribal councils of the eight participating communities. For the 2007 ITCM BRFS, permission was granted by six of the eight tribal communities. In order to draw sample for the remaining two communities it was necessary to construct a convenience sample utilizing lists of individuals who volunteered to participate in the survey. Upon receiving the telephone lists, IPPSR conducted a series of quality assurance tasks to ensure adequate response rates. These tasks included removing duplicate phone numbers, out-of-state phone numbers and work phone numbers, and filtering the list for only numbers that were not contacted in the previous year.

The 2007 ITCM Steps BRFS data were collected from November 2007 to January 2008 by the Institute for Public Policy and Social Research (IPPSR) at Michigan State University. Cultural training for the IPPSR staff was provided by Inter-Tribal Council Health Services staff before calls were made. The purpose of the training was to ensure culturally appropriate communication between the interviewers and the participants. For example, interviewers were trained to recognize speech patterns common among the target population.

A total of 2,367 telephone numbers were used for the 2007 ITCM BRFS. The total number of eligible records was 853, of which 569 resulted in a completed or partially completed interview; 804 were ineligible; and 710 were of unknown eligibility. The CASRO (Council of American

Survey Research Organizations) response rate is a measure of respondent contact and cooperation. This rate includes completed interviews and partial interviews in which at least 50% of the core questionnaire has been completed in the numerator and an estimate of the number of eligible units in the sample in the denominator (including a proportion of the unknowns). The CASRO response rate for the 2007 ITCM Steps BRFS was 41%.

The 2007 CASRO response rate was lower than the previous two years of BRFS data collection. This may be due to some phone numbers being over a year old and they may no longer be working or they may no longer belong to a tribal member. Not all phone companies have recordings for non-working numbers and non-tribal members may simply hang up since they are not eligible. This may mean that a portion of the refusals and unknowns should actually be allocated to the ineligible group. In addition, a portion of the phone numbers that were called in the previous year had to be included again this year due to small sample sizes for some of the tribal communities, which also may have increased the number of refusals.

The data collected for the ITCM Steps BRFS were sent to the CDC for cleaning, editing, weighting and analysis. The CDC provided the ITCM with detailed tables and reports from the analysis conducted with the full dataset. MPHI conducted additional analyses of the dataset to provide results to participating tribes specific to their communities, and translated and organized the data for reporting purposes.

The results from the 2007 ITCM Steps BRFS presented in this report as results for "All Steps Tribes" were weighted for probability of telephone number selection, the number of adults in the household, and the number of residential phone lines. These results can be interpreted as estimates of the prevalence rates of various health risks among adults who are members of the participating Steps tribes. Participants who answered that they did not know or refused to answer were not included in the calculation of estimates.

As the authorizing agency of the Behavioral Risk Factor Surveillance System (BRFSS), the CDC provides guidance for analyzing and reporting BRFSS data to ensure the quality and integrity of all data in the system. Accordingly, the CDC provides the following guidance regarding data weighting and prevalence estimates:

> *The reliability of an estimate depends on the actual, unweighted number of participants used as the base of a percentage, not on the weighted number. Interpreting and reporting weighted numbers that are based on a small, unweighted number of participants can mislead the reader into believing that a given finding is much more precise than it actually is.*

The BRFSS follows a rule of not reporting (to the public) or interpreting percentages based on an unweighted number of participants of fewer than 50 or a confidence interval half-width greater than 10.

The CDC guidance ensures that reported statistics are accurate; data that do not meet the criteria are less likely to be accurate, and presenting such data in a report may lead readers to misinterpret the results. Adherence to the CDC guidance had a significant impact on the amount of data that could be reported for the ITCM BRFS. Due to a small total sample size, questions asked of only subpopulations (for example, women age 40 and older) and sub-questions (for example, a follow-up question for people who indicate that they smoke cigarettes that asks how many cigarettes they smoke per day) frequently resulted in an unweighted sample of less than 50 people and data could not be presented in this report. Further, most breakdowns of survey data by demographic categories (i.e. household income, education level) also could not be fully presented because of sample sizes that are too small or confidence intervals that are too wide.

REACH Risk Factor Survey (2007-2012)

The REACH U.S. Risk Factor Survey gathered health-related information annually from selected communities across the United States where REACH U.S. community health interventions have been launched. The survey contained questions about health, chronic diseases, diet, exercise, preventive services, and adult immunizations. The National Opinion Research Center (NORC) at the University of Chicago conducted the REACH U.S. Risk Factor Survey for the CDC.

The REACH U.S. Risk Factor Survey primarily uses a unique address-based sampling approach that targets specific geographic areas across the country where REACH U.S. interventions have been implemented. Households were sampled in each tribal community using geographic boundaries to identify households within each tribe's targeted intervention area. Selected adults aged 18 years or older were eligible to take the survey.

The RRFS was conducted in 2009, 2010, and 2011. NORC at the University of Chicago conducted interviews in all three ITCM REACH communities by phone, mail and in-person. Survey participants were paid a small amount of money for completing the survey.

Data were aggregated for all three sites by CDC and delivered to ITCM in a clean dataset. MPHI analyzed the data for all three sites combined, as well as conducted analysis for each specific tribe. Table 23 shows the sample size for each site and combined across sites for all years of RRFS data collected. Data presented in this report will be aggregated across all years of the RRFS collection period and aggregated across all tribes.

TABLE 23. REACH RISK FACTOR SURVEY SAMPLE SIZE

Site	2009-2010	2010-2011	2011-2012	Total
Tribe 1	67	98	108	273
Tribe 2	81	59	49	189
Tribe 3	201	225	191	617
ITCM REACH Total	349	382	348	1079

MICHIGAN CANCER REGISTRY - CANCER REGISTRY SEER DATA

Racial misclassification of American Indians/ Alaska Natives as non AI/AN in cancer registries presents problems for cancer surveillance and public health practice. To improve the misclassification errors, the Indian Health Services Division of Epidemiology conducts annual linkages with the Michigan State Cancer Registry. Although these linkages have greatly improved the quality of race data in the registry, I.H.S. provides primary health care to only 58% of the estimated 3.1 million AI/AN population in the U.S. [25] Health Services are provided both directly at I.H.S. facilities and indirectly through contract health services at non I.H.S. facilities. Many AI/AN individual are not included in this linkage due to receiving services at non-I.H.S. facilities, eligibility requirements, lack of knowledge or because they have private insurance.

Data linkages aim to identify two records in two datasets that represent the same person. A data linkage between the state cancer registry and a Tribe's enrollment roster looks for records in both files that are the same person; in short, Tribal members who are diagnosed with cancer in the state are identified. This information is used to provide the Tribe with Tribe-specific cancer statistics and to correct the state's cancer registry so that American Indian individuals are counted.

The IHS and the CDC worked together to create a free software program (Registry Plus™ Link Plus) to conduct these linkages. The Tribe provides an electronic enrollment roster which includes: Social Security Number; Date of Birth; First, Last, & Middle Name; Sex; and Street Address. The Linkage is conducted on site on the Tribe's computer, accessing the registry's dataset from an external hard drive. Once this is done, a team of State and Tribal staff go over all the possible matches to make sure that they make sense. Next cancer information is pulled for all individuals who are linked and then delete all the identified fields (all those fields listed above, except sex), producing a de-identified Tribe-specific dataset that includes cancer site,

[25] J Johnson, A Soliman, D Tadgerson, G Copeland, D Seefeld, N Pingatore, R Haverkate, M Banerfee, M Roubidoux; Tribal Linkage and Race Data Quality for American Indians in a State Cancer Registry; Am J Prev Med; 2009

stage at diagnosis, histology, laterality, age at diagnosis, and year of diagnosis for all tribal members diagnosed from 1985-2005 in the state.

Collaboration between the Inter-Tribal Council of Michigan and its member tribes, the State Cancer Registry, and the University of Michigan have led to improved data specific to American Indians in Michigan. The improved data enable calculation of AI/AN cancer incidence rates that are more meaningfully compared to rates for other subpopulations.

"Disparities of cancer incidence in Michigan's American Indians" article

Further analysis of the Cancer Registry data assessed cancer incidence and age and stage of diagnosis for the American Indian (AI) population. AI status was based on reported race and linkage to IHS data and tribal registries. Data with complete linkage on all incident cancer cases in Michigan from 1995 to 2004 was used to calculate age-standardized incidence estimates for invasive all-site and female breast cancers stratified by racial group. For female breast cancers, stage- and age-specific incidence and percent distributions of early- versus late-stage cancers and age of diagnosis were calculated.

Special Cancer Behavior Risk Factor Survey

Michigan Cancer Consortium (MCC) conducted a Special Cancer Behavior Risk Factor Survey (SCBRFS) in 2008 and oversampled Native Americans in Michigan to obtain data that could identify disparities in cancer screening behaviors. A sub-set of all Native American responses were used to generate a Native American specific report. The screening rates were then compared to the results from respondents in the general population.

The data set includes a total of 719 respondents (n = 719) who self identified as Native American residents in Michigan. Zip codes within the data set include Native American respondents from the Bay Mills, Grand Traverse, Hannahville, Huron Potawatomi, Keweenaw Bay, Little River, Little Traverse Bay Bands, Pokagon, Saginaw Chippewa and Sault Ste. Marie Tribe of Chippewa Indians service areas. (See table). The table below identifies the number of respondents from each tribal service area. It should be noted that some individual tribal service areas respondents are too few to generate a tribal specific report, however others have an adequate number of respondents to provide useful tribal level information.*

Tribe	# of counties in service area	# of respondents to SCRBS
Bay Mills	1	143*
Grand Traverse	6	18
Hannahville	2	26
Huron Potawatomi	7	15
Keweenaw Bay	3	21
Little River Band	7	10
Little Traverse Bay Bands	17	92*
Pokagon	4	23
Saginaw Chippewa	2	25
Sault Ste. Marie	7	346*

For more information on the methods used to conduct the survey, please visit; http://www.michigancancer.org/PDFs/MCCReports/SCBRFS_2008-042910.pdf

RESOURCES

Michigan Department of Community Health – Cancer Registry website:
http://michigan.gov/mdch/0,1607,7-132-2944_5323---,00.html

"Disparities of Cancer Incidence in Michigan's American Indians"
http://onlinelibrary.wiley.com/doi/10.1002/cncr.28589/abstract

"Tribal Linkages and Race Data Quality for American Indians in a State Cancer Registry"
http://www.ncbi.nlm.nih.gov/pubmed/19356888

"Strategies for implementing health promotion programs in multiple American Indian communities"; http://www.ncbi.nlm.nih.gov/pubmed/19454757

Michigan Cancer Consortium, Special Cancer Risk Behavior Survey: at
http://www.michigancancer.org/PDFs/MCCReports/SCBRFS_2008-042910.pdf

Centers for Disease Control and Prevention: Behavioral Risk Factor Surveillance System
http://www.cdc.gov/brfss/

American Indian Adult Tobacco Survey Implementation Manual
http://www.cdc.gov/tobacco/data_statistics/surveys/american_indian/pdfs/ai_ats.pdf

http://www.itcmi.org/

SEMA Project http://www.itcmi.org/departments/health-education-and-chronic-disease/tobacco-prevention-and-education/

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