



SHIAWASSEE COUNTY **Community Health** NEEDS ASSESSMENT

*Examining the Health
of Shiawassee County*

RELEASE DATE:
January 14, 2020

Foreword

November 2019

Dear Resident of Shiawassee County:

Memorial Healthcare, in collaboration with the Shiawassee County Health Department and the Shiawassee Community Health Needs Assessment Team, conducted this community health survey for our county this year. We are pleased to publish the results of the survey and are indebted to our community partners for their work in making this project happen.

This report is based upon data obtained from responses to written surveys that were conducted in February 2019 through April 2019. These surveys focused on adults ages 19 and older. In addition, this Community Health Needs Assessment contains youth data from a sample of 7th, 9th, and 11th grade students in Shiawassee County using the Michigan Profile for Healthy Youth survey (MiPHY).

We are grateful to the several hundred community residents who took the time to give thoughtful responses to this survey. These results will assist local agencies to identify health problems and assess them to address the needs of Shiawassee County residents.

It has been three years since the last comprehensive community assessment was conducted. To address the need for an updated study, Memorial Healthcare re-engaged the Shiawassee Community Health Needs Assessment Team. In order to maintain complete objectivity throughout the survey process, the team once again utilized the expert services of the Hospital Council of NW Ohio to administer the survey and compile the results.

We encourage you to use this report in your planning process and to collaborate with other community agencies to address the identified issues in order to improve the health of our community.

If you have any questions or concerns, please feel free to contact Becky Dahlke, Memorial Healthcare Community Resource Manager at (989) 729-4856 or email her at rdahlke@MemorialHealthcare.org.

Sincerely,

A stylized, handwritten signature in black ink, appearing to read 'B. Long'.

Brian L. Long, FACHE
President & CEO
Memorial Healthcare

A handwritten signature in black ink, appearing to read 'Larry Johnson'.

Larry Johnson, RS, MS
Health Officer/Director
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Acknowledgements

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Memorial Healthcare

Planning Committee of the Shiawassee Community Health Needs Assessment:

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Catholic Charities

Memorial Healthcare

Memorial Healthcare Foundation

Michigan State University Extension

Respite Volunteers of Shiawassee County

Shiawassee Great Start Initiative

Greater Lansing Food Bank

Shiawassee Hope

Community Members

Owosso Public Schools

Shiawassee Family YMCA – Live Healthy

Shiawassee Health and Human Services Council

Shiawassee Ministerial Representatives

United Way of Genesee County (Shiawassee)

Shiawassee Council on Aging

Homeless Angels

Disability Network Capital Area

Baker Pathways

Project Management, Secondary Data, Data Collection, and Report Development

The Hospital Council of Northwest Ohio (HCNO) is a 501(c)3 non-profit regional hospital association located in Toledo, Ohio. They facilitate community health needs assessments and planning processes in 40+ counties in Ohio, Michigan, and Oregon. Since 2004, they have used a process that can be replicated in any county that allows for comparisons from county to county, within the region, the state, and the nation. HCNO works with coalitions in each county to ensure a collaborative approach to community health improvement that includes multiple key stakeholders, such as those listed above. All HCNO project staff have their master's degree in public health, with emphasis on epidemiology and health education.

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To see Shiawassee County data compared to other counties, please visit the Hospital Council of Northwest Ohio's Data Link website at:

<http://www.hcno.org/community-services/data-link/>

The 2019 Shiawassee County Health Assessment is available on the following websites:

Hospital Council of Northwest Ohio

<http://www.hcno.org/community-services/community-health-assessments/>

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Table of Contents

Executive Summary	Pages 5-15
Primary Data Collection Methods	Pages 5-6
Secondary Data Collection Methods	Page 6
Data Summary	Pages 7-15
Adult Trend Summary	Pages 16-17
MiPHY Trend Summary	Pages 18-24
HEALTH CARE ACCESS	
Health Care Coverage	Pages 25-27
Access and Utilization	Pages 28-32
Preventive Medicine	Pages 33-35
Women's Health	Pages 36-37
Men's Health	Page 38
Oral Health	Pages 39-40
HEALTH BEHAVIORS	
Health Status Perceptions	Pages 41-43
Weight Status	Pages 44-48
Tobacco Use	Pages 49-51
Alcohol Consumption	Pages 52-54
Drug Use	Pages 55-56
Sexual Behavior	Pages 57-63
Mental Health	Pages 64-67
CHRONIC DISEASE	
Cardiovascular Health	Pages 68-72
Cancer	Pages 73-77
Asthma	Page 78
Arthritis	Page 79
Diabetes	Pages 80-81
Quality of Life	Pages 82-83
SOCIAL CONDITIONS	
Social Determinants of Health	Pages 84-89
Environmental Health	Page 90
Parenting	Page 91
APPENDICES	
APPENDIX I — Health Assessment Information Sources	Pages 92-94
APPENDIX II — Acronyms and Terms	Page 95
APPENDIX III — Weighting Methods	Pages 96-97
APPENDIX IV — Demographic Profile	Page 98
APPENDIX V — Demographics and Household Information	Pages 99-105
APPENDIX VI — County Health Rankings	Pages 106-108

Executive Summary

This executive summary provides an overview of health-related data for Shiawassee County adults (ages 19 and older) who participated in a county-wide health assessment survey from February 2019 through April 2019. The findings are based on self-administered surveys using a structured questionnaire. The questions were modeled after the survey instruments used by the Centers for Disease Control and Prevention for their national and state Behavioral Risk Factor Surveillance System (BRFSS). The Hospital Council of Northwest Ohio (HCNO) collected the data, guided the health assessment process and integrated sources of primary and secondary data into the final report.

Primary Data Collection Methods

DESIGN

This community health assessment was cross-sectional in nature and included a written survey of adults within Shiawassee County. From the beginning, community leaders were actively engaged in the planning process and helped define the content, scope, and sequence of the study. Active engagement of community members throughout the planning process is regarded as an important step in completing a valid needs assessment.

INSTRUMENT DEVELOPMENT

One survey instrument was designed and pilot tested for adults in this study. As a first step in the design process, health education researchers from the University of Toledo and staff members from HCNO met to discuss potential sources of valid and reliable survey items that would be appropriate for assessing the health status and health needs of adults. The investigators decided to derive the majority of the survey items from the BRFSS. This decision was based on being able to compare local data with state and national data.

The project coordinator from HCNO conducted a series of meetings with the planning committee from Shiawassee County. During these meetings, HCNO and the planning committee reviewed and discussed banks of potential survey questions from the BRFSS survey. Based on input from the Shiawassee County planning committee, the project coordinator composed a draft of the survey containing 115 items for the survey. Health education researchers from the University of Toledo reviewed and approved the drafts.

SAMPLING

The sampling frame for the adult survey consisted of adults ages 19 and older living in Shiawassee County. There were 52,441 persons ages 19 and older living in Shiawassee County. The investigators conducted a power analysis to determine what sample size was needed to ensure a 95% confidence level with a corresponding margin of error of 5% (i.e., we can be 95% sure that the “true” population responses are within a 5% margin of error of the survey findings). A sample size of at least 382 adults was needed to ensure this level of confidence. The random sample of mailing addresses of adults from Shiawassee County was obtained from Melissa Global Intelligence in Rancho Santa Margarita, California.

PROCEDURE

Prior to mailing the survey to adults, the project team mailed an advance letter was mailed to 1,200 adults in Shiawassee County. This advance letter was personalized and signed by Brian L. Long, FACHE, President and CEO, Memorial Healthcare; and Larry Johnson, R.S., M.S., Health Director, Shiawassee County Health Department. The letter introduced the county health assessment project and informed the readers that they may be randomly selected to receive the survey. The letter also explained that the respondents’ confidentiality would be protected and encouraged the readers to complete and return the survey promptly if they were selected.

Three weeks following the advance letter, a three-wave mailing procedure was implemented to maximize the survey return rate. The initial mailing included a personalized hand signed cover letter describing the purpose of the study, a questionnaire printed on white paper, a self-addressed stamped return envelope, and a \$2 incentive.

Approximately three weeks after the first mailing, a second wave mailing included another personalized cover letter encouraging them to reply, another copy of the questionnaire on white paper, and another reply envelope. A third wave postcard was sent three weeks after the second wave mailing. Surveys returned as undeliverable were not replaced with another potential respondent. To maximize survey responses, a third wave mailing was sent out to 300 additional adults in Shiawassee County. A letter explaining the purpose of the health assessment project, a questionnaire, a self-addressed stamped return envelope, and a \$2 incentive were included. Additionally, an online survey was utilized to increase survey responses. The online survey yielded 31 completed surveys. Upon review, it was determined that there were significant differences between the survey samples. Therefore, the online survey samples were not included.

The response rate for the mailing was 25% ($n=353$; $CI=\pm 5.2$). This return rate and sample size means that the responses in the health assessment should be representative of the entire county. Prior to surveys being sent, a power analysis was conducted which concluded that 382 surveys would need to be returned to have a $\pm 5\%$ confidence interval which is standard. However, there were only 353 surveys returned, thus reducing the level of power and broadening the confidence level to $\pm 5.2\%$.

DATA ANALYSIS

Individual responses were anonymous. Only group data was available. All data was analyzed by health education researchers at the University of Toledo using SPSS 24.0. Crosstabs were used to calculate descriptive statistics for the data presented in this report. To be representative of Shiawassee County, the adult data collected was weighted by age, gender, race, and income using 2017 Census data. Multiple weightings were created based on this information to account for different types of analyses. For more information on how the weightings were created and applied, see Appendix III.

LIMITATIONS

As with all county assessments, it is important to consider the findings in light of all possible limitations. First, the Shiawassee County adult assessment had an adequate response rate. However, if any important differences existed between the respondents and the non-respondents regarding the questions asked, this would represent a threat to the external validity of the results (the generalizability of the results to the population of Shiawassee County). If there were little to no differences between respondents and non-respondents, then this would not be a limitation.

Furthermore, while the survey was mailed to random households in Shiawassee County, those responding to the survey were more likely to be older. For example, only ten respondents were under the age of 30. While weightings are applied during calculations to help account for this sort of variation, it still presents a potential limitation (to the extent that the responses from these ten individuals are substantively different from the majority of Shiawassee County residents under the age of 30).

It is important to note that although several questions were asked using the same wording as the Centers for Disease Control and Prevention (CDC) questionnaires, the data collection method differed. The CDC adult data was collected using a set of questions from the total question bank, and participants were asked the questions over the telephone rather than through a mailed survey.

Lastly, caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

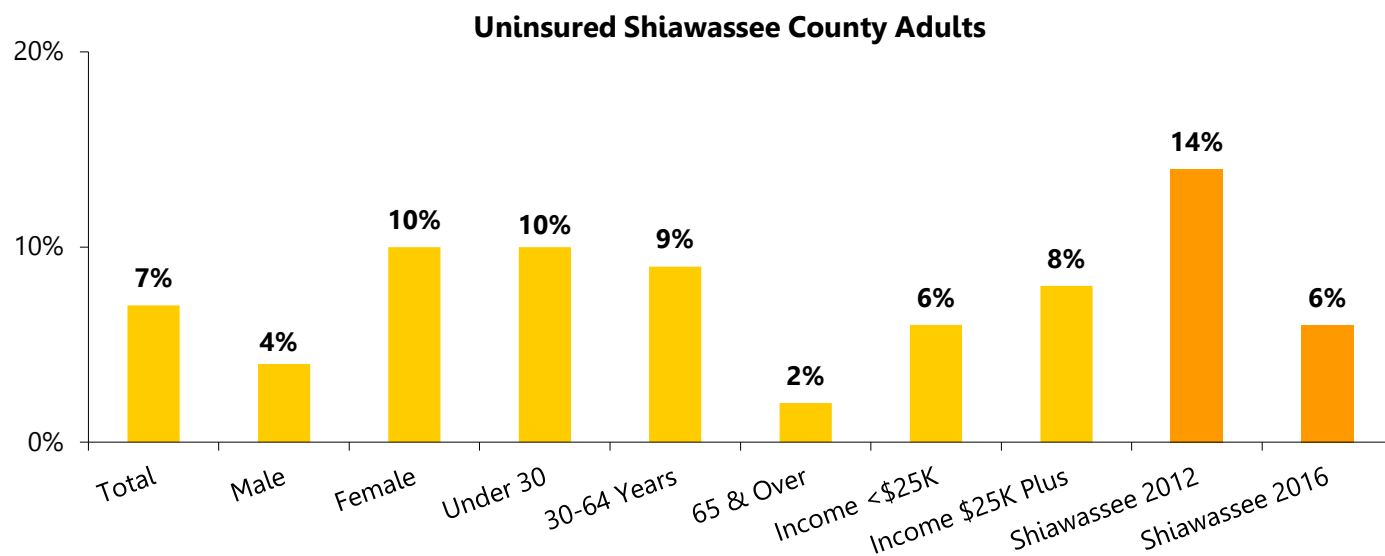
Secondary Data Collection Methods

HCNO collected secondary data from multiple websites, including county-level data, whenever possible. HCNO utilized sites such as the Behavioral Risk Factor Surveillance System (BRFSS), numerous CDC sites, U.S. Census data, and Healthy People 2020, among other national and local sources. All data is included as a citation in the section of the report with which it corresponds, and the URLs are available in the references at the end of this report. All primary data collected in this report is from the 2019 Shiawassee County Community Health Assessment (CHA). All other data is cited accordingly.

Data Summary | Health Care Access

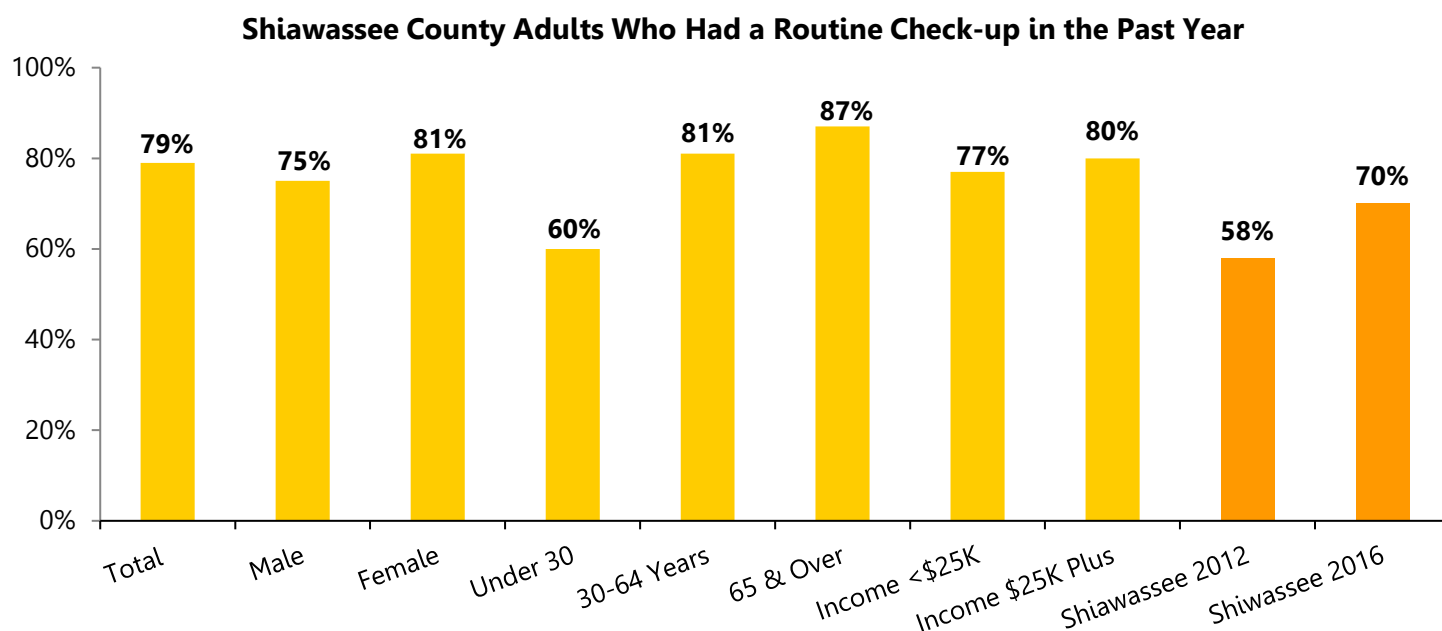
HEALTH CARE COVERAGE

In 2019, 7% of Shiawassee County adults were without health care coverage. The main reason adults gave for being without health care coverage was cost (40%) or because they lost their job or changed employers (40%).



ACCESS AND UTILIZATION

Seventy-nine percent (79%) of Shiawassee County adults had visited a doctor for a routine checkup in the past year. Sixty-three percent (63%) of adults went outside of Shiawassee County for health care services in the past year.



Note for graphs: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

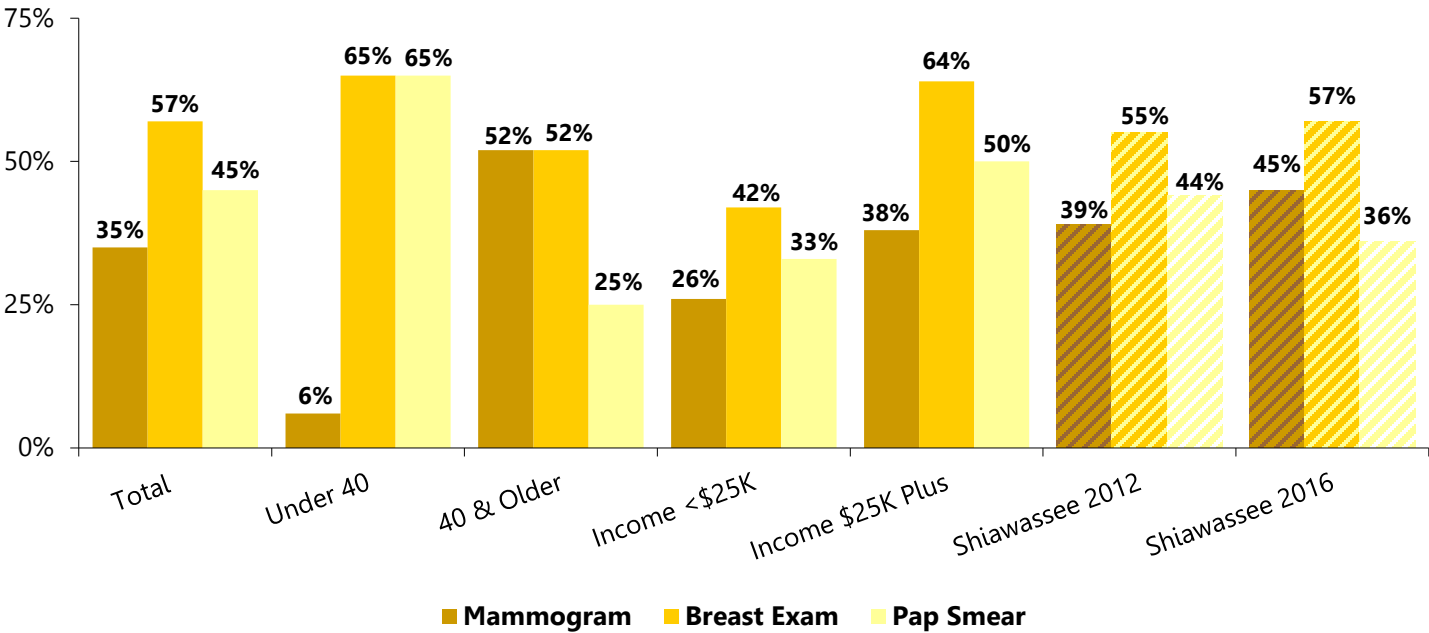
PREVENTIVE MEDICINE

Seventy-six percent (76%) of adults ages 65 and over had a pneumonia vaccination at some time in their life. Fifty-seven percent (57%) of adults ages 50 and over had a colonoscopy or sigmoidoscopy in the past five years. Forty-two percent (42%) of adults had the Hepatitis A vaccine in their lifetime.

WOMEN'S HEALTH

In 2019, 52% of Shiawassee County women ages 40 and older reported having a mammogram in the past year. Fifty-seven percent (57%) of Shiawassee County women had a clinical breast exam in the past year, and 45% had a Pap smear to detect cancer of the cervix in the past year. More than two-fifths (44%) of women were obese, 34% had high blood cholesterol, 34% had high blood pressure, and 20% were current smokers, known risk factors for cardiovascular diseases.

Shiawassee County Women's Health Exams Within the Past Year



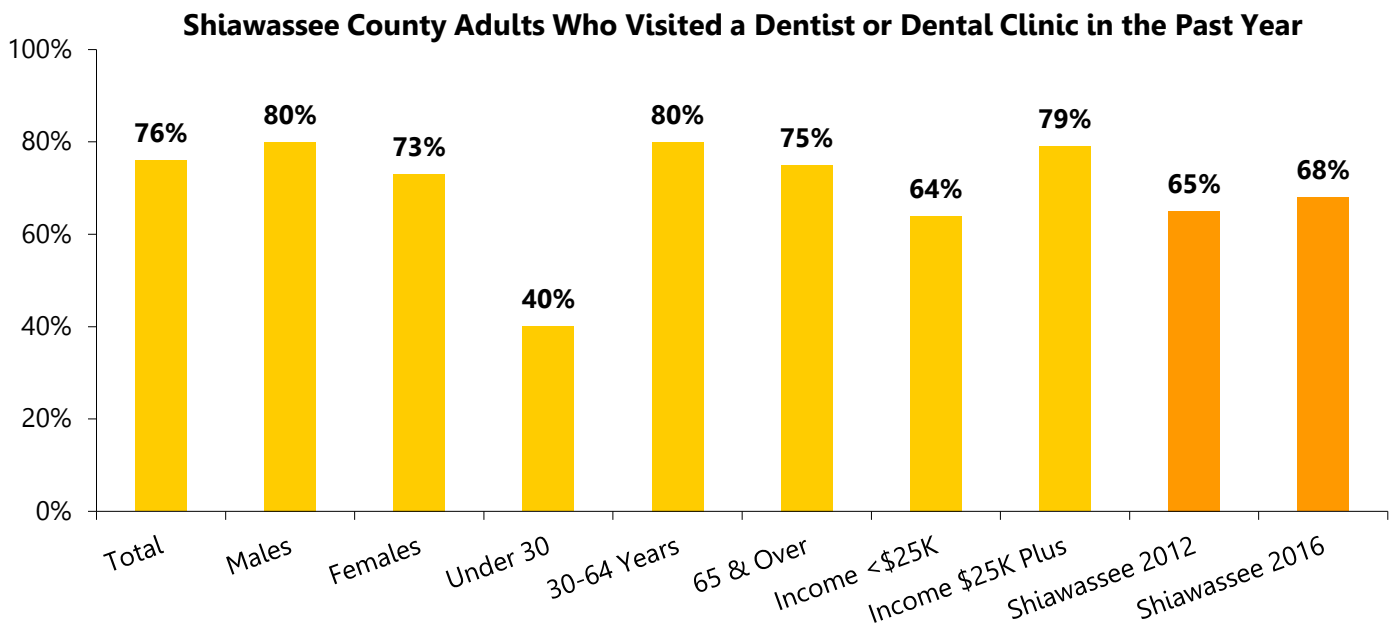
Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

MEN'S HEALTH

Eighty-seven percent (87%) of Shiawassee County males were overweight or obese. Males were more likely to have been diagnosed with high blood cholesterol than females (44% compared to 34%).

ORAL HEALTH

Seventy-six percent (76%) of Shiawassee County adults had visited a dentist or dental clinic in the past year. The top three reasons adults gave for not visiting a dentist in the past year were cost (25%); no reason to go/had not thought of it (16%); and fear, apprehension, nervousness, pain, and dislike going (14%).



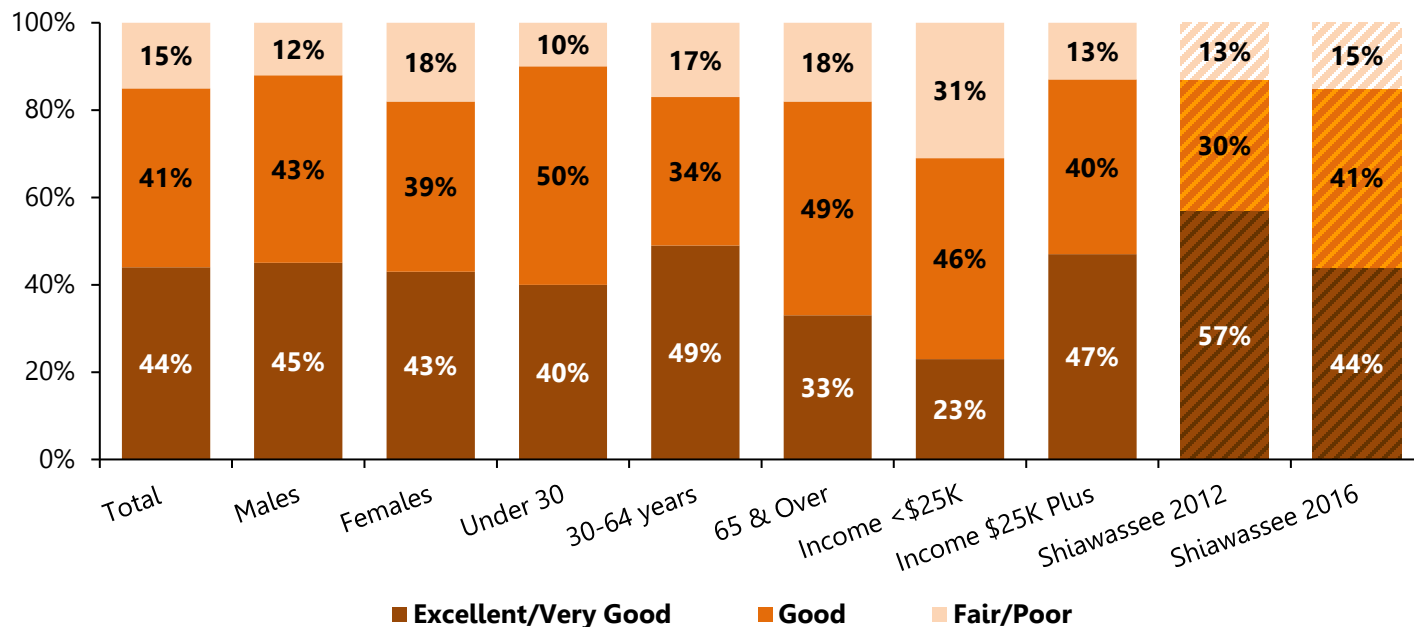
Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

Data Summary | Health Behaviors

HEALTH STATUS PERCEPTIONS

In 2019, 44% of Shiawassee County adults rated their health status as excellent or very good. Conversely, 15% of adults, increasing to 31% of those with incomes less than \$25,000, described their health as fair or poor.

Shiawassee County Adult Health Perceptions*



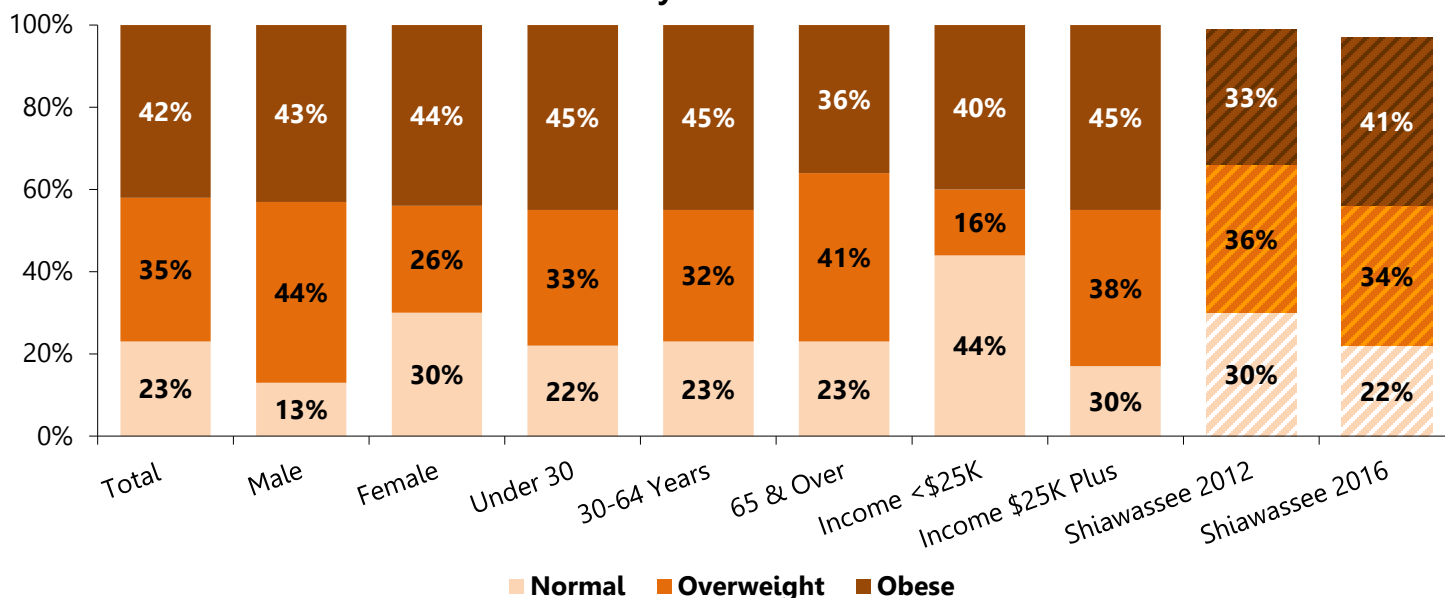
*Respondents were asked: "Would you say that in general your health is excellent, very good, good, fair or poor?"

Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

WEIGHT STATUS

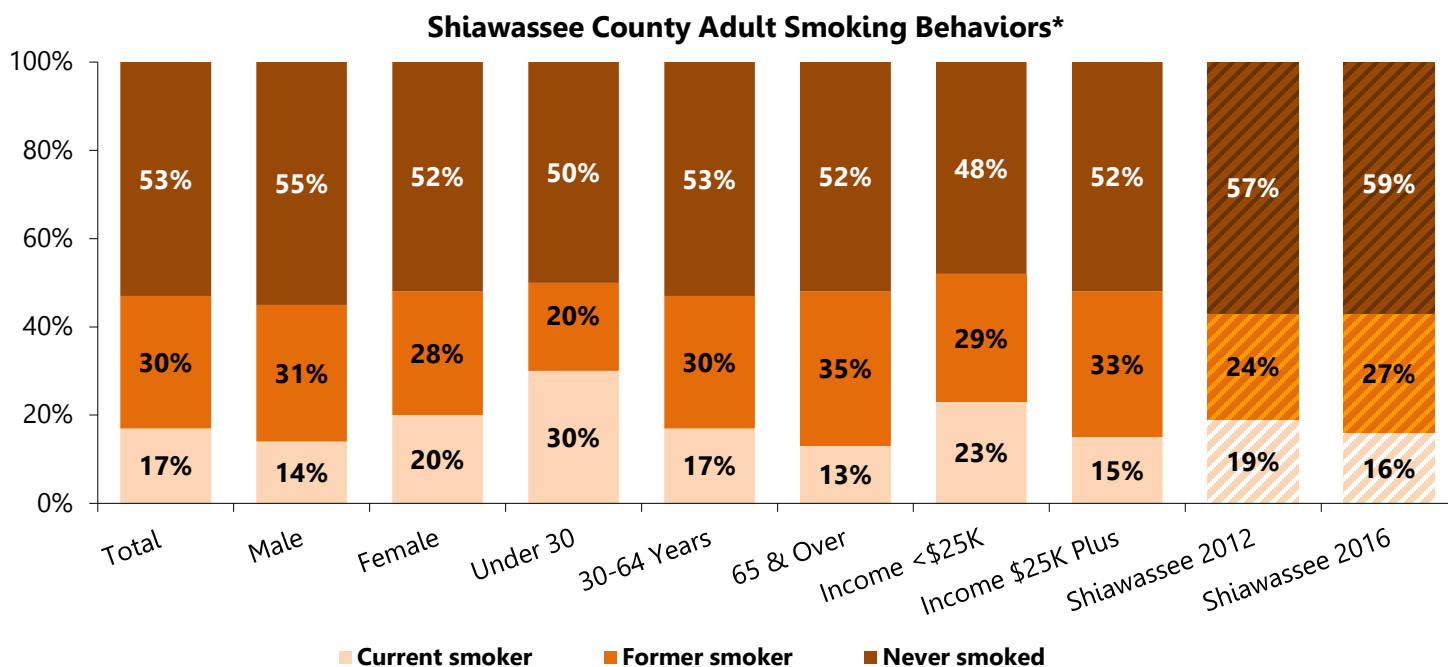
More than three-fourths (77%) of Shiawassee County adults were overweight or obese based on body mass index (BMI). One-in-six (17%) adults did not participate in any physical activity in the past week, including 1% who were unable to exercise.

Shiawassee County Adult BMI Classifications*



TOBACCO USE

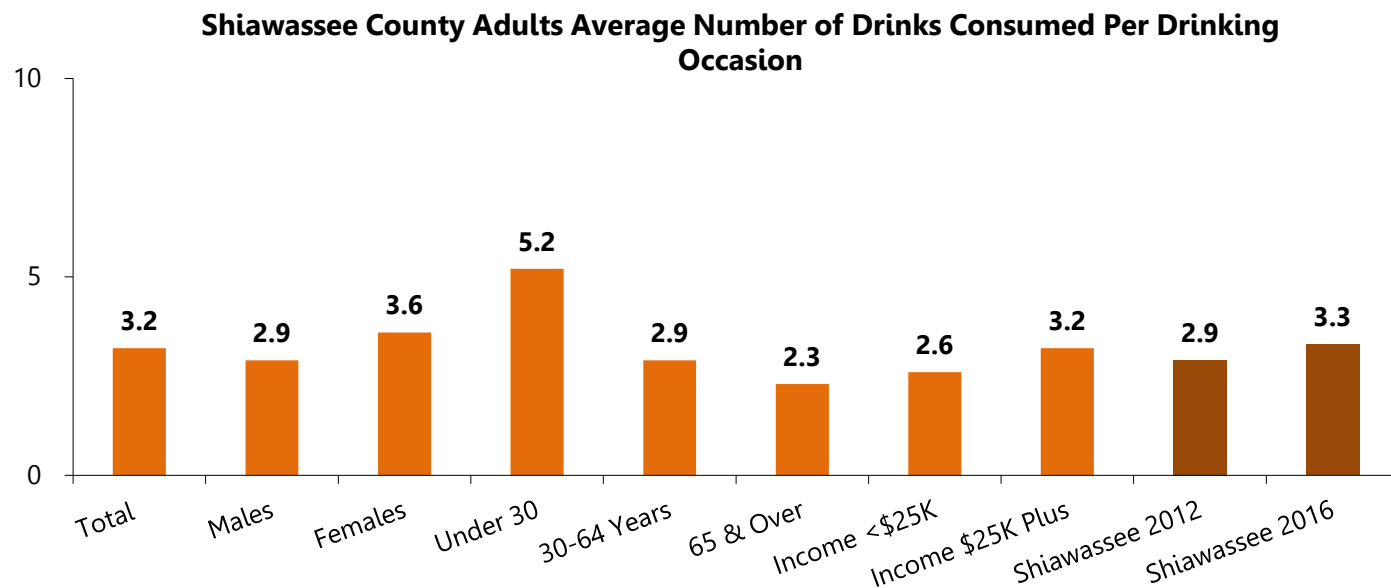
Seventeen percent (17%) of Shiawassee County adults were current smokers, and 30% were considered former smokers. Nine percent (9%) of adults used an e-cigarette or other electronic vaping product in the past year. Over one-third (36%) of adults did not know if e-cigarette vapor was harmful.



**Respondents were asked: "Have you smoked at least 100 cigarettes in your entire life? If yes, do you now smoke cigarettes every day, some days or not at all?"*

ALCOHOL CONSUMPTION

Fifty-seven percent (57%) of Shiawassee County adults had at least one alcoholic drink in the past month and would be considered current drinkers. Sixteen percent (16%) of all adults reported they had five or more alcoholic drinks (for males) or four or more drinks (for females) on an occasion in the last month and would be considered binge drinkers.

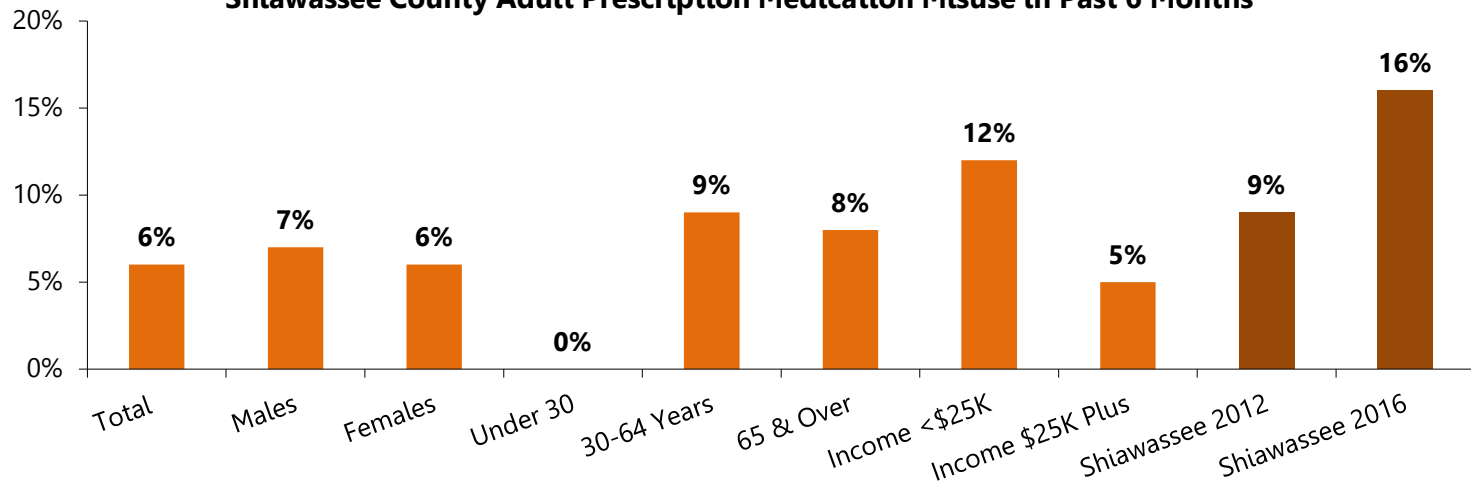


Note for graphs: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey

DRUG USE

In 2019, 11% of Shiawassee County adults had used recreational marijuana or hashish during the past six months. Six percent (6%) of adults had used medication not prescribed for them or took more than prescribed to feel good or high and/or more active or alert during the past six months.

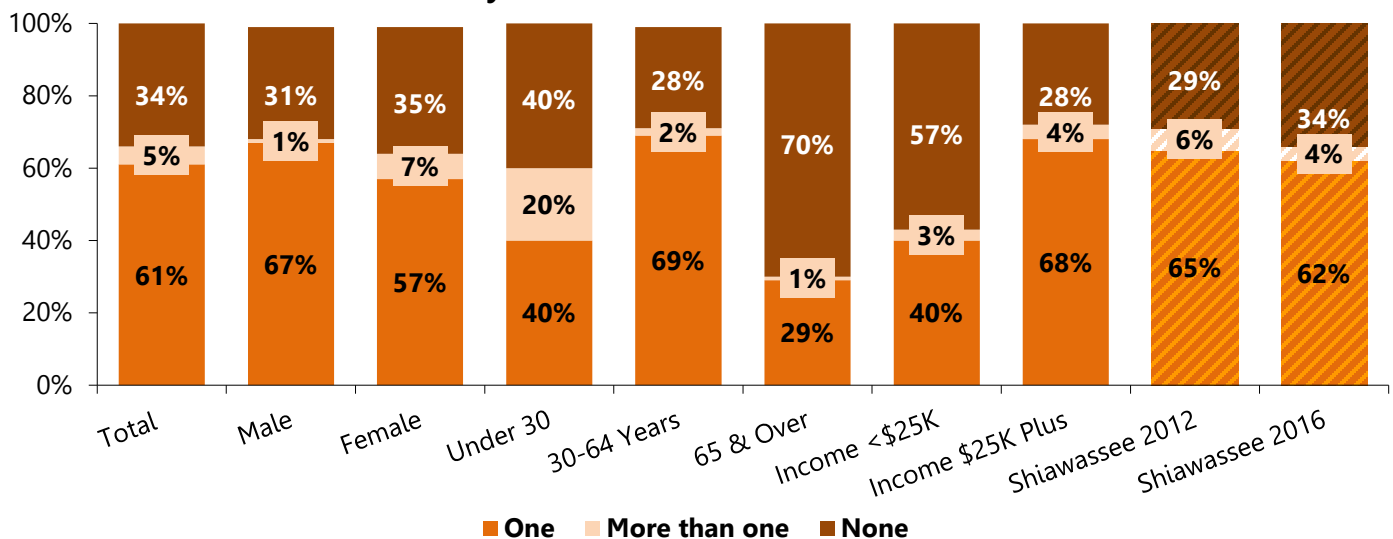
Shiawassee County Adult Prescription Medication Misuse in Past 6 Months



SEXUAL BEHAVIOR

Sixty-six percent (66%) of Shiawassee County adults had sexual intercourse in the past year. Five percent (5%) of adults had more than one sexual partner in the past year.

Shiawassee County Adults Number of Sexual Partners in the Past Year*



**Respondents were asked: "During the past 12 months, with how many different people have you had sexual intercourse?"
Note for graphs: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.*

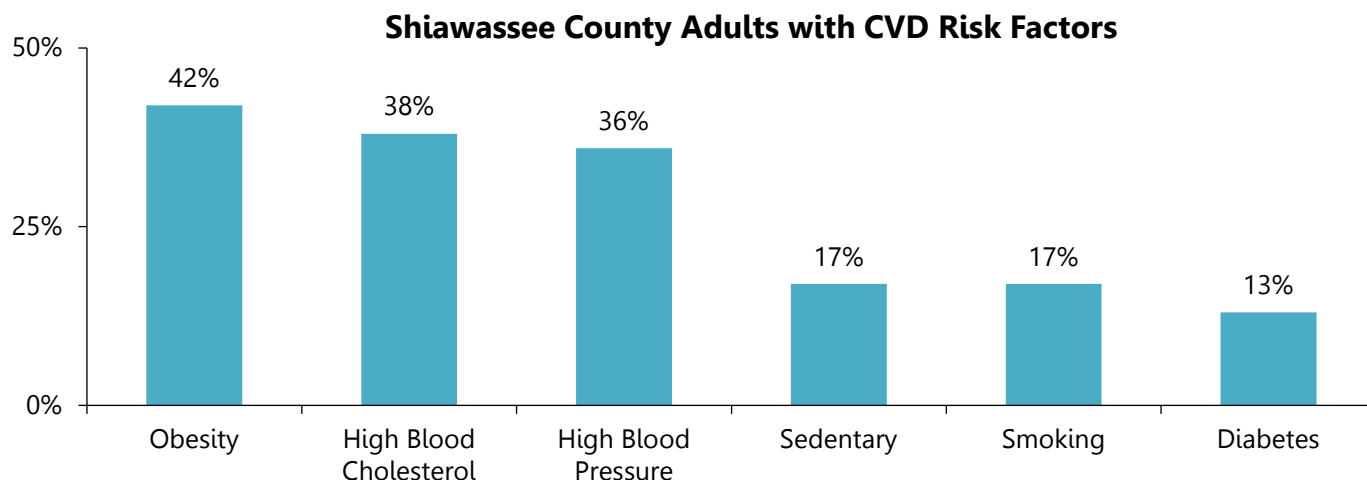
MENTAL HEALTH

In 2019, 2% of Shiawassee County adults reported that they considered attempting suicide in the past year. Twenty-eight percent (28%) of adults reported they or family member were diagnosed with or treated for anxiety or emotional problems in the past year. Fifteen percent (15%) of adults used a program or service for themselves or a loved one to help with depression, anxiety, or emotional problems.

Data Summary | Chronic Disease

CARDIOVASCULAR HEALTH

In 2019, 4% of adults had survived a heart attack and 2% had survived a stroke at some time in their life. Over two-fifths (42%) of Shiawassee County adults were obese, 38% had high blood cholesterol, 36% had high blood pressure, and 17% were current smokers, four known risk factors for heart disease and stroke.

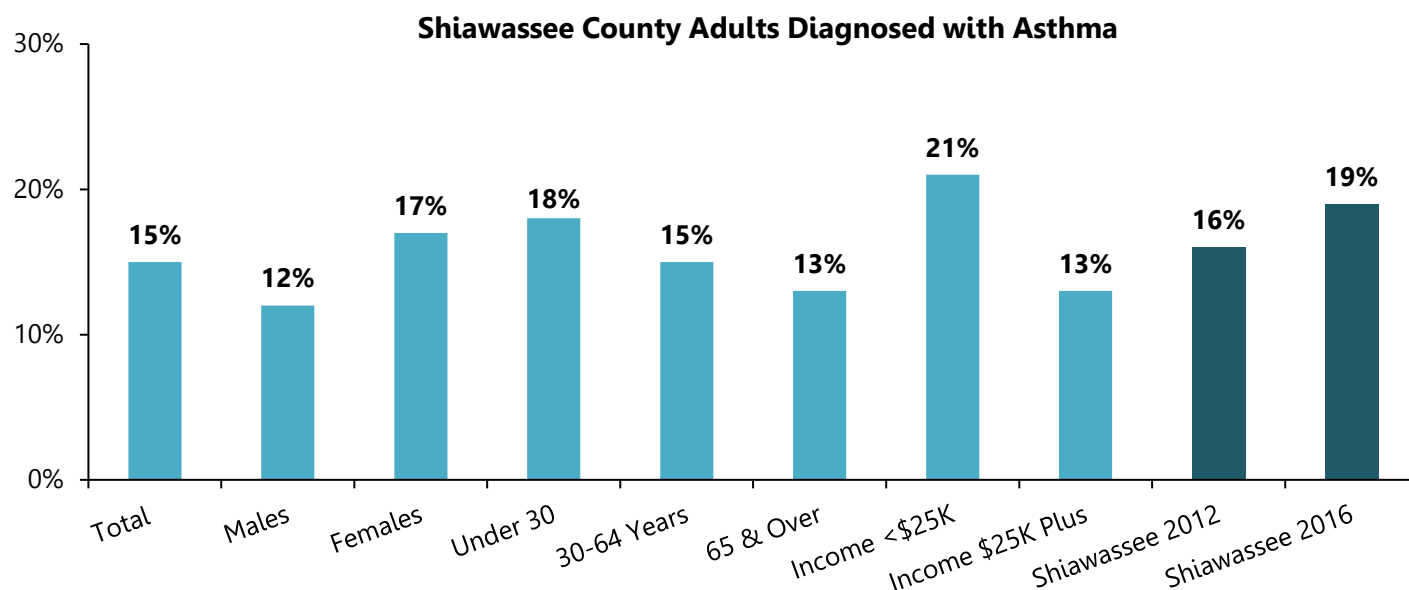


CANCER

From 2015 to 2017, the CDC indicated that cancers caused 23% (494 of 2,179 total deaths) of all Shiawassee County resident deaths (*Source: CDC Wonder, 2015-2017*)

ASTHMA

Fifteen percent (15%) of Shiawassee County adults had been diagnosed with asthma.



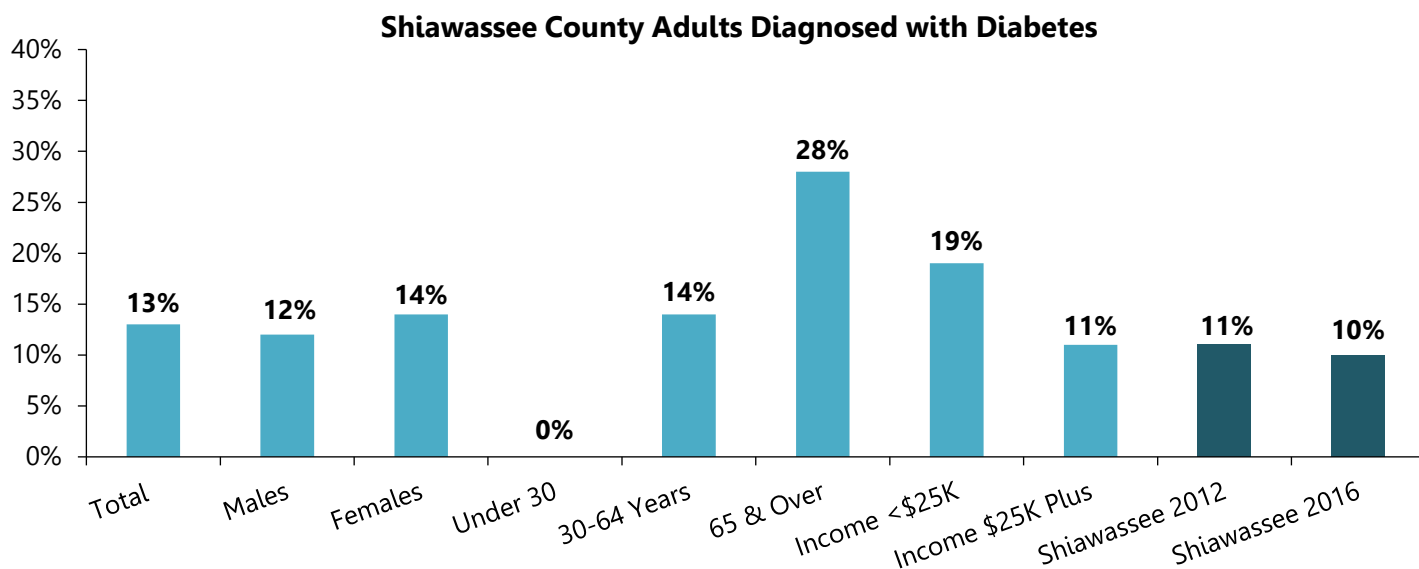
Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

ARTHRITIS

More than one-third (37%) of Shiawassee County adults had been diagnosed with arthritis.

DIABETES

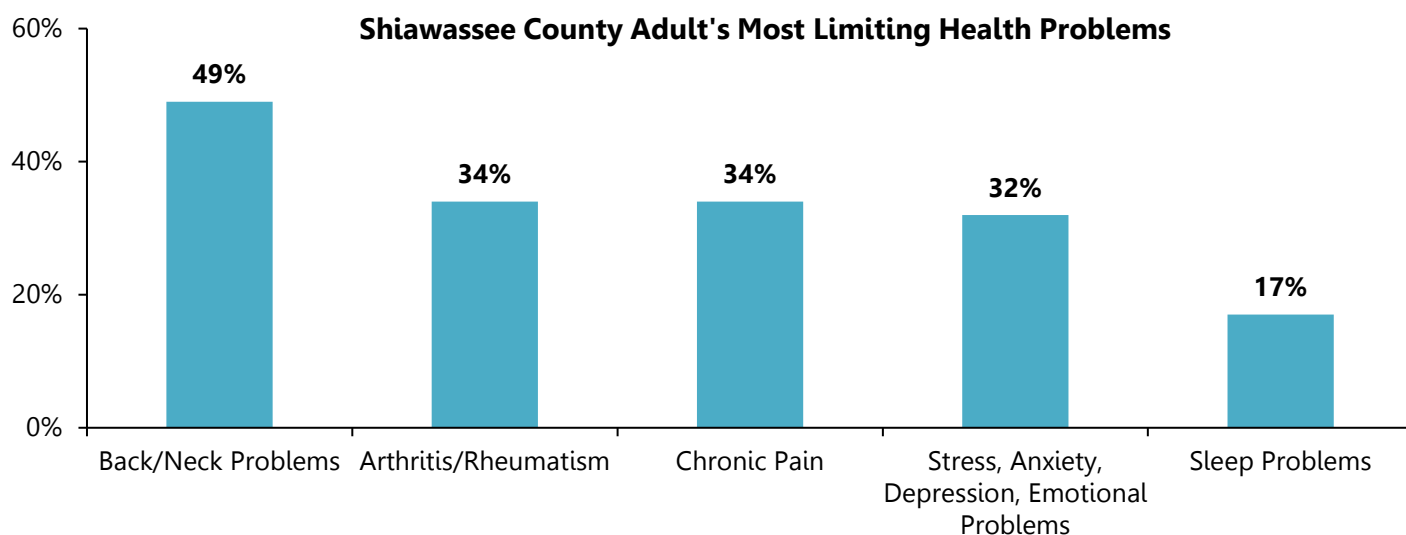
In 2019, 13% of Shiawassee County adults had been diagnosed with diabetes. More than one-third (35%) of diabetics rated their health as fair or poor.



Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

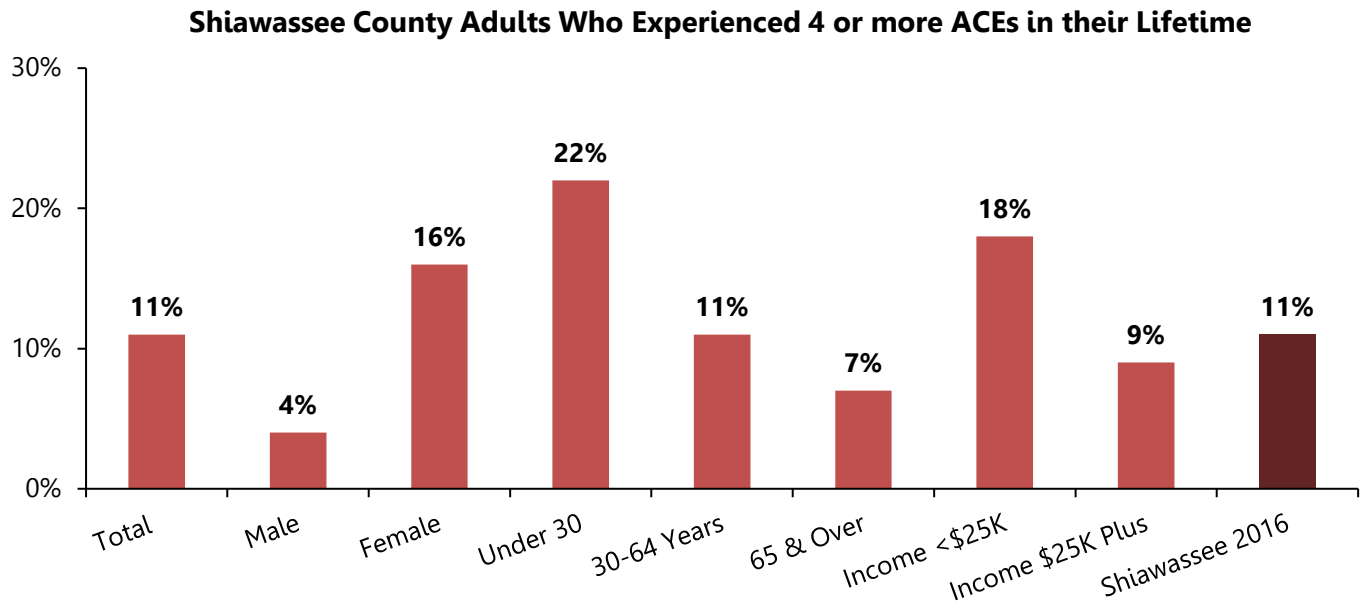
QUALITY OF LIFE

In 2019, 48% of Shiawassee County adults reported they were limited by an impairment or health problem. The 3 most limiting health problems were back or neck problems (49%), arthritis/rheumatism (34%), and chronic pain (34%).



SOCIAL DETERMINANTS OF HEALTH

In 2019, 6% of Shiawassee County adults were abused in the past year (including physical, sexual, emotional, financial, or verbal abuse). Eleven percent (11%) of Shiawassee County adults had four or more adverse childhood experiences (ACEs) in their lifetime. Fifteen percent (15%) of adults had experienced at least one issue related to hunger/food insecurity in the past year.



**The 2015 Shiawassee County Health Assessment reported those adults who had experienced 3 or more ACEs in their lifetime.
Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.*

ENVIRONMENTAL HEALTH

The top five environmental health issues for Shiawassee County adults that threatened their health in the past year were insects (8%), air quality (6%), mold (5%), rodents (5%), and unsafe water supply/wells (5%).

PARENTING

In 2019, 55% of Shiawassee County parents talked to their 12-to-17-year-old about weight status and negative effects of alcohol, tobacco, vaping, illegal drugs, or misusing prescription drugs.

Adult Trend Summary

Adult Variables	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Health Care Coverage					
Uninsured	14%	6%	7%	8%	11%
Access and Utilization					
Had one or more persons they thought of as their personal health care provider	83%	85%	87%	85%	77%
Visited a doctor for a routine checkup (in the past 12 months)	58%	70%	79%	73%	70%
Preventive Medicine					
Had a pneumonia vaccine (age 65 and older)	66%	73%	76%	76%	75%
Had a flu vaccine in the past year (age 65 and older)	N/A	77%	80%	60%	61%
Ever had a shingles or zoster vaccine	N/A	11%	25%	27%	29%
Women's Health					
Had a clinical breast exam in the past two years (age 40 and older)	78%	72%	70%	N/A	N/A
Had a mammogram in the past two years (age 40 and older)	77%	78%	77%	79%*	73%*
Had a Pap smear in the past three years (age 21-65)	79%‡	66%‡	79%	81%*	80%*
Oral Health					
Adults who had visited a dentist or dental clinic in the past year	65%	68%	76%	70%	66%
Health Status Perceptions					
Rated general health as excellent or very good	57%	44%	44%	49%	51%
Rated general health as fair or poor	13%	15%	15%	19%	18%
Rated physical health as not good on four or more days (in the past 30 days)	18%	25%	26%	26%	22%
Average number of days that physical health not good (in the past 30 days)	3.1	4.2	4.1	4.3‡	3.7‡
Rated mental health as not good on four or more days (in the past 30 days)	23%	25%	31%	26%	24%
Average number of days that mental health not good (in the past 30 days)	3.5	3.9	4.6	4.4‡	3.8‡
Poor physical or mental health kept them from doing usual activities, such as self-care, work, or recreation (on at least one day during the past 30 days)	23%	28%	30%	26%	23%

N/A – Data is not available

*2016 BRFSS

‡Pap smear was reported for women ages 19 and over

*2016 BRFSS data as compiled by 2019 County Health Rankings

Adult Variables	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Weight Status					
Obese	33%	41%	42%	32%	31%
Overweight	36%	34%	35%	35%	35%
Tobacco Use					
Current smoker (smoked on some or all days)	19%	16%	17%	19%	17%
Former smoker (smoked 100 cigarettes in lifetime and now do not smoke)	24%	27%	30%	27%	25%
Adults who used e-cigarettes or other electronic vaping products (in the past year)	3%	9%	9%	N/A	N/A
Tried to quit smoking	57%	59%	60%	N/A	N/A
Alcohol Consumption					
Current drinker (drank alcohol at least once in the 30 days)	50%	54%	57%	58%	55%
Binge drinker (males having five or more drinks on one occasion, females having four or more drinks on one occasion)	20%	23%	16%	18%	17%
Drug Use					
Adults who used recreational marijuana or hashish in the past six months	9%	9%	11%	N/A	N/A
Adults who misused prescription drugs in the past six months	9%	16%	6%	N/A	N/A
Adults who used other recreational drugs in the past six months	1%	4%	6%	N/A	N/A
Sexual Behavior					
Had more than one sexual partner in past year	6%	4%	5%	N/A	N/A
Mental Health					
Considered attempting suicide in the past year	3%	3%	2%	N/A	N/A
Attempted suicide in the past year	1%	0%	0%	N/A	N/A
Cardiovascular Disease					
Had angina or coronary heart disease	5%	4%	3%	5%	4%
Had a heart attack	4%	4%	4%	5%	4%
Had a stroke	2%	3%	2%	4%	3%
Had high blood pressure	29%	33%	36%	35%	32%
Had high blood cholesterol	37%	43%	38%	35%	33%
Had blood cholesterol checked within past 5 years	82%	82%	82%	89%	86%
Asthma, Arthritis, and Diabetes					
Had been diagnosed with asthma	16%	19%	15%	16%	14%
Had been diagnosed with arthritis	33%	36%	37%	31%	25%
Had been diagnosed with diabetes	11%	10%	13%	11%	11%
Had been diagnosed with pre-diabetes or borderline diabetes	N/A	5%	8%	2%	2%

N/A – Data is not available

*2016 BRFSS

Youth MiPHY Summary

The **Michigan Profile for Healthy Youth** (MiPHY) is an online student health survey offered by the Michigan Departments of Education and Health and Human Services. Youth in grades 7, 9, and 11 in Michigan school districts were used as the sampling frame for the youth survey. The results in this report reflect student survey responses from schools that voluntarily participated in Shiawassee County and may not be representative of all middle and high school students in the county.

Youth Variables	Shiawassee County 2017-2018 (7 th grade)	Shiawassee County 2017-2018 (9 th and 11 th grade)	Michigan YRBS 2017 (9 th -12 th)	U.S. YRBS 2017 (9 th -12 th)
Weight Status and Nutrition				
Obese	18%	21%	17%	15%
Overweight	15%	16%	16%	16%
Described themselves as slightly or very overweight	31%	37%	36%	32%
Tried to lose weight	49%	52%	N/A	N/A
Ate 5 or more servings per day of fruits and vegetables per day (during the past 7 days)	27%	22%	N/A	N/A
Drank three or more glasses of milk per day during the past week	18%	11%	N/A	N/A
Drank a can, bottle, or glass of pop or soda one or more times per day (during the past 7 days)	21%	24%	18%	19%
Had breakfast every day (in the past 7 days)	39%	29%	31%	35%
Did not eat breakfast (in the past 7 days)	10%	17%	16%	14%
Physical Activity				
Physically active at least 60 minutes per day on 5 or more days (in the past 7 days)	55%	58%	46%	47%
Attended physical education (PE) classes on one or more days (in an average week when in school)	56%	46%	28%	52%
Youth who play on any sports team	65%	59%	N/A	54%
Watched 3 or more hours of TV per day (on an average school day)	25%	23%	21%	21%
Played video or computer games or use a computer, not for school work for 3 or more hours per day (on average school day)	55%	53%	43%	43%

N/A – Data is not available

Youth Variables	Shiawassee County 2017-2018 (7 th grade)	Shiawassee County 2017-2018 (9 th and 11 th grade)	Michigan YRBS 2017 (9 th -12 th)	U.S. YRBS 2017 (9 th -12 th)
Mental Health				
Felt sad or hopeless (almost every day for 2 weeks or more in a row so that they stopped doing some usual activities during the past 12 months)	N/A	45%	37%	32%
Seriously considered attempting suicide (during the past 12 months)	N/A	28%	21%	17%
Made a plan about how they would attempt suicide (during the past 12 months)	N/A	19%	18%	14%
Attempted suicide (one or more times during the past 12 months)	N/A	14%	9%	7%
Suicide attempt that resulted in an injury, poisoning, or overdose that had to be treated by a doctor or nurse (during the past 12 months)	N/A	2%	3%	2%
Tobacco Use				
Ever tried cigarette smoking (even one or two puffs)	N/A	30%	31%	29%
First tried cigarette smoking before the age of 13 (even one or two puffs)	N/A	12%	11%	10%
Currently smoked cigarettes (during the past 30 days)	3%	6%	11%	9%
Currently frequently smoked cigarettes (on 20 or more days during the past 30 days)	0%	2%	3%	3%
Tried to quit all tobacco products during the past 12 months (of current smokers)	N/A	45%	46%	41%
Used chewing tobacco, snuff, dip, snus, or dissolvable tobacco products (during the past 30 days)	2%	2%	6%	6%
Smoked cigars, cigarillos, or little cigars (during the past 30 days)	2%	5%	9%	8%
Exposed to second hand smoke in the past week	47%	50%	N/A	N/A
Had been told they had asthma and still have asthma (of those ever diagnosed with asthma)	68%	58%	N/A	N/A
Ever been told by a doctor or nurse they had asthma	18%	23%	26%	23%
Used an electronic vapor product during the past month	16%	35%	15%	13%
Usually got their own electronic vapor products by buying them in a store (among students who used electronic vapor products recently)	0%	20%	12%	14%

N/A – Data is not available

Youth Variables	Shiawassee County 2017-2018 (7 th grade)	Shiawassee County 2017-2018 (9 th and 11 th grade)	Michigan YRBS 2017 (9 th -12 th)	U.S. YRBS 2017 (9 th -12 th)
Alcohol Use				
Ever drank alcohol (at least one drink of alcohol, on at least 1 day during their life)	N/A	50%	62%	60%
Had their first drink of alcohol before the age of 13 (other than a few sips)	N/A	13%	16%	16%
Had their first drink of alcohol before the age of 11 (other than a few sips)	<1%	N/A	N/A	N/A
Current drinker (at least one drink of alcohol during the past 30 days)	2%	21%	30%	30%
Binge drinker (drank 4 or more drinks of alcohol in a row [for females] or 5 or more drinks of alcohol in a row [for males] within a couple hours during the past 30 days)	<1%	13%	13%	14%
Rode in a car or other vehicle driven by someone who had been drinking alcohol (one or more times during the past 30 days)	N/A	13%	15%	17%
Drove a car or other vehicle when they had been drinking alcohol (one or more times during the past 30 days)	N/A	2%	4%	6%
Usually got the alcohol the drank by someone giving it to them (of current drinkers)	N/A	38%	40%	44%
Drug Use				
Ever used marijuana (one or more times during their life)	N/A	33%	41%	36%
Tried marijuana for the first time before age 13 years	N/A	5%	9%	7%
Tried marijuana for the first time before age 11 years	1%	N/A	N/A	N/A
Currently used marijuana (one or more times during the past 30 days)	4%	17%	24%	20%
Ever used synthetic marijuana (one or more times during their life)	8%	9%	8%	7%
Ever used cocaine (any form of cocaine, such as powder, crack or freebase, one or more times during their life)	8%	N/A	5%	5%
Currently used cocaine (any form of cocaine, such as powder, crack or freebase, one or more times during the past 30 days)	N/A	<1%	N/A	N/A
Ever used inhalants (sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high, one or more times during their life)	3%	N/A	7%	6%

N/A – Data is not available

Youth Variables	Shiawassee County 2017-2018 (7 th grade)	Shiawassee County 2017-2018 (9 th and 11 th grade)	Michigan YRBS 2017 (9 th -12 th)	U.S. YRBS 2017 (9 th -12 th)
Drug Use				
Currently used inhalants (sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high, one or more times during the past 30 days)	N/A	2%	N/A	N/A
Ever used heroin (one or more times during their life)	N/A	N/A	3%	2%
Currently used heroin (one or more times during the past 30 days)	N/A	<1%	N/A	N/A
Ever used methamphetamines (one or more times during their life)	8%	N/A	3%	3%
Currently used methamphetamines (one or more times during the past 30 days)	N/A	<1%	N/A	N/A
Ever took steroids without a doctor's prescription (pills or shots, one or more times during their life)	10%	N/A	4%	3%
Currently took steroids without a doctor's prescription (pills or shots, one or more times during the past 30 days)	N/A	1%	N/A	N/A
Ever injected any illegal drug (used a needle to inject any illegal drug into their body, one or more times during their life)	7%	N/A	2%	2%
Currently injected any illegal drug (used a needle to inject any illegal drug into their body, one or more times during the past 30 days)	N/A	<1%	N/A	N/A
Took a prescription drug such as Ritalin, Adderall, or Xanax without a doctor's prescription (during the past month)	4%	5%	N/A	N/A
Took painkillers such as OxyContin, Codeine, Vicodin, or Percocet without a doctor's prescription (during the past month)	8%	6%	16%	14%
Were offered, sold, or given an illegal drug on school property (during the past 12 months)	4%	14%	26%	20%
Safety, Bullying, Danger, and Violence				
Rarely or never wore a seatbelt (when riding in a car driven by someone else)	6%	8%	6%	6%
Texted or emailed while driving a car or other vehicle (on at least 1 day during the past 30 days)	N/A	38%	39%	39%
Bullied on school property (in the past 12 months)	49%	36%	23%	19%
Electronically bullied (in the past 12 months)	28%	26%	20%	15%

N/A – Data is not available

Youth Variables	Shiawassee County 2017-2018 (7 th grade)	Shiawassee County 2017-2018 (9 th and 11 th grade)	Michigan YRBS 2017 (9 th -12 th)	U.S. YRBS 2017 (9 th -12 th)
Safety, Bullying, Danger, and Violence				
Carried a weapon (such as a gun knife, or club on at least one day during the past 30 days)	N/A	19%	18%	16%
Ever carried a weapon (such as a gun, knife, or club in their lifetime)	48%	N/A	N/A	N/A
Carried a weapon on school property (such as a gun knife, or club on at least one day during the past 30 days)	N/A	2%	4%	4%
Ever carried a weapon on school property (such as a gun knife, or club in their lifetime)	2%	N/A	N/A	N/A
Did not go to school because they felt unsafe at school or on their way to or from school (on at least 1 day during the past 30 days)	17%	11%	8%	7%
Threatened or injured with a weapon on school property (such as a gun, knife, or club one or more times during the past 12 months)	N/A	11%	7%	6%
Were in a physical fight (one or more times during the past 12 months)	N/A	19%	24%	24%
Ever in a physical fight (one or more times in their lifetime)	41%	N/A	N/A	N/A
Were in a physical fight on school property (one or more times during the past 12 months)	N/A	9%	8%	9%
Ever in a physical fight on school property (one or more times during their lifetime)	21%	N/A	N/A	N/A
Experienced physical dating violence (physically hurt on purpose by someone they were dating or going out with during the past 12 months)	N/A	15%	9%	8%
Experienced sexual dating violence (forced to do sexual things they did not want to do by someone they were dating or going out with in the past 12 months)	N/A	14%	8%	7%
Sexual Behavior				
Ever had sexual intercourse	N/A	37%	38%	40%
Had sexual intercourse before age 13 (of all youth)	N/A	2%	3%	3%
Had four or more sexual partners (of all youth)	N/A	7%	9%	10%
Used a condom during last sexual intercourse (of sexually active youth)	N/A	69%	49%	54%
Used birth control pills during last sexual intercourse (of sexually active youth)	N/A	29%	24%	21%
Drank alcohol or used drugs before last sexual intercourse (of sexually active youth)	N/A	15%	20%	19%
Ever physically forced to have sexual intercourse (when they did not want to)	N/A	10%	10%	7%

N/A – Data is not available

Youth Variables	Shiawassee County 2017-2018 (7 th grade)	Shiawassee County 2017-2018 (9 th and 11 th grade)	Michigan YRBS 2017 (9 th -12 th)	U.S. YRBS 2017 (9 th -12 th)
School Domain				
Felt unsafe or very unsafe at school	14%	17%	N/A	N/A
Felt assigned school work was never or seldom meaningful and important	23%	37%	N/A	N/A
Often or almost always hated being at school during the past year	42%	50%	N/A	N/A
Never or seldom tried to do their best work at school during the past year	6%	10%	N/A	N/A
Reported not at all or a little true that they do interesting activities at school	53%	59%	N/A	N/A
Reported not at all or a little true that they make a difference at school	62%	71%	N/A	N/A
Had seen students get pushed, hit, or punched one or more times during the past year	77%	61%	N/A	N/A
Heard students get called mean names or get “put down” during the past year	84%	73%	N/A	N/A
Heard rumors or lies being spread about other students during the past year	91%	80%	N/A	N/A
Have seen students left out of activities or games on purpose during the past year	73%	55%	N/A	N/A
Heard students threaten to hurt other students during the past year	69%	61%	N/A	N/A
Have seen students wreck or damage other students’ things during the past year	63%	47%	N/A	N/A
Have read email or website messages that spread rumors about other students during the past year	31%	35%	N/A	N/A
Read email or website messages that contained threats to other students during the past year	22%	22%	N/A	N/A
Had lots of chances to get involved in sports, clubs, and other school activities outside of class	88%	89%	N/A	N/A
Teachers notice when they are doing a good job and let them know about it	58%	49%	N/A	N/A
Teachers praise them when they work hard in school	46%	34%	N/A	N/A

N/A – Data is not available

Youth Variables	Shiawassee County 2017-2018 (7 th grade)	Shiawassee County 2017-2018 (9 th and 11 th grade)	Michigan YRBS 2017 (9 th -12 th)	U.S. YRBS 2017 (9 th -12 th)
Individual and Peer Domain				
Youth who reported smoking one or more packs of cigarettes per day to be a moderate or great risk	75%	79%	N/A	N/A
Youth who reported having five or more drinks of alcohol once or twice each weekend to be a moderate or great risk	63%	66%	N/A	N/A
Youth who reported they thought none of their friends had smoked cigarettes recently	82%	61%	N/A	N/A
Youth who reported they thought none of their friends had been drunk recently	84%	43%	N/A	N/A
Youth who reported they thought none of their friends had used marijuana recently	83%	42%	N/A	N/A
Family Domain				
Youth who reported their parents felt cigarette use to be wrong or very wrong	97%	94%	N/A	N/A
Youth who reported their parents felt marijuana use to be wrong or very wrong	97%	85%	N/A	N/A
Youth whose parents ask whether their homework is done	25%	31%	N/A	N/A
Youth who could ask their mom or dad for help with personal problems	80%	75%	N/A	N/A
Community Domain				
Felt unsafe or very unsafe in their neighborhood	5%	5%	N/A	N/A
Youth who reported sort of easy or very easy to get cigarettes	29%	54%	N/A	N/A
Youth who reported sort of easy or very easy to get alcohol	33%	61%	N/A	N/A
Youth who reported sort of easy or very easy to get marijuana	17%	52%	N/A	N/A
Know adults in the neighborhood they could talk to about something important	53%	44%	N/A	N/A
Neighbors notice when they are doing a good job and let them know	21%	21%	N/A	N/A
Know people in their neighborhood who encourage them to do their best	39%	34%	N/A	N/A
Know people in their neighborhood who are proud when youth do something well	37%	34%	N/A	N/A

N/A – Data is not available

Health Care Access: Health Care Coverage

Key Findings

In 2019, 7% of Shiawassee County adults were without health care coverage. The main reason adults gave for being without health care coverage was cost (40%) or because they lost their job or changed employers (40%).

3,671 Shiawassee County adults were uninsured.

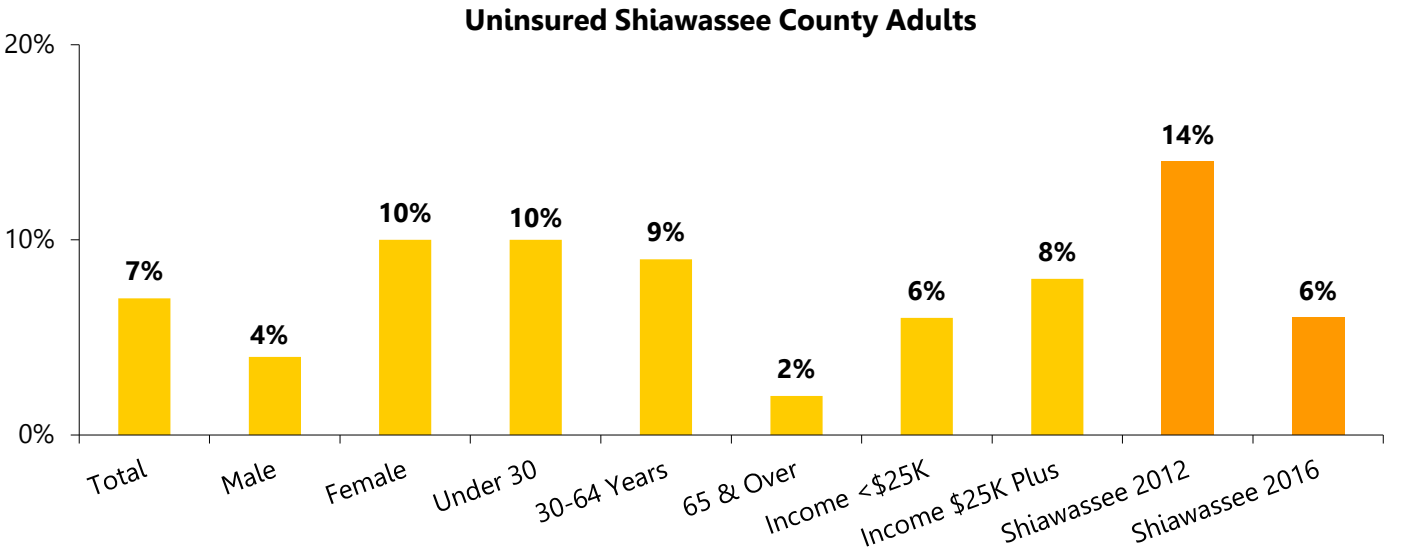
Health Care Coverage

- In 2019, 93% Shiawassee County adults had health care coverage, leaving 7% who were uninsured.
- The following types of health care coverage were used:
 - Employer (52%)
 - Medicare (18%)
 - Someone else's employer (11%)
 - Medicaid or medical assistance (9%)
 - Self-paid plan (3%)
 - Multiple, including private sources (3%)
 - Health Insurance Marketplace (2%)
 - Military, CHAMPUS, TriCare, CHAMPVA, or the VA (1%)
 - Multiple, including government sources (1%)
- Shiawassee County adult health care coverage included the following: medical (90%), prescription coverage (89%), immunizations (83%), preventive health (75%), outpatient therapy (74%), dental (70%), vision/eyeglasses (70%), mental health (65%), durable medical equipment (48%), alcohol and drug treatment (37%), skilled nursing/assisted living (29%), hospice (28%), home care (28%), and transportation (13%).
- Shiawassee County adults had the following issues regarding their health care coverage: cost (46%), opted out of certain coverage because they could not afford it (16%), provider was no longer covered (10%), service not deemed medically necessary (8%), could not understand their insurance plan (8%), service was no longer covered (7%), opted out of certain coverage because they did not need it (7%), limited visits (7%), working with their insurance company (6%), and pre-existing conditions (3%).
- The top reasons uninsured adults gave for being without health care coverage were:
 - They lost their job or changed employers (40%)
 - Cost (40%)
 - Their employer did not/stopped offering coverage (22%) or they became ineligible (22%)

Note: Percentages do not equal 100% because respondents could select more than one reason

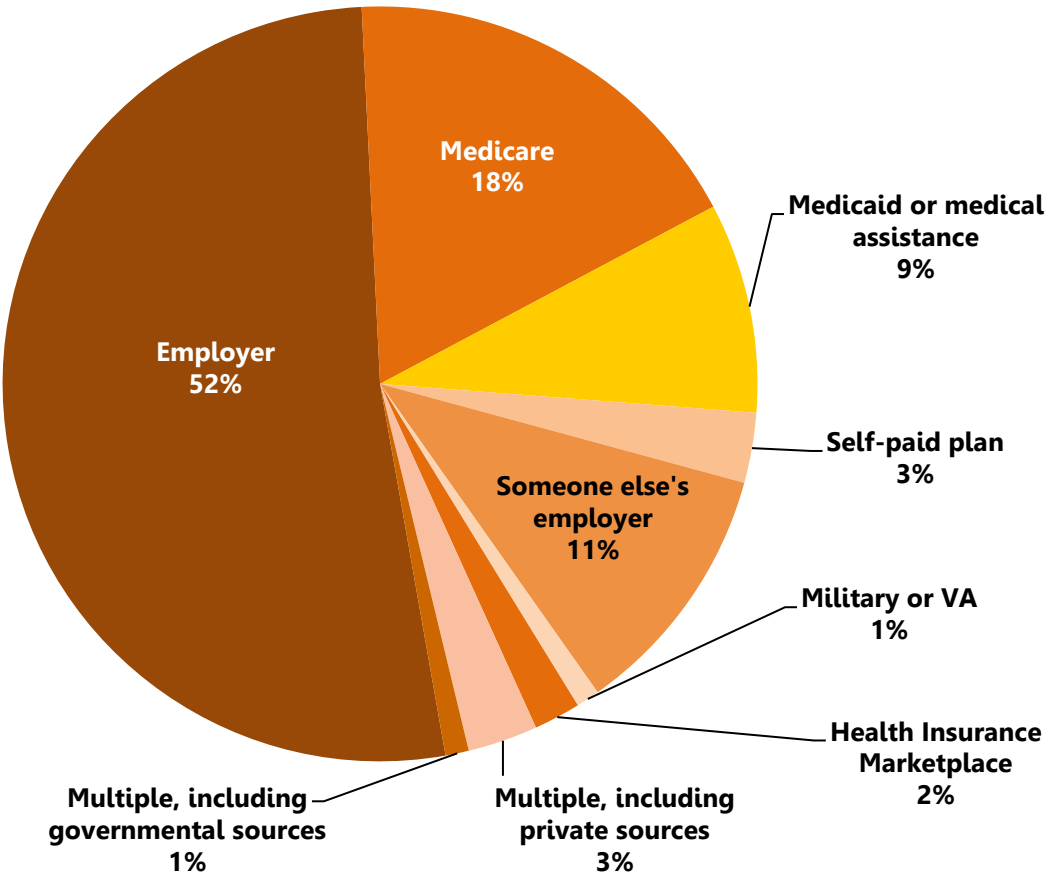
Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Uninsured	14%	6%	7%	8%	11%

The following graph shows the percentages of Shiawassee County adults who were uninsured. An example of how to interpret the information in the graph includes: 7% of all adults were uninsured, including 6% of those with an income less than \$25,000. The pie chart shows sources of Shiawassee County adults' health care coverage.



Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

Source of Health Coverage for Shiawassee County Adults



The following chart shows what is included in Shiawassee County adults' insurance coverage.

Health Coverage Includes:	Yes	No	Don't Know
Medical	91%	1%	8%
Prescription Coverage	89%	5%	6%
Immunizations	83%	3%	13%
Preventive Health	75%	3%	22%
Outpatient Therapy	74%	2%	24%
Dental	70%	24%	6%
Vision/Eyeglasses	70%	21%	9%
Mental Health	65%	4%	30%
Durable Medical Equipment	48%	3%	49%
Alcohol and Drug Treatment	37%	6%	57%
Skilled Nursing/Assisted Living	29%	6%	65%
Home Care	28%	9%	63%
Hospice	28%	8%	64%
Transportation	13%	19%	68%

Healthy People 2020 Access to Health Services (AHS)

Objective	Shiawassee County 2019	Michigan 2017	U.S. 2017	Healthy People 2020 Target
AHS-1.1: Persons under age of 65 years with health care insurance	100% age 20-24 94% age 25-34 93% age 35-44 87% age 45-54 92% age 55-64	87% age 18-24 89% age 25-34 90% age 35-44 92% age 45-54 93% age 55-64	83% age 18-24 81% age 25-34 84% age 35-44 88% age 45-54 91% age 55-64	100%

U.S. baseline is age-adjusted to the 2000 population standard

(Sources: Healthy People 2020 Objectives, 2017 BRFSS, 2019 Shiawassee County Health Assessment)

Key Facts about the Uninsured Population

- Studies repeatedly demonstrate that the uninsured are less likely than those with insurance to receive preventive care and services for major health conditions and chronic diseases.
- Part of the reason for poor access among uninsured is that 50% do not have a regular place to go when they are sick or need medical advice.
- One in five (20%) nonelderly adults without coverage say that they went without care in the past year because of cost compared to 3% of adults with private coverage and 8% of adults with public coverage.
- In 2017, uninsured nonelderly adults were three times as likely as adults with private coverage to say that they postponed or did not get a needed prescription drug due to cost.
- Because people without health coverage are less likely than those with insurance to have regular outpatient care, they are more likely to be hospitalized for avoidable health problems and to experience declines in their overall health.

(Source: The Henry Kaiser Family Foundation, Key Facts about the Uninsured Population, 2018)

Health Care Access: Access and Utilization

Key Findings

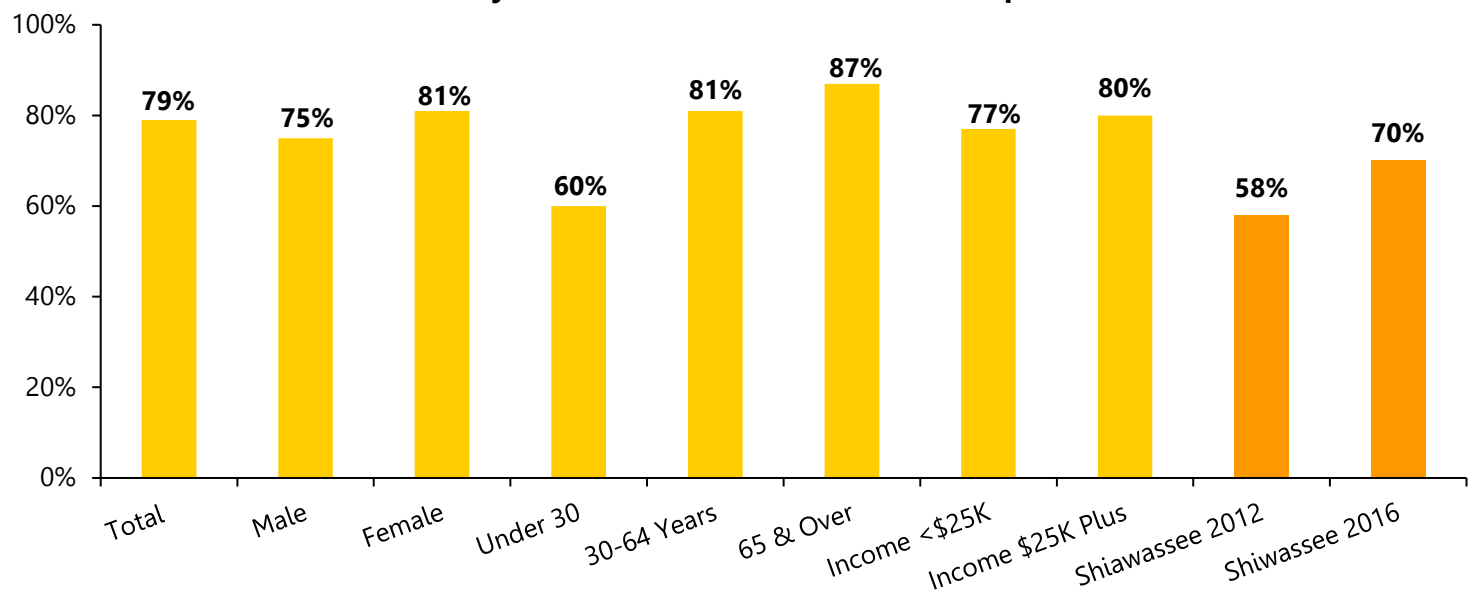
Seventy-nine percent (79%) of Shiawassee County adults had visited a doctor for a routine checkup in the past year. Sixty-three percent (63%) of adults went outside of Shiawassee County for health care services in the past year.

Health Care Access

- Seventy-nine percent (79%) of Shiawassee County adults visited a doctor for a routine checkup in the past year, increasing to 87% of those over the age of 65.
- Adults with health care coverage were more likely to have visited a doctor for a routine checkup in the past year (79%), compared to 60% of those without health care coverage.
- Nearly three-fifths (59%) of adults reported they had one person they thought of as their personal doctor or health care provider. Twenty-eight percent (28%) of adults had more than one person they thought of as their personal health care provider, and 12% did not have one at all. One percent (1%) reported they did not know.

The following graph shows the percentage of Shiawassee County adults who had a routine checkup in the past year. An example of how to interpret the information in the graph includes: 79% of all adults had a routine check-up in the past year, including 75% of males and 81% of females.

Shiawassee County Adults Who Had a Routine Check-up in the Past Year



Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Had one or more persons they thought of as their personal health care provider	83%	85%	87%	85%	77%
Visited a doctor for a routine checkup (in the past 12 months)	58%	70%	79%	73%	70%

- Shiawassee County adults did not get the following major or preventive care because of cost: medication (15%), surgery (12%), lab testing (11%), colonoscopy (10%), mental health services (9%), weight loss program (9%), immunizations (6%), pap smear (5%), mammogram (5%), PSA test (5%), family planning services (3%), smoking cessation (2%), and alcohol and/or drug treatment (2%).
- Shiawassee County adults reported the following might prevent them from seeing a doctor if they were sick, injured, or needed some kind of health care:
 - Cost/no insurance (27%)
 - Doctor/health professional would not take their insurance (14%)
 - Inconvenient hours (12%)
 - Could not get time off work (12%)
 - Difficult to get an appointment (9%)
 - Worried they might find something wrong (8%)
 - Frightened of the procedure or doctor (6%)
 - Difficult to find/no transportation (4%)
 - Do not trust or believe doctors (3%)
 - Discrimination (2%)
 - Could not find childcare (1%)
 - Some other reason (3%)

33,038 adults went outside Shiawassee County for health care services in the past year.

- Adults usually visited the following places for health care services and advice: doctor's/health care provider's office (79%), urgent care center (12%), Department of Veteran's Affairs (VA) (1%), hospital emergency room (1%), family and friends (1%), internet (1%), chiropractor (1%), public health clinic or community health center (<1%), and Great Lakes Bay (<1%). Three percent (3%) of adults indicated they had no usual place for health care services.
- Sixty-three percent (63%) of adults went outside of Shiawassee County for the following health care services in the past year: primary care (29%); specialty care (25%); dental services (23%); obstetrics/gynecology (11%); cardiac care (9%); dermatological (skin) care (7%); podiatry (foot/ankle) care (6%); female health services (5%); mental health care/counseling (5%); orthopedic care (5%); ear, nose, throat care (4%); cancer care (3%); pediatric care (2%); pediatric therapies (1%); addiction services (1%); skilled nursing rehabilitation (1%); bariatric care (<1%); and other services (11%).
- Reasons for seeking health care services outside of Shiawassee County included: there was a better-quality program (13%), service not available locally (13%), did not like the local services/providers (10%), used to live there (10%), insurance restrictions (7%), had a bad experience locally (6%), work there (5%), word of mouth (4%), wait list was too long in Shiawassee County (3%), hours not convenient (4%), and other reasons (14%).

- Shiawassee County adults visited the Emergency Room (ER) in the past year at the following frequencies: 0 times (73%), 1-to-2 times (24%), and 3-to-5 times (2%). Less than one percent (<1%) reported they did not know.
- Nearly half (49%) of adults had used an emergency room for their health care for the following reasons: serious illness/injury (40%), could not get in to see their primary physician because of time of day/too long of a wait (14%), doctor told them to go there (10%), it's what they have always done/what they are used to (3%), and did not have a primary physician (2%).
- More than one-fourth (26%) of adults did not get their prescriptions from their doctor filled in the past year. Those who did not get their prescriptions filled gave the following reasons:
 - Cost (48%)
 - They did not think they needed it (28%)
 - No prescriptions to be filled (28%)
 - They stretched their current prescription by taking less than prescribed (18%)
 - There was no generic equivalent (17%)
 - Side effects (16%)
 - No insurance (11%)
 - Fear of addiction (4%)
 - They were taking too many medications (3%)

Availability of Services

- Shiawassee County adults looked for the following types of programs for themselves or a loved one: depression, anxiety, or mental health problem (22%); in-home care assistance for elderly or disabled adult (16%); out-of-home care assistance for elderly or disabled adult (14%); assisted living program for elderly or disabled adult (11%); end-of-life care/hospice (10%); weight problem (9%); disability (7%); respite/overnight care for elderly or disabled adult (5%); marital or family problems (4%); family planning (4%); tobacco cessation (4%); daycare for elderly or disabled adult (4%); disabled adult program (4%); cancer support group/counseling (3%); alcohol abuse (2%); drug abuse (2%); opiate/heroin detoxification (2%); and gambling abuse (1%).

Shiawassee County Adults Able to Access Assistance Programs/Services

Types of Programs (% of all adults who looked for the programs)	Shiawassee County adults who have looked but have <u>NOT</u> found a specific program	Shiawassee County adults who have looked and have found a specific program
Depression, anxiety or some mental health problem (22% of all adults looked)	38%	62%
In-home care assistance for elderly or disabled adult (16% of all adults looked)	6%	94%
Out-of-home care assistance for elderly or disabled adult (14% of all adults looked)	19%	81%
Assisted living program for elderly or disabled adult (11% of all adults looked)	16%	84%
End-of-Life/Hospice Care (10% of all adults looked)	3%	97%
Weight problem (9% of all adults looked)	45%	55%
Disability (7% of all adults looked)	48%	52%
Respite/overnight care for elderly or disabled adult (5% of all adults looked)	47%	53%
Marital/family problems (4% of all adults looked)	7%	93%
Tobacco cessation (4% of all adults looked)	33%	67%
Disabled adult program (4% of all adults looked)	33%	67%
Family planning (4% of all adults looked)	33%	67%
Cancer support group/counseling (3% of all adults looked)	11%	89%
Alcohol abuse (2% of all adults looked)	29%	71%
Drug abuse (2% of all adults looked)	80%	20%
Detoxification for Opiates/Heroin (2% of all adults looked)	57%	43%

What can be Done to Improve the Health of Rural Americans?

Rural Americans face numerous health disparities compared with their urban counterparts. More than 46 million Americans, or 15% of the U.S. population, live in rural areas. Some rural areas have characteristics that put residents at higher risk of death, such as long travel distances to specialty and emergency care, exposures to specific environmental hazards, and higher rates of poverty. The gaps in health in rural areas can be addressed. For example, health care providers in rural areas can:

- **Screen patients for high blood pressure and make blood pressure control a quality improvement goal**
 - High blood pressure is a leading risk factor for heart disease and stroke.
- **Increase cancer prevention and early detection**
 - Rural health care providers should participate in the state-level [comprehensive control coalitions](#). Comprehensive cancer control programs focus on cancer prevention, education, screening, access to care, support for cancer survivors, and overall good health.
- **Encourage physical activity and healthy eating to reduce obesity**
 - Obesity has been linked to a variety of serious chronic illnesses, including diabetes, heart disease, cancer, and arthritis.
- **Promote smoking cessation**
 - Cigarette smoking is the leading cause of preventable disease and death in the United States and is the most significant risk factor for chronic lower respiratory disease.
- **Identify additional support for families who have children with mental, behavioral, or developmental disorders**
 - Children with these issues would benefit from increased access to mental and behavioral health care; programs that support parents and caregivers; and increased opportunities to learn, play, and socialize. Because children in rural areas with these disorders more often experience financial difficulties, poor parental mental health, and a lack of neighborhood resources, these children may need additional support.
- **Promote motor vehicle safety**
 - Rural health care providers should encourage patients to always wear a seat belt and counsel parents and child care providers to use age- and size-appropriate car seats, booster seats, and seat belts on every trip.
- **Engage in safer prescribing of opioids for pain**
 - Health care providers should follow the [CDC guidelines](#) when prescribing opioids for chronic pain and educate patients on the risks and benefits of opioids and using nonpharmacologic therapies to provide greater benefit.

(Source: CDC, Centers for Disease Control and Prevention, Rural Health, About Rural Health, Updated on August 2, 2017)

Health Care Access: Preventive Medicine

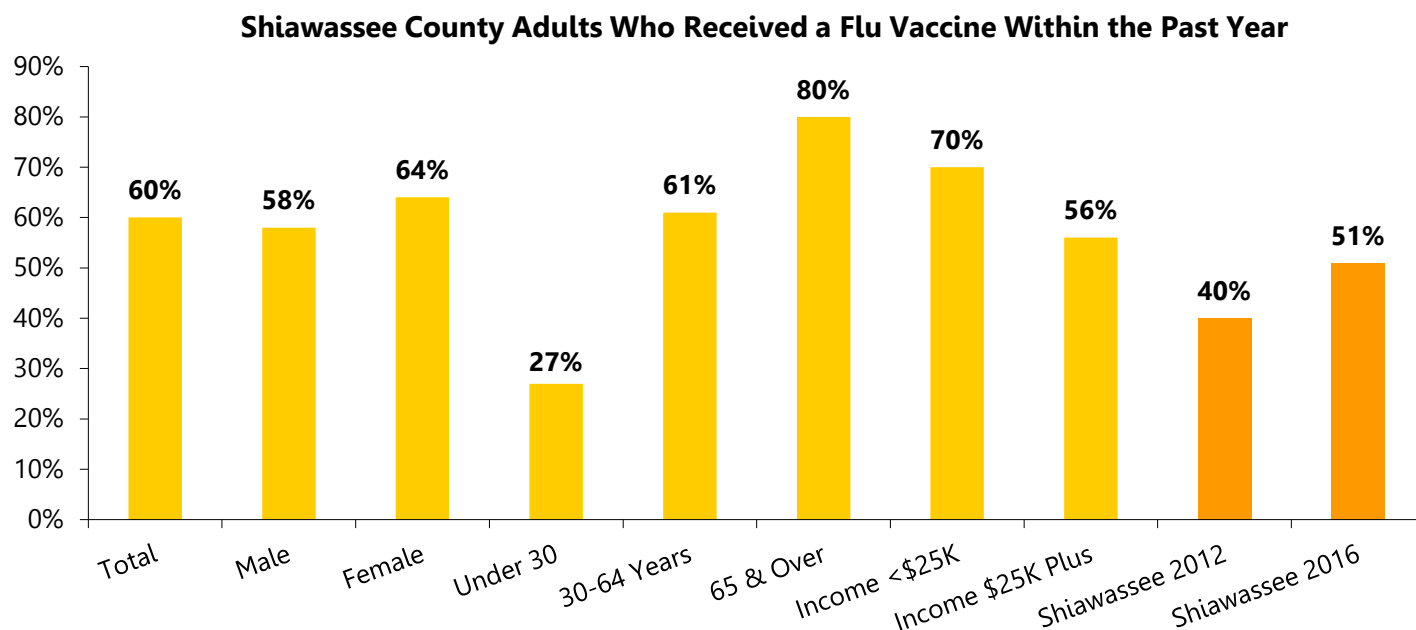
Key Findings

Seventy-six percent (76%) of adults ages 65 and over had a pneumonia vaccination at some time in their life. Fifty-seven percent (57%) of adults ages 50 and over had a colonoscopy or sigmoidoscopy in the past five years. Forty-two percent (42%) of adults had the Hepatitis A vaccine in their lifetime.

Preventive Medicine

- Three-fifths (60%) of Shiawassee County adults had a flu vaccine during the past 12 months, increasing to 80% of adults ages 65 and over.
- Reasons for not getting a flu vaccine included the following: did not need it (17%), got sick from it (9%), vaccine did not work (5%), vaccine was not effective (5%), time (5%), cost (3%), religious beliefs (1%), and other reasons (11%).
- Over one-third (36%) of adults had a pneumonia vaccine in their life, increasing to 76% of those ages 65 and over.
- Shiawassee County adults had the following vaccines:
 - MMR in their lifetime (76%)
 - Tetanus booster (including Tdap) in the past 10 years (70%)
 - Chicken pox in their lifetime (61%)
 - Hepatitis B in their lifetime (44%)
 - Hepatitis A in their lifetime (42%)
 - Influenza type B in their lifetime (40%)
 - Zoster (shingles) vaccine in their lifetime (25%)
 - Meningococcal vaccine in their lifetime (22%)
 - Human papillomavirus (HPV) vaccine in their lifetime (13%)

The following graph shows the percentage of County adults who received a flu vaccine in the past year. An example of how to interpret the information in the graph includes: 60% of adults received a flu vaccine in the past year, including 80% of those over the age of 65.



Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Had a pneumonia vaccine (age 65 and older)	66%	73%	76%	76%	75%
Had a flu vaccine in the past year (age 65 and older)	N/A	77%	80%	60%	61%
Ever had a shingles or zoster vaccine	N/A	11%	25%	27%	29%

N/A-Not Available

Healthy People 2020 Immunization and Infectious Diseases (IID)

Objective	Shiawassee County 2019	Healthy People 2020 Target
IID-13.1: Increase the percentage of non-institutionalized high-risk adults aged 65 years and older who are vaccinated against pneumococcal disease	76%	90%
IID-12.7: Increase the percentage of non-institutionalized high-risk adults aged 65 years and older who are vaccinated annually against seasonal influenza	80%	90%
IID-14: Increase the percentage of adults who are vaccinated against zoster (shingles)	25%	30%

Note: U.S. baseline is age-adjusted to the 2000 population standard

(Sources: Healthy People 2020 Objectives, 2019 Shiawassee County Health Assessment)

Preventive Health Screenings and Exams

- Shiawassee County adults had the following screenings:
 - Vision in the past 2 years (77%)
 - Colonoscopy or sigmoidoscopy in the past 5 years (37%)
 - Hearing the past 2 years (25%)
 - Skin cancer in the past 2 years (24%)
 - Blood stool in the past year (23%)
 - Bone density in the past 2 years (14%)
- More than half (57%) of adults over the age of 50 had a colonoscopy or sigmoidoscopy in the past five years.
- Shiawassee County adults indicated a doctor or health professional talked to them about following topics in the past year: family history (44%), immunizations (40%), depression, anxiety, or emotional problems (33%), weight control (31%), safe use of prescription pain medication (30%), tobacco use (17%), bone density (12%), alternative pain therapy (11%), falls (11%), injury prevention (11%), prostate-specific antigen (PSA) test (11%), safe use of opiate-based pain medication (11%), alcohol use (8%), self-testicular exams (8%), illicit drug abuse (6%), family planning (4%), firearm safety (4%), sexually transmitted diseases (STDs) (4%), domestic violence (3%), and genetic testing (2%).

**Shiawassee County Adults Having Discussed Health Care Topics
With Their Health Care Professional in the Past 12 Months**

Health Care Topics	Total 2012	Total 2016	Total 2019
Family History	N/A	N/A	44%
Immunizations	20%	36%	40%
Depression, Anxiety, or Emotional Problems	18%	27%	33%
Weight Control	39%	43%	31%
Safe Use of Prescription Medication	N/A	22%	30%
Tobacco Use	N/A	N/A	17%
Bone Density	N/A	N/A	12%
Alternative pain therapy	N/A	11%	11%
Falls	N/A	N/A	11%
Injury Prevention Such as Safety Belt Use, Helmet Use, or Smoke Detectors	12%	14%	11%
Prostate-Specific Antigen (PSA) Test	N/A	N/A	11%
Safe Use of Opiate-Based Pain Medication	N/A	8%	11%
Alcohol Use	11%	12%	8%
Self-Testicular Exams	N/A	N/A	8%
Illicit Drug Abuse	5%	4%	6%
Family Planning	N/A	N/A	4%
Firearm Safety	N/A	N/A	4%
Sexually Transmitted Disease (STDs)	N/A	N/A	4%
Domestic Violence	2%	5%	3%
Genetic Testing	N/A	N/A	2%

N/A – Not Available

Health Care Access: Women's Health

Key Findings

In 2019, 52% of Shiawassee County women ages 40 and older reported having a mammogram in the past year. Fifty-seven percent (57%) of Shiawassee County women had a clinical breast exam in the past year, and 45% had a Pap smear to detect cancer of the cervix in the past year. More than two-fifths (44%) of women were obese, 34% had high blood cholesterol, 34% had high blood pressure, and 20% were current smokers, known risk factors for cardiovascular diseases.

Women's Health Screenings

- In 2019, 67% of women had a mammogram at some time in their life, and over one-third (35%) had this screening in the past year.
- Just over half (52%) of women ages 40 and over had a mammogram in the past year, and 77% had one in the past two years.
- Eighty-nine percent (89%) of Shiawassee County women had a clinical breast exam at some time in their life, and 57% had one within the past year. Seventy percent (70%) of women ages 40 and over had a clinical breast exam in the past two years.
- Eighty-one percent (81%) of Shiawassee County women had a pap smear in their life, and 45% reported having had the exam in the past year. Seventy-nine percent (79%) of women ages 21 to 65 had a Pap smear in the past three years.

Pregnancy

- Twenty-two percent (22%) of Shiawassee County women had been pregnant in the past five years.
- During their last pregnancy within the past five years, Shiawassee County women got a prenatal appointment in the first three months (79%), took a multi-vitamin with folic acid (79%), got a dental exam (53%), experienced depression (38%), received WIC services (35%), smoked cigarettes or used other tobacco products (15%), used marijuana (12%), and used opioids (12%).

Women's Health Concerns

- Major risk factors for cardiovascular disease include smoking, obesity, high blood cholesterol, high blood pressure, physical inactivity, and diabetes. In Shiawassee County, the 2019 health assessment has identified that:
 - 70% of women were overweight or obese (2017 BRFSS reports 67% for Michigan and 67% for the U.S.)
 - 34% were diagnosed with high blood cholesterol (2017 BRFSS reports 35% for Michigan and 33% for the U.S.)
 - 34% were diagnosed with high blood pressure (2017 BRFSS reports 35% for Michigan and 32% for the U.S.)
 - 20% were current smokers (2017 BRFSS reports 19% for Michigan and 17% for the U.S.)
 - 14% had been diagnosed with diabetes (2017 BRFSS reports 11% for Michigan and 11% for the U.S.)

Shiawassee County Female Leading Causes of Death 2015 – 2017

Total female deaths: 1,090

1. Heart Disease (23% of all deaths)
2. Cancer (21%)
3. Chronic Lower Respiratory Disease (8%)
4. Alzheimer's Disease (6%)
5. Stroke (6%)

(Source: CDC Wonder, 2015-2017)

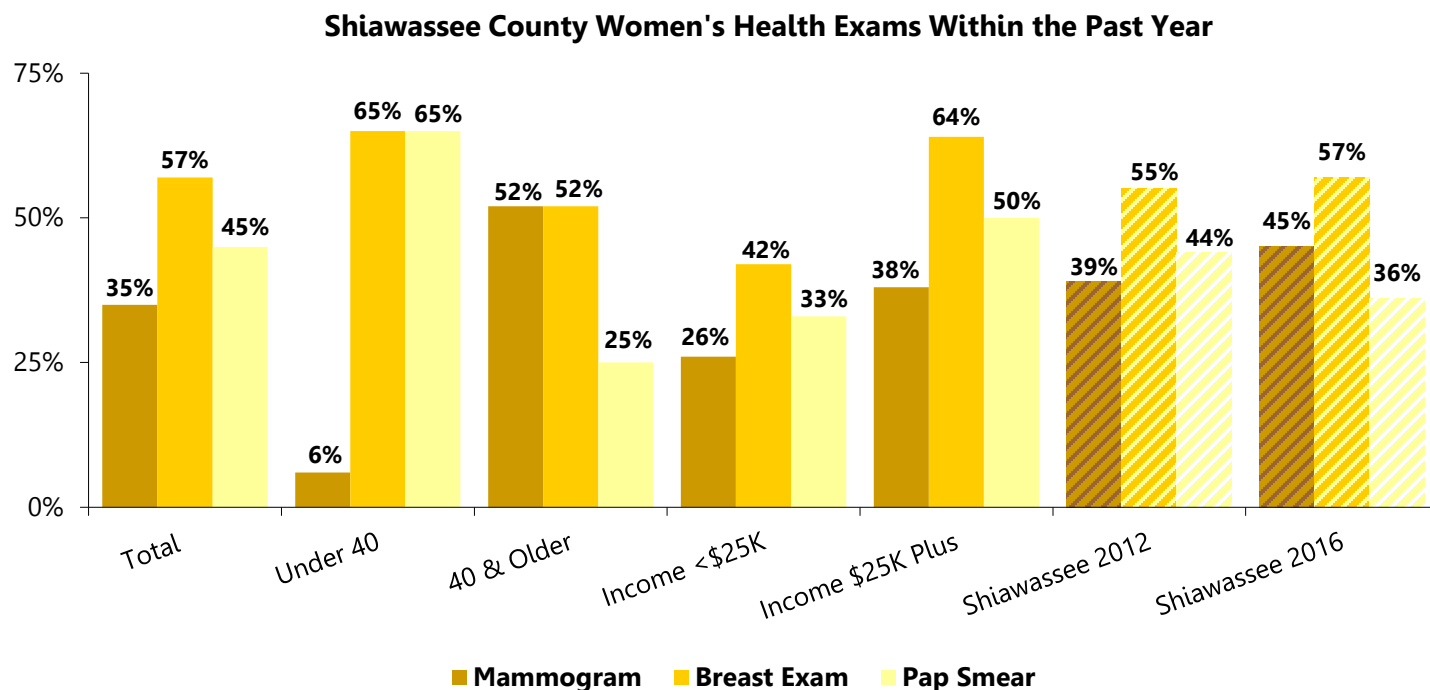
Michigan Female Leading Causes of Death 2015 – 2017

Total female deaths: 143,450

1. Heart Disease (25% of all deaths)
2. Cancer (21%)
3. Chronic Lower Respiratory Disease (6%)
4. Alzheimer's disease (6%)
5. Stroke (6%)

(Source: CDC Wonder, 2015-2017)

The following graph shows the percentage of Shiawassee County females who had various health exams in the past year. Examples of how to interpret the information shown on the graph include: 35% of Shiawassee County females had a mammogram within the past year, 57% had a clinical breast exam, and 45% had a Pap smear.



Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Had a clinical breast exam in the past two years (age 40 and older)	78%	72%	70%	N/A	N/A
Had a mammogram in the past two years (age 40 and older)	77%	78%	77%	79%*	73%*
Had a Pap smear in the past three years (age 21-65)	79%‡	66%‡	79%	81%*	80%*

N/A – Not Available

*2016 BRFSS

‡Pap smear was reported for women ages 19 and over

Health Care Access: Men's Health

Key Findings

Eighty-seven percent (87%) of Shiawassee County males were overweight or obese. Males were more likely to have been diagnosed with high blood cholesterol than females (44% compared to 34%).

Men's Health Screenings and Concerns

- Forty-five percent (45%) of Shiawassee County males rated their health as excellent or very good, compared to 43% of females.
- Males were less likely to have been diagnosed with:
 - Asthma (12% compared to 17% of females).
 - Arthritis (32% compared to 39% of females).
 - Diabetes (12% compared to 14% of females).
- Males were more likely to have been diagnosed with:
 - High blood cholesterol (44% compared to 34% of females)
 - High blood pressure (40% compared to 34% of females)
- Shiawassee County males were less likely to:
 - Be a current smoker (14% compared to 20% of females)
 - Have been uninsured (4% compared to 10% of females).
- Shiawassee County males were more likely to:
 - Be considered overweight or obese (87% compared to 70% of females).
 - Have consumed alcohol in the past 30 days (64% compared to 51% of females).
 - Have been to the dentist in the past year (80% compared to 73% of females).

Shiawassee County Male Leading Causes of Death 2015 – 2017

Total male deaths: 1,089

1. Heart Disease (27% of all deaths)
2. Cancer (24%)
3. Chronic Lower Respiratory Disease (6%)
4. Accidents, Unintentional Injuries (6%)
5. Diabetes (4%)

(Source: CDC Wonder, 2015-2017)

Michigan Male Leading Causes of Death 2015 – 2017

Total male deaths: 145,523

1. Heart Disease (27% of all deaths)
2. Cancer (22%)
3. Accidents, Unintentional Injuries (7%)
4. Chronic Lower Respiratory Disease (6%)
5. Stroke (4%)

(Source: CDC Wonder, 2015-2017)

Adult Comparisons	Shiawassee County Males 2012	Shiawassee County Males 2016	Shiawassee County Males 2019
Obese	35%	39%	43%
Overweight	49%	41%	44%

Health Care Access: Oral Health

Key Findings

Seventy-six percent (76%) of Shiawassee County adults had visited a dentist or dental clinic in the past year. The top three reasons adults gave for not visiting a dentist in the past year were cost (25%); no reason to go/had not thought of it (16%); and fear, apprehension, nervousness, pain, and dislike going (14%).

Oral Health

- In the past year, 76% of Shiawassee County adults had visited a dentist or dental clinic, decreasing to 64% of those with incomes less than \$25,000.
- Over four-fifths (81%) of Shiawassee County adults with dental insurance had been to the dentist in the past year, compared to 73% of those without dental insurance.
- Shiawassee County adults reported the following reasons for not visiting a dentist or dental clinic in the past year:
 - Cost (25%)
 - No reason to go/had not thought of it (16%)
 - Fear, apprehension, nervousness, pain, dislike going (14%)
 - Had dentures (12%)
 - Did not have or know a dentist (12%)
 - Transportation (7%)
 - Dentist did not accept their medical coverage (2%)
 - Other reasons (10%)

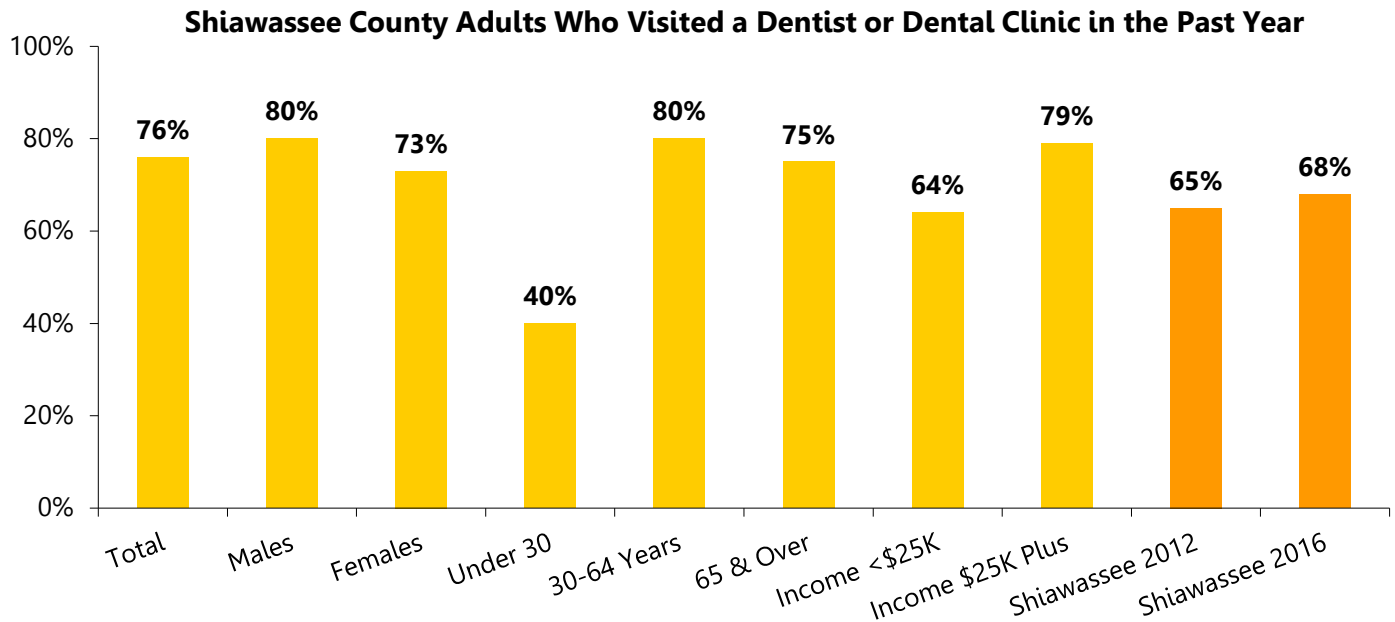
Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Adults who had visited a dentist or dental clinic in the past year	65%	68%	76%	70%	66%

*2016 BRFSS

Oral Health	Within the Past Year	Within the Past 2 Years	Within the Past 5 Years	5 or More years	Never
Time Since Last Visit to Dentist/Dental Clinic					
Males	80%	7%	3%	9%	0%
Females	73%	7%	7%	7%	0%
Total	76%	7%	5%	8%	<1%

*Totals may not equal 100% as some respondents answered, "Don't know".

The following graph shows the percentage of Shiawassee County adults who had visited a dentist or dental clinic in the past year. An example of how to interpret the information on the graph includes: 76% of adults had been to the dentist or dental clinic in the past year, including 40% of those under the age of 30 and 64% of those with incomes less than \$25,000.



Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

Facts About Adult Oral Health

- The baby boomer generation is the first where most people will keep their natural teeth over their entire lifetime. This is largely because of the benefits of water fluoridation and fluoride toothpaste. However, threats to oral health, including tooth loss, continue throughout life.
- The major risks for tooth loss are tooth decay and gum disease that may increase with age because of problems with saliva production; receding gums that expose “softer” root surfaces to decay-causing bacteria; or difficulties flossing and brushing because of poor vision, cognitive problems, chronic disease, and physical limitations.
- Although more adults are keeping their teeth, many continue to need treatment for dental problems. This need is even greater for members of some racial and ethnic groups—about 3 in 4 Hispanics and non-Hispanic black adults have an unmet need for dental treatment, as do people who are poor. These individuals are also more likely to report having poor oral health.
- In addition, some adults may have difficulty accessing dental treatment. For every adult aged 19 years or older without medical insurance, there are three who don’t have dental insurance.
- Oral health problems include the following: untreated tooth decay, gum disease, tooth loss, oral cancer, and chronic diseases such as arthritis, heart disease, and strokes.

(Source: Centers for Disease Control and Prevention, Facts About Adult Oral Health, July 13, 2016)

Health Behaviors: Health Status Perceptions

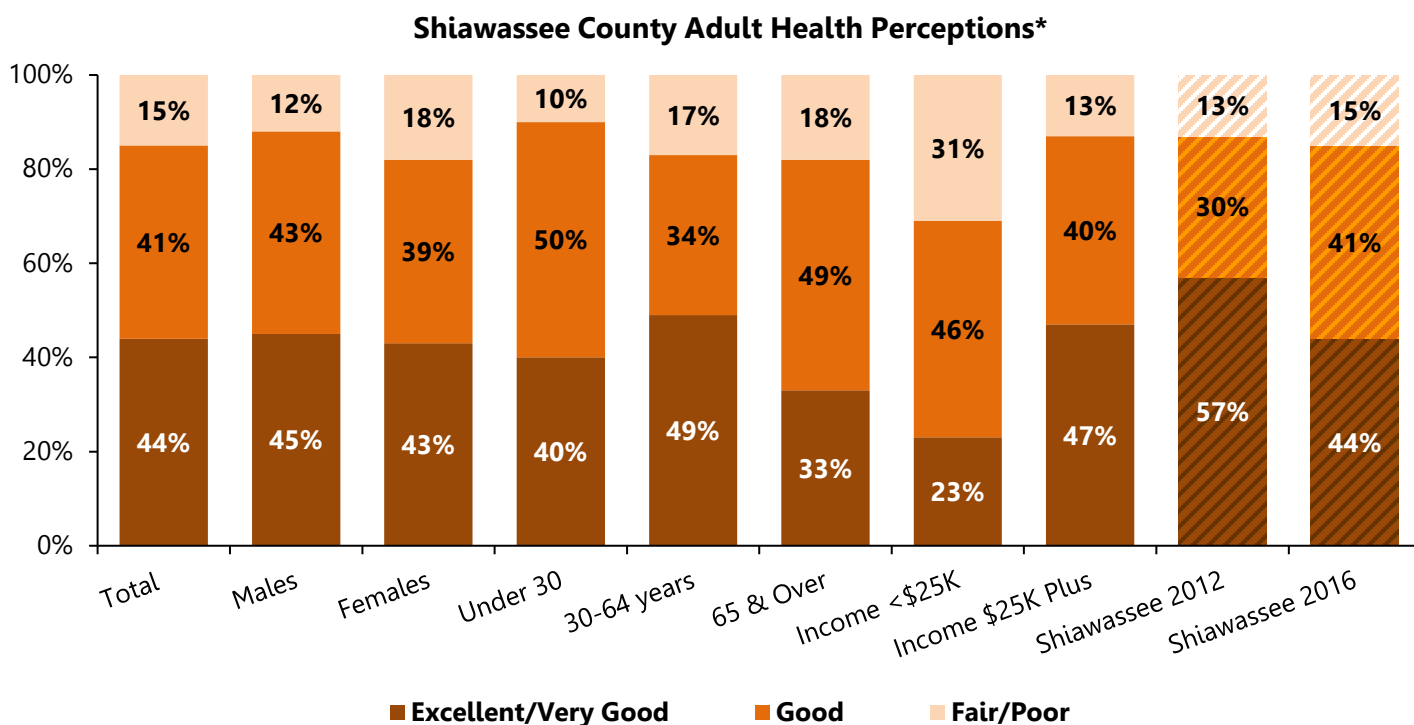
Key Findings

In 2019, 44% of Shiawassee County adults rated their health status as excellent or very good. Conversely, 15% of adults, increasing to 31% of those with incomes less than \$25,000, described their health as fair or poor.

General Health Status

- In 2019, 44% of Shiawassee County adults rated their health as excellent or very good. Shiawassee County adults with higher incomes (47%) were most likely to rate their health as excellent or very good, compared to 23% of those with incomes less than \$25,000.
- Fifteen percent (15%) of adults rated their health as fair or poor.
- Shiawassee County adults were most likely to rate their health as fair or poor if they:
 - Had been diagnosed with diabetes (35%)
 - Were divorced (32%)
 - Had an annual household income under \$25,000 (31%)
 - Had high blood pressure (28%)
 - Had high blood cholesterol (24%)
 - Were 65 years of age or older (18%)
- Nearly one-third (30%) of adults reported that poor mental or physical health kept them from doing usual activities such as self-care, work, or recreation.

The following graph shows the percentage of Shiawassee County adults who described their personal health status as excellent/very good, good, and fair/poor. Examples of how to interpret the information include: 44% of all adults, 45% of males and 40% of those under age 30 rated their health as excellent or very good.



*Respondents were asked: "Would you say that in general your health is excellent, very good, good, fair or poor?"

Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

Physical Health Status

- More than one-fourth (26%) of Shiawassee County adults rated their physical health as not good on four or more days in the previous month.
- Shiawassee County adults reported their physical health as not good on an average of 4.1 days in the previous month.
- Shiawassee County adults were most likely to rate their physical health as not good if they:
 - Had an annual household income under \$25,000 (41%)
 - Were female (33%)

Mental Health Status

- Nearly one-third (31%) of Shiawassee County adults rated their mental health as not good on four or more days in the previous month.
- Shiawassee County adults reported their mental health as not good on an average of 4.6 days in the previous month.
- Shiawassee County adults were most likely to rate their mental health as not good if they:
 - Had an annual household income under \$25,000 (54%)
 - Were female (37%)

The table shows the percentage of adults with poor physical and mental health in the past 30 days.

Health Status	No Days	1-3 Days	4-5 Days	6-7 Days	8 or More Days
Physical Health Not Good in Past 30 Days*					
Males	53%	18%	6%	2%	11%
Females	41%	21%	9%	6%	18%
Total	46%	20%	8%	4%	15%
Mental Health Not Good in Past 30 Days*					
Males	62%	8%	10%	0%	12%
Females	37%	22%	9%	1%	25%
Total	49%	16%	9%	1%	19%

**Totals may not equal 100% as some respondents answered, "Don't know".*

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Rated general health as excellent or very good	57%	44%	44%	49%	51%
Rated general health as fair or poor	13%	15%	15%	19%	18%
Rated physical health as not good on four or more days (in the past 30 days)	18%	25%	26%	26%	22%
Average number of days that physical health not good (in the past 30 days)	3.1	4.2	4.1	4.3 [‡]	3.7 [‡]
Rated mental health as not good on four or more days (in the past 30 days)	23%	25%	31%	26%	24%
Average number of days that mental health not good (in the past 30 days)	3.5	3.9	4.6	4.4 [‡]	3.8 [‡]
Poor physical or mental health kept them from doing usual activities, such as self-care, work, or recreation (on at least one day during the past 30 days)	23%	28%	30%	26%	23%

N/A-Not Available

[‡]2016 BRFSS data as compiled by 2019 County Health Rankings

Health Behaviors: Weight Status

Key Findings

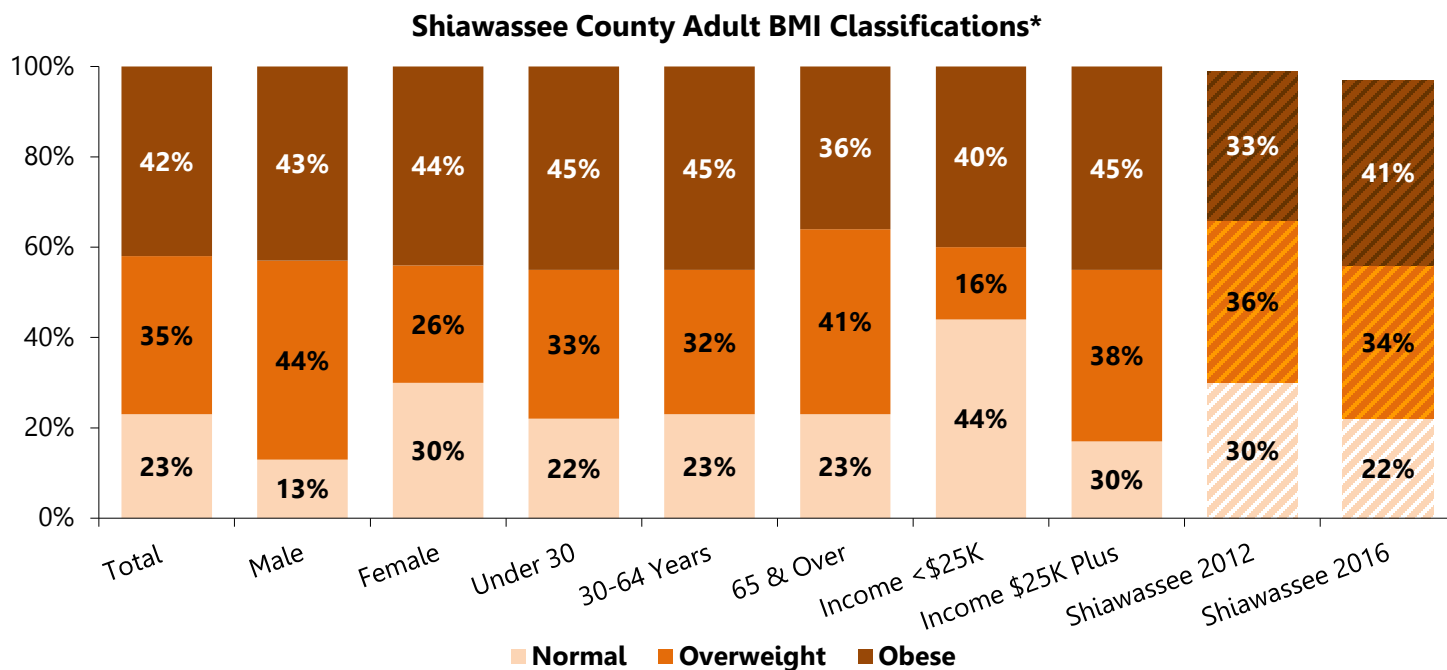
More than three-fourths (77%) of Shiawassee County adults were overweight or obese based on body mass index (BMI). One-in-six (17%) adults did not participate in any physical activity in the past week, including 1% who were unable to exercise.

22,025 Shiawassee County adults were obese.

Weight Status

- In 2019, seventy-seven percent (77%) of Shiawassee County adults were either overweight (35%) or obese (42%) by body mass index (BMI). This puts them at elevated risk for developing a variety of diseases.
- Shiawassee County adults described their weight as: just about the right weight (45%), overweight (37%), obese (11%), very overweight (5%), and underweight (2%).
- Shiawassee County adults did the following to lose weight or keep from gaining weight: ate less food, fewer calories, or foods low in fat (46%); drank more water (43%); exercised (42%); ate a low-carb diet (21%); used a weight loss program (5%); took prescribed medications (3%); went without eating 24 or more hours (2%); smoked cigarettes (2%); participated in a prescribed dietary or fitness program (1%); health coaching (1%); took diet pills, powders, or liquids without a doctor's advice (<1%); and took laxatives (<1%).

The following graph shows the percentage of Shiawassee County adults who were normal weight, overweight or obese by body mass index (BMI). An example of how to interpret the information includes: 23% of all adults were classified as normal weight, 35% were overweight, and 42% were obese.



*Percentages may not equal 100% due to the exclusion of data for those who were classified as underweight

Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Obese	33%	41%	42%	32%	31%
Overweight	36%	34%	35%	35%	35%

Physical Activity

- In Shiawassee County, 61% of adults engaged in some type of physical activity or exercise for at least 30 minutes three or more days per week. Nearly one-third (32%) of adults exercised five or more days per week. One-in-six (17%) adults did not participate in any physical activity in the past week, including 1% who were unable to exercise.
- Reasons for not exercising included:
 - Too tired (25%)
 - Self-motivation/will power (24%)
 - Time (23%)
 - Pain or discomfort (17%)
 - Weather (16%)
 - Laziness (16%)
 - Chose not to exercise (11%)
 - Do not like exercise (8%)
 - No exercise partner (6%)
 - Could not afford a gym membership (5%)
 - Ill or physically unable (5%)
 - Did not know what activity to do (4%)
 - No gym available (3%)
 - No walking, biking trails, or parks (3%)
 - No childcare (2%)
 - Neighborhood safety (2%)
 - Lack of opportunities for those with physical impairments or challenges (2%)
 - Afraid of injury (1%)
 - No transportation to a gym or other exercise opportunity (1%)
 - Too expensive (1%)
 - Poorly maintained/no sidewalks (1%)
 - Doctor advised them not to exercise (1%)
- On an average day, adults spent time doing the following: 2.6 hours watching television, 1.7 hours on their cell phone, 0.9 hours on the computer outside of work, and 0.3 hours playing video games.

Nutrition

The table below indicates the number of servings of fruit, vegetables, sugar-sweetened beverages, and caffeinated beverages Shiawassee County adults consumed daily.

	5 or more servings	3-4 servings	1-2 servings	0 servings
Fruit	1%	9%	75%	15%
Vegetables	<1%	20%	72%	7%
Sugar-sweetened beverages	4%	9%	34%	53%
Caffeinated beverages	14%	25%	48%	13%

- In 2019, 37% of adults ate between 1-to-2 servings of fruits and/or vegetables per day. Forty-four percent (44%) ate 3-to-4 servings per day, and 17% ate 5 or more servings per day. Two percent (2%) of adults ate 0 servings of fruits and/or vegetables per day.
- Eighty percent (80%) of adults ate out in a restaurant or brought home take-out at least once in a typical week, 7% of whom did so for five or more meals.

- Shiawassee County adults reported the following reasons they chose the types of food they ate:
 - Taste/enjoyment (61%)
 - Healthiness of food (49%)
 - Cost (48%)
 - Ease of preparation/time (43%)
 - Food they were used to (35%)
 - What their family prefers (31%)
 - Nutritional content (30%)
 - Availability (27%)
 - Calorie content (20%)
 - Artificial sweetener content (9%)
 - If it was organic (9%)
 - If it was genetically modified (8%)
 - Other food sensitivities (6%)
 - If it was gluten free (5%)
 - Availability of food at the food pantry (4%)
 - Limitations due to dental issues (3%)
 - If it was lactose free (3%)
 - Limitations set by WIC (2%)
 - Health care provider's advice (2%)
 - Other reasons (5%)
- Adults purchased their fruits and vegetables from the following places: large grocery store (91%), farmers market (31%), local grocery store (31%), grow their own/garden (24%), Dollar General/dollar store (3%), corner/convenience store (2%), food pantry (2%), mail order food service (<1%), and other places (3%).

Summary of the American Cancer Society (ACS) Guidelines on Nutrition and Physical Activity

1. *Achieve and maintain a healthy weight throughout life*
 - Be as lean as possible throughout life without being underweight
 - Avoid excess weight gain at all ages. For those who are overweight or obese, losing even a small amount of weight has health benefits and is a good place to start.
 - Get regular physical activity and limit intake of high calorie foods and drinks as keys to help maintain a healthy weight.
2. *Be physically active*
 - Get at least 150 minutes of moderate intensity or 75 minutes of vigorous intensity activity each week (or a combination of these), preferably spread throughout the week.
 - Limit sedentary behavior such as sitting, lying down, watching TV, and other forms of screen-based entertainment.
 - Doing some physical activity above usual activities, no matter what one's level of activity, can have many health benefits.
3. *Eat a healthy diet, with an emphasis on plant foods*
 - Choose foods and drinks in amounts that help you get to and maintain a healthy weight.
 - Limit how much processed meat and red meat you eat.
 - Eat at least 2½ cups of vegetables and fruits each day.
 - Choose whole grains instead of refined grain products.

(Source: American Cancer Society, Summary of the ACS Guidelines on Nutrition and Physical Activity, Updated on April 13, 2017)

Employee Wellness

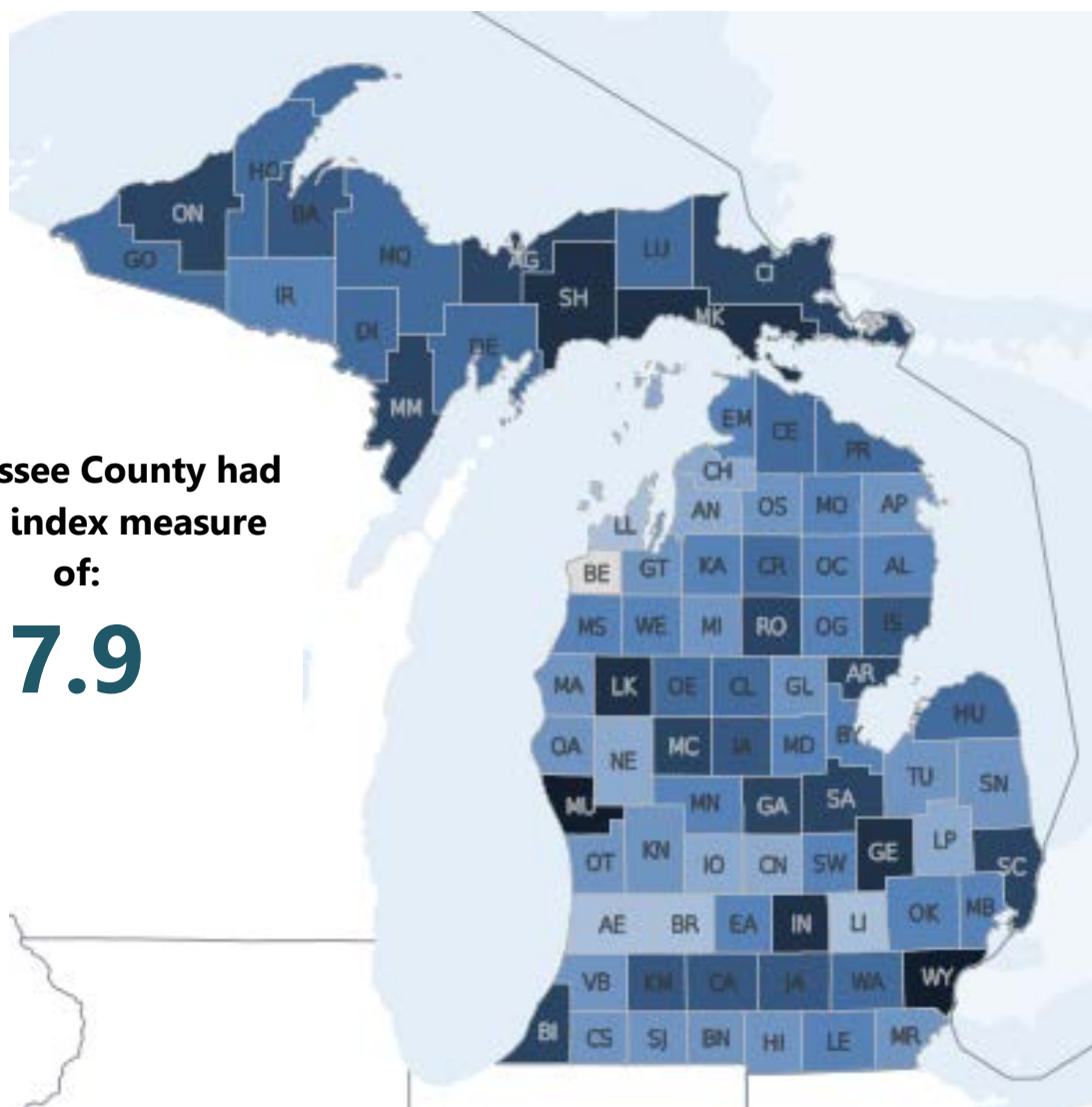
- Shiawassee County adults had access to wellness programs through their employer or spouse's employer with the following features:
 - Health risk assessment (11%)
 - Free/discounted gym membership (10%)
 - Lower insurance premiums for participation in wellness program (9%)
 - Free/discounted smoking cessation program (7%)
 - On-site health screenings (7%)
 - Gift cards or cash for participation in wellness program (5%)
 - On-site health education classes (5%)
 - Free/discounted weight loss program (4%)
 - Healthier food options in vending machines or cafeteria (4%)
 - On-site fitness facility (4%)
 - Lower insurance premiums for positive changes in health status (3%)
 - Gift cards or cash for positive changes in health status (2%)
- Twenty-two percent (22%) of adults did not have access to any wellness programs.

The Food Environment Index measures the quality of the food environment in a county on a scale from zero to 10 (zero being the worst value in the nation, and 10 being the best). The two variables used to determine the measure are limited access to healthy foods (i.e., the percentage of the population who are low income and do not live close to a grocery store) & food insecurity (i.e., the percentage of the population who did not have access to a reliable source of food during the past year).

- The food environment index in Shiawassee County is 7.9
- The food environment index in Michigan is 7.1

**Shiawassee County had
a food index measure
of:**

7.9



BEST  WORST

(Source: USDA Food Environment Atlas, as compiled by County Health Rankings 2019)

Health Behaviors: Tobacco Use

Key Findings

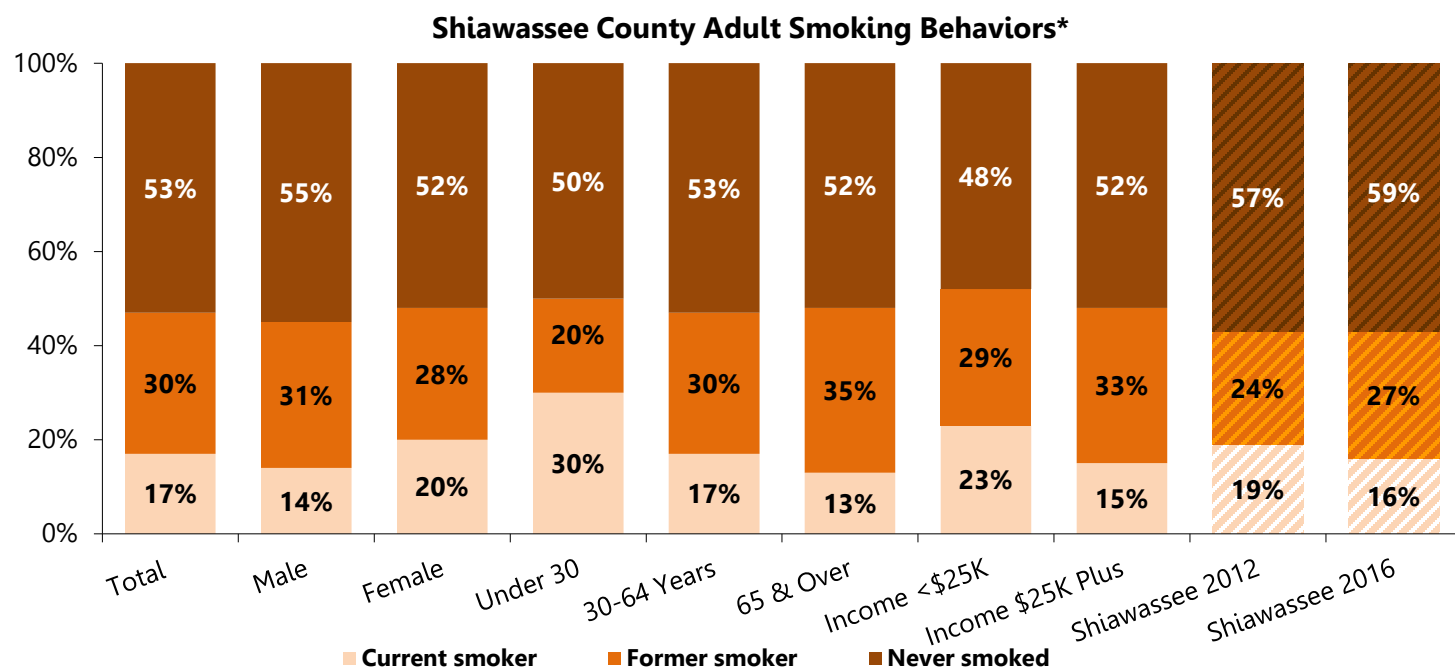
Seventeen percent (17%) Shiawassee County adults were current smokers, and 30% were considered former smokers. Nine percent (9%) of adults used an e-cigarette or other electronic vaping product in the past year. Over one-third (36%) of adults did not know if e-cigarette vapor was harmful.

8,915 Shiawassee County adults were current smokers.

Tobacco Use

- About one-in-six (17%) Shiawassee County adults were current smokers (those who indicated smoking at least 100 cigarettes in their lifetime and currently smoked some or all days).
- Nearly one-third (30%) of adults indicated that they were former smokers (smoked 100 cigarettes in their lifetime and now do not smoke).
- Shiawassee County adult smokers were more likely to have:
 - Been a member of an unmarried couple (33%) or divorced (29%)
 - Rated their overall health as fair or poor (24%)
 - Incomes less than \$25,000 (23%)
- Three-fifths (60%) of current smokers responded that they had stopped smoking for at least one day in the past year because they were trying to quit smoking.

The following graph shows the percentage of Shiawassee County adults' smoking behaviors. Examples of how to interpret the information include: 17% of all adults were current smokers, 30% of all adults were former smokers, and 53% had never smoked.



**Respondents were asked: "Have you smoked at least 100 cigarettes in your entire life? If yes, do you now smoke cigarettes every day, some days or not at all?"*

Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

- Shiawassee County adults used the following tobacco products in the past year: cigarettes (21%); e-cigarettes or other electronic vaping products (9%); pipes (3%); chewing tobacco, snuff, snus, (3%); hookah (2%); little cigars (1%); cigarillos (1%); cigars (1%); and dissolvable tobacco (<1%).
- Adults who had used e-cigarettes/vapes in the past 12 months reported putting the following in them:
 - E-liquid or e-juice with nicotine (18%)
 - E-liquid or e-juice without nicotine (7%)
 - Marijuana or THC in the e-liquid (4%)
- Over half (59%) of adults believed e-cigarette vapor was harmful to themselves, and 46% believed it was harmful to others. Five percent (5%) of adults did not believe e-cigarette vapor was harmful to anyone. More than one-third (36%) of adults did not know if e-cigarette vapor was harmful.
- Shiawassee County adults had the following rules/practices about smoking in their home: never allowed (70%), allowed anywhere (10%), not allowed when children are present (8%), and allowed in certain rooms (4%).
- Adults had the following rules/practices about smoking in their car: never allowed (78%), allowed anywhere (8%), not allowed when children are present (6%), and allowed with windows open (6%).

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Current smoker (smoked on some or all days)	19%	16%	17%	19%	17%
Former smoker (smoked 100 cigarettes in lifetime and now do not smoke)	24%	27%	30%	27%	25%
Adults who used e-cigarettes or other electronic vaping products (in the past year)	3%	9%	9%	N/A	N/A
Tried to quit smoking	57%	59%	60%	N/A	N/A

N/A – Not Available

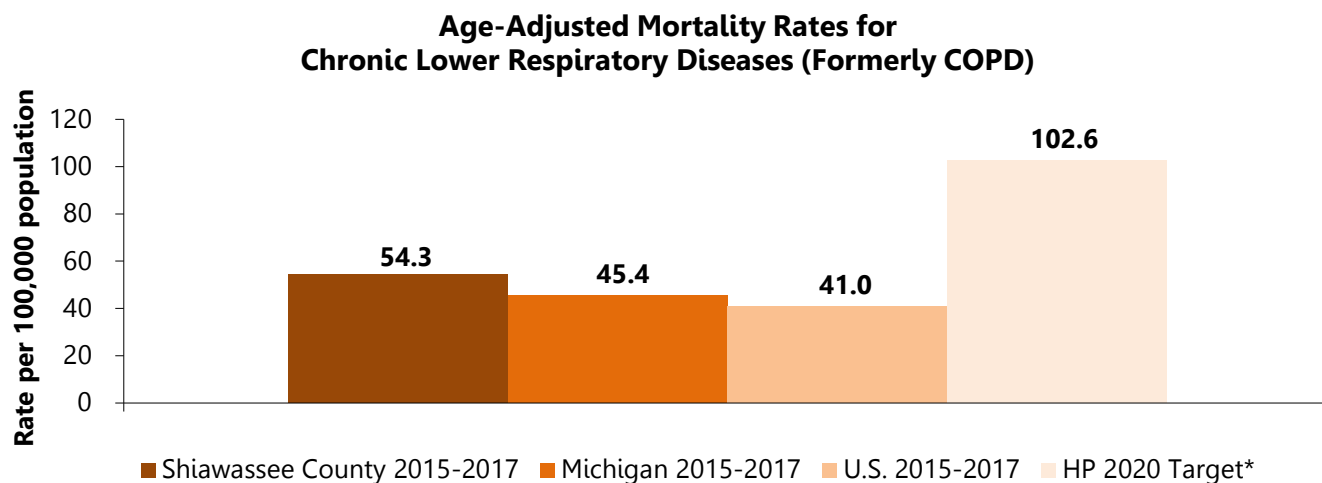
E-Cigarette Health Effects

- Most e-cigarettes contain nicotine, which has known health effects.**
 - Nicotine is highly addictive.
 - Nicotine is toxic to developing fetuses.
 - Nicotine can harm adolescent brain development, which continues into the early to mid-20s.
 - Nicotine is a health danger for pregnant women and their developing babies.
- Besides nicotine, e-cigarette aerosol can contain substances that harm the body.**
 - This includes cancer-causing chemicals and tiny particles that reach deep into lungs. However, e-cigarette aerosol generally contains fewer harmful chemicals than smoke from burned tobacco products.
- E-cigarettes can cause unintended injuries.**
 - Defective e-cigarette batteries have caused fires and explosions, some of which have resulted in serious injuries. Most explosions happened when the e-cigarette batteries were being charged.
 - The Food and Drug Administration (FDA) collects data to help address this issue. You can report an e-cigarette explosion, or any other unexpected health or safety issue with an e-cigarette, [here](#).
 - In addition, acute nicotine exposure can be toxic. Children and adults have been poisoned by swallowing, breathing, or absorbing e-cigarette liquid through their skin or eyes.

(Source: CDC, *Smoking & Tobacco Use, About Electronic Cigarettes (E-Cigarettes)*, updated November 15, 2018)

The following graph shows the Shiawassee County, Michigan, and U.S. age-adjusted mortality rates per 100,000 populations for chronic lower respiratory diseases (formerly COPD). The graph shows:

- From 2015 to 2017, Shiawassee County's age-adjusted mortality rate for chronic lower respiratory disease was higher than the Michigan and U.S. rate but lower than the Healthy People 2020 target objective.



(Sources: CDC Wonder, 2015-2017, Healthy People 2020)

*Healthy People 2020's target rate and the U.S. rate is for adults aged 45 years and older.

Smoking and COPD

- Chronic obstructive pulmonary disease (COPD) refers to a group of diseases that cause airflow blockage and breathing-related problems. COPD includes emphysema, chronic bronchitis, and in some cases, asthma.
- COPD is usually caused by cigarette smoking. Smoking accounts for as many as 8 out of 10 COPD-related deaths nationwide. However, as many as 1 out of 4 Americans with COPD never smoked cigarettes.
- The best way to prevent COPD is to never start smoking, and if you do smoke, quit. Additionally, stay away from secondhand smoke, which is smoke from burning tobacco products, such as cigarettes, cigars, or pipes, as well as smoke that has been exhaled, or breathed out, by a person smoking.

(Source: Tips from Former Smokers, Chronic Obstructive Pulmonary Disease (COPD), Centers for Disease Control and Prevention, 2019)

Health Behaviors: Alcohol Consumption

Key Findings

Fifty-seven percent (57%) of Shiawassee County adults had at least one alcoholic drink in the past month and would be considered current drinkers. Sixteen percent (16%) of all adults reported they had five or more alcoholic drinks (for males) or four or more drinks (for females) on an occasion in the last month and would be considered binge drinkers.

29,891 Shiawassee County adults had at least one alcoholic drink in the past month

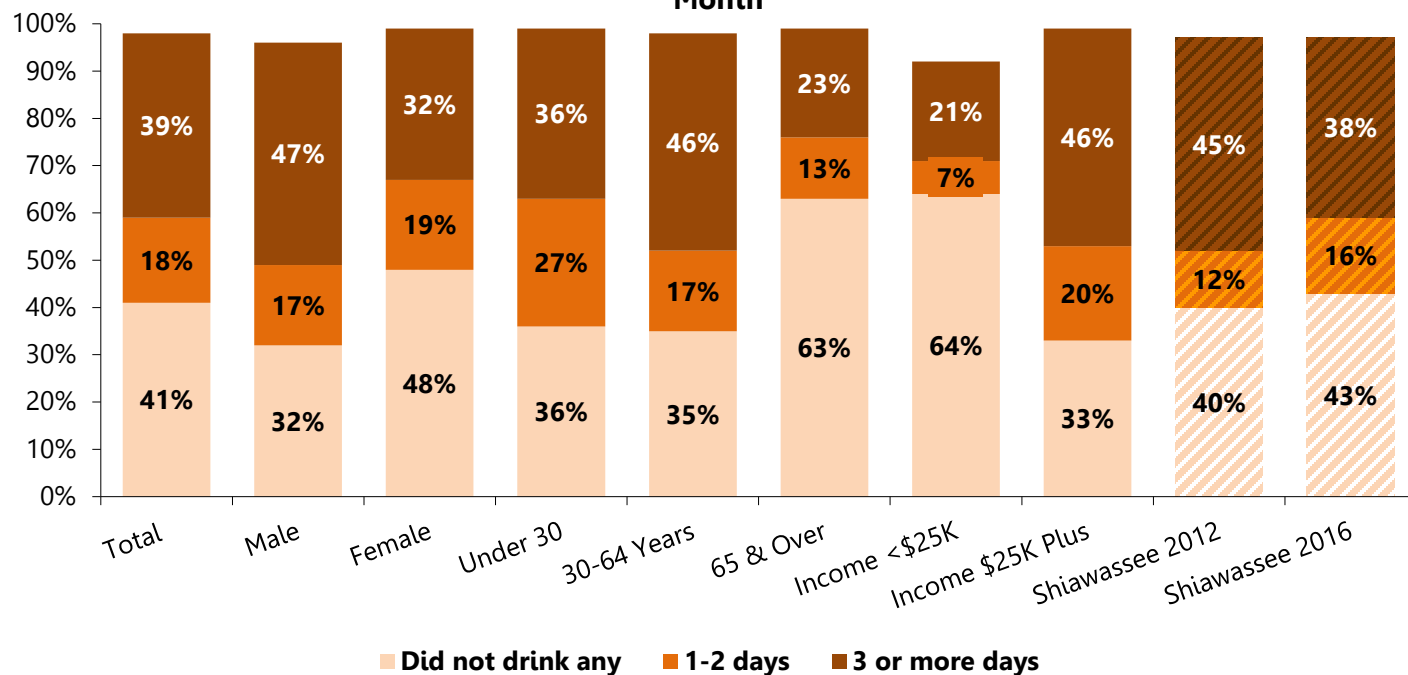
Alcohol Consumption

- In 2019, 57% of Shiawassee County adults had at least one alcoholic drink in the past month, increasing to 66% those with incomes greater than \$25,000.
- Of those who drank, Shiawassee County adults drank 3.2 drinks on average, increasing to 3.6 drinks for females.
- Sixteen percent (16%) of Shiawassee County adults reported they had five or more alcoholic drinks (for males) or four or more drinks (for females) on an occasion in the last month and would be considered binge drinkers. Of those who drank in the past month, 32% had at least one episode of binge drinking.
- Shiawassee County adults reported driving the following motor vehicles after having 5 or more drinks: motor-vehicle (6%), motorcycle/moped (2%), gator or other utility vehicle (1%), golf cart (1%), snowmobile (1%), and other (2%).
- Shiawassee County adults reported they, an immediate family member, or someone in their household experienced the following in the past six months: drove a vehicle or other equipment after having any alcoholic beverages (8%); drank more than they expected (7%); used prescription drugs while drinking (5%); continued to drink despite problems caused by drinking (3%); gave up other activities to drink (2%); spent a lot of time drinking (2%); drank to ease withdrawal symptoms (2%); tried to quit or cut down but could not (2%); failed to fulfill duties at work, home, or school (1%); placed themselves or their family in harm (1%); drank more to get the same effect (1%); and had legal problems (<1%).

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Current drinker (drank alcohol at least once in the 30 days)	50%	54%	57%	58%	55%
Binge drinker (males having five or more drinks on one occasion, females having four or more drinks on one occasion)	20%	23%	16%	18%	17%

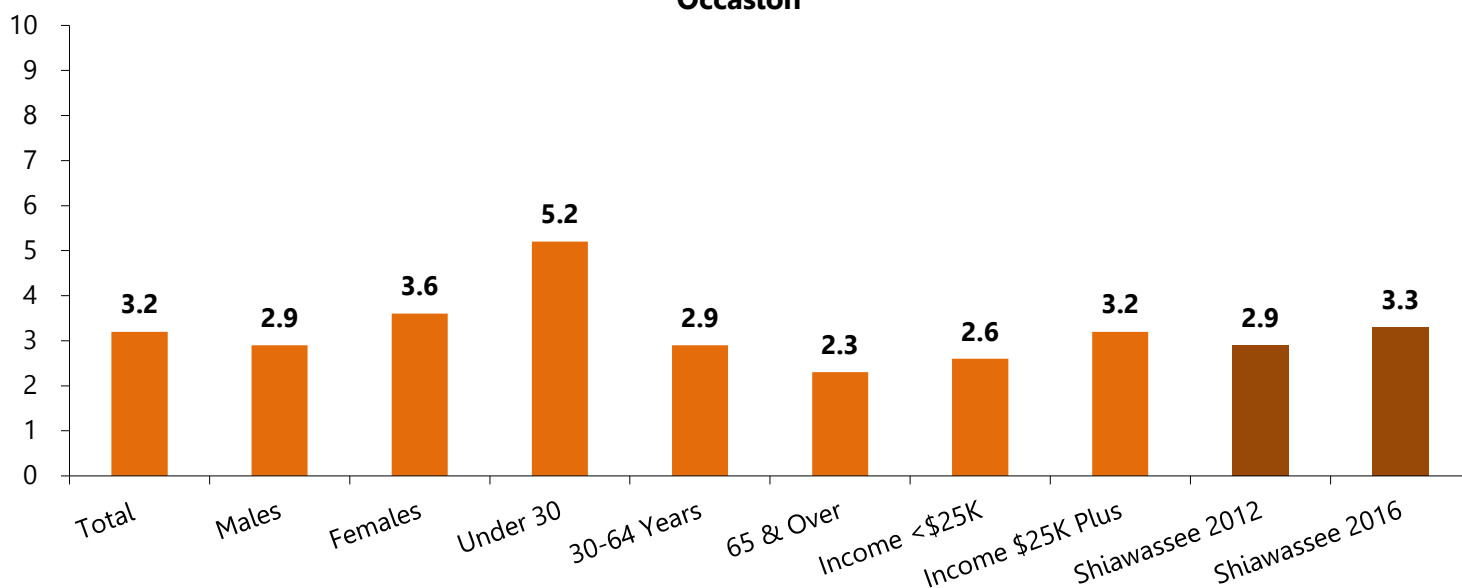
The following graphs show the percentage of Shiawassee County adults consuming alcohol and the amount consumed on average in the past month. Examples of how to interpret the information shown on the first graph include: 41% of all adults did not drink alcohol in the past month, including 32% of males and 48% of females.

Shiawassee County Adult Average Number of Days Drinking Alcohol in the Past Month*



*Percentages may not equal 100% as some respondents answered, "don't know"

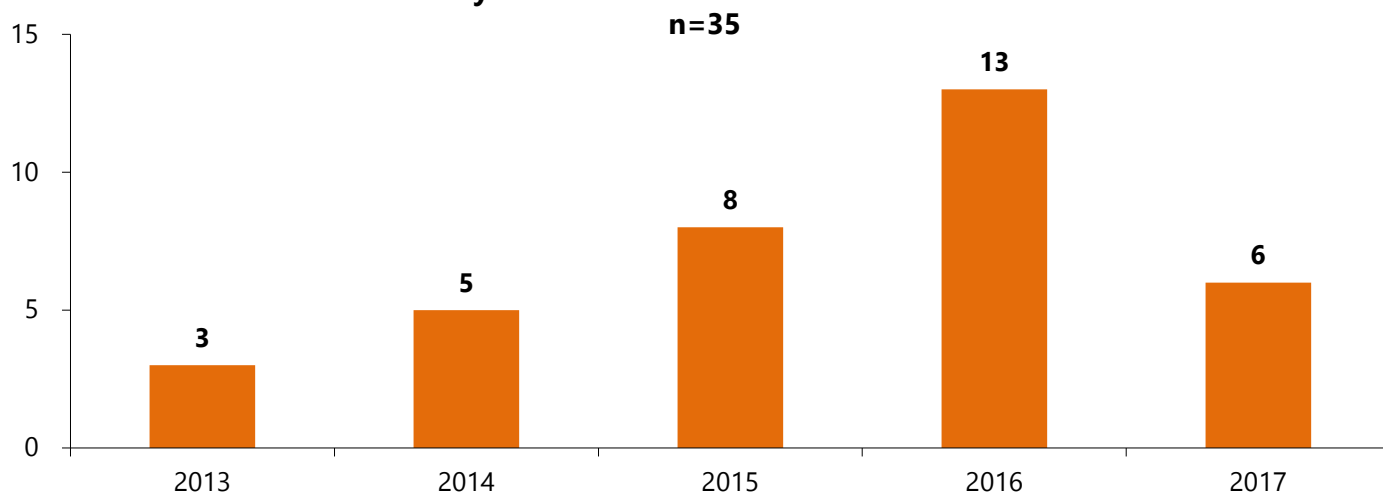
Shiawassee County Adults Average Number of Drinks Consumed Per Drinking Occasion



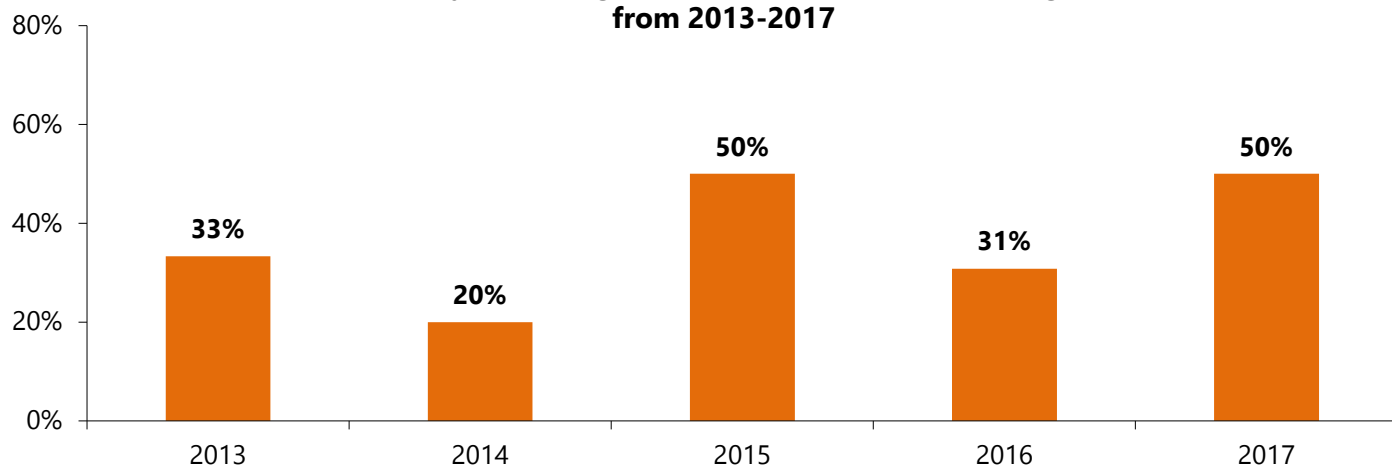
Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

The following graphs show the number of Shiawassee County deaths due to motor vehicle accidents and the percentage of total Shiawassee County crashes involving drinking.

Shiawassee County Number of Motor Vehicle Deaths from 2013-2017



Shiawassee County Percentage of Fatal Crashes With Drinking Involvement from 2013-2017



(Source for graphs: Michigan Traffic Crash Facts, 5-year Trend – Crashes Involving Alcohol, 2018)

Economic Costs of Excessive Alcohol Use

- Excessive alcohol consumption cost the United States \$249 billion in 2010. This cost amounts to about \$2.05 per drink, or about \$807 per person.
- Costs due to excessive drinking largely resulted from losses in workplace productivity (72% of the total cost), health care expenses (11%), and other costs due to a combination of criminal justice expenses, motor vehicle crash costs, and property damage.
- Excessive alcohol use cost states and DC a median of 3.5 billion in 2010, ranging from \$488 million in North Dakota to \$35 billion in California.
 - Excessive alcohol consumption cost Michigan more than \$8 billion in 2010. This cost amounts to \$2.10 per drink or \$826 per person.
- Binge drinking, defined as consuming 4 or more drinks per occasion for women or 5 or more drinks per occasion for men, was responsible for 77% of the cost of excessive alcohol use in all states and DC.
- About \$2 of every \$5 of the economic costs of excessive alcohol use were paid by federal, state, and local governments.

(Source: CDC, Alcohol and Public Health – Excessive Drinking, updated March 27, 2018)

Health Behaviors: Drug Use

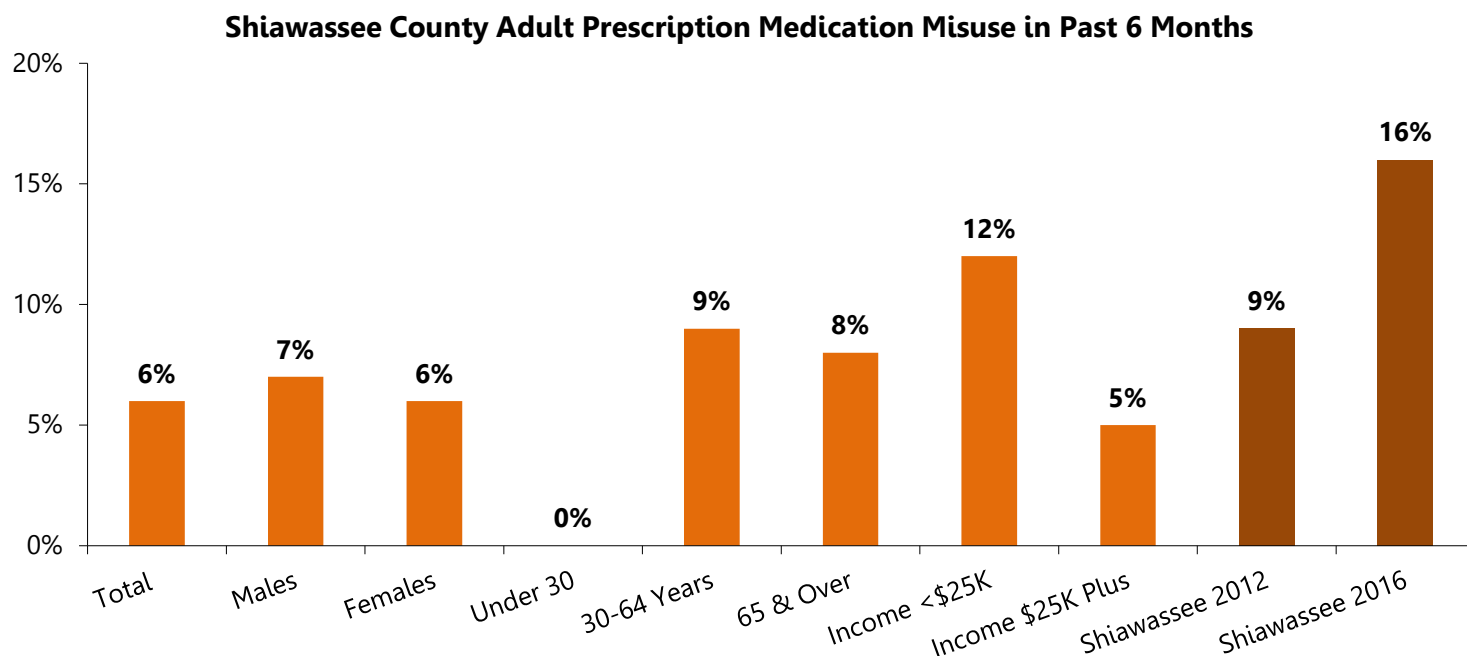
Key Findings

In 2019, 11% of Shiawassee County adults had used recreational marijuana or hashish during the past six months. Six percent (6%) of adults had used medication not prescribed for them or took more than prescribed to feel good or high and/or more active or alert during the past six months.

Prescription Drug Misuse

- Six percent (6%) of adults had used medication not prescribed for them or they took more than prescribed to feel good or high and/or more active or alert during the past six months, increasing to 12% of those with incomes more than \$25,000.
- Adults who misused prescription medication obtained their medication from the following:
 - Primary care physician (75%)
 - ER/Urgent care doctor (25%)
 - Multiple doctors/health care providers (15%)
 - Free from friend or family member (15%)
- Shiawassee County adults indicated they did the following with their unused prescription medication: took as prescribed (20%), took it to the medication collection program (18%), flushed it down the toilet (14%), threw it in the trash (13%), kept it (11%), took it back on Drug Take Back Days (8%), kept in a locked cabinet (5%), took it to the sheriff's office (3%), used drug deactivation pouches (<1%), mailer to ship back to pharmacy (<1%), gave it away (<1%), and some other method (1%). Forty-one percent (41%) of adults did not have unused medication.

The following graph shows adult medication misuse in the past six months. An example of how to interpret the information in the graph includes: 6% of adults used misused medication in the past six months, including 6% of females.



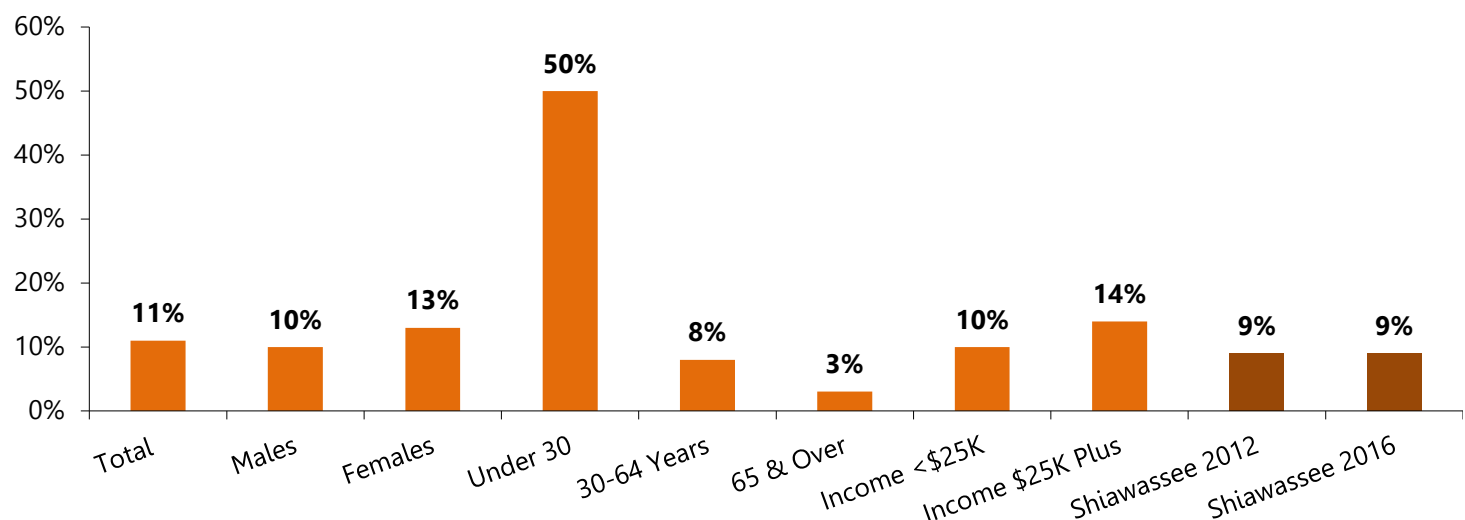
Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

Marijuana and Other Drug Use

- Eleven percent (11%) of Shiawassee County adults had used recreational marijuana or hashish in the past six months, increasing to 14% of those with incomes more than \$25,000.
- Seven percent (7%) of adults used medical marijuana in the past six months.
- Shiawassee County adults used marijuana an average of 3.0 days in the past month.
- Six percent (6%) of adults reported using other recreational drugs in the past six months such as cocaine, synthetic marijuana/K2, heroin, LSD, inhalants, Ecstasy, bath salts, and methamphetamines.

The following graph shows adult recreational marijuana or hashish use in the past six months. An example of how to interpret the information includes: 11% of adults used recreational marijuana or hashish in the past six months, including 50% of those under the age of 30.

Shiawassee County Adult Recreational Marijuana or Hashish Use in Past 6 Months



Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

- One percent (1%) of Shiawassee County adults have used a program or service to help with an alcohol or drug problem for either themselves or a loved one. Reasons for not using such a program included the following: stigma of seeking drug services (2%), had not thought of it (1%), stigma of seeking alcohol services (1%), insurance did not cover it (1%), could not afford to go (1%), did not want to miss work (<1%), and other reasons (2%). Ninety-six percent (96%) of adults indicated they did not need a program or service to help with drug problems.

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Adults who used recreational marijuana or hashish in the past six months	9%	9%	11%	N/A	N/A
Adults who misused prescription drugs in the past six months	9%	16%	6%	N/A	N/A
Adults who used other recreational drugs in the past six months	1%	4%	6%	N/A	N/A

N/A – Not Available

Health Behaviors: Sexual Behavior

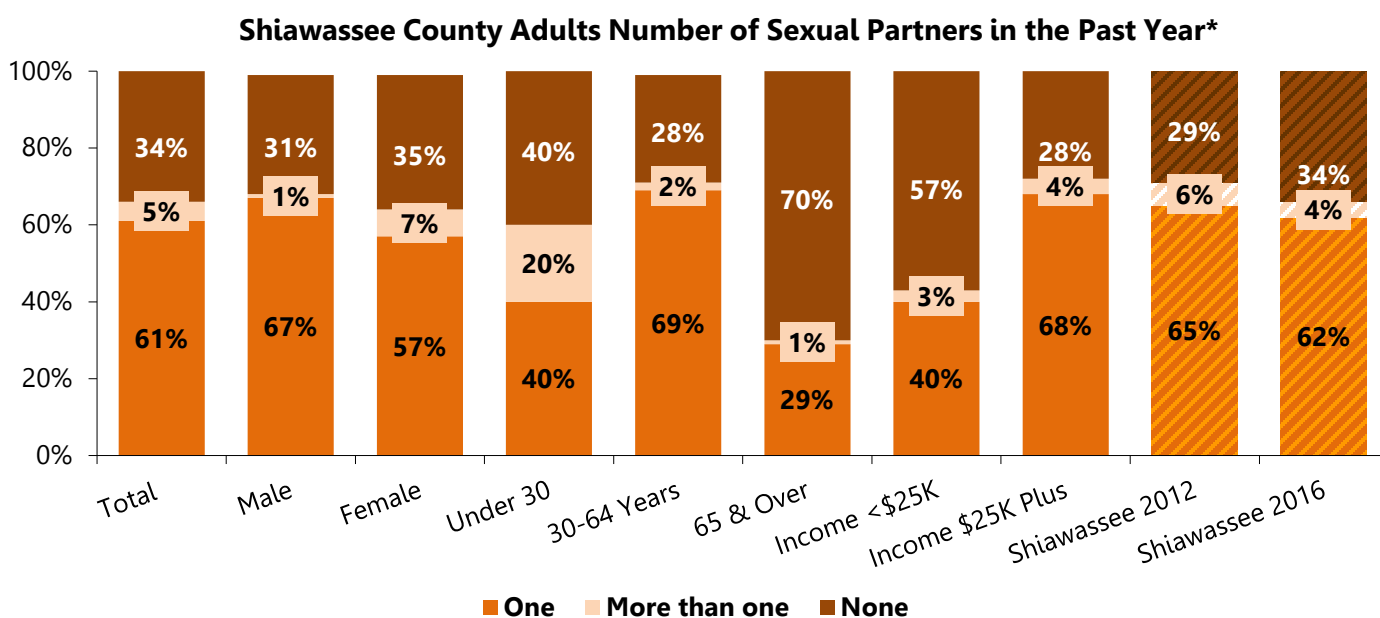
Key Findings

Sixty-six percent (66%) of Shiawassee County adults had sexual intercourse in the past year. Five percent (5%) of adults had more than one sexual partner in the past year.

Sexual Behavior

- Sixty-six percent (66%) of Shiawassee County adults had sexual intercourse in the past year. Five percent (5%) of adults reported they had intercourse with more than one partner in the past year.

The following graph shows the number of sexual partners Shiawassee County adults had in the past year. An example of how to interpret the information in the graph include: 61% of all adults had one sexual partner in the past 12 months, and 5% had more than one.



*Respondents were asked: "During the past 12 months, with how many different people have you had sexual intercourse?"

Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Had more than one sexual partner in past year	6%	4%	5%	N/A	N/A

N/A – Not Available

- Shiawassee County adults used the following methods of birth control: no partners/not sexually active (24%), they or their partner were too old (16%), vasectomy (16%), tubes tied (13%), hysterectomy (11%), condoms (10%), birth control pill (7%), infertility (6%), IUD (5%), withdrawal (3%), ovaries or testicles removed (3%), contraceptive ring (1%), and abstinence (1%). Three percent (3%) of adults reported they and their partner were trying to get pregnant and 3% were currently pregnant.
- Six percent (6%) of Shiawassee County adults were not using any method of birth control.

- Five percent (5%) of adults had ever been forced or coerced to have any sexual activity when they did not want to, increasing to 8% of females and 10% of those with incomes less than \$25,000.
- Adults did not report their sexual assault for the following reasons: fear (29%), they were in a relationship with the offender (24%), they feared the offender (24%), they did not know how (18%), stigma (18%), and other reasons (24%).
- The following situations applied to Shiawassee County adults:
 - Had sex without a condom in the past year (21%)
 - Had sex with someone they met on social media (4%)
 - Tested positive for HPV (3%)
 - Engaged in sexual activity following alcohol or another drug use that they would not have done if sober (3%)
 - Had sexual activity with someone of the same gender (3%)
 - Had anal sex without a condom in the past year (2%)
 - Had sex with someone they did not know (1%)
 - Had been forced to have sex (1%)
 - Knew someone involved in sex trafficking (1%)
 - Injected drugs not prescribed (1%)
 - Tested positive for Hepatitis C (<1%)
 - Had been treated for a sexually transmitted disease (STD) in the past year (<1%)

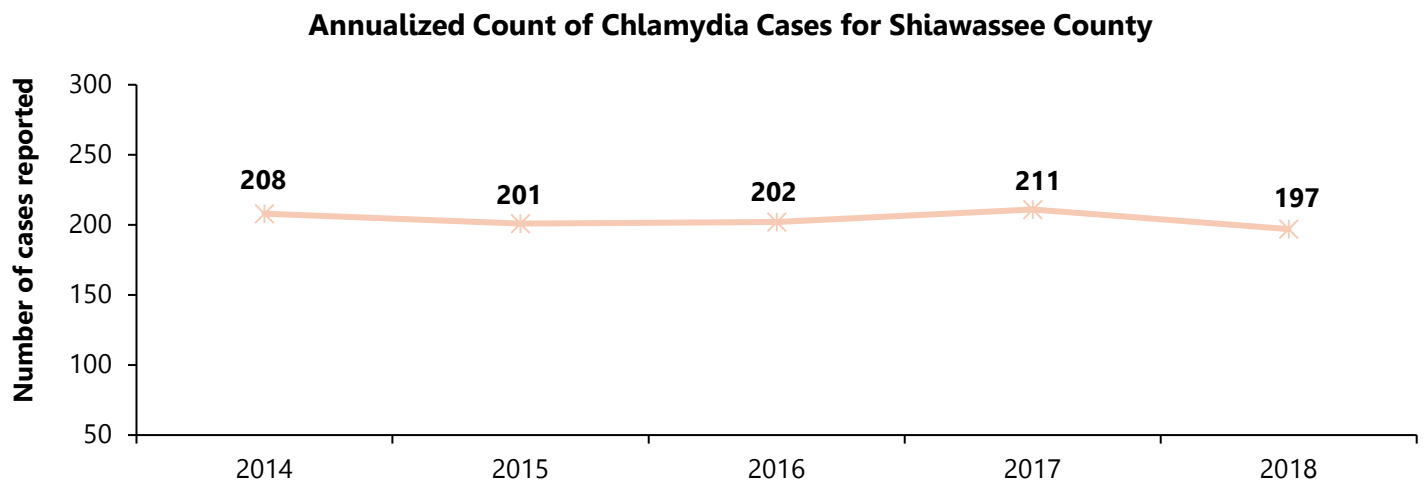
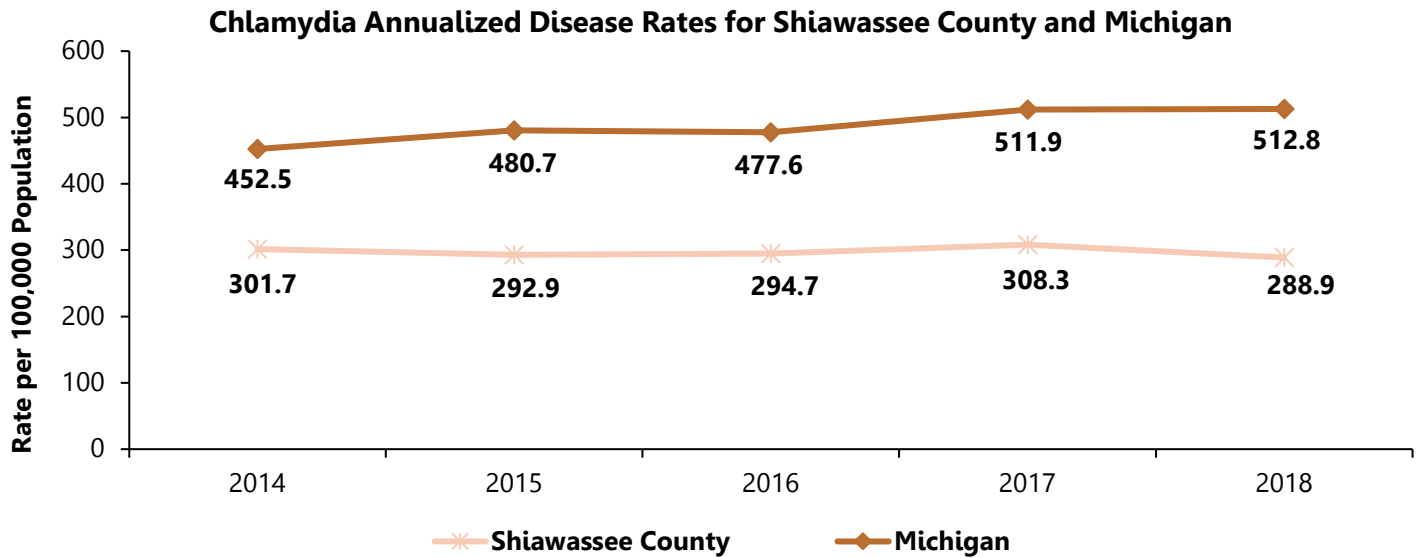
Understanding Sexual Violence

- Sexual violence is a very serious public health that affects millions of women and men. In the United States, 1 in 3 women and 1 in 6 men have experienced sexual violence involving physical contact in some point in their lives.
- Statistics underestimate the problem because many victims do not tell the police, family, or friends about the violence.
- Sexual violence is any sexual activity where consent is not freely given. This includes completed or attempted sex acts that are against the victims will or involve a victim who is unable to consent. Sexual violence also includes:
 - Non-physically pressured unwanted sex
 - Unwanted sexual contact
 - Non-contact, unwanted sexual experiences (such as verbal sexual harassment)
- Sexual violence can be committed by anyone including:
 - A current or former intimate partner
 - A family member
 - A person in position of power or trust
 - A friend or acquaintance
 - A stranger, or someone known only by sight
- Sexual violence impacts health in many ways and can lead to long-term physical and mental health problems. For example, victims may experience chronic pain, headaches, and sexually transmitted diseases. They are often fearful or anxious and may have problems trusting others. Anger and stress can lead to eating disorders, depression, and even suicidal thoughts.

(Source: CDC, Sexual Violence, last updated April 5, 2018)

The following graphs show Shiawassee County and Michigan chlamydia disease rates per 100,000 population and the Shiawassee County annualized chlamydia counts. The graphs show:

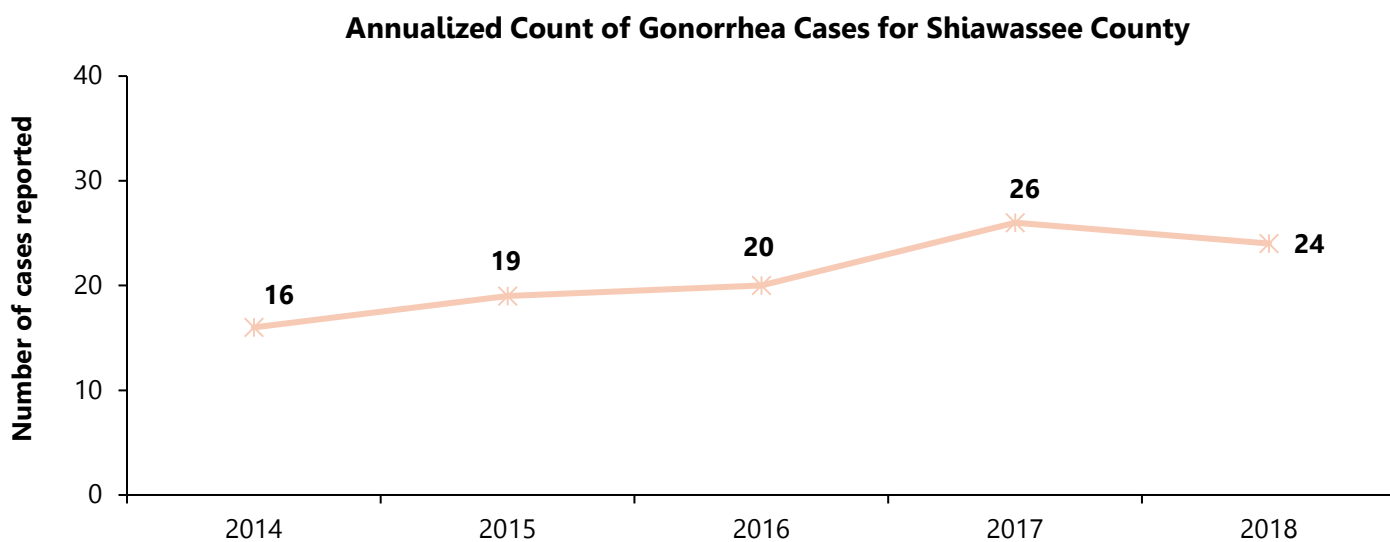
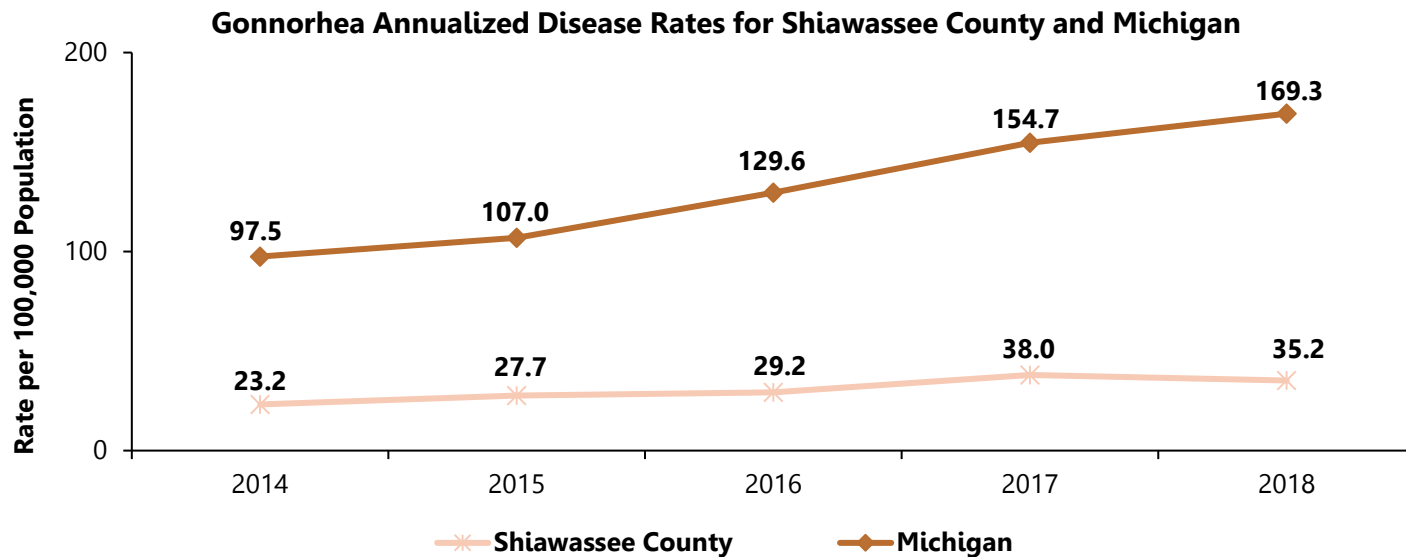
- Shiawassee County chlamydia rates had decreased since 2017.
- The number of chlamydia cases in Shiawassee County decreased from 2017 to 2018.



(Source for graphs: MDHHS, Michigan Sexually Transmitted Diseases Database, STD & HIV Prevention Section updated on July 5, 2018 and retrieved on August 9, 2019)

The following graphs show Shiawassee County and Michigan gonorrhea disease rates per 100,000 population and Shiawassee County annualized gonorrhea counts. The graphs show:

- The Michigan gonorrhea rate increased from 2014 to 2018.
- The number of gonorrhea cases in Shiawassee County increased significantly from 2017 to 2018.

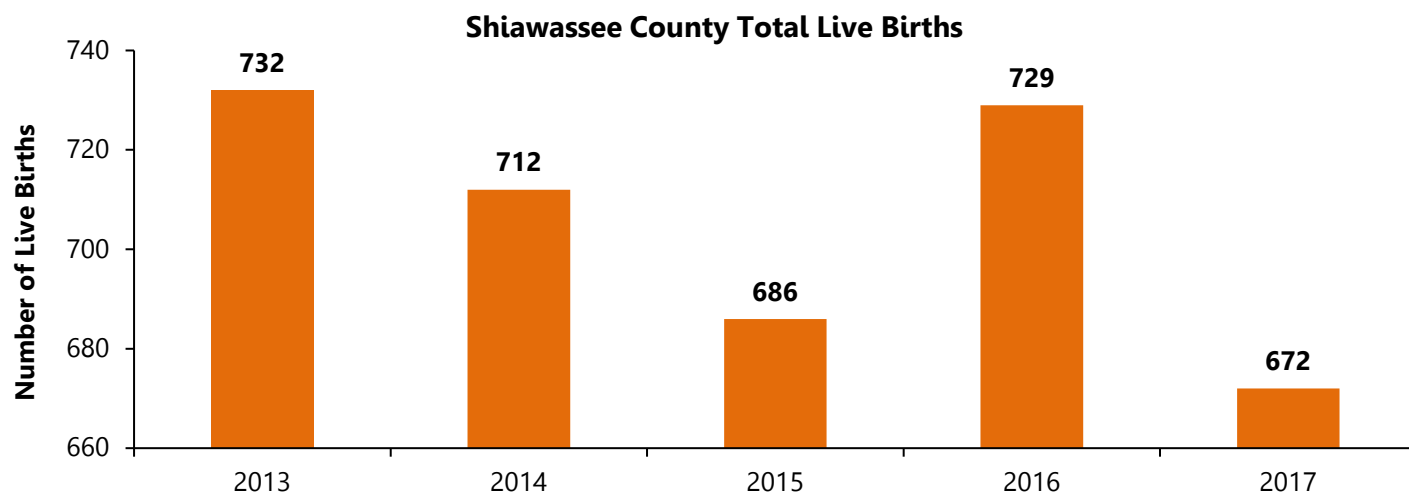


(Source for graphs: MDHHS, Michigan Sexually Transmitted Diseases Database, STD & HIV Prevention Section updated on July 5, 2018 and retrieved on August 9, 2019)

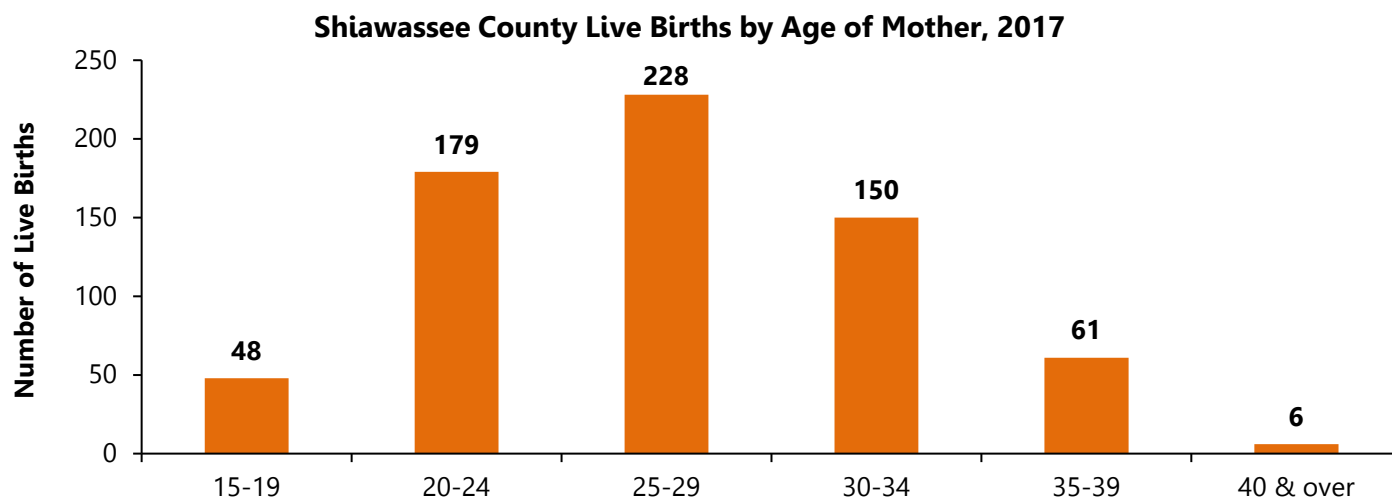
Pregnancy Outcomes

Please note that the pregnancy outcomes data includes all births to adults and adolescents.

- From 2013 to 2017, there was an average of 706 live births per year in Shiawassee County.



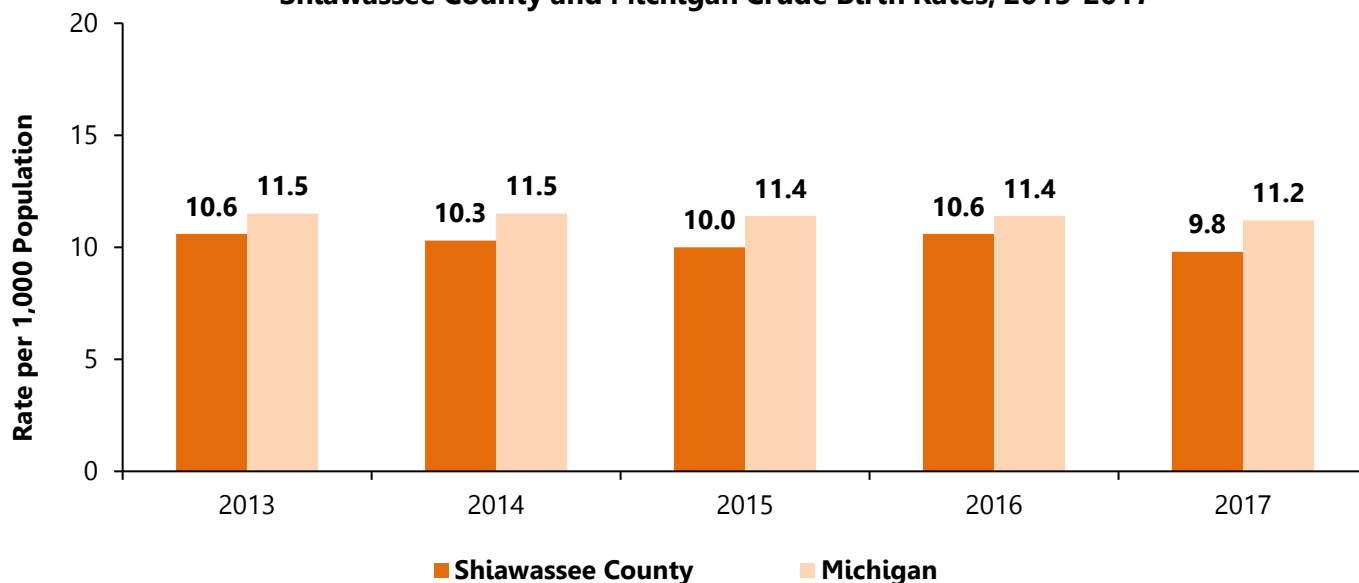
The following graph shows the number of live births by age of the mother in Shiawassee County in 2017.



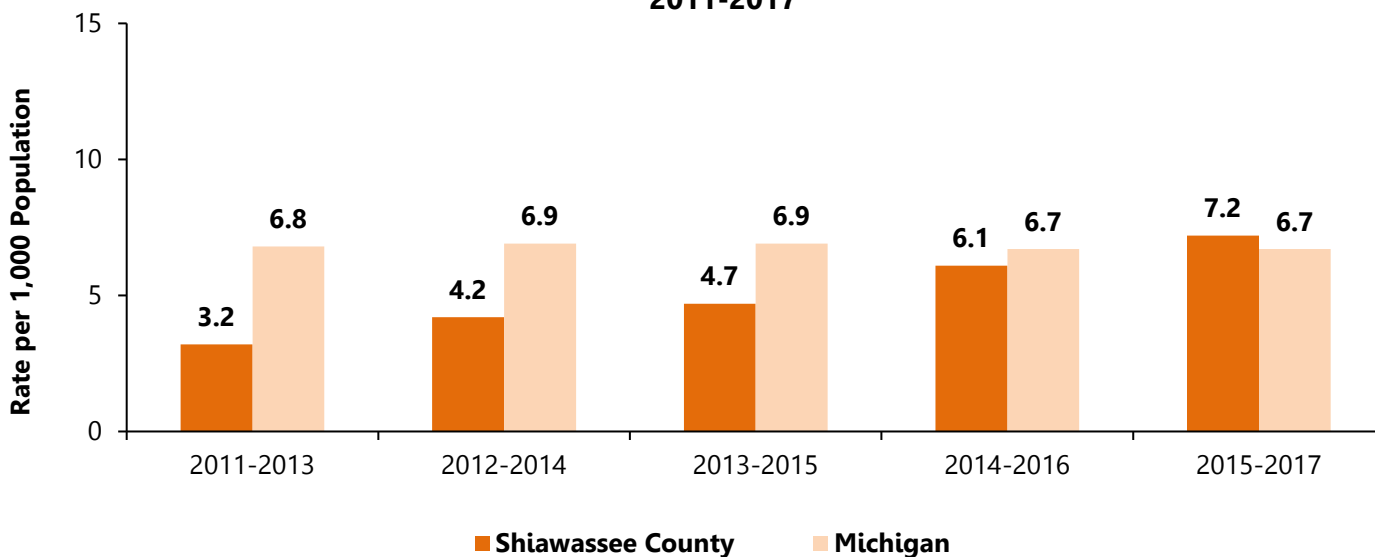
(Source for graphs: MDHHS, Vital Statistics: Natality, Pregnancy and Abortion Statistics, retrieved on 8/9/2019)

The following graphs show Shiawassee County and Michigan crude birth rates and infant mortality rates per 1,000 population.

Shiawassee County and Michigan Crude Birth Rates, 2013-2017



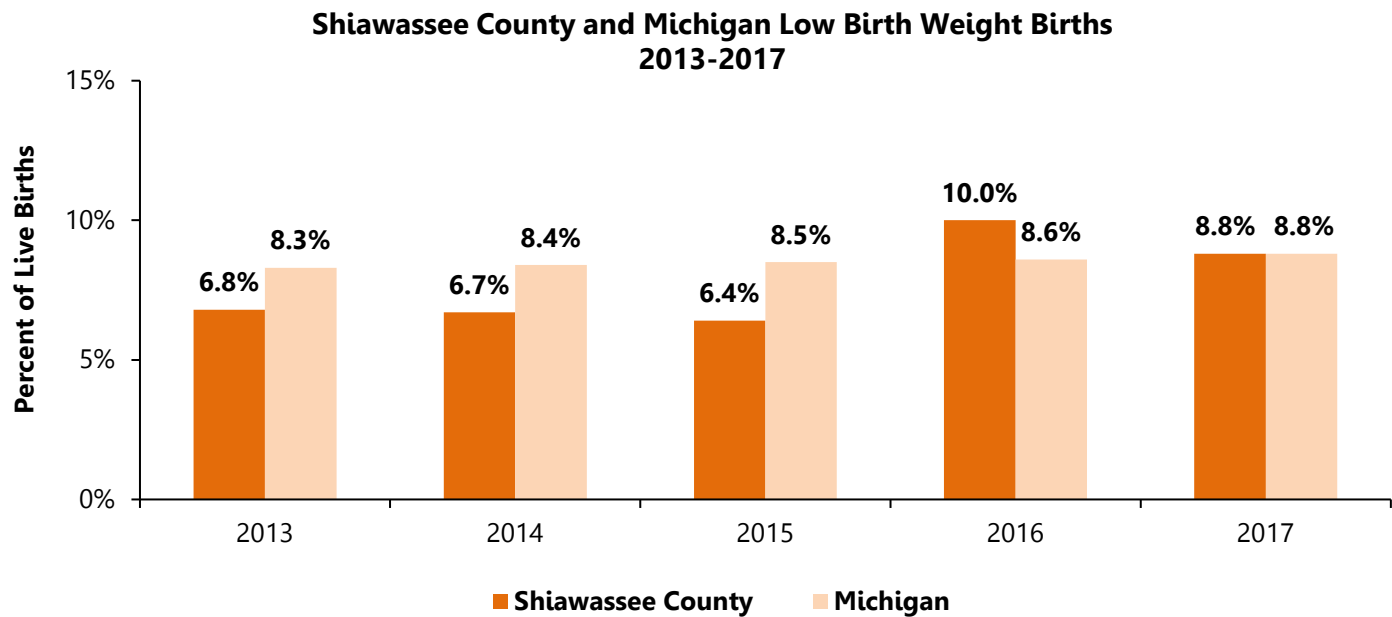
**Shiawassee County and Michigan Infant Mortality Rates*
2011-2017**



*Deaths occurring in individuals less than 1 year of age. The infant death rate is the number of resident deaths divided by total resident live births x 1000.

(Source for graphs: MDHHS, Vital Statistics: Natality, Pregnancy and Abortion Statistics)

The following graph shows Shiawassee County and Michigan low birth weight rates from 2013 to 2017.



*Note: Low Birth Weight is defined as weighing less than 2,500 grams or 5 pounds, 8 ounces.
(Source: Michigan Department of Health and Human Services, Natality and Pregnancy)*

Health Behaviors: Mental Health

Key Findings

In 2019, 2% of Shiawassee County adults reported that they considered attempting suicide in the past year. Twenty-eight percent (28%) of adults reported they or family member were diagnosed with or treated for anxiety or emotional problems in the past year. Fifteen percent (15%) of adults used a program or service for themselves or a loved one to help with depression, anxiety, or emotional problems.

Mental Health

- Two percent (2%) of Shiawassee County adults considered attempting suicide in the past year.
- No adults reported attempting suicide in the past year.

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Considered attempting suicide in the past year	3%	3%	2%	N/A	N/A
Attempted suicide in the past year	1%	0%	0%	N/A	N/A

N/A – Not Available

- Shiawassee County adults experienced the following almost every day for two weeks or more in a row when they were feeling sad, blue, or depressed:
 - Felt fatigued/no energy (29%)
 - Had trouble sleeping or slept too much (28%)
 - Woke up before they wanted (20%)
 - Had trouble thinking or concentrating (19%)
 - Felt worthless or hopeless (16%)
 - Felt extremely restless/slowed down (15%)
 - Lost interest in most things (13%)
 - Had a weight/appetite change (10%)
 - Thought about death and suicide (6%)
- Shiawassee County adults reported they or a family member were diagnosed with, or treated for, the following mental health issues in the past year:
 - Anxiety or emotional problems (28%)
 - Depression (26%)
 - An anxiety disorder (e.g., panic attacks, phobia, obsessive compulsive disorder) (20%)
 - Attention deficit disorder (ADD/ADHD) (11%)
 - Bipolar disorder (8%)
 - Post-traumatic stress disorder (PTSD) (6%)
 - Autism spectrum (6%)
 - Developmental disability (cognitive/intellectual) (6%)
 - Other trauma (4%)
 - Alcohol and/or illicit drug abuse (4%)
 - Eating disorder (3%)
 - Psychotic disorder (e.g., schizophrenia, schizoaffective disorder) (2%)
 - Life-adjustment disorder/issue (2%)
 - Problem gambling (1%)
 - Some other mental health disorder (6%)
- Twenty-six percent (26%) of adults indicated they or a family member had taken medication for one or more mental health issues.

- Shiawassee County adults indicated the following caused them anxiety, stress or depression: financial stress (37%), job stress (34%), poverty/no money (20%), death of close family member or friend (19%), marital/dating relationship (16%), sick family member (15%), current news/political environment (14%), other stress at home (14%), fighting at home (13%), raising/caring for children (10%), unemployment (9%), family member with mental illness (8%), caring for a parent (4%), not having enough to eat (3%), divorce/separation (2%), not having a place to live (2%), not feeling safe at home (2%), social media (2%), sexual orientation/gender identity (1%), not feeling safe in the community (<1%), and other causes (10%).
- Adults dealt with stress in the following ways: talked to someone they trust (41%), prayer/meditation (37%), ate more than normal (30%), listened to music (28%), slept (28%), worked on a hobby (26%), exercised (26%), worked (17%), drank alcohol (10%), smoked tobacco (8%), took it out on others (7%), used prescription drugs as prescribed (5%), talked to a professional (4%), self-harm (3%), used illegal drugs (1%), misused prescription drugs (<1%), and other ways (17%).
- Shiawassee County adults received the social and emotional support they needed from the following: family (71%), friends (55%), God/prayer (29%), church (16%), a professional (9%), neighbors (8%), Internet (6%), community (1%), self-help group (<1%), online support group (<1%), text crisis line (<1%), and other (6%). Ten percent (10%) of adults reported they did not get the social and emotional support they needed, and 19% reported they did not need support.
- Fifteen percent (15%) of adults used a program or service for themselves or a loved one to help with depression, anxiety, or emotional problems. Reasons for not using such a program included: could not afford to go (8%), had not thought of it (7%), did not know how to find a program (7%), co-pay/deductible too high (7%), could not find a mental health doctor/health care provider (6%), stigma of seeking mental health services (4%), other priorities (3%), took too long to get in to see a doctor (3%), fear (1%), and other reasons (5%). Over three-fifths (62%) of adults indicated they did not need such a program.

Suicide Rising Across the U.S.

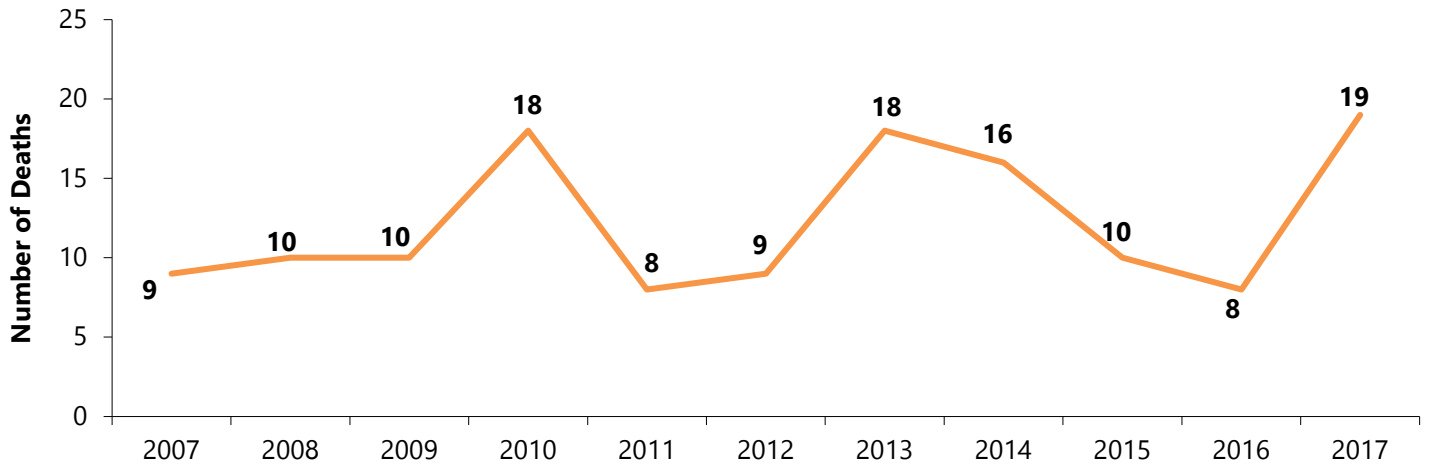
- Suicide is a leading cause of death in the U.S.
- Suicide rates have increased more than 30% in half of states since 1999.
- Nearly 45,000 lives were lost to suicide in 2016.
- More than half (54%) of people who died by suicide did not have a known mental health condition.
- Many factors contribute to suicide among those with and without known mental health conditions. For instance, relationship problems, crisis in the past or upcoming two weeks, physical health problems, problematic substance use, or job/financial problems.
- Making sure government, public health, healthcare, employers, education, the media and community organizations are working together is important for preventing suicide. Public health departments can bring together these partners to focus on comprehensive state and community efforts with the greatest likelihood of preventing suicide.
- States and communities can:
 - Identify and support people at risk of suicide.
 - Teach coping and problem-solving skills to help people manage challenges with their relationships, jobs, health, or other concerns.
 - Promote safe and supportive environments. This includes safely storing medications and firearms to reduce access among people at risk.
 - Offer activities that bring people together so they feel connected and not alone.
 - Connect people at risk to effective and coordinated mental and physical healthcare.¹⁴
 - Expand options for temporary help for those struggling to make ends meet.
 - Prevent future risk of suicide among those who have lost a loved one to suicide.

(Source: CDC, Suicide rising across the US, Updated on June 7, 2018)

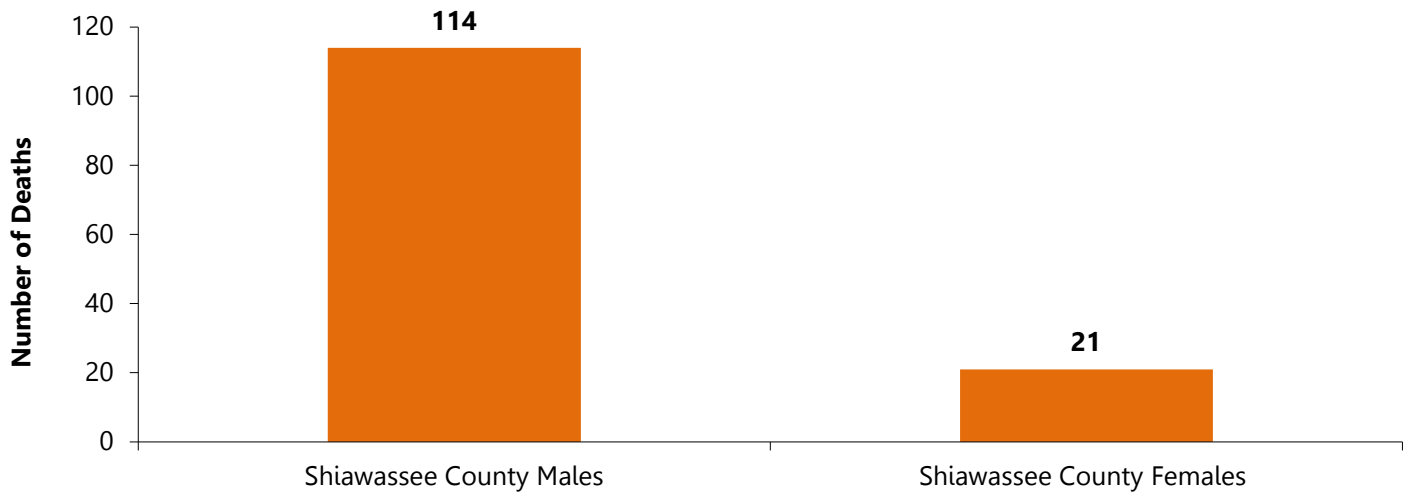
The following graphs show the Shiawassee County suicide counts by year and gender. The graphs show:

- From 2007 to 2017, there was an average of 12.2 suicides per year in Shiawassee County.
- From 2007 to 2017, the number of male suicide deaths in Shiawassee County was five times higher than females.

Shiawassee County Number of Suicide Deaths By Year, 2007-2017
Total Deaths = 135

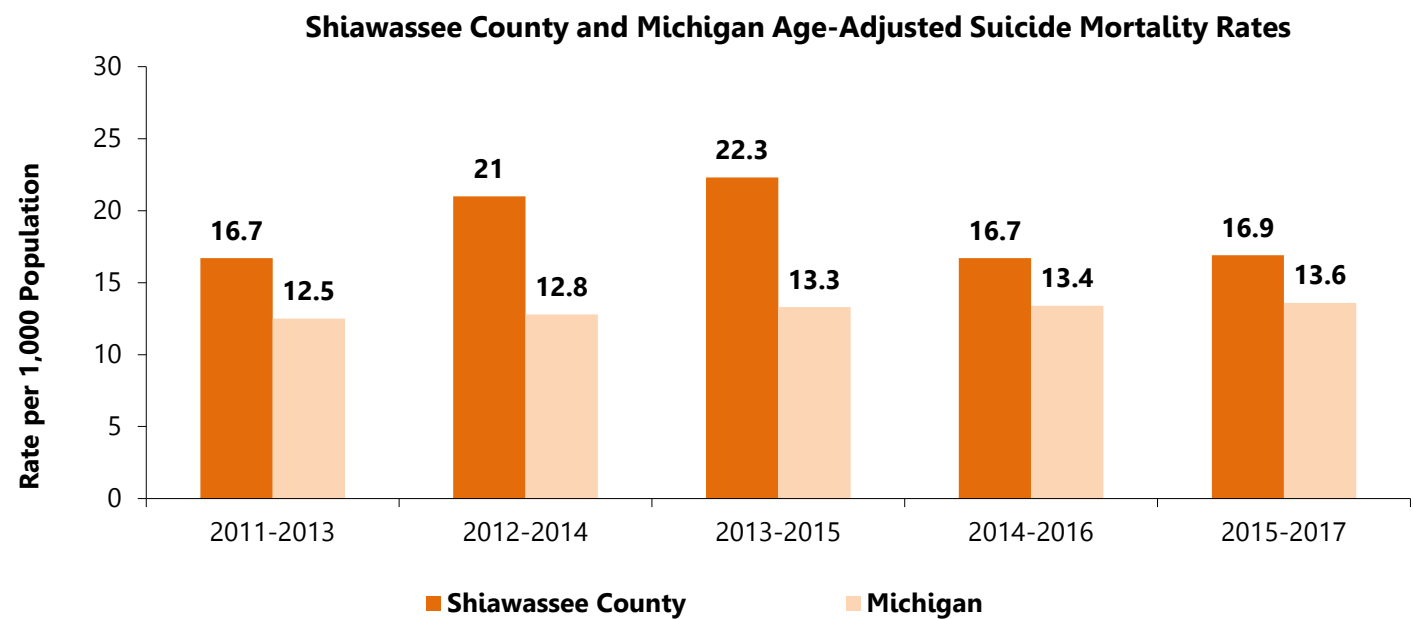


Shiawassee County Number of Suicide Deaths by Gender, 2007-2017
Total Deaths = 135



(Source for graphs: MDHHS, Vital Statistics, updated on 8-9-19)

The following graph shows the Michigan and Shiawassee County age-adjusted suicide mortality rate per 100,000 population.



(Source: MDHHS, Vital Statistics, updated on 8/9/19)

Chronic Disease: Cardiovascular Health

Key Findings

In 2019, 4% of adults had survived a heart attack and 2% had survived a stroke at some time in their life. Over two-fifths (42%) of Shiawassee County adults were obese, 38% had high blood cholesterol, 36% had high blood pressure, and 17% were current smokers, four known risk factors for heart disease and stroke.

Heart Disease and Stroke

- In 2019, 4% of Shiawassee County adults reported they had survived a heart attack or myocardial infarction, increasing to 14% of those over the age of 65.
- Two percent (2%) of Shiawassee County adults reported they had survived a stroke, increasing to 6% of those over the age of 65.
- Three percent (3%) of adults reported they had angina or coronary heart disease, increasing to 9% of those over the age of 65.
- Three percent (3%) of adults reported they had congestive heart failure, increasing to 10% of those with incomes less than \$25,000.

High Blood Pressure (Hypertension)

- More than one-third (36%) of adults had been diagnosed with high blood pressure.
- Seven percent (7%) of adults were told they were pre-hypertensive/borderline high.
- Ninety-one percent (91%) of adults had their blood pressure checked within the past year.
- Shiawassee County adults diagnosed with high blood pressure were more likely to have:
 - Rated their overall health as fair or poor (67%)
 - Been ages 65 years or older (57%)
 - Incomes less than \$25,000 (50%)
 - Been classified as obese by body mass index (48%)

High Blood Cholesterol

- Thirty-eight percent (38%) of adults had been diagnosed with high blood cholesterol.
- Eighty-two percent (82%) of adults had their blood cholesterol checked within the past five years.
- Shiawassee County adults with high blood cholesterol were more likely to have:
 - Rated their overall health as fair or poor (61%)
 - Been ages 65 years or older (61%)

Shiawassee County Leading Causes of Death 2015-2017

Total Deaths: 2,179

- Heart Disease (25% of all deaths)
- Cancers (23%)
- Chronic Lower Respiratory Diseases (7%)
- Stroke (5%)
- Accidents, Unintentional Injuries (5%)

(Source: MDHHS Mortality Characteristics, 2015-2017)

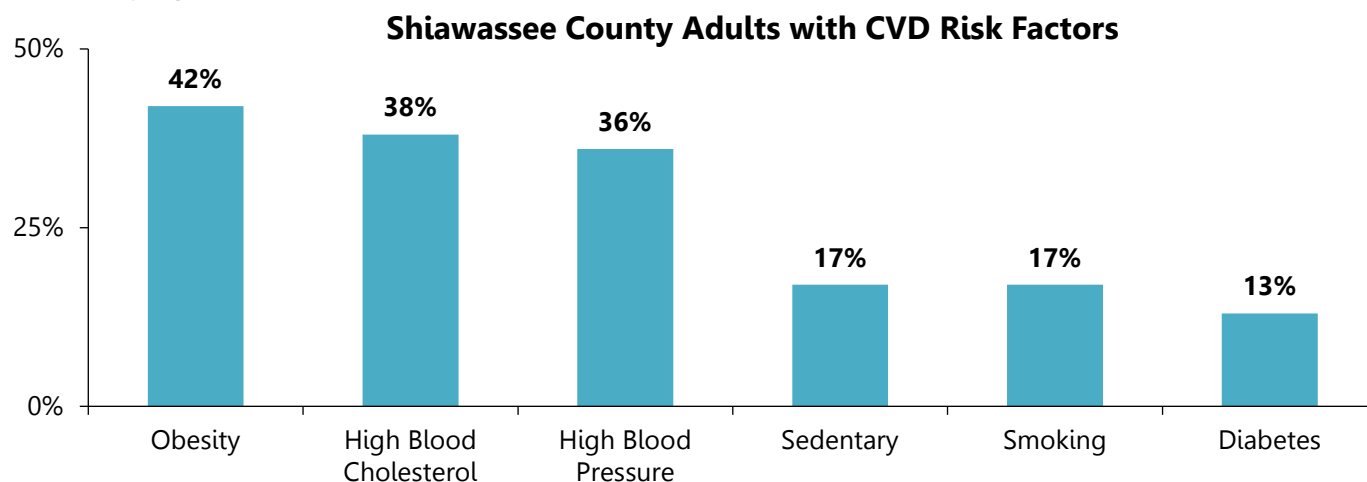
Michigan Leading Causes of Death 2015-2017

Total Deaths: 288,973

- Heart Disease (26% of all deaths)
- Cancers (22%)
- Chronic Lower Respiratory Diseases (6%)
- Accidents, Unintentional Injuries (5%)
- Stroke (5%)

(Source: MDHHS Mortality Characteristics, 2015-2017)

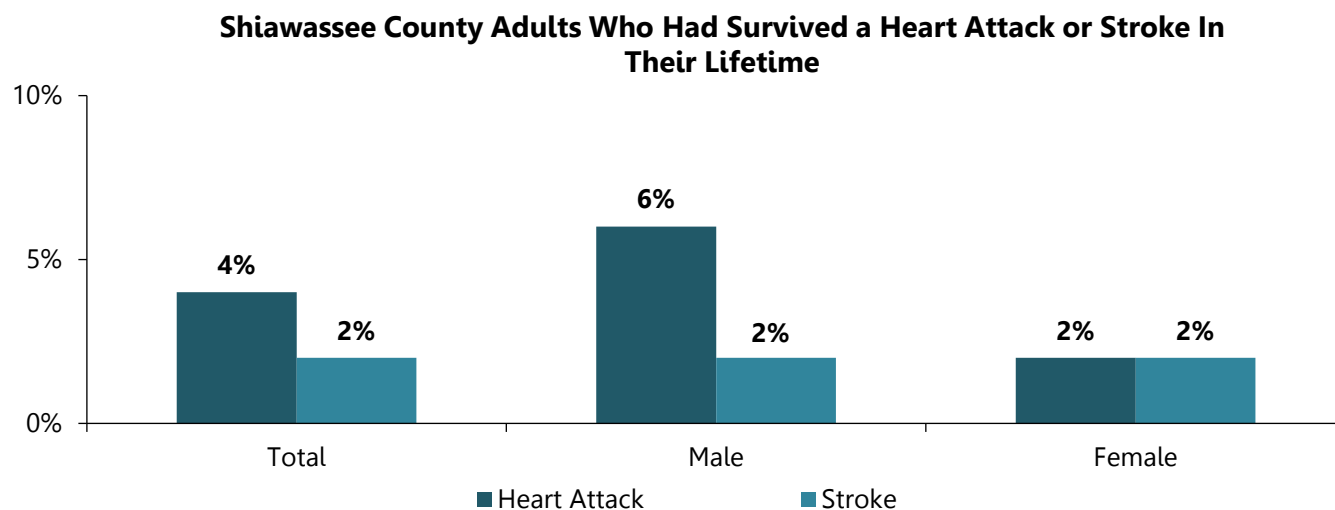
The following graph demonstrates the percentage of Shiawassee County adults who had major risk factors for developing cardiovascular disease (CVD).



(Source: 2019 Shiawassee County Health Assessment)

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2018	Michigan 2017	U.S. 2017
Had angina or coronary heart disease	5%	4%	3%	5%	4%
Had a heart attack	4%	4%	4%	5%	4%
Had a stroke	2%	3%	2%	4%	3%
Had high blood pressure	29%	33%	36%	35%	32%
Had high blood cholesterol	37%	43%	38%	35%	33%
Had blood cholesterol checked within past 5 years	82%	82%	82%	89%	86%

The following graph shows the percentage of Shiawassee County adults who had survived a heart attack or stroke in their lifetime by gender. An example of how to interpret the information includes: 6% of Shiawassee County males survived a heart attack compared to 2% of females.

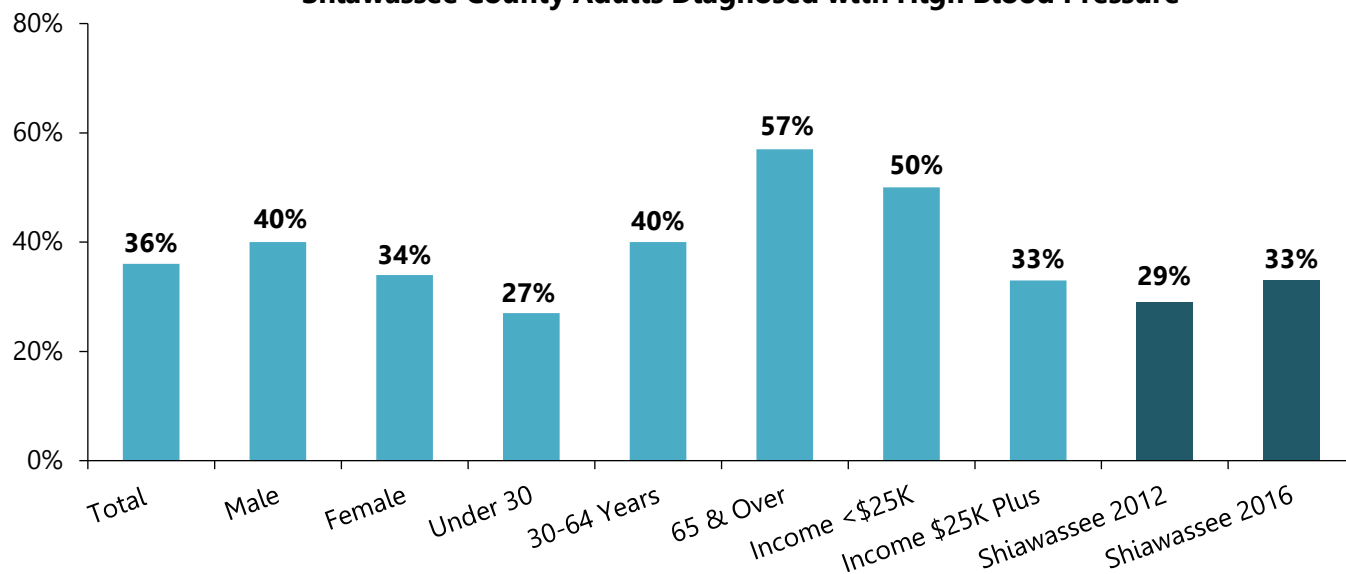


(Source: 2019 Erie County Health Assessment)

Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

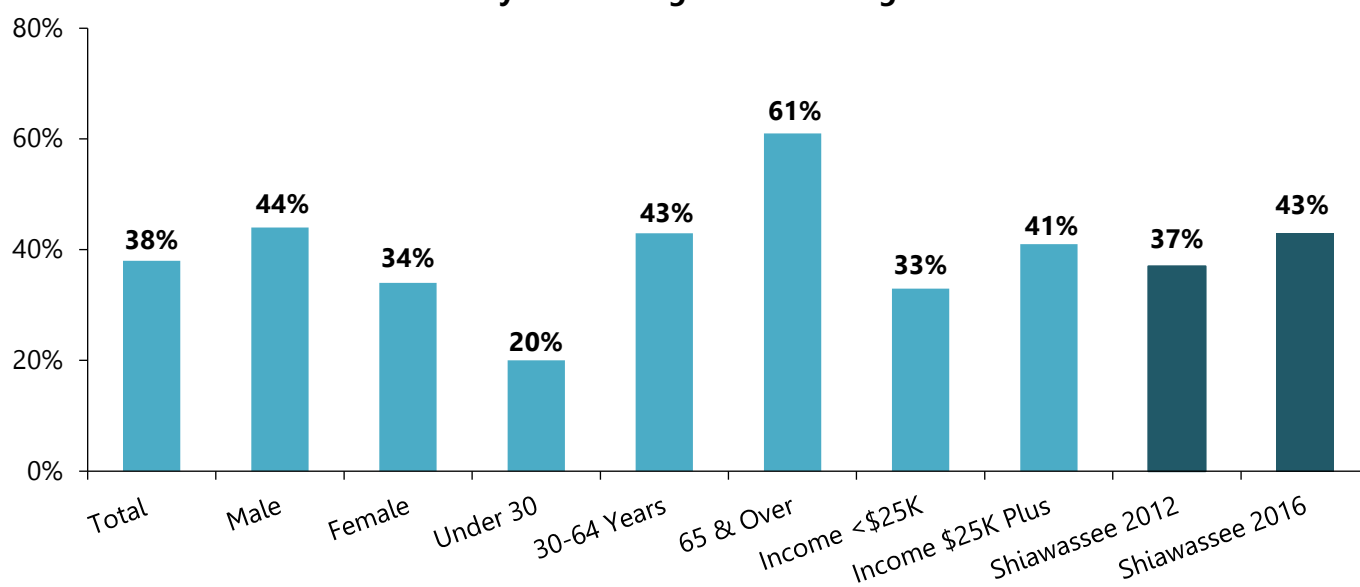
The following graphs show the percentage of Shiawassee County adults who had been diagnosed with high blood pressure and high blood cholesterol. Examples of how to interpret the information on the first graph include: 36% of all Shiawassee County adults had been diagnosed with high blood pressure, including 40% of males and 57% of those over the age of 65.

Shiawassee County Adults Diagnosed with High Blood Pressure*



**Does not include respondents who indicated high blood pressure during pregnancy only.*

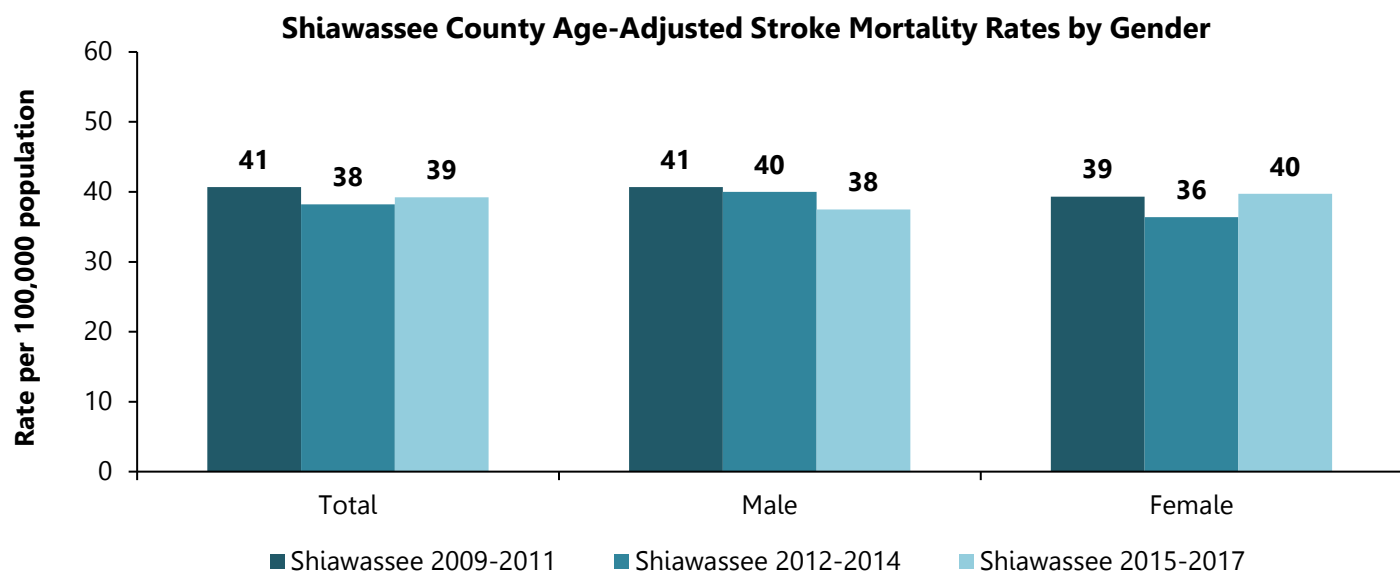
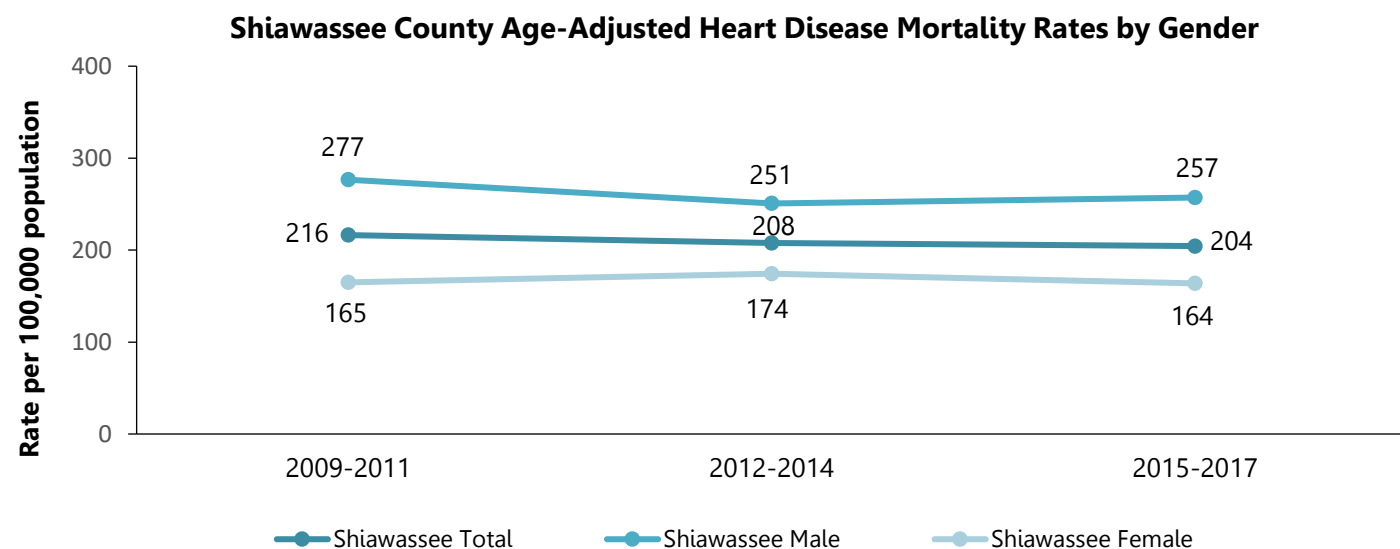
Shiawassee County Adults Diagnosed with High Blood Cholesterol



Note for both graphs: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

The following graphs show the age-adjusted mortality rates per 100,000 population for heart disease and stroke by gender.

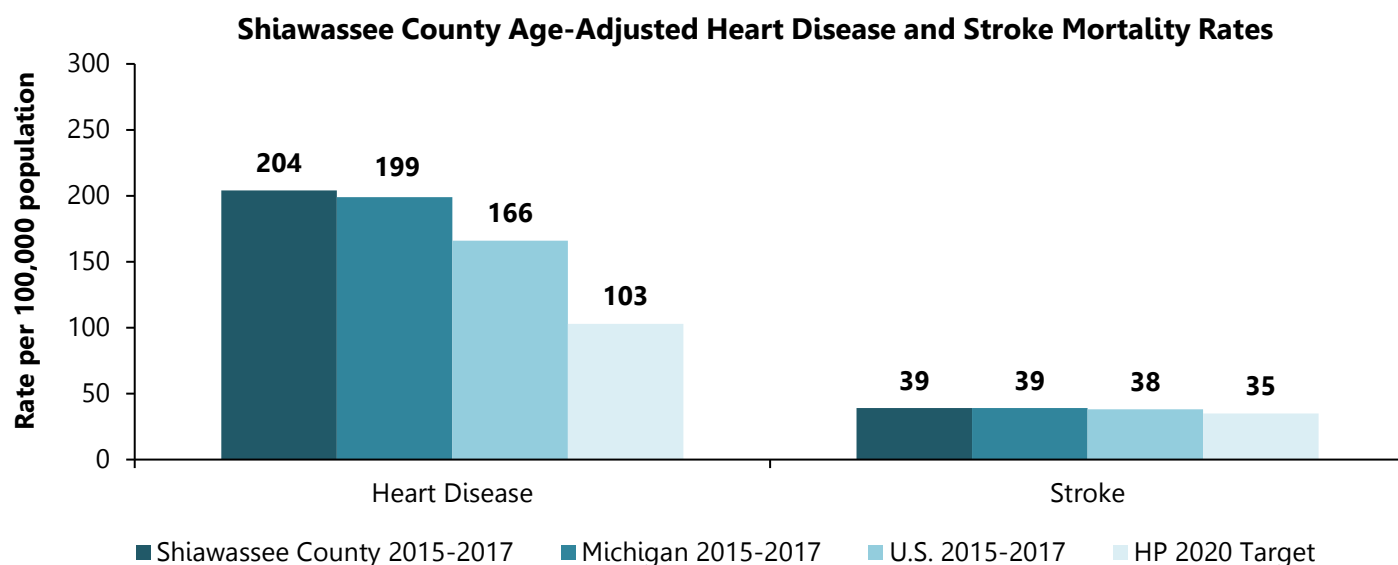
- From 2009 to 2017, the total Shiawassee County age adjusted heart disease mortality slightly decreased.
- From 2009 to 2017, the Shiawassee County male stroke mortality rate decreased.



(Source for graphs: CDC Wonder, 2009-2017)

The following graph shows the age-adjusted mortality rates per 100,000 population for heart disease and stroke.

- When age differences are accounted for, the statistics indicate that from 2015 to 2017 the Shiawassee County heart disease mortality rate was higher than the Michigan rate, U.S. rate and the Healthy People 2020 target objective.
- The Shiawassee County age-adjusted stroke mortality rate was the same as the state, and higher than the U.S., and the Healthy People 2020 target objective from 2015 to 2017.



(Source: CDC Wonder, 2015-2017, Healthy People 2020)

Healthy People 2020 Objectives Heart Disease and Stroke

Objective	2019 Shiawassee Survey Population Baseline	2017 U.S. Baseline	Healthy People 2020 Target
HDS-5: Reduce proportion of adults with hypertension	36%	32% Adults age 18 and up	27%
HDS-6: Increase proportion of adults who had their blood cholesterol checked within the preceding 5 years	82%	86% Adults age 18 & up	82%
HDS-7: Decrease proportion of adults with high total blood cholesterol (TBC)	38%	33% Adults age 20+ with TBC > 240 mg/dl	14%

Note: All U.S. figures age-adjusted to 2000 population standard.

(Source: Healthy People 2020, 2017 BRFSS, 2019 Shiawassee County Health Assessment)

Chronic Disease: Cancer

Key Findings

From 2015 to 2017, the CDC indicated that cancers caused 23% (494 of 2,179 total deaths) of all Shiawassee County resident deaths (Source: CDC Wonder, 2015-2017)

Cancer Facts

- From 2015 to 2017, The CDC indicated that cancers caused 23% (494 of 2,179 total deaths) of all Shiawassee County resident deaths. The largest percent (32%) of cancer deaths were from lung and bronchus cancers.
- The American Cancer Society states that about 606,880 Americans are expected to die of cancer in 2019. Cancer is the second leading cause of death in the U.S., exceeded only by heart disease (Source: American Cancer Society, Facts & Figures 2019).

Shiawassee County Incidence of Cancer, 2012-2016

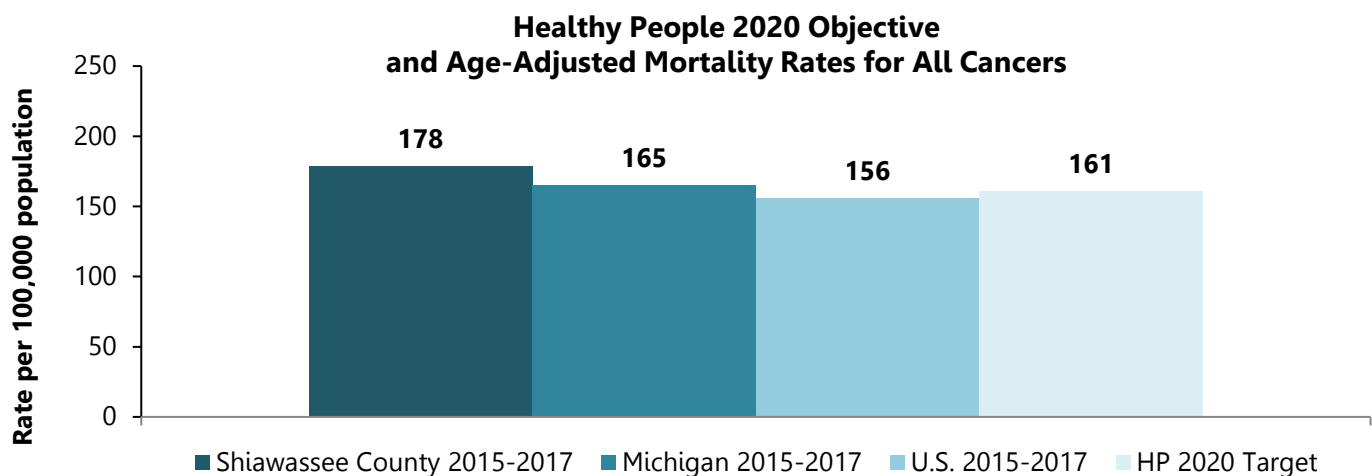
All Types: 423 cases

- Lung and Bronchus: 71 cases (17%)
- Breast: 58 cases (14%)
- Prostate: 52 cases (12%)
- Colon and Rectum: 38 cases (9%)

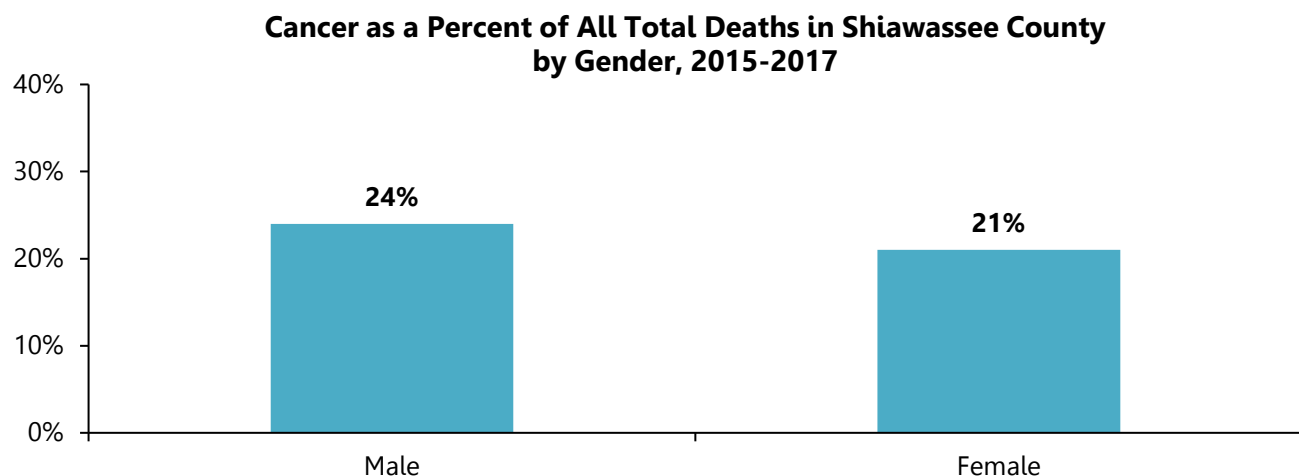
From 2015-2017, there were 494 cancer deaths in Shiawassee County

(Source: MDHHS Cancer Statistics, 2011-2015, CDC Wonder, 2015-2017)

The following graphs shows the Shiawassee County, Michigan and U.S. age-adjusted mortality rates (per 100,000 population, 2000 standard) for all types of cancer in comparison to the Healthy People 2020 objective, as well as cancer as a percent of total deaths in Shiawassee County.



(Source: CDC Wonder, 2015-2017; Healthy People 2020)



(Source: CDC Wonder, 2015-2017)

The following tables show the number of Shiawassee County cancer cases and cancer deaths from 2007 to 2017.

**Shiawassee County Number of Cancer Cases
2007-2017**

Year	All Sites	Colon & Rectum	Lung
2017	N/A	N/A	N/A
2016	408	35	73
2015	488	41	88
2014	406	28	71
2013	412	47	62
2012	398	36	58
2011	463	29	82
2010	389	27	61
2009	473	49	69
2008	432	46	64
2007	401	45	52

N/A-Not available

**Shiawassee County Number of Cancer Deaths
2007-2017**

Year	All Sites	Colon & Rectum	Lung
2017	158	13	55
2016	185	14	53
2015	148	12	51
2014	161	15	46
2013	160	17	49
2012	166	17	46
2011	148	16	42
2010	158	11	61
2009	149	11	56
2008	159	10	56
2007	150	12	39

(Source for tables: MDHHS Mortality Characteristics, updated 12/7/18)

The following tables show the Shiawassee County 5-year average incidence and mortality trends for prostate cancer and breast cancer from 2007 to 2017.

Shiawassee County 5-year Average Invasive Prostate Cancer Incidence and Mortality Trends for Males, 2007-2017

Year	Cancer Cases		Cancer Deaths	
	Average	Age-adjusted Rate	Average	Age-adjusted Rate
2013-2017	N/A	N/A	7	16.7
2012-2016	52	112.6	6	16.5
2011-2015	59	131.3	6	16.3
2010-2014	59	134.9	5	14.6
2009-2013	64	152.5	4	12.6
2008-2012	67	162.0	5	14.2
2007-2011	69	175.2	5	15.1

N/A-Not available

Shiawassee County 5-year Average Invasive Breast Cancer Incidence and Mortality Trends for Females, 2007-2017

Year	Cancer Cases		Cancer Deaths	
	Average	Age-adjusted Rate	Average	Age-adjusted Rate
2013-2017	N/A	N/A	10	19.5
2012-2016	58	128.1	10	20.5
2011-2015	59	132.8	9	18.5
2010-2014	56	127.2	9	18.5
2009-2013	57	128.8	10	19.8
2008-2012	56	128.4	10	19.7
2007-2011	54	123.7	10	21.6

N/A-Not available

(Source for tables: MDHHS, Cancer Statistics updated 8-9-19)

2019 Cancer Estimates

- In 2019, more than 1.7 million new cancer cases are expected to be diagnosed.
- The International Agency for Research on Cancer has concluded that being overweight or obese increases the risk of developing 13 cancers: uterine corpus, esophagus (adenocarcinoma), liver, stomach (gastric cardia), kidney (renal cell), brain (meningioma), multiple myeloma, pancreas, colorectal, gallbladder, ovary, female breast (postmenopausal), and thyroid.
- About 606,880 Americans are expected to die of cancer in 2019.
- In 2018, estimates predict that there will be 58,360 new cases of cancer and 21,150 cancer deaths in Michigan.
- Of the new cancer cases, approximately 8,070 (14%) will be from lung and bronchus cancers and 5,040 (9%) will be from colon and rectum cancers.
- About 9,310 new cases of female breast cancer are expected in Michigan (16%).
- New cases of male prostate cancer in Michigan are expected to be 4,580 (8%).

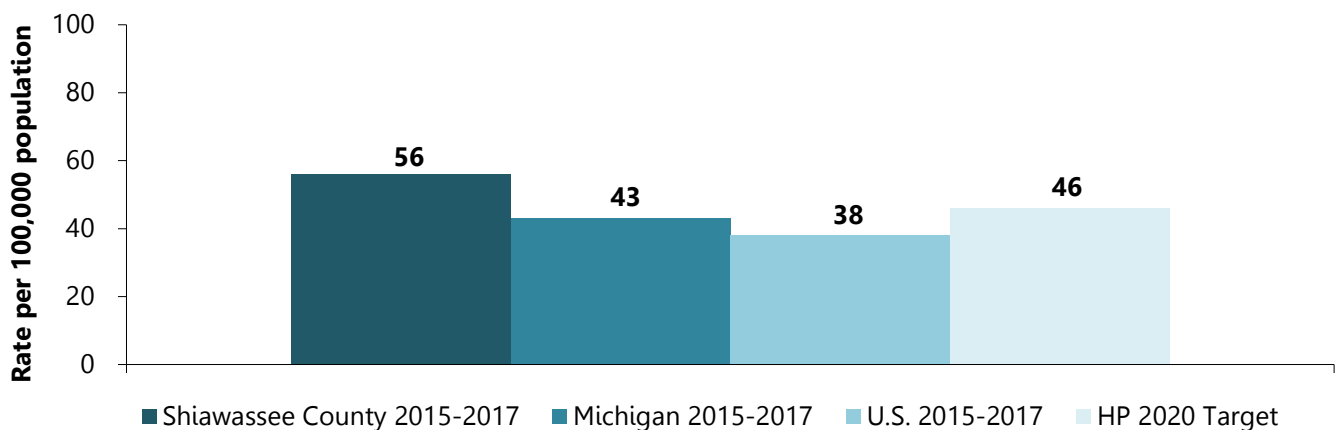
(Source: American Cancer Society, Facts and Figures, 2019)

Lung Cancer

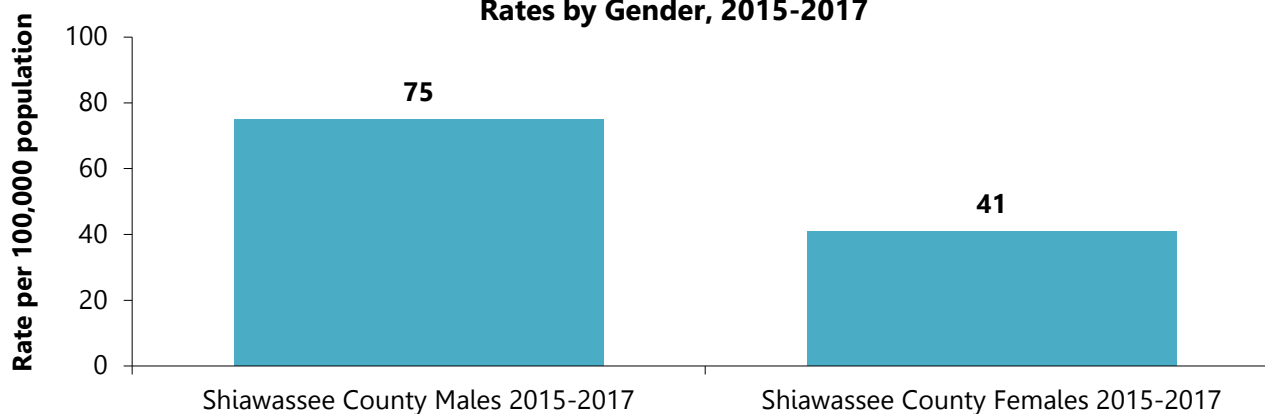
- Seventeen percent (17%) of Shiawassee County adults were current smokers, a cause of heart attacks and cancer. A current smoker is defined as someone who has smoked over 100 cigarettes in their lifetime and currently smokes some or all days.
- The CDC reports that lung cancer (n=95) was the leading cause of male cancer deaths from 2015-2017 in Shiawassee County followed by prostate cancer (n=23) and pancreatic cancer (n=19) *(Source: CDC Wonder, 2015-2017)*.
- From 2015 to 2017, the CDC reports that lung cancer was the leading cause of female cancer deaths (n=63) in Shiawassee County, followed by breast (n=29), colon (n=21), and pancreatic (n=18) cancers *(Source: CDC Wonder, 2015-2017)*.
- According to the American Cancer Society, smoking causes 81% of lung cancer deaths in the U.S. Men and women who smoke are about 25 times more likely to develop lung cancer than nonsmokers *(Source: American Cancer Society, Facts & Figures 2019)*.

The following graphs show Shiawassee County, Michigan, and U.S. age-adjusted mortality rates per 100,000 populations for lung and bronchus cancer in comparison with the Healthy People 2020 objective as well as Shiawassee County age-adjusted mortality rates for lung and bronchus cancer by gender.

Shiawassee County Age-Adjusted Mortality Rates for Lung & Bronchus Cancer



Shiawassee County Lung and Bronchus Cancer Age-Adjusted Mortality Rates by Gender, 2015-2017



(Source: CDC Wonder 2015-2017, retrieved on February 9, 2019)

Breast Cancer

- Over half (57%) of Shiawassee County females reported having had a clinical breast examination in the past year.
- Fifty-two percent (52%) of Shiawassee County females over the age of 40 had a mammogram in the past year.
- CDC statistics indicate that breast cancer deaths accounted for 12% of all female cancer deaths from 2015-2017 in Shiawassee County *(Source: CDC Wonder, 2015-2017)*.
- For women at average risk of breast cancer, recently updated American Cancer Society screening guidelines recommend that those 40 to 44 years of age have the option to begin annual mammography, those 45 to 54 should undergo annual mammography, and those 55 years of age and older may transition to biennial mammography or continue annual mammography. Women should continue mammography as long as overall health is good and life expectancy is 10 or more years. For some women at high risk of breast cancer, annual magnetic resonance imaging (MRI) is recommended in addition to mammography, typically starting at age 30. *(Source: American Cancer Society, Facts & Figures 2019)*.

Prostate Cancer

- CDC statistics indicate that prostate cancer deaths accounted for 9% of all male cancer deaths from 2015-2017 in Shiawassee County *(Source: CDC Wonder, 2015-2017)*.
- No organizations presently endorse routine prostate cancer screening for men at average risk because of concerns about the high rate of overdiagnosis (detecting disease that would never have caused symptoms), along with the significant potential for serious side effects associated with prostate cancer treatment. The American Cancer Society recommends that beginning at age 50, men who are at average risk of prostate cancer and have a life expectancy of at least 10 years have a conversation with their health care provider about the benefits and limitations of PSA testing and make an informed decision about whether to be tested based on their personal values and preferences. Men at high risk of developing prostate cancer (black men or those with a close relative diagnosed with prostate cancer before the age of 65) should have this discussion beginning at age 45, and men at even higher risk (those with several close relatives diagnosed at an early age) should have this discussion beginning at age 40 *(Source: American Cancer Society, Facts & Figures 2019)*.

Colon and Rectum Cancers

- In 2019, 57% of Shiawassee County adults ages 50 and over had a colonoscopy or sigmoidoscopy in the past 5 years.
- The CDC statistics indicate that colon cancer deaths accounted for 7% of all male and female cancer deaths from 2015-2017 in Shiawassee County *(Source: CDC Wonder, 2015-2017)*.
- Modifiable factors that increase colon and rectum cancer risk include obesity, physical inactivity, long-term smoking, high consumption of red or processed meat, low calcium intake, moderate to heavy alcohol consumption, and very low intake of fruits and vegetables and whole-grain fiber. Hereditary and medical factors that increase risk include a personal or family history of colorectal cancer and/or polyps, certain inherited genetic conditions, a personal history of chronic inflammatory bowel disease, and type 2 diabetes. *(Source: American Cancer Society, Facts & Figures 2019)*.

Chronic Disease: Asthma

Key Findings

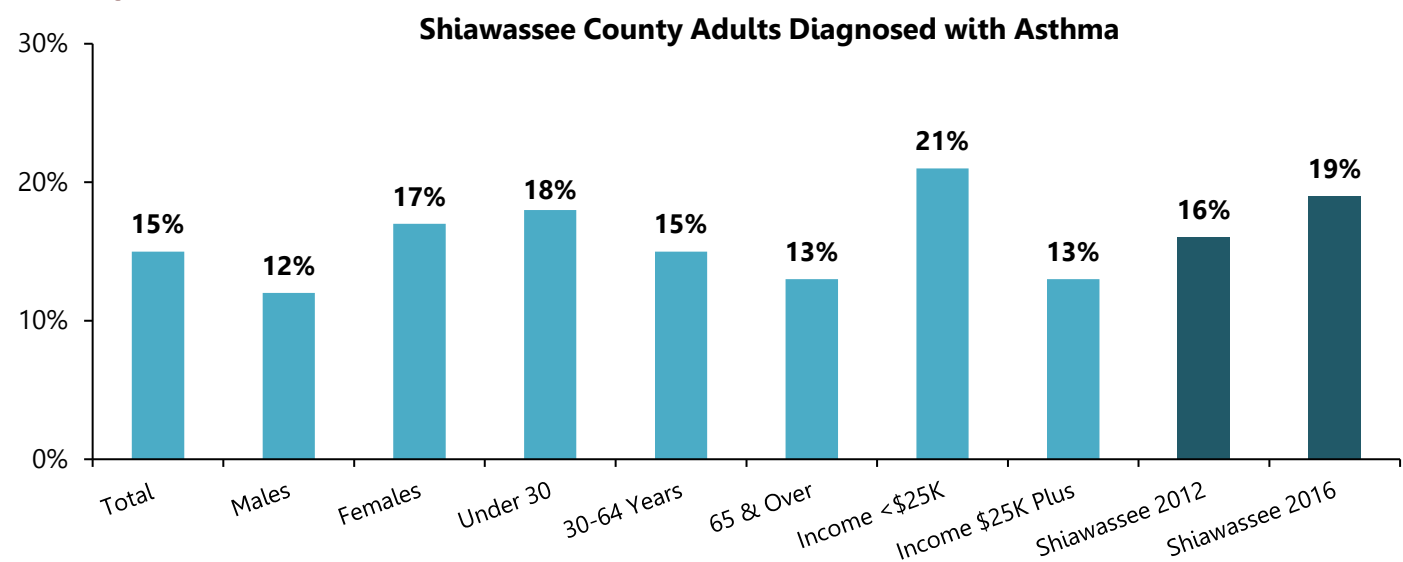
Fifteen percent (15%) of Shiawassee County adults had been diagnosed with asthma.

7,866 adults had been diagnosed with asthma in their lifetime

Asthma

- In 2019, 15% of Shiawassee County adults had been diagnosed with asthma, increasing to 21% of those with incomes less than \$25,000.

The following graph shows the percentage of Shiawassee County adults who were diagnosed with asthma. Examples of how to interpret the information include: 15% of adults were diagnosed with asthma, including 21% of adults whose income was less than \$25,000.



Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Had been diagnosed with asthma	16%	19%	15%	16%	14%

Asthma Facts

- The number of Americans with asthma grows every year. Currently, 26 million Americans have asthma.
- Asthma mortality is almost 4,000 deaths per year.
- Asthma results in 439,000 hospitalizations and 1.8 million emergency room visits annually.
- Patients with asthma reported 14.2 million visits to a doctor's office and 1.3 million visits to hospital outpatient departments.
- Effective asthma treatment includes monitoring the disease with a peak flow meter, identifying and avoiding allergen triggers, using drug therapies including bronchodilators and anti-inflammatory agents, and developing an emergency plan for severe attacks.

(Source: American College of Allergy, Asthma, & Immunology, Asthma Facts, updated 6/13/18)

Chronic Disease: Arthritis

Key Findings

More than one-third (37%) of Shiawassee County adults had been diagnosed with arthritis.

Arthritis

- More than one-third (37%) of Shiawassee County adults were told by a doctor, nurse or other health professional that they had arthritis, increasing to 70% of those over the age of 65.
- More than half (52%) of adults diagnosed with arthritis were overweight or obese.
- Nearly one-third (30%) of adults with arthritis rated their overall health as fair or poor.

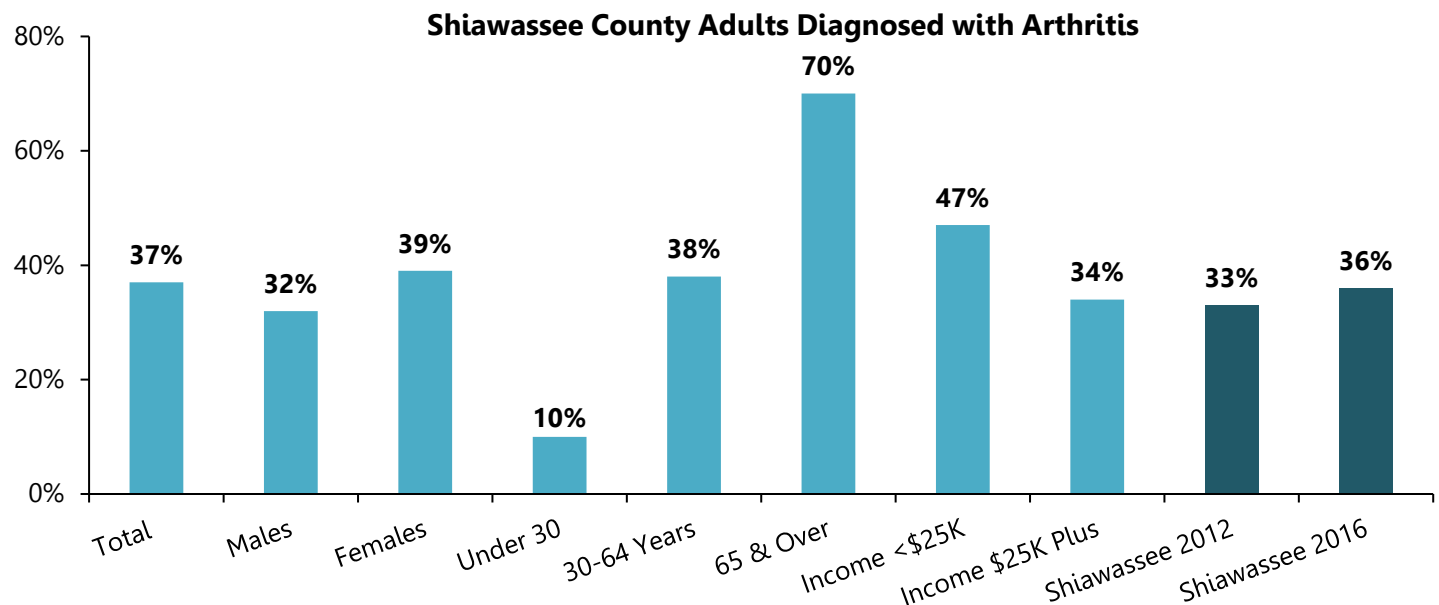
Arthritis in the U.S.

- In the United States, 54 million people (23% of all adults) have arthritis. It is a leading cause of work-related disability. The annual direct costs are at least **\$140 billion**.
- Arthritis commonly occurs with other chronic diseases. About half of US adults with heart disease or diabetes and one-third of people who have obesity also have arthritis. Having arthritis and other chronic conditions can reduce quality of life, reduce physical activity, and make disease management harder.

(Source: CDC. National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP), updated on October 19, 2018)

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Had been diagnosed with arthritis	33%	36%	37%	31%	25%

The following graph shows the percentage of Shiawassee County adults who were diagnosed with arthritis. Examples of how to interpret the information include: 37% of adults were diagnosed with arthritis, including 47% of adults whose income was less than \$25,000.



Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

Chronic Disease: Diabetes

Key Findings

In 2019, 13% of Shiawassee County adults had been diagnosed with diabetes. More than one-third (35%) of diabetics rated their health as fair or poor.

Diabetes

- Thirteen percent (13%) of Shiawassee County adults had been diagnosed with diabetes, increasing to 28% of those over the age of 65.
- Eight percent (8%) of adults had been diagnosed with pre-diabetes.
- Diabetics were using the following to treat their diabetes: diet control (80%); checking A1C annually (79%); 6-month checkup with provider (73%); diabetes pills (70%); annual vision exam (63%); checking blood sugar (60%); checking their feet (60%); exercise (58%); dental exam (33%); insulin (21%); taking a class (11%); injectables (e.g., Vyettea, Victoza, Bydurean) (9%)
- More than one-third (35%) of adults with diabetes rated their health as fair or poor.
- Shiawassee County adults diagnosed with diabetes also had one or more of the following characteristics or conditions:
 - 91% were obese or overweight
 - 83% had been diagnosed with high blood pressure
 - 57% had been diagnosed with high blood cholesterol

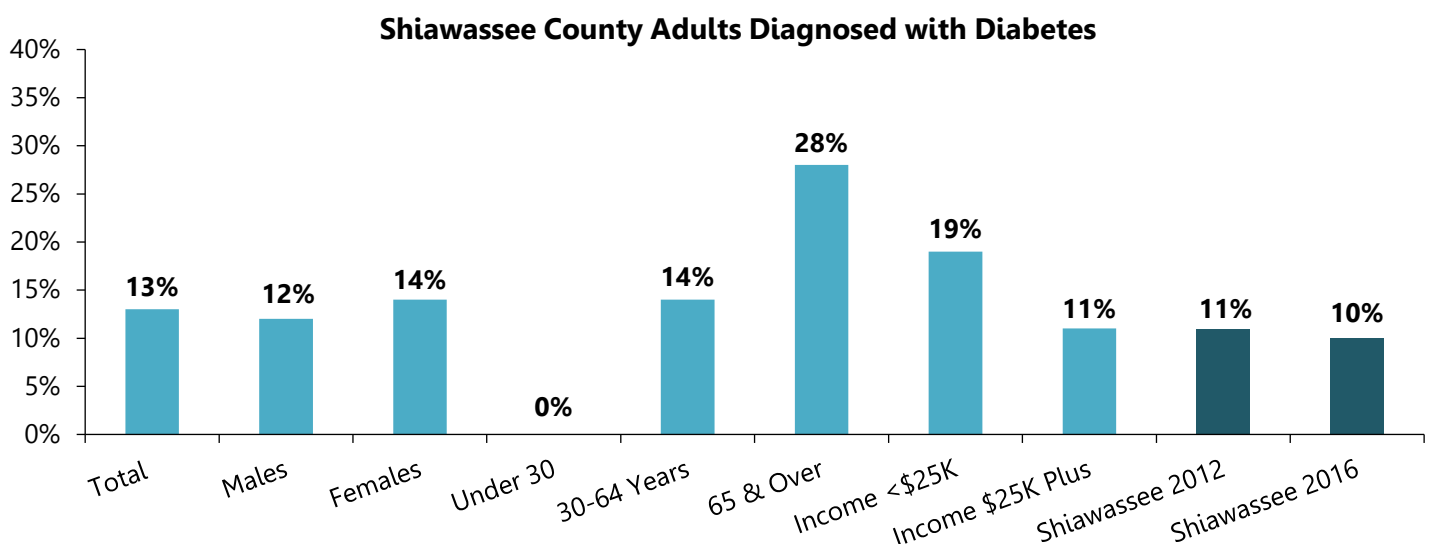
Diabetes by the Numbers

- 30.3 million** US adults have diabetes, and 1 in 4 of them don't know they have it.
- Diabetes is the **seventh leading cause** of death in the US.
- Diabetes is the **No. 1** cause of kidney failure, lower-limb amputations, and adult-onset blindness.
- In the last **20 years**, the number of adults diagnosed with diabetes has more than **tripled** as the American population has aged and become more overweight or obese.

(Source: CDC, Diabetes by the Numbers, Updated: May 11, 2018)

6,817 adults had been diagnosed with diabetes in their lifetime

The following graph shows the percentage of Shiawassee County adults who were diagnosed with diabetes. Examples of how to interpret the information include: 13% of adults were diagnosed with diabetes, including 28% of adults ages 65 and older and 19% of those with incomes less than \$25,000.



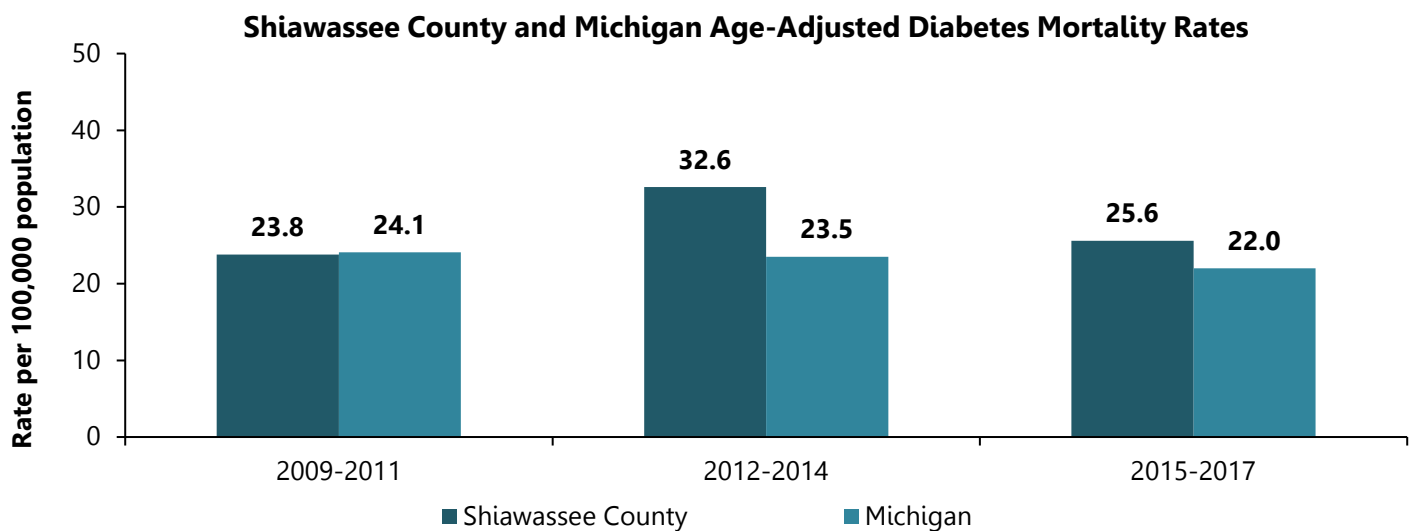
Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

Adult Comparisons	Shiawassee county 2012	Shiawassee County 2016	Shiawassee County 2019	Michigan 2017	U.S. 2017
Had been diagnosed with diabetes	11%	10%	13%	11%	11%
Had been diagnosed with pre-diabetes or borderline diabetes	N/A	5%	8%	2%	2%

N/A-Not Available

The following graph shows the age-adjusted mortality rates per 100,000 population for diabetes for Shiawassee County and Michigan residents. The graph shows:

- From 2009 to 2017, the Shiawassee County diabetes mortality rate fluctuated.



(Source: MDHHS, State Mortality Tables, 2009-2017)

Types of Diabetes

Diabetes is a chronic health condition that affects how your body turns food into energy. There are three main types of diabetes: type 1, type 2 and gestational diabetes (diabetes while pregnant).

- Type 1 diabetes** is caused by an autoimmune reaction (the body attacks itself by mistake) that stops your body from making insulin. About 5% of the people who have diabetes have type 1. Symptoms of type 1 diabetes often develop quickly. It's usually diagnosed in children, teens, and young adults. If you have type 1 diabetes, you'll need to take insulin every day to survive. Currently, no one knows how to prevent type 1 diabetes.
- Type 2 diabetes** is when the body doesn't use insulin well and is unable to keep blood sugar at normal levels. Most people with diabetes—9 in 10—have type 2 diabetes. It develops over many years and is usually diagnosed in adults (though increasingly in children, teens, and young adults). Symptoms sometimes go unnoticed. Type 2 diabetes can be prevented or delayed with healthy lifestyle changes, such as losing weight if you're overweight, healthy eating, and getting regular physical activity.
- Gestational diabetes** develops in pregnant women who have never had diabetes. Babies born to women with gestational diabetes could be at higher risk for health complications. Gestational diabetes usually goes away after the baby is born but increases the mother's risk for type 2 diabetes later in life. The baby is more likely to become obese as a child or teen, and more likely to develop type 2 diabetes later in life too.

(Source: CDC, About Diabetes, Updated: July 1, 2017)

Chronic Disease: Quality of Life

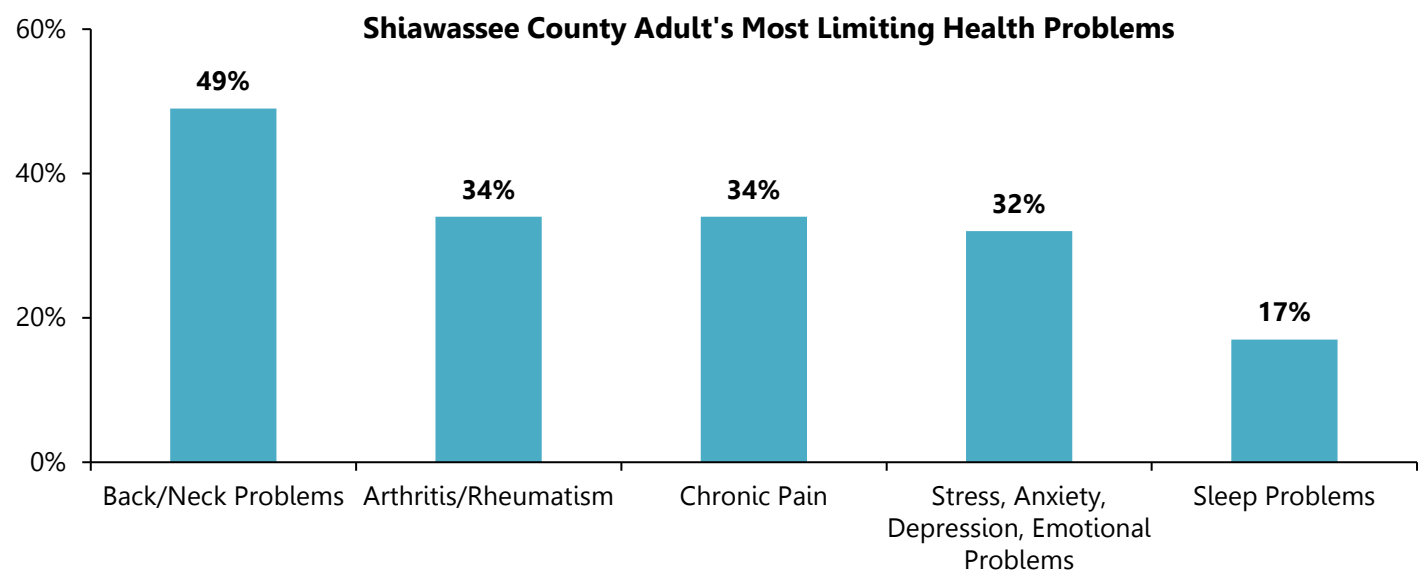
Key Findings

In 2019, 48% of Shiawassee County adults reported they were limited by an impairment or health problem. The three most limiting health problems were back or neck problems (49%), arthritis/rheumatism (34%), and chronic pain (34%).

Physical, Mental, and Emotional Limitations

- Nearly half (48%) of Shiawassee County adults reported they were limited by an impairment or health problem. Among those who were limited, the following most limiting health problems or impairments were reported: back or neck problems (49%); arthritis/rheumatism (34%); chronic pain (34%); stress, depression, anxiety, or emotional problems (32%); sleep problems (17%); walking problems (16%); fitness level (14%); chronic illness (14%); lung/breathing problems (13%); fractures, bone/joint injuries (13%); other physical disability (8%); hearing problems (7%); a learning disability (7%); mental illness or disorder (7%); memory loss (7%); eye/vision problems (6%); dental problems (5%); confusion (4%); substance dependency (1%); and other impairment or problem (2%).

The following graph show the most limiting health problems for Shiawassee County adults.



Healthy People 2020

Arthritis, Osteoporosis, and Chronic Back Conditions (AOCBC)

Objective	Shiawassee County 2019	Healthy People 2020 Target
AOCBC-2: Reduce the proportion of adults with doctor-diagnosed arthritis who experience a limitation in activity due to arthritis or joint symptoms	34%	36%

Note: U.S. baseline is age-adjusted to the 2000 population standard
(Sources: Healthy People 2020 Objectives, 2019 Shiawassee County Health Assessment)

Impairments and Health Problems

- In the past year, adults reported needing the following services or equipment:
 - Eyeglasses/vision services (23%)
 - Help with routine needs (e.g. everyday household chores, doing necessary business) (8%)
 - Pain management (7%)
 - A cane (5%)
 - Help with personal care needs (i.e. eating, bathing, dressing or getting around the house) (5%)
 - Medical supplies (4%)
 - Hearing aids or hearing care (3%)
 - Durable medical equipment (e.g. Kaiser-Welles or O.E. Meyer) (3%)
 - A walker (3%)
 - Oxygen or respiratory support (3%)
 - Mobility aids or devices (e.g. adaptive equipment) (2%)
 - A wheelchair (1%)
 - A special bed (1%)
 - Personal emergency response system (1%)
 - A special telephone (1%)
 - A wheelchair ramp (1%)
 - Communication aids/devices (<1%)
- Adults were responsible for providing regular care or assistance to the following: multiple children (22%); someone with special needs (5%); a friend, family member or spouse with a health problem (5%); an elderly parent or loved one (4%); grandchildren (3%); an adult child (3%); a friend, family member or spouse with dementia (3%); a friend, family member or spouse with a mental health issue (3%); children whose parent(s) lost custody due to other reasons (1%); children with discipline issues (1%); foster children (1%); and children whose parent(s) used drugs and were unable to care for their children (<1%).
- Shiawassee County adults reported they or someone living in their household experienced the following in the past year:
 - Experienced confusion or memory loss more often or was getting worse (16%)
 - Were diagnosed with Alzheimer's disease by a health professional (4%)
 - Were diagnosed with some other form of dementia by a health professional (4%)
- More than one-fourth (28%) of Shiawassee County adults had fallen in the past year, increasing to 41% of those ages 65 and over. Fifteen percent (15%) of adults had fallen two or more times in the past year.

Falls Are Serious and Costly

- Each year, millions of older people—those 65 and older—fall. In fact, more than one out of four older people fall each year, but less than half tell their doctor. Falling once doubles your chances of falling again.
- One out of five falls causes a serious injury such as broken bones or a head injury.
- Each year, 3 million older people are treated in emergency departments for fall injuries.
- Over 800,000 patients a year are hospitalized because of a fall injury, most often because of a head injury or hip fracture.
- Each year at least 300,000 older people are hospitalized for hip fractures.
- More than 95% of hip fractures are caused by falling, usually by falling sideways.
- Falls are the most common cause of traumatic brain injuries (TBI).
- In 2015, the total medical costs for falls totaled more than \$50 billion. Medicare and Medicaid shouldered 75% of these costs.

(Source: CDC, Home and Recreational Safety, Important Facts about Falls, Updated: February 10, 2017)

Social Conditions: Social Determinants of Health

Key Findings

In 2019, 6% of Shiawassee County adults were abused in the past year (including physical, sexual, emotional, financial, or verbal abuse). Eleven percent (11%) of Shiawassee County adults had four or more Adverse Childhood Experiences (ACEs) in their lifetime. Fifteen percent (15%) of adults had experienced at least one issue related to hunger/food insecurity in the past year.

Economic Stability

- Fifteen percent (15%) of Shiawassee County adults experienced at least one of the following issues related to hunger/food insecurity in the past year:
 - Had to choose between paying bills and buying food (12%)
 - Loss of income led to food insecurity issues (6%)
 - Worried food might run out (6%)
 - Went hungry/ate less to provide more food for their family (5%)
 - Did not eat because they did not have enough money for food (4%)
 - Their food assistance was cut (4%)
- Adults received assistance for the following in the past year: healthcare (14%); Medicare (11%); food (8%); dental care (7%); acquiring disability benefits (5%); mental illness issues (5%); electric, gas, or water bills (4%); free tax preparation (4%); prescription assistance (4%); transportation (3%); home repair (2%); rent/mortgage (2%); credit counseling (1%); employment (1%); septic/well repairs (1%); affordable childcare (1%); clothing (1%); post-incarceration issues (1%); unplanned pregnancy (1%); other utilities (1%); legal aid services (1%); and diapers (<1%).
- There were 30,240 housing units. The owner-occupied housing unit rate was 76%. Rent in Shiawassee County cost an average of \$705 per month *(Source: U.S. Census Bureau, American Community Survey, 2013-2017).*
- The median household income in Shiawassee County was \$53,055. The U.S. Census Bureau reports median income levels of \$54,840 for Michigan and \$60,336 for the U.S. *(Source: U.S. Census Bureau, Small Area Income and Poverty Estimates, 2017).*
- Eleven percent (11%) of all Shiawassee County residents were living in poverty, and 17% of children and youth ages 0-17 were living in poverty *(Source: U.S. Census Bureau, Small Area Income and Poverty Estimates, 2017).*
- The unemployment rate for Shiawassee County was 5.3 as of July 2019 *(Michigan Department of Technology, Management & Budget).*

Social Determinants of Health

- Social determinants of health are conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks.
- Conditions (e.g., social, economic, and physical) in these various environments and settings (e.g., school, church, workplace, and neighborhood) have been referred to as “place.” In addition to the more material attributes of “place,” the patterns of social engagement and sense of security and well-being are also affected by where people live.
- Resources that enhance quality of life can have a significant influence on population health outcomes. Examples of these resources include safe and affordable housing, access to education, public safety, availability of healthy foods, local emergency/health services, and environments free of life-threatening toxins.
- Understanding the relationship between how population groups experience “place” and the impact of “place” on health is fundamental to the social determinants of health—including both social and physical determinants.

(Source: HealthyPeople2020, Retrieved February 13 2019)

Education

- Ninety-two percent (92%) of Shiawassee County adults 25 years and over had a high school diploma or higher *(Source: U.S. Census Bureau, American Community Survey, 2013-2017).*
- Sixteen percent (16%) of Shiawassee County adults 25 years and over had at least a bachelor's degree *(Source: U.S. Census Bureau, American Community Survey, 2013-2017).*

Health and Health Care

- In 2019, 93% Shiawassee County adults had health care coverage, leaving 7% who were uninsured.
- Seventy-nine percent (79%) of Shiawassee County adults visited a doctor for a routine checkup in the past year, increasing to 87% of those over the age of 65.
- Nearly three-fifths (59%) of adults reported they had one person they thought of as their personal doctor or health care provider. Twenty-eight percent (28%) of adults had more than one person they thought of as their personal health care provider, and 12% did not have one at all. One percent (1%) reported they did not know.
- See the Health Perceptions, Health Care Coverage, and Health Care Access sections for further health and health care information for Shiawassee County adults.

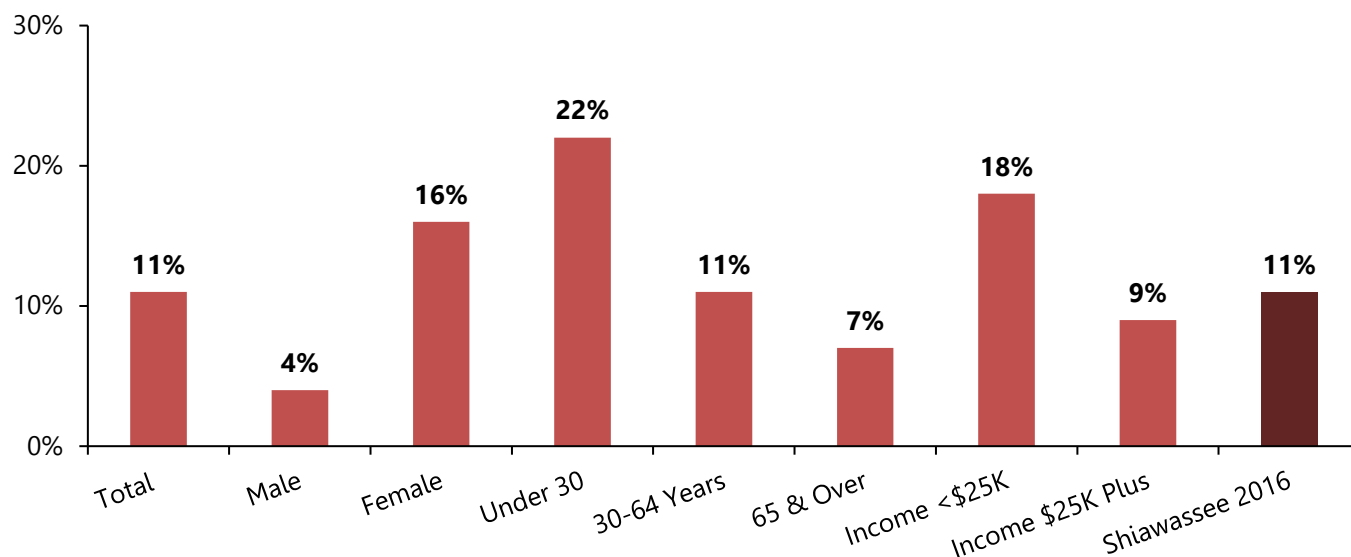
Social and Community Context

- Six percent (6%) of Shiawassee County adults were abused in the past year by the following: a spouse or partner (55%), a child (25%), someone outside their home (10%), and someone else (35%).
- Adults who were abused were abused in the following ways: emotionally (76%), verbally (76%), financially (19%), and physically (12%).
- Shiawassee County adults experienced the following in the past 12 months: a close family member went to the hospital (32%); death of a family member or close friend (28%); had bills they could not pay (15%); a decline in their health (15%); someone in their household lost their job or had their hours at work reduced (15%); were a caregiver (9%); someone close to them had a problem with drinking or drugs (7%); household income was cut by 50% (6%); moved to a new address (6%); had someone homeless living with them (4%); were homeless (3%); were threatened or abused by someone physically, emotionally, sexually, and/or verbally (2%); their family was at risk for losing their home (2%); became separated or divorced (1%); knew someone who lived in a hotel (1%); their child was threatened or by someone physically, emotionally, sexually, and/or verbally (1%); and witnessed someone in their family being hit or slapped (1%).
- Sixteen percent (16%) of Shiawassee County adults had the following transportation issues: no car (6%), could not afford gas (4%), no car insurance (3%), disabled (3%), suspended/no driver's license (3%), cost of public or private transportation (3%), no public transportation available or accessible (1%), limited public transportation available or accessible (1%), did not feel safe to drive (1%), and other car issues/expenses (5%).
- Adults indicated they or an immediate family member had the following literacy needs: learning computer skills (12%); reading and understanding instructions (7%); reading a map, signs, food ingredient labels, etc. (4%); completing a job application (3%).

- Shiawassee County adults experienced the following adverse childhood experiences (ACEs):
 - Their parents became separated or were divorced (22%)
 - Lived with someone who was a problem drinker or alcoholic (22%)
 - A parent or adult in their home swore at, insulted, or put them down (21%)
 - Lived with someone who was depressed, mentally ill, or suicidal (17%)
 - A parent or adult in their home hit, beat, kicked, or physically hurt them (13%)
 - Someone at least 5 years older than them or an adult touched them sexually (11%)
 - Their parents or adults in their home slapped, hit, kicked, punched, or beat each other up (7%)
 - Their family did not look out for each other, feel close to each other, or support each other (6%)
 - Lived with someone who served time or was sentenced to serve time in prison, jail or correctional facility (5%)
 - Someone at least 5 years older than them or an adult tried to make them touch them sexually (5%)
 - Their parents were not married (5%)
 - Someone at least 5 years older than them or an adult forced them to have sex (4%)
 - Lived with someone who used illegal street drugs, or who abused prescription medications (4%)
 - They didn't have enough to eat, had to wear dirty clothing, and had no one to protect them (2%)
- Eleven percent (11%) of Shiawassee County adults had 4 or more ACEs in their lifetime, increasing to 18% of those with incomes less than \$25,000.

The following graph shows the percentage of Shiawassee County adults who had experienced four or more Adverse Child Experiences (ACEs) in their lifetime. An example of how to interpret the information on the graph includes: 11% of all adults had experienced four or more ACEs in their lifetime, including 22% of those under the age of 30 and 18% of those with incomes less than \$25,000.

Shiawassee County Adults Who Experienced 4 or more ACEs in their Lifetime



Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

The table below indicates correlations between those who experienced four or more ACEs in their lifetime and participating in risky behaviors, as well as other activities and experiences. Examples of how to interpret the information include: 72% of those who experienced four or more ACEs were current drinkers, compared to 56% of those who did not experience any ACEs.

Behaviors of Shiawassee County Adults

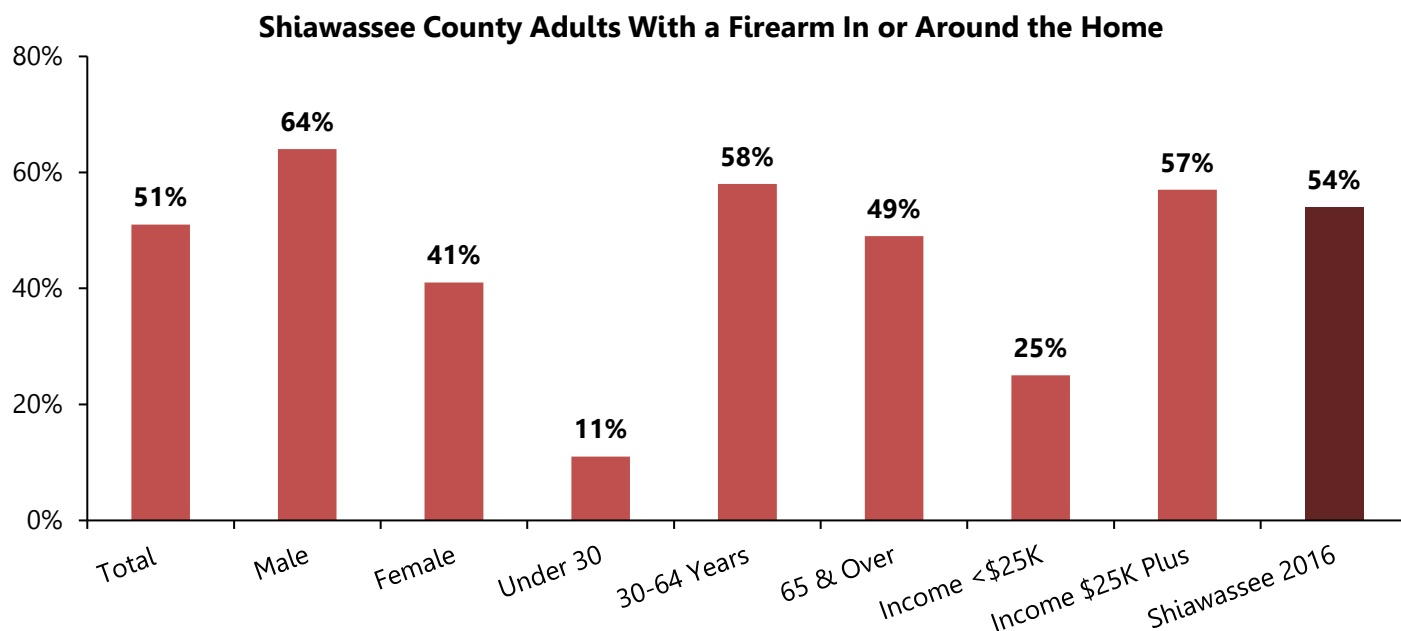
Experienced 4 or More ACEs vs. Did Not Experience Any ACEs

Adult Behaviors	Experienced 4 or More ACEs	Did Not Experience Any ACEs
Current drinker (had at least one alcoholic beverage in the past month)	72%	56%
Classified as obese by BMI	37%	37%
Current smoker (currently smoke on some or all days)	32%	15%
Used recreational marijuana in the past 6 months	24%	4%
Binge drinker (drank 5 or more drinks for males and 4 or more for females on an occasion)	14%	14%
Contemplated suicide in the past 12 months	3%	1%
Misused prescription medication in the past 6 months	3%	6%

Neighborhood and Built Environment

- Shiawassee County adults reported doing the following while driving: talking on hand-held cell phone (44%), eating (38%), talking on hands-free cell phone (37%), texting (18%), using internet on their cell phone (10%), not wearing a seatbelt (10%), being under the influence of alcohol (5%), being under the influence of recreational drugs (4%), being under the influence of prescription drugs (2%), reading (1%), and other activities (such as applying makeup, shaving, etc.) (1%).
- More than two-fifths (44%) of adults reported they had more than one distraction while driving.
- Adults reported they would support the following community improvement initiatives: more locally-grown food/Farmer's Markets (59%), safe roadways (49%), bike/walking trail accessibility or connectivity (45%), new and/or updated parks (43%), local agencies partnering with grocery stores to provide healthier low-cost food items (43%), neighborhood safety (42%), community gardens (31%), sidewalk accessibility (27%), and new and/or updated recreation centers (25%).
- Nearly four-fifths (79%) of adults strongly/somewhat agreed that the "Shiawassee County area is a place that welcomes and embraces diversity in general."
- Seventy percent (70%) of adults strongly/somewhat agreed that the "Shiawassee County area is a place that welcomes and embraces racially and ethnically diverse people."
- More than half (51%) of Shiawassee County adults kept a firearm in or around their home. Five percent (5%) of adults reported they were unlocked and loaded.

The following graph shows the percentage of Shiawassee County adults who had a firearm in or around the home. An example of how to interpret the information on the graph includes: 51% of all Shiawassee County adults had a firearm in or around the home, including 64% of males and 57% of those with incomes more than \$25,000.



Note: Caution should be used when interpreting subgroup results as the margin of error for any subgroup is higher than that of the overall survey.

Victims of Gun Violence in America

- More than 100,000 people are shot in murders, assaults, suicides & suicide attempts, accidents or by police intervention in America in an average year.
 - 35,141 people die from gun violence and 81,114 people survive gun injuries.
- Every day, an average of 318 people are shot in America. Of those 315 people, 96 people die and 222 are shot, but survive.
 - Of the 315 people who are shot every day, an average of 46 are children and teens.
 - Of the 96 people who die, 34 are murdered, 59 are suicides, 1 die accidentally, 1 with an unknown intent and 1 by legal intervention.
 - Of the 222 people who are shot but survive, 164 are from assault, 45 are shot accidentally, 10 are suicide attempts, and 3 are police interventions.

(Source: Brady Campaign to Prevent Gun Violence, "There Are Too Many Victims of Gun Violence" Fact Sheet, February 2018)

Gambling

Shiawassee County adults engaged in the following types of gambling in the past year:

Type of Gambling	Daily	Weekly	Monthly	1 or 2 times a year	Never
Horse/dog racing track	0%	0%	<1%	0%	99%
Sports betting with a bookie	0%	0%	0%	<1%	99%
Bingo	0%	0%	<1%	3%	97%
Fantasy sports gambling	0%	1%	1%	2%	96%
Online gaming	0%	2%	0%	3%	95%
Poker or other card games, dice or craps (not at a casino)	0%	<1%	2%	4%	94%
Betting pools or office pools at work	0%	0%	2%	10%	88%
Casino gambling	<1%	0%	3%	17%	79%
Lottery games (e.g. scratch offs, drawings)	1%	7%	16%	21%	55%

Social Conditions: Environmental Health

Key Findings

The top five environmental health issues for Shiawassee County adults that threatened their health in the past year were insects (8%), air quality (6%), mold (5%), rodents (5%), and unsafe water supply/wells (5%).

Environmental Health

- Shiawassee County adults thought the following threatened their health in the past year:
 - Insects (8%)
 - Air quality (6%)
 - Mold (5%)
 - Rodents (5%)
 - Unsafe water supply/wells (5%)
 - Moisture issues (4%)
 - Agricultural chemicals (3%)
 - Bed bugs (3%)
 - Temperature regulation (3%)
 - Chemicals found in household products (2%)
 - Lead paint (2%)
 - Plumbing problems (1%)
 - Sewage/wastewater problems (1%)
 - Food safety/food borne illness (1%)
 - Safety hazards (1%)
 - Lyme disease (1%)
 - Lice (1%)
 - Sanitation issues (1%)
 - Asbestos (1%)
 - Cockroaches (<1%)
 - Fracking (<1%)
 - Radiation (<1%)

Mold Prevention Tips

- Exposure to damp and moldy environments may cause a variety of health effects. Mold can cause nasal stuffiness, throat irritation, coughing or wheezing, eye irritation, or, in some cases, skin irritation.
- In your home, you can control mold growth by:
 - Keep humidity levels as low as you can, no higher than 50%, all day long
 - Be sure your home has enough ventilation. Use exhaust fans which vent outside your home in the kitchen and bathroom. Make sure your clothes dryer vents outside your home.
 - Fix any leaks in your home's roof, walls, or plumbing so mold does not have moisture to grow.
 - Clean up and dry out your home thoroughly and quickly (within 24–48 hours) after flooding.
 - Add mold inhibitors to paints before painting.
 - Clean bathrooms with mold-killing products.
 - Remove or replace carpets and upholstery that have been soaked and cannot be dried promptly. Consider not using carpet in rooms or areas like bathrooms or basements that may have a lot of moisture.

(Source: CDC, Facts about Mold and Dampness, updated 9/5/17)

Social Conditions: Parenting

Key Findings

In 2019, 55% of Shiawassee County parents talked to their 12-to-17-year-old about weight status and negative effects of alcohol, tobacco, vaping, illegal drugs, or misusing prescription drugs.

Parenting

- Parents indicated their child sometimes slept in the following places as an infant: crib/bassinette (with no bumper pads, blankets, and toys) (58%); in bed with them or another person (51%); pack n' play (43%); crib/bassinette (with bumper pads, blankets, and toys) (42%); car seat (34%); swing (34%); the floor (23%); and couch or chair (9%).
- Parents discussed the following sexual health and other health topics with their 12-to-17-year-old in the past year:
 - Weight status (55%)
 - Negative effects of alcohol, tobacco, vaping, illegal drugs, or misusing prescription drugs (55%)
 - Career plan/post-secondary education (53%)
 - Dating and relationships (51%)
 - Social media issues (45%)
 - Body image (44%)
 - Volunteering (44%)
 - Bullying (38%)
 - School/legal consequences of using tobacco/alcohol/other drugs (38%)
 - Abstinence/how to refuse sex (36%)
 - Anxiety/depression/suicide (33%)
 - Birth control/condom use/safer sex/STD prevention (33%)
 - Refusal skills/peer pressure (31%)
 - Energy drinks (20%)

How to Help Increase Your School-Aged Child's Social Ability

Consider the following as ways to foster your school-aged child's social abilities:

- Set and provide appropriate limits, guidelines, and expectations and consistently enforce using appropriate consequences.
- Model appropriate behavior.
- Offer compliments for your child being cooperative and for any personal achievements.
- Help your child choose activities that are appropriate for your child's abilities.
- Encourage your child to talk with you and be open with his or her feelings.
- Encourage your child to read and read with your child.
- Encourage your child to get involved with hobbies and other activities.
- Encourage physical activity.
- Encourage self-discipline; expect your child to follow rules that are set.
- Teach your child to respect and listen to authority figures.
- Encourage your child to talk about peer pressure and help set guidelines to deal with peer pressure.
- Spend uninterrupted time together—giving full attention to your child.
- Limit television, video, and computer time.

(Source: eClinicalWorks, The Growing Child: School Age (6 to 12 Years), 2018)

Appendix I: Health Assessment Information Sources

Source	Data Used	Website
American Cancer Society, Cancer Facts and Figures 2018	<ul style="list-style-type: none"> 2018 Cancer Facts, Figures, and Estimates 	www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2018/cancer-facts-and-figures-2018.pdf
American Association of Suicidology	<ul style="list-style-type: none"> National Suicide Statistics 	https://www.suicidology.org/Portals/14/docs/Resources/FactSheets/2017/2017datapgs1-FINAL.pdf
Behavioral Risk Factor Surveillance System, National Center for Chronic Disease Prevention and Health Promotion, Behavioral Surveillance Branch, Centers for Disease Control	<ul style="list-style-type: none"> 2014 - 2017 Adult Shiawassee, Michigan, and U.S. Correlating Statistics 	https://www.cdc.gov/brfss/index.html
Brady Campaign to Prevent Gun Violence	<ul style="list-style-type: none"> Victims of Gun Violence in America 	www.bradycampaign.org/sites/default/files/Brady-Campaign-5Year-Gun-Deaths-Injuries-Stats_02-22-2018.pdf
CDC, About Diabetes	<ul style="list-style-type: none"> Types of Diabetes Diabetes by the Numbers 	https://www.cdc.gov/diabetes/basics/diabetes.html
CDC, Adult Oral Health, 2016	<ul style="list-style-type: none"> Facts About Adult Oral Health 	www.cdc.gov/oralhealth/basics/adult-oral-health/index.html
CDC, Alcohol and Public Health, Excessive Drinking	<ul style="list-style-type: none"> Economic Costs of Excessive Alcohol Use 	www.cdc.gov/alcohol/data-stats.htm
CDC, Arthritis, 2018	<ul style="list-style-type: none"> Rheumatoid Arthritis (RA) 	cdc.gov/arthritis/basics/rheumatoid-arthritis.html
CDC, Breast Cancer, 2018	<ul style="list-style-type: none"> What Can I do to Reduce My Risk of Breast Cancer? 	www.cdc.gov/cancer/breast/basic_info/prevention.htm
CDC, HPV, 2016	<ul style="list-style-type: none"> Human Papillomavirus Virus 	https://www.cdc.gov/hpv/parents/vaccine.html
CDC, Mold and Dampness	<ul style="list-style-type: none"> Mold Prevention Tips 	https://www.cdc.gov/mold/dampness_facts.htm
CDC, Overweight & Obesity, 2018	<ul style="list-style-type: none"> Adult Obesity Facts 	www.cdc.gov/obesity/data/adult.html
CDC, Prostate Cancer, 2018	<ul style="list-style-type: none"> Prostate Cancer Awareness 	https://www.cdc.gov/cancer/prostate/basic_info/what-is-prostate-cancer.htm
CDC, Smoking and Tobacco Use, 2018	<ul style="list-style-type: none"> Electronic Cigarettes 	https://www.cdc.gov/tobacco/basic_information/e-cigarettes/about-e-cigarettes.html
CDC, Violence Prevention, Sexual Violence	<ul style="list-style-type: none"> Understanding Sexual Violence 	www.cdc.gov/violenceprevention/pdf/SV-Factsheet.pdf
CDC, Violence Prevention	<ul style="list-style-type: none"> Adverse Childhood Experiences 	www.cdc.gov/violenceprevention/acestudy/ace_brfss.html
CDC, Viral Hepatitis	<ul style="list-style-type: none"> Hepatitis A Questions and Answers for the Public 	www.cdc.gov/hepatitis/hav/afaq.htm

Source	Data Used	Website
CDC Wonder	<ul style="list-style-type: none"> Shiawassee Underlying Cause of Death, 2009-2015 Shiawassee County, Michigan, and U.S. Mortality Statistics 2009-2017 	http://wonder.cdc.gov/ucd-icd10.html
County Health Rankings, 2018	<ul style="list-style-type: none"> Food Environment Index Map 	www.countyhealthrankings.org/
	<ul style="list-style-type: none"> County Health Rankings compiled for 2016 BRFSS 	http://www.countyhealthrankings.org/
Healthy People 2020: U.S. Department of Health & Human Services	<ul style="list-style-type: none"> All Healthy People 2020 Target Data Points Predictors of Access to Health Care 	www.healthypeople.gov/2020/topicsobjectives2020
	<ul style="list-style-type: none"> Social Determinants of Health 	www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health
Henry Kaiser Family Foundation	<ul style="list-style-type: none"> Key Facts about the Uninsured Population 	www.kff.org/report-section/the-uninsured-a-primer-2013-4-how-does-lack-of-insurance-affect-access-to-health-care/
National Institute on Drug Abuse, 2018	<ul style="list-style-type: none"> Heroin 	www.drugabuse.gov/publications/drugfacts/heroin
Michigan Department of Health & Human Services	<ul style="list-style-type: none"> Michigan Health Statistics 	https://www.michigan.gov/mdhhs/0,5885,7-339-73970_2944_4669_4686---,00.html
	<ul style="list-style-type: none"> Community Health Information 	http://www.mdch.state.mi.us/pha/osr/chi/indexVer2.asp
	<ul style="list-style-type: none"> Michigan specific statistics 	www.mdch.state.mi.us/pha/osr/chi/FullTableList.asp?RegionCode=0&RegionType=0
	<ul style="list-style-type: none"> Shiawassee County specific statistics 	http://www.mdch.state.mi.us/pha/osr/chi/FullTableList.asp?RegionType=1&RegionCode=78&Submit=Tables
	<ul style="list-style-type: none"> Shiawassee and Michigan Cancer Statistics 	https://www.mdch.state.mi.us/pha/osr/CHI/Cancer/frame.asp
	<ul style="list-style-type: none"> Natality, Pregnancy, and Abortion Statistics 	https://www.michigan.gov/mdhhs/0,5885,7-339-73970_2944_4669_4681---,00.html
	<ul style="list-style-type: none"> Shiawassee Chlamydia and Gonorrhea statistics 	https://www.mdch.state.mi.us/OSR/Chi/STD/frame.asp
	<ul style="list-style-type: none"> Michigan Chlamydia and Gonorrhea statistics 	https://www.mdch.state.mi.us/OSR/Chi/STD/frame.asp
Michigan Department of Technology, Management & Budget	<ul style="list-style-type: none"> Michigan Bureau of Labor Market and Information and Strategic Initiatives 	http://milmi.org/datasetsearch/unemployment-by-county

Source	Data Used	Website
Michigan Traffic Crash Stats (MTCS), 2017	<ul style="list-style-type: none"> Statewide Reports 	http://publications.michigantrafficcrashfacts.org/2017/MTCFVol1.pdf
	<ul style="list-style-type: none"> County/Community Profiles 	https://www.michigantrafficcrashfacts.org/pub/2017/county-profiles
Michigan Traffic Crash Facts (MTCF), 2017 Traffic Crash Data & 2013-2017 5-year Trends	<ul style="list-style-type: none"> Shiawassee County Number of Motor Vehicle Deaths from 2013-2017 Shiawassee County Percentage of Fatal Crashes with Drinking Involvement from 2013-2017 	http://publications.michigantrafficcrashfacts.org/2017/Shiawassee+County.pdf
U. S. Department of Commerce, Census Bureau; Bureau of Economic Analysis	<ul style="list-style-type: none"> American Community Survey 1-year estimate, 2017 	www.census.gov/programs-surveys/acs/
	<ul style="list-style-type: none"> American Community Survey 5-year estimate, 2013-2017 	www.census.gov/programs-surveys/acs/
	<ul style="list-style-type: none"> Federal Poverty Thresholds 	www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html
	<ul style="list-style-type: none"> Michigan and Shiawassee County 2017 Census Demographic Information 	factfinder.census.gov/faces/nav/jsf/pages/index.xhtml
	<ul style="list-style-type: none"> Small Area Income and Poverty Estimates 	www.census.gov/did/www/saipe/

Appendix II: Acronyms and Terms

AHS	A ccess to H ealth S ervices, Topic of Healthy People 2020 objectives
Adult	Defined as 19 years of age and older.
Age-Adjusted Mortality Rates	Death rate per 100,000 adjusted for the age distribution of the population.
Adult Binge Drinking	Consumption of five alcoholic beverages or more (for males) or four or more alcoholic beverages (for females) on one occasion.
AOCBC	A rthritis, O steoporosis, and C hronic B ack C onditions
BMI	B ody M ass I ndex is defined as the contrasting measurement/relationship of weight to height.
BRFSS	B ehavior R isk F actor S urveillance S ystem, an adult survey conducted by the CDC.
CDC	C enters for D isease C ontrol and P revention.
Current Smoker	Individual who has smoked at least 100 cigarettes in their lifetime and now smokes daily or on some days.
HCNO	H ospital C ouncil of N orthwest O hio
HDS	H eart D isease and S troke, Topic of Healthy People 2020 objectives
HP 2020	H ealthy P eople 2020 , a comprehensive set of health objectives published by the Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services.
Health Indicator	A measure of the health of people in a community, such as cancer mortality rates, rates of obesity, or incidence of cigarette smoking.
High Blood Cholesterol	240 mg/dL and above
High Blood Pressure	Systolic ≥ 140 and Diastolic ≥ 90
IID	I mmunizations and I nfectious D iseases, Topic of Healthy People 2020 objectives
MDHHS	M ichigan D epartment of H ealth and H uman S ervices
N/A	Data is not available.
Race/Ethnicity	Census 2010: U.S. Census data consider race and Hispanic origin separately. Census 2010 adhered to the standards of the Office of Management and Budget (OMB), which define Hispanic or Latino as "a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race." Data are presented as "Hispanic or Latino" and "Not Hispanic or Latino." Census 2010 reported five race categories including: White, Black or African American, American Indian & Alaska Native, Asian, Native Hawaiian and Other Pacific Islander. Data reported, "White alone" or "Black alone", means the respondents reported only one race.
YPLL/65	Y ears of P otential L ife L ost before age 65. Indicator of premature death.

Appendix III: Methods for Weighting The 2019 Shiawassee County Assessment Data

Data from sample surveys have the potential for bias if there are different rates of response for different segments of the population. In other words, some subgroups of the population may be more represented in the completed surveys than they are in the population from which those surveys are sampled. If a sample has 25% of its respondents being male and 75% being female, then the sample is biased towards the views of females (if females respond differently than males). This same phenomenon holds true for any possible characteristic that may alter how an individual responds to the survey items.

In some cases, the procedures of the survey methods may purposefully over-sample a segment of the population in order to gain an appropriate number of responses from that subgroup for appropriate data analysis when investigating them separately (this is often done for minority groups). Whether the over-sampling is done inadvertently or purposefully, the data needs to be weighted so that the proportioned characteristics of the sample accurately reflect the proportioned characteristics of the population. In the 2019 Shiawassee County survey, a weighting was applied prior to the analysis that weighted the survey respondents to reflect the actual distribution of Shiawassee County based on age, sex, race, and income.

Weightings were created for each category within sex (male, female), race (White, Non-White), Age (8 different age categories), and income (7 different income categories). The numerical value of the weight for each category was calculated by taking the percent of Shiawassee County within the specific category and dividing that by the percent of the sample within that same specific category. Using sex as an example, the following represents the data from the 2019 Shiawassee County Survey and the 2017 Census estimates.

<u>2019 Shiawassee Survey</u>			<u>2017 Census estimates</u>		<u>Weight</u>
<u>Sex</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	
Male	197	56.77233	33,807	49.26913	0.867837
Female	150	43.22767	34,810	50.73087	1.173574

In this example, it shows that there was a larger portion of males in the sample compared to the actual portion in Shiawassee County. The weighting for males was calculated by taking the percent of males in Shiawassee County (based on Census information) (49.26913%) and dividing that by the percent found in the 2019 Shiawassee County sample (56.77233%) [$49.26913/56.77233 =$ weighting of 0.867837 for males]. The same was done for females [$50.73087/43.22767 =$ weighting of 1.173574 for females]. Thus, males' responses are weighted less by a factor of 0.867837 and females' responses weighted heavier by a factor of 1.173574.

This same thing was done for each of the 19 specific categories as described above. For example, a respondent who was female, White, in the age category 45-54, and with a household income in the \$50-\$75k category would have an individual weighting of 1.68365 [1.17357 (weight for females) \times 1.02288 (weight for White) \times 1.47354 (weight for age 45-54) \times 0.95182 (weight for income \$50-\$75k)]. Thus, each individual in the 2019 Shiawassee County sample has their own individual weighting based on their combination of age, race, sex, and income. See next page for each specific weighting and the numbers from which they were calculated.

Multiple sets of weightings were created and used in the statistical software package (SPSS 24.0) when calculating frequencies. For analyses done for the entire sample and analyses done based on subgroups other than age, race, sex, or income – the weightings that were calculated based on the product of the four weighting variables (age, race, sex, income) for each individual. When analyses were done comparing groups within one of the four weighting variables (e.g., smoking status by race/ethnicity), that specific variable was not used in the weighting score that was applied in the software package. In the example smoking status by race, the weighting score that was applied during analysis included only age, sex, and income. Thus, a total of eight weighting scores for each individual were created and applied depending on the analysis conducted. The weight categories were as follows:

1. **Total weight** (product of 4 weights) – for all analyses that did not separate age, race, sex, or income.
2. **Weight without sex** (product of age, race, and income weights) – used when analyzing by sex.
3. **Weight without age** (product of sex, race, and income weights) – used when analyzing by age.
4. **Weight without race** (product of age, sex, and income weights) – used when analyzing by race.
5. **Weight without income** (product of age, race, and sex weights) – used when analyzing by income.
6. **Weight without sex or age** (product of race and income weights) – used when analyzing by sex and age.
7. **Weight without sex or race** (product of age and income weights) – used when analyzing by sex and race.
8. **Weight without sex or income** (product of age and race weights) – used when analyzing by sex and income.

Category	Shiawassee Sample	%	2017 Census*	%	Weighting Value
Sex:					
Male	197	56.77233	33,807	49.26913	0.867837
Female	150	43.22767	34,810	50.73087	1.173574
Age:					
20-34	19	5.53936	11,729	22.64854	4.08866
35-44	29	8.45481	8,098	15.63713	1.84949
45-54	46	13.41108	10,234	19.76172	1.47354
55-59	36	10.49563	5,363	10.35588	0.98669
60-64	55	16.03499	4,755	9.18184	0.57261
65-74	95	27.69679	6,754	13.04188	0.47088
75-84	51	14.86880	3,506	6.77004	0.45532
85+	12	3.49854	1,348	2.60297	0.74402
Race:					
White	319	92.19653	64,710	94.30608	1.02288
Non-White	27	7.80347	3,907	5.69392	0.72967
Household Income:					
Less than \$25,000	74	23.64217	6,166	22.32198	0.94416
\$25,000 to \$34,999	48	15.33546	3,096	11.20805	0.73086
\$35,000 to \$49,999	42	13.41853	4,249	15.38211	1.14633
\$50,000 to \$74,999	70	22.36422	5,880	21.28661	0.95182
\$75,000 to \$99,999	34	10.86262	3,633	13.15208	1.21077
\$100,000 to \$149,999	31	9.90415	3,314	11.99725	1.21134
\$150,000 or more	14	4.47284	1,285	4.65192	1.04004
<p>Note: The weighting ratios are calculated by taking the ratio of the proportion of the population of Shiawassee County in each subcategory by the proportion of the sample in the Shiawassee County survey for that same category.</p> <p>*Shiawassee County population figures taken from the 2017 Census estimates.</p>					

Appendix IV: Shiawassee County Sample Demographic Profile*

Variable	2019 Survey Sample	Shiawassee County Census 2013-2017 (5-year estimates)	Michigan Census 2017 (1-year estimates)
Age			
20-29	2.8%	11.6%	12.7%
30-39	6.8%	11.8%	12.0%
40-49	8.5%	12.6%	14.2%
50-59	18.7%	15.6%	14.7%
60 plus	60.3%	23.8%	19.5%
Race/Ethnicity			
White	92.2%	96.8%	79.1%
Black or African American	0%	0.4%	13.9%
American Indian and Alaska Native	1.1%	0.2%	0.5%
Asian	0%	0.5%	3.1%
Other	2.9%	0.2%	1.2%
Hispanic Origin (may be of any race)	2.5%	2.9%	5.1%
Marital Status†			
Married Couple	58.9%	54.3%	48.0%
Never been married/member of an unmarried couple	9.6%	27.8%	33.4%
Divorced/Separated	15.3%	11.5%	12.7%
Widowed	14.7%	6.4%	5.9%
Education†			
Less than High School Diploma	3.4%	7.9%	9.1%
High School Diploma	37.1%	37.2%	28.9%
Some college/ College graduate	56.4%	55.0%	62.0%
Income (Families)			
\$14,999 and less	8.5%	6.9%	6.7%
\$15,000 to \$24,999	12.5%	7.3%	6.6%
\$25,000 to \$49,999	25.5%	24.3%	21.0%
\$50,000 to \$74,999	19.8%	23.0%	19.6%
\$75,000 or more	22.4%	38.5%	46.1%

* The percents reported are the actual percent within each category who responded to the survey. The data contained within the report however are based on weighted data (weighted by age, race, sex, and income). Percents may not add to 100% due to missing data (non-responses).

† The Michigan and Shiawassee County Census percentages are slightly different than the percent who responded to the survey. Marital status is calculated for those individuals 15 years and older. Education is calculated for those 25 years and older.

Appendix V: Demographics and Household Information

Shiawassee County Population by Age Groups and Gender 2010 U.S. Census

Age	Total	Males	Females
Shiawassee County	70,648	34,921	35,727
0-4 years	3,987	2,054	1,933
1-4 years	3,218	1,671	1,547
< 1 year	769	383	386
1-2 years	1,561	803	758
3-4 years	1,657	868	789
5-9 years	4,612	2,349	2,263
5-6 years	1,747	902	845
7-9 years	2,865	1,447	1,418
10-14 years	5,181	2,712	2,469
10-12 years	3,044	1,570	1,474
13-14 years	2,137	1,142	995
12-18 years	7,615	4,030	3,585
15-19 years	5,476	2,892	2,584
15-17 years	3,279	1,751	1,531
18-19 years	2,197	1,144	1,053
20-24 years	3,823	1,929	1,894
25-29 years	3,661	1,843	1,818
30-34 years	3,995	1,981	2,014
35-39 years	4,235	2,124	2,111
40-44 years	4,987	2,446	2,541
45-49 years	5,728	2,854	2,874
50-54 years	5,613	2,789	2,824
55-59 years	5,007	2,428	2,579
60-64 years	4,238	2,095	2,143
65-69 years	3,224	1,530	1,694
70-74 years	2,364	1,140	1,224
75-79 years	1,811	791	1,020
80-84 years	1,344	546	798
85-89 years	872	292	580
90-94 years	379	108	271
95-99 years	99	15	84
100-104 years	8	0	8
105-109 years	4	3	1
110 years & over	0	0	0
Total 85 years and over	1,362	418	944
Total 65 years and over	10,105	4,425	5,680
Total 19 years and over	52,441	25,459	26,982

SHIAWASSEE COUNTY PROFILE

(Source: U.S. Census Bureau, 2017)
2013-2017 ACS 5-year estimates

General Demographic Characteristics

	Number	Percent (%)
Total Population		
2017 Total Population	68,617	100%
Largest City – Owosso		
2017 Total Population	14,641	100%
Population by Race/Ethnicity		
Total Population	68,617	100%
White	66,409	96.8%
Hispanic or Latino (of any race)	1,956	2.9%
African American	269	0.4%
Two or more races	1,301	1.9%
Asian	309	0.5%
American Indian and Alaska Native	153	0.2%
Some other race	156	0.2%
Population by Age		
Under 5 years	3,549	5.2%
5 to 17 years	11,501	16.7%
18 to 24 years	5,931	8.6%
25 to 44 years	15,676	22.9%
45 to 64 years	20,352	29.6%
65 years and more	11,608	16.9%
Median age (years)	42.0	N/A
Household by Type		
Total households	27,623	100%
Total families	19,053	69.0%
Households with children <18 years	7,307	24.5%
Married-couple family household	14,902	39.6%
Married-couple family household with children <18 years	5,164	18.7%
Female householder, no husband present	2,846	10.3%
Female householder, no husband present with children <18 years	1,454	5.3%
Nonfamily household	8,570	31.0%
Nonfamily household (single person) living alone	21,766	78.8%
Nonfamily household (single person) 65 years and >	9,419	34.1%
Households with one or more people <18 years	8,204	29.7%
Households with one or more people 60 years and >	11,187	40.5%
Average household size	2.46 people	N/A
Average family size	2.91 people	N/A

General Demographic Characteristics, Continued

<i>Housing Occupancy</i>		
Median value of owner-occupied units	\$111,000	N/A
Median housing units with a mortgage	\$1092	N/A
Median housing units without a mortgage	\$431	N/A
Median value of occupied units paying rent	\$705	N/A
Median rooms per total housing unit	6.1	N/A
Total occupied housing units	27,623	91.3%
No telephone service available	646	2.4%
Lacking complete kitchen facilities	120	0.4%
Lacking complete plumbing facilities	104	0.4%

Selected Social Characteristics

<i>School Enrollment</i>		
Population 3 years and over enrolled in school	16,324	N/A
Nursery & preschool	841	5.2%
Kindergarten	606	3.7%
Elementary School (Grades 1-8)	6,938	42.5%
High School (Grades 9-12)	4,069	24.9%
College or Graduate School	3,870	23.8%
<i>Educational Attainment</i>		
Population 25 years and over	47,636	100%
< 9 th grade education	798	1.7%
9 th to 12 th grade, no diploma	2,941	6.2%
High school graduate (includes equivalency)	17,721	37.2%
Some college, no degree	12,959	27.2%
Associate degree	1,482	11.5%
Bachelor's degree	5,027	10.6%
Graduate or professional degree	2,708	5.7%
Percent high school graduate or higher	N/A	92.2%
Percent Bachelor's degree or higher	N/A	16.2%
<i>Marital Status</i>		
Population 15 years and over	56,548	100%
Never married	15,720	27.8%
Now married, excluding separated	30,705	54.3%
Separated	565	1.0%
Widowed	3,619	6.4%
Widowed females	2,853	9.9%
Divorced	5,938	10.5%
Divorced females	3,285	11.4%
<i>Veteran Status</i>		
Civilian population 18 years and over	53,543	100%
Veterans 18 years and over	4,563	8.5%

Selected Social Characteristics, Continued

<i>Disability Status of the Civilian Non-Institutionalized Population</i>		
Total civilian noninstitutionalized population	68,206	100%
Civilian with a disability	10,539	15.5%
Under 18 years	15,038	22.0%
Under 18 years with a disability	882	8.9%
18 to 64 years	41,791	61.3%
18 to 64 years with a disability	5,494	23.4%
65 Years and over	11,377	16.7%
65 Years and over with a disability	4,163	76.6%

Selected Economic Characteristics

<i>Employment Status</i>		
Population 16 years and over	55,669	100%
16 years and over in labor force	33,170	59.6%
16 years and over not in labor force	22,499	40.4%
Females 16 years and over	28,379	100%
Females 16 years and over in labor force	15,584	54.9%
Population living with own children <6 years	3,943	100%
All parents in family in labor force	2,698	68.4%
<i>Class of Worker</i>		
Civilian employed population 16 years and over	30,786	100%
Private wage and salary workers	25,190	81.8%
Government workers	3,528	11.5%
Self-employed workers in own not incorporated business	2,004	6.5%
Unpaid family workers	64	0.2%
<i>Median Earnings</i>		
Male, Full-time, Year-Round Workers	\$46,256	N/A
Female, Full-time, Year-Round Workers	\$35,690	N/A
<i>Occupations</i>		
Employed civilian population 16 years and over	30,786	100%
Management, business, science, and art occupations	8,605	28.0%
Production, transportation, and material moving occupations	6,205	20.2%
Sales and office occupations	7,016	22.8%
Service occupations	5,138	16.7%
Natural resources, construction, and maintenance occupations	3,822	12.4%
<i>Leading Industries</i>		
Employed civilian population 16 years and over	30,786	100%
Educational, health and social services	6,611	21.5%
Manufacturing	5,601	18.2%
Trade (retail and wholesale)	4,669	15.2%
Construction	2,660	8.6%
Arts, entertainment, recreation, accommodation, and food services	2,190	7.1%
Professional, scientific, management, administrative, and waste management services	2,073	6.7%
Other services (except public administration)	1,643	5.3%
Public administration	1,477	4.8%
Transportation and warehousing, and utilities	1,427	4.6%
Finance, insurance, real estate and rental and leasing	1,283	4.2%
Agriculture, forestry, fishing and hunting, and mining	654	2.1%
Information	498	1.6%

N/A-Not Available

Selected Economic Characteristics, Continued

<i>Income In 2016</i>		
Households	27,277	100%
< \$10,000	1,458	5.3%
\$10,000 to \$14,999	903	3.3%
\$15,000 to \$24,999	3,599	13.2%
\$25,000 to \$34,999	2,898	10.6%
\$35,000 to \$49,999	4,098	15.0%
\$50,000 to \$74,999	5,060	18.6%
\$75,000 to \$99,999	4,258	15.6%
\$100,000 to \$149,999	3,526	12.9%
\$150,000 to \$199,999	1,014	3.7%
\$200,000 or more	463	1.7%
Median household income	\$53,361	N/A
<i>Income in 2016</i>		
Families	18,698	100%
< \$10,000	627	3.4%
\$10,000 to \$14,999	269	1.5%
\$15,000 to \$24,999	1,350	7.3%
\$25,000 to \$34,999	1,617	8.8%
\$35,000 to \$49,999	2,792	15.2%
\$50,000 to \$74,999	3,603	19.6%
\$75,000 to \$99,999	3,595	19.5%
\$100,000 to \$149,999	3,251	17.7%
\$150,000 to \$199,999	847	4.6%
\$200,000 or more	447	2.4%
Median family income	\$66,947	N/A
Per capita income in 2017	\$26,764	N/A
<i>Poverty Status in 2016</i>		
Families	N/A	5.8%
Individuals	N/A	9.7%

(Source: U.S. Census Bureau, 2017)

Bureau of Economic Analysis (BEA) Per Capita Personal Income (PCPI) Figures

	Income	Rank of Michigan Counties
BEA Per Capita Personal Income 2017	\$37,355	48 th of 83 counties
BEA Per Capita Personal Income 2016	\$36,662	45 th of 83 counties
BEA Per Capita Personal Income 2015	\$35,831	43 rd of 83 counties
BEA Per Capita Personal Income 2014	\$33,658	47 th of 83 counties
BEA Per Capita Personal Income 2013	\$32,616	44 th of 83 counties

(BEA PCPI figures are greater than Census figures for comparable years due to deductions for retirement, Medicaid, Medicare payments, and the value of food stamps, among other things)

Employment Statistics

Category	Shiawassee County	Michigan
Labor Force	33,458	5,025,000
Employed	31,688	4,770,000
Unemployed	1,770	254,000
Unemployment Rate* in July 2019	5.3	5.1
Unemployment Rate* in June 2019	4.6	4.4
Unemployment Rate* in July 2018	4.8	4.8

Note: Not seasonally adjusted

**Rate equals unemployment divided by labor force.*

(Source: Michigan Department of Technology, Management, & Budget, January 2018, <http://milmi.org/DataSearch/LAUS>)

Estimated Poverty Status in 2016

Age Groups	Number	90% Confidence Interval	Percent	90% Confidence Interval
Shiawassee County				
All ages in poverty	8,106	6,753 to 9,459	12.0%	10.0 to 14.0
Ages 0-17 in poverty	2,651	2,105 to 3,197	18.3%	14.5 to 22.1
Ages 5-17 in families in poverty	1,778	1,377 to 2,179	16.5%	12.8 to 20.2
Median household income	\$52,176	\$50,195 to \$55,237		
Michigan				
All ages in poverty	1,449,683	1,430,043 to 1,469,323	14.9%	14.7 to 15.1
Ages 0-17 in poverty	444,100	433,082 to 455,118	20.7%	20.2 to 21.2
Ages 5-17 in families in poverty	297,400	287,719 to 307,081	18.9%	18.3 to 19.5
Median household income	52,436	\$52,038 to \$52,834		
United States				
All ages in poverty	44,268,996	44,022,086 to 44,515,906	14.0	13.9 to 14.1
Ages 0-17 in poverty	14,115,713	13,976,345 to 14,255,081	19.5	19.3 to 19.7
Ages 5-17 in families in poverty	9,648,486	9,548,767 to 9,748,205	18.3	18.1 to 18.5
Median household income	\$57,617	\$57,502 to \$57,732		

(Source: U.S. Census Bureau, Small Area Income and Poverty Estimates, updated February 2019)

**Federal Poverty Thresholds in 2017 by Size of Family and Number of Related
Children Under 18 Years of Age**

Size of Family Unit	No Children	One Child	Two Children	Three Children	Four Children	Five Children
1 Person <65 years	\$ 12,752					
1 Person 65 and >	\$ 11,756					
2 people Householder < 65 years	\$ 16,414	\$16,895				
2 People Householder 65 and >	\$14,816	\$16,831				
3 People	\$19,173	\$19,730	\$19,749			
4 People	\$25,283	\$25,696	\$24,858	\$24,944		
5 People	\$30,490	\$30,933	\$29,986	\$29,253	\$28,805	
6 People	\$35,069	\$35,208	\$34,482	\$33,787	\$32,753	\$32,140
7 People	\$40,351	\$40,603	\$39,734	\$39,129	\$38,001	\$36,685
8 People	\$45,129	\$45,528	\$44,708	\$43,990	\$42,972	\$41,678
9 People or >	\$54,287	\$54,550	\$53,825	\$53,216	\$52,216	\$50,840

(Source: U. S. Census Bureau, Poverty Thresholds 2017)

Appendix VI: County Health Rankings

	Shiawassee County 2019	Michigan 2019	U.S. 2019
Health Outcomes			
Premature death. Years of potential life lost before age 75 per 100,000 population (age-adjusted) (2015-2017)	7,000	7,600	6,900
Overall health. Percentage of adults reporting fair or poor health (age-adjusted) (2016)	15%	17%	16%
Physical health. Average number of physically unhealthy days reported in past 30 days (age-adjusted) (2016)	4.0	4.3	3.7
Mental health. Average number of mentally unhealthy days reported in past 30 days (age-adjusted) (2016)	3.8	4.4	3.8
Maternal and infant health. Percentage of live births with low birthweight (< 2500 grams) (2011-2017)	8%	8%	8%
Health Behaviors			
Tobacco. Percentage of adults who are current smokers (2016)	20%	20%	17%
Obesity. Percentage of adults that report a BMI of 30 or more (2015)	37%	32%	29%
Food environment. Index of factors that contribute to a healthy food environment, 0 (worst) to 10 (best) (2015 and 2016)	7.9	7.1	7.7
Physical inactivity. Percentage of adults aged 20 and over reporting no leisure-time physical activity (2015)	26%	22%	22%
Active living environment. Percentage of population with adequate access to locations for physical activity (2010 & 2018)	69%	85%	84%
Drug and alcohol abuse. Percentage of adults reporting binge or heavy drinking (2016)	23%	21%	18%
Drug and alcohol abuse and injury. Percentage of driving deaths with alcohol involvement (2013-2017)	39%	29%	29%
Infectious disease. Number of newly diagnosed chlamydia cases per 100,000 population (2016)	278.3	462.9	497.3
Sexual and reproductive health. Teen birth rate per 1,000 female population, ages 15-19 (2011-2017)	21	22	25

(Source: 2019 County Health Rankings for Shiawassee County, Michigan and U.S. data)

	Shiawassee County 2019	Michigan 2019	U.S. 2019
Clinical Care			
Coverage and affordability. Percentage of population under age 65 without health insurance (2016)	6%	6%	10%
Access to health care/medical care. Ratio of population to primary care physicians (2016)	2,020:1	1,260:1	1,330:1
Access to dental care. Ratio of population to dentists (2017)	2,360:1	1,360:1	1,460:1
Access to behavioral health care. Ratio of population to mental health providers (2018)	730:1	400:1	440:1
Hospital utilization. Number of hospital stays for ambulatory-care sensitive conditions per 1,000 Medicare enrollees (2016)	4,159	5,188	4,520
Mammography screening. Percentage of female Medicare enrollees ages 65-74 that received an annual mammography screening (2016)	46%	43%	41%
Flu vaccinations. Percentage of fee-for-service (FFS) Medicare enrollees that had an annual flu vaccination (2016)	47%	45%	45%
Social and Economic Factors			
Education. Percentage of ninth-grade cohort that graduates in four years (2017-2018)	87%	80%	85%
Education. Percentage of adults ages 25-44 years with some post-secondary education (2013-2017)	65%	68%	65%
Employment, poverty, and income. Percentage of population ages 16 and older unemployed but seeking work (2017)	5.3%	4.6%	4%
Employment, poverty, and income. Percentage of children under age 18 in poverty (2017)	17%	20%	18%
Employment, poverty, and income. Ratio of household income at the 80th percentile to income at the 20th percentile (2013-2017)	4.0	4.7	4.9
Family and social support. Percentage of children that live in a household headed by single parent (2013-2017)	28%	34%	33%
Family and social support. Number of membership associations per 10,000 population (2016)	12.0	9.9	9
Violence. Number of reported violent crime offenses per 100,000 population (2014 and 2016)	264	443	386
Injury. Number of deaths due to injury per 100,000 population (2013-2017)	72	72	67

(Source: 2018 County Health Rankings for Shiawassee County, Michigan and U.S. data)

	Shiawassee County 2019	Michigan 2019	U.S. 2019
Physical Environment			
Air, water, and toxic substances. Average daily density of fine particulate matter in micrograms per cubic meter (PM2.5) (2014)	10.3	8.4	8.6
Air, water, and toxic substances. Indicator of the presence of health-related drinking water violations. Yes - indicates the presence of a violation, No - indicates no violation (2017)	Yes	N/A	N/A
Housing. Percentage of households with at least 1 of 4 housing problems: overcrowding, high housing costs, or lack of kitchen or plumbing facilities (2011-2015)	13%	16%	19%
Transportation. Percentage of the workforce that drives alone to work (2013-2017)	82%	83%	76%
Transportation. Among workers who commute in their car alone, the percentage that commute more than 30 minutes (2013-2017)	43%	33%	35%

N/A – Not Available

(Source: 2019 County Health Rankings for Shiawassee County, Michigan and U.S. data)