



Contents

**Introduction** ..... 1

**Health Behavior Data** ..... 2

    Physical Inactivity ..... 2

    Fruit/Vegetable Consumption ..... 6

    Fruit/Vegetable Expenditures ..... 8

    Soda Expenditures ..... 10

    Alcohol Consumption ..... 12

    Alcohol Expenditures ..... 14

    Tobacco Usage - Current Smokers ..... 16

    Tobacco Usage - Former or Current Smokers ..... 18

    Tobacco Usage - Quit Attempt ..... 21

    Tobacco Expenditures ..... 24

## Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

### Introduction

This report provides health indicator data for the residents of the central Michigan region which includes the Michigan counties of Arenac, Clare, Gladwin, Isabella, Osceola, and Roscommon. The report comprises six parts each in a separate volume.

**Part One: Demographic Data** - Current population demographics and changes in demographic composition over time play a determining role in the types of health and social services needed by communities.

**Part Two: Social and Economic Data** – Economic and social insecurity often are associated with poor health. Poverty, unemployment, and lack of educational achievement affect access to care and a community's ability to engage in healthy behaviors.

**Part Three: Physical Environment Data** - A community's health also is affected by the physical environment. A safe, clean environment that provides access to healthy food and recreational opportunities is important to maintaining and improving community health.

**Part Four: Clinical Care Data** - A lack of access to care presents barriers to good health. The supply and accessibility of facilities and physicians, the rate of those who are not insured, financial hardship, transportation barriers, cultural competency, and coverage limitations affect access.

**Part Five: Health Behavior Data** - Health behaviors such as poor diet, a lack of exercise, and substance abuse contribute to poor health status.

**Part Six: Health Outcome Data** - Measuring morbidity and mortality rates allows assessing linkages between social determinants of health and outcomes. By comparing the prevalence of certain chronic diseases to indicators in other categories with outcomes, various causal relationships may emerge, allowing a better understanding of how certain community health needs may be addressed.

The report was prepared with data and information provided by [Community Commons](#) on July 23, 2015. Please see [Health Indicators Report footnotes](#) for information about the data background, analysis methodologies and other related notes.

This document was produced by the Central Michigan District Health Department under a project supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number P10RH28456 for Rural Health Network Development Planning for \$98,864. This information and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsement be inferred by HRSA, HHS, or the U.S. Government.

## Health Behavior Data

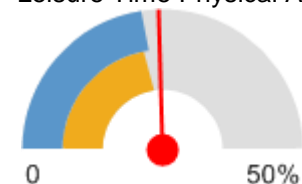
Health behaviors such as poor diet, a lack of exercise, and substance abuse contribute to poor health status.

### Physical Inactivity

Within the report area, 36,943 or 24.56% of adults aged 20 and older self-report no leisure time for activity, based on the question: "During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?" This indicator is relevant because current behaviors are determinants of future health and this indicator may illustrate a cause of significant health issues, such as obesity and poor cardiovascular health.

Report Area	Total Population Age 20	Population with no Leisure Time Physical Activity	Percent Population with no Leisure Time Physical Activity
Report Area	145,221	36,943	24.56%
Arenac County, MI	12,192	2,914	22.4%
Clare County, MI	23,812	7,096	28.2%
Gladwin County, MI	20,027	6,028	28.1%
Isabella County, MI	52,130	11,260	22.1%
Osceola County, MI	17,129	4,762	26.5%
Roscommon County, MI	19,931	4,883	22.3%
Michigan	7,326,382	1,673,087	22.25%
United States	231,341,061	53,415,737	22.64%

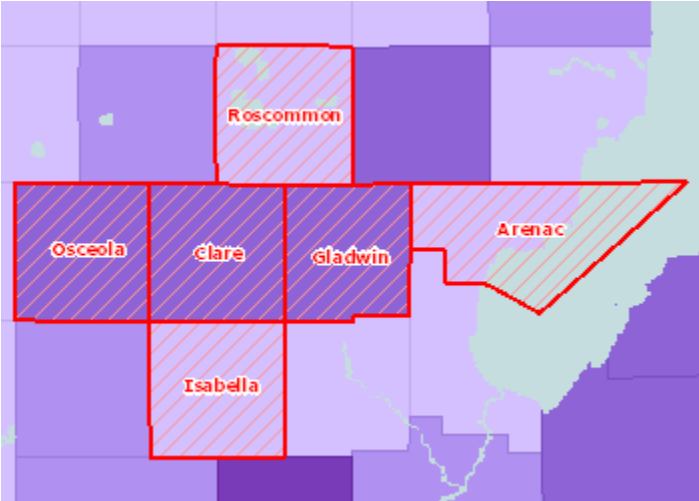
Percent Population with no Leisure Time Physical Activity



- Report Area (24.56%)
- Michigan (22.25%)
- United States (22.64%)

Data Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. 2012. Source geography: County

# Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data



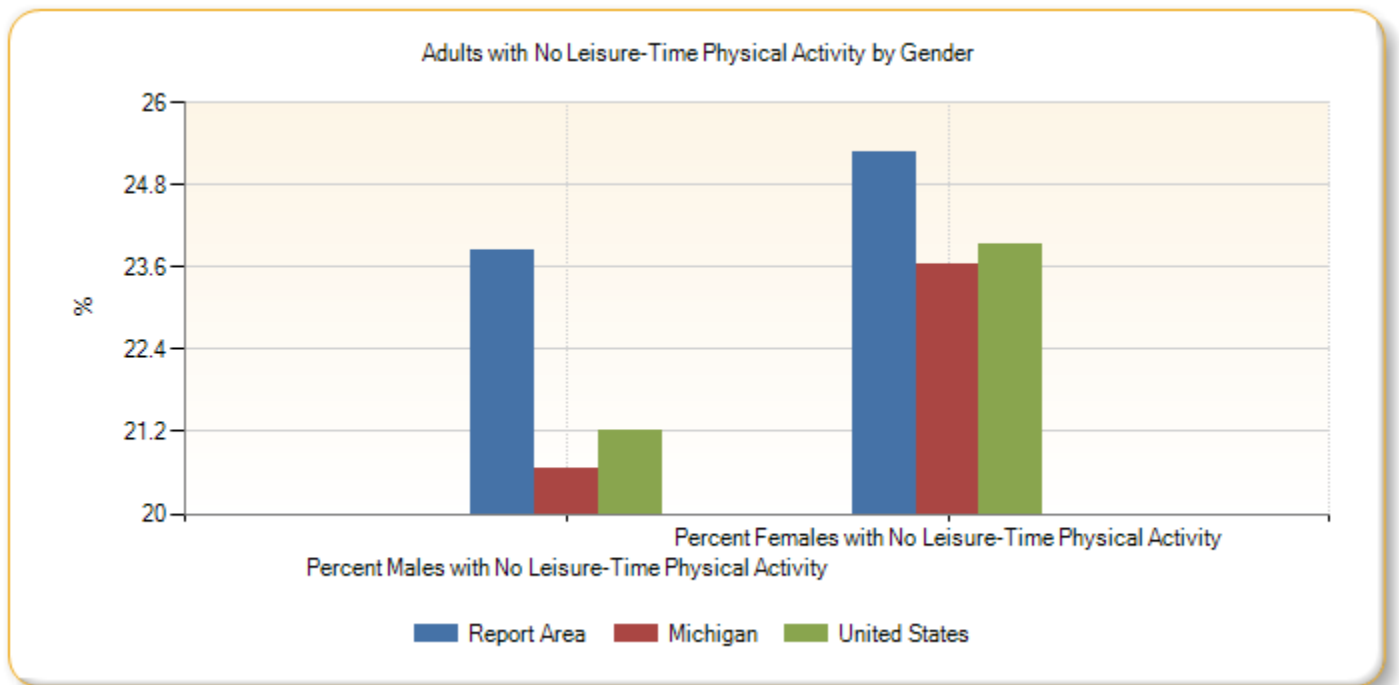
No Leisure-Time Physical Activity, Adults Age 20 ,  
Percent by County, CDC NCCDPHP 2012

- Over 29.0%
- 26.1 - 29.0%
- 23.1 - 26.0%
- Under 23.1%
- Report Area

## Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

### Adults with No Leisure-Time Physical Activity by Gender

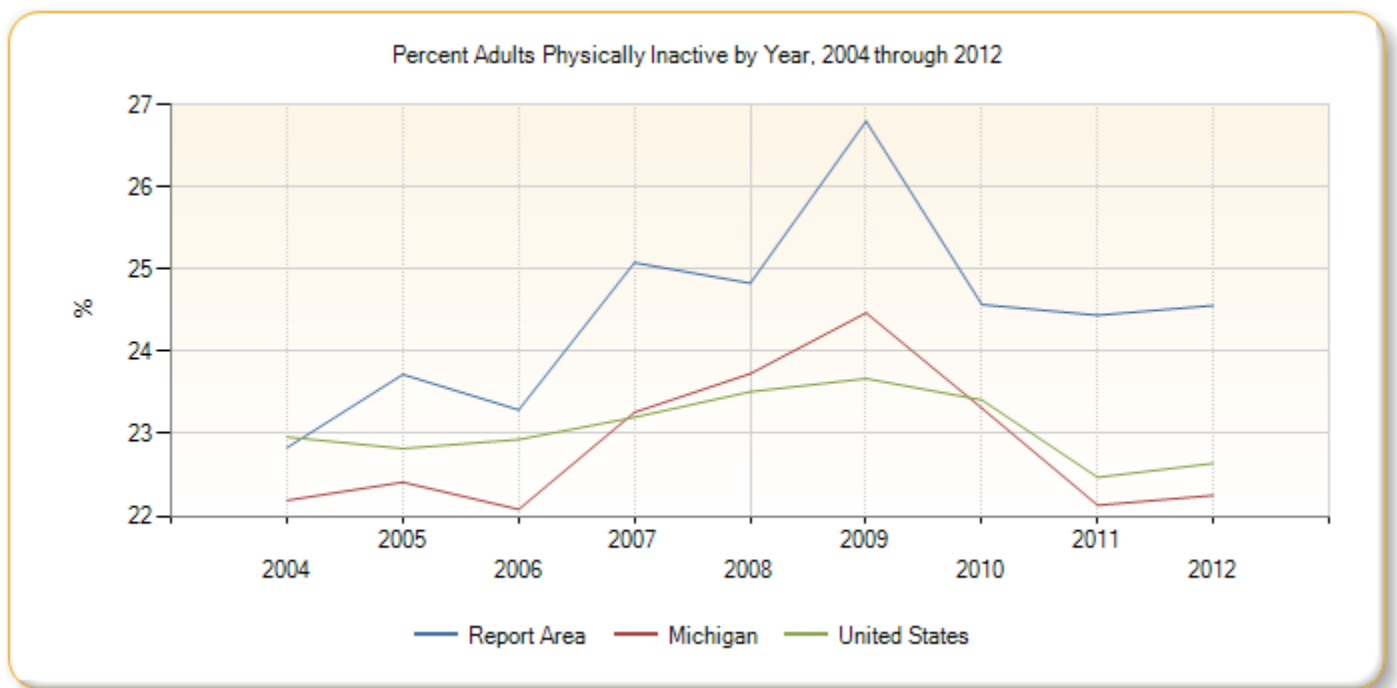
Report Area	Total Males with No Leisure-Time Physical Activity	Percent Males with No Leisure-Time Physical Activity	Total Females with No Leisure-Time Physical Activity	Percent Females with No Leisure-Time Physical Activity
Report Area	17,525	23.83%	19,423	25.26%
Arenac County, MI	1,428	21.9%	1,486	23%
Clare County, MI	3,418	27.8%	3,679	28.6%
Gladwin County, MI	2,983	28.3%	3,045	27.9%
Isabella County, MI	5,105	20.7%	6,158	23.4%
Osceola County, MI	2,318	26.2%	2,444	26.8%
Roscommon County, MI	2,273	21.3%	2,611	23.3%
Michigan	749,209	20.66%	923,853	23.64%
United States	24,071,561	21.2%	29,344,293	23.94%



## Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

### Percent Adults Physically Inactive by Year, 2004 through 2012

Report Area	2004	2005	2006	2007	2008	2009	2010	2011	2012
Report Area	22.83%	23.72%	23.29%	25.08%	24.83%	26.8%	24.57%	24.44%	24.56%
Arenac County, MI	20.8%	22.7%	21.1%	24%	22.6%	24%	22.5%	20.7%	22.4%
Clare County, MI	23.1%	23%	22.1%	24.7%	25.8%	30.4%	26.5%	28.2%	28.2%
Gladwin County, MI	24.5%	23.6%	23.9%	23.8%	25.1%	26.7%	28%	28.4%	28.1%
Isabella County, MI	22.2%	24.7%	23.9%	26%	24%	24.2%	20.8%	21.7%	22.1%
Osceola County, MI	23.5%	23.8%	22.7%	23.4%	24.2%	26.6%	27%	23.6%	26.5%
Roscommon County, MI	22.9%	23.2%	24.6%	26.8%	27.1%	30.3%	26.6%	25.3%	22.3%
Michigan	22.19%	22.41%	22.08%	23.26%	23.73%	24.47%	23.31%	22.13%	22.25%
United States	22.96%	22.82%	22.93%	23.2%	23.51%	23.67%	23.41%	22.47%	22.64%



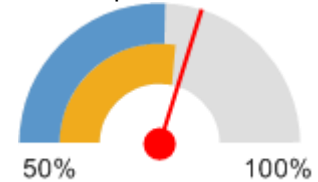
## Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

### Fruit/Vegetable Consumption

In the report area an estimated 96,009, or 79.77% of adults over the age of 18 are consuming less than 5 servings of fruits and vegetables each day. This indicator is relevant because current behaviors are determinants of future health and because unhealthy eating habits may cause significant health issues, such as obesity and diabetes.

Report Area	Total Population (Age 18 )	Total Adults with Inadequate Fruit / Vegetable Consumption	Percent Adults with Inadequate Fruit / Vegetable Consumption
Report Area	150,928	96,009	79.77%
Arenac County, MI	13,214	no data	suppressed
Clare County, MI	24,106	20,514	85.1%
Gladwin County, MI	20,933	18,547	88.6%
Isabella County, MI	54,472	39,547	72.6%
Osceola County, MI	17,363	no data	suppressed
Roscommon County, MI	20,840	17,401	83.5%
Michigan	7,600,237	5,912,984	77.8%
United States	227,279,010	171,972,118	75.67%

Percent Adults with Inadequate Fruit / Vegetable Consumption

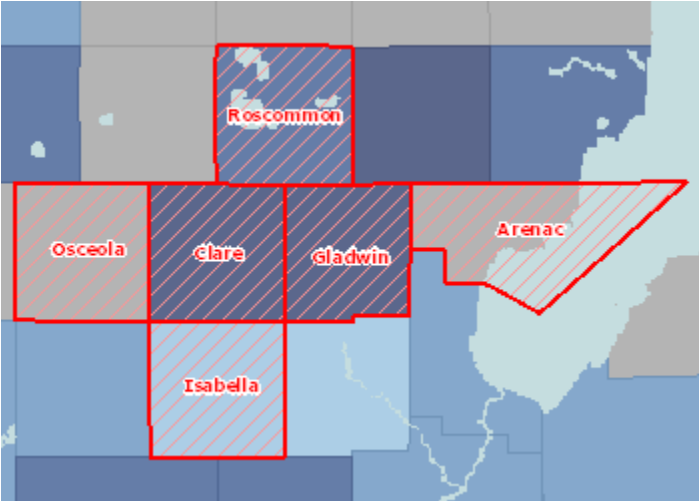


- Report Area (79.77%)
- Michigan (77.8%)
- United States (75.67%)

Data Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Accessed via the Health Indicators Warehouse. US Department of Health Human Services, Health Indicators Warehouse. 2005-09. Source geography: County



# Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data



Inadequate Fruit/Vegetable Consumption, Percent of Adults Age 18 by County, BRFSS 2005-09

- Over 85.0%
- 80.1 - 85.0%
- 75.1 - 80.0%
- Under 75.1%
- No Data or Data Suppressed
- Report Area

## Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

### Fruit/Vegetable Expenditures

This indicator reports estimated expenditures for fruits and vegetables purchased for in-home consumption, as a percentage of total household expenditures. This indicator is relevant because current behaviors are determinants of future health, and because unhealthy eating habits may illustrate a cause of significant health issues, such as obesity and diabetes.

Report Area	State Rank	Z-Score (US)	Z-Score (State)	Average Expenditures (USD)	Percentage of Food-At-Home Expenditures
Report Area	no data	-0.69	-0.4	\$652.55	11.66%
Arenac County, MI	38	-0.43	-0.11	suppressed	suppressed
Clare County, MI	44	-0.49	-0.17	suppressed	suppressed
Gladwin County, MI	27	-0.42	-0.1	suppressed	suppressed
Isabella County, MI	81	-1.18	-0.93	suppressed	suppressed
Osceola County, MI	57	-0.55	-0.24	suppressed	suppressed
Roscommon County, MI	12	-0.25	0.09	suppressed	suppressed
Michigan	no data	-0.26	0	\$698.78	12.21%
United States	no data	no data	no data	\$744.71	12.68%

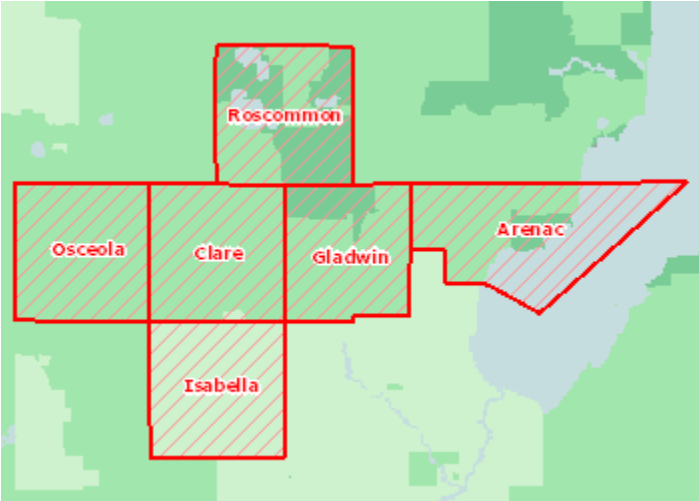
Fruit / Vegetable Expenditures, Percentage of Total Food-At-Home Expenditures



■ Report Area (11.66%)  
■ Michigan (12.21%)  
■ United States (12.68%)

Data Source: Nielsen, Nielsen SiteReports. 2014. Source geography: Tract

Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data



Fruit and Vegetable Expenditures, Percent of Food-At-Home Expenditures, National Rank by Tract, Nielsen 2014

- 1st Quintile (Highest Expenditures)
- 2nd Quintile
- 3rd Quintile
- 4th Quintile
- 5th Quintile (Lowest Expenditures)
- No Data or Data Suppressed
- Report Area

## Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

### Soda Expenditures

This indicator reports soft drink consumption by census tract by estimating expenditures for carbonated beverages, as a percentage of total household expenditures. This indicator is relevant because current behaviors are determinants of future health and this indicator may illustrate a cause of significant health issues such as diabetes and obesity.

Report Area	State Rank	Z-Score (US)	Z-Score (State)	Average Expenditures (USD)	Percentage of Food-At-Home Expenditures
Report Area	no data	1.19	0.98	\$267.12	4.77%
Arenac County, MI	26	0.89	0.63	suppressed	suppressed
Clare County, MI	20	0.98	0.75	suppressed	suppressed
Gladwin County, MI	33	0.84	0.57	suppressed	suppressed
Isabella County, MI	2	1.76	1.64	suppressed	suppressed
Osceola County, MI	33	0.84	0.57	suppressed	suppressed
Roscommon County, MI	55	0.75	0.48	suppressed	suppressed
Michigan	no data	0.38	0	\$245.33	4.29%
United States	no data	no data	no data	\$236.04	4.02%

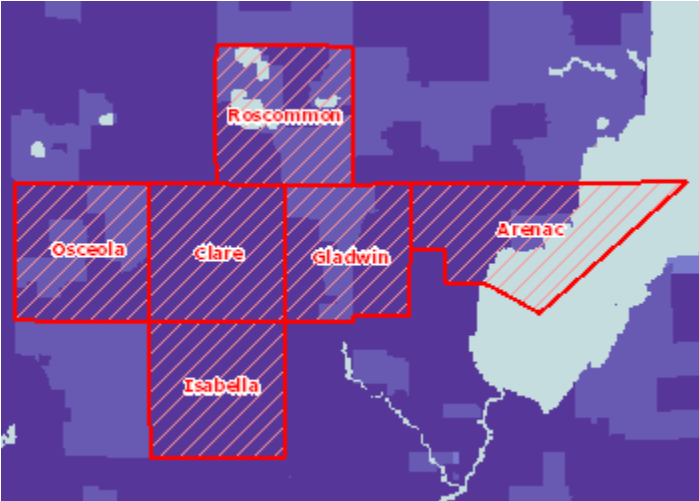
Soda Expenditures, Percentage of Total Food-At-Home Expenditures



- Report Area (4.77%)
- Michigan (4.29%)
- United States (4.02%)

Data Source: Nielsen, Nielsen SiteReports. 2014. Source geography: Tract

Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data



Soda Expenditures, Percent of Food-At-Home Expenditures, National Rank by Tract, Nielsen 2014

- 1st Quintile (Highest Expenditures)
- 2nd Quintile
- 3rd Quintile
- 4th Quintile
- 5th Quintile (Lowest Expenditures)
- No Data or Data Suppressed
- Report Area

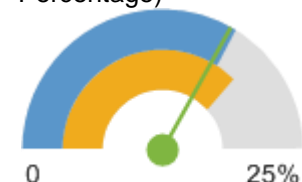
## Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

### Alcohol Consumption

This indicator reports the percentage of adults aged 18 and older who self-report heavy alcohol consumption (defined as more than two drinks per day on average for men and one drink per day on average for women). This indicator is relevant because current behaviors are determinants of future health and this indicator may illustrate a cause of significant health issues, such as cirrhosis, cancers, and untreated mental and behavioral health needs.

Report Area	Total Population Age 18	Estimated Adults Drinking Excessively	Estimated Adults Drinking Excessively (Crude Percentage)	Estimated Adults Drinking Excessively (Age-Adjusted Percentage)
Report Area	153,907	19,388	15.74%	16.57%
Arenac County, MI	12,955	no data	suppressed	suppressed
Clare County, MI	24,559	3,168	12.9%	13.2%
Gladwin County, MI	20,635	2,456	11.9%	13%
Isabella County, MI	57,305	9,283	16.2%	17.2%
Osceola County, MI	17,803	no data	suppressed	suppressed
Roscommon County, MI	20,650	4,481	21.7%	22.4%
Michigan	7,542,469	1,380,272	18.3%	18.9%
United States	232,556,016	38,248,349	16.45%	16.94%

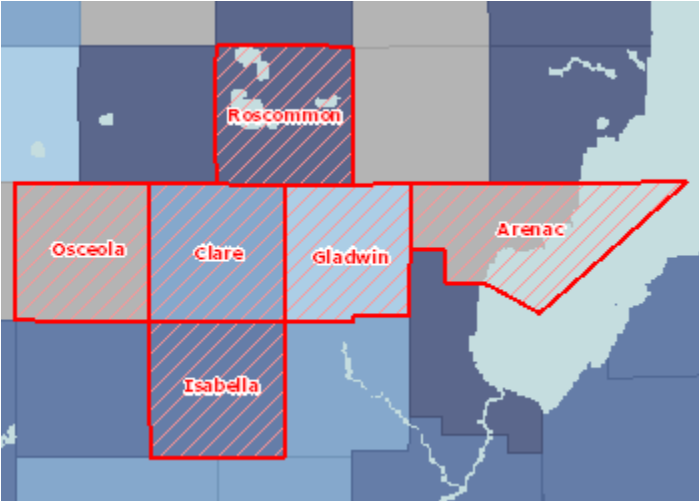
Estimated Adults Drinking Excessively (Age-Adjusted Percentage)



- Report Area (16.57%)
- Michigan (18.9%)
- United States (16.94%)

Data Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Accessed via the Health Indicators Warehouse. US Department of Health Human Services, Health Indicators Warehouse. 2006-12. Source geography: County

# Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data



Excessive Drinking, Percent of Adults Age 18 by County, BRFSS 2006-12

- Over 22.0%
- 18.1 - 22.0%
- 14.1 - 18.0%
- Under 14.1%
- No Data or Data Suppressed
- Report Area

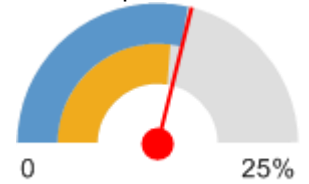
## Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

### Alcohol Expenditures

This indicator reports estimated expenditures for alcoholic beverages purchased at home, as a percentage of total household expenditures. This indicator is relevant because current behaviors are determinants of future health and this indicator may illustrate a cause of significant health issues, such as cirrhosis, cancers, and untreated mental and behavioral health needs.

Report Area	State Rank	Z-Score (US)	Z-Score (State)	Average Expenditures (USD)	Percentage of Food-At-Home Expenditures
Report Area	no data	0.17	0.5	\$810.71	14.48%
Arenac County, MI	49	0.07	0.39	suppressed	suppressed
Clare County, MI	63	-0.1	0.21	suppressed	suppressed
Gladwin County, MI	55	0.01	0.32	suppressed	suppressed
Isabella County, MI	16	0.41	0.75	suppressed	suppressed
Osceola County, MI	58	0	0.32	suppressed	suppressed
Roscommon County, MI	38	0.24	0.57	suppressed	suppressed
Michigan	no data	-0.13	0	\$778.69	13.61%
United States	no data	no data	no data	\$839.54	14.29%

Alcoholic Beverage Expenditures, Percentage of Total Food-At-Home Expenditures

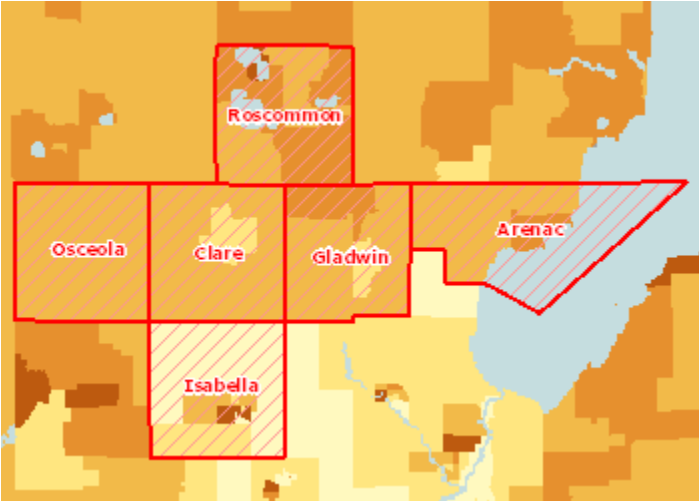


- Report Area (14.48%)
- Michigan (13.61%)
- United States (14.29%)

Data Source: Nielsen, Nielsen SiteReports. 2014. Source geography: Tract



Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data



Alcoholic Beverage Expenditures, Percent of Food-At-Home Expenditures, National Rank by Tract, Nielsen 2014

- 1st Quintile (Highest Expenditures)
- 2nd Quintile
- 3rd Quintile
- 4th Quintile
- 5th Quintile (Lowest Expenditures)
- No Data or Data Suppressed
- Report Area

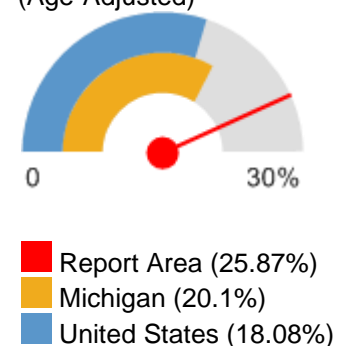
## Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

### Tobacco Usage - Current Smokers

In the report area an estimated 36,740, or 23.87% of adults age 18 or older self-report currently smoking cigarettes some days or every day. This indicator is relevant because tobacco use is linked to leading causes of death such as cancer and cardiovascular disease.

Report Area	Total Population Age 18	Total Adults Regularly Smoking Cigarettes	Percent Population Smoking Cigarettes (Crude)	Percent Population Smoking Cigarettes (Age-Adjusted)
Report Area	153,907	36,740	23.87%	25.87%
Arenac County, MI	12,955	4,081	31.5%	38.1%
Clare County, MI	24,559	6,434	26.2%	27.2%
Gladwin County, MI	20,635	5,737	27.8%	31.8%
Isabella County, MI	57,305	11,404	19.9%	21.2%
Osceola County, MI	17,803	3,756	21.1%	21.6%
Roscommon County, MI	20,650	5,328	25.8%	27.3%
Michigan	7,542,469	1,485,866	19.7%	20.1%
United States	232,556,016	41,491,223	17.84%	18.08%

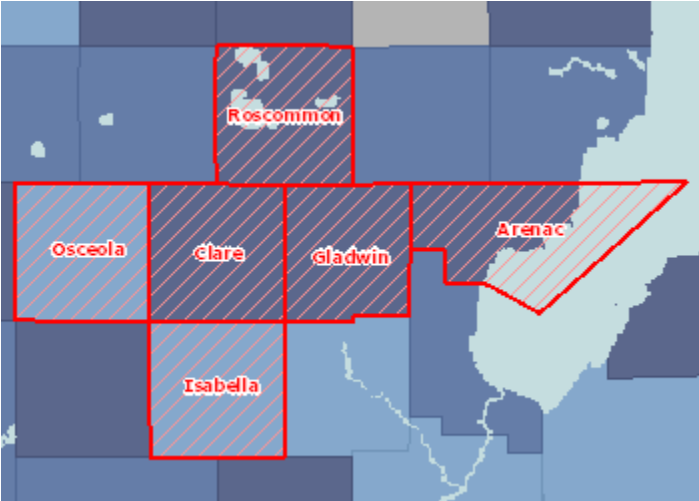
Percent Population Smoking Cigarettes (Age-Adjusted)



Data Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Accessed via the Health Indicators Warehouse. US Department of Health Human Services, Health Indicators Warehouse. 2006-12. Source geography: County

# Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

## Current Smokers, Adult, Percent of Adults Age 18 by County, BRFSS 2006-12



- Over 26.0%
- 22.1 - 26.0%
- 18.1 - 22.0%
- Under 18.1%
- No Data or Data Suppressed
- Report Area

## Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

### Tobacco Usage - Former or Current Smokers

In the report area, an estimated 93,673 adults, or 53.07%, report ever smoking 100 or more cigarettes. This indicator is relevant because tobacco use is linked to leading causes of death such as cancer and cardiovascular disease.

Report Area	Survey Population (Adults Age 18 )	Total Adults Ever Smoking 100 or More Cigarettes	Percent Adults Ever Smoking 100 or More Cigarettes
Report Area	176,518	93,673	53.07%
Arenac County, MI	18,216	11,769	64.61%
Clare County, MI	28,588	13,777	48.19%
Gladwin County, MI	28,544	18,789	65.82%
Isabella County, MI	58,579	25,073	42.80%
Osceola County, MI	23,842	11,767	49.35%
Roscommon County, MI	18,749	12,498	66.66%
Michigan	7,440,674	3,656,908	49.15%
United States	235,151,778	103,842,020	44.16%

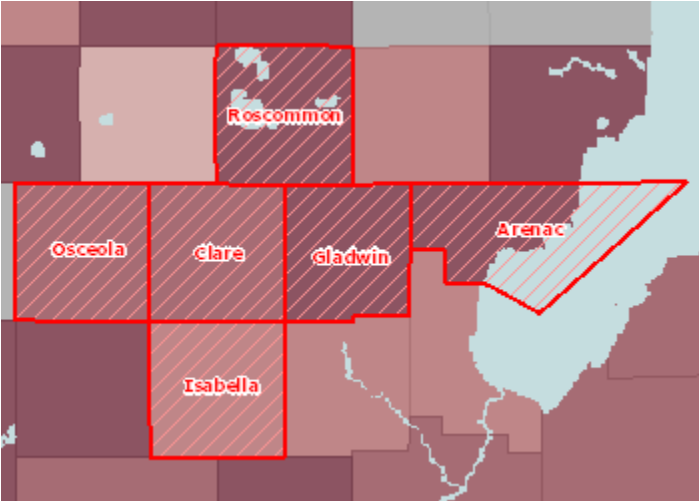
Percent Adults Ever Smoking 100 or More Cigarettes



- Report Area (53.07%)
- Michigan (49.15%)
- United States (44.16%)

Data Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Additional data analysis by CARES. 2011-12. Source geography: County

Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data



Adults Age 18 Smoking > 99 Cigarettes (Ever), Percent by County, BRFSS 2011-12

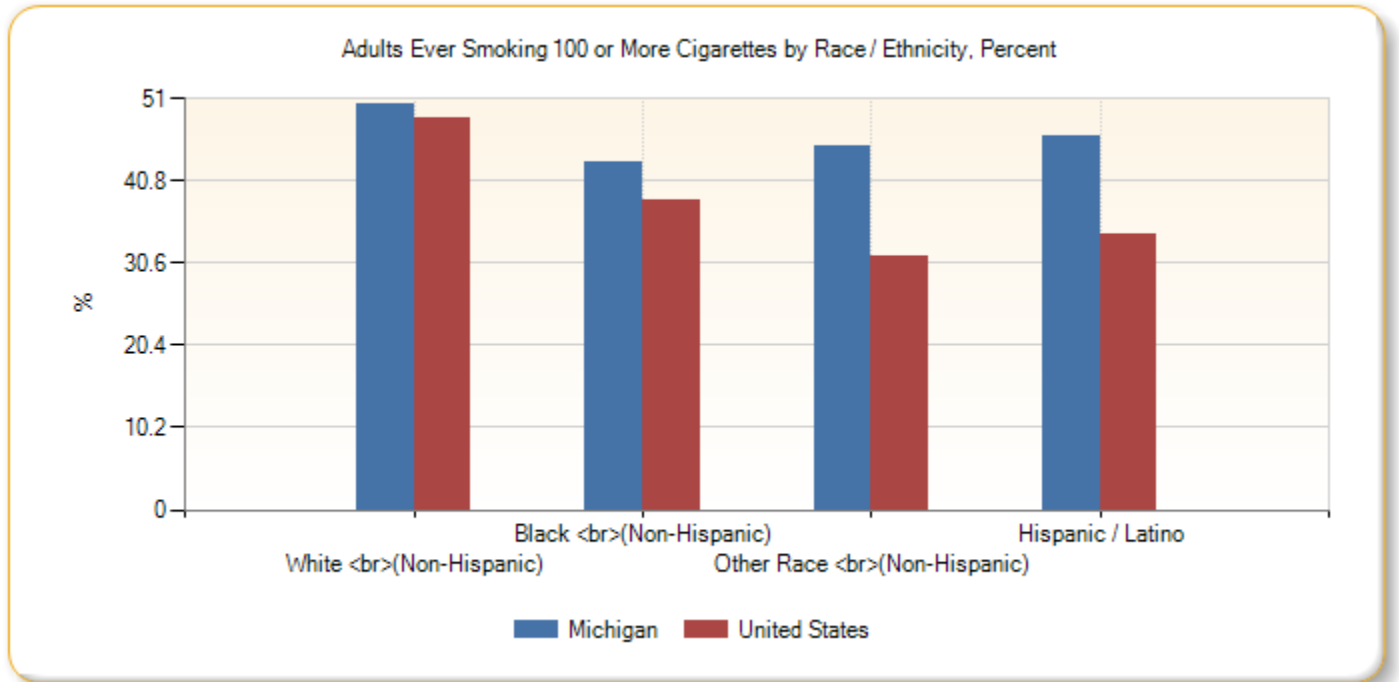
- Over 56.0%
- 48.1 - 56.0%
- 40.1 - 48.0%
- Under 40.1%
- No Data or Data Suppressed
- Report Area

## Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

### Adults Ever Smoking 100 or More Cigarettes by Race / Ethnicity, Percent

Report Area	White (Non-Hispanic)	Black (Non-Hispanic)	Other Race (Non-Hispanic)	Hispanic / Latino
Michigan	50.39%	43%	45.04%	46.27%
United States	48.52%	38.34%	31.3%	34.17%

*Note: No county data available. See FOOTNOTES for more details.*



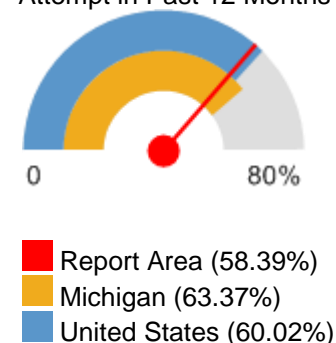
## Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

### Tobacco Usage - Quit Attempt

An estimated 58.39% of adult smokers in the report area attempted to quit smoking for at least 1 day in the past year. This indicator is relevant because tobacco use is linked to leading causes of death such as cancer and cardiovascular disease and supporting efforts to quit smoking may increase positive health outcomes.

Report Area	Survey Population (Smokers Age 18 )	Total Smokers with Quit Attempt in Past 12 Months	Percent Smokers with Quit Attempt in Past 12 Months
Report Area	38,780	22,642	58.39%
Arenac County, MI	7,865	6,561	83.43%
Clare County, MI	4,664	2,102	45.07%
Gladwin County, MI	7,400	2,579	34.86%
Isabella County, MI	11,626	8,278	71.21%
Osceola County, MI	2,960	396	13.36%
Roscommon County, MI	4,265	2,726	63.90%
Michigan	1,737,501	1,100,989	63.37%
United States	45,526,654	27,323,073	60.02%

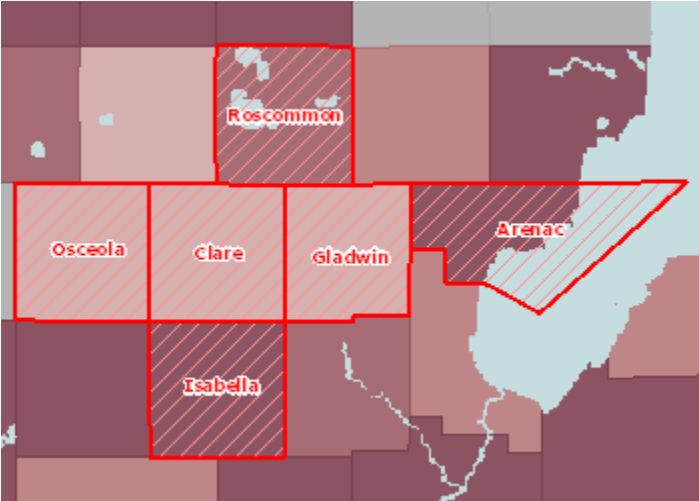
Percent Smokers with Quit Attempt in Past 12 Months



Data Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Additional data analysis by CARES. 2011-12. Source geography: County

# Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

## Smokers Who Quit / Attempted to Quit in Past 12 Months, Percent by County, BRFSS 2011-12



- Over 64.0%
- 58.1 - 64.0%
- 52.1 - 58.0%
- Under 52.1%
- No Data or Data Suppressed
- Report Area

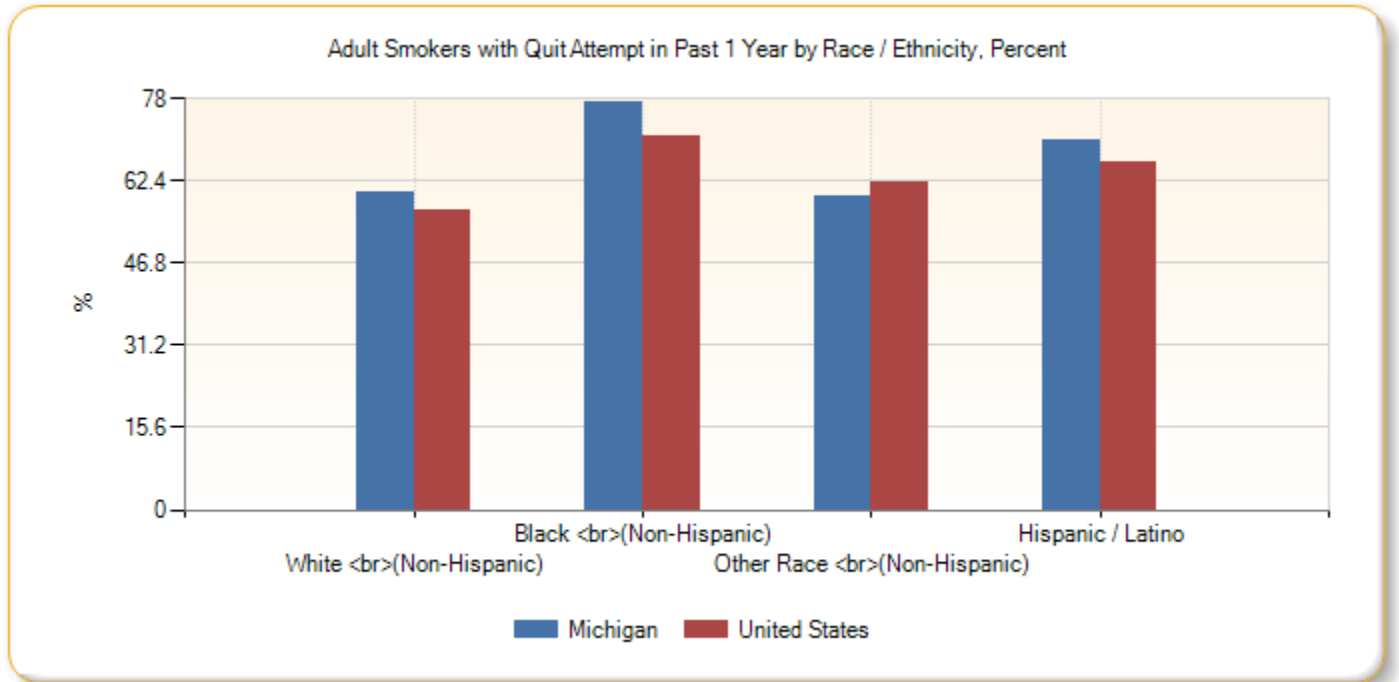


## Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

### Adult Smokers with Quit Attempt in Past 1 Year by Race / Ethnicity, Percent

Report Area	White (Non-Hispanic)	Black (Non-Hispanic)	Other Race (Non-Hispanic)	Hispanic / Latino
Michigan	60.27%	77.29%	59.42%	70.01%
United States	56.63%	70.87%	62.26%	65.83%

*Note: No county data available. See FOOTNOTES for more details.*



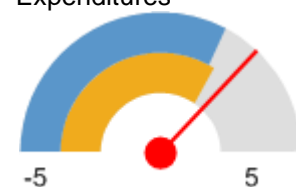
## Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data

### Tobacco Expenditures

This indicator reports estimated expenditures for cigarettes, as a percentage of total household expenditures. This indicator is relevant because tobacco use is linked to leading causes of death such as cancer and cardiovascular disease.

Report Area	State Rank	Z-Score (US)	Z-Score (State)	Average Expenditures (USD)	Percentage of Food-At-Home Expenditures
Report Area	no data	1.16	0.84	\$1,084.13	2.39%
Arenac County, MI	6	1.39	1.09	suppressed	suppressed
Clare County, MI	2	1.57	1.29	suppressed	suppressed
Gladwin County, MI	10	1.32	1.01	suppressed	suppressed
Isabella County, MI	45	0.85	0.5	suppressed	suppressed
Osceola County, MI	13	1.2	0.88	suppressed	suppressed
Roscommon County, MI	12	1.27	0.96	suppressed	suppressed
Michigan	no data	0.2	0	\$905.27	1.83%
United States	no data	no data	no data	\$822.7	1.56%

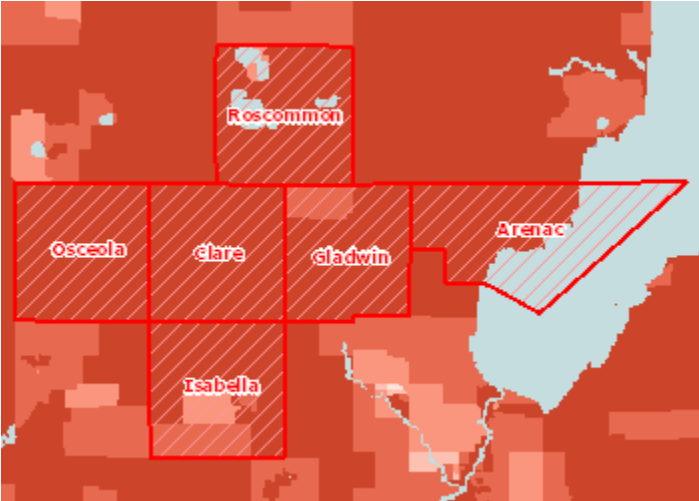
Cigarette Expenditures, Percentage of Total Household Expenditures



- Report Area (2.39)
- Michigan (1.83)
- United States (1.56)

Data Source: Nielsen, Nielsen SiteReports. 2014. Source geography: Tract

Central Michigan Region Health Indicators Report - Part Five: Health Behavior Data



Cigarette Expenditures, Percent of Total Expenditures, National Rank by Tract, Nielsen 2014

- 1st Quintile (Highest Expenditures)
- 2nd Quintile
- 3rd Quintile
- 4th Quintile
- 5th Quintile (Lowest Expenditures)
- No Data or Data Suppressed
- ▨ Report Area