

**Estimates for Selected Risk Factors and Health Indicators  
by Emergency Preparedness Region**

**State of Michigan**

**Michigan Behavioral Risk Factor Surveillance System  
(Michigan BRFSS)**

**2017-2019**

Lifecourse Epidemiology and Genomics Division  
Bureau of Epidemiology and Population Health  
Michigan Department of Health and Human Services

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## Introduction

The Michigan Behavioral Risk Factor Survey (MiBRFS) is an annual, statewide telephone survey of Michigan adults aged 18 years and older that is conducted through a collaborative effort among the Population Health Surveillance Branch (PHSB) of the Centers for Disease Control and Prevention (CDC), the Michigan State University Institute for Public Policy and Social Research (IPPSR), and the Michigan Department of Health and Human Services. Michigan BRFSS data contribute to the national [Behavioral Risk Factor Surveillance System](#) that is managed by the PHSB at the CDC.

For this report, data from the 2017-2019 Michigan BRFSS were combined. The total sample sizes by year were: 10,889 in 2017, 10,322 in 2018, and 10,518 in 2019. Not all questions were included annually in the survey. The table subtitles indicate which years were used for that particular analysis.

For the 2017 through 2019 Michigan Behavioral Risk Factor Surveys, the sample of land line telephone numbers that were utilized for data collection was selected using a list-assisted, random-digit-dialed methodology with a disproportionate stratification based on phone bank density, and whether or not the phone numbers were directory listed. The sample of cell phone numbers used within each survey year was randomly selected from dedicated cellular telephone banks sorted on the basis of area code and exchange within the State of Michigan.

Iterative proportional fitting or raking was the weighting methodology used to make the 2017-2019 Michigan BRFSS data representative of the current Michigan adult population. Estimates based on this methodology were weighted to adjust for the probabilities of selection and a raking adjustment factor that adjusted for the distribution of Michigan adults by telephone source (land line vs. cell phone), detailed race/ethnicity, education level, marital status, age by gender, gender by race/ethnicity, age by race/ethnicity, and renter/owner status. No additional weighting factors were computed at the regional level, thus the weights used might not always provide accurate regional estimates, particularly when regional demographic distributions vary greatly from that of the state.

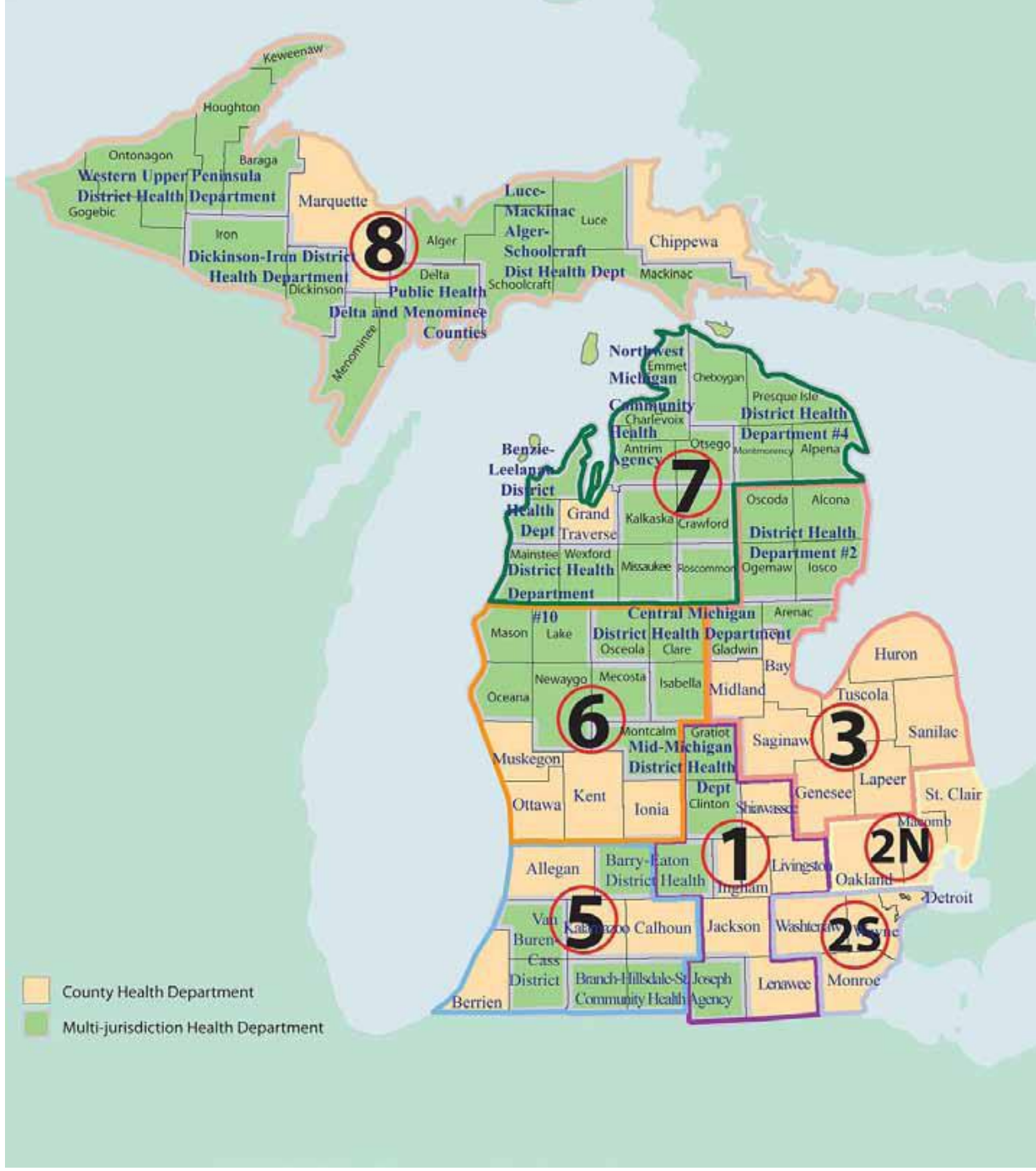
In 2019, Michigan BRFSS data from 2017-2019 were analyzed by Michigan Emergency Preparedness (EP) region. A map identifying each of Michigan's eight emergency preparedness regions is included on the following page. Population-based prevalence estimates and asymmetric confidence intervals were calculated for indicators of health status, health risk behaviors, clinical preventive practices, and chronic conditions among the adult population in Michigan. All analyses were performed in SAS-Callable SUDAAN®, a statistical computing that is designed for complex sample surveys.

In an effort to provide the most reliable information possible, prevalence estimates are suppressed if they are based on a denominator of less than 50 respondents or have a relative standard error of greater than 30%.

Due to the BRFSS methodology changes that took place in 2011, the estimates provided within the following tables should not be compared to Michigan BRFSS estimates from years prior to 2011. Methodology changes also took place in 2017 for Fruit and Vegetable Consumption; therefore, these variables were excluded from multi-year analysis.

If you have any questions regarding any of the estimates within the following tables, please contact Yan Tian at [TianY@michigan.gov](mailto:TianY@michigan.gov).

## Local Health Jurisdictions, Emergency Preparedness Regions and Michigan Counties



<b>Table 1: Health Status by EP Region Michigan BRFSS, 2017-2019 Combined</b>		
	<b>General Health, Fair or Poor<sup>a</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>18.9</b>	<b>(18.3-19.5)</b>
<b>EP Region</b>		
Region 1	16.3	(14.9-17.8)
Region 2N	17.1	(15.8-18.4)
Region 2S	21.3	(20.0-22.7)
Region 3	21.4	(19.7-23.3)
Region 5	19.0	(17.0-21.1)
Region 6	17.7	(16.3-19.2)
Region 7	20.7	(18.4-23.2)
Region 8	20.8	(17.6-24.3)
<sup>a</sup> Among all adults, the proportion who reported that their health, in general, was either fair or poor. (N = 31,669)		

Due to significant BRFSS methodology changes that took place in 2011, the estimates within these tables should not be compared to Michigan BRFSS estimates from prior to 2011.

<b>Table 2: Health Status on at Least 14 Days in the Past Month by EP Region Michigan BRFSS, 2017-2019 Combined</b>						
	<b>Poor Physical Health<sup>a</sup></b>		<b>Poor Mental Health<sup>b</sup></b>		<b>Activity Limitation<sup>c</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>	<b>%</b>	<b>95% Confidence Interval</b>	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>14.3</b>	<b>(13.8-14.9)</b>	<b>14.7</b>	<b>(14.2-15.3)</b>	<b>10.3</b>	<b>(9.9-10.8)</b>
<b>EP Region</b>						
Region 1	13.6	(12.3-15.0)	14.6	(13.3-16.1)	10.1	(9.0-11.4)
Region 2N	13.3	(12.2-14.4)	13.3	(12.2-14.6)	9.7	(8.8-10.8)
Region 2S	14.6	(13.5-15.8)	16.0	(14.8-17.3)	11.2	(10.2-12.3)
Region 3	15.4	(14.0-16.9)	15.9	(14.3-17.7)	10.8	(9.6-12.1)
Region 5	15.0	(13.2-17.0)	16.5	(14.6-18.6)	10.4	(8.9-12.1)
Region 6	14.1	(12.9-15.5)	13.8	(12.6-15.2)	9.4	(8.4-10.5)
Region 7	16.2	(14.2-18.5)	13.7	(11.8-15.8)	11.0	(9.2-13.1)
Region 8	17.9	(14.8-21.4)	12.8	(10.2-15.9)	13.3	(10.5-16.7)
<sup>a</sup> Among all adults, the proportion who reported 14 or more days of poor physical health, which includes physical illness and injury, during the past 30 days. (N = 31,201) <sup>b</sup> Among all adults, the proportion who reported 14 or more days of poor mental health, which includes stress, depression, and problems with emotions, during the past 30 days. (N = 31,268) <sup>c</sup> Among all adults, the proportion who reported 14 or more days in the past 30 days in which either poor physical health or poor mental health kept respondents from doing their usual activities, such as self-care, work, and recreation. (N = 31,434)						

**Table 3: Mean Number of Days of Poor Physical Health, Poor Mental Health, and Activity Limitations by EP Region**  
Michigan BRFSS, 2017-2019 Combined

	Poor Physical Health <sup>a</sup>		Poor Mental Health <sup>b</sup>		Activity Limitation <sup>c</sup>	
	Mean # of days	95% Confidence Interval	Mean # of days	95% Confidence Interval	Mean # of days	95% Confidence Interval
<b>Michigan Total</b>	<b>4.5</b>	<b>(4.4-4.7)</b>	<b>4.6</b>	<b>(4.5-4.7)</b>	<b>3.1</b>	<b>(3.0-3.3)</b>
<b>EP Region</b>						
Region 1	4.3	(3.9-4.6)	4.6	(4.3-4.9)	3.1	(2.8-3.3)
Region 2N	4.2	(3.9-4.5)	4.3	(4.0-4.5)	3	(2.7-3.3)
Region 2S	4.7	(4.4-4.9)	5	(4.7-5.3)	3.4	(3.1-3.7)
Region 3	5	(4.6-5.3)	4.8	(4.4-5.3)	3.3	(3.0-3.6)
Region 5	4.7	(4.3-5.2)	5.1	(4.6-5.6)	3.2	(2.8-3.6)
Region 6	4.4	(4.1-4.8)	4.4	(4.1-4.7)	2.9	(2.6-3.2)
Region 7	5.2	(4.6-5.8)	4.3	(3.8-4.8)	3.3	(2.8-3.8)
Region 8	5.4	(4.5-6.3)	4.2	(3.4-4.9)	3.8	(3.0-4.5)

<sup>a</sup> Among all adults, the mean number of days during the past 30 days in which physical health, including illness and injury, was not good. (N = 31,201)

<sup>b</sup> Among all adults, the mean number of days during the past 30 days in which mental health, including stress, depression, and problems with emotions, was not good. (N = 31,268)

<sup>c</sup> Among all adults, the mean number of days during the past 30 days in which poor physical health or poor mental health kept respondent from doing their usual activities, such as self-care, work, and recreation. (N = 31,434)

<b>Table 4: Disability by EP Region Michigan BRFSS, 2017 and 2018 Combined</b>						
	<b>Total Disability<sup>a</sup></b>		<b>Any Activity Limitation<sup>b</sup></b>		<b>Used Special Equipment<sup>c</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>	<b>%</b>	<b>95% Confidence Interval</b>	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>27.3</b>	<b>(26.6-28.1)</b>	<b>24.4</b>	<b>(23.7-25.2)</b>	<b>11.6</b>	<b>(11.1-12.2)</b>
<b>EP Region</b>						
Region 1	24.4	(22.5-26.5)	21.8	(19.9-23.7)	9.3	(8.1-10.7)
Region 2N	25.4	(23.7-27.2)	22.6	(21.0-24.3)	11.1	(9.9-12.4)
Region 2S	29.4	(27.7-31.2)	25.4	(23.7-27.1)	14.7	(13.4-16.1)
Region 3	29.7	(27.4-32.1)	27.1	(24.8-29.4)	11.7	(10.2-13.4)
Region 5	29.9	(27.2-32.6)	26.9	(24.3-29.6)	11.3	(9.6-13.3)
Region 6	24.8	(23.0-26.8)	22.8	(21.0-24.7)	9.9	(8.7-11.3)
Region 7	27.6	(24.7-30.7)	24.9	(22.2-27.9)	10.0	(8.2-12.1)
Region 8	33.4	(28.7-38.5)	31.0	(26.3-36.1)	13.8	(10.7-17.8)

<sup>a</sup> Among all adults, the proportion who reported being limited in any activities because of physical, mental, or emotional problems, or reported that they required use of special equipment (such as a cane, a wheelchair, a special bed, or a special telephone) due to a health problem. (N = 20,100)

<sup>b</sup> Among all adults, the proportion who reported being limited in any activities because of physical, mental, or emotional problems. (N = 20,115)

<sup>c</sup> Among all adults, the proportion who reported that they required use of special equipment (such as a can, a wheelchair, a special bed, or a special telephone) due to a health problem. (N = 20,177)



**Table 5: Weight Status by EP Region**  
**Michigan BRFSS, 2017-2019 Combined**

	Obese <sup>a</sup>		Overweight <sup>b</sup>		Healthy Weight <sup>c</sup>		Underweight <sup>d</sup>	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval
<b>Michigan Total</b>	<b>33.8</b>	<b>(33.1-34.5)</b>	<b>34.6</b>	<b>(33.9-35.3)</b>	<b>29.8</b>	<b>(29.1-30.5)</b>	<b>1.9</b>	<b>(1.6-2.1)</b>
<b>EP Region</b>								
Region 1	34.6	(32.7-36.5)	35.4	(33.5-37.4)	28.4	(26.7-30.3)	1.6	(1.1-2.1)
Region 2N	29.6	(28.1-31.1)	37.1	(35.5-38.7)	31.6	(30.1-33.2)	1.7	(1.3-2.3)
Region 2S	35.4	(33.8-37.0)	33.0	(31.4-34.6)	29.8	(28.3-31.3)	1.9	(1.4-2.4)
Region 3	38.4	(36.3-40.5)	33.8	(31.8-35.9)	25.9	(24.0-27.8)	1.9	(1.3-2.7)
Region 5	34.0	(31.6-36.5)	34.3	(31.9-36.7)	29.6	(27.3-32.0)	2.1	(1.4-3.1)
Region 6	34.5	(32.7-36.4)	33.1	(31.3-34.9)	31.1	(29.3-32.9)	1.3	(0.9-1.9)
Region 7	34.4	(31.6-37.2)	34.2	(31.6-36.8)	29.0	(26.3-31.8)	2.5	(1.7-3.8)
Region 8	35.7	(31.6-40.0)	36.0	(31.9-40.4)	25.7	(22.0-29.8)	2.6	(1.5-4.4)

Note: BMI, body mass index, is defined as weight (in kilograms) divided by height (in meters) squared [weight in kg/(height in meters)<sup>2</sup>]. Weight and height were self-reported. Pregnant women were excluded. (N = 29,575)

<sup>a</sup> Among all adults, the proportion of respondents whose BMI was greater than or equal to 30.0.

<sup>b</sup> Among all adults, the proportion of respondents whose BMI was greater than or equal to 25.0, but less than 30.0.

<sup>c</sup> Among all adults, the proportion of respondents whose BMI was greater than or equal to 18.5, but less than 25.0.

<sup>d</sup> Among all adults, the proportion of respondents whose BMI was less than 18.5.

<b>Table 6: Health Care Coverage Among Adults 18-64 Years Old by EP Region Michigan BRFSS, 2017-2019 Combined</b>		
	<b>No Health Care Coverage<sup>a</sup> (Among 18 - 64 year olds)</b>	
	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>10.0</b>	<b>(9.4-10.5)</b>
<b>EP Region</b>		
Region 1	10.2	(8.8-11.8)
Region 2N	7.2	(6.2-8.4)
Region 2S	9.4	(8.3-10.7)
Region 3	10.8	(9.2-12.6)
Region 5	11.7	(9.8-14.0)
Region 6	11.0	(9.5-12.7)
Region 7	11.7	(9.4-14.4)
Region 8	12.3	(9.0-16.6)
<sup>a</sup> Among adults aged 18-64 years, the proportion who reported having no health care coverage, including health insurance, prepaid plans such as HMOs, or government plans, such as Medicare or Indian Health Services. (N = 20,331)		

<b>Table 7: Health Care Access by EP Region</b> <b>Michigan BRFSS, 2017-2019 Combined</b>				
	<b>No Personal Health Care Provider<sup>a</sup></b>		<b>No Health Care Access During Past 12 Months Due to Cost<sup>b</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>14.8</b>	<b>(14.3-15.4)</b>	<b>11.6</b>	<b>(11.2-12.1)</b>
<b>EP Region</b>				
Region 1	16.1	(14.6-17.7)	10.3	(9.1-11.6)
Region 2N	12.4	(11.2-13.6)	11.5	(10.5-12.7)
Region 2S	15.4	(14.2-16.8)	13.3	(12.2-14.5)
Region 3	15.2	(13.6-17.1)	10.7	(9.4-12.2)
Region 5	16.9	(14.9-19.1)	11.1	(9.6-12.8)
Region 6	12.1	(10.7-13.6)	11.7	(10.5-13.0)
Region 7	14.0	(12.1-16.1)	11.8	(10.0-13.8)
Region 8	12.4	(9.8-15.5)	11.0	(8.6-14.1)
<sup>a</sup> Among all adults, the proportion who reported that they did not have anyone that they thought of as their personal doctor or health care provider. (N = 31,539) <sup>b</sup> Among all adults, the proportion who reported that in the past 12 months, they could not see a doctor when they needed to due to the cost. (N = 31,653)				

<b>Table 8: No Leisure Time Physical Activity by EP Region Michigan BRFSS, 2017-2019 Combined</b>		
	<b>No Leisure Time Physical Activity<sup>a</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>25.5</b>	<b>(24.8-26.1)</b>
<b>EP Region</b>		
Region 1	75.0	(73.2-76.6)
Region 2N	76.7	(75.3-78.1)
Region 2S	73.5	(72.0-74.9)
Region 3	71.2	(69.1-73.1)
Region 5	73.0	(70.7-75.2)
Region 6	76.2	(74.5-77.8)
Region 7	72.0	(69.2-74.6)
Region 8	73.3	(69.3-77.0)

<sup>a</sup> Among all adults, the proportion who reported not participating in any leisure time physical activities or exercises such as running, calisthenics, golf, gardening, or walking during the past month. (N = 30,795)

	<b>Adequate Aerobic Physical Activity (≥ 150 minutes / week)<sup>a</sup></b>		<b>Adequate Muscle Strengthening (≥ 2 days / week)<sup>b</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>50.3</b>	<b>(49.4-51.2)</b>	<b>32.7</b>	<b>(31.9-33.6)</b>
<b>EP Region</b>				
Region 1	51.3	(48.9-53.8)	34.0	(31.7-36.4)
Region 2N	51.8	(49.7-53.8)	33.9	(32.0-35.8)
Region 2S	48.7	(46.7-50.8)	33.9	(31.9-35.9)
Region 3	47.7	(45.0-50.4)	29.1	(26.8-31.6)
Region 5	51.8	(48.6-55.0)	30.5	(27.7-33.5)
Region 6	51.2	(48.8-53.6)	32.8	(30.6-35.1)
Region 7	49.1	(45.5-52.7)	31.5	(28.2-34.9)
Region 8	53.1	(47.6-58.5)	29.3	(24.8-34.3)

<sup>a</sup> Among all adults, the proportion who reported that they do either moderate physical activities for at least 150 minutes per week, vigorous physical activities for at least 75 minutes per week, or an equivalent combination of moderate and vigorous physical activities. (N = 19,643)

<sup>b</sup> Among all adults, the proportion who reported that they do muscle strengthening activities on two or more days per week. (N = 19,987)

<b>Table 10: Adequate Physical Activity by EP Region Michigan BRFSS, 2017 and 2019 Combined</b>		
	<b>Adequate Physical Activity<sup>a</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>21.3</b>	<b>(20.5-22.0)</b>
<b>EP Region</b>		
Region 1	22.1	(20.1-24.2)
Region 2N	22.3	(20.6-24.0)
Region 2S	21.6	(19.9-23.4)
Region 3	18.8	(16.9-21.0)
Region 5	21.8	(19.2-24.7)
Region 6	21.1	(19.2-23.2)
Region 7	20.5	(17.8-23.5)
Region 8	20.4	(16.4-25.1)
<sup>a</sup> Among all adults, the proportion who reported that they do either moderate physical activities for at least 150 minutes per week, vigorous physical activities for at least 75 minutes per week, or an equivalent combination of moderate and vigorous physical activities <b>and</b> also participate in muscle strengthening activities on two or more days per week. (N = 19,301)		

**Table 11: Cigarette Smoking by EP Region**  
**Michigan BRFSS, 2017-2019 Combined**

	Current Smoking <sup>a</sup>		Former Smoking <sup>b</sup>		Never Smoked	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval
<b>Michigan Total</b>	<b>19.0</b>	<b>(18.4-19.6)</b>	<b>26.6</b>	<b>(26.0-27.2)</b>	<b>54.4</b>	<b>(53.7-55.2)</b>
<b>EP Region</b>						
Region 1	18.2	(16.7-19.9)	27.8	(26.2-29.6)	54.0	(52.0-55.9)
Region 2N	16.4	(15.1-17.7)	27.9	(26.5-29.4)	55.7	(54.1-57.4)
Region 2S	20.1	(18.7-21.5)	22.9	(21.6-24.3)	57.0	(55.4-58.6)
Region 3	22.4	(20.5-24.4)	28.4	(26.5-30.2)	49.3	(47.1-51.4)
Region 5	19.7	(17.7-22.0)	26.6	(24.5-28.8)	53.7	(51.1-56.2)
Region 6	18.9	(17.4-20.5)	27.0	(25.5-28.7)	54.1	(52.2-55.9)
Region 7	21.6	(19.2-24.2)	33.1	(30.5-35.7)	45.3	(42.5-48.1)
Region 8	21.1	(17.7-24.9)	29.9	(26.2-33.9)	49.0	(44.7-53.3)

<sup>a</sup> Among all adults, the proportion who reported that they had ever smoked at least 100 cigarettes (5 packs) in their life and that they smoke cigarettes now, either every day or on some days. (N = 30,633)

<sup>b</sup> Among all adults, the proportion who reported that they had ever smoked at least 100 cigarettes (5 packs) in their life, but they do not smoke cigarettes now. (N = 30,633)

<b>Table 12: Current Smokers Who Attempted to Quit by EP Region Michigan BRFSS, 2017-2019 Combined</b>		
	<b>Tried to Quit Smoking One Day or Longer in Past Year<sup>a</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>59.3</b>	<b>(57.5-61.1)</b>
<b>EP Region</b>		
Region 1	43.5	(38.6-48.6)
Region 2N	36.5	(32.5-40.8)
Region 2S	35.7	(32.0-39.5)
Region 3	42.4	(37.5-47.4)
Region 5	46.4	(40.4-52.5)
Region 6	43.3	(38.6-48.1)
Region 7	46.5	(39.9-53.2)
Region 8	37.5	(28.8-47.2)

<sup>a</sup> Among current smokers, the proportion who reported that during the past 12 months, they had tried to quit smoking for one day or longer. (N = 4,850)



<b>Table 13: E-Cigarette Use</b> <b>Michigan BRFSS, 2017-2019 Combined</b>		
	<b>Current E-Cigarette Use<sup>a</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>5.7</b>	<b>(5.3-6.2)</b>
<b>EP Region</b>		
Region 1	6.1	(5.0-7.3)
Region 2N	5.9	(4.9-7.0)
Region 2S	5.4	(4.6-6.4)
Region 3	6.1	(4.9-7.6)
Region 5	7.4	(5.8-9.5)
Region 6	4.7	(3.8-5.8)
Region 7	3.5	(2.4-4.9)
Region 8	6.4	(3.7-10.9)

<sup>a</sup> Among all adults, the proportion who reported that they currently use e-cigarettes or other electronic vaping products, either every day or on some days. (N = 22,986)

<b>Table 14: Current Hookah Use by EP Region Michigan BRFSS, 2017-2019 Combined</b>		
	<b>Current Hookah Use<sup>a</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>3.2</b>	<b>(2.9-3.6)</b>
<b>EP Region</b>		
Region 1	3.0	(2.2-4.2)
Region 2N	3.7	(2.8-4.7)
Region 2S	4.1	(3.3-5.0)
Region 3	1.9	(1.3-2.8)
Region 5	2.8	(1.9-4.0)
Region 6	3.1	(2.3-4.2)
Region 7	2.5	(1.4-4.5)
Region 8	1.4	(0.7-2.8)

<sup>a</sup> Among all adults, the proportion who reported smoking tobacco using a hookah, narghile, or water pipe on one or more days during the previous thirty day. (N = 18,966)

**Table 15: Alcohol Consumption by EP Region**  
Michigan BRFSS, 2017-2019 Combined

	Any Alcohol in Past Month <sup>a</sup>		Heavy Drinking <sup>b</sup>		Binge Drinking <sup>c</sup>	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval
<b>Michigan Total</b>	<b>56.8</b>	<b>(56.0-57.5)</b>	<b>6.5</b>	<b>(6.1-6.8)</b>	<b>18.1</b>	<b>(17.5-18.7)</b>
<b>EP Region</b>						
Region 1	57.8	(55.8-59.7)	6.2	(5.3-7.2)	18.6	(17.1-20.3)
Region 2N	60.8	(59.1-62.4)	6.2	(5.4-7.1)	19.2	(17.9-20.6)
Region 2S	55.8	(54.2-57.5)	6.1	(5.4-7.0)	17.5	(16.2-18.9)
Region 3	53.0	(50.9-55.2)	5.5	(4.7-6.5)	17.1	(15.5-18.8)
Region 5	53.0	(50.5-55.5)	6.2	(5.1-7.5)	15.9	(14.1-17.8)
Region 6	57.1	(55.2-58.9)	7.1	(6.3-8.1)	18.8	(17.4-20.4)
Region 7	55.4	(52.5-58.2)	7.5	(6.2-9.1)	16.2	(14.3-18.4)
Region 8	56.1	(51.7-60.3)	10.0	(7.5-13.1)	20.6	(17.1-24.6)

<sup>a</sup> Among all adults, the proportion who reported consuming at least one drink of any alcoholic beverage in the previous month. (N = 30,498)

<sup>b</sup> Among all adults, the proportion who reported consuming an average of more than two alcoholic drinks per day for men or more than one per day for women in the previous month. (N = 30,216)

<sup>c</sup> Among all adults, the proportion who reported consuming five or more drinks per occasion (for men) or 4 or more drinks per occasion (for women) at least once in the previous month. (N = 30,255)

<b>Table 16: Mean Number of Binge Drinking Occasions during the Past Month among Binge Drinkers by EP Region</b> Michigan BRFSS, 2017-2019 Combined		
	<b>Number of Binge Drinking Occasions<sup>a</sup></b>	
	<b>Mean</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>4.7</b>	<b>(4.4-4.9)</b>
<b>EP Region</b>		
Region 1	4.4	(3.8-5.0)
Region 2N	4	(3.5-4.5)
Region 2S	4.6	(4.0-5.1)
Region 3	4.8	(4.2-5.5)
Region 5	4.6	(3.8-5.4)
Region 6	4.9	(4.4-5.5)
Region 7	6.4	(4.9-7.8)
Region 8	6.2	(4.7-7.8)

<sup>a</sup> Among adults who binge drank in the past month, the mean number of times during which five or more alcoholic beverages (for men) or four or more (for women) were consumed during the past month. (N = 4,579)

<b>Table 17: Hypertension Awareness and Medication Use by EP Region Michigan BRFSS, 2017 and 2019 Combined</b>				
	<b>Ever Told HBP<sup>a</sup></b>		<b>Taking BP Medication<sup>b</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>34.9</b>	<b>(34.1-35.8)</b>	<b>76.6</b>	<b>(75.3-77.8)</b>
<b>EP Region</b>				
Region 1	34.7	(32.5-36.9)	75.8	(72.0-79.3)
Region 2N	33.5	(31.7-35.3)	79.0	(76.1-81.6)
Region 2S	35.6	(33.8-37.5)	76.9	(73.9-79.7)
Region 3	40.3	(37.8-42.7)	77.1	(73.4-80.5)
Region 5	36.4	(33.6-39.3)	78.4	(73.8-82.5)
Region 6	32.7	(30.7-34.8)	72.8	(69.0-76.3)
Region 7	36.5	(33.3-39.9)	74.7	(69.4-79.4)
Region 8	37.5	(32.9-42.4)	84.2	(78.0-88.9)
<sup>a</sup> Among all adults, the proportion who reported that they were ever told by a doctor that they had high blood pressure (HBP). Women who had HBP only during pregnancy and adults who were borderline hypertensive were considered to not have been diagnosed. (N = 21,341) <sup>b</sup> Among adults who were ever told that they had HBP, the proportion that reported they were currently taking blood pressure (BP) medicines for their HBP. (N = 8,621)				

**Table 18: Cholesterol Screening and Awareness by EP Region**  
Michigan BRFSS, 2017 and 2019 Combined

	Cholesterol Ever Checked <sup>a</sup>		Checked Within Past Five Years <sup>b</sup>		Ever Told High Cholesterol <sup>c</sup>	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval
<b>Michigan Total</b>	<b>93.6</b>	<b>(93.1-94.1)</b>	<b>89.9</b>	<b>(89.3-90.5)</b>	<b>33.6</b>	<b>(32.8-34.5)</b>
<b>EP Region</b>						
Region 1	92.3	(90.7-93.7)	89.0	(87.1-90.6)	33.1	(30.9-35.4)
Region 2N	95.6	(94.5-96.4)	92.3	(91.0-93.5)	35.6	(33.7-37.5)
Region 2S	93.9	(92.8-94.9)	91.0	(89.7-92.2)	32.0	(30.2-33.8)
Region 3	93.4	(91.7-94.7)	89.3	(87.3-91.0)	36.2	(33.7-38.8)
Region 5	91.8	(89.5-93.7)	87.8	(85.3-90.0)	36.0	(33.2-39.0)
Region 6	94.5	(93.2-95.5)	90.1	(88.5-91.5)	29.4	(27.5-31.4)
Region 7	91.6	(89.0-93.6)	87.4	(84.6-89.8)	38.8	(35.4-42.3)
Region 8	90.9	(86.4-94.0)	84.5	(79.5-88.5)	39.5	(34.5-44.7)

<sup>a</sup> Among all adults, the proportion who reported ever having had their blood cholesterol checked. (N = 20,119)  
<sup>b</sup> Among all adults, the proportion who reported that they have had their blood cholesterol checked within the past five years. (N = 20,119)  
<sup>c</sup> Among adults who ever had their blood cholesterol checked, the proportion who reported that a doctor, nurse, or other health professional had told them that their cholesterol was high. (N = 19,742)

<b>Table 19: No Routine Checkup in Past Year by EP Region Michigan BRFSS, 2017-2019 Combined</b>		
	<b>Had No Routine Checkup in Past Year<sup>a</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>22.3</b>	<b>(21.6-22.9)</b>
<b>EP Region</b>		
Region 1	23.7	(22.0-25.5)
Region 2N	22.6	(21.2-24.0)
Region 2S	20.0	(18.7-21.4)
Region 3	22.4	(20.6-24.4)
Region 5	23.7	(21.6-26.0)
Region 6	22.0	(20.4-23.7)
Region 7	22.1	(19.7-24.6)
Region 8	23.5	(19.9-27.5)

<sup>a</sup> Among all adults, the proportion who reported that they did not have a routine checkup in the past year. (N = 31,384)

**Table 20: Immunizations among Adults Aged 65 Years and Older  
by EP Region  
Michigan BRFSS, 2017-2019 Combined**

	Had Flu Vaccine in Past Year <sup>a</sup>		Ever Had Pneumonia Vaccine <sup>b</sup>	
	%	95% Confidence Interval	%	95% Confidence Interval
<b>Michigan Total</b>	<b>57.6</b>	<b>(56.3-58.8)</b>	<b>74.1</b>	<b>(73.0-75.3)</b>
<b>EP Region</b>				
Region 1	59.3	(56.1-62.4)	77.5	(74.7-80.1)
Region 2N	60.7	(57.9-63.4)	76.5	(73.9-78.8)
Region 2S	56.0	(53.0-59.0)	71.2	(68.2-74.1)
Region 3	56.7	(53.2-60.2)	71.0	(67.7-74.0)
Region 5	56.9	(52.8-60.8)	74.2	(70.3-77.6)
Region 6	57.0	(53.9-60.1)	77.7	(74.9-80.2)
Region 7	58.5	(54.0-62.9)	74.6	(70.4-78.4)
Region 8	50.6	(43.6-57.6)	65.3	(58.0-71.9)

<sup>a</sup> Among adults aged 65 years and older, the proportion who reported that they had a flu vaccine, either by an injection in the arm or sprayed in the nose during the past 12 months. (N = 10,443)

<sup>b</sup> Among adults aged 65 years and older, the proportion who reported that they ever had a pneumococcal vaccine. (N = 10,182)



<b>Table 21: HIV Testing among Adults Aged 18 - 64 Years by EP Region Michigan BRFSS, 2017-2019 Combined</b>		
	<b>Ever Had an HIV Test<sup>a</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>46.3</b>	<b>(45.4-47.2)</b>
<b>EP Region</b>		
Region 1	44.1	(41.7-46.6)
Region 2N	46.6	(44.5-48.6)
Region 2S	54.4	(52.4-56.4)
Region 3	44.7	(42.0-47.4)
Region 5	46.0	(42.8-49.1)
Region 6	41.9	(39.6-44.2)
Region 7	39.4	(35.9-43.0)
Region 8	39.7	(34.4-45.2)

<sup>a</sup> Among adults aged 18 - 64 years, the proportion who reported that they ever had been tested for HIV, apart from tests that were part of a blood donation. Don't know was considered a valid response to this question. (N = 18,393)

<b>Table 22: Asthma among Adults by EP Region Michigan BRFSS, 2017-2019 Combined</b>				
	<b>Lifetime Asthma Prevalence<sup>a</sup></b>		<b>Current Asthma Prevalence<sup>b</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>16.1</b>	<b>(15.6-16.7)</b>	<b>11.1</b>	<b>(10.6-11.6)</b>
<b>EP Region</b>				
Region 1	16.6	(15.1-18.2)	10.9	(9.7-12.2)
Region 2N	15.9	(14.7-17.1)	10.5	(9.5-11.6)
Region 2S	17.0	(15.8-18.2)	12.3	(11.3-13.4)
Region 3	17.4	(15.7-19.2)	12.6	(11.1-14.2)
Region 5	16.3	(14.5-18.2)	10.2	(8.8-11.8)
Region 6	14.4	(13.1-15.9)	10.0	(8.9-11.3)
Region 7	15.4	(13.4-17.6)	10.0	(8.4-11.9)
Region 8	16.5	(13.2-20.3)	13.3	(10.2-17.1)
<sup>a</sup> Among all adults, the proportion who reported that they were ever told by a doctor, nurse, or other health care professional that they had asthma. (N = 31,602) <sup>b</sup> Among all adults, the proportion who reported that they still had asthma. (N = 31,441)				

<b>Table 23: Asthma among Children by EP Region Michigan BRFSS, 2017-2019 Combined</b>				
	<b>Lifetime Asthma Prevalence<sup>a</sup></b>		<b>Current Asthma Prevalence<sup>b</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	11.8	(10.9-12.8)	8.4	(7.6-9.3)
<b>EP Region</b>				
Region 1	13.3	(10.7-16.4)	9.6	(7.3-12.4)
Region 2N	10.9	(9.1-13.0)	7.6	(6.1-9.4)
Region 2S	14.5	(12.4-16.9)	10.8	(9.0-13.0)
Region 3	11.5	(9.3-14.3)	8.0	(6.2-10.4)
Region 5	9.3	(6.6-12.9)	6.9	(4.7-10.1)
Region 6	10.2	(8.3-12.4)	6.8	(5.3-8.9)
Region 7	11.5	(7.1-18.1)	-- <sup>c</sup>	-- <sup>c</sup>
Region 8	10.4	(5.5-18.7)	-- <sup>c</sup>	-- <sup>c</sup>
<sup>a</sup> Estimated proportion of Michigan children aged 0-17 years who were ever told by a doctor, nurse or other health professional that they had asthma, using proxy information from the adult respondent. (N = 6,854) <sup>b</sup> Estimated proportion of Michigan children aged 0-17 years who still have asthma, using proxy information from the adult respondent. (N = 6,829) <sup>c</sup> Suppressed due to a denominator < 50 and/or a relative standard error > 30%.				

<b>Table 24: Chronic Obstructive Pulmonary Disease (COPD) by EP Region Michigan BRFSS, 2017-2019 Combined</b>		
	<b>Ever Told COPD, Emphysema or Chronic Bronchitis<sup>a</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>8.6</b>	<b>(8.2-9.0)</b>
<b>EP Region</b>		
Region 1	7.9	(7.0-8.9)
Region 2N	7.7	(6.9-8.6)
Region 2S	9.1	(8.3-10.0)
Region 3	11.3	(10.0-12.7)
Region 5	9.7	(8.3-11.3)
Region 6	7.1	(6.3-8.1)
Region 7	10.7	(9.1-12.5)
Region 8	8.7	(6.8-11.1)
<sup>a</sup> Among all adults, the proportion who reported ever being told by a doctor that they had chronic obstructive pulmonary disease (COPD), emphysema or chronic bronchitis. (N = 31,546)		

<b>Table 25: Arthritis by EP Region Michigan BRFSS, 2017-2019 Combined</b>		
	<b>Ever Told Arthritis<sup>a</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>31.1</b>	<b>(30.5-31.8)</b>
<b>EP Region</b>		
Region 1	32.5	(30.7-34.3)
Region 2N	30.2	(28.8-31.7)
Region 2S	30.2	(28.8-31.6)
Region 3	35.9	(34.0-37.9)
Region 5	31.4	(29.3-33.7)
Region 6	29.6	(28.0-31.2)
Region 7	35.7	(33.2-38.4)
Region 8	37.8	(33.8-41.9)

<sup>a</sup> Among all adults, the proportion who reported ever being told by a doctor that they had some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia. (N = 31,544)

**Table 26: Cardiovascular Disease by EP Region**  
**Michigan BRFSS, 2017-2019 Combined**

	Ever Told Heart Attack <sup>a</sup>		Had Told Angina or Coronary Heart Disease <sup>b</sup>		Ever Told Stroke <sup>c</sup>		Ever Told Any Cardiovascular Disease <sup>d</sup>	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval
<b>Michigan Total</b>	<b>5.0</b>	<b>(4.8-5.3)</b>	<b>4.9</b>	<b>(4.6-5.2)</b>	<b>3.6</b>	<b>(3.3-3.8)</b>	<b>9.9</b>	<b>(9.5-10.3)</b>
<b>EP Region</b>								
Region 1	4.7	(4.1-5.5)	4.8	(4.1-5.5)	3.3	(2.7-3.9)	9.3	(8.4-10.3)
Region 2N	4.8	(4.2-5.5)	5.0	(4.4-5.7)	3.5	(3.0-4.1)	9.8	(8.9-10.7)
Region 2S	5.3	(4.6-6.0)	4.7	(4.2-5.4)	4.2	(3.6-4.8)	10.4	(9.5-11.4)
Region 3	6.2	(5.3-7.3)	6.2	(5.4-7.2)	3.8	(3.1-4.7)	11.2	(10.1-12.5)
Region 5	5.1	(4.2-6.2)	4.7	(3.9-5.7)	3.3	(2.6-4.3)	9.9	(8.6-11.3)
Region 6	4.2	(3.5-4.9)	3.8	(3.2-4.5)	3.0	(2.5-3.6)	8.1	(7.2-9.1)
Region 7	6.2	(5.2-7.4)	5.9	(4.9-7.1)	4.1	(3.1-5.3)	12.6	(11.1-14.4)
Region 8	7.4	(5.5-9.8)	7.3	(5.4-9.7)	3.6	(2.5-5.2)	13.0	(10.6-15.9)

Among all adults, the proportion who had ever been told by a doctor that...

<sup>a</sup> they had a heart attack or myocardial infarction (N = 31,548);

<sup>b</sup> they had angina or coronary heart disease (N = 31,441);

<sup>c</sup> they had a stroke (N = 31,636);

<sup>d</sup> they had a heart attack, coronary heart disease or a stroke (N = 31,382).

**Table 27: Cancer by EP Region**  
**Michigan BRFSS, 2017-2019 Combined**

	Ever Told Skin Cancer <sup>a</sup>		Ever Told Any Other Types of Cancer <sup>b</sup>		Ever Told Cancer <sup>c</sup>	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval
<b>Michigan Total</b>	<b>6.4</b>	<b>(6.1-6.7)</b>	<b>8.1</b>	<b>(7.8-8.5)</b>	<b>13.0</b>	<b>(12.6-13.4)</b>
<b>EP Region</b>						
Region 1	6.9	(6.1-7.7)	8.0	(7.1-8.9)	13.0	(11.9-14.1)
Region 2N	7.0	(6.3-7.7)	8.4	(7.6-9.2)	13.4	(12.5-14.4)
Region 2S	5.1	(4.5-5.7)	8.1	(7.3-8.9)	12.2	(11.2-13.1)
Region 3	6.7	(5.9-7.6)	9.1	(8.1-10.3)	14.1	(12.8-15.4)
Region 5	6.1	(5.3-7.1)	7.1	(6.1-8.2)	11.7	(10.5-13.1)
Region 6	6.9	(6.2-7.8)	7.8	(7.0-8.7)	13.4	(12.4-14.5)
Region 7	7.5	(6.2-9.1)	10.2	(8.6-12.1)	16.2	(14.3-18.4)
Region 8	7.4	(5.6-9.8)	9.0	(7.0-11.6)	14.9	(12.3-18.0)

<sup>a</sup> Among all adults, the proportion who reported ever being told by a doctor that they had skin cancer (N = 31,658).

<sup>b</sup> Among all adults, the proportion who reported ever being told by a doctor that they had a form of cancer other than skin cancer (N = 31,653).

<sup>c</sup> Among all adults, the proportion who reported ever being told by a doctor that they had skin cancer or any other type of cancer (N = 31,609).

<b>Table 28: Diabetes by EP Region Michigan BRFSS, 2017-2019 Combined</b>		
	<b>Ever Told Diabetes<sup>a</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>11.3</b>	<b>(10.9-11.7)</b>
<b>EP Region</b>		
Region 1	10.2	(9.2-11.3)
Region 2N	10.6	(9.7-11.5)
Region 2S	11.8	(10.9-12.8)
Region 3	12.8	(11.5-14.1)
Region 5	12.7	(11.3-14.4)
Region 6	11.0	(10.0-12.1)
Region 7	12.1	(10.4-14.1)
Region 8	12.5	(10.2-15.1)
<sup>a</sup> Among all adults, the proportion who reported that they were ever told by a doctor that they had diabetes. Adults told they have prediabetes and women who had diabetes only during pregnancy were classified as not having been diagnosed. (N = 31,684)		



<b>Table 29: Kidney Disease by EP Region</b> <b>Michigan BRFSS, 2017-2019 Combined</b>		
	<b>Ever Told Kidney Disease<sup>a</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>3.5</b>	<b>(3.3-3.8)</b>
<b>EP Region</b>		
Region 1	2.9	(2.4-3.4)
Region 2N	3.3	(2.9-3.9)
Region 2S	4.0	(3.4-4.6)
Region 3	3.9	(3.2-4.7)
Region 5	4.2	(3.4-5.3)
Region 6	3.2	(2.7-3.9)
Region 7	3.5	(2.7-4.6)
Region 8	4.6	(3.3-6.3)

<sup>a</sup> Among all adults, the proportion who reported ever being told by a doctor that they had kidney disease. (N = 31,629)

<b>Table 30: Depression by EP Region Michigan BRFSS, 2017-2019 Combined</b>		
	<b>Ever Told Depression<sup>a</sup></b>	
	<b>%</b>	<b>95% Confidence Interval</b>
<b>Michigan Total</b>	<b>22.7</b>	<b>(22.1-23.3)</b>
<b>EP Region</b>		
Region 1	23.5	(21.9-25.2)
Region 2N	19.6	(18.3-20.9)
Region 2S	22.5	(21.1-23.8)
Region 3	23.1	(21.3-25.0)
Region 5	25.4	(23.3-27.7)
Region 6	25.4	(23.7-27.1)
Region 7	24.6	(22.3-27.1)
Region 8	23.2	(19.8-27.0)

<sup>a</sup> Among all adults, the proportion who reported ever being told by a doctor that they had a depressive disorder including depression, major depression, dysthymia, or minor depression. (N = 31,555)