Health Risk Behaviors in the State of Michigan

2005 Behavioral Risk Factor Survey

19th Annual Report

Michigan Department
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2005 BRFS Summary

This report presents estimates from the 2005 Michigan Behavioral Risk Factor Survey (BRFS), a statewide telephone survey of Michigan residents aged 18 years and older. It is the only source of state-specific, population-based estimates of the prevalence of various behaviors, medical conditions, and preventive health care practices among Michigan adults. The survey findings are used by public health agencies, academic institutions, non-profit organizations, and others to develop programs to promote the health of Michigan citizens.

All results from the 2005 Michigan BRFS presented in this report have been weighted as described in the methods section and can be interpreted as estimates of the prevalence rates of various health risks among the general adult population of Michigan. On a special note, in 2005 the sample size was expanded to over 12,000 respondents, which allowed for greater precision of estimates, enabled the tabulation of estimates for additional subpopulations (e.g., Hispanics), and enlarged the number of respondents who had at least one child in the household to nearly 4,000.

Selected Risk Factors	Michigan Estimates (%)	National Estimates Median (%)[a]	National Estimates Range (%)[b]
Health Status Fair or Poor	15.2	14.9	11.1 - 34.1
Ever Told Diabetes	8.1	7.3	4.4 - 12.5
Obesity (BMI ≥ 30.0)	26.5	24.4	17.8 - 30.9
Overweight (BMI 25.0 - 29.9)	36.6	36.7	33.3 - 39.4
No Leisure-Time Physical Activity	22.6	23.9	16.2 - 49.0
Inadequate Fruit and Vegetable Consumption	77.2	76.8	67.7 - 85.7
Ever Told High Blood Pressure	27.8	25.5	18.4 - 33.3
Told High Cholesterol (among those tested)	38.9	35.6	30.3 - 39.9
Binge Drinking	16.7	14.4	8.3 - 22.1
Heavy Drinking	5.7	4.9	2.7 - 7.5
Current Smoking	21.9	20.5	8.1 - 28.7
Current Asthma	9.0	8.0	4.4 - 10.7
Ever Told Have Asthma	13.8	12.6	8.9 - 19.3
Doctor Diagnosed Arthritis	30.9	26.9	16.6 - 34.9
Activity Limitation	19.9	18.6	9.7 - 27.4
Flu Shot in Past Year (among those 65+)	67.3	65.5	32.0 - 78.1
Ever Had Pneumonia Vaccine (among those 65+)	66.2	65.7	28.3 - 71.7

[a] The median value of the prevalence estimates compiled from 50 U.S. states, two territories, and Washington, D.C. that participated in the 2005 BRFS.
[b] The lowest and highest prevalence estimates among the states, Washington D.C., and U.S. territories that participated in 2005.
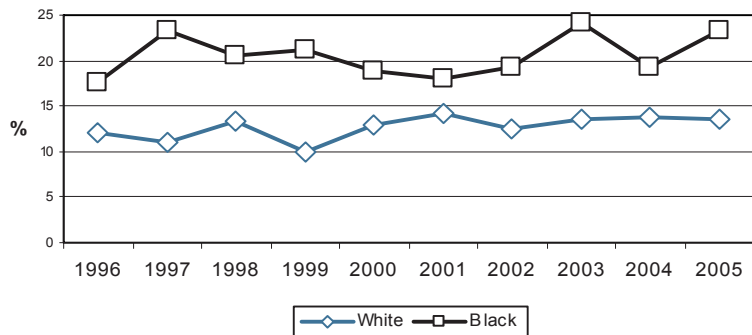
General Health Status

Demographic Characteristics	General Health, Fair or Poor[a]	
	%	95% Confidence Interval
Total	**15.2**	**(14.4 - 15.9)**
Age		
18 - 24	8.0	(5.9 - 10.6)
25 - 34	7.2	(5.8 – 9.0)
35 - 44	10.5	(9.1 - 12.1)
45 - 54	16.1	(14.5 - 17.8)
55 - 64	20.5	(18.7 - 22.5)
65 - 74	24.8	(22.5 - 27.2)
75 +	33.2	(30.5 - 36.0)
Gender		
Male	13.7	(12.7 - 14.9)
Female	16.4	(15.5 - 17.4)
Race-Ethnicity		
White non-Hispanic	13.6	(12.9 - 14.4)
Black non-Hispanic	23.2	(20.4 - 26.2)
Other non-Hispanic	18.2	(14.6 - 22.3)
Hispanic	15.5	(10.9 - 21.5)
Education		
< High school	33.1	(29.6 - 36.7)
High school grad	19.4	(18.0 - 20.9)
Some college	12.8	(11.7 - 14.1)
College grad	7.6	(6.7 - 8.6)
Household Income		
< $20,000	35.9	(33.1 - 38.8)
$20,000 - $34,999	19.6	(17.8 - 21.5)
$35,000 - $49,999	11.9	(10.2 - 13.7)
$50,000 - $74,999	8.3	(7.1 - 9.8)
≥ $75,000	5.7	(4.7 - 6.8)

[a] The proportion who reported that their health, in general, was either fair or poor.

General health status is a reliable self-rated assessment of a one's perceived health, which may be influenced by all aspects of life, including behaviors, environmental factors, and community.[1] Self-rated general health status is useful in determining unmet health needs, identifying disparities among sub-populations, and characterizing the burden of chronic diseases within a population.[2-3] The prevalence of self-rated fair or poor health status has been found to be higher within older age groups, females, and minorities, and has also been associated with lower socioeconomic status in the presence or absence of disease.[4-6]

In 2005, an estimated 15.2% of Michigan adults perceived that their general health was either fair or poor. This proportion increased with age from 8.0% of those aged 18-24 years to 33.2% of those aged 75 years and older. Blacks were more likely than other race-ethnic groups to report that their general health was either fair or poor. The proportion who reported fair or poor health decreased with increasing education and income levels.

General Health, Fair or Poor by Race Michigan 1996-2005

General Health, Fair or Poor U.S. vs. Michigan, 1996-2005
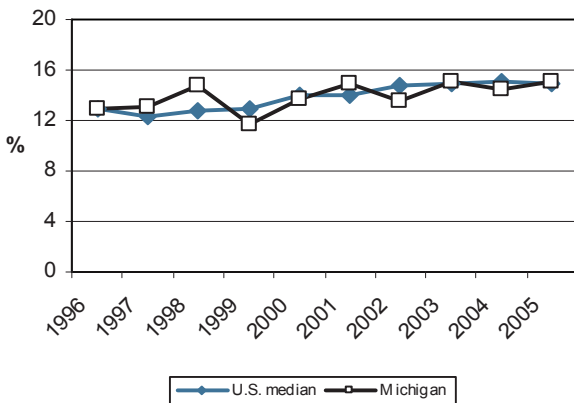
The prevalence of fair or poor health was higher among adults who were not currently married compared with those who were married (age-adjusted estimates: 21.4% [20.1-22.8] vs. 12.1% [11.0-13.2]). Among younger adults (aged 18-54 years), the age-adjusted prevalence of fair or poor health was higher among those with no children in the household compared with those with children (13.4% [11.9-15.1] vs. 9.0% [8.0-10.2]), as well as among non-married adults compared with those currently married (16.7% [15.1-18.5] vs. 8.0% [6.7-9.6]) However, within marital status the prevalence of fair or poor health was similar by whether there were any children in the household (married no children 9.5% [6.2-9.8], married with children 7.8% [6.2-9.8], unmarried no children 17.7% [15.5-20.2], unmarried with children 14.8% [12.4-17.7]).

Quality of Life

"Health-related quality of life reflects a personal sense of physical and mental health and the ability to react to factors in the physical and social environments."[1] The literature indicates that younger adults tend to experience a higher number of days of poor mental health than physical health, but the opposite seems to be true for older adults.[1, 6-7]

An estimated 11.1% of Michigan adults had experienced physical health that was not good during at least two weeks of the past month. This proportion was higher among older adults than younger adults. Women were more likely than men to have experienced physical health that was not good (12.9% vs. 9.0%). This proportion decreased with higher education and income levels.

The proportion of Michigan adults who had mental health that was not good on at least 14 days in the past month was estimated to be 10.8%. This proportion was lower among older age groups, and women were more likely than men (12.3% vs. 9.2%) to report that their mental health was not good. This proportion decreased with higher income levels.

In 2005, the mean number of days per month on which Michigan adults were not in good health was 3.6 days for physical and mental health, respectively.

Demographic Characteristics	Physical Health Not Good[a]		Mental Health Not Good[b]	
	%	95% Confidence Interval	%	95% Confidence Interval
Total	**11.1**	**(10.4 – 11.7)**	**10.8**	**(10.1 - 11.5)**
Age				
18 - 24	5.4	(3.8 - 7.7)	11.9	(9.4 - 14.9)
25 - 34	5.9	(4.6 - 7.4)	12.2	(10.4 - 14.3)
35 - 44	8.6	(7.3 - 10.1)	11.1	(9.6 - 12.7)
45 - 54	13.8	(12.3 - 15.5)	13.3	(11.8 - 14.8)
55 - 64	13.8	(12.3 - 15.4)	9.0	(7.8 - 10.4)
65 - 74	16.8	(14.9 - 18.9)	6.9	(5.7 - 8.3)
75 +	20.2	(18.0 - 22.6)	6.3	(5.1 - 7.9)
Gender				
Male	9.0	(8.1 - 10.0)	9.2	(8.2 - 10.3)
Female	12.9	(12.1 - 13.8)	12.3	(11.4 - 13.2)
Race/Ethnicity				
White non-Hispanic	10.4	(9.8 - 11.1)	10.2	(9.5 - 10.9)
Black non-Hispanic	14.4	(12.1 - 17.0)	12.0	(9.8 - 14.6)
Other non-Hispanic	12.1	(9.3 - 15.7)	14.0	(10.8 - 18.0)
Hispanic	11.8	(7.7 - 17.6)	16.6	(11.8 - 22.8)
Education				
< High school	20.4	(17.6 - 23.6)	17.1	(14.2 - 20.3)
High school grad	13.1	(12.0 - 14.4)	12.5	(11.3 - 13.9)
Some college	10.4	(9.3 - 11.6)	10.8	(9.7 - 12.1)
College grad	7.0	(6.1 - 8.0)	7.1	(6.2 - 8.2)
Household Income				
< $20,000	23.7	(21.4 - 26.2)	21.5	(19.1 - 24.2)
$20,000 - $34,999	13.6	(12.0 - 15.3)	12.1	(10.5 - 13.8)
$35,000 - $49,999	7.8	(6.4 - 9.4)	9.7	(8.2 - 11.5)
$50,000 - $74,999	7.1	(5.9 - 8.5)	7.8	(6.5 - 9.4)
≥ $75,000	5.8	(4.8 - 6.9)	6.3	(5.3 - 7.5)

[a] The proportion who reported 14 or more days of poor physical health, which includes physical illness and injury, during the past 30 days.
[b] 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.

The proportion who reported that either poor physical health or poor mental health kept them from doing their usual activities (such as self-care, work, and recreation) on at least 14 of the past 30 days was 7.3% (6.8-7.9).

Two new indicators of life satisfaction and emotional support are available from the 2005 BRFS. Six percent (6.3% [5.8-6.9]) of Michigan adults were estimated to be dissatisfied or very dissatisfied with their lives. This indicator decreased with increasing levels of education and income. Seven percent (7.3% [6.7-7.9]) were estimated to rarely or never get the social and emotional support they need. The prevalence of inadequate social and emotional support was higher for men than women (8.5% [7.5-9.5] vs. 6.2% [5.5-6.9]), and also decreased with increasing levels of education and income.

No Health Care Coverage

Demographic Characteristics	No Health Care Coverage Among Adults Aged 18-64 Years[a]	
	%	95% Confidence Interval
Total	**14.5**	(13.6 - 15.5)
Age		
18 - 24	25.1	(21.5 - 29.0)
25 - 34	17.7	(15.4 - 20.2)
35 - 44	12.6	(11.0 - 14.4)
45 - 54	11.4	(10.1 - 12.9)
55 - 64	8.2	(7.1 - 9.6)
Gender		
Male	16.9	(15.4 - 18.6)
Female	12.2	(11.2 - 13.4)
Race/Ethnicity		
White non-Hispanic	13.1	(12.1 - 14.1)
Black non-Hispanic	18.5	(15.4 - 22.1)
Other non-Hispanic	19.4	(15.2 - 24.4)
Hispanic	26.6	(20.0 - 34.4)
Education		
< High school	33.3	(28.3 - 38.6)
High school grad	20.0	(18.1 - 22.1)
Some college	12.4	(11.0 - 14.1)
College grad	7.0	(5.9 - 8.3)
Household Income		
< $20,000	36.4	(32.6 - 40.3)
$20,000 - $34,999	24.2	(21.6 - 27.0)
$35,000 - $49,999	13.7	(11.4 - 16.4)
$50,000 - $74,999	6.4	(5.0 - 8.2)
≥ $75,000	3.7	(2.9 - 4.8)

[a] Among those 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.

Adults who do not have health care coverage are less likely to access health care services, including preventive care, primary care, and tertiary care, and delay getting needed medical attention.[8-9] Utilization of preventive health care services, such as mammography, pap tests, prostate exams, influenza vaccinations, and cholesterol tests, could reduce the prevalence and severity of diseases and chronic conditions in the United States.[10]

In 2005, an estimated 14.5% of Michigan adults aged 18-64 years had no health care coverage. This proportion decreased with age from 25.1% of those aged 18-24 years to 8.2% of those aged 55-64 years. Hispanics with an estimate of 26.6% were most likely to have had no insurance followed by other non-Hispanics (19.4%), blacks (18.5%), and whites (13.1%). The proportion who were uninsured decreased with education and income levels.

Adults who do not have insurance are more likely than those with insurance to engage in risky behaviors, such as smoking and physical inactivity.[11] In 2005, among those aged 18-64 years who did not have insurance, the proportion who were current smokers was 39.8% (36.3-43.4), whereas among insured adults in the same age range, an estimated 22.2% (21.1-23.4) were current smokers.

Adults without health insurance were also more likely than those with insurance to have engaged in no leisure-time physical activity, such as running, calisthenics, golf, gardening, or walking, in the past month (25.2% [22.3-28.5] vs. 19.7% [18.6-20.7]).

No Health Care Coverage
Among Adults Aged 18 Years and Older
U.S. vs. Michigan, 1996-2005
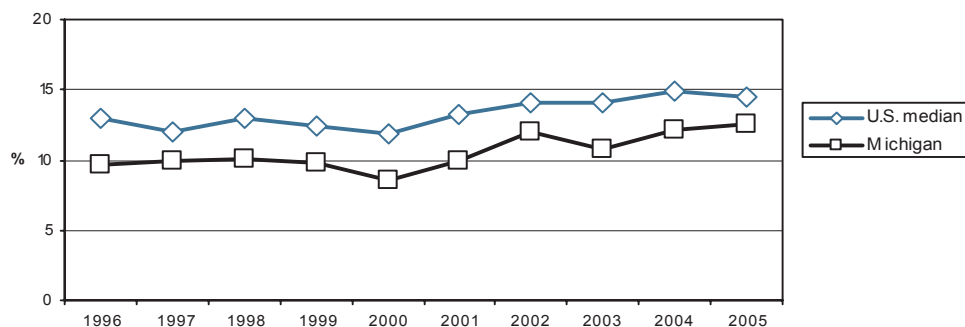
Limited Health Care Access

Three additional indicators that address various other issues related to health care access were available from the 2005 BRFSS, i.e., not having a personal doctor or health care provider, having had a time during the past 12 months when they needed to see a doctor but could not because of the cost, and not having had a routine checkup in the past 12 months.

An estimated 14.4% of Michigan adults did not have a personal doctor or health care provider in 2005. The proportion of Michigan adults who needed to see a doctor in the past year but could not due to the cost was estimated to be 12.7%.

Men were more likely than women to have no personal health care provider (19.4% vs. 9.9%) but less likely to have no health care access during the past 12 months due to cost (11.5% vs. 13.9%). The proportion for both indicators decreased with increasing education and income levels. When analyzed by race, only 12.6% of whites had no personal health care provider, and only 10.9% had been unable to see a doctor sometime in the past 12 months because of cost. These estimates for whites were notably lower than for other race-ethnic groups.

In 2005, an estimated 29.6% (28.5-30.6) of Michigan adults had not had a routine checkup in the past year. This proportion was higher for men than women (37.1% [35.4-38.8] vs. 22.7% [21.6-23.9]) and highest among those aged 25-34 years old (42.3% [39.3-45.2]). Among those who had not had a routine checkup in the past year, the majority (77.1% [75.2-79.0]) did currently have health care coverage.

Demographic Characteristics	No Personal Health Care Provider[a]		No Health Care Access During Past 12 Months Due to Cost[b]	
	%	95% Confidence Interval	%	95% Confidence Interval
Total	**14.4**	**(13.6 - 15.3)**	**12.7**	**(12.0 - 13.5)**
Age				
18 - 24	25.7	(22.1 - 29.7)	15.0	(12.2 - 18.2)
25 - 34	22.2	(19.7 - 24.9)	18.3	(16.1 - 20.8)
35 - 44	16.0	(14.2 - 18.0)	13.2	(11.5 - 14.9)
45 - 54	12.0	(10.6 - 13.6)	15.0	(13.5 - 16.7)
55 - 64	7.8	(6.6 - 9.2)	9.6	(8.3 - 11.1)
65 - 74	4.1	(3.2 - 5.3)	5.1	(4.0 - 6.4)
75 +	4.7	(3.6 - 6.1)	3.9	(2.9 - 5.2)
Gender				
Male	19.4	(18.0 - 20.9)	11.5	(10.3 - 12.7)
Female	9.9	(9.0 - 10.8)	13.9	(12.9 - 14.9)
Race/Ethnicity				
White non-Hispanic	12.6	(11.8 - 13.5)	10.9	(10.1 - 11.7)
Black non-Hispanic	21.0	(17.9 - 24.5)	19.6	(16.8 - 22.6)
Other non-Hispanic	23.1	(18.8 - 28.1)	21.6	(17.5 - 26.4)
Hispanic	22.6	(16.9 - 29.5)	18.9	(13.6 - 25.6)
Education				
< High school	21.9	(18.5 - 25.8)	20.4	(17.2 - 23.9)
High school grad	15.9	(14.3 - 17.5)	14.1	(12.8 - 15.6)
Some college	13.2	(11.8 - 14.8)	13.9	(12.5 - 15.4)
College grad	11.9	(10.5 - 13.3)	7.9	(6.8 - 9.0)
Household Income				
< $20,000	23.6	(20.8 - 26.6)	27.7	(25.0 - 30.5)
$20,000 - $34,999	15.6	(13.7 - 17.7)	18.1	(16.1 - 20.1)
$35,000 - $49,999	14.5	(12.5 - 16.8)	12.2	(10.4 - 14.2)
$50,000 - $74,999	11.0	(9.2 - 13.0)	7.9	(6.5 - 9.7)
≥ $75,000	9.6	(8.3 - 11.2)	4.6	(3.7 - 5.8)

[a] The proportion who reported that they did not have anyone that they thought of as their personal doctor or health care provider.
[b] The proportion who reported that there was a time in the past 12 months when they could not see a doctor when they needed to due to cost.

Health Care Access Indicators by Gender 2005
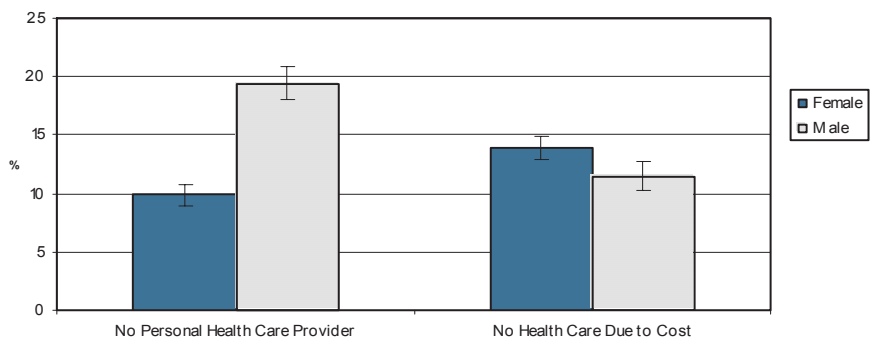
Diabetes

Demographic Characteristics	Ever Told Diabetes[a]	
	%	95% Confidence Interval
Total	8.1	(7.6 - 8.6)
Age		
18 - 24	1.3	(0.6 - 2.8)
25 - 34	1.6	(1.0 - 2.7)
35 - 44	4.2	(3.3 - 5.3)
45 - 54	8.3	(7.1 - 9.7)
55 - 64	15.1	(13.5 - 16.8)
65 - 74	19.9	(17.8 - 22.2)
75 +	17.6	(15.4 - 20.0)
Gender		
Male	8.4	(7.6 - 9.3)
Female	7.8	(7.1 - 8.4)
Race/Ethnicity		
White non-Hispanic	7.6	(7.1 - 8.2)
Black non-Hispanic	11.6	(9.6 - 13.9)
Other non-Hispanic	6.4	(4.6 - 8.9)
Hispanic	8.5	(5.3 - 13.3)
Education		
< High school	12.4	(10.4 - 14.8)
High school grad	9.4	(8.4 - 10.4)
Some college	7.6	(6.7 - 8.6)
College grad	5.9	(5.1 - 6.7)
Household Income		
< $20,000	13.8	(12.1 - 15.8)
$20,000 - $34,999	10.3	(9.0 - 11.7)
$35,000 - $49,999	7.0	(5.8 - 8.4)
$50,000 - $74,999	6.5	(5.3 - 7.8)
≥ $75,000	4.6	(3.8 - 5.6)

[a] The proportion who reported that they were ever told by a doctor that they have diabetes. Women who had diabetes only during pregnancy and adults who were diagnosed with pre-diabetes were considered not to have been diagnosed with diabetes.

Diabetes mellitus is a chronic disease characterized by high glucose levels, owing to insufficient production of insulin by the pancreas or to a reduction in the body's ability to use insulin.[12-13] In Michigan, diabetes was the sixth leading cause of death with 2,846 individuals[14] in 2005, representing 3.3% of all deaths.[15] Obesity, poor diet, physical inactivity, and high blood pressure are just a few of the risk factors associated with diabetes.[12]

In 2005, an estimated 8.1% of Michigan adults had ever been told by a doctor that they have diabetes. This prevalence increased with age from 1.3% of those aged 18-24 years to 19.9% of those aged 65-74 years. The proportion who had diabetes declined with increasing education and income levels.

In Michigan, there has been an increase in the prevalence of diabetes between 1996 and 2005, and Michigan's prevalence estimate has been consistently higher than the U.S. median for most years. During this same time period, the prevalence of obesity, a risk factor for diabetes, has also been increasing in the U.S.[16] and in Michigan.

Michigan adults who were obese were more than twice as likely as those who were overweight and over five times as likely as those who were not overweight or obese to have diabetes in 2005 (16.8% [15.4-18.3], 6.8% [6.1-7.7], 3.1% [2.6-3.7] respectively). The estimated prevalence of diabetes among those who were obese has been consistently higher than those who were overweight and those who were not overweight or obese since 1997.

Among those not diagnosed with either diabetes or gestational diabetes, the self-reported prevalence of prediabetes was 5.1% (4.5-5.8). Over one-third (37.4% [35.9-39.0]) of all respondents not diagnosed with diabetes reported that they had been tested for diabetes within the past 12 months.

Diabetes
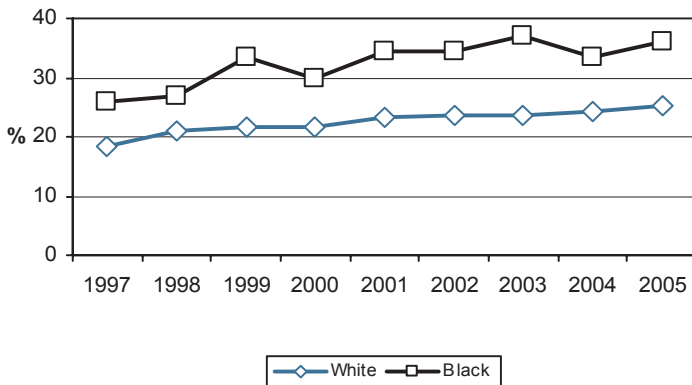### U.S. vs. Michigan, 1996-2005
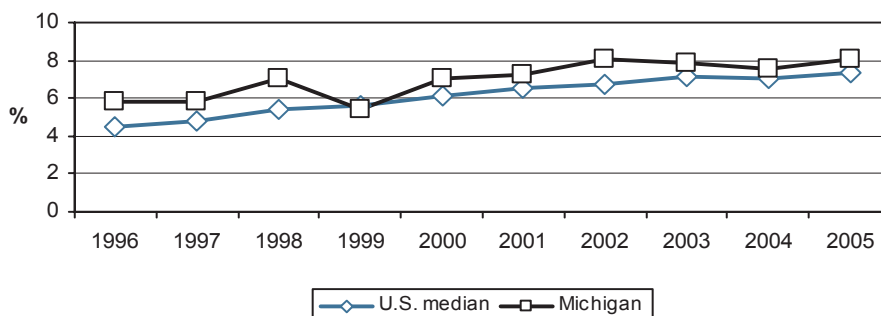
Obesity

Obese and overweight adults are at a higher risk than adults who are at a healthy weight status to develop chronic conditions, such as high blood pressure, diabetes, gallbladder disease, osteoarthritis, and high cholesterol.[17] In Michigan, obesity-related medical expenditures have been estimated to be $2.9 billion in 2003 dollars.[18] Obesity is defined as having a body mass index (BMI) greater than or equal to 30.0. BMI is defined as weight in kilograms divided by height in meters squared (w/h^2) and was calculated from the self-reported height and weight measurements of Michigan residents participating in the 2005 BRFS.

An estimated 26.5% of Michigan adults were obese in 2005. The proportion of adults who were obese increased with age from 13.6% of those aged 18-24 years to 35.0% of those aged 55-64 years, and then decreased to 17.1% of those aged 75 years and older. Blacks were more likely than the other race-ethnic groups to be obese. This proportion declined with higher income levels.

Demographic Characteristics	Obese[a]	
	%	95% Confidence Interval
Total	**26.5**	**(25.5 - 27.4)**
Age		
18 - 24	13.6	(10.8 - 16.9)
25 - 34	25.8	(23.1 - 28.7)
35 - 44	27.9	(25.7 - 30.2)
45 - 54	30.7	(28.6 - 32.8)
55 - 64	35.0	(32.8 - 37.2)
65 - 74	29.5	(27.1 - 32.0)
75 +	17.1	(15.0 - 19.4)
Gender		
Male	27.0	(25.5 - 28.5)
Female	26.0	(24.8 - 27.2)
Race/Ethnicity		
White non-Hispanic	25.4	(24.4 - 26.4)
Black non-Hispanic	36.1	(32.5 - 39.8)
Other non-Hispanic	20.6	(16.5 - 25.3)
Hispanic	24.4	(18.4 - 31.5)
Education		
< High school	29.1	(25.6 - 32.7)
High school grad	27.7	(26.0 - 29.4)
Some college	29.2	(27.3 - 31.1)
College grad	21.7	(20.1 - 23.3)
Household Income		
< $20,000	31.8	(29.1 - 34.7)
$20,000 - $34,999	30.1	(27.8 - 32.4)
$35,000 - $49,999	30.5	(27.9 - 33.2)
$50,000 - $74,999	26.6	(24.3 - 29.1)
≥ $75,000	22.3	(20.4 - 24.2)

Note: BMI, body mass index, is defined as weight (in kilograms) divided by height (in meters) squared [weight in kg/(height in meters)^2]. Weight and height were self-reported. Pregnant women were excluded.
[a] The proportion whose BMI was greater than or equal to 30.0.

Obesity by Race
Michigan, 1997-2005
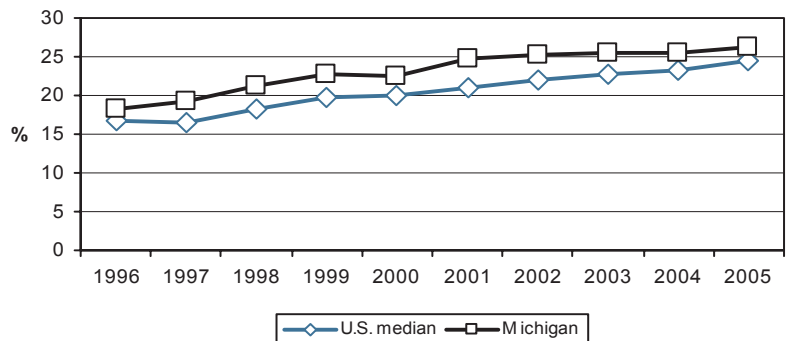
In 2005, an estimated 36.6% [35.5-37.7] of Michigan adults were overweight, having a BMI between 25.0 and 29.9. This proportion increased with age and men were more likely than women (42.9% [41.3-44.7] vs. 30.3% [29.1-31.6]) to be overweight.

Obesity
U.S. vs. Michigan, 1996-2005

Inadequate Leisure-Time Physical Activity

Demographic Characteristics	No Leisure-Time Physical Activity[a]		Inadequate Physical Activity[b]	
	%	95% Confidence Interval	%	95% Confidence Interval
Total	**22.6**	**(21.7 - 23.5)**	**50.5**	**(49.4 - 51.6)**
Age				
18 - 24	18.3	(15.2 - 21.8)	39.6	(35.5 - 44.0)
25 - 34	17.8	(15.6 - 20.2)	45.7	(42.7 - 48.8)
35 - 44	19.2	(17.3 - 21.2)	49.2	(46.7 - 51.6)
45 - 54	22.3	(20.5 - 24.2)	52.0	(49.7 - 54.2)
55 - 64	25.3	(23.3 - 27.4)	54.1	(51.7 - 56.4)
65 - 74	25.2	(23.0 - 27.5)	55.3	(52.6 - 58.0)
75 +	40.1	(37.4 - 43.0)	67.0	(64.1 - 69.7)
Gender				
Male	20.6	(19.3 - 22.1)	48.9	(47.2 - 50.7)
Female	24.3	(23.2 - 25.5)	52.0	(50.6 - 53.4)
Race/Ethnicity				
White non-Hispanic	21.2	(20.3 - 22.1)	48.7	(47.5 - 49.9)
Black non-Hispanic	32.1	(28.8 - 35.6)	58.4	(54.5 - 62.2)
Other non-Hispanic	23.9	(19.8 - 28.4)	56.6	(51.1 - 62.0)
Hispanic	18.2	(13.5 - 24.1)	57.2	(49.7 - 64.5)
Education				
< High school	36.4	(32.8 - 40.8)	52.2	(48.0 - 56.5)
High school grad	29.6	(27.9 - 31.3)	54.6	(52.6 - 56.6)
Some college	19.7	(18.2 - 21.3)	48.6	(46.6 - 50.7)
College grad	13.8	(12.5 - 15.2)	47.5	(45.6 - 49.5)
Household Income				
< $20,000	36.9	(34.0 - 39.8)	57.9	(54.7 - 61.1)
$20,000 - $34,999	28.1	(25.9 - 30.3)	54.3	(51.7 - 56.8)
$35,000 - $49,999	21.6	(19.4 - 24.0)	50.6	(47.8 - 53.5)
$50,000 - $74,999	15.7	(13.9 - 17.7)	46.5	(43.8 - 49.2)
≥ $75,000	12.9	(11.5 - 14.5)	44.8	(42.5 - 47.0)

[a] 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.
[b] The proportion who reported that they do not usually do moderate physical activities for a total of at least 30 minutes on five or more days per week or vigorous physical activities for a total of at least 20 minutes on three or more days per week while not at work.

Regular physical activity has been shown to reduce the risk of premature mortality and a number of chronic diseases, such as colon cancer, hypertension, cardiovascular disease, and diabetes. Keeping physically active not only helps maintain a healthy body weight and normal muscle strength, bone mass, and joint function, but it also can relieve symptoms of depression.[19]

In 2005, an estimated 22.6% of Michigan adults did not participate in any leisure-time physical activity in the past month. This proportion was higher among older adults than younger adults. Women were more likely than men (24.3% vs. 20.6%), and blacks were more likely than other race-ethnic groups to not participate in leisure-time physical activity. Inactivity during leisure time decreased with higher education and income levels.

Half of Michigan adults were estimated to get inadequate physical activity. The prevalence of inadequate physical activity showed demographic patterns similar to no leisure-time physical activity.

Among those who were employed, 63.2% (61.7-64.6) mostly sit or stand at work, 21.7% (20.5-23.0) mostly walk at work, and 15.1% (14.0-16.3) mostly do heavy labor or physically demanding work while at work.

No Leisure-Time Physical Activity
U.S. vs. Michigan, 1996-2005
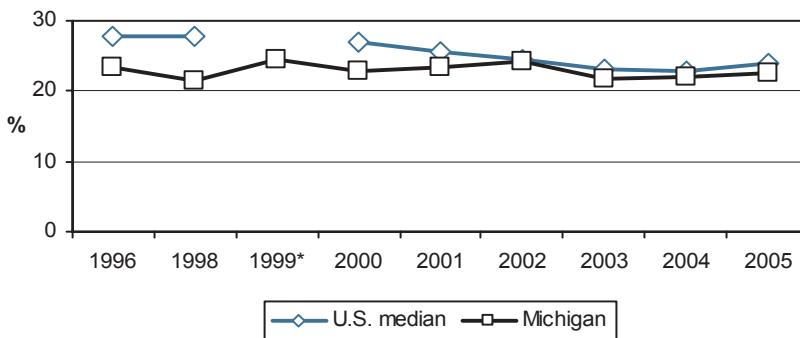
*1999 U.S. data not available

Inadequate Fruit and Vegetable Consumption

"5 A Day for Better Health" is a program run by the National Cancer Institute and the Produce for Better Health Foundation that promotes the consumption of five or more servings of fruits and vegetables per day to reduce the risk of cancer and other chronic diseases, including hypertension, diabetes, heart disease, and stroke.[20-22] Among modifiable health behaviors, poor nutrition and physical inactivity have been ranked second highest for annual deaths.[23]

An estimated 77.2% of Michigan adults in 2005 did not consume fruits (including juice) and vegetables five or more times per day. Men were more likely than women to not consume fruits and vegetables the recommended number of times per day (82.9% vs. 72.0%). This proportion was lower among college graduates (72.0%) compared with other educational levels, and was lower among those aged 75 years and older (67.4%) compared with younger age groups.

The median number of times per day Michigan adults consumed fruits and vegetables was 3.3 in 2005; the median number for fruits and juice was 1.1 times per day and for vegetables was 2.0 times per day.

The proportion of Michigan adults who consumed fruits and vegetables less than five times per day has been relatively consistent with the median prevalence among participating states and U.S. territories.

Demographic Characteristics	Inadequate Fruit and Vegetable Consumption[a]	
	%	95% Confidence Interval
Total	**77.2**	**(76.3 - 78.1)**
Age		
18 - 24	77.7	(73.8 - 81.1)
25 - 34	80.6	(78.2 - 82.8)
35 - 44	81.1	(79.1 - 82.9)
45 - 54	77.0	(75.0 - 78.8)
55 - 64	77.2	(75.3 - 79.0)
65 - 74	71.0	(68.6 - 73.4)
75 +	67.4	(64.7 - 70.0)
Gender		
Male	82.9	(81.5 - 84.1)
Female	72.0	(70.7 - 73.2)
Race/Ethnicity		
White non-Hispanic	77.2	(76.3 - 78.2)
Black non-Hispanic	77.4	(74.1 - 80.4)
Other non-Hispanic	75.7	(71.0 - 79.9)
Hispanic	78.0	(71.3 - 83.5)
Education		
< High school	80.5	(77.1 - 83.5)
High school grad	81.3	(79.7 - 82.7)
Some college	77.1	(75.4 - 78.8)
College grad	72.0	(70.3 - 73.6)
Household Income		
< $20,000	76.3	(73.5 - 78.9)
$20,000 - $34,999	80.3	(78.3 - 82.1)
$35,000 - $49,999	80.1	(77.9 - 82.1)
$50,000 - $74,999	77.6	(75.3 - 79.7)
≥ $75,000	74.0	(72.0 - 75.9)

[a] The proportion whose total reported consumption of fruits (including juice) and vegetables was less than five times per day.

Inadequate Fruit and Vegetable Consumption
**U.S. vs. Michigan, 1996-2005**
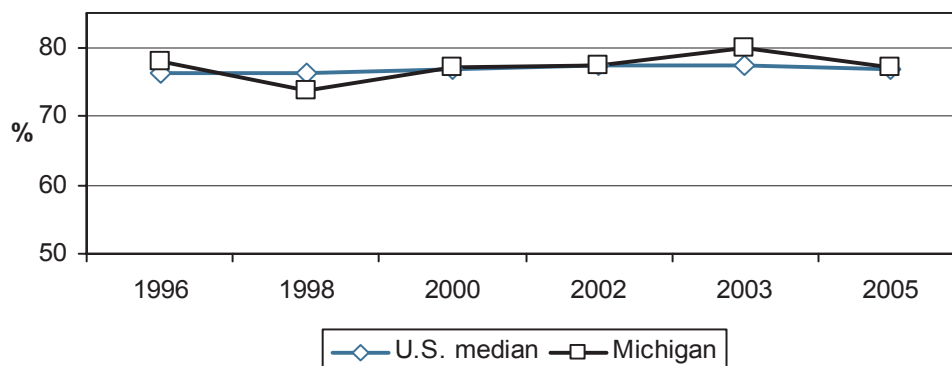
Cardiovascular Disease

Demographic Characteristics	Ever Told Heart Attack[a]		Ever Told Angina or Coronary Health Disease[b]		Ever Told Stroke[c]	
	%	95% Confidence Interval	%	95% Confidence Interval	%	95% Confidence Interval
Total	4.7	(4.3 - 5.1)	4.6	(4.2 - 5.0)	3.0	(2.7 - 3.3)
Age						
18 - 24	0.1	(0.01 - 0.7)	0.1	(0.02 - 1.0)	0.7	(0.3 - 2.0)
25 - 34	0.3	(0.1 - 1.0)	0.7	(0.4 - 1.4)	1.1	(0.6 - 2.0)
35 - 44	1.3	(0.9 - 2.0)	1.5	(1.0 - 2.4)	1.8	(1.3 - 2.6)
45 - 54	3.4	(2.7 - 4.4)	3.1	(2.4 - 4.0)	2.4	(1.8 - 3.2)
55 - 64	7.9	(6.7 - 9.3)	9.1	(7.8 - 10.6)	3.1	(2.5 - 4.0)
65 - 74	13.5	(11.7 - 15.5)	13.2	(11.5 - 15.1)	6.1	(4.9 - 7.5)
75 +	17.7	(15.5 - 20.1)	14.4	(12.5 - 16.6)	11.2	(9.5 - 13.1)
Gender						
Male	5.8	(5.2 - 6.5)	5.6	(5.0 - 6.3)	2.7	(2.2 - 3.2)
Female	3.6	(3.2 - 4.1)	3.7	(3.3 - 4.1)	3.2	(2.8 - 3.7)
Race/Ethnicity						
White non-Hispanic	4.8	(4.4 - 5.2)	4.7	(4.3 - 5.1)	2.8	(2.5 - 3.1)
Black non-Hispanic	4.5	(3.3 - 6.0)	3.9	(2.9 - 5.3)	4.0	(2.8 - 5.6)
Other non-Hispanic	4.8	(3.4 - 6.9)	5.8	(4.0 - 8.5)	3.1	(1.9 - 5.1)
Hispanic	2.8	(1.4 - 5.6)	2.2	(1.0 - 4.7)	3.4	(1.8 - 6.5)
Education						
< High school	8.4	(6.8 - 10.2)	7.4	(5.9 - 9.3)	6.1	(4.8 - 7.8)
High school grad	6.2	(5.4 - 7.0)	5.3	(4.6 - 6.0)	3.4	(2.9 - 4.1)
Some college	3.6	(3.1 - 4.3)	4.1	(3.5 - 4.9)	2.3	(1.9 - 2.9)
College grad	2.9	(2.4 - 3.6)	3.5	(2.9 - 4.1)	2.1	(1.7 - 2.8)
Household Income						
< $20,000	9.2	(7.8 - 10.8)	8.5	(7.2 - 10.0)	7.4	(6.1 - 8.9)
$20,000 - $34,999	6.6	(5.6 - 7.8)	6.8	(5.8 - 7.9)	3.1	(2.4 - 3.9)
$35,000 - $49,999	3.7	(2.9 - 4.8)	3.9	(3.1 - 5.0)	2.1	(1.5 - 3.0)
$50,000 - $74,999	3.1	(2.4 - 3.9)	3.4	(2.6 - 4.3)	1.9	(1.3 - 2.7)
≥ $75,000	2.0	(1.5 - 2.6)	2.1	(1.6 - 2.7)	1.0	(0.7 - 1.6)

Among all adults, the proportion who had ever been told by a doctor that: [a] they had a heart attack or myocardial infarction, [b] they had angina or coronary heart disease, or [c] they had a stroke.

Cardiovascular Disease by Gender
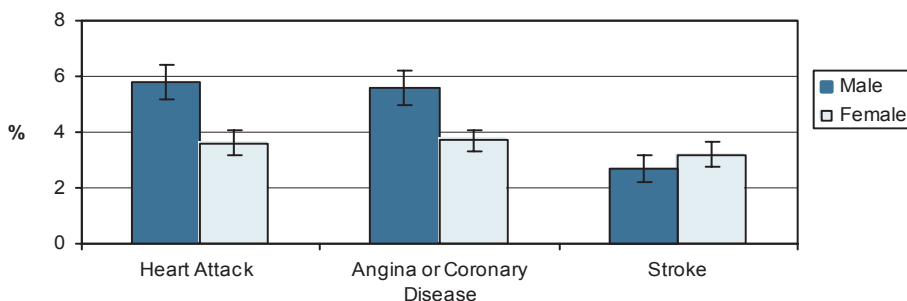
Heart disease and stroke are leading causes of death in the United States for both genders and all racial-ethnic groups.[24] More than 287 thousand people die each year with heart failure and another 550 thousand new cases are diagnosed each year.[25] Cardiovascular disease costs an estimated $300 billion annually.[24] Modifying risk factors offer the greatest potential for reducing death and disability from cardiovascular disease.[24]

In 2005, 4.7% of Michigan adults had ever been told they had a heart attack or myocardial infarction, 4.6% had ever been told angina or coronary health disease, and 3.0% had ever been told stroke. All three indicator estimates of cardiovascular disease decreased with education and income, and increased with age. Men were more likely than women to have ever been diagnosed with a heart attack (5.8% vs. 3.6%) and ever told angina or coronary heart disease (5.6% vs. 3.7%).

The proportion of adults aged 35 years and older who had ever been told by a doctor that they had a heart attack or myocardial infarction was 6.6% (6.1-7.1) in 2005. For this same age grouping, 6.3% (5.8-6.9) and 3.9% (3.5-4.3) had been diagnosed with angina or coronary heart disease and stroke respectively.

Hypertension Awareness and Medication Use

Adults with hypertension are at a higher risk for stroke, cardiovascular disease, and end stage renal disease.[26] Hypertension, according to the National Heart, Lung, and Blood Institute (NHLBI), should be diagnosed when the mean systolic blood pressure or the mean diastolic blood pressure is measured in two or more office visits to be greater than or equal to 140 millimeters of mercury (mm Hg) or 90 mm Hg, respectively.[26] In 1998, an estimated $108.8 billion was spent on health care for hypertension, including cardiovascular complications and other diagnoses associated with hypertension.[27]

Over a quarter of Michigan adults were estimated to have ever been told by a health care professional that they had high blood pressure in 2005 (27.8%). This proportion increased with age from 6.3% of those aged 18-24 years to 62.6% of those aged 75 years or older. Blacks were more likely than the other race-ethnic groups to have ever been told by a health care professional that they had high blood pressure with an estimate of 35.0%. The prevalence of high blood pressure decreased with higher education and income levels.

Among those who had ever been told that they had high blood pressure by a health care professional, an estimated 77.4% (75.7-79.1) were currently taking blood pressure medication in 2005. This proportion increased with age, from 33.0% (23.8-43.8) in the 25-34 years group to 93.2% (91.0-94.9) in the 75 years and older group. Although women and men were equally likely to have ever been told that they had high blood pressure, women were more likely than men to be currently taking blood pressure medication (83.3% [81.4-85.1] vs. 71.3% [68.4-74.1]).

Demographic Characteristics	Ever Told HBP[a]	
	%	95% Confidence Interval
Total	**27.8**	**(26.9 - 28.8)**
Age		
18 - 24	6.3	(4.5 - 8.8)
25 - 34	9.2	(7.5 - 11.2)
35 - 44	16.3	(14.6 - 18.3)
45 - 54	30.7	(28.6 - 32.8)
55 - 64	45.8	(43.5 - 48.0)
65 - 74	55.8	(53.1 - 58.3)
75 +	62.6	(59.9 - 65.4)
Gender		
Male	28.6	(27.1 - 30.1)
Female	27.2	(26.1 - 28.3)
Race/Ethnicity		
White non-Hispanic	27.0	(26.0 - 27.9)
Black non-Hispanic	35.0	(31.6 - 38.4)
Other non-Hispanic	25.3	(21.1 - 30.0)
Hispanic	23.9	(18.2 - 30.6)
Education		
< High school	35.5	(32.0 - 39.2)
High school grad	31.4	(29.7 - 33.1)
Some college	27.0	(25.3 - 28.7)
College grad	22.6	(21.1 - 24.1)
Household Income		
< $20,000	38.7	(36.0 - 41.6)
$20,000 - $34,999	32.8	(30.6 - 35.1)
$35,000 - $49,999	28.6	(26.2 - 31.0)
$50,000 - $74,999	24.0	(21.9 - 26.2)
≥ $75,000	20.3	(18.6 - 22.0)

[a] The proportion who reported that they were ever told by a health care professional that they have high blood pressure (HBP). Women who had high blood pressure only during pregnancy and adults who were borderline hypertensive were considered not to have been diagnosed.

Ever Told High Blood Pressure
U.S. vs. Michigan, 1995 - 2005
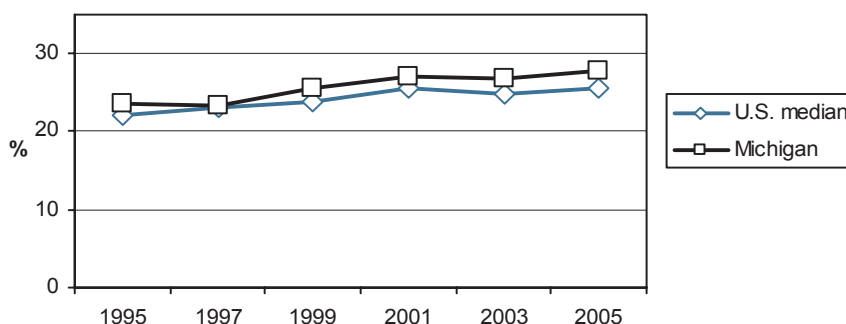
Cholesterol Screening and Awareness

Demographic Characteristics	Cholesterol Checked Within Past 5 Years		Told High Cholesterol[a]	
	%	95% Confidence Interval	%	95% Confidence Interval
Total	76.4	(75.4 - 77.4)	38.9	(37.8 - 40.0)
Age				
18 - 24	39.8	(35.5 - 44.3)	9.8	(6.4 - 14.8)
25 - 34	59.3	(56.2 – 62.2)	17.7	(14.9 - 20.9)
35 - 44	75.9	(73.7 - 77.9)	29.8	(27.4 - 32.3)
45 - 54	86.4	(84.7 - 87.8)	42.6	(40.3 - 44.9)
55 - 64	92.9	(91.5 - 94.0)	52.7	(50.4 - 55.1)
65 - 74	95.6	(94.3 - 96.6)	59.5	(56.9 - 62.1)
75 +	94.1	(92.7 - 95.3)	52.4	(49.4 - 55.4)
Gender				
Male	72.7	(71.0 - 74.4)	41.5	(39.7 - 43.3)
Female	79.9	(78.6 - 81.1)	36.6	(35.3 - 38.0)
Race/Ethnicity				
White non-Hispanic	76.5	(75.4 - 77.7)	39.5	(38.3 - 40.7)
Black non-Hispanic	79.7	(76.3 - 82.8)	35.2	(31.5 - 39.1)
Other non-Hispanic	70.2	(64.7 - 75.1)	36.0	(30.5 - 41.9)
Hispanic	68.7	(61.2 - 75.3)	38.8	(30.9 - 47.4)
Education				
< High school	64.8	(60.5 - 69.0)	46.7	(42.2 - 51.2)
High school grad	72.6	(70.6 - 74.5)	42.3	(40.3 - 44.3)
Some college	77.7	(75.7 - 79.5)	37.1	(35.0 - 39.1)
College grad	82.5	(80.0 - 84.1)	35.5	(33.7 - 37.4)
Household Income				
< $20,000	69.6	(66.4 - 72.7)	43.3	(40.2 - 46.6)
$20,000 - $34,999	74.3	(71.7 - 76.7)	44.5	(41.9 - 47.2)
$35,000 - $49,999	75.7	(72.9 - 78.2)	39.6	(36.8 - 42.5)
$50,000 - $74,999	80.3	(77.9 - 82.5)	35.7	(33.1 - 38.3)
≥ $75,000	81.6	(79.5 - 83.5)	34.5	(32.3 - 36.7)

[a] Among all respondents, the proportion who reported that they have had their blood cholesterol checked within the past five years.
[b] Among those who have 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.
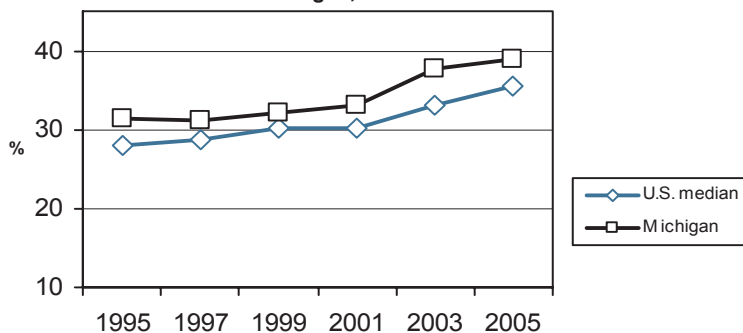
Ever Told High Cholesterol
U.S. vs. Michigan, 1995-2005

High blood cholesterol is one of the major risk factors attributing to coronary heart disease (CHD).[28-29] Clinical approaches to preventing CHD include testing adults aged 20 years and older at least once every five years to determine the blood level of low density lipoprotein cholesterol (LDL-C), and more often for those who have multiple risks, such as cigarette smoking, hypertension, family history, and age.[28-29] Therapeutic lifestyle changes such as better diet, one that is low in saturated fat, trans-fatty acids, and cholesterol; increased physical activity; and weight control have been shown to decrease the LDL-C blood levels.[28, 30]

In 2005, an estimated 76.4% of Michigan adults had their blood cholesterol checked within the past five years. Women were more likely than men to have their blood cholesterol checked within the past five years (79.9% vs. 72.7%). This proportion increased with age, education, and income levels.

Among Michigan adults who had ever had their cholesterol checked, an estimated 38.9% were ever told by a health care professional that it was high. This proportion increased with age from 9.8% of those aged 18-24 years to 59.5% of those aged 65-74 years, and then decreased to 52.4% of those aged 75 years and older. Even though women were more likely than men to have ever had their cholesterol checked (83.2% [81.9-84.3] vs. 76.9% [75.2-78.5]), men were more likely to have high cholesterol (41.5% vs. 36.6%).

The prevalence of high cholesterol among those tested has increased from 33.0% (31.2-34.8) in 2001 to 38.9% in 2005, while the prevalence of having been tested in the past five years has not significantly changed since 2001.

Alcohol Consumption

Alcohol abuse has been associated with serious health problems, such as cirrhosis of the liver, high blood pressure, stroke, and some types of cancer, and can increase the risk for motor vehicle accidents, injuries, violence, and suicide.[31-33] In Michigan, the percent of fatal motor vehicle crashes that involved any alcohol was 36.0% in 2005.[34]

In 2005, 16.7% of Michigan adults were estimated to have engaged in binge drinking, i.e., the consumption of five or more alcoholic beverages during one occasion. The prevalence of binge drinking decreased with age from 29.8% of those aged 18-24 years to 2.9% of those aged 75 years and older. Men were more likely than women (24.1% vs. 9.8%), and whites were more likely than blacks (17.8% vs. 10.4%) to have engaged in binge drinking. Among those who binge drank in the past month, the average number of binge drinking occasions was 3.9% (3.6-4.2). When compared to the United States median, Michigan has consistently had a higher prevalence of binge drinking. To achieve the *Healthy People 2010* goal of a binge drinking prevalence of 6% by 2010,[33] the prevalence in Michigan will need to drop more than 2.0 percentage points each year.

A estimated 5.7% (5.2-6.3) engaged in heavy drinking, which is the consumption of more than two alcoholic beverages per day for men or more than one alcoholic beverage per day for women.

About one-in-five underaged adults, aged 18-20 years, reported binge drinking in the previous month (21.4% [16.6-27.2]), and 7.3% (4.6-11.5) heavy drinking.

Demographic Characteristics	Binge Drinking[a]	
	%	95% Confidence Interval
Total	**16.7**	**(15.8 - 17.6)**
Age		
18 - 24	29.8	(26.0 - 34.0)
25 - 34	24.6	(22.1 - 27.4)
35 - 44	19.5	(17.7 - 21.6)
45 - 54	14.3	(12.8 - 16.0)
55 - 64	9.6	(8.3 - 11.0)
65 - 74	4.8	(3.8 - 6.1)
75 +	2.9	(2.1 - 4.1)
Gender		
Male	24.1	(22.6 - 25.7)
Female	9.8	(9.0 - 10.8)
Race/Ethnicity		
White non-Hispanic	17.8	(16.9 - 18.9)
Black non-Hispanic	10.4	(8.1 - 13.1)
Other non-Hispanic	15.1	(11.4 - 19.6)
Hispanic	16.2	(11.2 - 22.8)
Education		
< High school	16.3	(13.3 - 19.8)
High school grad	17.8	(16.2 - 19.5)
Some college	18.4	(16.7 - 20.2)
College grad	14.0	(12.6 - 15.6)
Household Income		
< $20,000	15.0	(12.7 - 17.7)
$20,000 - $34,999	14.8	(13.0 - 16.9)
$35,000 - $49,999	18.9	(16.6 - 21.5)
$50,000 - $74,999	20.6	(18.3 - 23.0)
≥ $75,000	18.6	(16.7 - 20.5)

[a] The proportion of respondents who reported consuming five or more drinks per occasion at least once in the previous month.

Binge Drinking
U.S. vs. Michigan, 1995-2005
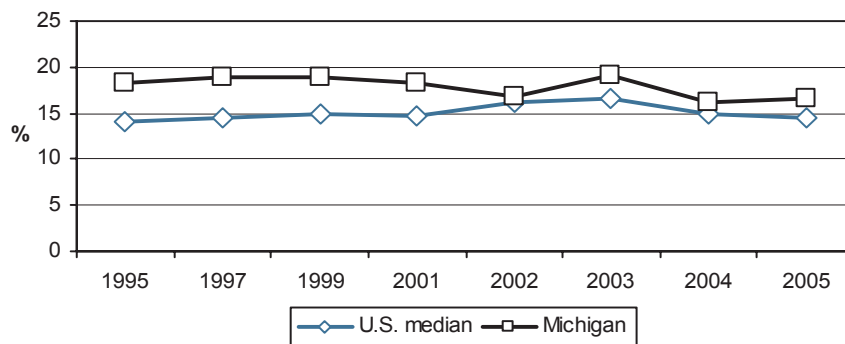
Cigarette Smoking

Demographic Characteristics	Current Smoking[a]	
	%	95% Confidence Interval
Total	**21.9**	**(21.0 - 22.9)**
Age		
18 - 24	26.0	(22.4 - 29.9)
25 - 34	28.9	(26.2 - 31.8)
35 - 44	25.5	(23.4 - 27.6)
45 - 54	24.8	(22.9 - 26.8)
55 - 64	17.4	(15.7 - 19.2)
65 - 74	11.2	(9.7 - 13.0)
75 +	5.0	(3.9 - 6.4)
Gender		
Male	23.8	(22.3 - 25.3)
Female	20.3	(19.2 - 21.4)
Race/Ethnicity		
White non-Hispanic	20.9	(19.9 - 21.9)
Black non-Hispanic	23.9	(20.9 - 27.2)
Other non-Hispanic	30.3	(25.6 - 35.5)
Hispanic	28.4	(22.1 - 35.6)
Education		
< High school	34.8	(31.0 - 38.9)
High school grad	28.1	(26.3 - 29.9)
Some college	22.8	(21.1 - 24.6)
College grad	10.8	(9.7 - 12.1)
Household Income		
< $20,000	32.6	(29.7 - 35.6)
$20,000 - $34,999	27.8	(25.6 - 30.2)
$35,000 - $49,999	23.6	(21.2 - 26.1)
$50,000 - $74,999	20.9	(18.7 - 23.2)
≥ $75,000	12.9	(11.5 - 14.6)

[a] The proportion who reported that they had ever smoked at least 100 cigarettes (five packs) in their life and that they smoke cigarettes now, either every day or on some days.

Current Cigarette Smoking
U.S. vs. Michigan, 1996-2005

Smoking contributes to the development of many kinds of chronic conditions, including cancers, respiratory diseases, and cardiovascular diseases, and "remains the leading preventable cause of premature death in the United States." [35] It has been estimated that smoking costs the United States $75.5 billion in direct medical expenditures for adults with an additional $81.9 billion in lost productivity.[35]

In 2005, an estimated 21.9% of Michigan adults were current smokers, and 26.1% [25.3-27.0] were estimated to be former smokers. Men were more likely than women to be current smokers (23.8% vs. 20.3%) and former smokers (28.4% [27.0-29.9] vs. 24.0% [23.0-25.1]), while women were more likely to have never smoked (55.7% [54.4-57.1] vs. 47.8% [46.1-49.5]). Whites and blacks had similar prevalence rates for current smoking, however, whites were more likely than blacks to be former smokers (28.0% [27.0-29.0] vs. 18.0% [15.6-20.7]), and blacks were more likely to have never smoked (58.1% [54.4-61.6] vs. 51.1% [50.0-52.3]). The prevalence of current smoking declined with age, education, and income level.

To achieve the *Healthy People* goal of a cigarette smoking prevalence of 12% by 2010,[36] the prevalence of current smokers in Michigan will need to drop about two percentage points each year.

An estimated 61.5% (59.1-63.8) of current smokers in Michigan tried to quit smoking for one day or longer in the past year.

Smoking affects not only the smokers but also those around them. Environmental smoke (second-hand smoke) has been linked to lung cancer deaths and heart disease in non-smoking adults and respiratory illnesses, such as asthma and bronchitis, in children.[37] Among current smokers, 47.4% (44.9-49.9) had at least one child living in their household. It is unknown if these households require current smokers to smoke outdoors.
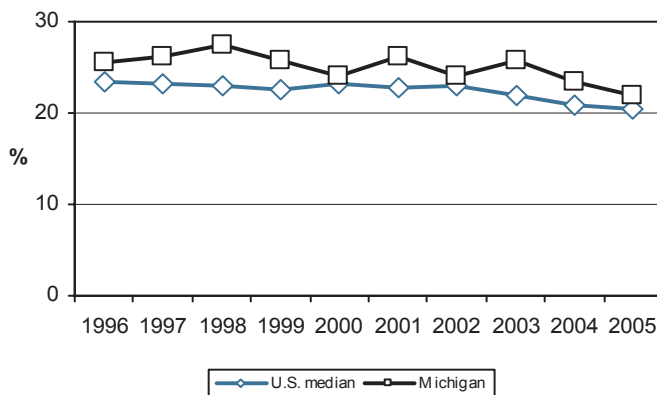
Asthma

Asthma is a chronic inflammatory disorder of the lungs, and is characterized by wheezing, coughing, difficulty breathing, and chest tightness. Asthma attacks can be triggered by a variety of factors, such as cold air, allergens, irritants, and respiratory viral infections. Allergies, a family history of asthma or allergy, low birth weight, and exposure to tobacco smoke are just a few potential risk factors that are associated with the development of asthma.[38-41]

In 2005, the estimated proportion of Michigan adults ever told by a health care professional that they had asthma was 13.8% and an estimated 9.0% of all Michigan adults currently had asthma. Women were more likely than men to have ever been told they had asthma (15.8% vs. 11.6%) and nearly twice as likely as men to have current asthma (11.3% vs. 6.5%).

Over the past five years, the proportion of Michigan adults who reported ever having asthma has been relatively consistent with the U.S. median.

Demographic Characteristics	Lifetime Asthma[a]		Current Asthma[b]	
	%	95% Confidence Interval	%	95% Confidence Interval
Total	**13.8**	**(13.0 - 14.6)**	**9.0**	**(8.4 - 9.6)**
Age				
18 - 24	18.1	(14.9 - 21.7)	10.3	(8.0 - 13.3)
25 - 34	14.4	(12.5 - 16.6)	9.7	(8.1 - 11.6)
35 - 44	14.9	(13.3 - 16.7)	9.5	(8.2 - 10.9)
45 - 54	12.5	(11.1 - 14.0)	8.2	(7.1 - 9.4)
55 - 64	12.3	(10.9 - 13.9)	8.1	(7.0 - 9.4)
65 - 74	12.1	(10.5 - 14.0)	9.0	(7.6 - 10.7)
75 +	10.8	(9.1 - 12.7)	8.0	(6.5 - 9.8)
Gender				
Male	11.6	(10.5 - 12.8)	6.5	(5.7 - 7.4)
Female	15.8	(14.8 - 16.9)	11.3	(10.4 - 12.2)
Race/Ethnicity				
White non-Hispanic	13.2	(12.4 - 14.0)	8.3	(7.7 - 9.0)
Black non-Hispanic	16.1	(13.6 - 19.1)	10.9	(8.8 - 13.3)
Other non-Hispanic	14.5	(11.2 - 18.6)	11.7	(8.7 - 15.6)
Hispanic	18.3	(13.2 - 24.9)	13.0	(8.7 - 19.0)
Education				
< High school	17.3	(14.4 - 20.6)	11.3	(9.1 - 14.0)
High school grad	12.8	(11.5 - 14.2)	9.2	(8.1 - 10.4)
Some college	14.6	(13.1 - 16.1)	9.4	(8.3 - 10.7)
College grad	13.2	(11.9 - 14.5)	7.8	(6.8 - 8.8)
Household Income				
< $20,000	18.8	(16.5 - 21.3)	13.9	(11.9 - 16.1)
$20,000 - $34,999	14.4	(12.8 - 16.2)	10.8	(9.3 - 12.4)
$35,000 - $49,999	12.0	(10.3 - 14.0)	7.7	(6.3 - 9.4)
$50,000 - $74,999	11.3	(9.8 - 13.1)	7.4	(6.2 - 8.9)
≥ $75,000	14.0	(12.4 - 15.8)	8.0	(6.8 - 9.4)

[a] The proportion who reported that they were ever told by a doctor, nurse, or other health care professional that they had asthma.
[b] Among all respondents, the proportion who reported that they still had asthma.

Lifetime Asthma
U.S. vs. Michigan, 2001 - 2005
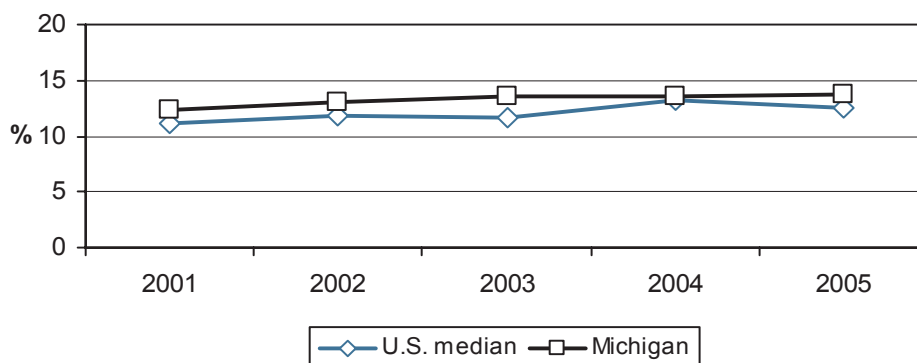
Arthritis

| Demographic Characteristics	Doctor-Diagnosed Arthritis[a]	
	%	95% Confidence Interval
Total	**30.9**	**(30.0 - 31.9)**
Age		
18 - 24	5.4	(3.8 - 7.6)
25 - 34	11.3	(9.5 - 13.3)
35 - 44	19.5	(17.7 - 21.5)
45 - 54	35.7	(33.6 - 37.8)
55 - 64	51.0	(48.7 - 53.2)
65 - 74	62.1	(59.5 - 64.7)
75 +	63.5	(60.7 - 66.2)
Gender		
Male	26.3	(24.9 - 27.7)
Female	35.2	(34.0 - 36.4)
Race/Ethnicity		
White non-Hispanic	31.4	(30.4 - 32.4)
Black non-Hispanic	29.9	(26.8 - 33.2)
Other non-Hispanic	30.0	(25.5 - 34.9)
Hispanic	21.5	(16.4 - 27.8)
Education		
< High school	37.5	(33.9 - 41.2)
High school grad	34.4	(32.7 - 36.1)
Some college	30.5	(28.8 - 32.3)
College grad	25.9	(24.3 - 27.4)
Household Income		
< $20,000	42.4	(39.5 - 45.3)
$20,000 - $34,999	36.9	(34.6 - 39.2)
$35,000 - $49,999	32.4	(30.0 - 34.9)
$50,000 - $74,999	25.6	(23.5 - 27.8)
≥ $75,000	23.0	(21.3 - 24.9)

[a] The proportion who reported ever being told by a health care professional that they had some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia.

Usual Activities Now Limited by Arthritis or Joint Symptoms by Gender 2005

Arthritis and rheumatism are the leading causes of disability in the United States.[42] With an aging United States population, it is estimated that the proportion of the population over the age of 64 will increase from 12.4% in 2000 to 19.7% in 2030.[43-45] Due to this trend, the number of persons with doctor-diagnosed arthritis is estimated to be 67 million by 2030. Two-thirds of those with arthritis will be women.[46]

In 2005, an estimated 30.9% of Michigan adults had ever been told by a health care professional that they had some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia. This proportion increased with age from 5.4% of those aged 18-24 years to 63.5% of those aged 75 years and older. Women were more likely than men to be diagnosed with arthritis (35.2% vs. 26.3%). This proportion declined with higher education and income levels. Among the race-ethnic groups, Hispanics had the lowest estimate at 21.5%. In 2005, 14.6% (13.8-15.3) of Michigan adults were estimated to have chronic joint symptoms but to have not yet been diagnosed with arthritis, gout, lupus, or fibromyalgia by a doctor or other health professional.

Over one-third (36.4% [34.8-38.0]) of those with doctor-diagnosed arthritis or chronic joint symptoms reported that they were limited in their usual activities because of arthritis or joint symptoms. The proportion limited by arthritis or joint symptoms was higher among women than men (40.5% [38.5-42.5] vs. 30.4% [27.8-33.2]) and decreased with increasing levels of both education and household income. The proportion who were limited by their arthritis was also higher among those who had doctor-diagnosed arthritis compared with those who had chronic joint symptoms but had not been diagnosed (36.4% [34.8-38.0] vs. 16.8% [14.8-19.0]).
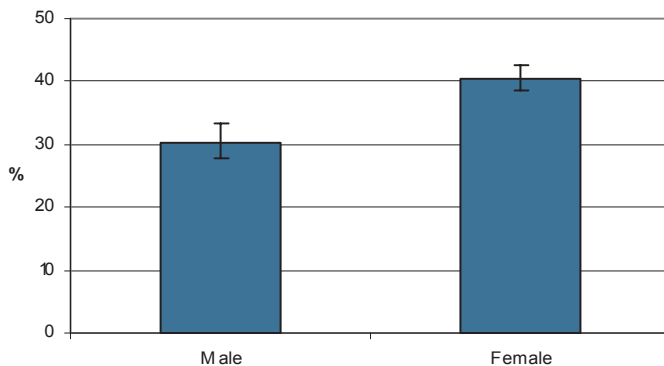
Disability

One goal of *Healthy People 2010* goal is to... "promote the health of people with disabilities, prevent secondary conditions, and eliminate disparities between people with and without disabilities in the U.S. population."[47] There is a myriad of definitions for disability, ranging from experiencing difficulty in participating in certain activities (such as lifting and carrying objects, seeing, hearing, talking, walking or climbing stairs) to having more severe disabilities that require assistance in personal care needs (i.e., bathing) or routine care needs (i.e., house-work).[48] Disability in the MI BRFS is defined as either being limited in any activities because of physical, mental, or emotional problems, or having any health problems that required them to use special equipment (such as a cane, a wheelchair, a special bed, or a special tele-phone).

An estimated 21.5% of Michigan adults were living with a disability in 2005. The proportion who had a disability increased with age from 10.4% of those aged 18-24 years to 40.8% of those aged 75 years or older. The proportion of adults who had a disability declined with edu-cation level.

The estimated proportion of Michigan adults who were limited in any activities was 19.9% (19.1-20.7) and the proportion who used spe-cial equipment due to a health problem was 6.9% (6.4-7.4).

The prevalence of disability in Michigan has increased from 19.5% (18.1-20.9) in 2001 to 21.5% in 2005.

In 2005, Michigan adults with disabilities were more likely than those without to have 14 or more days of physical health that was not good (35.6% [33.6-37.7] vs. 4.5% [4.0-5.0]) and were also more likely to have 14 or more days on which their mental health was not good (23.0% [21.2-24.9] vs. 7.4% [6.7-8.1]).

Demographic Characteristics	Disability[a]	
	%	95% Confidence Interval
Total	**21.5**	**(20.7 - 22.4)**
Age		
18 - 24	10.4	(8.1 - 13.3)
25 - 34	12.1	(10.3 - 14.2)
35 - 44	16.3	(14.6 - 18.2)
45 - 54	24.4	(22.5 - 26.3)
55 - 64	29.0	(26.9 - 31.1)
65 - 74	32.5	(30.1 - 35.0)
75 +	40.8	(38.0 - 43.6)
Gender		
Male	19.2	(17.9 - 20.5)
Female	23.7	(22.6 - 24.8)
Race/Ethnicity		
White non-Hispanic	20.9	(20.0 - 21.8)
Black non-Hispanic	24.4	(21.5 - 27.6)
Other non-Hispanic	25.3	(21.2 - 29.9)
Hispanic	17.4	(12.5 - 23.6)
Education		
< High school	33.4	(29.9 - 37.2)
High school grad	22.7	(21.2 - 24.3)
Some college	21.8	(20.2 - 23.4)
College grad	16.6	(15.3 - 17.9)
Household Income		
< $20,000	42.8	(39.8 - 45.8)
$20,000 - $34,999	25.8	(23.8 - 27.9)
$35,000 - $49,999	18.0	(16.1 - 20.1)
$50,000 - $74,999	14.6	(12.9 - 16.5)
≥ $75,000	13.4	(12.0 - 15.0)

[a] 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.

Disability by Age Group and Severity

Legend: Not disabled; Limited, no equip.; Not limited, use equip.; Limited and use equip.
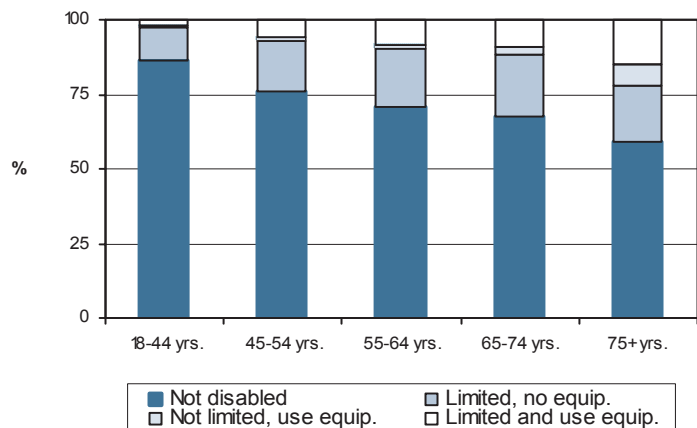
Adult Immunizations

Demographic Characteristics	Had Flu Vaccine in Past Year (65+)[a]		Ever Had Pneumonia Vaccine (65+)[b]	
	%	95% Confidence Interval	%	95% Confidence Interval
Total	**67.3**	**(65.4 - 69.1)**	**66.2**	(64.3 - 68.0)
Age				
65 - 74	62.5	(59.9 - 65.0)	59.3	(56.6 - 61.9)
75 +	71.9	(69.3 - 74.5)	72.9	(70.3 - 75.4)
Gender				
Male	69.4	(66.4 - 72.3)	64.2	(61.0 - 67.3)
Female	65.7	(63.4 - 68.0)	67.6	(65.3 - 69.8)
Race/Ethnicity				
White non-Hispanic	69.8	(67.9 - 71.6)	68.6	(66.7 - 70.5)
Black non-Hispanic	45.8	(38.1 - 53.7)	49.4	(41.4 - 57.4)
Other non-Hispanic	67.9	(55.7 - 78.0)	61.6	(48.5 - 73.3)
Hispanic	—[c]		—[c]	
Education				
< High school	63.7	(58.6 - 68.6)	61.7	(56.4 - 66.6)
High school grad	67.4	(64.4 - 70.2)	67.1	(64.1 - 69.9)
Some college	66.6	(62.6 - 70.3)	68.2	(64.3 - 71.9)
College grad	70.8	(66.9 - 74.5)	66.1	(62.1 - 69.9)
Household Income				
< $20,000	64.8	(60.7 - 68.7)	65.6	(61.6 - 69.4)
$20,000 - $34,999	68.9	(65.3 - 72.3)	65.2	(61.5 - 68.7)
$35,000 - $49,999	69.3	(64.4 - 73.8)	69.0	(64.0 - 73.7)
≥ $50,000	69.3	(61.8 - 75.8)	64.6	(59.5 - 69.4)

[a] Among those 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 year.
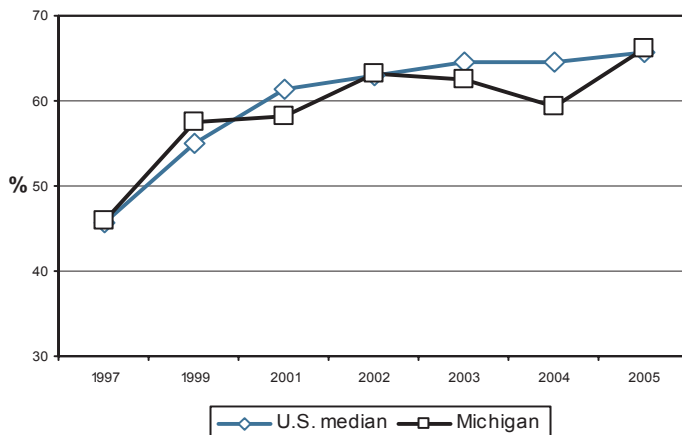[b] Among those aged 65 years and older, the proportion who reported that they ever had a pneumococcal vaccine.
[c] The denominator in this subgroup was less than 50.

Ever Had a Pneumococcal Vaccination Among Adults Aged 65 and Older U.S. vs. Michigan, 1997-2005

Adult immunizations against influenza and pneumococcal disease are important health indicators that need to be routinely monitored since morbidity and mortality are associated with both of these diseases.[49-50] Influenza and pneumonia were the sixth leading cause of death in 2004 among adults 65 years and older in the United States, attributing to 54,485 deaths.[51]

A *Healthy People 2010* objective is to ensure that 90% of adults aged 65 years and older are vaccinated annually against influenza and have ever been vaccinated against pneumococcal disease.[50] Results from the 2005 MI BRFS indicate that two-thirds (67.3%) of Michigan adults aged 65 years and older were immunized against influenza in the past year, and 66.2% had ever received a pneumococcal vaccination, and 53.3% (51.3-55.3) had received both. Although the prevalence of current flu vaccination has not changed significantly since 1997, the prevalence of ever receiving the pneumonia vaccine has increased 45% (from 45.8% to 66.2%).

Another objective is to increase the vaccination rate to 60% among those aged 18-64 years who have chronic health conditions such as diabetes and asthma.[50] Morbidity and mortality related to influenza and pneumoccocal disease is higher among those who have diabetes.[52-54] Among those aged 18-64 years, an estimated 37.8% (33.4-42.3) of those who had diabetes had an influenza vaccination in the past year compared with 16.6% (15.7-17.5) of those without diabetes. An estimated 38.0% (33.6-42.5) of those who had diabetes had a pneumococcal shot compared to 12.6% (11.7-13.5) of those who did not have diabetes. Also among this age group, those who had current asthma were more likely to have had an influenza vaccination than those who did not have asthma (24.8% [21.6-28.3] vs. 17.2% [16.3-18.2]).

HIV Testing

It is estimated that 16,200 people are living with HIV/AIDS in Michigan, 4,500 of whom do not know that they are infected.[55] Early awareness of an HIV infection through testing can prevent further spread of the disease, and an early start on antiretroviral therapy can increase the quality of life among those who are living with HIV/AIDS.[56-57]

An estimated 39.5% of Michigan adults aged 18-64 years had ever been tested for HIV, apart from blood donations. The prevalence of HIV testing decreased with age from 58.5% among those aged 25-34 years to 18.5% among those aged 55-64 years. Women were more likely than men to have been tested (43.1% vs. 35.8%) and blacks were more likely than other race-ethnic groups with an estimate of 58.7%. The proportion tested declined with income level.

Since 2000, the prevalence of HIV testing in Michigan among adults aged 18-64 years has decreased 18.6% (from 48.5% to 39.5%).

The most frequently reported places where Michigan adults had received their last HIV test were at a private doctor or HMO (44.2% [42.2-46.2]), at a hospital (19.7% [18.2-21.3]), and at a clinic (18.6% [17.0-20.3]).

It was also estimated from the 2005 MI BRFS that 4.3% (3.7-4.9) of Michigan adults aged 18-64 years engaged in at-risk behaviors for acquiring HIV in the past year. At-risk behaviors included having used intravenous drugs, having been treated for a sexually transmitted or venereal disease, having given or received money or drugs in exchange for sex, or having had anal sex without a condom. This proportion decreased from 10.6% (8.2-13.8) of those aged 18-24 years to 1.3% (0.8-2.1) of those aged 55-64 years. This proportion also declined with education and income levels.

Demographic Characteristics	Ever Had an HIV Test Among 18 - 64 Year Olds[a]	
	%	95% Confidence Interval
Total	**39.5**	**(38.3 - 40.7)**
Age		
18 - 24	33.9	(29.9 - 38.0)
25 - 34	58.5	(55.5 - 61.4)
35 - 44	48.6	(46.2 - 51.0)
45 - 54	32.1	(30.0 - 34.2)
55 - 64	18.5	(16.8 - 20.4)
Gender		
Male	35.8	(34.0 - 37.8)
Female	43.1	(41.5 - 44.6)
Race/Ethnicity		
White non-Hispanic	35.8	(34.5 - 37.1)
Black non-Hispanic	58.7	(54.5 - 62.7)
Other non-Hispanic	44.0	(38.3 - 49.8)
Hispanic	48.2	(40.5 - 56.0)
Education		
< High school	39.6	(34.6 - 44.9)
High school grad	36.1	(33.8 - 38.4)
Some college	41.4	(39.2 - 43.7)
College grad	40.8	(38.7 - 42.9)
Household Income		
< $20,000	47.4	(43.4 - 51.4)
$20,000 - $34,999	43.4	(40.4 - 46.5)
$35,000 - $49,999	37.7	(34.6 - 40.9)
$50,000 - $74,999	38.4	(35.7 - 41.2)
≥ $75,000	38.7	(36.5 - 41.0)

Note: 'Don't know' was considered a valid response (1.9% [CI 1.6-2.2]).
[a] Among those 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.

Ever Tested for HIV Among Adults Aged 18-64 Years Michigan, 1998-2005
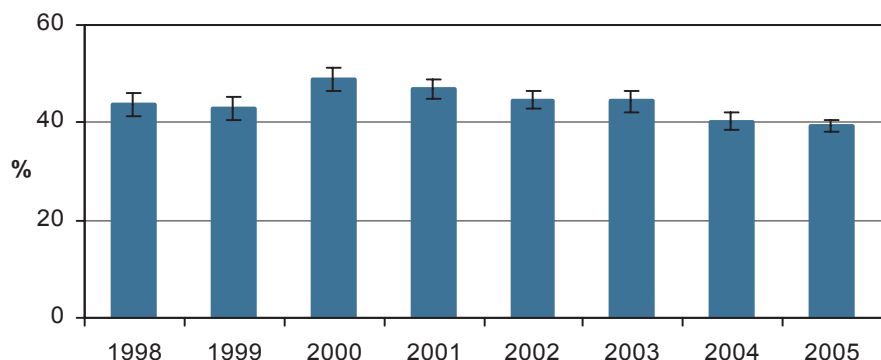
BRFS Methods

The national Behavioral Risk Factor Surveillance System (BRFSS) consists of annual surveys conducted independently by the states, District of Columbia, and U.S. territories and is coordinated through a cooperative agreement with the Centers for Disease Control and Prevention (CDC). The annual Michigan surveys follow the CDC telephone survey protocol for the BRFSS and use the standardized English core questionnaire. The 2005 Michigan BRFS data were collected quarterly by the Institute for Public Policy and Social Research at Michigan State University. The sample of telephone numbers was selected using a list-assisted, random-digit-dialed methodology with disproportionate stratification based on listedness.

The 2005 Michigan BRFS data were weighted to adjust for the probabilities of selection (based on the probability of telephone number selection, the number of adults in the household, and the number of residential phone lines) and a post-stratification weighting factor that adjusted for sex, age, and race (using 2004 estimated Michigan population distributions with bridged race categories).[58] Calculations of the prevalence estimates and confidence interval limits were performed using SUDAAN (version 9.0), a statistical computing program that was designed for analyzing data from multistage sample surveys.[59]

In previous reports, confidence intervals were presented as ± half of the width of a symmetric confidence interval (1.96 times the standard error). In this 2005 report, asymmetric confidence intervals are included, since they are now calculated by SUDAAN (v9.0). The following rule of thumb is used for interpreting the 95% confidence interval for two different subpopulations (i.e., gender, race): if the two confidence intervals do not overlap, they are probably statistically different from one another. In addition, selected pair-wise comparisons were tested for statistical significance using a t-test or chi-square. Although results of these statistical tests are not reported, they were used to guide the presentation of the results.

Unless otherwise specified, respondents who answered that they did not know or refused to answer were not included in the calculation of estimates.

For comparison purposes, the median of estimates from all participating states and territories is used as a national estimate. In 2005, 50 states, two territories, and the District of Columbia participated.

SAMPLE RESULTS

A total of 97,350 telephone numbers were used for the 2005 Michigan BRFS. The final call dispositions for the sample numbers fell into the following categories: 12,136 completed and partially completed interviews; 2,987 interviews were terminated after the respondent was selected; 2,921 eligible respondents were not able to complete interviews (i.e. selected respondent away from residence, a language problem occurred after the respondent was selected, etc.); 24,481 numbers were of unknown eligibility (i.e., a private residence answering machine, household away, etc.); and 54,825 numbers were not eligible.

The CASRO (Council of American Survey Research Organizations) response rate,[60] which includes a portion of the dispositions with unknown eligibility in the denominator of the rate, was 51.1%.

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