

Health Risk Behaviors in the State of Michigan 2003 Behavioral Risk Factor Survey

17th Annual Report



Michigan Department
of Community Health



*Michigan Department
of Community Health*





2003 Behavioral Risk Factor Survey

Health Risk Behaviors
in the State of Michigan

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2003 BRFs Summary

This report presents estimates from the 2003 Michigan Behavioral Risk Factor Survey (BRFS). The BRFS is a statewide telephone survey of Michigan residents, aged 18 years and older. This survey 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. These results 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 2003 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.



Selected Risk Factors	Michigan Estimates (%)	National Estimates	
		Median (%) ^a	Range (%) ^b
Health Status (Fair/Poor)	15.1	14.9	10.7 - 35.0
Inadequate Fruit and Vegetable Consumption (<5 Times per Day)	79.8	77.5	66.1 - 84.7
Obesity (BMI ≥ 30.0)	25.4	22.8	16.0 - 28.4
Overweight (25.0 ≤ BMI < 30.0)	36.6	36.7	31.9 - 40.7
No Leisure-Time Physical Activity	21.8	23.1	15.0 - 45.2
High Blood Pressure	26.8	24.8	18.8 - 33.6
High Cholesterol (Among Tested)	37.6	33.1	27.0 - 38.1
Binge Drinking	19.1	16.5	6.6 - 24.2
Heavy Drinking	6.1	5.7	2.2 - 8.6
Current Smoking Status	25.8	22.0	10.0 - 34.0
Current Asthma	9.3	7.6	4.5 - 10.8
Ever Asthma	13.6	11.7	9.2 - 20.7
Diabetes	7.9	7.1	4.7 - 11.0

^a The median value of the prevalence estimates compiled from the 50 U.S. states, Washington, D.C., Guam, Puerto Rico, and Virgin Islands.

^b The lowest and highest prevalence estimates among all states, Washington D.C., and U.S. territories that participated in 2003.

2003 BRFs Summary by Gender

Men

Selected Risk Factors for Men	Michigan Estimates (%)	National Estimates	
		Median (%) ^a	Range (%) ^b
Health Status (Fair/Poor)	14.0	14.0	9.8 - 31.0
Inadequate Fruit and Vegetable Consumption (<5 Times per Day)	84.8	82.3	68.5 - 88.1
Obesity (BMI ≥ 30.0)	25.7	23.0	14.9 - 30.5
Overweight (25.0 ≤ BMI < 30.0)	43.4	44.1	39.0 - 48.3
No Leisure-Time Physical Activity	19.7	20.8	14.7 - 38.1
High Blood Pressure	27.5	25.1	19.5 - 35.0
High Cholesterol (Among Tested)	41.3	33.8	25.1 - 41.3
Binge Drinking	28.4	24.9	10.5 - 33.3
Heavy Drinking	7.7	6.9	2.7 - 9.8
Current Smoking Status	29.5	24.7	13.9 - 42.0
Current Asthma	7.3	5.6	3.0 - 7.9
Ever Asthma	11.8	10.0	6.8 - 16.2
Diabetes	7.6	7.3	4.3 - 10.8

Women

Selected Risk Factors for Women	Michigan Estimates (%)	National Estimates	
		Median (%) ^a	Range (%) ^b
Health Status (Fair/Poor)	16.1	15.3	10.3 - 38.6
Inadequate Fruit and Vegetable Consumption (<5 Times per Day)	75.1	73.0	61.6 - 82.7
Obesity (BMI ≥ 30.0)	25.0	21.9	15.1 - 29.6
Overweight (25.0 ≤ BMI < 30.0)	29.9	29.1	24.6 - 34.6
No Leisure-Time Physical Activity	23.8	24.9	15.4 - 51.4
High Blood Pressure	26.1	24.9	18.1 - 34.3
High Cholesterol (Among Tested)	34.5	32.1	24.2 - 41.7
Binge Drinking	10.5	8.4	2.2 - 15.5
Heavy Drinking	4.8	4.6	0.6 - 8.0
Current Smoking Status	22.3	20.3	6.6 - 28.1
Current Asthma	11.2	9.5	5.8 - 14.1
Ever Asthma	15.3	13.2	9.2 - 24.6
Diabetes	8.2	7.0	3.9 - 11.5

^a The median value of the prevalence estimates compiled from the 50 U.S. states, Washington, D.C., Guam, Puerto Rico, and Virgin Islands.

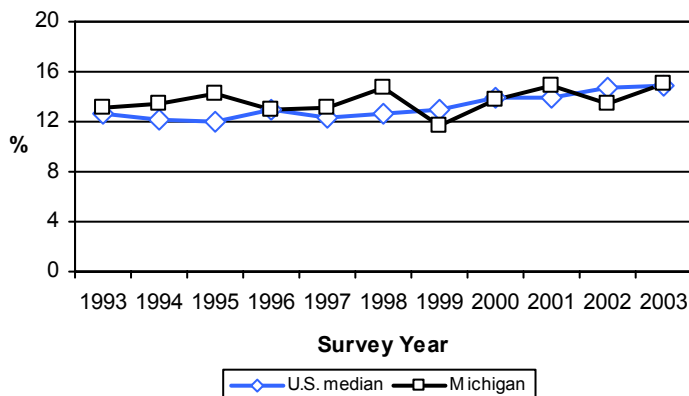
^b The lowest and highest prevalence estimates among all states, Washington D.C., and U.S. territories that participated in 2003.

Health Status

Health Status 2003 Michigan BRFSS (% ± 95% Confidence Interval Limit)	
Demographic Characteristics	General Health, Fair or Poor ^a
Total	15.1 ± 1.3
Age	
18 - 24	8.6 ± 3.8
25 - 34	7.4 ± 2.6
35 - 44	10.3 ± 2.6
45 - 54	15.7 ± 3.0
55 - 64	23.1 ± 3.8
65 - 74	22.6 ± 4.7
75 +	32.9 ± 5.0
Gender	
Male	14.0 ± 2.0
Female	16.1 ± 1.7
Race	
White	13.5 ± 1.3
Black	24.2 ± 5.3
Education	
< High school	32.7 ± 5.6
High school grad	18.8 ± 2.6
Some college	13.5 ± 2.2
College grad	5.7 ± 1.4
Household Income	
< \$20,000	33.5 ± 4.6
\$20,000 - \$34,999	19.3 ± 3.2
\$35,000 - \$49,999	13.4 ± 3.2
\$50,000 - \$74,999	7.0 ± 2.1
\$75,000 +	4.3 ± 1.6

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

Figure 1: General Health: Fair or Poor U.S. vs. Michigan, 1993-2003

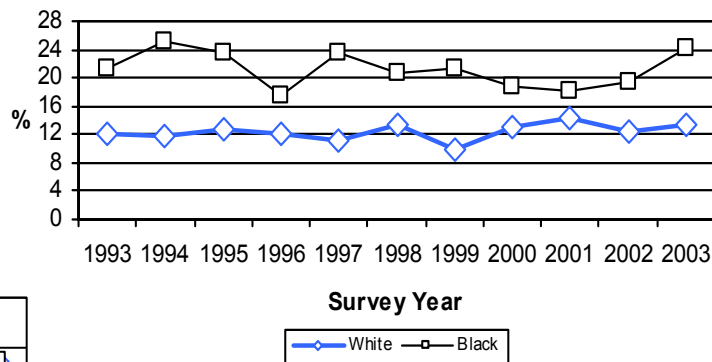


Self-rated general health status, along with quality of life measures, is useful in determining unmet health needs, identifying disparities among subpopulations, and characterizing the burden of chronic diseases within a population.¹⁻² Perceived poor health represents the disability in a population that standard morbidity and mortality rates do not reflect.^{1,3} The prevalence of self-rated fair or poor health status has been found to be higher within older age groups, females, minorities, and lower education and household income levels.⁴⁻⁶

In 2003, an estimated 15.1% of Michigan adults perceived that their general health was either fair or poor. The proportion who reported fair or poor health increased with age from 35 years and older. Blacks were more likely than Whites to report that their general health was either fair or poor (24.2% vs. 13.5%). The estimated proportion who reported fair or poor health decreased with education and income levels.

Over the past 11 years, the proportion of Michigan adults who reported fair or poor health has been relatively constant with the U.S. median (Fig. 1). Blacks who lived in Michigan have consistently had a higher prevalence estimate than Whites (Fig. 2).

Figure 2: General Health: Fair or Poor by Race, Michigan 1993-2003



“Would you say that in general your health is . . . excellent, very good, good, fair, or poor?”

Quality of Life

Among adults in the United States, those who have chronic diseases or disabilities report a higher number of unhealthy days within a previous month than those who do not have chronic conditions or disabilities.⁶⁻⁷ 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.⁶⁻⁸

An estimated 10.1% of Michigan adults in 2003 had more than two weeks of physical health that was not good in the past month. The proportion who experienced this level of poor physical health increased with age from 4.3% of those aged 18-24 years to 18.2% of those aged 75 years and older. Women were more likely than men to have experienced physical health that was not good (11.6% vs. 8.3%). This proportion decreased with higher education and income levels.

An estimated 11.3% of Michigan adults had mental health that was not good on at least 15 days in the past month. This proportion was lower among older age groups. Women were more likely than men (12.6% vs. 9.9%), and Blacks were more likely than Whites (16.6% vs. 10.6%) to have had poor mental health. This proportion decreased with higher education and income levels.

In the past 30 days, the average number of days a Michigan adult did not have good physical health in 2003 was 3.7 days, and for mental health that was 3.9 days.

Figure 3 demonstrates the association of poor mental and physical health by age, according to the 2003 Michigan BRFSS. This association in Michigan is as the literature indicated—older adults tend to experience more physical health that is not good while younger adults tend to experience more mental health that is not good.

Health Status Not Good on at Least 15 Days in the Past Month

2003 Michigan BRFSS

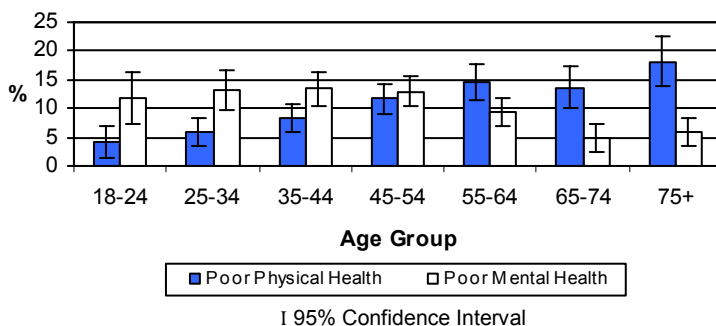
(% ± 95% Confidence Interval Limit)

Demographic Characteristics	Physical Health Not Good ^a	Mental Health Not Good ^b
Total	10.1 ± 1.1	11.3 ± 1.3
Age		
18 - 24	4.3 ± 2.8	11.9 ± 4.5
25 - 34	5.9 ± 2.4	13.1 ± 3.5
35 - 44	8.4 ± 2.4	13.4 ± 3.0
45 - 54	11.8 ± 2.6	12.9 ± 2.6
55 - 64	14.6 ± 3.2	9.4 ± 2.5
65 - 74	13.6 ± 3.7	4.9 ± 2.4
75 +	18.2 ± 4.2	5.9 ± 2.4
Gender		
Male	8.3 ± 1.6	9.9 ± 1.9
Female	11.6 ± 1.5	12.6 ± 1.6
Race		
White	9.6 ± 1.2	10.6 ± 1.3
Black	12.9 ± 4.1	16.6 ± 4.9
Education		
< High school	19.8 ± 4.8	17.6 ± 4.7
High school grad	10.2 ± 1.9	13.9 ± 2.5
Some college	11.1 ± 2.1	11.7 ± 2.3
College grad	5.1 ± 1.5	5.7 ± 1.6
Household Income		
< \$20,000	22.9 ± 4.2	21.1 ± 4.3
\$20,000 - \$34,999	13.0 ± 2.7	12.5 ± 2.9
\$35,000 - \$49,999	8.4 ± 2.4	12.9 ± 3.3
\$50,000 - \$74,999	3.8 ± 1.5	5.2 ± 1.9
\$75,000 +	3.8 ± 1.5	6.7 ± 2.3

^a The proportion who reported 15 or more days to the following question: "Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?"

^b The proportion who reported 15 or more days to the following question: "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?"

Figure 3: Health Status Not Good by Age Michigan, 2003



No Health Care Coverage

Health Care Coverage Among Adults Aged 18-64 2003 Michigan BRFS

(% ± 95% Confidence Interval Limit)

Demographic Characteristics	No Health Care Coverage ^a
Total	12.7 ± 1.6
Age	
18 - 24	24.4 ± 5.9
25 - 34	14.3 ± 3.8
35 - 44	11.3 ± 2.9
45 - 54	8.6 ± 2.3
55 - 64	7.4 ± 2.4
Gender	
Male	15.2 ± 2.5
Female	10.2 ± 1.8
Race	
White	12.3 ± 1.7
Black	14.9 ± 5.2
Education	
< High school	29.1 ± 7.3
High school grad	16.6 ± 6.1
Some college	11.9 ± 2.7
College grad	4.5 ± 1.6
Household Income	
< \$20,000	36.9 ± 6.2
\$20,000 - \$34,999	19.8 ± 4.2
\$35,000 - \$49,999	10.1 ± 3.6
\$50,000 - \$74,999	4.0 ± 2.1
\$75,000 +	1.9 ± 1.5

^a The proportion of those aged 18-64 years who reported having no health care coverage, including health insurance, prepaid plans such as HMOs, or government plans, such as Medicare. (n=2704)

Utilization of preventive health care services could reduce the prevalence of diseases and chronic conditions in the United States, but uninsured adults are less likely than those who are insured to use preventive services, such as mammography, pap tests, prostate exams, influenza vaccinations, and cholesterol tests.⁹ Adults who do not have insurance delay getting needed medical attention¹⁰ and are more likely than those who have health insurance to have more health risk factors, such as current smoking status, being overweight or obese, and lack of physical activity.¹¹

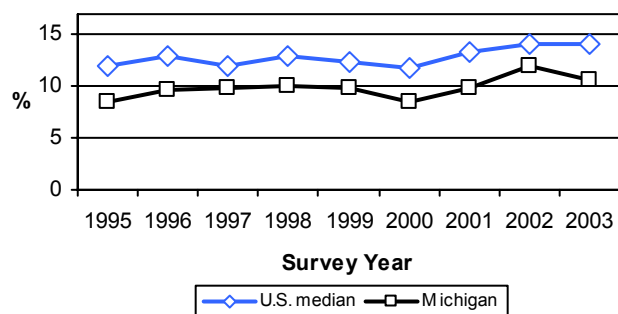
In the 2003 BRFS, an estimated 12.7% of Michigan adults aged 18-64 had no health care coverage. This proportion decreased with age from 24.4% of those aged 18-24 years to 7.4% of those aged 55-64 years. Men were more likely than women to be uninsured (15.2% vs. 10.2%). The proportion who were uninsured decreased with education and income levels.

In the past nine years, Michigan has consistently had a lower proportion of adults who did not have health care coverage than the U.S. median (Fig. 4).

An estimated 16.4% (± 1.5%) of Michigan adults did not have a personal doctor or health care provider in 2003. This proportion was highest among adults aged 18-24 years (28.4 ± 6.2%) and aged 25-34 years (25.0 ± 4.5%). Men were less likely than women (22.1 ± 2.6% vs. 11.2 ± 1.6%), and Blacks were less likely than Whites (23.3 ± 5.7% vs. 15.4 ± 1.6%) to have a personal health care provider.

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 10.9% (± 1.3%). Blacks were twice as likely as Whites (18.0 ± 5.1% vs. 9.4 ± 1.3%) to not see the doctor due to cost. Adults who did not graduate from high school (20.5 ± 5.3%) were over three times as likely as those who were college graduates (6.3 ± 1.8%) to have not gotten care, and were nearly twice as likely as those who were high school graduates (11.4 ± 2.3%) or had some college education (11.3 ± 2.3%). This proportion was higher among low income groups.

**Figure 4: No Health Care Coverage
Among Adults Aged 18 Years and Older
U.S. vs. Michigan, 1995-2003**



“Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?”

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.¹²⁻¹⁴ Among modifiable health behaviors, poor nutrition and physical inactivity have been ranked second highest for annual deaths, contributing to an estimated 300,000 deaths.¹⁵

An estimated eight out of ten Michigan adults in 2003 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 (84.8% vs. 75.1%). This proportion was lower among college graduates (71.5%) when compared to any other educational level, and was lower among those whose annual household income was \$75,000 or more (73.7%) when compared to any other income level.

The median number of times per day Michigan adults consumed fruits and vegetables was 3.2 in 2003; the median number for fruits and juice was 1.1 times per day and for vegetables was 1.9 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 U.S. median among participating states and U.S. territories (Fig. 5).

Inadequate Fruit and Vegetable Consumption

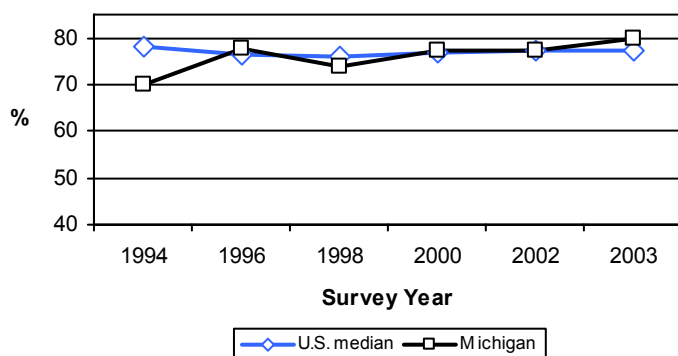
2003 Michigan BRFS

(% ± 95% Confidence Interval Limit)

Demographic Characteristics	Fruits and Vegetables ^a (< 5 times / day)
Total	79.8 ± 1.5
Age	
18 - 24	81.4 ± 5.4
25 - 34	81.1 ± 4.0
35 - 44	84.6 ± 2.9
45 - 54	82.5 ± 3.0
55 - 64	78.6 ± 3.6
65 - 74	70.5 ± 4.9
75 +	66.4 ± 5.1
Gender	
Male	84.8 ± 2.1
Female	75.1 ± 2.0
Race	
White	79.9 ± 1.6
Black	84.7 ± 4.6
Education	
< High school	83.2 ± 4.5
High school grad	85.1 ± 2.3
Some college	81.2 ± 2.7
College grad	71.5 ± 3.0
Household Income	
< \$20,000	81.6 ± 3.7
\$20,000 - \$34,999	83.1 ± 3.0
\$35,000 - \$49,999	82.5 ± 3.5
\$50,000 - \$74,999	81.3 ± 3.4
\$75,000 +	73.7 ± 3.7

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

Figure 5: Inadequate Fruit and Vegetable Consumption (<5 Times/Day) U.S. vs. Michigan, 1994-2003



Weight Status

Weight Status 2003 Michigan BRFSS (% ± 95% Confidence Interval Limit)

Demographic	Obese ^a
Total	25.4 ± 1.7
Age	
18 - 24	13.6 ± 4.7
25 - 34	22.7 ± 4.4
35 - 44	27.3 ± 3.9
45 - 54	27.8 ± 3.7
55 - 64	33.2 ± 4.4
65 - 74	32.8 ± 5.3
75 +	18.4 ± 4.3
Gender	
Male	25.7 ± 2.6
Female	25.0 ± 2.1
Race	
White	23.7 ± 1.7
Black	37.1 ± 6.2
Education	
< High school	29.8 ± 5.7
High school grad	26.8 ± 3.1
Some college	28.6 ± 3.3
College grad	19.1 ± 2.7
Household Income	
< \$20,000	32.1 ± 4.8
\$20,000 - \$34,999	27.0 ± 3.7
\$35,000 - \$49,999	26.7 ± 4.2
\$50,000 - \$74,999	25.9 ± 4.1
\$75,000 +	19.3 ± 3.4

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.

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.¹⁶ Overweight is defined as having a body mass index (BMI) between 25.0 and 29.9; an obese weight status is a BMI greater than or equal to 30.0. BMI is defined as weight in kilograms divided by height in meters squared (w/h^2) and was calculated from the self-reported height and weight measurements of Michigan residents participating in the 2003 BRFSS. True obesity rates may be higher because overweight respondents are more likely to overestimate their height and underestimate their weight.¹⁷ Gender also plays a significant role since women tend to self-report a weight that is lower than their actual weight, whereas young men self-report an overestimate of their current weight.¹⁷

An estimated 25.4% of Michigan adults were obese in 2003. The proportion of adults who were obese increased with age from 13.6% of those aged 18-24 years to 33.2% of those aged 55-64 years, and then decreased to 18.4% of those aged 75 years and older. Blacks were more likely than Whites to be obese (37.1% vs. 23.7%). This proportion was lower among college graduates (19.1%) compared with all other education groups, and among Michigan adults who had an annual household income greater than or equal to \$75,000 compared with all other income levels.

In 2003, an estimated 36.6% ($\pm 1.9\%$) of Michigan adults were overweight, having a BMI between 25.0 and 29.9. Men were more likely than women ($43.4 \pm 3.0\%$ vs. $29.9 \pm 2.2\%$), and Whites were more likely than Blacks to be overweight ($37.4 \pm 2.0\%$ vs. $31.5 \pm 5.9\%$). Adults who had an annual household income greater than or equal to \$75,000 were more likely to be overweight than those who had an income level of <\$20,000 ($41.1 \pm 4.1\%$ vs. $31.4 \pm 4.7\%$).

Michigan has consistently had higher obesity prevalence rates than the U.S. median (Fig. 6). The state of Michigan was tied for the sixth highest obesity level among all participating states and territories, and between 1997 and 2003, the prevalence of obesity among Blacks in Michigan had increased 2.1 times more than among Whites (Fig. 7).

Figure 6: Obesity
U.S. vs. Michigan, 1997-2003

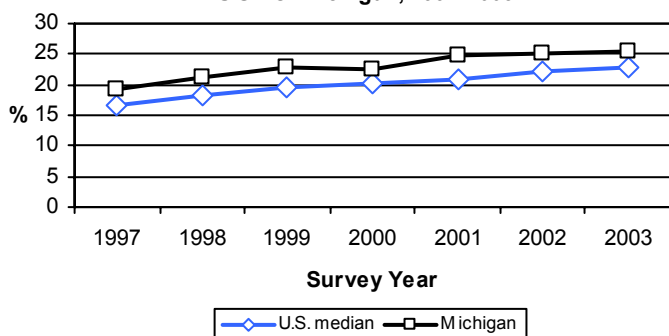
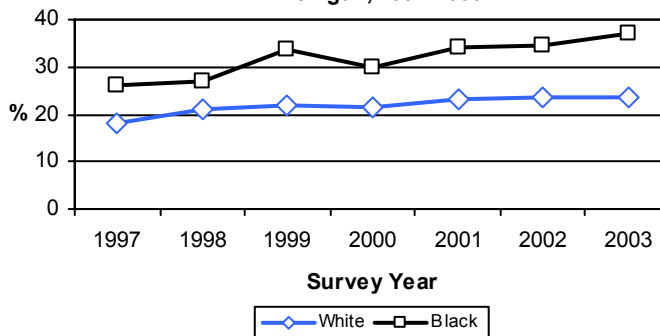


Figure 7: Obesity by Race
Michigan, 1997-2003



Advised by Doctor to Lose Weight

National surveys indicate that a minority of obese adults are being advised by their doctor to lose weight. However, those who receive this advice are more likely to be trying to lose weight than those who do not.¹⁸ In 1996, only 42% of obese patients in the United States who had a routine checkup in the previous year reported being told by a health care professional to lose weight.¹⁸ The National Institutes for Health (NIH) in 1998 had recommended that all health care professionals should advise patients who are obese to lose weight.¹⁹

As shown on the previous page, an estimated 25.4% of Michigan adults were obese in 2003, and all of them should have been advised by a health care provider to lose weight. However, only 34.8% of Michigan adults who were obese in 2003 were estimated to have been advised by a health care professional in the past year that they needed to lose weight. Those aged 18-34 years (25.1%) were less likely to be advised than those aged 35-54 years (36.2%) and those aged 55 years and older (39.3%). This proportion was lower among those who did not have a high school diploma (24.3%) than among any other educational level.

Nearly three out of four Michigan adults who were obese were trying to lose weight in 2003 (72.0 ± 3.5%). As previously shown in the literature, obese Michigan adults who were advised to lose weight were more likely to be trying to lose weight than those who had not been advised to (82.6 ± 4.9% vs. 66.6 ± 4.6%).

Even after the NIH guidelines were published in 1998, the proportion of obese adults who reported having been advised by a health care professional to lose weight has remained virtually unchanged in Michigan (Fig. 8).

“In the past 12 months, has a doctor, nurse, or other health care professional given you advice about your weight?”

“Are you now trying to lose weight?”

Doctor Advised to Lose Weight Among Those Whose BMI ≥ 30.0

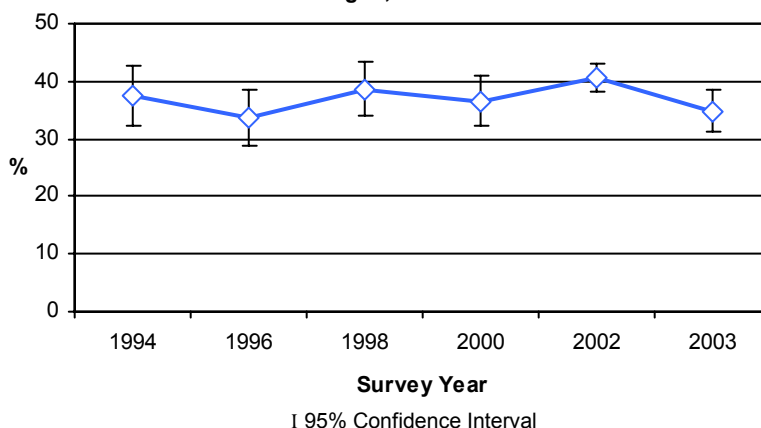
2003 Michigan BRFS

(% ± 95% Confidence Interval Limit)

Demographic Characteristics	Doctor Advised to Lose Weight ^a
Total	34.8 ± 3.6
Age	
18 - 34	25.1 ± 8.1
35 - 54	36.2 ± 5.5
55 +	39.3 ± 5.5
Gender	
Male	32.9 ± 5.4
Female	36.6 ± 4.7
Race	
White	33.6 ± 3.9
Black	34.5 ± 9.8
Education	
< High school	24.3 ± 8.9
High school grad	35.6 ± 6.4
Some college	37.1 ± 6.4
College grad	36.3 ± 7.4
Household Income	
< \$20,000	30.1 ± 8.0
\$20,000 - \$34,999	37.3 ± 7.6
\$35,000 - \$49,999	43.8 ± 9.1
\$50,000 - \$74,999	30.5 ± 8.3
\$75,000 +	38.5 ± 9.4

^a Among those who were obese, the proportion who reported being advised by a doctor to lose weight in the past year.

Figure 8: Doctor Advised to Lose Weight Among Those Who Were Obese Michigan, 1994-2003



No Leisure-Time Physical Activity

No Leisure-Time Physical Activity 2003 Michigan BRFS (% ± 95% Confidence Interval Limit)

Demographic Characteristics	No Leisure-Time Physical Activity ^a
Total	21.8 ± 1.5
Age	
18 - 24	13.1 ± 4.6
25 - 34	19.2 ± 2.0
35 - 44	20.0 ± 3.5
45 - 54	23.6 ± 3.4
55 - 64	24.5 ± 3.9
65 - 74	23.2 ± 4.3
75 +	35.8 ± 5.1
Gender	
Male	19.7 ± 2.4
Female	23.8 ± 2.0
Race	
White	20.8 ± 1.6
Black	27.9 ± 5.5
Education	
< High school	37.4 ± 5.8
High school grad	27.3 ± 3.0
Some college	20.8 ± 2.9
College grad	10.4 ± 2.0
Household Income	
< \$20,000	31.1 ± 4.4
\$20,000 - \$34,999	27.5 ± 3.8
\$35,000 - \$49,999	19.4 ± 3.5
\$50,000 - \$74,999	17.4 ± 3.5
\$75,000 +	9.9 ± 2.6

^a The proportion who reported "no" to the question: "During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?"

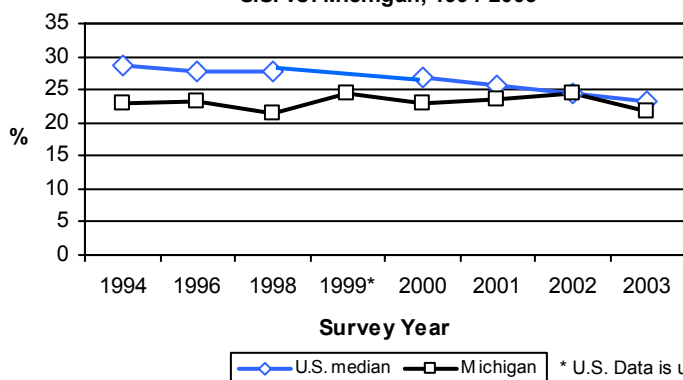
Physical inactivity and poor nutrition were the second highest ranked modifiable health behavior contributing to an estimated 300,000 deaths annually.¹⁵ Physical activity is associated with a reduced risk of mortality, colon cancer, hypertension, cardiovascular disease, diabetes, and obesity, and can relieve symptoms of depression.²⁰

In 2003, just over one in every five Michigan adults (21.8%) did not participate in any leisure-time physical activity (physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise in the past month). This proportion increased with age from 13.1% of those aged 18-24 years to 35.8% of those aged 75 years and older. Women were more likely than men (23.8% vs. 19.7%), and Blacks were more likely than Whites (27.9% vs. 20.8%) to not participate in leisure-time physical activity. Michigan adults who had less than a high school degree were more likely than any other educational level, and those who had an annual household income less than \$35,000 were more likely than any other income level to have not participated in leisure-time physical activities.

Inadequate physical activity was defined as not participating in moderate physical activity for at least 30 minutes on five or more days each week or vigorous physical activity for at least 20 minutes on three or more days each week. Over half of Michigan adults were estimated to have not participated in adequate physical activity in 2003 (52.7 ± 1.9%). The same trends were seen in inadequate physical activity as no leisure-time physical activity, with higher prevalence estimates in older age groups, Blacks, lower educational attainment, and lower income levels.

Over the past 10 years, the median prevalence of no leisure-time physical activity for the United States has decreased from 28.8% in 1994 to 23.1% in 2003, whereas in Michigan, the prevalence has stayed relatively consistent (Fig. 9).

**Figure 9: No Leisure-Time Physical Activity
U.S. vs. Michigan, 1994-2003**



"During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?"

* U.S. Data is unavailable for the year 1999.

Occupational Physical Activity

The association between chronic conditions and leisure-time physical activity has been well documented, but leisure-time physical activity may underestimate the proportion of adults who participate in daily physical activity.²⁰⁻²¹ In 1990, more than half (51.3%) of the employed adults who reported no leisure-time physical activity reported one or more hours of hard occupational activity.²¹ It is essential, therefore, to monitor occupational physical activity in addition to leisure-time physical activity.

Nearly two out of three Michigan adults mostly sat or stood at their current jobs in 2003 (64.5%). Women were more likely than men to mostly sit or stand (68.7% vs. 60.8%) and to mostly walk at their current jobs (23.3% vs. 18.4%). Men were more likely to be employed in physically demanding work (20.8% vs. 8.0%). Adults with higher education and annual household income levels were more likely to be employed with jobs that required them to mostly sit or stand compared with those who had lower education and income levels. Those who were self-employed were more likely to do physically demanding work than those who were employed for wages (20.6 ± 6.0% vs. 14.1 ± 2.0%).

In 2003, an estimated 11.6% (± 1.7%) of employed adults in Michigan did not participate in any leisure-time physical activity and mostly sat or stood while at work. The majority either participated in leisure-time physical activity or were physically active at work, either mostly walking or doing physically demanding work (59.6 ± 2.5%). Over one-quarter had jobs that were physically active and also participated in leisure-time physical activity (28.8 ± 2.4%). (Fig. 10.)

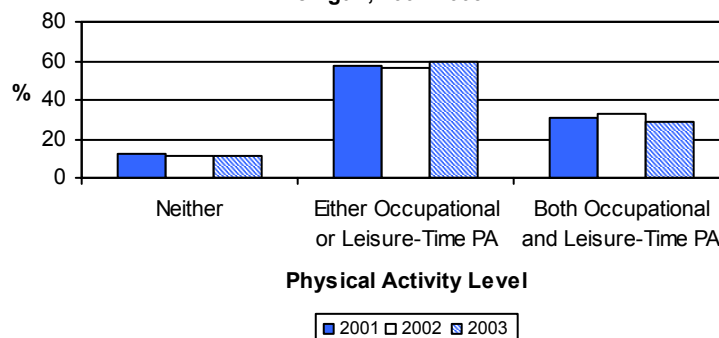
Occupational Physical Activity Among Currently Employed Adults
2003 Michigan BRFSS
(% ± 95% Confidence Interval Limit)

Demographic Characteristics	Sitting/ Standing ^a	Walking ^b	Heavy Labor ^c
Total	64.5 ± 2.5	20.7 ± 2.1	14.9 ± 1.9
Age			
18 - 24	44.0 ± 9.5	33.7 ± 8.9	22.3 ± 7.9
25 - 34	63.1 ± 5.7	20.4 ± 4.6	16.5 ± 4.5
35 - 44	67.8 ± 4.5	17.0 ± 3.5	15.2 ± 3.6
45 - 54	68.7 ± 4.3	20.0 ± 3.7	11.3 ± 2.9
55 - 64	68.8 ± 6.2	20.2 ± 5.4	11.1 ± 4.0
65 +	69.0 ± 12.3	14.9 ± 9.0	16.1 ± 10.3
Gender			
Male	60.8 ± 3.7	18.4 ± 3.0	20.8 ± 3.2
Female	68.7 ± 3.2	23.3 ± 2.9	8.0 ± 1.8
Race			
White	64.4 ± 2.7	20.3 ± 2.2	15.3 ± 2.1
Black	66.3 ± 8.4	22.4 ± 7.3	11.3 ± 5.9
Education			
< High school	51.0 ± 10.3	25.2 ± 8.7	23.9 ± 9.4
High school grad	51.8 ± 5.0	23.6 ± 4.2	24.6 ± 4.4
Some college	61.0 ± 4.6	23.6 ± 4.1	15.4 ± 3.4
College grad	80.3 ± 3.4	14.9 ± 3.0	4.7 ± 1.9
Household Income			
< \$20,000	55.0 ± 10.0	25.0 ± 8.7	20.1 ± 8.2
\$20,000 - \$34,999	53.5 ± 6.3	24.1 ± 5.3	22.4 ± 5.5
\$35,000 - \$49,999	52.4 ± 6.1	24.4 ± 5.3	23.2 ± 5.2
\$50,000 - \$74,999	67.7 ± 5.1	18.7 ± 4.2	13.6 ± 3.9
\$75,000 +	80.9 ± 3.8	13.1 ± 3.2	6.0 ± 2.4

Among those who were employed, the proportion who reported that they...

- ^a Mostly sat or stood while they were at work.
- ^b Mostly walked while they were at work.
- ^c Mostly did heavy labor or physically demanding work while they were at work.

Figure 10: Occupational Physical Activity and Leisure-Time Physical Activity
Michigan, 2001-2003



Hypertension Awareness & Medication Use

Hypertension Awareness and Medication Use
2003 Michigan BRFSS
 (% ± 95% Confidence Interval Limit)

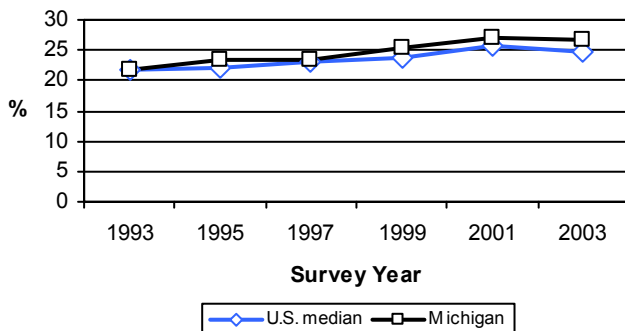
Demographic Characteristics	Ever Told HBP ^a	Taking BP Medication ^b
Total	26.8 ± 1.6	74.4 ± 3.2
Age		
18 - 24	4.6 ± 2.9	— ^c
25 - 34	10.5 ± 3.4	— ^c
35 - 44	16.6 ± 3.2	57.0 ± 10.6
45 - 54	28.2 ± 3.6	68.5 ± 7.2
55 - 64	48.6 ± 4.5	84.3 ± 4.9
65 - 74	54.8 ± 5.3	86.2 ± 5.0
75 +	57.2 ± 5.2	91.2 ± 4.4
Gender		
Male	27.5 ± 2.6	67.9 ± 5.2
Female	26.1 ± 2.0	80.6 ± 3.6
Race		
White	25.3 ± 1.6	74.9 ± 3.4
Black	39.7 ± 6.3	73.3 ± 9.3
Education		
< High school	34.8 ± 5.7	81.8 ± 7.6
High school grad	29.7 ± 3.0	74.6 ± 5.8
Some college	25.7 ± 2.9	71.1 ± 6.1
College grad	21.3 ± 2.7	72.7 ± 6.2
Household Income		
< \$20,000	37.9 ± 4.8	69.6 ± 7.6
\$20,000 - \$34,999	31.2 ± 3.7	79.3 ± 6.3
\$35,000 - \$49,999	24.7 ± 3.8	67.0 ± 8.5
\$50,000 - \$74,999	24.5 ± 3.8	74.8 ± 8.0
\$75,000 +	17.7 ± 3.0	78.4 ± 7.5

^a Among all respondents, the proportion who reported that they were ever told by a doctor that they have high blood pressure (HBP). This estimate excludes women who had high blood pressure during pregnancy.

^b Among those who were ever told that they had high blood pressure, the proportion that reported they were currently taking medicine for their high blood pressure. (n=1094)

^c The denominator in this subgroup was less than 50.

Figure 11: Ever Told High Blood Pressure
U.S. vs. Michigan, 1993 - 2003



Adults with hypertension are at a higher risk for stroke, cardiovascular disease, and end stage renal disease.²² 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 (mmHg) or 90 mmHg, respectively.²³ In 1998, an estimated \$108.8 billion was spent on health care for hypertension, including cardiovascular complications and other diagnoses associated with hypertension.²⁴

Nearly one in every four Michigan adults was estimated to have ever been told by a health care professional that they had high blood pressure in 2003 (26.8%). This proportion increased with age from 4.6% of those aged 18-24 years to 57.2% of those aged 75 years or older. Blacks were more likely than Whites (39.7% vs. 25.3%). Adults with higher education and annual household income levels were less likely than those with lower education and income levels to have ever been told that they had high blood pressure.

Among those who had ever been told that they had high blood pressure by a health care professional, an estimated 74.4% were currently taking blood pressure medication in 2003. This proportion increased with age, from 57.0% of those aged 35-44 years to 91.2% of those aged 75 years and older. Although women and men were just as 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 (80.6% vs. 67.9%).

The proportion of those who were currently taking blood pressure medication increased by 5.4 percentage points from 2001 (69.0 ± 3.1% vs. 74.4%). The proportion of men who were currently taking blood pressure medication increased from 60.5% (± 5.1%) in 2001 to 67.9% in 2003.

Since 1993, the proportion of Michigan adults who reported ever being told by a health care professional that they had high blood pressure has been consistent with the U.S. median (Fig. 11).

Cholesterol Awareness

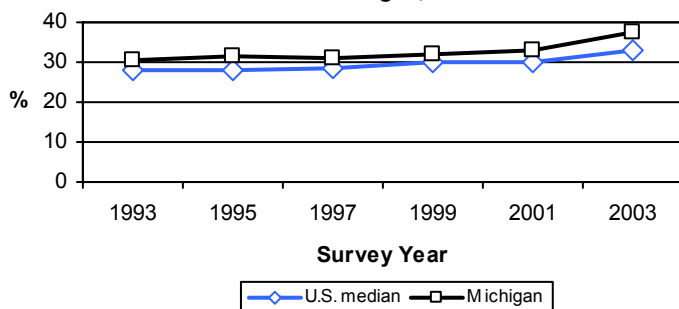
High blood cholesterol is one of the major risk factors attributing to coronary heart disease (CHD).²⁵⁻²⁶ Clinical approaches to preventing CHD include testing adults aged 20 years and older at least once every five years to determine the blood level of low density lipoprotein cholesterol (LDL-C), and more often for those who have multiple risks, such as cigarette smoking, hypertension, family history, and age.²⁵⁻²⁶ 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 blood level of LDL-C.^{25, 27}

In 2003, an estimated three out of every four Michigan adults had their blood cholesterol checked within the past five years (75.0%). Women were more likely than men to have their blood cholesterol checked within the past five years (77.9% vs. 72.0%). This proportion increased with age, and education and income levels.

Among Michigan adults who had ever had their cholesterol checked, an estimated 37.6% were ever told by a health care professional that it was high. This proportion increased with age from 5.0% of those aged 18-24 years to 58.0% of those aged 65-74 years. Even though women were more likely than men to have ever had their cholesterol checked (82.3 ± 2.0% vs. 76.8 ± 2.7%), men were more likely to have high cholesterol (41.3% vs. 34.5%). Whites were more likely than Blacks to have high cholesterol (39.0% vs. 31.8%).

Although the proportion of Michigan adults who had their cholesterol checked remained unchanged from 2001, the estimated proportion who were aware that their cholesterol was high increased from 33.0% (± 1.8%) to 37.6% (Fig. 12). The proportion of Michigan men with high cholesterol recently became higher than that of Michigan women (Fig. 13).

Figure 12: Ever Told High Cholesterol Among Those Tested U.S. vs. Michigan, 1993 - 2003



Cholesterol Awareness 2003 Michigan BRFS

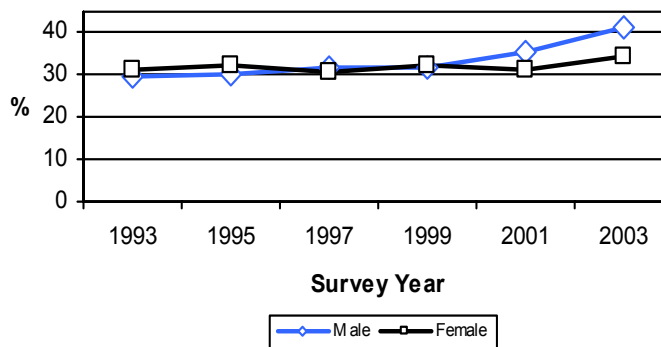
(% ± 95% Confidence Interval Limit)

Demographic Characteristics	Checked Within Past 5 Years ^a	Told High Cholesterol ^b
Total	75.0 ± 1.8	37.6 ± 2.0
Age		
18 - 24	39.7 ± 7.0	5.0 ± 4.4
25 - 34	56.7 ± 5.1	19.9 ± 5.2
35 - 44	75.7 ± 3.7	30.3 ± 4.3
45 - 54	85.2 ± 3.0	41.4 ± 4.2
55 - 64	93.4 ± 2.2	53.2 ± 4.7
65 - 74	93.2 ± 2.7	58.0 ± 5.4
75 +	91.6 ± 2.9	47.2 ± 5.6
Gender		
Male	72.0 ± 2.9	41.3 ± 3.2
Female	77.9 ± 2.2	34.5 ± 2.4
Race		
White	75.2 ± 1.9	39.0 ± 2.1
Black	71.3 ± 6.1	31.8 ± 6.8
Education		
< High school	65.1 ± 6.4	39.7 ± 6.7
High school grad	71.0 ± 3.4	44.0 ± 3.8
Some college	74.1 ± 3.3	36.5 ± 3.6
College grad	84.0 ± 2.7	32.2 ± 3.3
Household Income		
< \$20,000	66.3 ± 5.1	45.4 ± 5.7
\$20,000 - \$34,999	71.4 ± 4.1	39.2 ± 4.5
\$35,000 - \$49,999	75.3 ± 4.4	35.6 ± 4.8
\$50,000 - \$74,999	78.1 ± 4.0	36.2 ± 4.7
\$75,000 +	82.6 ± 3.5	32.8 ± 4.0

^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.

Figure 13: Ever Told High Cholesterol Among Those Tested by Gender U.S. vs. Michigan, 1993 - 2003



Alcohol Consumption

Alcohol Consumption

2003 Michigan BRFSS

(% ± 95% Confidence Interval Limit)

Demographic Characteristics	Binge Drinking ^a	Heavy Drinking ^b
Total	19.1 ± 1.6	6.2 ± 1.0
Age		
18 - 24	33.1 ± 6.4	9.7 ± 4.0
25 - 34	27.9 ± 4.6	7.0 ± 2.7
35 - 44	22.8 ± 3.6	7.6 ± 2.2
45 - 54	16.5 ± 3.1	4.9 ± 1.6
55 - 64	10.7 ± 2.9	4.2 ± 1.8
65 - 74	6.2 ± 2.5	4.0 ± 2.0
75 +	2.0 ± 1.4	3.4 ± 1.9
Gender		
Male	28.4 ± 2.7	7.7 ± 1.6
Female	10.5 ± 1.6	4.8 ± 1.1
Race		
White	20.8 ± 1.8	6.8 ± 1.1
Black	11.5 ± 4.3	3.3 ± 2.5
Education		
< High school	15.6 ± 4.9	4.2 ± 2.5
High school grad	20.8 ± 2.9	6.9 ± 1.8
Some college	19.5 ± 3.0	6.9 ± 1.9
College grad	18.4 ± 2.8	5.5 ± 1.6
Household Income		
< \$20,000	19.1 ± 4.4	6.5 ± 2.5
\$20,000 - \$34,999	17.8 ± 3.4	6.0 ± 2.1
\$35,000 - \$49,999	20.0 ± 3.9	6.5 ± 2.3
\$50,000 - \$74,999	24.2 ± 4.0	5.1 ± 1.9
\$75,000 +	19.1 ± 3.5	6.7 ± 2.2

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

^b The proportion who reported consuming on average more than two alcoholic beverages per day for men or more than one alcoholic beverage per day for women.

While moderate alcohol consumption has been associated with a protective effect against coronary heart disease among men over age 45 and women over age 55,²⁸ alcohol abuse can increase the risk for motor vehicle accidents, injuries, violence, suicide, high blood pressure, stroke, and some types of cancer.^{29,30} Alcohol abuse has been ranked the third highest among modifiable health behaviors contributing to an estimated 100,000 deaths annually in the United States.¹⁵

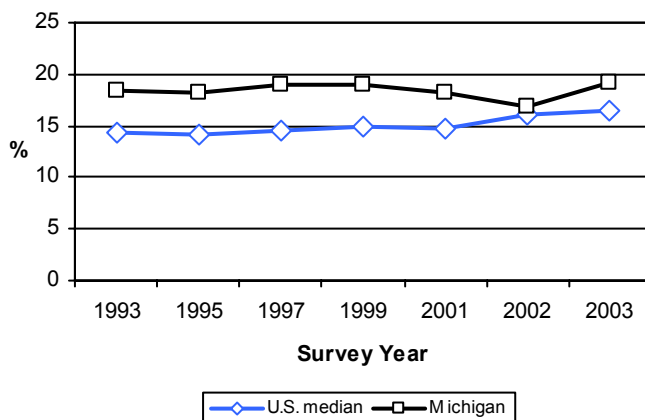
In 2003, nearly one in every five Michigan adults was estimated to have engaged in binge drinking, i.e., the consumption of five or more alcoholic beverages during one occasion (19.1%). An estimated 6.2% of Michigan adults was estimated to have engaged in heavy drinking, i.e., the consumption of more than two alcoholic beverages per day for men or more than one alcoholic beverage per day for women.

The proportions for both binge drinking and heavy drinking decreased with age. Men were more likely than women, and Whites were more likely than Blacks to have engaged in either binge drinking or heavy drinking.

Over one-quarter of Michigan underage adults, aged 18-20 years, reported binge drinking in the previous month (28.4 ± 8.9%). Seven percent of those underage adults reported heavy drinking in 2003 (7.0 ± 5.2%).

When compared to the United States median, Michigan has consistently had a higher prevalence of binge drinking (Fig. 14).

**Figure 14: Binge Drinking
U.S. vs. Michigan, 1993-2003**



“A drink of alcohol is 1 can or bottle of beer, 1 glass of wine, 1 can or bottle of wine cooler, 1 cocktail, or 1 shot of liquor. During the past 30 days, how many days per week or per month did you have at least one drink of any alcoholic beverage?”

“Are you currently taking medicine for your high blood pressure?”

Cigarette Consumption

Smoking contributes to the development of many kinds of chronic conditions, including cancers, respiratory diseases, and cardiovascular diseases.³¹ Smoking has been estimated to cost the United States \$75.5 billion in direct medical expenditures for adults with an additional \$81.9 billion in lost productivity.³¹ As the leading cause of preventable deaths in the U.S., smoking has been estimated to be responsible for nearly 400,000 deaths each year.^{15, 31}

Current smoking status was defined as ever having smoked 100 cigarettes (five packs) in their life and smoking cigarettes now, either every day or on some days, whereas former smoking status was defined as having smoked at least 100 cigarettes but not currently smoking.

One quarter of the Michigan adult population was estimated to be current smokers in 2003 (25.8%), while just as many were estimated to be former smokers (25.6 ± 1.6%). Men were more likely than women to be current smokers (29.5% vs. 22.3%), and former smokers (28.4 ± 2.5% vs. 23.1 ± 1.9%), while women were more likely to have never smoked (54.1 ± 2.4% vs. 42.1 ± 3.0%). Whites were more likely than Blacks to be former smokers (27.0 ± 1.7% vs. 15.5 ± 4.5%), but Blacks were more likely to have never smoked (57.2 ± 6.3% vs. 47.4 ± 2.0%). The proportion of current smokers declined with increasing age, education, and income level.

The proportion of Michigan adults who were current smokers has remained above the U.S. median in the past ten years (Fig. 15). To achieve the Healthy People goal of a cigarette smoking prevalence of 12% by 2010,³² the proportion of current smokers in Michigan will need to drop by about 2.0 percentage points each year.

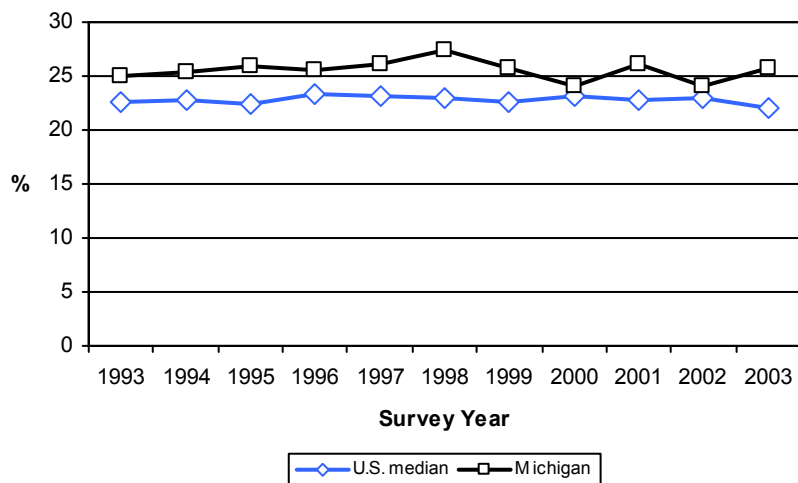
Cigarette Consumption 2003 Michigan BRFS

(% ± 95% Confidence Interval Limit)

Demographic Characteristics	Current Smoker ^a
Total	25.8 ± 1.7
Age	
18 - 24	39.2 ± 6.6
25 - 34	28.9 ± 4.6
35 - 44	32.0 ± 4.0
45 - 54	28.4 ± 3.8
55 - 64	18.3 ± 3.5
65 - 74	8.8 ± 3.0
75 +	5.7 ± 2.3
Gender	
Male	29.5 ± 2.8
Female	22.3 ± 2.0
Race	
White	25.6 ± 1.9
Black	27.3 ± 5.7
Education	
< High school	38.9 ± 6.1
High school grad	35.0 ± 3.4
Some college	25.5 ± 3.2
College grad	11.0 ± 2.3
Household Income	
< \$20,000	38.2 ± 5.0
\$20,000 - \$34,999	29.4 ± 3.9
\$35,000 - \$49,999	26.3 ± 4.3
\$50,000 - \$74,999	24.4 ± 4.1
\$75,000 +	15.2 ± 3.2

^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.

**Figure 15: Current Smoking Status
U.S. vs. Michigan, 1993-2003**



Have you smoked at least 100 cigarettes in your entire life?

Do you now smoke cigarettes every day, some days, or not at all?

Asthma

Asthma 2003 Michigan BRFSS (% ± 95% Confidence Interval Limit)		
Demographic Characteristics	Ever Told Have Asthma ^a	Still Have Asthma ^b
Total	13.6 ± 1.3	9.3 ± 1.1
Age		
18 - 24	19.9 ± 5.3	12.0 ± 4.3
25 - 34	14.5 ± 3.5	7.9 ± 2.6
35 - 44	11.3 ± 2.6	8.5 ± 2.4
45 - 54	14.5 ± 2.9	10.3 ± 2.5
55 - 64	12.5 ± 2.9	9.2 ± 2.6
65 - 74	11.3 ± 3.3	8.7 ± 3.0
75 +	10.3 ± 3.4	8.4 ± 3.1
Gender		
Male	11.8 ± 2.0	7.3 ± 1.6
Female	15.3 ± 1.8	11.2 ± 1.5
Race		
White	13.8 ± 1.4	9.5 ± 1.2
Black	13.7 ± 4.4	9.0 ± 3.6
Education		
< High school	17.1 ± 4.9	13.2 ± 4.4
High school grad	13.8 ± 2.5	10.8 ± 2.2
Some college	13.9 ± 2.4	8.8 ± 1.9
College grad	11.8 ± 2.2	6.7 ± 1.6
Household Income		
< \$20,000	16.2 ± 3.5	12.8 ± 3.2
\$20,000 - \$34,999	13.7 ± 3.0	10.1 ± 2.6
\$35,000 - \$49,999	14.5 ± 3.4	8.8 ± 2.9
\$50,000 - \$74,999	14.1 ± 3.2	10.6 ± 2.8
\$75,000 +	12.2 ± 2.8	6.9 ± 2.1

^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.

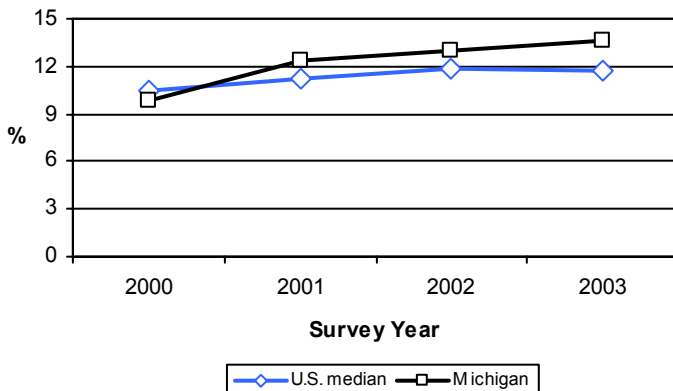
Asthma is a chronic inflammatory disorder of the lungs, and is characterized by wheezing, coughing, difficulty breathing, and chest tightness, that usually occurs at night or in the early morning.³³ Asthma attacks can be precipitated by a variety of triggers, such as cold air, allergens, irritants, and respiratory viral infections.³³ Nearly 14 million adults in the United States were estimated to still have asthma in 2002,³⁴ and 9 million children were estimated to ever have asthma.³⁵

The estimated proportion of Michigan adults ever told by a health care professional that they had asthma was 13.6% in 2003. Women were more likely than men to have ever been told this (15.3% vs. 11.8%). This proportion declined with higher education levels. Since 2001, the prevalence of asthma in Michigan has been consistently higher than the United States median (Fig. 16).

Among those who had ever been told that they had asthma, 69.5% (± 5.0%) were estimated to still have asthma. An estimated 9.3% of all Michigan adults currently had asthma in 2003. A higher proportion of women than men reported this (11.2% vs. 7.3%). The proportion who currently had asthma decreased with higher education levels from 13.2% of those who did not graduate high school to 6.7% of those who graduated college.

Of those who had current asthma, an estimated 53.0% (± 6.3%) stated that they had had an asthma attack in the past 12 months, and 41.6% (± 6.1%) reported that they had taken prescription asthma medication in the previous 30 days.

**Figure 16: Ever Told Asthma
U.S. vs. Michigan, 2000 - 2003**



“Have you ever been told by a doctor, nurse, or other health care professional that you had asthma?”

“Do you still have asthma?”

Diabetes

Diabetes mellitus is a disease in which blood glucose levels are higher than normal.³⁶ In Michigan, diabetes was the sixth leading cause of death in 2002 and was considered the primary cause in 3.1% of all deaths.³⁷⁻³⁸ In the past 10 years, between 1994 and 2003, there has been a 72% increase in the prevalence rate of diabetes in Michigan (from 4.6% to 7.9%). Obesity, poor diet, physical inactivity, and high blood pressure are just a few risk factors that are associated with the increase in diabetes prevalence.³⁶

An estimated 7.9% of Michigan adults had ever been told by a health care professional that they have diabetes. This estimate was higher among older adults. Blacks were more likely than Whites to have diabetes (12.7% vs. 7.0%). The proportion of those who had diabetes declined with higher education and income levels.

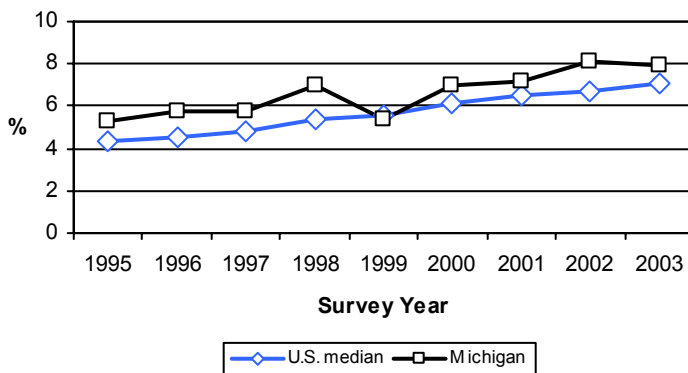
In Michigan, there has been an increase in the prevalence of diabetes between 1995 and 2003, and Michigan's prevalence estimate has been consistently higher than the U.S. median for most years (Fig. 17). During this same time period, the prevalence of obesity, a risk factor for diabetes, has also been increasing in the U.S.³⁹ and in Michigan (Fig. 6). Michigan adults who were obese (15.2 ± 2.5%) were nearly twice as likely as those who were overweight (8.1 ± 1.6%), and five times as likely as those who were at a healthy weight (2.9 ± 0.9%) to have diabetes.

Between 1995 and 2003, the prevalence of diabetes among Blacks in Michigan has increased 2.5 times more than among Whites (Fig. 18). The United States median had increased 1.6 times more among Blacks than among Whites.

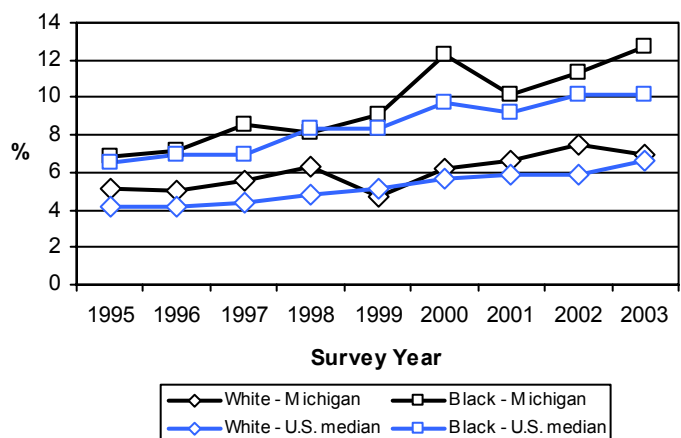
Diabetes 2003 Michigan BRFSS (% ± 95% Confidence Interval Limit)	
Demographic Characteristics	Ever Told Diabetes ^a
Total	7.9 ± 0.9
Age	
18 - 24	0.2 ± 0.4*
25 - 34	1.6 ± 1.0
35 - 44	5.2 ± 1.9
45 - 54	8.3 ± 2.2
55 - 64	16.2 ± 3.4
65 - 74	18.4 ± 4.4
75 +	15.7 ± 3.8
Gender	
Male	7.6 ± 1.4
Female	8.2 ± 1.2
Race	
White	7.0 ± 0.9
Black	12.7 ± 4.0
Education	
< High school	13.3 ± 3.7
High school grad	10.4 ± 2.0
Some college	7.8 ± 1.6
College grad	3.1 ± 1.0
Household Income	
< \$20,000	14.6 ± 3.4
\$20,000 - \$34,999	10.6 ± 2.4
\$35,000 - \$49,999	6.9 ± 2.1
\$50,000 - \$74,999	5.2 ± 1.9
\$75,000 +	3.8 ± 1.4

^a The proportion who reported that they were ever told by a doctor that they have diabetes. This estimate excludes women who had diabetes during pregnancy.
* The 95% confidence interval includes zero.

**Figure 17: Diabetes
U.S. vs. Michigan, 1995-2003**



**Figure 18: Diabetes by Race
U.S. vs. Michigan, 1995-2003**



Adult Immunizations

Immunizations Among Adults Aged 65 and Older 2003 Michigan BRFS (% ± 95% Confidence Interval Limit)

Demographic Characteristics	Had Flu Shot in Past Year ^a	Ever Had Pneumonia Vaccine ^b
Total	67.4 ± 3.6	62.6 ± 3.8
Gender		
Male	67.4 ± 5.9	58.9 ± 6.2
Female	67.4 ± 4.6	65.3 ± 4.8
Education		
< High school	63.1 ± 9.4	60.0 ± 9.7
High school grad	64.1 ± 5.7	61.7 ± 5.9
Some college	68.8 ± 8.0	60.6 ± 8.5
College grad	75.1 ± 7.1	68.5 ± 7.7
Household Income		
< \$20,000	63.1 ± 7.4	66.9 ± 7.4
\$20,000 - \$34,999	65.8 ± 6.9	56.5 ± 7.1
\$35,000 - \$49,999	75.1 ± 9.3	68.8 ± 10.1
\$50,000 +	69.1 ± 9.7	62.5 ± 10.1

^a The proportion, aged 65 years and older, who reported that they had a flu shot during the past 12 months. (n=825)

^b The proportion, aged 65 years and older, who reported that they ever had a pneumococcal vaccine. (n=807)

A Healthy People objective is to ensure that 90% of adults aged 65 years and older are vaccinated annually against influenza and ever vaccinated against pneumococcal disease by 2010.⁴⁰ Influenza and pneumonia were the 5th leading cause of death in 2002 among adults 65 years and older in the United States, attributing to just under 60,000 deaths.⁴¹

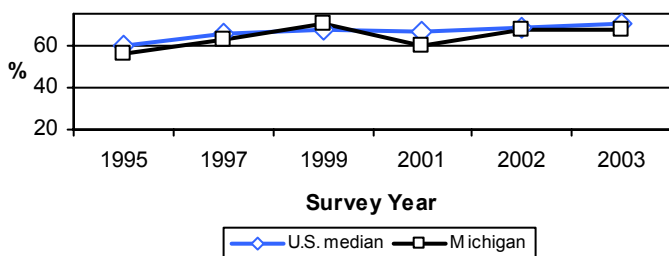
Another Healthy People 2010 objective is to increase the vaccination rate to 60% among those aged 18-64 years who have chronic health conditions.⁴⁰ Morbidity and mortality related to influenza and pneumococcal disease is higher among those who have diabetes than those who do not.⁴¹⁻⁴³ It is also recommended that people who have asthma should get the influenza vaccination annually.⁴³

In 2003, 67.4% of Michigan adults aged 65 years and older were immunized against influenza in the past year, and 62.6% had ever received a pneumococcal vaccination. Since 1995, the prevalence of immunization in Michigan among adults 65 years and older has increased 19.5% (from 56.4% to 67.4%) for influenza and 57.7% (from 39.7% to 62.6%) for pneumococcal disease (Figs. 19 and 20).

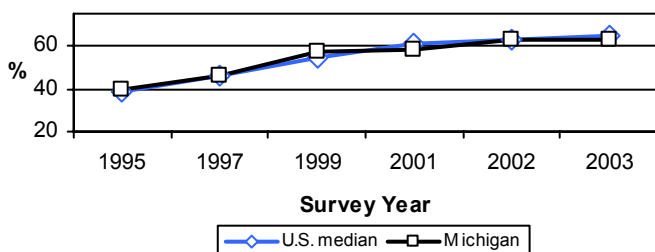
In 2003, among those aged 18-64 years, an estimated 41.4% (± 7.5%) of those who had diabetes had an influenza vaccination in the past year compared to 22.1% (± 1.8%) of those who did not have diabetes. Among the same population, 37.9% (± 7.7%) of those who had diabetes had a pneumococcal shot compared to 13.7% (± 1.6%) of those who did not have diabetes.

Among 18-64 year olds, those who had current asthma were more likely than those who did not to have had an influenza vaccination (32.9 ± 6.4% vs. 22.3 ± 1.8%).

**Figure 19: Had a Flu Shot in Past Year
Among Adults Aged 65 and Older
U.S. vs. Michigan, 1995 - 2003**



**Figure 20: Ever Had a Pneumococcal Vaccination
Among Adults Aged 65 and Older
U.S. vs. Michigan, 1995 - 2003**



“During the past 12 months, have you had a flu shot?”

“Have you ever had a pneumonia shot?”

Excess Sun Exposure

Sunburns and suntans, through excess sun exposure, can increase the risk of skin cancer.⁴⁴ During 2001, the risk in getting melanoma was 18.0 per 100,000 population in Michigan,⁴⁵ and the mortality rate was 2.1 per 100,000 population.⁴⁶ Although melanoma and other types of skin cancer are preventable through reducing the number of burns and tans by regularly using sunscreen, protective clothing, or limiting sun exposure during peak times during the day, many people still do not follow these recommendations.⁴⁴ A Healthy People 2010 objective is to increase the proportion of adults who follow protective measures to 75% so that the risk of skin cancer may be reduced.⁴⁷

An estimated 40.5% of Michigan adults in 2003 had at least one sunburn in the past year. This proportion decreased with age (Fig. 21) and increased with higher education and income levels. Men were more likely than women to have had a sunburn (44.9% vs. 36.4%). Among those who had a sunburn in the past year, the median number of sunburns in the previous year was 1.6.

Those who engaged in at least some physical activity during their leisure time in 2003 were more likely to have had at least one sunburn in the previous year than those who were not physically active (44.1 ± 2.2% vs. 27.6 ± 3.7%). Also, those who exercised regularly, either 30 minutes of moderate physical activity five or more times per week or 20 minutes of vigorous physical activity three or more times per week, were more likely to have had a sunburn than those who did not exercise regularly (44.8 ± 2.8% vs. 37.7 ± 2.6%).

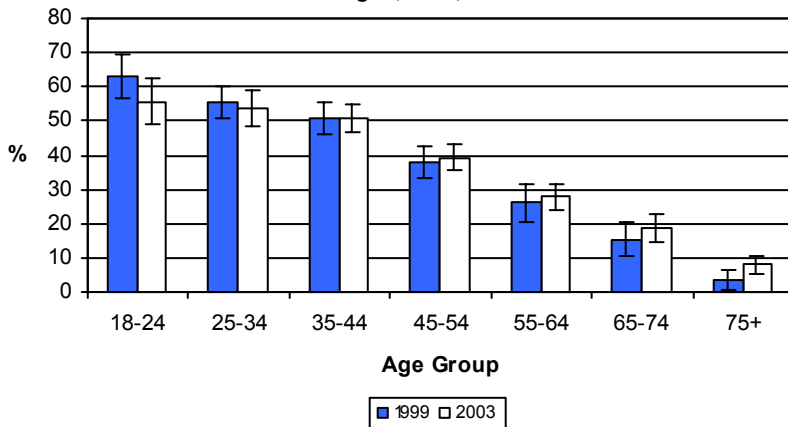
Excess Sun Exposure 2003 Michigan BRFS

(% ± 95% Confidence Interval Limit)

Demographic Characteristics	Had a Sunburn in Past Year ^a
Total	40.5 ± 1.9
Age	
18 - 24	55.7 ± 6.8
25 - 34	53.7 ± 5.0
35 - 44	50.9 ± 4.2
45 - 54	39.3 ± 3.9
55 - 64	27.8 ± 4.0
65 - 74	18.6 ± 4.1
75 +	7.9 ± 2.7
Gender	
Male	44.9 ± 3.0
Female	36.4 ± 2.4
Race	
White	47.1 ± 2.1
Black	3.6 ± 2.2
Education	
< High school	30.3 ± 5.8
High school grad	37.9 ± 3.4
Some college	41.7 ± 3.5
College grad	46.4 ± 3.4
Household Income	
< \$20,000	25.7 ± 4.5
\$20,000 - \$34,999	33.9 ± 4.0
\$35,000 - \$49,999	46.8 ± 4.7
\$50,000 - \$74,999	48.1 ± 4.6
\$75,000 +	50.3 ± 4.2

^a The proportion who had at least one sunburn during the past year.

Figure 21: Had a Sunburn in Past Year by Age Group
Michigan, 1999, 2003



| 95% Confidence Interval

“Have you had a sunburn within the past 12 months?”

“Including times when even a small part of your skin was red for more than 12 hours, how many sunburns have you had within the past 12 months?”

HIV Testing

HIV Testing Among Adults Aged 18 - 64 2003 Michigan BRFs

(% ± 95% Confidence Interval Limit)

Demographic Characteristics	Ever Had an HIV Test ^a
Total	44.4 ± 2.2
Age	
18 - 24	39.9 ± 6.6
25 - 34	67.6 ± 4.7
35 - 44	54.3 ± 4.2
45 - 54	31.3 ± 3.7
55 - 64	19.7 ± 3.6
Gender	
Male	40.9 ± 3.3
Female	47.8 ± 2.8
Race	
White	42.2 ± 2.3
Black	56.1 ± 7.0
Education	
< High school	43.8 ± 7.6
High school grad	40.8 ± 4.0
Some college	48.2 ± 3.9
College grad	44.4 ± 3.7
Household Income	
< \$20,000	51.4 ± 6.4
\$20,000 - \$34,999	45.2 ± 5.1
\$35,000 - \$49,999	45.1 ± 5.2
\$50,000 - \$74,999	38.4 ± 4.7
\$75,000 +	47.2 ± 4.3

Note: "Don't know" was considered a valid response. (2.0% ± 0.5 reported "Don't know")

^a The proportion who, aged 18 - 64, reported that they ever had been tested for HIV, apart from tests that were part of a blood donation. (n=2676)

In 2003, 11,500 people residing in Michigan were known to be living with Human Immunodeficiency Virus (HIV) or Acquired Immunodeficiency Syndrome (AIDS).⁴⁸ Early awareness of an HIV infection through HIV testing can prevent further spread of the disease.⁴⁹⁻⁵⁰ The new CDC HIV initiative recommends that all health care providers include HIV testing as a part of routine medical care.⁴⁹

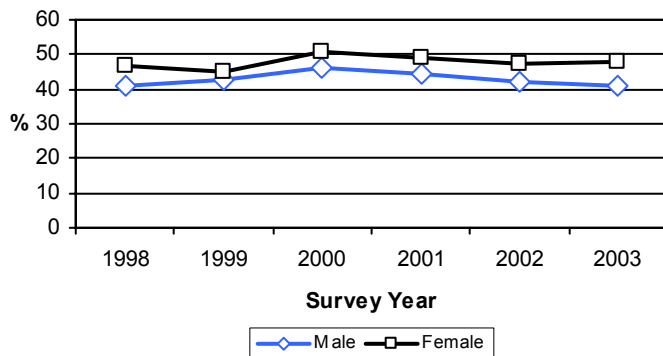
It was estimated from the 2003 Michigan BRFs that 44.4% of Michigan adults had ever been tested for HIV, apart from blood donations. This remained virtually unchanged from 2002. Having ever been tested was more prevalent among adults younger than 45 years of age compared with those aged 45 years or older. Women were more likely than men (47.8% vs. 40.9%) (Fig. 22), and Blacks were more likely than Whites to have ever been tested (56.1% vs. 42.2%).

Nearly nine out of ten Michigan adults were estimated to know that there are medical treatments available to help people who are infected with HIV live longer (91.5 ± 1.3%). This proportion increased among those with higher education and income levels.

An estimated three out of every ten Michigan adults (30.3 ± 2.0%) did not know whether the following statement was true or false: "A pregnant woman with HIV can get treatment to help reduce the chances that she will pass the virus to her baby." Over half knew that this statement was true (51.5 ± 2.2%). The proportion who reported this statement to be true increased with increasing education levels.

An estimated 27.6% (± 3.0%) of Michigan adults reported that they had their last HIV test as a part of a routine medical check-up. The most frequently reported places where Michigan adults reported having their last HIV test were at a private doctor or HMO (46.0 ± 3.3%), at a clinic (21.7 ± 2.8%), and at a hospital (18.7 ± 2.5%). Men were more likely than women to have had their last test at a counseling and testing site (6.1 ± 2.7% vs. 2.4 ± 1.3%), or at a clinic (25.3 ± 4.8% vs. 18.7 ± 3.4%), whereas women were more likely to have it done at a private doctor or HMO (52.3 ± 4.1% vs. 38.5 ± 5.3%).

Figure 22: Ever Tested for HIV
Among Adults Aged 18 - 64 Years by Gender
Michigan, 1998 - 2003



*"Have you ever been tested for HIV?
Do not count tests that you may have
had as part of a blood donation."*

High-Risk Behavior for Acquiring HIV

People who use intravenous drugs, have sexually transmitted diseases, or have unprotected vaginal, anal, or oral sex are at a higher risk for acquiring HIV than those who do not.⁵¹⁻⁵³ CDC has recommended that those who may have been exposed to HIV through a single event (i.e. unprotected sex) to be tested three to six months after the exposure since that is when antibodies first generally appear.⁵⁴ For those who have ongoing exposures due to high-risk behaviors, follow-up testing should occur every six months to two years.⁵⁴

An estimated 5.3% of Michigan adults aged 18-64 years participated in at least one of the following high-risk behaviors for acquiring HIV in the past year: used intravenous drugs, had a sexually transmitted or venereal disease, exchanged money or drugs for sex, or had anal sex without a condom. Those aged 18-24 years were more likely than any other age group to have participated in a high-risk behavior (Fig. 23). This proportion was lower among college graduates than any other education level.

Among those who had participated in a high-risk behavior in the past year, the proportion who had their last HIV test in the past six months was estimated to be 9.5% ($\pm 5.3\%$), and in the past year was estimated to be 22.2% ($\pm 8.7\%$). Those who had participated in a high-risk behavior were more likely to have been tested for HIV in the past year than those who had not ($22.2 \pm 8.7\%$ vs. $11.2 \pm 1.6\%$).

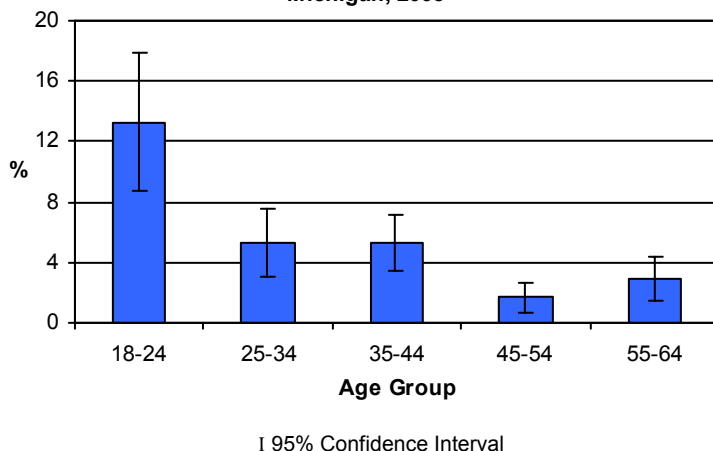
High-Risk Behavior for Acquiring HIV Among Adults Aged 18 - 64 2003 Michigan BRFS (% \pm 95% Confidence Interval Limit)

Demographic Characteristics	Engaged in a High-Risk Behavior for Acquiring HIV ^a
Total	5.3 \pm 1.0
Age	
18 - 24	13.3 \pm 4.6
25 - 34	5.3 \pm 2.2
35 - 44	5.3 \pm 1.9
45 - 54	1.7 \pm 1.0
55 - 64	2.9 \pm 1.5
Gender	
Male	6.2 \pm 1.7
Female	4.4 \pm 1.2
Race	
White	5.4 \pm 1.2
Black	6.2 \pm 3.2
Education	
< High school	7.2 \pm 4.0
High school grad	7.0 \pm 2.2
Some college	5.5 \pm 1.9
College grad	2.9 \pm 1.3
Household Income	
< \$20,000	5.8 \pm 3.0
\$20,000 - \$34,999	4.6 \pm 2.1
\$35,000 - \$49,999	5.2 \pm 2.6
\$50,000 - \$74,999	4.6 \pm 2.1
\$75,000 +	5.9 \pm 2.3

^a The proportion who, aged 18 - 64, reported that they had done at least one of the following in the past year (n=2665):

- Used intravenous drugs.
- Been treated for a sexually transmitted or venereal disease.
- Given or received money or drugs in exchange for sex.
- Had anal sex without a condom.

Figure 23: High-Risk Behavior for Acquiring HIV by Age Group Michigan, 2003



Disability

Disability 2003 Michigan BRFS (% ± 95% Confidence Interval Limit)	
Demographic Characteristics	Has a Disability ^a
Total	22.0 ± 1.5
Age	
18 - 24	9.7 ± 4.0
25 - 34	15.3 ± 3.7
35 - 44	15.0 ± 3.0
45 - 54	23.6 ± 3.4
55 - 64	31.3 ± 4.1
65 - 74	33.0 ± 5.1
75 +	44.5 ± 5.4
Gender	
Male	20.2 ± 2.3
Female	23.6 ± 2.0
Race	
White	22.1 ± 1.6
Black	24.4 ± 5.4
Education	
< High school	32.2 ± 5.6
High school grad	22.4 ± 2.7
Some college	23.8 ± 3.0
College grad	15.7 ± 2.3
Household Income	
< \$20,000	39.3 ± 4.9
\$20,000 - \$34,999	25.0 ± 3.5
\$35,000 - \$49,999	22.7 ± 3.8
\$50,000 - \$74,999	13.2 ± 2.8
\$75,000 +	13.0 ± 2.8

^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.

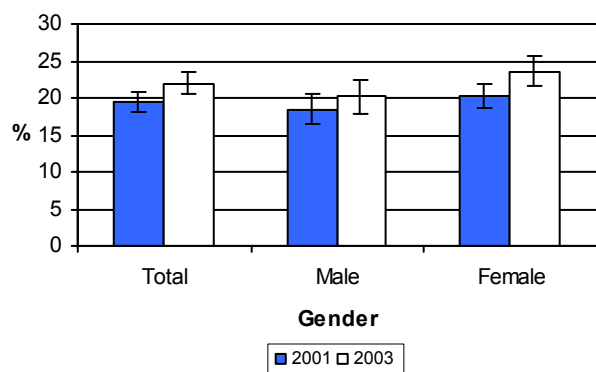
Forty-seven million American adults aged 16 years and older, or 22.2% of the United States population, were estimated to be living with a disability in 2000.⁵⁵ There is a myriad of definitions for disability, ranging from experiencing difficulty in participating in certain activities (such as lifting 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. housework).⁵⁶ Disability rates are expected to rise in the next several decades, owing to an aging population.⁵⁶

An estimated 22.0% of Michigan adults were living with a disability by 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 telephone). The proportion of adults who had a disability increased with age from 9.7% of those aged 18-24 years to 44.5% of those aged 75 years or older. Women were more likely than men to have a disability (23.6% vs. 20.2%). The proportion of adults who had a disability declined with higher education and income levels. The estimated proportion of Michigan adults who were limited in any activities was 20.6% (± 1.5%), and the proportion who used special equipment due to a health problem was 5.6% (± 0.8%).

In 2003, Michigan adults living with disabilities had poorer health, worse quality of life, and more medical needs than those who did not have disabilities. The proportion of adults with disabilities who reported that their general health was either fair or poor was higher than those who did not report having a disability (41.5 ± 3.8% vs. 7.5 ± 1.1%). Adults with disabilities also had a higher proportion of at least 15 or more days of physical health that was not good (32.7 ± 3.6% vs. 3.7 ± 0.8%), mental health that was not good (23.1 ± 3.4% vs. 8.0 ± 1.3%), and activity limitation (20.6 ± 3.1% vs. 1.6 ± 0.6%). Michigan adults who were living with a disability were more likely than those who did not have a disability to report having had one or more health care providers (86.9 ± 3.0% vs. 82.6 ± 1.8%) and having had cost prevent them from seeing the doctor when they needed to in the past year (15.6 ± 3.0% vs. 9.7 ± 1.4%).

The prevalence of disability in Michigan has increased from 19.5% (± 1.4%) in 2001 to 22.0% in 2003 (Fig. 24). For women, this prevalence was also higher in 2003 (23.6%) than in 2001 (20.3 ± 1.7%).

**Figure 24: Disability by Gender
Michigan, 2001, 2003**



Arthritis

Arthritis and rheumatism are the leading causes of disability in the United States.⁵⁷ In 2002, an estimated 20.9% of adults in the United States had been diagnosed with arthritis by a doctor, and 25.1% had reported having chronic joint symptoms (pain, aching, or stiffness in or around the joints in the past month that began more than three months ago).³⁴ With an aging United States population, it is estimated that that portion of the population over the age of 64 will increase from 12.4% in 2000 to 19.7% in 2030. Due to this trend, the number of persons with arthritis will increase.⁵⁸⁻⁶⁰

In 2003, an estimated 32.0% 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 6.5% of those aged 18-24 years to 65.2% of those aged 65-74 years (Fig. 25). Women were more likely than men to be diagnosed with arthritis (34.7% vs. 29.1%). This proportion declined with higher education and income levels.

An additional 18.6% ($\pm 1.5\%$) reported having chronic joint symptoms, but had not been diagnosed by a doctor to have arthritis. This indicates that an estimated 1.9 million Michigan residents might have undiagnosed arthritis.

In the interest of lessening the public health burden of arthritis, goals for Healthy People 2010 include increasing the proportion of overweight or obese adults with doctor-diagnosed arthritis who receive provider counseling concerning their weight to 50%. Michigan BRFS estimates for 2003 indicate that among those with doctor-diagnosed arthritis who were overweight or obese, 26.2% ($\pm 3.3\%$) had been advised to lose weight by a health care professional.

Arthritis

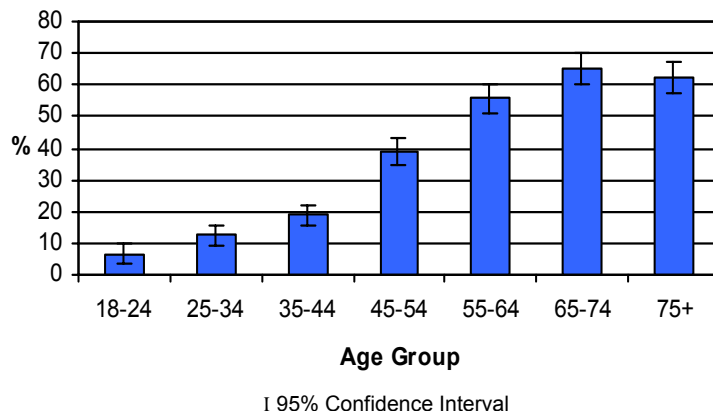
2003 Michigan BRFS

(% \pm 95% Confidence Interval Limit)

Demographic Characteristics	Doctor Diagnosed Arthritis ^a
Total	32.0 \pm 1.7
Age	
18 - 24	6.5 \pm 3.1
25 - 34	12.6 \pm 3.3
35 - 44	19.0 \pm 3.3
45 - 54	38.9 \pm 4.0
55 - 64	55.7 \pm 4.5
65 - 74	65.2 \pm 5.1
75 +	62.3 \pm 5.2
Gender	
Male	29.1 \pm 2.6
Female	34.7 \pm 2.2
Race	
White	32.2 \pm 1.8
Black	32.0 \pm 5.8
Education	
< High school	39.7 \pm 5.8
High school grad	35.7 \pm 3.2
Some college	31.5 \pm 3.2
College grad	25.5 \pm 2.8
Household Income	
< \$20,000	46.1 \pm 5.0
\$20,000 - \$34,999	35.3 \pm 3.8
\$35,000 - \$49,999	32.0 \pm 4.2
\$50,000 - \$74,999	27.5 \pm 3.9
\$75,000 +	23.0 \pm 3.3

^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.

Figure 25: Doctor Diagnosed Arthritis by Age Group
Michigan, 2003



“Have you EVER been told by a doctor or other health care professional that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?”



BRFSS Methods

The national Behavioral Risk Factor Surveillance System (BRFSS) consists of annual surveys conducted independently by the states; Washington, DC; 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 core questionnaire. The 2003 Michigan Behavioral Risk Factor Survey (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 phone bank density, and listedness.

The 2003 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 estimates (using 2000 Census Michigan population distributions with bridged race categories⁶¹) by sex, age, and race. Calculations of the prevalence estimates and confidence interval limits were performed using SUDAAN, a statistical computing program that was designed for analyzing data from multistage sample surveys.⁶²

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

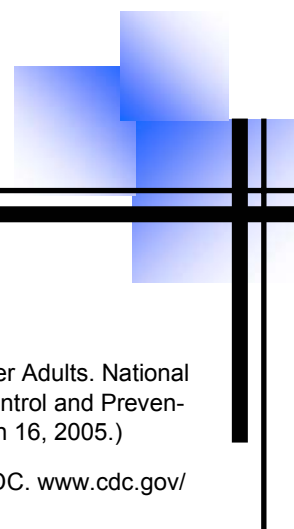
For comparison purposes, the median of estimates from participating states and territories is used for the national estimates.

SAMPLE RESULTS

A total of 24,250 telephone numbers were used for the 2003 Michigan BRFS. The final call dispositions for the sample numbers fell into the following categories: 3,551 completed and partially completed interviews; 969 interviews were terminated after the respondent was selected, 884 eligible respondents had incomplete interviews (i.e. selected respondent away from residence, a language problem occurred after the respondent was selected, etc.); 4,624 non-interviews of unknown eligibility (i.e., a private residence answering machine, household away, etc.); and 14,222 numbers were not eligible.

The CASRO (Council of American Survey Research Organizations) response rate, which includes a portion of the dispositions with unknown eligibility in the denominator of the rate, was 49.8%. Of all contacted selected respondents, 78.9% resulted in a completed interview.

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