



MICHIGAN BRFSS SURVEILLANCE BRIEF

A NEWSLETTER FROM THE CHRONIC DISEASE EPIDEMIOLOGY UNIT, MDCH

The Impact of COPD on the Michigan Adult Population

Background. Chronic obstructive pulmonary disease (COPD), including chronic bronchitis and emphysema, causes airflow limitation that is not fully reversible and is often progressive in nature.¹ In Michigan, COPD is the third leading cause of death and ambulatory care-sensitive hospitalizations and the seventh cause of years of life lost.² Michigan adults with COPD are more likely to be sedentary and to experience poor physical and mental health.³

Spirometry is an airflow test that is used to diagnose COPD. Everyone with a family history of chronic respiratory illness; repeated cough, sputum production or shortage of breath; or exposures to cigarettes and/or environmental or occupational pollutants should be screened. Treatment includes smoking cessation, use of bronchodilators and inhaled corticosteroids to improve airflow, oxygen supplementation, pulmonary rehabilitation, and, in some cases, lung reduction or transplant surgery.¹

Methods. Questions related to chronic obstructive pulmonary disease (COPD) and respondent demographics were included within the 2011 and 2012 Michigan Behavioral Risk Factor Surveys (MiBRFSS). Additional questions on COPD diagnosis, severity, and medication use were also included as state-added questions within the 2011 and 2012 surveys.

Lifetime COPD prevalence was determined based on responses to the following question: Has a doctor, nurse, or other health professional ever told you that you have Chronic Obstructive Pulmonary Disease or COPD, emphysema or chronic bronchitis? Adults with COPD were then asked additional questions focusing on COPD diagnostic tests, shortness of breath, doctor and emergency room visits due to COPD, and COPD medication use.

These data were used to determine the prevalence of COPD among Michigan adults and assess COPD diagnosis, severity, and management among adults with COPD. Demographic subpopulations were compared to determine if significant differences existed among these COPD indicators.

Results. Based on 2011-2012 MiBRFSS data, an estimated 7.7% of Michigan adults were ever told by a doctor that they had COPD (data not shown). COPD prevalence increased with age (3.2% at 18-24 yrs to 13.2% at 75+ yrs), was higher among females (8.8%), Black, non-Hispanics (9.7%), and disabled adults (17.9%), and decreased with increasing household income level (13.7% at <\$20k to 3.1% at ≥\$75k) [data not shown].

In 2011-2012, an estimated 74.6% of Michigan adults with

Table 1. COPD Diagnosis and Severity among Michigan Adults with COPD, 2011-2012 Michigan BRFSS

	Ever Given Breathing Test for COPD		Shortness of Breath Affects Quality of Life		Non-routine Doctor Visit for COPD (past 12 months)		Emergency Room Visit for COPD (past 12 months)	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Total	74.6	(71.2-77.7)	61.4	(58.1-64.7)	43.1	(39.8-46.4)	17.6	(15.2-20.4)
Age								
18-44 years	47.6	(38.2-57.3)	49.9	(40.4-59.4)	33.9	(26.0-42.9)	21.3	(14.3-30.7)
45-64 years	79.3	(75.1-82.9)	68.1	(63.6-72.3)	48.2	(43.3-53.1)	17.7	(14.5-21.6)
65+ years	85.7	(82.2-88.6)	59.4	(55.0-63.7)	41.9	(37.6-46.3)	15.0	(12.1-18.5)
Gender								
Male	73.1	(67.5-78.1)	64.4	(59.0-69.6)	37.1	(32.1-42.3)	14.7	(11.3-18.8)
Female	75.6	(71.3-79.4)	59.2	(55.0-63.4)	47.3	(43.1-51.5)	19.7	(16.3-23.5)
Race								
White	76.2	(72.6-79.4)	61.1	(57.5-64.6)	41.7	(38.1-45.3)	14.8	(12.5-17.5)
Black	73.1	(63.7-80.8)	65.0	(55.6-73.3)	50.9	(41.7-60.1)	30.5	(22.6-39.7)
Other	62.8	(44.8-77.8)	61.5	(44.3-76.3)	45.7	(31.7-60.3)	22.0	(9.3-43.7)
Household Income								
Less than \$10,000	69.6	(56.1-80.3)	69.0	(56.7-79.2)	48.8	(37.8-59.9)	28.4	(18.4-41.1)
\$10,000 - \$19,999	78.2	(71.3-83.9)	73.3	(66.3-79.3)	52.8	(45.4-60.1)	26.7	(20.6-33.8)
\$20,000 - \$34,999	76.7	(70.3-82.0)	59.4	(53.4-65.1)	43.7	(37.7-49.8)	16.1	(12.0-21.3)
\$35,000 - \$49,999	75.9	(66.7-83.2)	52.2	(43.2-61.0)	37.4	(29.3-46.3)	13.8	(8.5-21.5)
\$50,000 or more	72.3	(64.1-79.2)	53.2	(44.5-61.7)	38.1	(30.5-46.5)	8.6	(5.5-13.1)
Health Insurance								
Yes	78.3	(75.0-81.3)	61.3	(57.8-64.7)	43.9	(40.4-47.3)	16.7	(14.2-19.6)
No	51.9	(41.4-62.3)	61.8	(51.1-71.4)	38.1	(28.6-48.5)	23.3	(15.9-33.0)
Disability Status								
Disabled	81.9	(78.0-85.2)	73.6	(69.8-77.2)	51.4	(47.2-55.5)	22.0	(18.6-25.8)
Not disabled	63.2	(57.3-68.8)	41.5	(35.9-47.2)	30.1	(25.3-35.4)	10.8	(7.8-14.8)

MiBRFSS News

- 2013 MiBRFSS data is currently being analyzed and the 2013 MiBRFSS standard tables should be available in late June or early July. The standard tables will be sent out via email and will also be made available on the MiBRFSS website (www.michigan.gov/brfss).
- The 2014 MiBRFSS Data Users Meeting presentation will be available for viewing on the MiBRFSS website starting June 19th.
- Did you miss an issue of Michigan BRFSS Surveillance Brief? Back issues are available on our website.

COPD reported ever having received a breathing test to diagnose their COPD (Table 1). Receipt of this test increased with age, and was higher among insured and disabled adults. 61.4% of adults with COPD reported that shortness of breath affects their quality of life (Table 1). Shortness of breath was more of a problem for adults above 45 years of age, and was significantly higher among disabled adults with COPD.

2011-2012 MiBRFSS data indicated that an estimated 43.1% of Michigan adults with COPD made a non-routine visit to their doctor during the past 12 months as a result of their COPD-related symptoms (Table 1). The prevalence was higher among females and disabled adults. Furthermore, 17.6% of adults with COPD reported having visited the emergency room (ER) or had been admitted to the hospital in the past 12 months because of their COPD (Table 1). The prevalence was higher among blacks compared to whites, decreased with increasing household income level, and was higher among disabled adults with COPD.

On average, Michigan adults with COPD reported a COPD medication usage of 1.4 medications per day (Table 2). COPD medication use increased with age and was higher among insured and disabled adults with COPD.

Among Michigan adults with COPD, an estimated 41.7% are current smokers, while an additional 36.7% are former smokers (Table 3). Furthermore, among those with COPD who are current smokers only 69.9% have attempted to quit smoking for one day or longer within the past year.

Conclusions. These results indicate that Michigan adults living with COPD have a need for improved access to care. For example, using the ER for COPD care is 3.3 times higher in low income than high income adults. Black adults in Michigan have a higher prevalence of COPD and also have increased use of ER for their COPD (2.1 times higher than White adults). The number of medications used each day was also lower among adults without insurance.

As nearly 25% of adults with COPD have not been given a breathing test for COPD, education of people at risk of the disease and physicians of the need to screen for COPD, particularly among current and former smokers, could improve timely diagnosis. Uninsured adults with COPD were 66% as likely to report having had a breathing test, indicating that lack of insurance may be a barrier to screening for this disease.

The majority of adults with COPD are either current or former smokers. Current smoking prevalence is higher among Michigan adults with COPD than other adults, indicating this is a population in need of smoking cessation counseling and treatment. Public health and healthcare interventions targeted to this population can aid in slowing the progression of disease.

References

- ¹ American Thoracic Society. Standards for the Diagnosis and Management of Patients with COPD. Version 1.2. New York: American Thoracic Society; 2004 [updated 2005]. Available from: <http://www.thoracic.org/go/copd>.
- ² 2012 Michigan Death Certificate Registry and Michigan Resident Inpatient Files. MDCH Division for Vital Records and Health Statistics.
- ³ COPD among Adults in Michigan. CDC NCCDPHP, Division of Population Health. http://www.cdc.gov/copd/maps/docs/pdf/MI_COPDFactSheet.pdf.

Table 2. COPD Medication Use among Michigan Adults with COPD, 2011-2012 Michigan BRFSS

	Average Number of COPD Medications Used	
	Average	95% CI
Total	1.4	(1.2-1.5)
Age		
18-44 years	0.7	(0.5-0.9)
45-64 years	1.4	(1.2-1.6)
65+ years	1.8	(1.5-2.1)
Gender		
Male	1.4	(1.2-1.7)
Female	1.3	(1.2-1.5)
Race		
White	1.4	(1.2-1.5)
Black	1.6	(1.2-2.1)
Other	1.3	(0.8-1.8)
Household Income		
Less than \$10,000	1.9	(1.2-2.5)
\$10,000 - \$19,999	1.7	(1.3-2.1)
\$20,000 - \$34,999	1.4	(1.2-1.6)
\$35,000 - \$49,999	1.2	(0.9-1.4)
\$50,000 or more	1.2	(0.8-1.5)
Health Insurance		
Yes	1.5	(1.3-1.6)
No	0.8	(0.3-1.2)
Disability Status		
Disabled	1.8	(1.6-2.0)
Not disabled	0.7	(0.6-0.9)

Table 3. Cigarette Smoking and Smoking Cessation among Michigan Adults with COPD, 2011-2012 Michigan BRFSS

	%	95% CI
Current Smoker	41.7	(38.3-45.1)
Former Smoker	36.7	(33.7-39.7)
Tried to Quit Smoking For One Day or Longer Within the Past Year	69.9	(64.3-75.0)

The Michigan Behavioral Risk Factor Surveillance System (MiBRFSS)

The MiBRFSS comprises annual, statewide telephone surveys of Michigan adults aged 18 years and older and is part of the national BRFSS coordinated by the CDC. The annual Michigan Behavioral Risk Factor Surveys (MiBRFS) follow the CDC BRFSS protocol and use the standardized English core questionnaire that focuses on various health behaviors, medical conditions, and preventive health care practices related to the leading causes of mortality, morbidity, and disability. Landline and cell phone interviews are conducted across each calendar year. Data are weighted to adjust for the probabilities of selection and a raking weighting factor that adjusts for the distribution of the Michigan adult population based on eight demographic variables. All analyses are performed using SAS-callable SUDAAN® to account for the complex sampling design.

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