



MICHIGAN BRFSS SURVEILLANCE BRIEF

A NEWSLETTER FROM THE CHRONIC DISEASE EPIDEMIOLOGY UNIT, MDCH

The Prevalence of COPD Within the Michigan Adult Population

Background. Chronic Obstructive Pulmonary Disease (COPD) is the third leading cause of death in Michigan, killing more than 5,000 people each year.¹ COPD, which includes the conditions emphysema and chronic bronchitis, is a preventable disease that is treatable, but not curable.² The disease is caused by smoking of tobacco or exposure to other noxious particles in the lungs, such as organic and inorganic dusts and chemical agents and fumes in the workplace. These exposures trigger a normal inflammatory process which, over time, destroys parenchymal tissue and disrupts normal airway repair and defense mechanisms, resulting in air trapping and progressive airflow limitation.²

Treatment includes smoking cessation, drug therapy to reduce symptoms and exacerbations, oxygen supplementation, influenza and pneumococcal vaccination, pulmonary rehabilitation, and in some severe cases, surgery.² Without proper treatment, people with COPD may go on to experience pulmonary hypertension, heart failure and other comorbidities.² Furthermore, this disease is a leading cause of disability that results in \$29.5 billion in medical care costs each year in the United States, as well as additional costs due to lost productivity and caregiver time.²

Methods. Questions related to COPD, demographics, tobacco use, and other selected chronic conditions were included within the core of the 2011 Michigan Behavioral Risk Factor Survey (MiBRFS). Two questions focusing on recent secondhand smoke (SHS) exposure were also included on two splits of the 2011 MiBRFS.

The prevalence of COPD among Michigan adults was calculated based on responses to the following question: “Has a doctor, nurse, or other health professional ever told you that you had chronic obstructive pulmonary disease (COPD), emphysema, or chronic bronchitis.” The data for the other chronic conditions used in this analysis were collected in a similar manner to that of COPD. The two SHS questions focused on exposure that occurred within the home or car within the past seven days.

These data were used to assess the prevalence of COPD among Michigan adults and determine which demographic subpopulations are more adversely impacted by this debilitating condition. The prevalence of COPD among adults with and without selected chronic conditions and health behaviors were also analyzed to identify other vulnerable populations.

Results. In 2011, an estimated 8.0% of Michigan adults reported that they had ever been told by a doctor that they had COPD (Table 1). The prevalence of COPD among Michigan adults increased with increasing age and decreased within increasing household income level. Females (9.1%) reported a significantly higher prevalence of COPD than males (6.8%), while Hispanics (3.7%) reported a significantly lower prevalence of COPD than both White, non-Hispanics (7.9%) and Black, non-Hispanics (9.9%). Furthermore, disabled adults were over four times more likely to have ever been diagnosed with COPD than non-disabled adults (17.7% vs. 4.2%).

Among Michigan adults with current asthma, an estimated 28.1% had also been diagnosed with COPD, making adults with current asthma nearly five times more likely to have COPD than adults without

Table 1. Ever Told COPD among Michigan Adults, 2011 Michigan BRFS

	%	95% CI
Total	8.0	(7.3-8.7)
Age		
18-24	2.3	(1.2-4.2)
25-34	3.6	(2.3-5.7)
35-44	5.2	(3.8-7.1)
45-54	9.0	(7.3-11.0)
55-64	11.1	(9.4-13.1)
65-74	14.8	(12.6-17.4)
75+	14.2	(11.8-17.0)
Gender		
Male	6.8	(5.8-7.9)
Female	9.1	(8.1-10.2)
Race/Ethnicity		
White, non-Hispanic	7.9	(7.2-8.8)
Black, non-Hispanic	9.9	(7.6-12.7)
Other, non-Hispanic	7.1	(4.9-10.1)
Hispanic	3.7	(1.9-7.4)
Household Income		
< \$20,000	13.0	(11.0-15.2)
\$20,000 - \$34,999	10.2	(8.7-12.0)
\$35,000 - \$49,999	7.2	(5.6-9.2)
\$50,000 - \$74,999	6.1	(4.5-8.2)
\$75,000+	3.2	(2.2-4.5)
Disability Status		
Disabled	17.7	(15.9-19.7)
Not Disabled	4.2	(3.6-4.9)

MiBRFSS News

- The 30th Annual CDC BRFSS Conference was held on March 23-27 in Atlanta, GA. The abstracts, handouts, and presentations from this conference will be available on the conference website (www.brfss2013.com).
- Analysis of the 2012 MiBRFS data will begin in the near future. Stay tuned for updates on potential dates for results dissemination.
- Did you miss an issue of *Michigan BRFSS Surveillance Brief*? Back issues are available on our website (www.michigan.gov/brfs).

asthma (Table 2). Adults with diabetes were over twice as likely to have had COPD than adults without this condition (14.7% vs. 7.2%). Furthermore, adults who were ever diagnosed with any form of cardiovascular disease (CVD) were 3.6 times more likely to have had COPD than adults without CVD (22.9% vs. 6.4%). Adults who were ever told that they had cancer or arthritis were two to three times more likely to have had COPD than their non-disease counterparts (Table 2).

Among Michigan adults who currently smoked cigarettes, an estimated 14.8% had also been diagnosed with COPD (Table 2). Current cigarette smokers were 1.4 times more likely than former smokers (14.8% vs. 10.9%) and 4.5 times more likely than nonsmokers (14.8% vs. 3.3%) to have ever been diagnosed with COPD. Furthermore, adults who were recently exposed to SHS within their home or car were 1.9 times more likely to have had COPD than adults with no recent SHS exposure (12.7% vs. 6.6%).

Conclusions. The prevalence of COPD among Michigan adults is higher than that of the United States adult population.³ However, populations experiencing the highest COPD prevalence (women, adults living in low income households or living with disabilities) are similar for Michigan and the United States. These data are expected to underestimate the true prevalence, given widespread under recognition and under diagnosis of COPD.² The results are not fully generalizable to the entire adult population as people living in long term care facilities are not likely to be included within the MiBRFS.

The high prevalence of comorbidities among adults with COPD is expected as COPD status can initiate or worsen these conditions. For example, air flow limitation due to this disease will affect cardiac function.² There is also evidence that inflammatory mediators in the circulation “may initiate or worsen comorbidities such as ischemic heart disease, heart failure, osteoporosis, normocytic anemia, diabetes, metabolic syndrome, and depression”.² The association with asthma is also expected as asthma has been implicated in COPD development.²⁻³ Comorbidities will lead to complications in COPD management. The high prevalence of smoking and secondhand smoke exposure will also hasten disease progression and initiate exacerbations.

Many people with COPD are served by MDCH programs. Implementation of occupational health programs and the Dr. Ron Davis Smoke Free Air Law will aid in prevention and control. Screening with spirometry, particularly among smokers, is essential for early detection. Drug treatment and influenza & pneumococcal vaccination will also improve control. Surveillance is needed to monitor the impact of COPD, identify vulnerable subpopulations, and evaluate prevention efforts.

References

- ¹ 2010 Michigan Death Certificate Registry. Division for Vital Records & Health Statistics, Michigan Department of Community Health.
- ² Global Initiative for Chronic Obstructive Lung Disease. Global Strategy for the Diagnosis, Management and Prevention of Chronic Obstructive Pulmonary Disease (2013). Accessed 03/27/13 at http://www.goldcopd.org/uploads/users/files/GOLD_Report_2013_Feb20.pdf.
- ³ Kosacz NE, Punturieri A, Croxton TL, et al. Chronic Obstructive Pulmonary Disease Among Adults – United States, 2011. *MMWR*, 61(46):938-943.

Table 2. Prevalence of COPD among Michigan Adults by Selected Chronic Conditions and Health Behaviors, 2011 Michigan BRFS

	%	95% CI
Total	8.0	(7.3-8.7)
Current Asthma		
Yes	28.1	(24.4-32.3)
No	5.7	(5.1-6.4)
Ever Told Diabetes		
Yes	14.7	(12.3-17.5)
No	7.2	(6.5-8.0)
Ever Told Cardiovascular Disease		
Yes	22.9	(19.7-26.4)
No	6.4	(5.7-7.1)
Ever Told Cancer		
Yes	14.3	(12.1-16.8)
No	7.2	(6.4-7.9)
Ever Told Arthritis		
Yes	15.2	(13.6-16.9)
No	4.8	(4.1-5.5)
Cigarette Smoking		
Current	14.8	(12.7-17.2)
Former	10.9	(9.6-12.4)
Never	3.3	(2.8-4.0)
Secondhand Smoke Exposure		
Yes	12.7	(10.1-15.8)
No	6.6	(5.6-7.8)

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.

Suggested citation: Fussman C, Wahl R, LyonCallo S. Chronic Obstructive Pulmonary Disease (COPD) Among Michigan Adults. *Michigan BRFS Surveillance Brief*. Vol. 7, No. 2. Lansing, MI: Michigan Department of Community Health, Lifecourse Epidemiology and Genomics Division, Surveillance and Program Evaluation Section, Chronic Disease Epidemiology Unit, April 2013.



Rick Snyder, Governor
James K. Havelman, Director