

# *Asthma in Missouri: Are we controlling it or is it controlling us?*



**Sherri G. Homan, RN, PhD**  
**Noaman Kayani, PhD**  
**Peggy Gaddy, MBA, RRT**

## **Background:**

Asthma, a chronic, intermittent inflammatory respiratory condition, may lead to disability and adversely affect quality of life when not well controlled. Nationally, more than 23 million adults and children in the United States have the disease.<sup>1,2</sup> More than one-half million people in Missouri report current asthma.<sup>3</sup> Although the causes of asthma are not well understood, improved scientific understanding of the disease has led to substantial improvements in care and have made control for the majority an attainable goal. The objectives of this study were to estimate the prevalence of health and asthma control indicators among Missouri adults reporting current asthma and compare their prevalence estimates with adults without asthma.

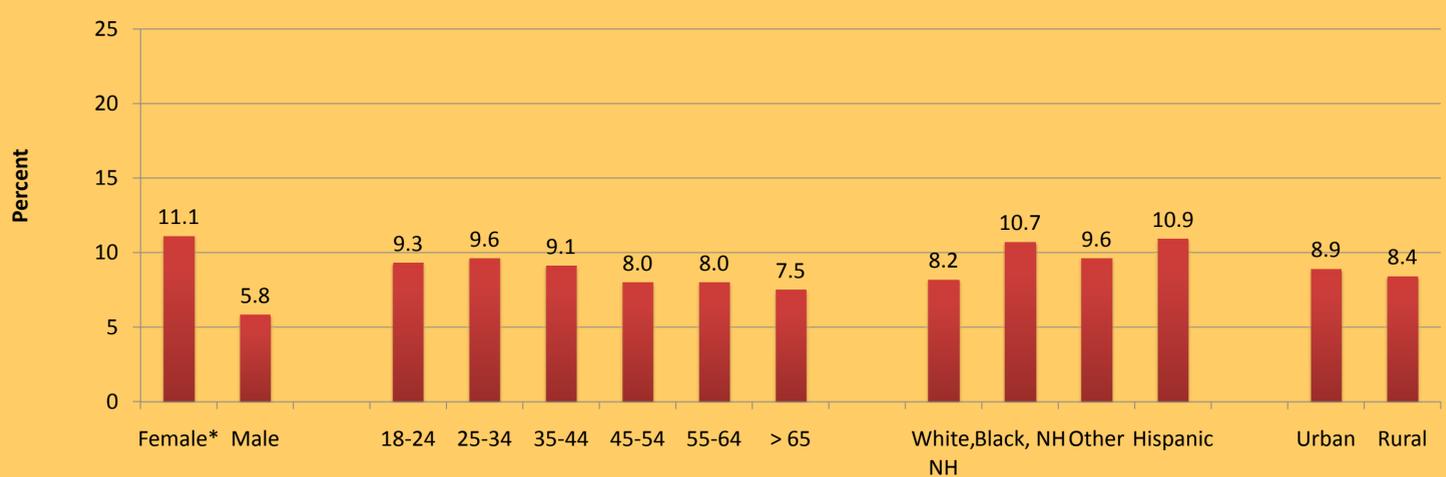
## **Methods:**

This study used 2007 data from the Missouri County-level Study (CLS), sample size 49,513, and Behavioral Risk Factor Surveillance System (BRFSS), sample size 5,263. Both used random-digit dialed telephone interviews with non-institutionalized adults, age 18 and older. The CLS was conducted through a partnership of the Missouri Foundation for Health, Missouri Department of Health and Senior Services, and the University of Missouri-Columbia. Current asthma was defined by “yes” responses to “Have you ever been told by a doctor, nurse or other health professional that you had asthma?” and “Do you still have asthma?” Health status and asthma control were assessed using 14 health indicators - two from BRFSS (i.e., flu shot and pneumococcal vaccination) and the remainder from CLS. For this initial analysis, prevalence estimates and 95 percent confidence intervals were calculated for each indicator.

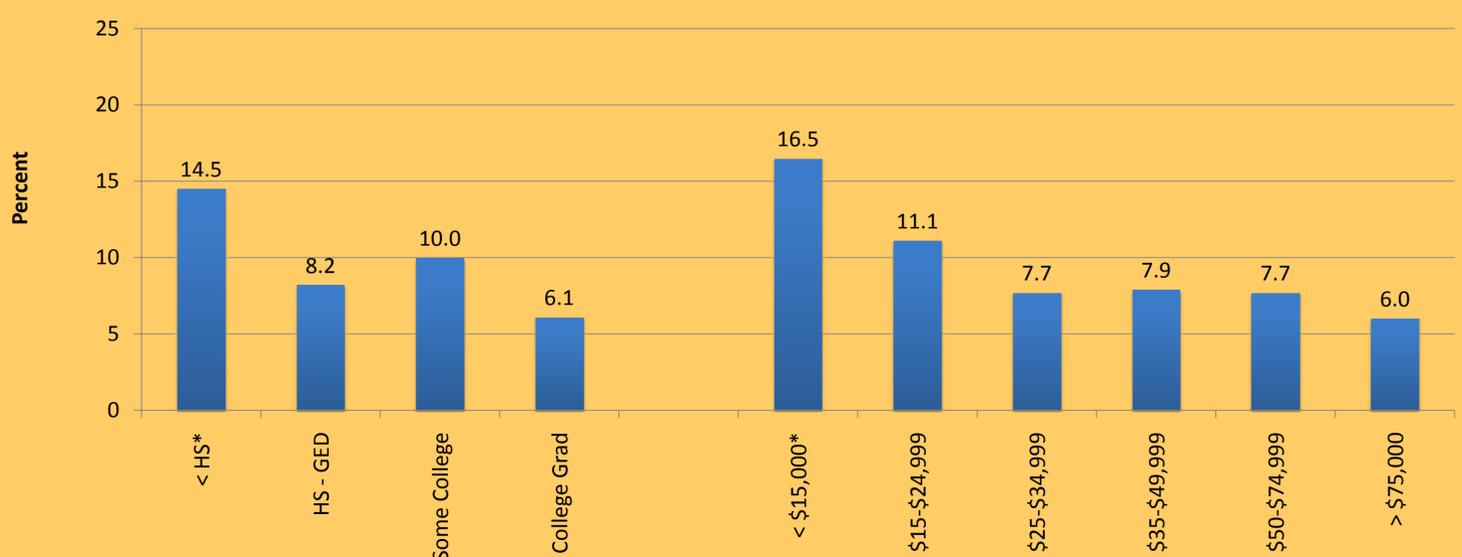
## **Results:**

As shown in Figures 1 and 2, based on the 2007 CLS, a significantly greater proportion of Missouri adults with asthma are female, have less than a high school education and report a household income less than \$15,000. Missouri adults with asthma also tend to be younger and minority.

**Figure 1. Prevalence of asthma by demographic characteristics, Missouri adults, 2007**



**Figure 2. Prevalence of asthma by education levels and household incomes, Missouri adults, 2007**



\*Significantly higher than one or more comparison groups.

As shown in Table 1, significantly more adults with asthma reported fair or poor health and greater activity limitation compared to adults without current asthma. Of the remaining indicators showing significance, a greater proportion of adults with current asthma compared to non-asthmatics reported: 14 or more physically unhealthy days in the past 30 days, frequent mental distress, current smoking, permitted smoking in their homes, being advised to quit smoking, obesity, and receiving a pneumococcal vaccination. Substantially more adults with asthma also received a flu shot compared to non-asthmatics. In addition, while slightly more adults with asthma than non-asthmatics reported no health care coverage, slightly less reported needing medical care and not able to obtain due to cost; however, these differences were not significant.

The majority of each group believed secondhand smoke to be harmful to one's health and reported receiving their usual care or health advice from a doctor's office. Figure 3, shows the usual places for sick care or obtaining health advice by percent of Missouri adults with asthma. A greater proportion of adults with asthma reported usual sick care or health advice from a hospital emergency room (6.1%) than non-asthmatics (3.8%). However, fewer adults with asthma (3.3%) compared to non-asthmatics (6.7%) reported no usual place for health care.

**Table 1. Comparison of health indicators for adults with and without asthma, Missouri, 2007**

Indicator	Adults with Asthma		Adults without Asthma	
	Prevalence	95% CI	Prevalence	95% CI
<b>General Health</b>				
Health status (fair or poor)	35.6*	31.9 - 39.3	15.0	14.3 - 15.7
Physically unhealthy days	26.7*	23.2 - 30.1	11.1	10.4 - 11.8
Frequent mental distress‡	24.4*	20.8 - 28.0	11.2	10.4 - 12.0
Activity limitations‡‡	44.4*	40.4 - 48.5	19.8	18.9 - 20.7
<b>Behavioral Risk Factors</b>				
Current smoker	29.2*	25.3 - 33.1	22.6	21.6 - 23.7
Smoking permitted in home	40.2*	36.2 - 44.3	31.6	30.5 - 32.7
<b>Co-morbid Condition</b>				
Obesity	40.8*	36.7 - 44.9	28.0	26.9 - 29.1
<b>Health Care</b>				
No health coverage	16.8	13.7 - 20.0	14.9	14.0 - 15.7
Unable to obtain care due to cost‡‡‡	64.2	53.7 - 74.7	69.4	65.8 - 72.9
Advised to quit smoking	79.8*	73.9 - 85.8	69.9	67.1 - 72.8
<b>Preventive Care</b>				
No flu shot	55.7	48.8 - 62.6	64.5	62.5 - 66.5
Never had pneumococcal vaccination (age 65 and older)	59.7*	52.6 - 66.7	75.9	74.0 - 77.7
<b>Health Beliefs</b>				
Secondhand smoke not harmful	10.6	7.2 - 14.0	9.7	9.0 - 10.3

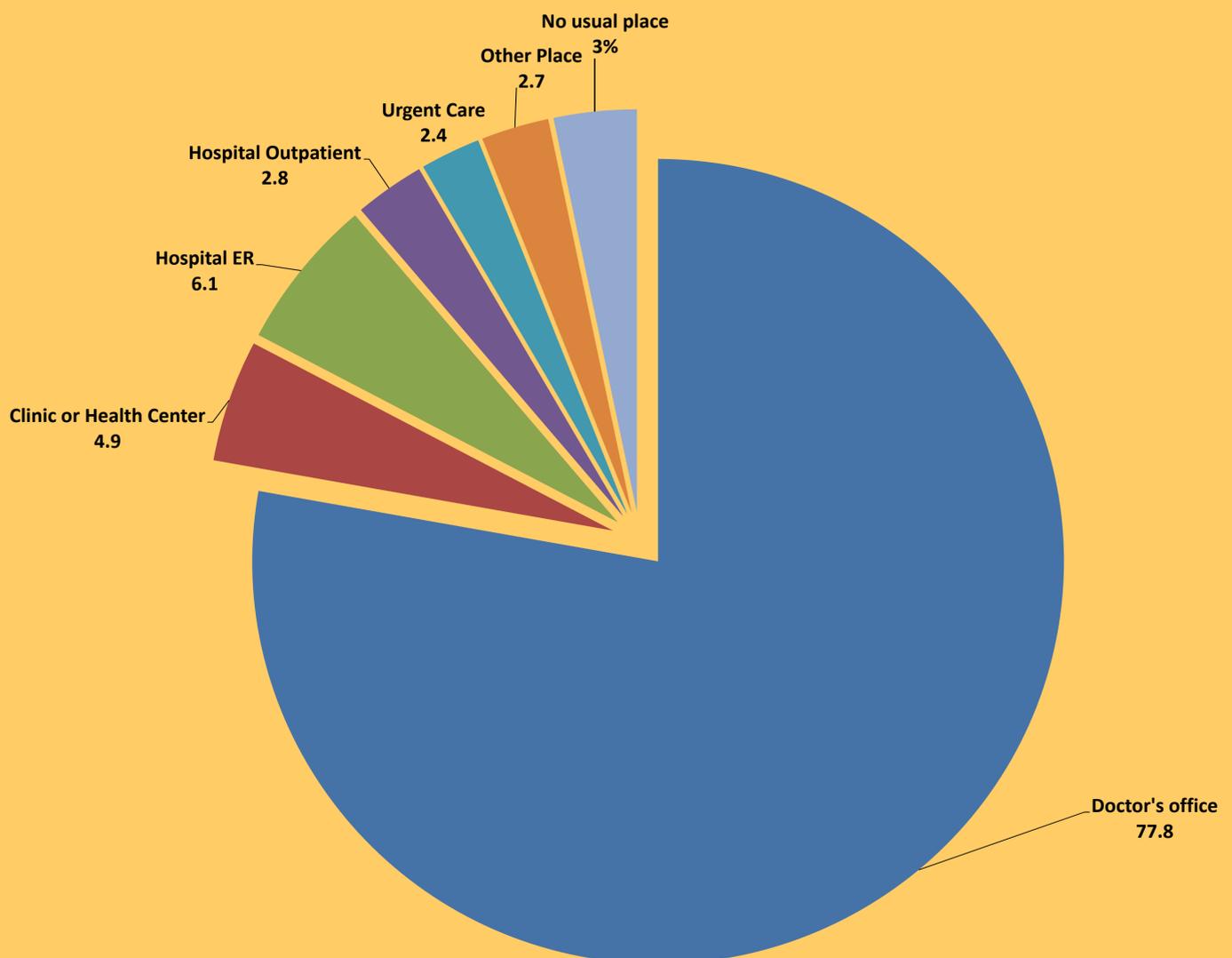
\*Significantly different compared to adults without asthma.

‡Frequent mental distress - 14 or more days within the past 30 days.

‡‡Activity limitations – Responded “yes” to “Are you limited in any way in any activities because of physical, mental, or emotional problems?”

‡‡‡Needed medical care in the past 12 months but could not obtain due to cost or no health insurance.

**Figure 3. Usual places for sick care or health advice by percent of adults with asthma, Missouri, 2007**



## Conclusions:

The first National Asthma Education and Prevention Program practice guidelines were released in 1991 with updates in 1997, 2002 and 2007. The latest, “Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma (EPR-3)” establish the goal of asthma therapy as asthma control as evidenced by reduced impairment and risk.<sup>4</sup> Although asthma management has improved dramatically over the past couple decades and studies indicate that current therapeutic approaches are effective in preventing and controlling exacerbations, this study suggests that many adults with asthma are not well controlled as evidenced by significant functional impairment, mental distress and are at risk for future asthma episodes due to smoking, secondhand smoke exposure and other risk factors. The Missouri Asthma Prevention and Control Program has incorporated the EPR-3 primary components of care (i.e., assessment and monitoring of the burden of asthma, self-management and provider education, environmental trigger reduction, and promotion of a daily control medication with appropriate delivery devices) in interventions to further the goal of asthma control in Missouri. These interventions include hospitals and clinics, homes, schools, child care centers, workforce development and community-wide initiatives. It is important to monitor the health status and risk of people with asthma in Missouri for quality improvement of these interventions and evaluate the overall impact of these efforts to improve health outcomes.



Copies available at: <http://www.dhss.mo.gov/asthma/Data.html>

## References:

<sup>1</sup>Pleis, JR, Lucas, JW, & Ward, BW. (2009). Summary health statistics for U.S. adults: National Health Interview Survey, 2008. *Vital Health Statistics, 10(242)*. Retrieved May 25, 2010, from Summary Health Statistics for U.S. Adults: National Health Interview Survey, 2008, tables 3, 4

<sup>2</sup>Bloom, B. Cohen, RA, & Freeman, G. (2009). Summary health statistics for U.S. children: National Health Interview Survey, 2008. *Vital Health Statistics, 10(244)*. Retrieved May 25, 2010, from Summary Health Statistics for U.S. Adults: National Health Interview Survey, 2008, table

<sup>3</sup>Missouri Department of Health and Senior Services. *Behavioral Risk Factor Surveillance System Data Report*. Jefferson City, MO: Division of Community and Public Health. Retrieved May 25, 2010, from [www.dhss.mo.gov/brfss/Data.html](http://www.dhss.mo.gov/brfss/Data.html)

<sup>4</sup>National Heart, Lung and Blood Institute (NHLBI). (2007). *Expert Panel Report 3 (EPR3): Guidelines for the diagnosis and management of asthma* (NIH Publication Number 07-4051). Retrieved May 25, 2010, from [www.nhlbi.nih.gov/guidelines/asthma](http://www.nhlbi.nih.gov/guidelines/asthma)