

**Prevalence of Asthma-Related Health Conditions Among Michigan Adults with Current Asthma  
Estimates from the Michigan Asthma Call-Back Survey  
2008-2010 Combined**

**Standard Tables**

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**Table of Contents**

Introduction.....3  
Table 1: Prevalence of Asthma Symptoms.....4  
Table 2: Percent Distribution of Number of Asthma Symptom-Free Days in Past 2 Weeks.....5  
Table 3: Prevalence of Asthma-Related Health Care Utilization.....6  
Table 4: Prevalence of Any Asthma Control Medication Use in Past 3 Months .....7  
Table 5: Prevalence of Comorbid Conditions.....8  
Table 6: Prevalence of Experiencing Cost Barriers to Asthma Care in Past 12 Months.....9  
Table 7: Prevalence of Knowledge Indicators Related to Asthma Management .....10  
Table 8: Prevalence of Asthma Triggers in Home Environment.....12  
Table 9: Prevalence of Asthma Trigger Avoidance Behaviors in Home Environment.....14  
Table 10: Prevalence of Ever Being Advised to Modify Environment to Improve Asthma.....16  
Table 11: Percent Distribution of Number of Days Unable to Work or Carry Out Usual Activities.....17  
Table 12: Prevalence of Work-Related Asthma Using 3 Definitions.....18

## **Introduction**

The Michigan Asthma Call-Back Survey has been conducted annually since 2005 in conjunction with the Michigan Behavioral Risk Factor Survey (MiBRFS), an annual, statewide telephone survey of Michigan adults aged 18 years and older. Both of these surveys are conducted through a collaborative effort among the Behavioral Surveillance Branch (BSB) at the Centers for Disease Control and Prevention (CDC), the Office for Survey Research at Michigan State University's Institute for Public Policy and Social Research, and the Michigan Department of Community Health. The MiBRFS participates in the national [Behavioral Risk Factor Surveillance System](#) that is coordinated by BSB.

Respondents to the MiBRFS who had ever been diagnosed with asthma or whose randomly selected child had ever been diagnosed with asthma were asked at the end of the MiBRFS interview if they would be willing to participate in an additional interview focused on asthma. Those who agreed were called back within 2 weeks of the MiBRFS interview and administered a comprehensive, standardized questionnaire on asthma-related symptoms, health care, medication, and management. Two separate, but very similar, questionnaires were used: one with questions about the adult respondent with asthma and the other with questions about the selected child with asthma.

This report presents the results for adults from the 2008-2010 Michigan Asthma Call-Back Surveys combined. The total 3-year sample size of completed interviews for adults was 2,079, with 691 from 2008, 669 from 2009, and 719 from 2010. Estimates were weighted to adjust for the probabilities of selection and a post-stratification weighting factor that adjusted for the distribution of Michigan adults by age, sex, and race/ethnicity at the state level. Analyses were performed in SAS-Callable SUDAAN®, a statistical computing program that was designed for complex sample surveys.

The prevalence estimates and 95% confidence intervals included within the tables that follow were restricted to adults with current asthma (n=1,542). Current asthma was defined as a “yes” response to both of the following questions: “Have you ever been told by a doctor or other health professional that you had asthma?” and “Do you still have asthma?”

<b>Table 1. Prevalence of Asthma Symptoms, Among Adults with Current Asthma Michigan Asthma Call-Back Survey, 2008-2010 Combined</b>				
	<b>n<sup>a</sup></b>	<b>Had Asthma Symptoms on ≥ 9 Days in Past Month<sup>b</sup></b>	<b>Difficulty Sleeping Due to Asthma Symptoms on ≥ 2 Days in Past Month<sup>c</sup></b>	<b>Usual Activities Limited at Least a Little During Past 12 Months<sup>d</sup></b>
<b>Total</b>	1,542	38.1 (34.2-42.1)	27.5 (23.8-31.5)	61.3 (57.1-65.4)
<b>Age in years</b>				
18-34	133	28.1 (19.6-38.6)	25.6 (17.2-36.2)	52.4 (41.8-62.8)
35-64	935	41.9 (37.8-46.2)	29.5 (25.5-33.8)	66.8 (62.8-70.6)
≥ 65	468	46.0 (40.7-51.5)	24.2 (20.0-29.0)	60.3 (54.9-65.4)
<b>Sex</b>				
Male	414	35.8 (28.9-43.2)	23.2 (17.1-30.6)	55.3 (47.4-63.0)
Female	1,128	39.4 (34.9-44.2)	30.0 (25.7-34.8)	64.7 (60.0-69.2)
<b>Race</b>				
White	1,195	36.5 (32.2-40.9)	24.9 (20.9-29.4)	60.5 (55.8-65.0)
Black	242	42.4 (31.4-54.1)	35.1 (25.1-46.6)	60.7 (48.4-71.7)
<b>Household income</b>				
< \$20,000	360	39.0 (34.9-43.2)	45.3 (36.0-54.9)	77.4 (68.8-84.1)
\$20,000-34,999	315	50.8 (41.5-60.1)	28.1 (21.1-36.3)	59.9 (50.2-68.9)
\$35,000-49,999	196	33.4 (25.8-41.9)	24.3 (16.3-34.5)	63.1 (53.4-71.9)
\$50,000-74,999	196	43.0 (33.5-53.1)	27.3 (16.5-41.7)	61.3 (49.0-72.3)
≥ \$75,000	289	43.8 (31.8-56.7)	14.0 (10.0-19.4)	55.2 (48.0-62.1)
<b>Education</b>				
< HS graduate	128	42.5 (28.7-57.6)	48.0 (32.4-64.0)	68.6 (52.3-81.4)
HS graduate	404	46.0 (38.2-54.0)	34.1 (26.9-42.1)	68.2 (61.1-74.6)
Some college	489	35.2 (29.0-41.9)	22.9 (17.7-29.1)	59.7 (51.7-67.3)
College graduate	521	34.3 (27.7-41.5)	22.2 (16.3-29.5)	56.0 (49.1-62.6)
<sup>a</sup> Sample size (unweighted) for demographic subpopulations. Cell sample sizes for prevalence estimates will vary due to missing values. <sup>b</sup> Reported ≥ 9 days to the following question, “During the past 30 days, on how many days did you have any symptoms of asthma?” <sup>c</sup> Reported ≥ 2 days to the following question, “During the past 30 days, on how many days did symptoms of asthma make it difficult for you to stay asleep?” <sup>d</sup> Reported “a little,” “a moderate amount,” or “a lot” to the following question, “During the past 12 months, would you say you limited your usual activities due to asthma not at all, a little, a moderate amount, or a lot?”				

<b>Table 2. Percent Distribution of Number of Asthma Symptom-Free Days<sup>a</sup> in Past 2 Weeks, Among Adults with Current Asthma Michigan Asthma Call-Back Survey, 2008-2010 Combined</b>				
	<b>None</b>	<b>1-6 Days</b>	<b>7-13 Days</b>	<b>14 Days</b>
<b>Total</b>	23.8 (20.6-27.3)	14.2 (11.7-17.0)	27.2 (23.5-31.3)	34.8 (31.0-38.9)
<b>Age in years</b>				
18-34	14.1 (8.0-23.6)	11.3 (6.4-19.2)	34.3 (24.8-45.2)	40.3 (30.5-51.0)
35-64	26.0 (22.3-30.1)	16.2 (13.3-19.6)	26.2 (22.7-29.9)	31.6 (27.8-35.7)
≥ 65	36.7 (31.7-42.1)	12.7 (9.8-16.3)	15.5 (11.9-19.9)	35.1 (30.1-40.4)
<b>Sex</b>				
Male	21.3 (16.1-27.7)	13.4 (9.1-19.3)	27.4 (20.5-35.6)	37.9 (30.8-45.6)
Female	25.2 (21.4-29.5)	14.6 (11.9-17.9)	27.1 (23.1-31.6)	33.1 (28.6-37.8)
<b>Race</b>				
White	22.5 (19.0-26.4)	12.8 (10.3-15.8)	29.1 (24.9-33.7)	35.6 (31.3-40.2)
Black	32.2 (22.2-44.2)	13.4 (8.4-20.5)	19.1 (12.0-29.1)	35.3 (24.3-48.1)
<b>Household income</b>				
< \$20,000	36.0 (27.8-45.2)	23.3 (16.1-32.4)	13.9 (9.0-20.8)	26.9 (19.2-36.2)
\$20,000-34,999	18.7 (13.8-24.9)	17.5 (11.8-25.3)	22.1 (16.3-29.3)	41.6 (32.2-51.8)
\$35,000-49,999	26.1 (18.2-35.9)	14.3 (8.4-23.3)	28.4 (20.4-38.0)	31.2 (23.0-40.7)
\$50,000-74,999	25.9 (15.9-39.2)	11.1 (6.9-17.3)	32.9 (22.2-45.7)	30.2 (20.6-41.8)
≥ \$75,000	13.4 (8.4-20.5)	19.1 (12.0-29.1)	35.3 (24.3-48.1)	30.2 (20.6-41.8)
<b>Education</b>				
< HS graduate	26.6 (17.2-38.7)	28.9 (15.7-46.9)	13.3 (5.8-27.8)	31.2 (17.8-48.8)
HS graduate	32.3 (25.2-40.3)	15.8 (11.2-21.9)	22.0 (16.3-29.0)	29.9 (23.3-37.4)
Some college	22.1 (17.4-27.7)	13.1 (9.7-17.6)	28.2 (21.2-36.5)	36.5 (29.4-44.2)
College graduate	18.5 (13.4-25.0)	10.2 (7.4-13.9)	33.6 (27.4-40.5)	37.7 (31.4-44.5)

<sup>a</sup> Response to the following question, "During the past two weeks, on how many days were you completely symptom-free, that is no coughing, wheezing, or other symptoms of asthma?"

<b>Table 3. Prevalence of Asthma-Related Health Care Utilization in the Past 12 Months, Among Adults with Current Asthma Michigan Asthma Call-Back Survey, 2008-2010 Combined</b>					
	<b>ER/Urgent Care Visits for Asthma<sup>a</sup></b>		<b>≥ 1 Hospital Stays for Asthma<sup>b</sup></b>	<b>≥ 2 Routine Asthma Care Visits<sup>c</sup></b>	<b>Received Flu Vaccine<sup>d</sup></b>
	<b>≥ 1 Visit</b>	<b>≥ 2 Visits</b>			
<b>Total</b>	12.3 (10.1-14.9)	5.2 (3.8-7.1)	3.6 (2.7-4.9)	28.8 (25.7-32.2)	48.5 (44.4-52.6)
<b>Age in years</b>					
18-34	10.3 (5.8-17.5)	4.6 (2.0-10.1)	0.3 (0.1-2.2)	16.2 (10.3-24.5)	34.4 (25.0-45.3)
35-64	13.9 (11.4-16.8)	6.1 (4.4-8.5)	4.9 (3.4-7.1)	32.3 (28.7-36.1)	48.2 (44.0-52.4)
≥ 65	10.7 (7.9-14.2)	3.0 (1.8-4.9)	5.9 (4.0-8.6)	43.8 (38.6-49.1)	79.6 (75.3-83.4)
<b>Sex</b>					
Male	6.5 (4.2-10.1)	2.7 (1.1-6.5)	2.3 (1.3-3.9)	22.6 (18.0-28.1)	49.1 (41.5-56.9)
Female	15.6 (12.6-19.1)	6.6 (4.8-9.1)	4.4 (3.1-6.2)	32.4 (28.4-36.6)	48.1 (43.5-52.8)
<b>Race</b>					
White	10.1 (8.0-12.6)	3.4 (2.3-4.9)	3.0 (2.1-4.3)	27.7 (24.2-31.4)	50.4 (45.8-55.0)
Black	22.8 (14.8-33.4)	12.3 (7.0-20.9)	6.9 (3.9-11.7)	33.5 (24.5-43.9)	39.4 (29.3-50.5)
<b>Household income</b>					
< \$20,000	17.5 (12.5-24.1)	9.4 (5.6-15.4)	7.7 (4.7-12.3)	32.3 (25.5-40.0)	39.6 (31.7-48.0)
\$20,000-34,999	11.4 (6.8-18.4)	8.2 (4.1-15.8)	2.1 (1.1-4.1)	26.8 (20.3-34.4)	49.3 (40.2-58.4)
\$35,000-49,999	14.2 (7.7-24.7)	3.5 (1.5-8.0)	2.4 (0.8-7.2)	27.2 (19.9-36.0)	47.2 (37.7-57.0)
\$50,000-74,999	13.8 (8.8-21.1)	3.7 (1.8-7.3)	4.0 (2.0-7.8)	29.2 (20.3-40.2)	44.7 (33.5-56.6)
≥ \$75,000	9.2 (5.8-14.2)	3.0 (1.4-6.0)	2.2 (0.8-6.0)	27.5 (21.9-33.9)	61.6 (54.4-68.3)
<b>Education</b>					
< HS graduate	15.8 (6.8-32.3)	9.3 (3.2-24.2)	4.1 (1.7-9.7)	33.1 (20.6-48.7)	53.8 (37.7-69.2)
HS graduate	16.9 (12.2-22.9)	8.5 (5.3-13.3)	4.1 (2.5-6.7)	33.3 (27.0-40.3)	42.7 (35.6-50.1)
Some college	10.8 (7.7-15.1)	4.0 (2.3-6.8)	4.4 (2.7-7.1)	27.2 (22.2-32.9)	44.9 (37.6-52.5)
College graduate	9.5 (6.6-13.3)	3.0 (1.6-5.8)	2.4 (1.2-4.7)	26.2 (21.1-31.9)	55.0 (47.9-61.9)
<sup>a</sup> Response to the question, "During the past 12 months, how many times did you visit an emergency room or urgent care center because of your asthma?" <sup>b</sup> Responded at least one time to the question, "During the past 12 months, how many different times did you stay in any hospital overnight or longer because of your asthma?" <sup>c</sup> Reported ≥ 2 times to the question, "During the past 12 months, how many times did you see a doctor or other health professional for a routine checkup for your asthma?" <sup>d</sup> Responded "yes" to either of the following questions, "A flu shot is an influenza vaccine injected in your arm. During the past 12 months, have you had a flu shot?" or "During the past 12 months, have you had a flu vaccine that was sprayed in your nose? The flu vaccine sprayed in the nose is also called FluMist."					

<b>Table 4. Prevalence of Any Asthma Control Medication Use in Past 3 Months, Among Adults with Current Asthma</b>	
<b>Michigan Asthma Call-Back Survey, 2008-2010 Combined</b>	
	<b>Used <math>\geq</math> 1 Asthma Control Medication in Past 3 Months<sup>a</sup></b>
<b>Total</b>	68.1 (64.0-71.9)
<b>Age in years</b>	
18-34	61.0 (50.6-70.6)
35-64	70.1 (65.8-74.1)
$\geq$ 65	76.0 (71.3-80.2)
<b>Sex</b>	
Male	62.3 (54.4-69.6)
Female	71.4 (66.9-75.5)
<b>Race</b>	
White	67.4 (62.8-71.7)
Black	32.6 (28.3-37.2)
<b>Household income</b>	
< \$20,000	65.8 (55.6-74.8)
\$20,000-34,999	64.8 (54.9-73.6)
\$35,000-49,999	71.4 (62.4-79.0)
\$50,000-74,999	68.9 (57.2-71.4)
$\geq$ \$75,000	64.6 (57.2-71.4)
<b>Education</b>	
< HS graduate	67.9 (50.5-81.4)
HS graduate	67.6 (59.1-75.1)
Some college	68.3 (60.8-74.9)
College graduate	68.4 (62.1-74.0)
<sup>a</sup> Respondent reported they had taken at least one asthma control medication in the past 3 months, as defined by the CDC national Asthma Call-Back Survey Analysis Workgroup on Medications.	

<b>Table 5. Prevalence of Comorbid Conditions, Among Adults with Current Asthma Michigan Asthma Call-Back Survey, 2008-2010 Combined</b>		
	<b>Ever Diagnosed with COPD, Emphysema, or Chronic Bronchitis<sup>a</sup></b>	<b>Ever Diagnosed with Depression<sup>b</sup></b>
<b>Total</b>	32.2 (28.8-35.8)	34.7 (30.9-38.7)
<b>Age in years</b>		
18-34	14.1 (8.4-22.7)	31.0 (22.1-41.6)
35-64	37.0 (32.9-41.3)	39.4 (35.2-43.7)
≥ 65	54.0 (48.6-59.2)	25.6 (21.4-30.1)
<b>Sex</b>		
Male	32.9 (26.4-40.0)	24.0 (17.4-32.0)
Female	31.8 (28.0-35.9)	40.9 (36.4-45.6)
<b>Race</b>		
White	32.0 (28.2-36.1)	34.9 (30.6-39.4)
Black	30.2 (21.1-41.2)	28.4 (19.8-38.9)
<b>Household income</b>		
< \$20,000	41.8 (33.3-50.9)	56.1 (46.8-65.0)
\$20,000-34,999	38.3 (30.0-47.3)	34.0 (26.6-42.3)
\$35,000-49,999	32.3 (24.2-41.6)	29.7 (21.8-39.0)
\$50,000-74,999	29.0 (19.8-40.3)	26.8 (18.0-38.0)
≥ \$75,000	23.4 (18.1-29.8)	20.4 (15.5-26.4)
<b>Education</b>		
< HS graduate	42.2 (28.2-57.7)	37.7 (24.6-52.8)
HS graduate	38.8 (31.6-46.4)	39.7 (32.2-47.7)
Some college	31.9 (26.2-38.2)	34.6 (27.7-42.3)
College graduate	25.2 (20.1-31.0)	30.4 (24.8-36.7)
<sup>a</sup> Replied “yes” to at least one of the following questions: “Have you ever been told by a doctor or health professional that you have chronic obstructive pulmonary disease also known as COPD?” “Have you ever been told by a doctor or other health professional that you have emphysema?” “Have you ever been told by a doctor or other health professional that you have chronic bronchitis?” <sup>b</sup> Replied “yes” to the following question, “Have you ever been told by a doctor or other health professional that you were depressed?”		



<b>Table 6. Prevalence of Experiencing Cost Barriers to Asthma Care in Past 12 Months, Among Adults with Current Asthma Michigan Asthma Call-Back Survey, 2008-2010 Combined</b>				
	<b>Cost Barrier to Primary Care Doctor<sup>a</sup></b>	<b>Cost Barrier to Asthma Specialist<sup>b</sup></b>	<b>Cost Barrier to Obtaining Medication<sup>c</sup></b>	<b>Cost Barrier to Primary Care, Specialist, or Medication<sup>d</sup></b>
<b>Total</b>	12.0 (9.2-15.4)	6.1 (4.0-9.2)	17.1 (14.0-20.8)	21.9 (18.4-25.9)
<b>Age in years</b>				
18-34	13.5 (7.6-22.9)	6.9 (2.8-15.9)	17.6 (10.8-27.5)	24.6 (16.3-35.3)
35-64	13.5 (10.2-17.5)	7.1 (4.6-10.8)	19.6 (16.0-23.7)	24.0 (20.2-28.2)
≥ 65	3.1 (1.8-5.3)	0.6 (0.3-1.5)	6.9 (4.8-9.7)	8.3 (6.0-11.4)
<b>Sex</b>				
Male	9.6 (5.6-16.0)	6.4 (2.8-14.2)	14.9 (9.7-22.2)	19.6 (13.6-27.3)
Female	13.4 (9.9-17.7)	5.9 (3.8-9.0)	18.4 (14.8-22.7)	23.2 (19.1-27.9)
<b>Race</b>				
White	11.0 (8.0-15.1)	5.7 (3.4-9.6)	16.3 (12.7-20.5)	20.6 (16.6-25.2)
Black	12.3 (7.5-19.5)	7.2 (3.8-13.4)	17.7 (11.0-27.2)	23.3 (15.6-33.3)
<b>Household income</b>				
< \$20,000	23.5 (15.9-33.3)	19.9 (12.4-30.4)	30.0 (22.1-39.3)	40.5 (31.5-50.2)
\$20,000-34,999	13.2 (8.5-20.1)	2.9 (1.6-5.4)	24.3 (17.3-33.0)	28.0 (20.6-36.8)
\$35,000-49,999	7.5 (3.8-14.1)	2.3 (0.6-8.1)	12.8 (7.9-19.9)	14.3 (9.2-21.6)
\$50,000-74,999	13.7 (5.5-30.1)	4.7 (0.8-22.8)	12.7 (4.8-29.5)	20.7 (10.5-36.7)
≥ \$75,000	0.3 (0.1-2.2)	0 <sup>e</sup>	1.9 (0.8-4.5)	2.2 (1.0-4.9)
<b>Education</b>				
< HS graduate	15.1 (7.4-28.3)	12.9 (4.4-32.5)	20.5 (10.6-36.1)	34.2 (20.2-51.7)
HS graduate	18.5 (12.3-27.0)	8.1 (3.8-16.4)	21.0 (14.9-28.9)	27.7 (20.8-35.8)
Some college	9.7 (6.4-14.4)	4.7 (2.4-8.9)	18.6 (13.7-24.8)	20.9 (15.8-27.2)
College graduate	8.8 (4.5-16.6)	4.3 (1.7-10.6)	11.9 (7.1-19.2)	15.5 (9.9-23.3)
<sup>a</sup> Responded “yes” to, “Was there a time in the past 12 months when you needed to see your primary care doctor for your asthma but could not because of the cost?” <sup>b</sup> Responded “yes” to, “Was there a time in the past 12 months when you were referred to a specialist for asthma care but could not go because of the cost?” <sup>c</sup> Responded “yes” to, “Was there a time in the past 12 months when you needed to buy medication for your asthma but could not because of the cost?” <sup>d</sup> Responded “yes” to at least one of the above 3 questions. <sup>e</sup> No positive responses in this cell.				

<b>Table 7. Prevalence of Knowledge Indicators Related to Asthma Management, Among Adults with Current Asthma Michigan Asthma Call-Back Survey, 2008-2010 Combined</b>			
	<b>Ever Taught to Recognize Early Signs of Asthma Episode<sup>a</sup></b>	<b>Ever Taught What to Do During Asthma Episode<sup>b</sup></b>	<b>Ever Taught How to Use Peak Flow Meter<sup>c</sup></b>
<b>Total</b>	59.4 (55.2-63.4)	73.1 (68.9-76.9)	38.5 (34.5-42.6)
<b>Age in years</b>			
18-34	58.9 (48.1-68.9)	71.8 (60.6-80.9)	38.6 (28.8-49.5)
35-64	63.6 (59.2-67.8)	76.6 (72.1-80.5)	41.2 (37.2-45.4)
≥ 65	44.4 (39.1-49.8)	62.4 (57.1-67.4)	27.8 (23.3-32.8)
<b>Sex</b>			
Male	56.3 (48.3-64.1)	66.1 (57.3-73.8)	33.1 (26.0-41.1)
Female	61.1 (56.5-65.5)	77.1 (73.1-80.6)	41.5 (37.0-46.2)
<b>Race</b>			
White	59.7 (55.0-64.2)	72.3 (67.5-76.6)	35.9 (31.5-40.5)
Black	58.7 (47.5-69.1)	77.0 (65.5-85.5)	48.2 (36.8-59.7)
<b>Household income</b>			
< \$20,000	46.4 (37.5-55.6)	57.4 (47.5-66.7)	32.6 (25.4-40.8)
\$20,000-34,999	53.9 (44.9-62.6)	72.6 (63.6-80.1)	35.1 (26.8-44.3)
\$35,000-49,999	59.0 (49.1-68.3)	77.3 (69.3-83.7)	44.7 (35.0-54.9)
\$50,000-74,999	72.3 (62.5-80.4)	85.8 (78.5-91.0)	44.4 (32.6-56.9)
≥ \$75,000	69.1 (61.8-75.6)	80.7 (74.0-86.0)	41.6 (34.7-48.7)
<b>Education</b>			
< HS graduate	47.7 (32.3-63.5)	57.7 (40.8-72.9)	29.0 (18.7-42.0)
HS graduate	51.3 (43.4-59.0)	63.6 (55.1-71.3)	37.1 (30.1-44.6)
Some college	61.3 (53.6-68.5)	75.4 (67.3-82.1)	38.4 (31.3-46.0)
College graduate	66.5 (60.3-72.2)	81.6 (76.7-85.8)	42.0 (35.3-49.0)
<sup>a</sup> Responded “yes” to the question, “Has a doctor or other health professional ever taught you .....how to recognize early signs or symptoms of an asthma episode?” <sup>b</sup> Responded “yes” to the question, “.....what to do during an asthma episode or attack?” <sup>c</sup> Responded “yes” to the question, “.....how to use a peak flow meter to adjust your daily medications?”			

<b>Table 7 (continued). Prevalence of Knowledge Indicators Related to Asthma Management, Among Adults with Current Asthma Michigan Asthma Call-Back Survey, 2008-2010 Combined</b>			
	<b>Ever Received Asthma Action Plan<sup>d</sup></b>	<b>Ever Taken Asthma Management Class<sup>e</sup></b>	<b>Received ≥ 3 Types of Asthma Education<sup>f</sup></b>
<b>Total</b>	23.7 (20.7-27.0)	6.7 (5.1-8.8)	36.2 (32.4-40.1)
<b>Age in years</b>			
18-34	19.7 (13.1-28.6)	4.9 (1.9-12.0)	34.6 (25.5-45.0)
35-64	28.7 (25.2-32.5)	7.6 (5.8-9.9)	40.7 (36.7-44.9)
≥ 65	13.6 (10.5-17.5)	7.2 (5.1-10.0)	22.9 (18.8-27.5)
<b>Sex</b>			
Male	18.6 (14.1-24.0)	6.8 (3.7-12.1)	31.1 (24.8-38.1)
Female	26.7 (22.9-31.0)	6.6 (5.1-8.6)	39.1 (34.6-43.9)
<b>Race</b>			
White	23.5 (20.1-27.3)	6.7 (4.8-9.3)	34.8 (30.7-39.2)
Black	25.5 (18.1-34.7)	6.6 (4.1-10.4)	40.0 (29.8-51.2)
<b>Household income</b>			
< \$20,000	19.3 (14.2-25.7)	8.8 (4.3-17.2)	26.6 (20.2-34.2)
\$20,000-34,999	24.4 (17.4-33.2)	5.6 (3.5-8.7)	34.4 (26.4-43.4)
\$35,000-49,999	24.5 (17.0-34.0)	4.7 (2.3-9.4)	39.5 (30.3-49.5)
\$50,000-74,999	29.9 (20.6-41.4)	7.1 (3.3-14.6)	47.1 (35.1-59.5)
≥ \$75,000	26.8 (21.1-33.2)	6.6 (4.0-10.6)	43.9 (37.0-51.0)
<b>Education</b>			
< HS graduate	22.7 (12.1-38.5)	13.7 (4.9-33.0)	30.0 (18.1-45.4)
HS graduate	18.5 (14.0-24.0)	4.8 (2.9-7.9)	33.8 (27.2-41.1)
Some college	25.0 (19.8-31.1)	4.8 (3.2-7.0)	33.2 (27.3-39.8)
College graduate	26.5 (21.2-32.6)	8.2 (5.5-12.0)	42.6 (35.9-49.7)
<sup>d</sup> Responded “yes” to the question, “An asthma action plan, or asthma management plan, is a form with instructions about when to change the amount or type of medicine, when to call the doctor for advice, and when to go to the emergency room. Has a doctor or other health professional ever given you an asthma action plan?” <sup>e</sup> Responded “yes” to the question, “Have you ever taken a course or class on how to manage your asthma?” <sup>f</sup> Responded “yes” to ≥ 3 of the 5 questions above (b-f).			

<b>Table 8. Prevalence of Asthma Triggers in Home Environment, Among Adults with Current Asthma Michigan Asthma Call-Back Survey, 2008-2010 Combined</b>				
	<b>Cigarettes Smoked in Home<sup>a</sup></b>	<b>Mold Seen/Smelled in Home<sup>b</sup></b>	<b>Saw Cockroaches in Home<sup>c</sup></b>	<b>Saw Mice/Rat in Home<sup>d</sup></b>
<b>Total</b>	24.8 (21.0-29.0)	1.0 (0.5-2.3)	1.0 (0.5-2.3)	6.3 (4.1-9.5)
<b>Age in years</b>				
18-34	35.9 (26.1-46.9)	9.8 (5.4-17.0)	1.2 (0.2-7.8)	8.0 (3.0-19.6)
35-64	21.8 (18.4-25.5)	16.6 (13.7-20.1)	0.8 (0.4-1.6)	5.9 (4.3-8.2)
≥ 65	12.3 (8.9-16.8)	6.1 (4.0-9.1)	1.8 (0.6-5.1)	3.9 (2.3-6.7)
<b>Sex</b>				
Male	29.2 (21.9-37.8)	13.1 (8.7-19.2)	0.8 (0.3-2.3)	9.0 (4.3-18.0)
Female	22.2 (18.3-26.7)	12.9 (10.5-15.7)	1.2 (0.4-3.2)	4.7 (3.3-6.7)
<b>Race</b>				
White	20.6 (16.6-25.4)	13.8 (11.1-17.0)	0.3 (0.1-1.0)	6.3 (3.8-10.4)
Black	41.5 (30.7-53.1)	8.6 (5.2-14.0)	3.5 (1.7-7.1)	7.5 (3.3-15.9)
<b>Household income</b>				
< \$20,000	43.1 (34.4-52.2)	13.1 (8.7-19.3)	3.3 (1.0-9.7)	6.7 (3.7-12.0)
\$20,000-34,999	29.7 (21.5-39.4)	9.4 (6.0-14.4)	0.2 (0.1-0.5)	6.8 (3.6-12.4)
\$35,000-49,999	21.0 (13.6-30.9)	10.3 (5.6-18.3)	0.6 (0.1-3.2)	5.5 (2.5-11.6)
\$50,000-74,999	17.3 (8.7-31.2)	11.6 (6.6-19.5)	0.9 (0.2-3.7)	4.6 (2.3-9.0)
≥ \$75,000	3.2 (1.7-6.0)	13.9 (10.0-19.1)	0.6 (0.1-4.0)	2.0 (0.9-4.4)
<b>Education</b>				
< HS graduate	51.1 (35.6-66.4)	7.0 (3.2-14.7)	7.4 (2.3-21.4)	2.5 (1.0-6.2)
HS graduate	32.5 (25.4-40.5)	13.8 (9.5-19.6)	0.5 (0.1-1.8)	8.3 (4.8-13.9)
Some college	22.7 (15.9-31.2)	13.4 (9.4-18.9)	0.4 (0.1-1.4)	6.7 (2.5-16.6)
College graduate	14.4 (9.4-21.4)	13.4 (9.5-18.4)	0.5 (0.1-2.1)	5.4 (3.0-9.6)
<sup>a</sup> Responded “yes” to the question, “In the past week, has anyone smoked inside your home?” <sup>b</sup> Responded “yes” to the question, “In the past 30 days, has anyone seen or smelled mold or a musty odor inside your home? Do not include mold on food.” <sup>c</sup> Responded “yes” to the question, “In the past 30 days, has anyone seen a cockroach inside your home?” <sup>d</sup> Responded “yes” to the question, “In the past 30 days, has anyone seen mice or rats inside your home? Do not include mice or rats kept as pets.” <sup>e</sup> No positive responses in this cell.				

<b>Table 8 (continued). Prevalence of Asthma Triggers in Home Environment, Among Adults with Current Asthma Michigan Asthma Call-Back Survey, 2008-2010 Combined</b>					
	<b>Inside Pets<sup>f</sup></b>	<b>Pets Allowed in Bedroom<sup>g</sup></b>	<b>Wood Burning Stove/Fireplace Used<sup>h</sup></b>	<b>Unvented Gas Logs, Stoves, or Fireplaces Used<sup>i</sup></b>	<b>Gas Used for Cooking<sup>j</sup></b>
<b>Total</b>	64.4 (60.6-68.0)	47.0 (42.9-51.2)	18.9 (15.8-22.5)	18.9 (15.8-22.5)	50.9 (46.8-55.0)
<b>Age in years</b>					
18-34	69.8 (59.8-78.2)	46.9 (36.6-57.5)	19.8 (12.2-30.4)	8.4 (4.1-16.3)	51.1 (40.6-61.5)
35-64	66.9 (63.0-70.5)	50.8 (46.6-55.1)	18.7 (15.8-22.0)	7.2 (5.4-9.5)	53.0 (48.7-57.2)
≥ 65	43.5 (38.3-48.9)	33.2 (28.5-38.4)	17.7 (13.8-22.4)	7.0 (4.8-10.3)	42.4 (37.2-47.8)
<b>Sex</b>					
Male	64.1 (56.8-70.7)	44.6 (37.0-52.5)	20.2 (15.1-26.6)	9.1 (5.5-14.7)	50.9 (43.2-58.6)
Female	64.5 (60.2-68.7)	48.4 (43.7-53.1)	18.1 (14.3-22.6)	6.6 (4.7-9.2)	50.8 (46.1-55.5)
<b>Race</b>					
White	68.9 (64.9-72.6)	50.6 (46.0-55.2)	21.0 (17.4-25.0)	7.8 (5.6-10.7)	48.9 (44.3-53.5)
Black	42.0 (30.4-54.4)	28.4 (17.9-42.0)	12.3 (4.8-27.7)	9.7 (4.8-18.9)	63.0 (50.4-74.1)
<b>Household income</b>					
< \$20,000	59.8 (50.7-68.2)	48.5 (39.4-57.7)	11.6 (7.2-18.2)	7.5 (3.3-16.2)	53.5 (44.4-62.4)
\$20,000-34,999	65.8 (57.9-72.9)	48.4 (39.3-57.6)	18.9 (11.3-29.9)	4.5 (2.4-8.3)	47.5 (38.5-56.6)
\$35,000-49,999	60.1 (50.4-69.1)	47.0 (37.4-56.8)	13.8 (8.1-22.3)	13.8 (7.4-24.2)	58.6 (49.3-67.4)
\$50,000-74,999	64.8 (52.6-75.2)	44.8 (33.4-56.8)	29.5 (19.0-42.7)	8.4 (4.7-14.5)	42.8 (31.8-54.6)
≥ \$75,000	67.3 (60.4-73.5)	50.5 (43.4-57.6)	27.9 (22.2-34.5)	6.4 (4.0-10.2)	49.9 (42.9-57.0)
<b>Education</b>					
< HS graduate	57.4 (41.7-71.7)	38.4 (24.5-54.3)	13.2 (5.1-30.2)	12.5 (4.2-31.9)	49.8 (34.5-65.2)
HS graduate	61.7 (54.3-68.7)	45.8 (38.1-53.7)	12.6 (8.6-18.1)	6.2 (3.5-10.8)	55.6 (47.9-63.0)
Some college	67.6 (61.0-73.7)	48.0 (40.6-55.5)	13.3 (9.6-18.3)	7.6 (4.5-12.4)	53.0 (45.7-60.2)
College graduate	64.8 (58.5-70.6)	49.2 (42.4-56.0)	30.7 (24.1-38.2)	7.2 (4.8-10.5)	45.5 (39.0-52.2)
<sup>f</sup> Responded “yes” to the question, “Does your household have pets, such as dogs, cats, hamsters, birds, or other feathered or furry pets that spend time indoors?” <sup>g</sup> Responded “yes” to the question, “Are pets allowed in your bedroom?” (Among all respondents.) <sup>h</sup> Responded “yes” to the question, “Is a wood burning fireplace or wood burning stove used in your home?” <sup>i</sup> Responded “yes” to the question, “Are unvented gas logs, unvented gas fireplaces, or unvented gas stoves used in your home?” <sup>j</sup> Responded “yes” to the question, “Is gas used for cooking?”					

<b>Table 9. Prevalence of Asthma Trigger Avoidance Behaviors in Home Environment, Among Adults with Current Asthma Michigan Asthma Call-Back Survey, 2008-2010 Combined</b>				
	<b>Kitchen Fan Used When Cooking<sup>a</sup></b>	<b>Bathroom Exhaust Fan Used<sup>b</sup></b>	<b>Sheets Washed in Hot Water<sup>c</sup></b>	<b>Air Cleaner Used in Home<sup>d</sup></b>
<b>Total</b>	50.3 (46.2-54.4)	59.4 (55.2-63.4)	33.8 (30.2-37.7)	30.7 (27.3-34.2)
<b>Age in years</b>				
18-34	47.9 (37.5-58.5)	52.4 (41.8-62.9)	25.8 (17.8-35.8)	24.0 (16.8-33.0)
35-64	50.9 (46.6-55.1)	62.9 (58.8-66.8)	37.9 (34.0-42.1)	33.2 (29.4-37.1)
≥ 65	53.2 (47.9-58.5)	61.8 (56.5-66.8)	36.2 (31.2-41.5)	35.5 (30.5-40.7)
<b>Sex</b>				
Male	41.8 (34.7-49.2)	56.2 (48.2-63.9)	22.9 (17.6-29.2)	25.4 (20.1-31.5)
Female	55.2 (50.5-59.8)	61.2 (56.5-65.7)	39.9 (35.5-44.6)	33.8 (29.7-38.1)
<b>Race</b>				
White	49.7 (45.1-54.3)	63.7 (59.1-68.2)	31.3 (27.5-35.4)	30.5 (26.8-34.5)
Black	56.6 (45.1-67.4)	33.9 (24.2-45.2)	44.6 (33.5-56.2)	28.0 (19.8-38.0)
<b>Household income</b>				
< \$20,000	44.0 (35.3-53.2)	51.1 (41.9-60.2)	36.9 (28.8-45.8)	24.8 (18.7-32.2)
\$20,000-34,999	49.7 (40.6-58.9)	59.4 (49.9-68.3)	33.2 (25.8-41.6)	29.8 (22.3-38.6)
\$35,000-49,999	47.7 (38.1-57.4)	62.5 (52.7-71.4)	30.1 (22.5-38.8)	36.2 (27.6-45.8)
\$50,000-74,999	57.7 (45.4-69.1)	67.7 (56.1-77.4)	36.0 (24.7-49.1)	26.3 (18.7-35.7)
≥ \$75,000	51.6 (44.5-58.7)	74.1 (67.3-79.9)	37.5 (30.9-44.7)	35.7 (29.4-42.6)
<b>Education</b>				
< HS graduate	42.0 (27.8-57.7)	40.2 (26.4-55.7)	27.3 (16.7-41.3)	33.4 (21.5-47.9)
HS graduate	49.5 (41.8-57.2)	58.9 (51.2-66.2)	33.3 (26.7-40.6)	28.4 (22.5-35.2)
Some college	51.8 (44.2-59.3)	57.7 (50.0-65.1)	31.9 (26.3-38.2)	30.2 (24.2-36.9)
College graduate	51.5 (44.7-58.3)	66.4 (59.5-72.7)	37.8 (31.2-44.9)	32.1 (26.7-38.0)
<sup>a</sup> Responded “yes” to the question, “Is an exhaust fan that vents to the outside used regularly when cooking in your kitchen?” <sup>b</sup> Responded “yes” to the question, “In your bathroom, do you regularly use an exhaust fan that vents to the outside?” <sup>c</sup> Responded “hot” to the question, “Are your sheets and pillowcases washed in cold, warm, or hot water?” <sup>d</sup> Responded “yes” to the question, “An air cleaner or air purifier can filter out pollutants like dust, pollen, mold and chemicals. It can be attached to the furnace or free standing. It is not, however, the same as a normal furnace filter. Is an air cleaner or purifier regularly used inside your home?”				

<b>Table 9 (continued). Prevalence of Asthma Trigger Avoidance Behaviors in Home Environment, Among Adults with Current Asthma Michigan Asthma Call-Back Survey, 2008-2010 Combined</b>				
	<b>Dehumidifier Used Regularly in Home<sup>e</sup></b>	<b>No Carpeting in Bedroom<sup>f</sup></b>	<b>Uses Mattress Cover<sup>g</sup></b>	<b>Uses Pillow Cover<sup>h</sup></b>
<b>Total</b>	37.3 (33.5-41.2)	26.5 (23.2-30.1)	29.9 (26.5-33.5)	31.2 (27.5-35.1)
<b>Age in years</b>				
18-34	32.2 (23.4-42.6)	27.6 (19.6-37.2)	23.1 (16.3-31.6)	24.4 (16.4-34.6)
35-64	38.8 (34.8-42.9)	26.2 (22.8-29.9)	34.9 (30.8-39.2)	35.1 (31.0-39.4)
≥ 65	42.3 (37.1-47.6)	25.1 (20.7-29.9)	25.8 (21.4-30.6)	31.3 (26.6-36.4)
<b>Sex</b>				
Male	30.6 (24.5-37.6)	26.2 (20.1-33.2)	23.4 (17.9-30.0)	26.7 (19.8-35.0)
Female	41.1 (36.6-45.8)	26.7 (23.0-30.7)	33.7 (29.6-38.0)	33.7 (29.8-38.0)
<b>Race</b>				
White	39.9 (35.6-44.4)	25.4 (21.9-29.4)	31.2 (27.3-35.3)	33.2 (29.0-37.7)
Black	28.8 (20.2-39.4)	34.2 (24.5-45.3)	23.5 (16.4-32.6)	19.1 (13.2-26.7)
<b>Household income</b>				
< \$20,000	25.9 (18.7-34.8)	25.7 (19.1-33.7)	26.0 (18.5-35.2)	29.4 (21.5-38.8)
\$20,000-34,999	33.6 (25.5-42.8)	30.9 (22.9-40.4)	28.7 (21.3-37.3)	25.0 (18.6-32.8)
\$35,000-49,999	37.0 (28.5-46.5)	27.2 (19.5-36.6)	29.9 (22.2-39.0)	26.6 (19.5-35.1)
\$50,000-74,999	43.4 (32.3-55.2)	26.3 (18.0-36.7)	31.5 (22.9-41.6)	29.3 (20.8-39.5)
≥ \$75,000	51.5 (44.4-58.5)	25.9 (20.3-32.6)	37.1 (30.7-44.1)	35.2 (29.0-41.9)
<b>Education</b>				
< HS graduate	32.0 (18.6-49.3)	29.5 (17.3-45.6)	12.3 (7.0-20.8)	12.4 (6.7-21.8)
HS graduate	28.3 (22.7-34.8)	23.7 (18.1-30.4)	33.2 (26.1-41.3)	34.4 (27.1-42.5)
Some college	37.6 (30.8-44.9)	27.3 (21.4-34.2)	29.5 (23.8-35.8)	32.4 (25.6-40.1)
College graduate	44.8 (38.3-51.4)	26.9 (21.9-32.5)	32.6 (27.0-38.7)	32.5 (27.0-38.4)
<sup>e</sup> Responded “yes” to the question, “Is a dehumidifier regularly used to reduce moisture inside your home?” <sup>f</sup> Responded “no” to the question, “Do you have carpeting or rugs in your bedroom? This does not include throw rugs small enough to be laundered.” <sup>g</sup> Responded “yes” to the question, “Do you use a mattress cover that is made especially for controlling dust mites?” <sup>h</sup> Responded “yes” to the question, “Do you use a pillow cover that is made especially for controlling dust mites?”				

<b>Table 10. Prevalence of Ever Being Advised to Modify Environment to Improve Asthma, Among Adults with Current Asthma Michigan Asthma Call-Back Survey, 2008-2010 Combined</b>	
	<b>Ever Advised to Modify Environment to Improve Asthma<sup>a</sup></b>
<b>Total</b>	45.0 (40.9-49.1)
<b>Age in years</b>	
18-34	46.2 (35.9-56.8)
35-64	48.9 (44.7-53.2)
≥ 65	28.0 (23.6-32.9)
<b>Sex</b>	
Male	40.2 (32.7-48.2)
Female	47.7 (43.1-52.4)
<b>Race</b>	
White	46.2 (41.6-50.8)
Black	41.1 (30.7-52.3)
<b>Household income</b>	
< \$20,000	39.8 (31.7-48.6)
\$20,000-34,999	38.1 (29.6-47.4)
\$35,000-49,999	46.9 (37.2-56.9)
\$50,000-74,999	42.3 (30.9-54.5)
≥ \$75,000	50.4 (43.3-57.4)
<b>Education</b>	
< HS graduate	41.6 (26.9-58.0)
HS graduate	41.5 (34.2-49.1)
Some college	47.7 (40.3-55.2)
College graduate	45.7 (39.0-52.5)
<sup>a</sup> Responded “yes” to the question, “Has a health professional ever advised you to change things in your home, school, or work to improve your asthma?”	



<b>Table 11. Percent Distribution of Number Days Unable to Work or Carry Out Usual Activities Because of Asthma,<sup>a</sup> Among Adults with Current Asthma Michigan Asthma Call-Back Survey, 2008-2010 Combined</b>			
	<b>None</b>	<b>1-5 Days</b>	<b>≥ 6 Days</b>
<b>Total</b>	72.3 (68.6-75.6)	14.7 (12.3-17.4)	13.1 (10.6-16.0)
<b>Age in years</b>			
18-34	84.5 (76.4-90.2)	9.9 (5.8-16.2)	5.6 (2.3-13.1)
35-64	64.5 (60.1-68.6)	18.4 (15.4-22.0)	17.1 (13.7-21.1)
≥ 65	74.7 (69.8-79.0)	11.0 (8.1-14.7)	14.3 (11.0-18.4)
<b>Sex</b>			
Male	77.2 (70.2-83.0)	10.2 (7.1-14.5)	12.5 (7.9-19.4)
Female	69.3 (65.1-73.3)	17.3 (14.2-20.8)	13.4 (10.9-16.3)
<b>Race</b>			
White	74.9 (71.0-78.5)	13.1 (10.7-15.9)	12.0 (9.3-15.3)
Black	65.4 (54.5-74.9)	19.0 (12.7-27.4)	15.6 (9.4-24.8)
<b>Household income</b>			
< \$20,000	58.1 (48.5-67.2)	15.6 (10.6-22.4)	26.3 (18.5-36.0)
\$20,000-34,999	70.6 (61.5-78.3)	11.9 (7.8-17.8)	17.5 (11.1-26.4)
\$35,000-49,999	76.4 (67.7-83.4)	16.8 (10.8-25.2)	6.8 (3.9-11.6)
\$50,000-74,999	81.0 (73.3-86.9)	14.1 (9.1-21.1)	4.9 (2.8-8.4)
≥ \$75,000	75.5 (68.8-81.2)	14.3 (9.9-20.2)	10.2 (6.6-15.3)
<b>Education</b>			
< HS graduate	56.4 (39.5-71.9)	16.6 (8.0-31.5)	27.0 (14.7-44.2)
HS graduate	66.8 (58.7-73.9)	17.3 (12.2-23.8)	16.0 (10.6-23.5)
Some college	74.4 (68.3-79.7)	14.1 (10.4-18.8)	11.5 (8.0-16.2)
College graduate	77.8 (72.8-82.1)	13.0 (9.8-16.9)	9.2 (6.5-12.9)

<sup>a</sup> Response to the following question, "During the past 12 months, how many days were you unable to work or carry out your usual activities because of your asthma?"

<b>Table 12. Prevalence of Work-Related Asthma Using 3 Definitions, Among Adults with Current Asthma Michigan Asthma Call-Back Survey, 2008-2010 Combined</b>			
	<b>Asthma Caused or Aggravated by Current or Previous Job<sup>a</sup></b>	<b>Ever Told or Told By Doctor That Asthma Was Work-Related<sup>b</sup></b>	<b>Any Indication of Work-Related Asthma<sup>c</sup></b>
<b>Total</b>	50.8 (46.5-55.0)	16.7 (14.0-19.8)	52.4 (48.1-56.6)
<b>Age in years</b>			
18-34	37.8 (27.9-48.7)	11.4 (6.1-20.2)	40.3 (30.2-51.2)
35-64	60.6 (56.3-64.8)	21.0 (17.7-24.8)	61.9 (57.7-66.0)
≥ 65	41.8 (36.5-47.4)	12.0 (9.1-15.8)	42.8 (37.4-48.3)
<b>Sex</b>			
Male	52.4 (44.2-60.4)	18.0 (13.2-24.2)	55.2 (46.9-63.3)
Female	49.9 (45.1-54.7)	15.9 (12.8-19.6)	50.8 (46.0-55.6)
<b>Race</b>			
White	49.0 (44.3-53.7)	16.4 (13.4-20.0)	50.6 (45.9-55.4)
Black	57.9 (45.9-69.0)	12.5 (6.7-22.1)	57.9 (45.9-69.1)
<b>Household income</b>			
< \$20,000	56.2 (46.5-65.3)	19.6 (13.9-27.0)	56.3 (46.7-65.5)
\$20,000-34,999	57.7 (48.1-66.6)	18.6 (12.3-27.1)	59.0 (49.5-67.9)
\$35,000-49,999	50.7 (40.6-60.7)	11.6 (7.6-17.3)	50.8 (40.7-60.8)
\$50,000-74,999	54.7 (42.2-66.7)	18.6 (10.9-29.9)	56.2 (43.7-68.1)
≥ \$75,000	44.8 (37.8-52.0)	15.5 (11.1-21.3)	47.2 (40.1-54.5)
<b>Education</b>			
< HS graduate	48.3 (32.6-64.4)	20.9 (10.2-38.1)	48.4 (32.7-64.4)
HS graduate	54.6 (46.4-62.5)	15.7 (11.3-21.5)	55.9 (47.8-63.7)
Some college	50.8 (43.1-58.4)	16.1 (12.3-21.0)	52.4 (44.7-60.1)
College graduate	48.7 (41.7-55.8)	16.9 (12.1-23.1)	50.9 (43.9-57.9)
<sup>a</sup> Responded “yes” to one or more of the following 4 questions: “Was your asthma caused by chemicals, smoke, fumes, or dust in your current job?” “Is your asthma made worse by chemicals, smoke, fumes, or dust in your current job?” “Was your asthma caused by chemicals, smoke, fumes, or dust in any previous job you ever had?” “Was your asthma made worse by chemicals, smoke, fumes, or dust in any previous job you ever had?” <sup>b</sup> Responded “yes” to one or more of the following 2 questions: “Were you ever told by a doctor or other health professional that your asthma was related to any job you ever had?” “Did you ever tell a doctor or other health professional that your asthma was related to any job you ever had?” <sup>c</sup> Responded “yes” to at least one of the above 6 questions (a and b).			