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MICHIGAN BRFSS SURVEILLANCE BRIEF

A NEWSLETTER FROM THE LIFECOURSE EPIDEMIOLOGY & GENOMICS DIVISION, MDHHS

Asthma Education and Management Among Michigan Children

Background

Asthma is a chronic respiratory disease that causes obstruction, reactivity and inflammation of the airways. It is among the most common chronic diseases affecting children, with 192,000 Michigan children currently affected. While uncontrolled asthma can have serious outcomes including hospitalization and death, proper management can control symptoms and restore quality of life. National guidelines identify four components of effective asthma management: 1) assessment and monitoring, 2) patient education, 3) control of environmental and comorbid conditions, and 4) pharmacologic therapy.[1]

For children, the guidelines recommend monitoring through routine assessments at least once every six months.[1] Patient education should be integrated into all care settings and include a written asthma action plan, which provides the child and their caregiver information on both daily management of their condition and how to identify and respond to worsening symptoms.[1] Pharmacologic therapy for asthma includes both long-term daily therapy with medications to control asthma, and quick-relief medications that treat acute asthma episodes. The recommendations state that all children with persistent asthma should receive long-term controller medication to manage the underlying disease.[1]

Methods

The Asthma Call-Back Survey (ACBS) is conducted yearly in conjunction with the Michigan Behavioral Risk Factor Survey (MiBRFS). MiBRFS participants who report being diagnosed with asthma, or who report their randomly selected child was diagnosed with asthma, are invited to participate in the ACBS. The ACBS collects data on asthma severity, management, environmental triggers, and health care access. Data in this report are restricted to children with current asthma, defined as a "yes" response to both of the following questions: "Have you ever been told by a doctor or other health professional that {child's name} has asthma?" and "Does {child's name} still have asthma?" For asthma education questions, respondents were asked whether a doctor or other health professional ever taught them or their child the relevant information (how to recognize early signs of asthma episode, what to do during asthma episode, how to use a peak flow meter), or whether they or their child had ever received that educational intervention (asthma action plan, asthma management class).

Results

Based on 2012-2016 ACBS data, an estimated 42.3% (95% CI: 36.3-48.5) of Michigan children had at least two routine office visits for asthma in the last year. Compared to those reporting fewer than two office visits, those reporting two or more office visits were more likely to report other forms of asthma management and education, including asthma controller medication use (68.5% vs. 32.4%), receiving an asthma action plan (66.8% vs. 44.5%), and receiving three or more types of asthma education (75.3% vs 49.9%).

Table 1: Asthma education and management by routine office visits

	Children with 2+ Routine Office Visits		Children with <2 Routine Office Visits	
	%	95% CI	%	95% CI
Any asthma controller medication use in past 3 months	68.5	58.9-76.8	32.4	25.9-39.6
Received flu vaccine in past 12 months	70.6	61.2-78.6	57.1	49.1-64.8
Ever received an asthma action plan	66.8	57.1-75.3	44.5	36.9-52.5
Received 3+ types of asthma education	75.3	65.7-82.8	49.9	42.0-57.7

95% CI: 95% Confidence Interval

MiBRFSS News:

- The 2017 MiBRFS annual tables and report are currently available at www.Michigan.gov/BRFS.
- The 2018 MiBRFS has been completed and the resulting data has been weighted by the CDC and is being analyzed by MDHHS.
- The 2019 MiBRFS went into the field in January 2019 and data collection is proceeding as anticipated.

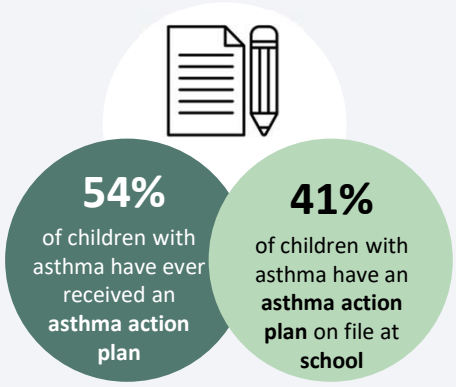
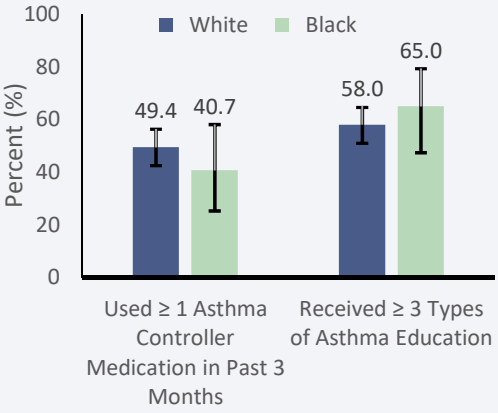
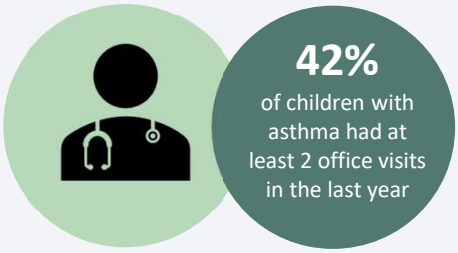


Figure 1. Asthma management in Michigan children by race





Of the five types of asthma education, the most prevalent is ever having been taught what to do during an asthma episode, with 89.1% (95% CI: 84.3-92.5) reporting receiving education on this topic (Fig. 2). A similar percentage of respondents (81.3%, 95% CI: 76.0-85.6) reported being taught to recognize early signs of asthma attacks. Approximately half of respondents reported ever having received an asthma action plan (54.1%, 95% CI: 48.0-60.1%). Of respondents with school aged children, 41.2% (95% CI: 35.2-47.6%) reported that an asthma action plan was on file at their child's school.

Combining all types of asthma education, 60.8% (95% CI: 54.7-66.6) of respondents reported receiving at least three types of asthma education. The rate of medication use reported did not vary by gender, race, income, or education (Table 1). Use of an asthma controller medication was reported by 47.4% (95% CI: 41.3-53.6) of respondents, and this was also consistent among subgroups (Table 1).

Discussion

Asthma management and education are essential to ensuring that children with asthma can achieve good asthma control. Effective asthma management can decrease symptoms, prevent missed school days and even decrease emergency room visits and hospitalizations.[2] Keys to achieving effective management are routine assessment, patient education, and medication.

This report shows that while most patients receive at least some asthma education, there remains room for improvement. In particular, only half of children have ever received an asthma action plan, as recommended by national guidelines for every asthma patient.[1] The MDHHS asthma program works to improve asthma management in Michigan through education and outreach to patients and providers, as well as by supporting the Michigan MATCH program, a home visit-based program for improving asthma management.

To find out more about the Michigan Asthma Call-Back Survey, please visit our website at www.Michigan.gov/BFFS. For more data on asthma in Michigan, visit www.Michigan.gov/Asthma or www.Michigan.gov/AsthmaEPI. Additional information on asthma management can be found at GetAsthmaHelp.org.

References

[1] National Heart, Lung, and Blood Institute. Guidelines for the Diagnosis and Management of Asthma (EPR-3). http://www.nhlbi.nih.gov/health-pro/guidelines/current/asthma-guidelines. July 2007.

[2] U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality. Asthma Care Quality Improvement: A Resource Guide for State Action. 2009. https://archive.ahrq.gov/professionals/quality-patient-safety/quality-resources/tools/asthmaqual/asthmacare/asthqguide.pdf.

Figure 2. Prevalence of asthma education among Michigan children

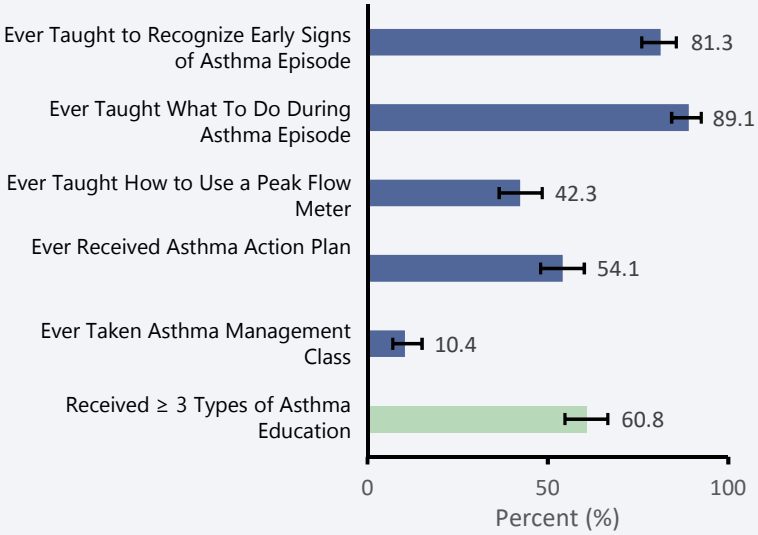


Table 1. Prevalence of asthma management by demographic characteristics among children with current asthma

	Used ≥ 1 Asthma Controller Medication in Past 3 Months[a]		Received ≥ 3 Types of Asthma Education[b]	
	%	95% CI	%	95% CI
Total	**47.4**	**(41.3-53.6)**	**60.8**	**(54.7-66.6)**
Age				
0-9 years	56.0	(45.7-65.8)	50.9	(40.6-61.0)
10-17 years	41.6	(34.7-48.8)	67.9	(60.4-74.6)
Gender				
Male	49.0	(41.0-57.0)	61.1	(53.1-68.5)
Female	44.4	(35.1-54.2)	60.1	(50.1-69.3)
Race and Ethnicity				
White	49.4	(42.5-56.3)	58.0	(51.0-64.6)
Black	40.7	(25.3-58.1)	65.0	(47.4-79.3)
Education				
≤ High school graduate	45.5	(32.6-59.0)	64.7	(51.4-76.1)
Some college	41.4	(31.9-51.5)	56.9	(46.5-66.7)
College graduate	53.4	(44.3-62.4)	61.7	(52.4-70.2)
Household Income				
< $50,000	49.5	(39.5-59.5)	59.0	(49.0-68.3)
≥ $50,000	48.3	(40.5-56.2)	62.3	(54.3-69.7)

[a]Respondent reported the child 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]Respondent or their child received at least three of the following education types: taught to recognize early signs of asthma episode, taught what to do during asthma episode, taught how to use a peak flow meter, received asthma action plan, taken asthma management class.

What is 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 MiBRFSS 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 is used to adjust 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.

MDHHS Michigan Department of Health & Human Services

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