

Asthma in Minnesota

RESULTS FROM THE 2019 ASTHMA CALL-BACK SURVEY

The Asthma Call-back Survey is comprehensive survey of asthma in children and adults conducted as a follow-up to the Behavioral Risk Factor Surveillance System (BRFSS) survey. BRFSS is a telephone survey of health conditions and health-related behaviors conducted on an annual basis by the Minnesota Department of Health in conjunction with the Centers for Disease Control and Prevention. Adults who report in the BRFSS survey that they or their child has been diagnosed with asthma are invited to participate in the Asthma Call-back Survey to provide more in-depth information about their or their child’s asthma history. In 2019, call-back interviews were completed for 718 adults (age 18 and older) and 77 children (age 0-17) in Minnesota. Questions from the Asthma Call-back Survey that are associated with the data presented in this report can be found in the appendix.

This report includes results for children and adults with “active asthma” as defined by (1) having seen a health care provider for asthma, (2) having asthma symptoms, or (3) having taken medicine for asthma in the past 12 months. In some people, asthma may be intermittent; that is, they may not have experienced symptoms or taken asthma medication for years. People who have intermittent symptoms still have asthma.

Asthma Control

Asthma symptoms include, but are not limited to, wheezing, coughing, shortness of breath, and chest tightness. The goals of managing asthma are:

- To reduce daytime and nighttime symptoms,
- To decrease use of a rescue inhaler for symptoms,
- Not to miss school or work due to asthma, and
- Not have activities limited due to asthma.

That is, to live a life without symptoms of asthma.

Table 1. Asthma symptoms among children and adults with active asthma, Minnesota, 2019

Asthma symptoms	Children	Adults
Had symptoms in past 30 days	43.2%	65.2%
Sleep disrupted by asthma in past 30 days	*	27.0%
Asthma attack or episode in past 12 months	33.8%	45.4%

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Asthma symptoms	Children	Adults
Limited usual activities a little to a lot in past 30 days	*	44.3%
Unable to work or carry out usual activities due to asthma in past 12 months	-	28.3%
Missed 1 or more days of school in past 12 months due to asthma (among school aged children with asthma)	*	-
Had 1 or more urgent office visits for worsening symptoms in past 12 months	*	21.3%
Had 1 or more emergency department or urgent care visits for asthma in past 12 months	*	11.2%

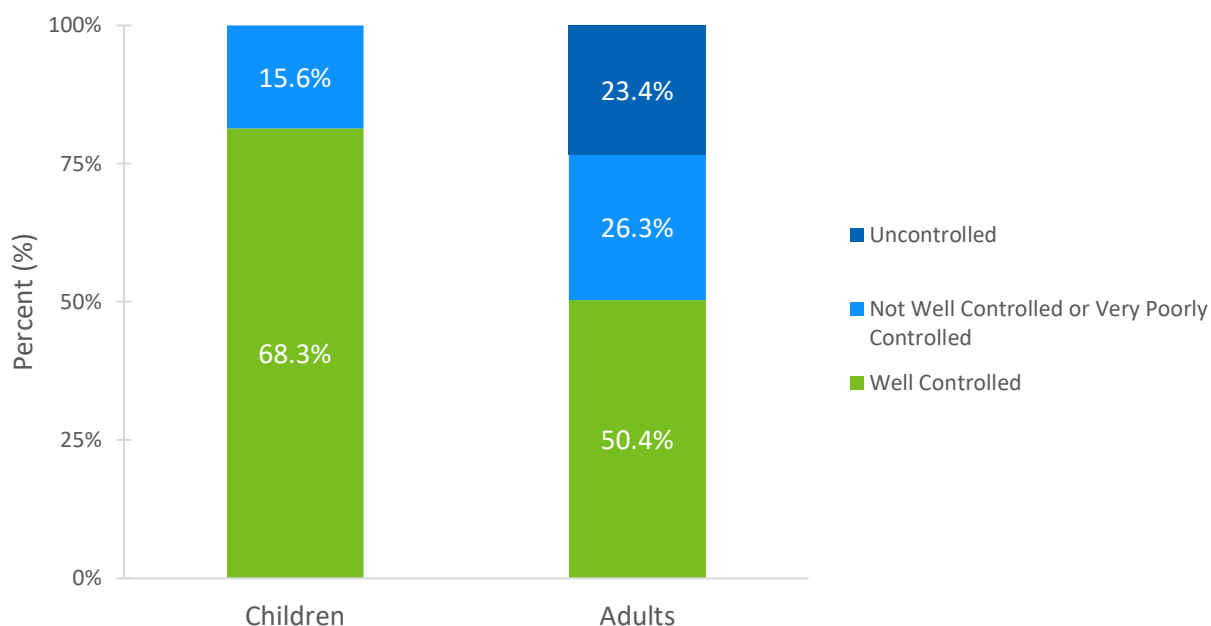
Source: Minnesota Asthma Callback Survey, 2019

*Data not shown if the unweighted sample size for the denominator was <50 or if the relative standard error is ≥30%

Overall, 63.6% of children and 42.9% of adults with asthma report that they were symptom-free over the past 2 weeks, an indication of well-controlled asthma.

Figure 1. shows levels of asthma control based on reported daytime symptoms, nighttime awakenings, and frequency of short-acting beta-agonist use for symptom control. A greater percentage of children than adults have well controlled asthma.

Figure 1. Asthma control among children and adults with active asthma, Minnesota, 2019*



Source: Minnesota Asthma Callback Survey, 2019

* Note: Because of the small number of children with very poorly controlled asthma, children with asthma that is not well controlled and children with asthma that is very poorly controlled have been combined.

Source: Minnesota Asthma Callback Survey, 2019

Work-Related Asthma

Work-related asthma can include asthma that has been caused by some aspect of work (also known as occupational asthma) and existing asthma that is worsened or aggravated by work (also known as work-exacerbated asthma). Fifty-one percent of adults with asthma report that their asthma was caused or aggravated by a current or previous job. However, only 17% report ever discussing with a healthcare provider whether their asthma may be work-related.

Table 2. Work-related asthma among adults with active asthma, Minnesota, 2019

Work-Related Asthma	Adults
Asthma caused by previous job	14.2%
Asthma worse by previous job	34.3%
Asthma caused by current job	3.6%
Asthma caused or made worse by current job	14.9%
Ever quit or lost job because asthma caused or made worse by any job	8.6%
Discussed with a health professional whether asthma may be work-related	18.3%

Source: Minnesota Asthma Callback Survey, 2019

Environmental Factors Affecting Asthma

Many environmental factors in the home can act as triggers of worsening asthma symptoms. Table 3 presents data on environmental triggers reported in the homes of children and adults with asthma. The most commonly reported asthma triggers were pets and carpeting or rugs in the bedroom. Almost half of homes used gas for cooking.

Table 3. Environmental triggers in the homes of children and adults with active asthma, Minnesota, 2019

Environmental Triggers	Children	Adults
Gas used for cooking	48.8%	44.9%
Seen or smelled mold or musty odor in home	*	11.5%
Has pets inside the home	68.6%	62.4%
Pets are allowed in the bedroom	30.9%	51.7%
Mice or rats seen inside the home	*	9.1%
Wood burning fireplace or wood burning stove used in the home	*	10.0%
Unvented gas logs, unvented fireplace or unvented gas stove used in the home	*	5.5%
Smoking inside home in the past week	*	8.5%
Has carpeting or rugs in the bedroom	83.4%	67.2%

RESULTS FROM THE 2019 ASTHMA CALL-BACK SURVEY

Environmental Triggers	Children	Adults
Ever advised by a health professional to change home, school or work environment to improve asthma	34.8%	26.9%

Source: Minnesota Asthma Callback Survey, 2019

*Data not shown if the unweighted sample size for the denominator was <50 or if the relative standard error is ≥30%

As shown in Table 4, the most commonly reported actions taken to reduce triggers in the home were the regular use of kitchen and bathroom exhaust fans. In both cases, use was more likely in the homes of children than adults with asthma.

Table 4. Environmental modifications in the homes of children and adults with active asthma, Minnesota, 2019

Environmental Modifications	Children	Adults
Air cleaner or purifier regularly used in the home	33.2%	35.8%
Dehumidifier regularly used in the home	61.0%	46.8%
Exhaust fan in kitchen regularly used when cooking	70.3%	50.8%
Mattress cover used	33.8%	43.4%
Pillow cover used	27.1%	30.5%
Exhaust fan in bathroom used regularly	84.0%	73.1%
Sheets and pillowcases washed in hot water	20.4%	36.1%

Source: Minnesota Asthma Callback Survey, 2019

Coexisting Medical Conditions

Chronic obstructive pulmonary disease (COPD) and depression are conditions that are commonly associated with asthma. COPD is a broad term that encompasses both emphysema and chronic bronchitis. Overall, 23% of adults with asthma report that they have also been diagnosed with COPD. Thirty-six percent of adults with asthma report having a diagnosis of depression.

Table 5. Coexisting conditions reported by adults with active asthma, Minnesota, 2019

Coexisting Conditions	Adults
Chronic Obstructive Pulmonary Disease (COPD)	10.7%
Depression	46.6%

Source: Minnesota Asthma Callback Survey, 2019

Asthma Management

The national guidelines for asthma management recommend that people with asthma have routine asthma checkups with a health care provider at least once yearly. As shown in Table 6, children are more likely than adults to have had a routine checkup for asthma in the past 12 months.

The CDC recommends annual flu shots for people with asthma of any age. Children with asthma are also more likely than adults with asthma to have had a flu shot in the past year.

Table 6. Preventive care for children and adults with active asthma, Minnesota, 2019

Preventative Care	Children	Adults
Routine asthma checkup in past 12 months	71.5%	59.0%
Flu shot in past 12 months	76.2%	49.2%
Flu spray in the past 12 months	0%	NA

Source: Minnesota Asthma Callback Survey, 2019; Behavioral Risk Factor Surveillance System, 2019 (adult flu shots)

*Data not shown if the unweighted sample size for the denominator was <50 or if the relative standard error is $\geq 30\%$

Self-management education

A key component of asthma care is self-management education. According to the national guidelines, this involves teaching people with asthma how to monitor their level of asthma control, take medication correctly (e.g., inhaler technique) and avoid environmental triggers. They should also receive an asthma action plan. An asthma action plan is a written document developed by a patient's health care provider that includes instructions on which medicine to take when, a list of factors that make the patient's asthma worse (i.e., asthma triggers), and actions to take when symptoms get worse. People with asthma may also be taught how to use peak flow meters which are devices they can use to measure how well they are breathing.

Results from the Asthma Call-back Survey show that children are far more likely than adults to have ever received an asthma action plan from their health care provider.

Table 7. Asthma self-management education among children and adults with active asthma, Minnesota, 2019

Asthma Self-Management Education	Children	Adults
Taught to recognize early signs or symptoms of an asthma attack	90.0%	67.0%
Taught what to do during an asthma episode or attack	94.1%	80.3%
Taught how to use a peak flow meter to adjust daily medications	41.9%	44.7%
Ever given an asthma action plan	85.7%	41.3%

Asthma Self-Management Education	Children	Adults
Taken a class on how to manage asthma	*	9.7%

Source: Minnesota Asthma Callback Survey, 2019

*Data not shown if the unweighted sample size for the denominator was <50 or if the relative standard error is $\geq 30\%$

School-based asthma management

Because children spend a significant portion of their days at school, it is important for them to be able to manage their asthma while in school. Minnesota law allows students with asthma to carry asthma inhaler medication following determination by their school nurse and health care provider that they have the knowledge and skills to safely carry and use their inhaler medication at school.

Table 8. Asthma management among school-aged children with active asthma, Minnesota, 2019

Asthma management among school-aged children	School-aged children
Has a written asthma action plan on file at school	60.0%
Allowed to carry asthma medication at school	55.7

Source: Minnesota Asthma Callback Survey, 2019

Access to Care

A potential barrier to managing asthma is the cost of medical care and medications. While just under 5% of adults with asthma report that they do not have health insurance coverage, 9% report that they were not able to afford asthma medications at some time in the past 12 months. This implies that even those who have health insurance experience cost barriers to accessing asthma medication.

Table 7. Insurance status and cost barriers among children and adults with active asthma, Minnesota, 2019

Access to Care	Children	Adults
Currently has health insurance	100%	94.7%
Cost a barrier to seeing primary care doctor for asthma in past 12 months	*	2.5%
Cost a barrier to buying medications for asthma in past 12 months	*	10.8%
Cost a barrier to seeing a specialist for asthma care in past 12 months	*	2.1%

Source: Minnesota Asthma Callback Survey, 2019

*Data not shown if the unweighted sample size for the denominator was <50 or if the relative standard error is $\geq 30\%$

Use of Complementary Health Approaches to Manage Asthma

The Asthma Call-back Survey data show that 25 percent of children and 44 percent of adults with asthma are using complementary health approaches to manage their asthma. The majority of approaches used by adults and all the approaches used for children fall into the category of self-care rather than practitioner care. The survey did not ask whether the respondent used these approaches instead of asthma medication or discussed them with their health care provider.

The [National Center for Complementary and Integrative Health's webpage on Asthma](#) provides information on the effectiveness and safety of complementary health approaches for asthma.

Table 8. Use of complementary health approaches for asthma among children and adults with active asthma, Minnesota, 2019

Use of complementary health approaches	Children	Adults
Any complementary health approaches	24.6%	44.0%
Self-care (e.g., herbs, vitamins, aromatherapy, homeopathy, yoga or breathing techniques)	24.0%	39.7%
Practitioner care (e.g., acupuncture, acupressure, naturopathy or reflexology)	0%	6.2%

Source: Minnesota Asthma Callback Survey, 2019

*Data not shown if the unweighted sample size for the denominator was <50 or if the relative standard error is $\geq 30\%$

Appendix: Asthma Call-back Survey questions used in this report

Table 1. Asthma symptoms

“One or more” to: “During the past 30 days, on how many days did you/your child have any symptoms of asthma?”

“One or more” to: “During the past 30 days, on how many days did symptoms of asthma make it difficult for you/your child to stay asleep?”

“Yes” to: “During the past 12 months, have you/your child had an episode of asthma or an asthma attack?”

“A little, a moderate amount or a lot” to: During the past 30 days would you say you/your child limited your usual activities due to asthma not at all, a little, a moderate amount, or a lot?”

“One or more days” to: “During the past 12 months, how many days were you unable to work or carry out your usual activities because of your asthma?”

“One or more” to: “During the past 12 months, about how many days of school did your child miss school because of his/her asthma?”

“One or more” to: “During the past 12 months, how many times did you/your child see a doctor or other health professional for urgent treatment of worsening asthma symptoms or for an asthma episode or attack?”

“One or more” to: “During the past 12 months, how many times did you/your child visit an emergency room or urgent care center because of your/your child’s asthma?”

1 – 14: To “During the past two weeks, on how many days were you/was your child completely symptom-free, that is, no coughing, wheezing, or other symptoms of asthma?”

Table 2. Work-related asthma

“Yes” to:

“Was your asthma first caused by things like chemicals, smoke, dust or mold in any previous job you ever had?”

“Were your asthma symptoms made worse by chemicals, smoke, dust or mold in any previous job you ever had?”

“Was your asthma first caused by things like chemicals, smoke, dust or mold in your current job?”

“Were your asthma symptoms caused/made worse by chemicals, smoke, dust or mold in your current job?”

“Did you ever lose or quit a job because things in the workplace like chemicals, smoke, dust or mold, caused your asthma or made your asthma symptoms worse?”

“Did you and a doctor or other health professional ever discuss whether your asthma could have been caused by, or your symptoms made worse by, any job you ever had?”

Table 3. Environmental triggers

“Yes” to:

“Is gas used for cooking?”

“In the past 30 days, has anyone seen or smelled mold or a musty odor inside your/your child’s home?”

“Does your household/your child’s home have pets such as dogs, cats, hamsters, birds or other feathered or furry pets that spend time indoors?”

“Yes” or “some are, some aren’t” to: “Are pets allowed in your/your child’s bedroom?”

“In the past 30 days, has anyone seen mice or rats inside your/your child’s home?”

“Is a wood burning fireplace or wood burning stove used in your/your child’s home?”

“Are unvented gas logs, unvented gas fireplace, or unvented gas stove used your/your child’s home?”

“In the past week, has anyone smoked inside your/your child’s home?”

“Do you/your child have carpeting or rugs in your/your child’s bedroom?”

“Has a health professional ever advised you to change things in your/your child’s home, school, or work to improve your/your child’s asthma?”

Table 4. Environmental modifications

“Yes” to:

“Is an air cleaner or purifier regularly used inside your/your child’s home?”

“Is a dehumidifier regularly used to reduce moisture inside your/your child’s home?”

“Is an exhaust fan that vents to the outside used regularly when cooking in your/[his/her] kitchen/home?”

“Do you/Does your child use a mattress cover that is made especially for controlling dust mites?”

“Do you/Does your child use a pillow cover that is made especially for controlling dust mites?”

“In your/your child’s bathroom, do you/does your child regularly use an exhaust fan that vents to the outside?”

“Hot” to: “Are your/your child sheets and pillowcases washed in cold, warm, or hot water?”

Table 5. Coexisting conditions

“Yes” to any of the following questions: “Have you ever been told by a doctor or other health professional that you have...

...chronic obstructive pulmonary disease also known as COPD?”

...emphysema?”

...chronic bronchitis?”

“Yes” to “Have you ever been told by a doctor or other health professional that you were depressed?”

Table 6. Preventive care

“One or more” to: “During the past 12 months, how many times did you/your child see a doctor or other health professional for a routine checkup for your [his/her] asthma?”

“Yes” to “During the past 12 months, did [child’s name] have a flu shot?”

Table 7. Asthma self-management education

“Yes” to: “Has a doctor or other health professional ever taught you [or child’s name] ... How to recognize early signs or symptoms of an asthma episode?”

“Yes” to: “Has a doctor or other health professional ever taught you [or child’s name] ... What to do during an asthma episode or attack?”

“Yes” to: “Has a doctor or other health professional ever taught you [or child’s name] ... How to use a peak flow meter to adjust your [his/her] daily medications?”

“Yes” to: “Has a doctor or other health professional EVER given you [or child’s name] an asthma action plan?”

“Yes” to: “Have you [or child’s name] ever taken a course or class on how to manage your asthma?”

Table 8. Asthma management among school-aged children

“Yes” to: “Does [child’s name] have a written asthma action plan or asthma management plan on file at school?”

“Yes” to: “Does the school your child goes to allow children with asthma to carry their medication with them while at school?”

Table 9. Insurance status and cost barriers

“Yes” to: “Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare or Medicaid?”

“Yes” to: “During the past 12 months, was there any time that you/your child did not have any health insurance or coverage?”

“Yes” to: “Was there a time in the past 12 months when you needed to buy / [your child needed medication] for your [his/her] asthma, but could not because of the cost?”

“Yes” to: “Was there a time in the past 12 months when you were / [child’s name] was referred to a specialist for [his/her] asthma care but could not go because of cost?”

Table 10. Use of complementary health approaches

“Yes” to “In the past 12 months, have you/ has your child used (herbs, vitamins, aromatherapy, homeopathy, yoga, breathing techniques, acupuncture, acupressure, reflexology, or naturopathy) to control your asthma?”

“Yes” to “In the past 12 months, have you/ has your child used (herbs, vitamins, aromatherapy, homeopathy, yoga, or breathing techniques) to control your asthma?”

“Yes” to “In the past 12 months, have you/has your child used (acupuncture, acupressure, naturopathy, or reflexology) to control your asthma?”

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