



**James J. Stevermer MD, MSPH; Alisa Hayes, MD**  
Department of Family and  
Community Medicine (Dr.  
Stevermer) and Depart-  
ment of Emergency Medi-  
cine (Dr. Hayes), University  
of Missouri-Columbia

**DEPUTY EDITOR**  
**Corey Lyon, DO,**  
University of Colorado  
Family Medicine Residency,  
Denver

# Should you reassess your patient's asthma diagnosis?

Asthma may not be a permanent diagnosis in adults. A study finds that up to one-third of adults with physician-diagnosed asthma no longer had it after 5 years.

## PRACTICE CHANGER

Consider tapering medications and retesting spirometry in adults with well-controlled asthma, as many may no longer have the disease.<sup>1</sup>

### STRENGTH OF RECOMMENDATION

**A:** Based on a high-quality prospective cohort study and consistent findings in other studies.

Aaron SD, Vandemheen KL, FitzGerald JM, et al. Reevaluation of diagnosis in adults with physician-diagnosed asthma. *JAMA*. 2017;317:269-279.

## ILLUSTRATIVE CASE

A 45-year-old woman presents to your office for a yearly visit. Two years ago she was started on an inhaled corticosteroid (ICS) and a bronchodilator rescue inhaler after being diagnosed with asthma based on her history and physical exam findings. She has had no exacerbations since then. Should you consider weaning her off the inhalers?

**A**sthma is a prevalent problem; 8% of adults ages 18 to 64 years have the chronic lung disease.<sup>2</sup> Diagnosis can be challenging, partially because it requires measurement of transient airway resistance. And treatment entails significant costs and possible adverse effects. Without some sort of pulmonary function measurements or trials off medication, there is no clinical way to differentiate patients with well-controlled asthma from those who are being treated unnecessarily. Not surprisingly, studies have

shown that ruling out active asthma and reducing medication usage is cost effective.<sup>3,4</sup> This study followed a cohort of patients to see how many could be weaned off their asthma medications, and how they did in the subsequent year.

## STUDY SUMMARY

### About one-third of adults with asthma are “undiagnosed” within 5 years

The researchers recruited participants from the general population of the 10 largest cities and surrounding areas in Canada by randomly dialing cellular and landline phone numbers and asking about adult household members with asthma.<sup>1</sup> The researchers focused on people with a recent (<5 years) asthma diagnosis, so as to represent contemporary diagnostic practice and to make it easier to collect medical records. Participants lived within 90 minutes of 10 medical centers in Canada. Patients were excluded if they were using long-term oral steroids, pregnant or breastfeeding, unable to tolerate spirometry or methacholine challenges, or had a history of more than 10 pack-years of smoking.

Of the 701 patients enrolled, 613 (87.4%) completed all study assessments. Patients progressed through a series of spirometry tests and were then tapered off their asthma-controlling medications.

The initial spirometry test confirmed asthma if bronchodilators caused a significant improvement in forced expiratory vol-

➤ **More than 40% of patients who no longer had asthma were objectively proven to have had asthma at their original diagnosis.**

ume in the first second of expiration (FEV<sub>1</sub>). If there was no improvement, the patient took a methacholine challenge 1 week later; if they did well, their maintenance medications were reduced by half. If the patient did well with another methacholine challenge about 1 month later, maintenance medications were stopped, and the patient underwent a third methacholine challenge 3 weeks later.

Asthma was confirmed at any methacholine challenge if there was a 20% decrease in FEV<sub>1</sub> from baseline at a methacholine concentration of  $\leq 8$  mg/mL; these patients were restarted on appropriate medications. If current asthma was ruled out, follow-up bronchial challenges were repeated at 6 and 12 months.

**Results.** Among the adults with physician-diagnosed asthma, 33.1% (95% confidence interval [CI], 29.4%-36.8%) no longer met criteria for an asthma diagnosis. Of those who no longer had asthma, 44% had previously undergone objective testing of airflow limitation. The investigators also found 12 patients (2%) had other serious cardiorespiratory conditions instead of asthma, including ischemic heart disease, subglottic stenosis, and bronchiectasis.

During the 1-year follow-up period, 22 (10.8%) of the 203 patients who were initially judged to no longer have asthma had a positive bronchial challenge test; 16 had no symptoms and continued to do well off all asthma medications. Six (3%) presented with respiratory symptoms and resumed treatment with asthma medications, but only 1 (0.5%) required oral corticosteroid therapy.

#### WHAT'S NEW?

##### **Asthma meds are of no benefit for about one-third of patients taking them**

This study found that one-third of patients with asthma diagnosed in the last 5 years no longer had symptoms or spirometry results consistent with asthma and did well in the subsequent year. For those patients, there appears to be no benefit to using asthma medications. The Global Institute for Asthma recommends stepping down treatment in adults with asthma that is well controlled for 3 months or more.<sup>5</sup> While patients with

objectively confirmed asthma diagnoses were more likely to still have asthma in this study, over 40% of patients who no longer had asthma were objectively proven to have had asthma at their original diagnosis.

#### CAVEATS

##### **High level of rigor and the absence of a randomized trial**

This study used a very structured protocol for tapering patients off their medications, including multiple spirometry tests, most including methacholine challenges, as well as oversight by pulmonologists. It is unclear whether this level of rigor is necessary for weaning in other clinical settings.

Also, this study was not a randomized trial, which is the gold standard for withdrawal of therapy. However, a cohort study is adequate to assess diagnostic testing, and this could be considered a trial of “undiagnosing” asthma in adults. The results here are consistent with those of a study that looked at asthma disappearance in groups of patients with and without obesity. In that study, approximately 30% of both groups of patients no longer had a diagnosis of asthma.<sup>6</sup>

Using random dialing is likely to have broadened the pool of patients this study drew upon. Also, there is a possibility that the patients who were lost to follow-up in this study represented those who had worsening symptoms. Some patients with mild asthma may have a waxing and waning course; it is possible that the study period was not long enough to capture this. In this study, only about 3% of patients who had their medications stopped reported worsening of symptoms.

#### CHALLENGES TO IMPLEMENTATION

##### **“Undiagnosis” is unusual**

Using objective testing may provide some logistical or financial challenges for patients. Furthermore, “undiagnosing” a chronic disease like asthma is not a physician’s typical work, and it may take some time and effort to educate and monitor patients through the process. **JFP**

#### ACKNOWLEDGMENT

The PURLs Surveillance System was supported in part by Grant Number UL1RR024999 from the National Center For

Research Resources, a Clinical Translational Science Award to the University of Chicago. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Center For Research Resources or the National Institutes of Health.

Copyright © 2018. The Family Physicians Inquiries Network. All rights reserved.

## References

1. Aaron SD, Vandemheen KL, FitzGerald JM, et al. Reevaluation of diagnosis in adults with physician-diagnosed asthma. *JAMA*. 2017;317:269-279.
2. QuickStats: percentage of adults aged 18-64 years with current asthma,\* by state - National Health Interview Survey,† 2014-2016. *MMWR Morb Mortal Wkly Rep*. 2018;67:590.
3. Pakhale S, Sumner A, Coyle D, et al. (Correcting) misdiagnoses of asthma: a cost effectiveness analysis. *BMC Pulm Med*. 2011; 11:27.
4. Rank MA, Liesinger JT, Branda ME, et al. Comparative safety and costs of stepping down asthma medications in patients with controlled asthma. *J Allergy Clin Immunol*. 2016;137:1373-1379.
5. Global Initiative for Asthma. Global strategy for asthma management and prevention. 2018. <https://ginasthma.org>. Accessed June 15, 2018.
6. Aaron SD, Vandemheen KL, Boulet LP, et al. Overdiagnosis of asthma in obese and nonobese adults. *CMAJ*. 2008;179: 1121-1131.



## Residents: Are you getting ready for your family medicine certification exam?

Then check out our monthly Residents' Rapid Review quizzes, featuring prep questions written by the faculty of the National Family Medicine Board Review course.

This month's questions can be found at [www.mdedge.com/jfponline](http://www.mdedge.com/jfponline).

THE JOURNAL OF  
**FAMILY  
PRACTICE**