

Must family physicians use spirometry in managing asthma patients?

NO

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Stanbrook and Kaplan have previously suggested that “physicians who do not use spirometry for their asthma patients should not be managing asthma.”¹ They have put forth the notion that asthma management without spirometry testing would be considered failing to maintain an adequate standard of care, and that most primary care physicians “need to make testing available in their own offices.”¹ They developed this theme based on a study by Aaron et al,² whose results actually revealed that asthma diagnosis was confirmed in 16% and 72% of patients studied, by spirometry and methacholine challenge testing, respectively. Building a case for office spirometry based on these results seems counter-intuitive.³ Further, Stanbrook and Kaplan did not cite a single reference in their article that described how widespread use of office spirometry in primary care might influence asthma outcomes in patients not previously diagnosed with asthma.¹

Spirometry can provide important information about lung function and health. Spirometry can be very helpful in excluding abnormalities in lung mechanics to discern the underlying cause of dyspnea. However, despite well-defined spirometric criteria for asthma diagnosis,⁴ there are very few, if any, data from large, long-term trials that describe the benefits or limitations of routine spirometry in real-world asthma management. Therefore, I found the comments of Stanbrook and Kaplan disappointing because they were not supported by high-quality evidence. My concern is that, as a result of their recommendations,¹ physicians who do not use spirometry might be more inclined to refer asthma patients outside of their practices, a strategy that can hinder continuity of care³ and exacerbate the problem of inadequate spirometry access in the community setting.

Stanbrook and Kaplan’s position represents a best-case scenario, supported by what some would call “wishful thinking,” which fails to consider some important clinical and practical considerations reported in the literature that are directly relevant to the primary care setting. For example, Lusuardi et al⁵ did not find

a significant advantage to adding office spirometry to conventional evaluation (history and physical examination) for identifying patients with asthma ($P = .35$), although statistical considerations (lack of adequate power) and poor enrolment might have resulted in a type II error. Stanbrook and Kaplan¹ suggest that barriers to office-based spirometry can be overcome,⁶ but they do not discuss important limitations of such studies and reports in which the use of spirometry was sub-optimal.^{7,8} This type of discussion is crucial in order to clearly identify what implementation barriers exist and how challenges can be overcome in different practice settings. Further, this information can be used to design studies evaluating how spirometry can influence asthma diagnosis and management compared with other strategies.

Risks and guidelines

Canadian guidelines⁴ rate the evidence for reversibility testing with spirometry as level IV for asthma diagnosis—a rating that acknowledges the lack of randomized trials on the subject. Stanbrook and Kaplan¹ suggest that spirometry can confirm or rule out the presence of airflow obstruction at the point of care, but do not comment on some important clinical considerations encountered in primary care. Lusuardi et al⁵ reveal that most patients with asthma in primary care have well-preserved lung function and that airflow obstruction—defined as a reduction in the ratio of forced expiratory volume in 1 second (FEV_1) to forced vital capacity (FVC)—was observed in only 21% of patients diagnosed with asthma. Most patients had FEV_1 and FVC values in the normal range.⁵ Using the currently endorsed Canadian spirometry interpretation algorithm promoted in primary care,⁹ those patients with normal FEV_1 to FVC ratios would not undergo reversibility testing; therefore, their diagnoses could only be confirmed by other means, likely methacholine testing. Given the results of Lusuardi et al,⁵ clinical decision making based on initial spirometry results alone could result in undertreatment of many patients.

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Data from the studies of Aaron and colleagues² and Lusuardi and colleagues⁵ reveal a challenge to the attempted establishment of a diagnosis of asthma with spirometry in populations with a high probability of normal lung function at the time of testing. I am reminded of comments in the Canadian Asthma Consensus Report,⁴ which indicate “that while methacholine challenge testing is only available in specialized centers this test should be made available to primary care physicians who see most patients with mild asthma and where measurement of responsiveness is most useful.”⁴

Bottom line

Without the appropriate evidence, the notion that asthma management without spirometry indicates substandard care seems unwarranted and inappropriate. Unlike control of blood pressure and glucose levels, for which large studies have shown that testing improves clinically relevant end points,^{10,11} the required role of spirometry in asthma management has yet to be validated. I believe that it is premature for Stanbrook and Kaplan to raise the profile of office spirometry to the level of “standard of care”¹ simply because it seems like the logical thing to do. Clinicians who do not use spirometry for asthma care are encouraged to identify patients with episodic or persistent symptoms, such as cough, shortness of breath, chest tightness, nocturnal awakenings, and signs of wheezing and respiratory distress, and manage those individuals accordingly; this includes referral for further testing if the diagnosis remains uncertain. We are at least 1 or 2 large randomized trials away from understanding the role and benefits of office spirometry in primary care asthma management. Without such information we run the risk of putting the cart before a lame horse. ❁

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Competing interests

None declared

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CLOSING ARGUMENTS

- Family physicians who do not use spirometry testing in their offices should still provide ongoing care for their patients with asthma, including referral for assessment if the diagnosis is unclear.
- Current Canadian asthma guidelines rate the evidence for diagnosing asthma using spirometry as level IV.
- To date, there are no prospective studies that clearly highlight the benefits or limitations of spirometry use for asthma diagnosis and management in primary care.
- As many patients with asthma in primary care have normal lung function at the time of testing, reliance on spirometric data for diagnosis might result in undertreatment.

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