Improving the diagnosis of asthma in a primary care practice

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As part of a provincial quality improvement program,[1] we recently reviewed our practice processes for diagnosing and managing asthma. Our quality team includes an office manager, a clinical pharmacist, a nurse practitioner, a family physician, and a quality improvement facilitator.

Process for asthma diagnosis

Our first step was to correctly identify all patients with asthma in this practice of 1296 patients. We used an electronic medical record query to look for any encounter with a diagnosis of asthma (ICD-9 code 493) during the past 4 years. We found 100 patients. Asthma guidelines recommend that patients with suspected asthma have objective testing of lung function to confirm the diagnosis; this consists of pulmonary function tests (PFTs) before and after bronchodilator inhalation, followed by methacholine challenge (MC) if the PFT results are negative.[2,3] Eight patients either had positive objective test results in the past or could not be tested because they were younger than 6 years old, had dementia, or had other conditions that precluded testing. A chart review found that 26 patients had been incorrectly assigned a code of 493, as they had bronchitis or other nonasthmatic conditions. Sixty-six patients, therefore, had clinically suspected but unconfirmed asthma.

We then mailed letters to all patients with unconfirmed asthma inviting them to have PFTs. (The letter inviting patients for PFTs is available from **CFPlus**.*) We collaborated with staff members at our hospital's respiratory department; the PFTs were to be done at their facility, and they also automatically offered MCs to all patients with negative PFT results and with no contraindications to MC. The hospital's respiratory department telephoned all patients who received invitation letters to offer them appointments. We mailed a second letter to those patients who did not respond to the first letter or telephone call.

Results

Thirty-one patients (47%) had PFTs done. Five (16%) of those patients' PFT results were consistent with asthma. Twenty-four of the 26 patients who had normal PFT results then had MCs. Thirteen (54%) of those patients' MC results were consistent with asthma.

We have an alert in the electronic charts of the 35 patients who did not go for PFTs, reminding us to discuss and offer them the test at their next clinical visit.

There is evidence that asthma might be overdiagnosed.[4] We found that 48% of the patients who presented for testing because they had clinically suspected asthma did not have objective evidence of asthma. The practice asthma registry now includes 27 patients (2% of the total practice population). If all 35 patients who did not respond were found to have positive results on objective testing, our proportion of patients with asthma would be 5%; this is less than the reported prevalence in Ontario, which is 13.3%.[5]

Conclusion

Figure 1 is the process map we created for asthma diagnosis and management in our office. It is possible to improve the diagnosis of asthma in a primary care practice by systematically inviting patients with suspected asthma for objective testing. However, many of our patients did not go for testing, most initial PFTs had negative results, and we also had fewer asthmatic patients than expected.

*The invitation letter for pulmonary function testing is available at **www.cfp.ca**. Go to the full text of this article online, then click on **CFPlus** in the menu at the top right-hand side of the page.

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Competing interests

None declared

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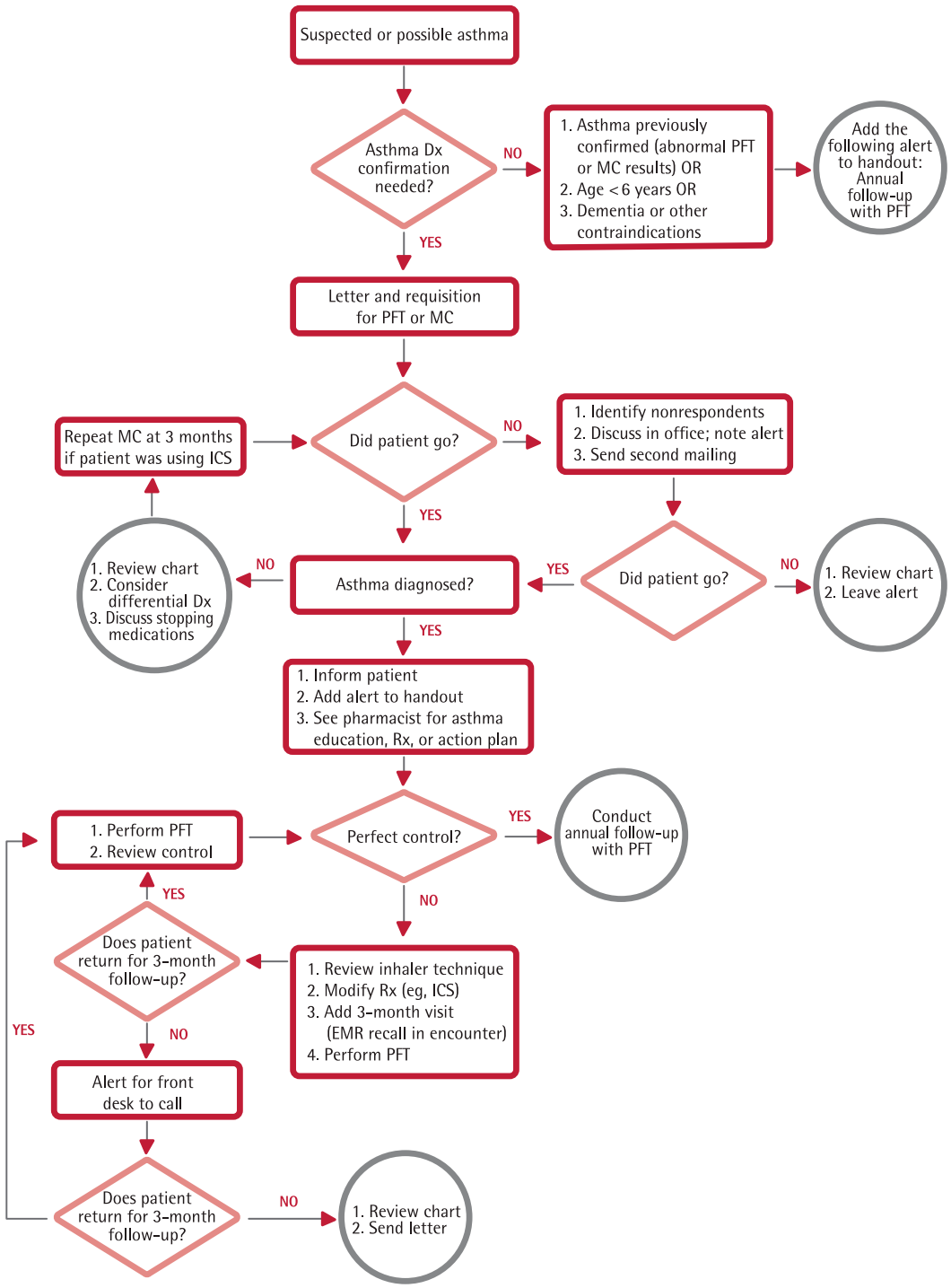
Figure 1. Office process map for asthma management



Dx—diagnosis, EMR—electronic medical record, ICS—inhaled corticosteroid, MC—methacholine challenge, PFT—pulmonary function test, Rx—prescription.

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