

Office Spirometry Is 30 Years Old, But Is Not Mature

The study by Kaminsky et al¹ published in this issue suggests that, despite 3 decades of growth, spirometry done in the offices of primary care practitioners has not yet matured. A first-generation office spirometer was the Breon 2400, designed by a pharmaceutical company in the early 1970s and popularized by our innovative and evangelistic mentor, Thomas L Petty.² Available now for as little as \$25 at Ebay.com, the little blue Breon 2400 remains a robust and accurate instrument for detecting airway obstruction, using the ratio of forced expiratory volume in the first second (FEV₁) to FEV₆, and for following treatment responses with FEV₁ changes. Medicare reimburses about \$65 for a spirometry test, which takes less than 5 min to perform. Yet the majority of primary care practitioners don't own a spirometer, and of those who do have one, fewer than 5 tests per month are done (none of which includes post-bronchodilator responsiveness). So why has office spirometry not matured to become a routinely performed test for almost all patients with respiratory symptoms and risk factors, as recommended by several professional societies?³

SEE THE ORIGINAL STUDY ON PAGE 1639

The primary care practitioners of the Vermont study¹ mentioned several barriers: uncertainty about the impact of the test on clinical practice, physician and staff unfamiliarity, inadequate training, uncertain interpretation, lack of time, and concerns about inadequate reimbursement. Based on the results of their initial survey, Kaminsky, Marcy, and Irvin, pulmonary specialists, and Bachand, a respiratory therapist, worked together to provide practical, hands-on office spirometry workshops in their community. They even provided excellent new spirometers without charge for the primary care practitioners who wanted to try office spirometry. What more could they have done? The methods of this excellent program were based on previously published studies and guidelines,³⁻⁵ and the results were encouraging, but not optimal.

During the last 3 years, 2 very large pharmaceutical companies spent tens of millions of dollars providing similar programs, designed to promote office spirometry for the detection of COPD throughout entire countries (the United States and Italy). The outcomes were so discouraging that the programs were discontinued, and their re-

sults will probably not be published. The outcomes were that the primary care practitioners performed very few tests during the program, a high misclassification rate was probable, and very few primary care practitioners continued to perform spirometry after the support programs concluded. Apparently, pouring more money into such programs or improving the reimbursement rates for the test won't solve the underutilization and poor quality problems of office spirometry.

A new report from the Agency for Healthcare Research and Quality states that:

The evidence does not support widespread use of spirometry in primary care settings for all adults with persistent respiratory symptoms or having a history of exposure to pulmonary risk factors for case-finding, improving smoking cessation rates, monitoring the clinical course of COPD, or adjusting COPD interventions.

... Nearly all the benefit from [COPD] treatment could be obtained by reserving spirometry for those having activity limiting respiratory symptoms and targeting therapy to those who have reached a spirometric threshold of airflow obstruction of approximately a FEV₁ less than 50 percent predicted.⁶

I propose that we shift our emphasis to a different approach for the widespread detection of COPD in adult smokers, and prospectively measure its success rate: individual respiratory therapists could develop community-based programs for a variety of asthma and COPD-related services, to include spirometry for COPD case-finding for adult smokers, allergen skin testing and exhaled nitric oxide tests for patients with asthma, as well as smoking cessation and asthma education programs (and perhaps even pneumococcal and influenza vaccinations), all based on clinical practice guidelines. The spirometry and allergen skin tests already have well-defined indications and current-procedural-terminology (CPT) codes for reimbursement, which should make the programs financially successful. Much less expensive exhaled-nitric-oxide analyzers will soon become available in the United States⁷ and will provide an excellent guide for titrating asthma-controller therapy.⁸ These services could be provided at a fixed location, such as at a folding table at a local pharmacy, during regularly scheduled hours (such as 9:00 AM to 3:00 PM every Saturday).

The respiratory therapists who provide spirometry testing should have the Certified Pulmonary Function Technologist certification and use only spirometers that pass the National Lung Health Education Program (NLHEP) review process.⁹ The quality of the spirometry tests should be reviewed at least monthly by a pulmonary specialist, and at least 85% should meet NLHEP goals. The success of the spirometry program should be measured by sending a random sample of the patients to a pulmonary function testing laboratory for retesting within a week. The appendix of the NLHEP guidelines⁴ provides the details for such a validation study.

Paul L Enright MD
The University of Arizona
Tucson, Arizona

REFERENCES

1. Kaminsky DA, Marcy TW, Bachand M, Irvin CG. Knowledge and use of office spirometry for the detection of COPD by primary care physicians. *Respir Care* 2005;50(12):1639–1648.
2. Petty TL. The value of office spirometry for the early diagnosis of chronic respiratory disease. *Today's Clinician*, April 1978; 64–68.
3. Enright PL, Studnicka M, Zielinski J. Spirometry to detect and manage COPD and asthma in the primary care setting. *Eur Respir Mon* 2005;31:1–14.
4. Ferguson GT, Enright PL, Buist AS, Higgins MW. Office spirometry for lung health assessment in adults: a consensus statement from the National Lung Health Education Program. *Respir Care* 2000;45(5): 513–530.
5. Miller MR, Hankinson J, Brusasco V, Burgos F, Casaburi R, Coates A, et al. Standardisation of spirometry. *Eur Respir J* 2005;26(2):319–338.
6. Wilt TJ, Niewoehner D, Kim C, Kane RL, Linabery A, Tacklind J, et al. Use of spirometry for case finding, diagnosis, and management of chronic obstructive pulmonary disease (COPD). Summary, Evidence Report/Technology Assessment: Number 121. AHRQ Publication Number 05-E017-1, August 2005. Agency for Healthcare Research and Quality, Rockville, MD. [http://www.ahrq.gov/clinic/epcsuns/spirosun.htm](http://www.ahrq.gov/clinic/epcsums/spirosun.htm). Accessed October 28, 2005.
7. Hemmingsson T, Linnarsson D, Gambert R. Novel hand-held device for exhaled nitric oxide-analysis in research and clinical applications. *J Clin Monit Comput* 2004;18(5–6):379–387.
8. Zacharasiewicz A, Wilson N, Lex C, Erin EM, Li AM, Hansel T, et al. Clinical use of noninvasive measurements of airway inflammation in steroid reduction in children. *Am J Respir Crit Care Med* 2005;171(1):1077–1082.
9. The NLHEP office spirometer review process. <http://www.nlhep.org/resources-medical.html#review>. Accessed September 21, 2005.

Correspondence: Paul L Enright MD. E-mail: lungguy@aol.com.