

# Is spirometry essential in diagnosing asthma?

Yes

Asthma is a disease that is often hard to diagnose because many patients have no signs or symptoms and have a normal lung function between attacks. Impaired lung function during a histamine challenge test is the reference test, but is not acceptable to many patients, especially to children. A history of certain symptoms also has sufficient diagnostic value for the diagnosis of asthma. Both the British and Dutch guidelines allow indication of a diagnosis of asthma without further additional testing when certain signs and symptoms are present.<sup>1,2</sup> So for these patients spirometry may not be essential in diagnosing asthma. In many patients, however, there remains diagnostic uncertainty after assessing signs and symptoms, and for this reason additional testing for an asthma diagnosis is needed. Until then the physician should use a so-called symptom diagnosis (for example, dyspnoea or cough).

When additional testing is needed it is crystal clear that spirometry should be preferred over peak expiratory flow (PEF) measurements. Several studies have shown that peak flow diaries in childhood asthma are unreliable (in compliance as well as accuracy), that variation in PEF correlates poorly with quality of life and asthma severity scores, and that peak-flow-based self-management plans are not superior to self-management plans based on education and symptoms.<sup>3-5</sup>

Therefore most national and international guidelines advocate the use of spirometry because it is superior to PEF.<sup>1,2,6,7</sup> For instance, the British Thoracic Society/Scottish Intercollegiate Guidelines Network guideline on the management of asthma states that spirometry is the preferred additional test to assess the presence and severity of airflow obstruction and is to be preferred over PEF measurements. This is because it allows clearer identification of airflow obstruction, and the results are less dependent on effort.<sup>1</sup> Spirometry should include measurement of the forced

expiratory volume in 1 second (FEV<sub>1</sub>), forced vital capacity (FVC), FEV<sub>1</sub>/FVC ratio, and reversibility testing.

### PROPER AND CONTINUOUS TRAINING IS ESSENTIAL

There is of course one very important condition that has to be met in order to secure a valid use of spirometry and that is proper and continuous training. In the Netherlands there is a spirometry training programme available for GPs and practice nurses, and spirometry is nowadays widely used in primary care. Schermer and colleagues showed that after introduction of this training programme the validity and quality of spirometry in adult patients in primary care was satisfactory in comparison with spirometry performed in a lung function laboratory.<sup>8</sup>

Last but not least it is very important to realise that in many asthma patients FEV<sub>1</sub> measurement in spirometry does not correlate well with asthma severity.<sup>4</sup> Spirometry measurement alone therefore does not reflect good asthma monitoring and management. Achieving good asthma monitoring and management involves a complete assessment including symptoms, signs, quality of life, spirometry, compliance with treatment, and asthma severity scores.

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