



SHORT REPORT

A pilot study of a mobile spirometry service in primary care

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Summary This evaluation of an inexpensive mobile spirometry service demonstrates how patients with respiratory problems can be diagnosed and referred to appropriate services, with major potential benefits to the patient and the Health service.

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Introduction

Early diagnosis of chronic obstructive pulmonary disease (COPD) can prevent decline into progressive debilitating respiratory failure [1]. Once diagnosed, treatment strategies (e.g. drug and oxygen therapy, specialist support, pulmonary rehabilitation and smoking cessation [2,3]) can control symptoms, reduce morbidity, and improve quality of life. Patients with severe disease create a burden on the NHS, with frequent GP consultations, high drug costs and hospital admissions [2,4].

COPD is under-diagnosed in primary care [5,6] where spirometry can be performed accurately [7] despite major problems [8,9]. These include: access to a spirometer; under-use of spirometry;

problems interpreting results; and a lack of training, support and expert advice [4].

This study evaluated a structured COPD diagnostic and management service provided by a trained Respiratory Specialist Nurse (RSN) experienced in practice nursing.

Methods

The following were offered to 14 general practices randomly selected from all practices in Plymouth known to own a spirometer:

- Practice staff education (spirometry, data interpretation, COPD management)
- Spirometry clinics offering bronchodilator and steroid reversibility assessments (BTS² and GOLD³).

Spirometry results were interpreted by the RSN and a 'respiratory special interest' GP (RJ) who provided diagnoses, management advice

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Table 1 Summary of reasons for declining specialist service.

Reasons given for declining spirometry service	Number of practices
Already well organised	3
Failed to respond to reminders and calls	3
Time constraints	1

and individual recommendations for services e.g. smoking cessation, pulmonary rehabilitation, physiotherapy and respiratory specialist nurses, to the practices.

Results

Of 14 practices approached, seven accepted the service. Table 1 shows the reasons for declining the service.

Only 6% of patients had normal spirometry, and many new cases of COPD were diagnosed, often at a late stage. Tables 2 and 3 summarise the patient diagnoses and assessment outcomes respectively.

Practices and patients reported high levels of satisfaction and wanted the service to continue. Most nurses were more confident performing spirometry, although only half were more confident interpreting results. The total cost of the study was approximately £6189. After deduction of set-up expenses the cost was £107 per new patient diagnosed with COPD.

Discussion

Some practices with spirometers lacked a structured approach to COPD management, and lacked

Table 3 Summary of patient assessment outcomes.

Patient assessment outcome	Number of patients
Current cigarette smokers	22
Requested information about disease	65
Poor inhaler technique	52
Required referral to Consultant	25
Required referral for pulmonary rehabilitation	20

the skills, confidence and time to treat breathless patients appropriately. Despite appropriate services being available, a large number of symptomatic COPD patients lacked any effective care, and had a very poor quality of life [10].

Spirometry is required for the accurate diagnosis and monitoring of COPD. Quality markers for the GMS contract [11] include diagnosis using spirometry (with reversibility testing), regular review, and smoking status/cessation advice. However, despite the consequent increase in the amount of spirometry taking place in practices, the benefits to the patient and the health service are questionable if the test is not correctly performed and accurately interpreted.

Access to spirometry services varies considerably but problems are common to all regions. In this study, an external nurse-led service was well-received, suggesting that highly trained staff providing a consistent approach may prove beneficial to patients and health professionals alike.

This was a small three-month study of seven practices in Plymouth. It is possible that had the study run for longer, referral patterns may have changed and the consequence of education within the practice may have changed the need for the service. This aspect requires further study.

Table 2 Summary of patient diagnoses.

Diagnosis/Spirometry results	Practice number							No. of patients
	1	2	3	4	5	6	7	
Normal lung function		1					5	6
Lung restriction							5	5
Asthma	1	1	3	3	1	7	3	19
Chronic obstructive pulmonary disease								(68)
Mild COPD	1	2		8	1	4	9	25
Moderate COPD		3		1	2	2	8	16
Severe COPD	1	4	1	4	1		16	27
Total number of patients	3	11	4	16	5	13	46	98

Conclusions

This well-received, inexpensive, peripatetic service enabled the diagnosis and treatment of many new cases of COPD.

References

- [1] Fletcher C, Peto R. The natural history of chronic airflow obstruction. *BMJ* 1977;1:1645–8.
- [2] British Thoracic Society. Guidelines for the management of chronic obstructive pulmonary disease. *Thorax* 1997;52:S1–28.
- [3] Pauwels RA, Buist S, Calverley PM, Jenkins CR, Hurd SS. Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease. NHLBI/WHO Global Initiative for Chronic Obstructive Lung Disease (GOLD) Workshop summary. *Am J Respir Crit Care Med* 2001;163:1256–76.
- [4] Britton M. The burden of COPD in the U.K.: results from the Confronting COPD survey. *Respir Med* 2003;97(Suppl C):71–9.
- [5] Renwick DS, Connolly MJ. Prevalence and treatment of chronic obstructive airways disease in adults over the age of 45. *Thorax* 1996;51:164–8.
- [6] Van Schayck CP, Loozen J, Wagena E, et al. Detecting patients at high risk of developing chronic obstructive airways disease in general practice: a cross sectional case finding study. *BMJ* 2002;1370–4.
- [7] Schermer TR, Jacobs JE, Chavannes NH, et al. Validity of spirometric testing in a general practice population of patients with chronic obstructive pulmonary disease (COPD). *Thorax* 2003;59:861–6.
- [8] Jones RCM, Freegard S, Reeves M, Hanney K, Dobbs F. The role of the practice nurse in the management of COPD. *Prim Care Resp J* 2001;10:106–8.
- [9] Eaton T, Withy S, Garrett J, et al. Spirometry in primary care practice. *Chest* 1999;116:416–23.
- [10] Jones PW. Health status measurement in chronic obstructive pulmonary disease. *Thorax* 2001;56:880–7.
- [11] Department of Health. Investing in General Practice, The New General Medical Services Contract. 2003. www.doh.gov.uk/gmscontract.

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