

# Community-based recruitment of patients with COPD into clinical research

**Abstract** Identifying subjects for clinical trials is difficult and the evidence base for recruitment strategies is limited, particularly in the field of COPD. We compared the efficiency and patient characteristics of different community-based recruitment strategies during a non-commercial COPD trial in the UK. Recruiting from general practice COPD registers was less efficient and identified patients with significantly milder disease than recruiting through pulmonary rehabilitation and patient groups. We report our experience and propose that pulmonary rehabilitation and patient groups may represent an enriched pool of COPD patients to recruit into clinical trials.

**Trial registration number:** EudraCT 2011-001063-43

## INTRODUCTION

Recruitment of patients into clinical trials is challenging and many publicly funded trials in the UK miss their targets.<sup>1</sup> Many studies investigating COPD may wish to recruit from patient groups or primary care; however, in contrast to the low rates reported by recent large interventional trials (eg, 7%<sup>2</sup>), evidence suggests that patients on UK general practice (GP)

databases do not fulfil diagnostic criteria for COPD when retested.<sup>3</sup> Optimal strategies for recruiting these patients have not been adequately explored.

## METHODS

### Recruitment pathways

Three approaches were used during recruitment of subjects to a recent non-commercial trial of oral antibiotics in stable COPD.

1. Local GP surgeries wrote to patients on their COPD register, and interested patients replied directly to the study team using preaddressed reply slips.
2. Similarly, local pulmonary rehabilitation (PR) groups wrote to COPD patients on their database.
3. Study team members gave educational talks to local PR and patient support groups, and at the end described current research plans. Interested patients approached the study team directly.

Centres were reimbursed for sending letters according to standard research tariffs.

### Screening

Interested patients were contacted and a screening visit arranged which included a full medical history and postbronchodilator spirometry. Patients were considered eligible if COPD was confirmed with FEV<sub>1</sub> <80% predicted and FEV<sub>1</sub> to FVC ratio <0.7.

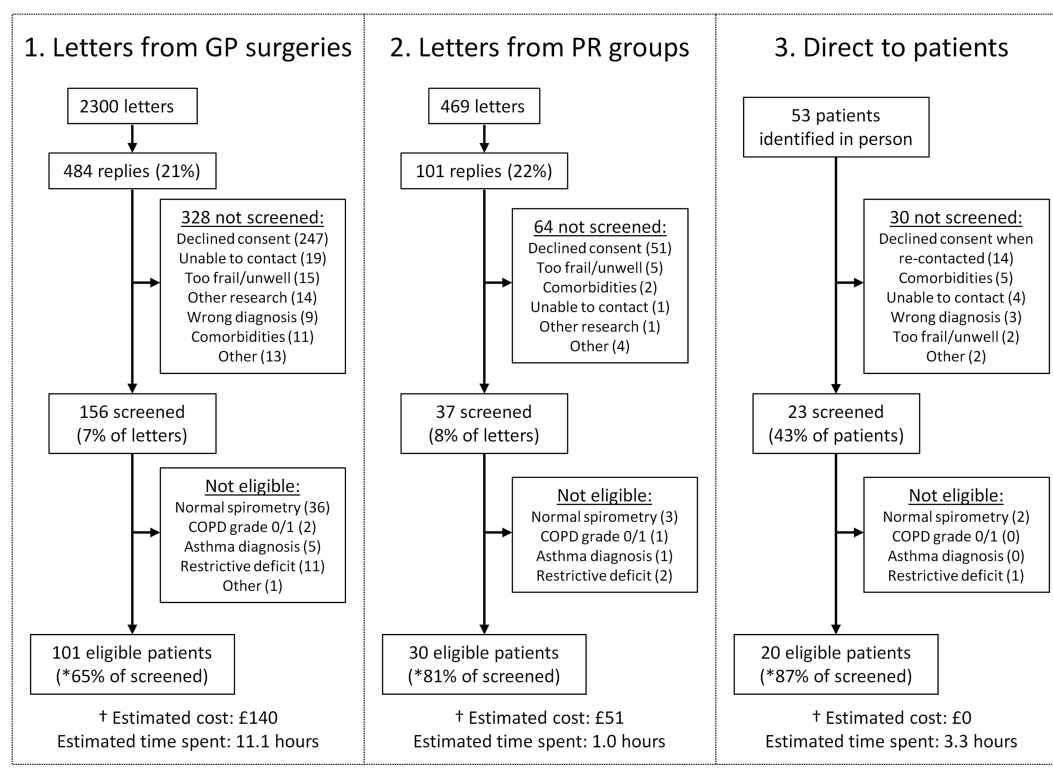
## Analysis

The efficiency of identifying eligible patients was assessed by comparing the reply and screening failure rates. External time and financial costs were estimated per eligible patient identified, excluding researcher salaries. Patient characteristics were compared by recruitment source.

## RESULTS

Between January 2012 and May 2013, 37 GP surgeries and four PR groups sent letters to 2300 and 469 patients, respectively. Reply rates were similar from both sources (21% and 22%) and 156 (7%) and 37 (8%) of these patients attended screening. The educational talks identified 53 patients, of whom 23 (43%) were screened. Approaches 1 and 2 had screen failure rates of 35% and 19%, while approach 3 had the lowest (13%). Figure 1 summarises these pathways and gives information on the estimated time and financial commitments per eligible patient identified.

Eligible patients recruited from GP surgeries had significantly milder disease than those from PR and patient groups (mean (SD) FEV<sub>1</sub> 63% predicted (20) vs 53% (18,  $p=0.003$ ), FEV<sub>1</sub> to FVC ratio 0.55 (0.11) vs 0.50 (0.11,  $p=0.007$ ), exacerbations in the previous year 1.7 (2.0) vs 2.7 (3.4,  $p=0.029$ ), as well as lesser smoking history and fewer medication



\*significant association between referral source and eligibility at screening ( $\chi^2$  test,  $p=0.025$ )

† time and cost estimates expressed per eligible patient, excluding researcher salaries

**Figure 1** Flow diagram detailing the three different recruitment pathways.

prescriptions. Further information is detailed in the online supplement.

## DISCUSSION

We found that recruiting patients from GP COPD databases was less efficient, more costly, and identified patients with milder disease than through PR and patient groups. However, the pool of patients accessible via GPs was larger and more representative of the wider population. Recruitment via PR and patient groups may therefore target an enriched population useful for smaller studies, and researchers planning future studies of COPD should prioritise resources accordingly.

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**Contributors** SEB, EE-E, GCD, IN and JAW planned the study and recruitment strategies and wrote the protocols and materials. SEB, EE-E and JPA contacted the individual patient identification centres to organise recruitment. SEB and JPA gave the talks to the patient

groups, contacted and screened the patients and collected the data. SEB wrote the first draft and performed the main data analysis. All authors contributed to the data interpretation and to the writing of the paper. All authors approved the final draft. JAW will act as guarantor.

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## **ONLINE SUPPLEMENT**

### **Research Letter: Community-based recruitment of patients with COPD into clinical research**

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## **METHODS: FURTHER DETAIL**

### **The study**

The trial to which recruitment took place was a single-centre, single-blind, randomised controlled study of three antibiotics and placebo in stable COPD, with the primary endpoint of reduced bacterial numbers in sputum as assessed by quantitative culture. The recruitment target was 200 patients.

The trial was registered with the European Clinical Trials Database (EudraCT no. 2011-001063-43). Ethical approval was obtained from King's College Hospital Regional Ethics Committee in September 2011 (reference 11/LO/0932) and all participants gave informed consent before taking part.

### **Recruitment strategies**

#### **1. Sending letters to patients on GP COPD registers**

The Primary Care Research Network (PCRN) wrote to surgeries in the local North London area outlining the study and asking for centres to participate. Those in agreement, and others contacted directly by the study team, were asked to send out letters to all eligible patients on their COPD lists. Written guidance and materials were provided. The invitation letters to patients contained the patient information sheet and a pre-paid pre-addressed reply slip to the study team, and interested patients were contacted by telephone for screening. The GP surgeries were reimbursed (up to £500 per practice) according to standard local tariffs via the North Central London Research Consortium (NoCLoR). Patients were not paid for participation but taxi transport to and from all study visits was offered.

#### **2. Sending letters to patients via local pulmonary rehabilitation (PR) groups**

Local PR providers were asked to send letters (as above) to patients with a COPD diagnosis who had completed a PR course within the last 18 months. Written materials and reimbursement were again provided.

#### **3. Recruiting patients face-to-face from patient groups and pulmonary rehabilitation**

A research doctor from the study team (SEB/JPA) regularly attended pulmonary rehabilitation sessions and meetings of local patient groups. Education was provided as part of their scheduled programme and the research project was also discussed at the end. Any interested patients were given further information about the study (the patient information sheet). After sufficient time had been given (minimum 24 hours) the patient was contacted and arrangements made for screening.

## **Inclusion and Exclusion Criteria**

For the purposes of this analysis of the recruitment process, patients were deemed eligible if COPD was confirmed, based on a post-bronchodilator FEV1/FVC ratio  $<0.7$  and a FEV1 of  $<80\%$  predicted with a minimum 10 pack-year smoking history and without other obstructive lung disease. These minimal criteria were chosen since they are widely used and are thus applicable to other researchers in the field. There were further inclusion and exclusion criteria applied before patients were enrolled into this specific study.

## **Statistical Analysis – further detail**

We assessed the efficiency of identifying eligible patients by comparing the reply rates and screening failure rates of the three strategies. Time commitments were calculated for each method by estimating the total number of hours spent specifically on those recruitment activities. Associated extra financial costs were calculated using the mean amount claimed per centre (at the time of writing not all centres had completed invoicing) multiplied by the number of centres that participated; researchers' salaries and travel expenses were not included. These totals were expressed per eligible patient identified.

The characteristics of eligible patients in the three groups were compared using one-way ANOVA with post-hoc comparisons; patient characteristics in the second two groups (by letter or in person from PR/patient groups) were the same (data not shown). These groups were therefore combined and compared to those recruited through GP surgeries in terms of disease characteristics, using independent-samples t-tests for parametric data and chi-squared tests for binary outcome data.

## RESULTS: FURTHER DETAIL

**Table 1: Characteristics of eligible patients at screening, by recruitment source**

	Recruited via letters from GPs (n=101)	Recruited via PR and patient groups (n=50)*	P value for comparison (independent samples t-test unless stated)
Mean age(Years) (SD):	<b>70</b> (10)	<b>70</b> (7)	0.805
% male:	<b>70</b>	<b>62</b>	0.369†
Mean smoking history (pack years )(SD):	<b>42</b> (31)	<b>55</b> (38)	<b>0.049</b>
Mean FEV1 % predicted (SD):*	<b>63</b> (20)	<b>53</b> (18)	<b>0.003</b>
Mean FEV1/FVC ratio (SD):*	<b>0.55</b> (0.11)	<b>0.50</b> (0.11)	<b>0.007</b>
Mean recalled exacerbation frequency in previous year (SD):	<b>1.7</b> (2.0)	<b>2.7</b> (3.4)	<b>0.029</b>
Mean number of inhaler prescriptions (SD)	<b>2.0</b> (1.1)	<b>2.6</b> (0.7)	<b>0.002</b>

\*directly and by letter

†Chi-squared test for proportions

**Table 2: Breakdown of time and cost estimates, by recruitment method**

Letters from GP surgeries (n=37)		Letters from PR groups (n=4)		Direct to patients (25 sessions attended)	
Time commitments/hours					
Contacting, enrolling and training surgeries	1040 hours (6 months FTE)	Enrolling and training PR groups	22	Arranging and attending sessions (incl. travel)	60.5
Contacting patients*	86	Contacting patients*	9.25	Contacting patients*	5.75
Total	1126	Total	31.25	Total	66.25
Financial costs/£ sterling, excluding any salary or transport costs					
Per surgery**	£382	Per PR group	£382	Per group	N/A
Total	£14,134	Total	£1,528	Total	0
Time and cost estimates per eligible patient identified					
Time, hours	11.1	Time, hours	1.0	Time, hours	3.3
External costs	£140	External costs	£51	External costs	0

\*Contacting patients and arranging screening: 15 minutes estimated per patient screened

\*\*At the time of writing not all centres had completed invoicing; estimates are based on the mean amount claimed per surgery/PR group