### Supplementary tables and figures

**Table S1 Search terms**

<table>
<thead>
<tr>
<th>Population</th>
<th>AND</th>
<th>Index test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td></td>
<td>Case finding</td>
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<td>OR</td>
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<td>Chronic obstructive airways disease</td>
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<td>OR</td>
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<td>Screening</td>
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<td>Chronic obstructive lung disease</td>
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<td>OR</td>
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<td>Early detection</td>
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<td>COPD</td>
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<td>OR</td>
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<td>Secondary prevention</td>
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<td>COAD</td>
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<td>OR</td>
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<td>OR</td>
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<td>Spirometry</td>
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<td>Emphysema</td>
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<td>OR</td>
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<td>OR</td>
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<td>Questionnaire</td>
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<td>Chronic bronchitis</td>
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<td>OR</td>
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<td>Peak flow</td>
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<td>Airflow obstruction</td>
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<td>OR</td>
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<td>Chest X-ray</td>
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<td>Airflow limitation</td>
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<td>Decision aid</td>
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<td>Algorithm</td>
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<td>Sensitivity</td>
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<td>OR</td>
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<td>Specificity</td>
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<tr>
<td>Domain 1: Patient selection</td>
<td>Signalling question</td>
<td>Signalling question</td>
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<tr>
<td>Patient selection</td>
<td>Was a consecutive or random sample of patients enrolled?</td>
<td>Was a case-control design avoided?</td>
</tr>
<tr>
<td>Yes: If all consecutive or random samples of subjects were enrolled.</td>
<td>Yes: If the study was not a case control design.</td>
<td>Yes: If there were no inappropriate exclusion criteria.</td>
</tr>
<tr>
<td>No: If subjects were non-randomly selected.</td>
<td>No: If the study had a case control design.</td>
<td>No: If subjects were excluded based on inappropriate criteria such as presence of depression.</td>
</tr>
<tr>
<td>Unclear: If sampling method was unclear.</td>
<td>Unclear: If the study design was unclear.</td>
<td>Unclear: If selection criteria were unclear.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Domain 2: Index test</th>
<th>Signalling question</th>
<th>Signalling question</th>
<th>Risk of bias</th>
<th>Concerns about applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index test</td>
<td>Were the index test results interpreted without knowledge of the results of the reference standard?</td>
<td>If a threshold was used, was it pre-specified?</td>
<td>Could the conduct or interpretation of the index test have introduced bias?</td>
<td>Are there concerns that the index test, its conduct, or interpretation differ from the review question?</td>
</tr>
<tr>
<td>Yes: If the index test results were interpreted without knowledge of the spirometry results.</td>
<td>Yes: If the threshold for a positive test result was pre-specified.</td>
<td>Low risk: If all signalling questions answered 'yes.'</td>
<td>Low concern: If the index test was performed as described in the review question.</td>
<td></td>
</tr>
<tr>
<td>No: If the index test results were interpreted with knowledge of the spirometry</td>
<td>No: If the threshold for a positive test result was not pre-specified.</td>
<td>High or unclear risk: If 'no' was reported for at least one signalling question.</td>
<td>High concern: If the index test differed from those specified in the review question.</td>
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</tr>
<tr>
<td>Signalling question</td>
<td>Signalling question</td>
<td>Signalling question</td>
<td>Risk of bias</td>
<td>Concerns about applicability</td>
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<tr>
<td>results.</td>
<td>unclear from the report.</td>
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<tr>
<td>Unclear: If it was unclear whether index test results were interpreted independently of spirometry results.</td>
<td>Unclear: If it was unclear from the report.</td>
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</tbody>
</table>

**Domain 3: Reference standard**

**Reference standard**

Is the reference standard likely to correctly classify the target condition?

Were the reference standard results interpreted without knowledge of the results of the index test?

Could the reference standard, its conduct, or its interpretation have introduced bias?

Are there concerns that the target condition as defined by the reference standard does not match the review question?

| Yes: If quality controlled spirometry was used.                                  | Yes: If spirometry results were interpreted without knowledge of the index test results. | Low risk: If all signalling questions answered 'yes.'                               | Low concern: If quality controlled spirometry was used.                      |
| No: If spirometry was performed without adequate quality control.                | No: If spirometry results were interpreted with knowledge of the index test results.     | High or unclear risk: If 'no' was reported for at least one signalling question.       | High concern: If quality controlled spirometry was not used.                 |
| Unclear: If it was unclear from the report whether spirometry quality control procedures had been implemented. | Unclear: If this was not clear from the report.                                        |                                                                                      | Unclear concern: If insufficient information was provided in the report on spirometry quality control. |

**Domain 4: Flow and timing**

**Flow and timing**

Was there an appropriate interval between the index test and reference standard?

Did all patients receive the reference standard?

Were all patients included in the analysis?

Could the patient flow have introduced bias?

<p>| Yes: If the time between the index and reference tests were less than six months. | Yes: If all eligible subjects received spirometry.                                   | Low risk: If all signalling questions answered 'yes.'                               | Low risk: If all signalling questions answered 'yes.'                           |
| No: If the time between the index and reference tests were greater than six months. | No: If not all eligible                                                               | High or unclear risk: If all signalling questions answered 'yes.'                   | High or unclear risk: If all signalling questions answered 'yes.'               |</p>
<table>
<thead>
<tr>
<th>Signalling question</th>
<th>Signalling question</th>
<th>Signalling question</th>
<th>Risk of bias</th>
<th>Concerns about applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>index and reference tests were longer than six months. Unclear: If this was unclear from the report.</td>
<td>subjects received the reference standard. Unclear: If this was not clear from the report.</td>
<td>No: If not all recruited subjects with index test results were included in the analysis. Unclear: If this was unclear from the report.</td>
<td>‘no’ was reported for at least one signalling question.</td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Setting</td>
<td>Recruitment method</td>
<td>Eligibility criteria</td>
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</table>
| Buffels    | Belgium   | 20 general practitioners                   | Invited patients routinely attending general practice over a 12 week period in 1999. | Inclusion criteria: Age 35-70 years  
Exclusion criteria: Receiving bronchodilators and/or inhaled corticosteroids                                                                                      | Index test: Screening questionnaire  
Reference test: Pre-BD spirometry in all subjects with respiratory symptoms and 10% sample of asymptomatic subjects | Pre-BD FEV₁/FVC<88.5% predicted for men & FEV₁/FVC<89.3% for women                                                             |
| 2004       |           |                                            |                                                                                    |                                                                                                                                                                                                                          |                                                                                                                                                                                                 |
| Duong-     | Vietnam   | 12 primary care medical centres in one city | Broadcast an advertisement on the local television daily for one week. A recruitment company was used to help with participant recruitment (details not reported). Eligible subjects expressing an interest in participating were advised to attend one of the 12 primary care centres from January 2007 to February 2008. | Inclusion criteria: Active and former smokers with >10 pack-years and aged >40 years  
Exclusion criteria: Previously diagnosed respiratory disease (asthma, COPD and tuberculosis)                                         | Index test: Pre-BD handheld flow meter (Piko-6®)  
Reference test: Full medical assessment including clinical examination, pulmonary radiology, ECG, and post-BD spirometry for those who had an index FEV₁/FEV₆<0.7 and a sample of those with FEV₁/FEV₆≥0.7 | Post-BD FEV₁/FVC<0.7 with <200mL or 12% reversibility                                                                                      |
| Quy 2009   |           |                                            |                                                                                    |                                                                                                                                                                                                                          |                                                                                                                                                                                                 |
| Freeman    | UK        | One general practice                       | Postal invitation from October 1997 to April 2002.                                  | Inclusion criteria: Age ≥40 years & current/ex-smoker & had either received respiratory medications in the preceding 2 years or had a history of asthma  
Exclusion criteria: None                                                                                                                          | Index test: Screening questions  
Reference test: Pre-/ post-BD spirometry on all subjects                                                                                       | Post-BD FEV₁/FVC<0.7 and lack of reversibility (reversibility defined as increase in FEV₁ of 200mL and 15% from pre-BD FEV₁ (not clear if all were post-BD) |
| 2005       |           |                                            |                                                                                    |                                                                                                                                                                                                                          |                                                                                                                                                                                                 |

**Table S3 Characteristics of included studies**

**Study**  
Buffels 2004  
Duong-Quy 2009  
Freeman 2005  
China 2010

**Country**  
Belgium  
Vietnam  
UK  
China

**Setting**  
20 general practitioners  
12 primary care medical centres in one city  
One general practice  
Multiple general practices

**Recruitment method**  
Invited patients routinely attending general practice over a 12 week period in 1999.  
Broadcast an advertisement on the local television daily for one week. A recruitment company was used to help with participant recruitment (details not reported). Eligible subjects expressing an interest in participating were advised to attend one of the 12 primary care centres from January 2007 to February 2008.  
Postal invitation from October 1997 to April 2002.

**Eligibility criteria**  
Inclusion criteria: Age 35-70 years  
Exclusion criteria: Receiving bronchodilators and/or inhaled corticosteroids  
Inclusion criteria: Active and former smokers with >10 pack-years and aged >40 years  
Exclusion criteria: Previously diagnosed respiratory disease (asthma, COPD and tuberculosis)  
Inclusion criteria: Age ≥40 years & current/ex-smoker & had either received respiratory medications in the preceding 2 years or had a history of asthma

**Index and reference tests**  
Index test: Screening questionnaire  
Reference test: Pre-BD spirometry in all subjects with respiratory symptoms and 10% sample of asymptomatic subjects  
Index test: Pre-BD handheld flow meter (Piko-6®)  
Reference test: Full medical assessment including clinical examination, pulmonary radiology, ECG, and post-BD spirometry for those who had an index FEV₁/FEV₆<0.7 and a sample of those with FEV₁/FEV₆≥0.7  
Index test: Screening questions  
Reference test: Pre-/ post-BD spirometry on all subjects

**Definition of COPD**  
Pre-BD FEV₁/FVC<88.5% predicted for men & FEV₁/FVC<89.3% for women  
Post-BD FEV₁/FVC<0.7 with <200mL or 12% reversibility  
Post-BD FEV₁/FVC<0.7 and lack of reversibility (reversibility defined as increase in FEV₁ of 200mL and 15% from pre-BD FEV₁ (not clear if all were post-BD)
<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Setting</th>
<th>Recruitment method</th>
<th>Eligibility criteria</th>
<th>Index and reference tests</th>
<th>Definition of COPD tests</th>
</tr>
</thead>
</table>
| Frith 2011| Australia | 4 primary care practices    | Recruited during routine practice visits, invitation to study days, and local newspaper advertisement between August and December 2006. | Inclusion criteria: Age ≥50 years & current/ex-smoker & no prior diagnosis of obstructive lung disease (COPD, emphysema, chronic bronchitis, asthma) & no treatment for obstructive lung disease in past 12 months  
Exclusion criteria: Refusal or inability to give consent, pre-existing non-obstructive lung disease, symptoms suggestive of unstable heart disease, and spirometry contraindications | Index test: Pre-BD handheld flow meter (Piko-6®) & screening questionnaire (COPD Diagnostic Questionnaire)  
Reference test: Pre-/ post-BD spirometry on all patients | Post-BD FEV1/FVC<0.7 |
| Hanania 2010 | US       | Two family physician group offices | Invited patients aged ≥40 years visiting the practices from March-May 2008 | Inclusion criteria: Age ≥40 years  
Exclusion criteria: None | Index test: Screening questionnaire (Lung Function Questionnaire)  
Reference test: Pre-BD spirometry | Pre-BD FEV1/FVC<0.7 |
<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Setting</th>
<th>Recruitment method</th>
<th>Eligibility criteria</th>
<th>Index and reference tests</th>
<th>Definition of COPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kotz</td>
<td>Netherlands</td>
<td>General population and primary care practices</td>
<td>Advertisements in a local newspaper, flyers, posters and mailings to households and invitation during primary care consultations from Jan 2005-Dec 2006.</td>
<td>Inclusion criteria: Age 40-70 years &amp; current smoker with ≥10 pack years &amp; motivated to stop smoking &amp; able to read and speak Dutch &amp; reporting a respiratory symptom (cough, phlegm or dyspnoea)</td>
<td>Index test: Questionnaire (COPD Diagnostic Questionnaire)  &lt;br&gt; Reference test: Pre-/post-BD spirometry in all participants</td>
<td>Post-BD FEV₁/FVC&lt;0.7</td>
</tr>
<tr>
<td>Mintz</td>
<td>US</td>
<td>36 primary care centres</td>
<td>NR</td>
<td>Inclusion criteria: Age ≥30 years old &amp; current/ex- smoker with ≥10 pack years  &lt;br&gt; Exclusion criteria: Regular use of respiratory medications within 4 weeks of the study, known diagnosis of substantial lung conditions with regular use of respiratory medications.</td>
<td>Index test: Screening questionnaire (Lung Function Questionnaire)  &lt;br&gt; Reference test: Pre-/ post-BD spirometry</td>
<td>LFQ≤18 &amp; post-BD FEV₁/FVC&lt;0.7</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Setting</td>
<td>Recruitment method</td>
<td>Eligibility criteria</td>
<td>Index and reference tests</td>
<td>Definition of COPD tests</td>
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</tbody>
</table>
| Price  | UK & US    | 2 primary care practices | Postal invitation                 | **Inclusion criteria:** Age ≥40 years & current/ex-smoker  
**Exclusion criteria:** Refusal to consent, history of non-obstructive lung disease, use of respiratory medications in past year, acute symptoms of unstable heart disease | **Index test:** Screening questionnaire (COPD Diagnostic Questionnaire)  
**Reference test:** Pre-/post-BD spirometry | Post-BD FEV₁/FVC<0.7 |
|        |            |                          |                                   |                                                                                                                                                                                                                      |                                                                                               |                          |
| Sichletidis | Greece     | 25 general practices    | Invited first 50 patients meeting the inclusion criteria who visited each participating GP from 1st March–31st May 2009. | **Inclusion criteria:** Age >40 years  
**Exclusion criteria:** Confirmed diagnosis of lung disease, thoracic surgery in previous 6 months, acute respiratory infection, uncontrolled cardiac disease, or could not perform acceptable spirometry | **Index tests:**  
1. Screening questionnaire (International Primary Airways Group Questionnaire, also known as the COPD Diagnostic Questionnaire)  
2. Post-BD handheld flow meter (Piko-6®)  
(Bronchodilator=400µg salbutamol)  
**Reference test:** Pre-/post-BD spirometry | Post-BD FEV₁/FVC<0.7 |
| Thorn  | Sweden     | 21 primary healthcare centres | Invited patients attending participating primary healthcare centres over a 5 month period. | **Inclusion criteria:** Age 45-85 years & current/ex-smoker with ≥15 pack years  
**Exclusion criteria:** None | **Index test:** Pre-BD handheld flow meter (COPD-6)  
**Reference test:** Pre-/post-BD spirometry | Post-BD FEV₁/FVC<0.7 |

BD=bronchodilator, FEV₁=forced expiratory volume in one second, FEV₆=forced expiratory volume in 6 seconds, FVC=forced vital capacity, NR=not reported
## Table S4 Results: studies evaluating screening questionnaires

<table>
<thead>
<tr>
<th>Study</th>
<th>Population</th>
<th>Screening questionnaire</th>
<th>Spirometry (reference test)</th>
<th>Number screened</th>
<th>New COPD cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buffels 2004</strong></td>
<td>Eligible: 3158 Invited: 3158 Attended: 3158</td>
<td>Data on subjects who underwent spirometry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean age: NR Male: 45% Smoking status Current: 30.7% Former: 18.1% Never: 50.1%</td>
<td>Items</td>
<td>Device: Spirobank spirometer with Winsiro software Bronchodilator: None Operator: GPs who had received 12 hours of training Standard: NR Quality control: Technical support was provided to GPs throughout the study. Accuracy of GP-performed spirometry was compared to that from a lab technician.</td>
<td>Index test</td>
<td>Subjects with positive index test: 126/703 (17.9%) Subjects with negative index test: 9/222 (4.1%)</td>
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<tr>
<td></td>
<td></td>
<td>Cough &gt;2 weeks Dyspnoea during mild exercise/at night Nasal allergy/hay fever Visit to doctor for wheeze or chronic cough</td>
<td></td>
<td>Index test Total: 3158 Positive: 728 Reference test (spirometry) Total: 703 with positive index test and 222 with negative index test. Acceptable quality: NR</td>
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<tr>
<td></td>
<td></td>
<td>≥1 symptom</td>
<td></td>
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</tr>
<tr>
<td>Freeman 2005</td>
<td>Eligible: 1195 Invited: 1195 Attended: 624</td>
<td>Data on subjects who performed spirometry</td>
<td>Device: Micro-Med handheld spirometer with Spida software Bronchodilator: 5mg salbutamol for those with prior respiratory medication or history of asthma or FEV₁ &lt;80% predicted Operator: Trained respiratory nurse Standard: ATS standards. Minimum of 3 tests or until reproducibility within 5%. Quality control: All spirometry results were reviewed by a physician to ensure compliance with ATS standards.</td>
<td>Index test</td>
<td>62/369 (16.8%)</td>
</tr>
<tr>
<td></td>
<td>Mean age: 61.7 Male: 52% Smoking status Current: 54.1% Former: 45.9%</td>
<td>Items</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Age Smoking status Pack-years Cough Dyspnoea Wheeze</td>
<td></td>
<td>Index test Total: 369 Positive: 121* (multiple response questionnaire), 142* (binary response questionnaire) Reference test (spirometry) Total: 369 Acceptable quality: NR</td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Population</td>
<td>Screening questionnaire</td>
<td>Spirometry (reference test)</td>
<td>Number screened</td>
<td>New COPD cases</td>
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</tr>
<tr>
<td>Frith 2011</td>
<td>Eligible: 233 Invited: 237 Attended: 237 Data on subjects with acceptable spirometry Mean age: 61 Male: 69% Smoking status Current: 45% Former: 55% Never: &lt;1%</td>
<td>COPD diagnostic questionnaire (CDQ) Items See Price 2006 (below) Thresholds: Score ≥19.5, ≥16.5</td>
<td>Device: EasyOne spirometer (ndd Medical) Bronchodilator: 360mcg salbutamol Operator: trained operators using ATS/ERS guidelines Standard: ATS/ERS standards. At least 3 adequate baseline and post-BD FVC manoeuvres performed. Quality control: spirometry quality monitored by a respiratory physiologist blinded to the questionnaire and Piko-6® results.</td>
<td>Index test Total: 233 Positive: 110* (threshold ≥19.5), 165* (threshold ≥16.5) Reference test (spirometry) Total: NR Acceptable quality: 204</td>
<td>57/204 (27.9%) FEV₁ % predicted &gt;80%: 19 (33.3%) 50-80%: 35 (61.4%) 30-50%: 3 (5.3%) &lt;30%: 0</td>
</tr>
<tr>
<td>Hanania 2010</td>
<td>Eligible: NR Invited: NR Attended: 937 Data on subjects with acceptable spirometry and adequate data Mean age: NR Male: 38.1% Smoking status NR</td>
<td>Lung Function Questionnaire (LFO) Items: - Age - Cough - Wheeze - Dyspnoea - Smoking Threshold: Score ≤18</td>
<td>Device: EasyOne spirometer (ndd Medical) Bronchodilator: None Operator: NR Standard: NR Quality control: Investigators rated spirometry quality based on reliability and reproducibility. Only included traces considered reliable.</td>
<td>Index test Total: 937 Positive: 484* Reference test (spirometry) Total: 937 Acceptable quality: NR Analysed: 837</td>
<td>156/837 (18.6%) FEV₁ % predicted &gt;80%: 17 (11.5%) 50-80%: 76 (51.4%) 30-50%: 44 (29.7%) &lt;30%: 11 (7.4%) (NB. Reported numbers do not add up to 156)</td>
</tr>
<tr>
<td>Study</td>
<td>Population</td>
<td>Screening questionnaire</td>
<td>Spirometry (reference test)</td>
<td>Number screened</td>
<td>New COPD cases</td>
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<tr>
<td>Kotz 2008</td>
<td>Eligible: 1052 Invited: 1052 Attended: 826</td>
<td>COPD Diagnostic Questionnaire (CDQ) <strong>Items:</strong> See Price 2006 (below) <strong>Thresholds:</strong> Score $\geq 19.5$, $\geq 16.5$</td>
<td>Device: Vitalograph 2120 Bronchodilator: 500 µg terbutaline Operator: Two qualified research assistants under the supervision of a pulmonologist Standard: ATS/ERS standards Quality control: spirometry performed according to ATS/ERS standards. All spirometry test results were validated by a pulmonologist and specialised lung function laboratory assistant not involved in the trial—both were blinded to the questionnaire scores.</td>
<td>Index test Total: 1052 Analysed: 676 Positive: 549* (threshold $\geq 16.5$) 366* (threshold $\geq 19.5$) Reference test Total: 826 Acceptable quality: 716</td>
<td>278/676 (41.1%)</td>
</tr>
<tr>
<td>Mintz 2011</td>
<td>Eligible: 1724 Invited: 4956 Attended: 2284</td>
<td>Lung Function Questionnaire (LFQ) <strong>Items:</strong> Age, Cough, Wheeze, Dyspnoea, Smoking, Activity limitation <strong>Threshold:</strong> Score $\leq 18$</td>
<td>Device: Biomedical Systems, St Louis, MO Bronchodilator: 360µg albuterol Operator: Trained site staff Standard: ATS standards Quality control: Only data collected from acceptable spirometric manoeuvres were included. Patients producing unacceptable spirometry were allowed to repeat this within 7 days of the study visit.</td>
<td>Index test Total: 1575 Positive: 1216 Reference test (spirometry) Total: 1225 Acceptable quality: 849 (713 in subjects $\geq 40$ years)</td>
<td>162/713 (22.7%) (NB. restricted to subjects $\geq 40$ years)</td>
</tr>
<tr>
<td>Study</td>
<td>Population</td>
<td>Screening questionnaire</td>
<td>Spirometry (reference test)</td>
<td>Number screened</td>
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<tr>
<td>Price 2006</td>
<td>Eligible: NR Invited: 17,361 Attended: 898</td>
<td>COPD Diagnostic Questionnaire Items • Age • Pack-years • Weather-affected cough • Productive phlegm in absence of a cold • Early morning cough • Wheeze • Allergies</td>
<td>Device: EasyOne spirometer (ndd Medical) Bronchodilator: 2.5mg salbutamol/albuterol Operator: NR Standard: ATS standards Quality control: Principal investigators conducted blinded review of all spirometry loops. A pulmonologist not associated with the study reviewed all loops on which there was disagreement</td>
<td>Index test Total: 898 Positive: 267* (threshold ≥16.5) 446* (threshold ≥19.5)</td>
<td>155/818 (18.9%)</td>
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</tbody>
</table>

*Derived values (may differ from reported test performance)

BD=bronchodilator, NR=not reported, FEV$_1$=forced expiratory volume in 1 second, FVC=forced vital capacity, FEV$_6$=forced expiratory volume in 6 seconds
## Table S5 Results: studies evaluating handheld flow meters

<table>
<thead>
<tr>
<th>Study</th>
<th>Recruited population</th>
<th>Handheld flow meter</th>
<th>Spirometry (reference test)</th>
<th>Number screened</th>
<th>New COPD cases</th>
</tr>
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<tbody>
<tr>
<td><strong>Duong-Quy 2009</strong></td>
<td>Eligible: 2464 Invited: NR Attended: 2464 Data on subjects who undertook index test Mean age: 52 Male: 99.7% Smoking status Current: 88.9% Former: 11.1%</td>
<td>Pre-BD Piko-6® Operator: NR 3 manoeuvres were taken and the best of 3 selected. All measures where FEV₁/FEV₆ &gt; 1 were excluded. Threshold FEV₁/FEV₆ &lt; 0.7</td>
<td>Device: SpiroLab II Bronchodilator: short-acting β2 agonist (unspecified) Operator: NR Standard: Required at least 3 measures and at least 2 within 150mL to ATS/ERS standards. Quality control: NR</td>
<td>Index test Total: 2464 Positive: 324 Reference test (spirometry) Total: 144 subjects with positive index test and 123 with negative index test. Acceptable quality: NR</td>
<td>Subjects with positive index test: 136/144 (94.4%) Subjects with negative index test: 3/123 (2.4%) FEV₁ % predicted &lt;80%: 65 (47.8%) 50-79%: 63 (46.3%) 30-49%: 8 (5.9%) &lt;30%: 0</td>
</tr>
<tr>
<td><strong>Frith 2011</strong></td>
<td>Eligible: 233 Invited: 237 Attended: 237 Data on subjects with acceptable spirometry Mean age: 61 Male: 69% Smoking status Current: 45% Former: 55% Never: &lt;1%</td>
<td>Pre-BD Piko-6® Operator: Study nurse or GP Threshold FEV₁/FEV₆ &lt; 0.75 (optimal cut-point)</td>
<td>Device: EasyOne spirometer (ndd Medical) Bronchodilator: 360mcg salbutamol Operator: trained operators using ATS/ERS guidelines Standard: ATS/ERS standards. At least 3 adequate baseline and post-BD FVC manoeuvres performed. Quality control: spirometry quality monitored by a respiratory physiologist blinded to the questionnaire and Piko-6® results.</td>
<td>Index test Total: 233 Positive: 101* Reference test (spirometry) Total: NR Acceptable quality: 204</td>
<td>57/204 (27.9%) FEV₁ % predicted &gt;80%: 19 (33.3%) 50-80%: 35 (61.4%) 30-50%: 3 (5.3%) &lt;30%: 0</td>
</tr>
<tr>
<td>Study</td>
<td>Recruited population</td>
<td>Handheld flow meter</td>
<td>Spirometry (reference test)</td>
<td>Number screened</td>
<td>New COPD cases</td>
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<td>Sichletidis 2011</td>
<td>Eligible: 1250 Invited: 1250 Attended: 1250</td>
<td>Post-BD Piko-6® Bronchodilator: 400µg salbutamol Operator: GPs with 2 hours training Threshold Post-BD FEV₁/FEV₆&lt;0.7</td>
<td>Device: Vitalograph Bronchodilator: 400µg salbutamol Operator: Pulmonary specialists Standard: ATS/ERS standards Quality control: Spirometry performed and interpreted by pulmonary specialists according to ATS/ERS standards</td>
<td>Index test Total: 1250 Positive <em>: 104</em> (ever smokers) 137* (ever smokers &amp; non-smokers) Reference test (spirometry) Total: NR Acceptable quality: 1078</td>
<td>Ever smokers: 90/624 (14.4%) Ever smokers &amp; non-smokers: 111/1078 (10.3%) FEV₁ % predicted ≥80%:40 (36.0%) 50-80%:53 (47.7%) 30-50%:16 (14.4%) &lt;30%:2 (1.8%)</td>
</tr>
<tr>
<td>Thorn 2012</td>
<td>Eligible: NR Invited: NR Attended: 305</td>
<td>Pre-BD COPD 6® Operator: Nurses Threshold FEV₁/FVC&lt;0.73</td>
<td>Device: NR Bronchodilator: 0.5mg terbutaline Operator: Nurses Standard: ATS standards Quality control: Spirometry performed according to ATS standards. No other quality control measures reported.</td>
<td>Index test Total: 305 Positive: 106* Reference test (spirometry) Total:305 Acceptable quality: NR</td>
<td>77/305 (25.2%) FEV₁ % predicted ≥80%:35 (45.5%) 50-80%:41 (53.2%) 30-50%:1 (1.3%) &lt;30%:0</td>
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*Derived values (may differ from reported test performance)

*83* (smokers) and 109* (smokers & non-smokers) positive index tests when using a combination of the CDQ and handheld flow meter

BD=bronchodilator, NR=not reported, FEV₁=forced expiratory volume in 1 second, FVC=forced vital capacity, FEV₆=forced expiratory volume in 6 seconds
# Table S6: Quality of reporting

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Y=yes, N=no, U=unclear
Figure S1 Quality of reporting