Evaluation of case finding for COPD/asthma and management of poorly controlled asthma/COPD project

Wessex Academic Health Science Network

West Hampshire Clinical Commissioning Group

National Institute for Healthcare Research Collaboration for Leadership in Applied Health Research and Care (Wessex)
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Summary:

Key conclusions:

- The objectives of this project have been met by the efficiencies created through inter-organisational working and collaboration of resources and skills across primary and secondary care including commissioners.
- The complex clinics demonstrated how specialist expertise can be provided in primary care to benefit both patients and primary care practitioners without the need for extensive, expensive secondary care technologies.
- The Asthma Audit Tool (AAT) is an efficient and effective tool for identifying patients with poorly controlled asthma or at risk of deterioration needing minimal nurse-led filtering. Practices should be trained in performing searches using AAT.
- Case-finding for symptomatic but as yet undiagnosed respiratory conditions is important but needs to be as part of a process of ensuring early and accurate diagnosis with a clear plan for tailored management of each individual.
- GRASP-COPD is an efficient search both in terms of time and yield (proportion of patients seen to a proportion of patients with a diagnosis suggested) but requires significant modifications in order to make it fit-for-purpose without the inclusion of a nurse-led filter.
- The clinical project team had a balance of knowledge and skills across the spectrum of respiratory conditions, education and mentoring, primary care, secondary care and project management.

Key recommendations:

- Development of integrated respiratory services should include representation from primary and secondary care and ideally organisations that promote innovation across both.
- Accessible specialist respiratory support including both physicians and nurses should be located in or provided to primary care practices and patients and their carers.
- A generic invitation from the CCG to participate in future projects and service developments should be sent out to all practices in a locality rather than targeting specific practices in order to allow motivated practices to participate initially.
- Patients should be free to book an appointment at a time and date of their choosing within reason.
- Ensure that diagnostic parameters for identifying respiratory disease other than COPD are clearly defined.
- Ensure that the skill mix of the clinical team reflects the broad nature of respiratory conditions to account for all presenting patients and their potential diagnosis rather than focusing on COPD and/or asthma. The clinical team requires a broad skill mix including project management, education and mentoring and understanding of processes in primary and secondary care.
- GRASP-COPD may be used as a case-finding tool in preference to the manual search but modifications need to be made.
- The AAT is useful when identifying patients with poorly controlled asthma or at risk of deterioration and practices teams (clinical and IT) should be trained in using it. Community pharmacists are an effective resource to support practices in achieving this.
• The specialist clinical team should seek to create long-term relationships with partners in primary care to encourage education and mentoring, enabling the development of specialist skills including spirometry and the rapid uptake of new standards and innovations in practice.

• Respiratory Nurse Educators should be linked to specialist centres to ensure consistently high standards of education and care.
1 ‘Plan, Do, Study, Act’
This evaluation will use the ‘Plan, Do, Study, Act’ cycle of change, a commonly used quality improvement tool in healthcare in the United Kingdom (UK) to introduce, describe and evaluate this project.

http://www.institute.nhs.uk/quality_and_service_improvement_tools/quality_and_service_improvement_tools/plan_do_study_act.html
2 Plan:

2.1 Background:

2.1.1 National context:

2.1.1.1 Case-finding for Chronic Obstructive Pulmonary Disease (COPD)

Evidence suggests that there are an estimated 3.7 million people with COPD in the UK, yet only 900,000 people are diagnosed. Models of predicted prevalence of the condition suggest that there may be more than 2.8 million people undiagnosed. Early detection of COPD is complicated by the fact that 87% of the general public have never heard of COPD. Furthermore, opportunities for early diagnosis of COPD are frequently missed in primary care: evidence demonstrates 85% of patients had consulted their General Practitioner (GP) with lower respiratory symptoms in the five years immediately before their diagnosis.

National health policy initiatives in the UK advocate case-finding for COPD (i.e the early identification of patients with symptoms suggestive of COPD). Early diagnosis of COPD followed by optimisation of treatment has potential cost savings for the NHS of more than £1billion over 10 years. However, the most efficient and cost-effective methods of case-finding for COPD are unclear and there are no national directives on which strategy to use. A recent systematic review of the literature concluded that a combination of a symptom-based questionnaire (either sent to patients with risk factors for COPD or used opportunistically when they present to the surgery) and micro-spirometry (using a hand-held device) seems to demonstrate the best overall case-finding yield. This does mean that ‘at risk’ patients still have to be identified by primary care. Another approach to case-finding for COPD is an electronic review of GP practice databases to identify patients with symptoms suggestive of COPD who have not yet been diagnosed. National Health Service Improving Quality (NHSIQ) is promoting a suite of software called ‘GRASP’ developed by PRIMIS at the University of Nottingham. ‘GRASP-COPD’ is part of this suite, specifically designed to enable GP practices to audit their COPD population; which includes identifying people with undiagnosed COPD. This software is a potentially useful tool. It does not rely on patient response to self-reported questionnaires and is compatible with any GP clinical system (whether Vision, System One, EMIS etc) using a series of predefined READ code algorithms. However, there is no published evidence on its case finding yield. Despite the lack of evidence, a number of Clinical Commissioning Groups (CCGs) in Wessex (Portsmouth, Fareham and Gosport) have incentivised GRASP-COPD as a case finding tool.

2.1.1.2 Identifying patients with complex COPD and asthma

Respiratory disease is the third biggest cause of death in the UK, with approximately 800,000 patients dying annually. In 2010, the UK had the worst death rate for respiratory disease amongst the Organisation for Economic Co-operation and Development (OECD) countries. Evidence suggests that, annually, several thousand deaths from the two most common long-term respiratory conditions, COPD and asthma, are avoidable. There are significant variations in care across the country, for example, in 2010/11 in England, there was a six-fold variation in the rate of emergency

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READ codes are a hierarchical clinical coding system of more than 80,000 terms that are used by clinicians and administrative staff in general practice in the UK to code in real time the patient’s episode of care.
admissions for asthma in adults and a five-fold variation in the rate of emergency admission for COPD.

The National Review of Asthma Deaths (NRAD) published in 2014, highlighted how patients with asthma were still dying from avoidable causes, often owing to inappropriate clinical management.

2.1.2 Local context:
West Hampshire Clinical Commissioning Group (WHCCG), the Wessex Academic Health Sciences Network (WAHSN) and the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health and Care (CLAHRC) Wessex all identified earlier and improved diagnosis of Chronic Obstructive Pulmonary Disease (COPD) and asthma as an organisational priority. Before incentivising case-finding of COPD/asthma in their locality, WHCCG aimed to identify the most efficient and cost effective method of case-finding.

All three organisations also emphasised the importance of improving the management of these prevalent respiratory conditions by examining innovative models for managing complex asthma and COPD across the organisational silos between primary and secondary care.

2.2 Project objectives
The three organisations met to agree the objectives of the project. These were as follows:

1. What is the most effective method of identifying symptomatic but not yet diagnosed adult patients with COPD/asthma in primary care in West Hampshire?
2. What is the most effective way of identifying adult patients with complex COPD and/or asthma in primary care in West Hampshire?
3 Do

3.1 Methods:

3.1.1 Case-finding and Complex project

Once the objectives of the project had been agreed by all three organisations, the next step was to operationalise these objectives. The project steering committee, including representatives from the WHCCG, WAHSN and NIHR CLAHRC Wessex, agreed that two different clinics would be held at the patient’s own GP practice. First, a respiratory specialist nurse-led ‘case-finding’ clinic where symptomatic patients without a diagnosis would be invited to attend a 60-minute appointment. Full diagnostic spirometry and a respiratory assessment would be carried out at this clinic. The nurse would not make a definitive diagnosis but would suggest a potential diagnosis and recommend further treatment or investigations to the GP where appropriate. The nurse would provide treatment, such as smoking cessation advice, where clinically appropriate. Second, a ‘mentorship’ complex clinic. This would be a 60-minute appointment for patients with an existing diagnosis of COPD and/or asthma who were considered to be poorly controlled or at risk of deterioration. This would include:

- A 20-minute initial assessment by the respiratory nurse specialist
- A 20-minute assessment by a specialist respiratory physician (consultant respiratory physician or GP/academic with a special interest in respiratory), working alongside the clinical practice staff
- A 20-minute follow up education session with the respiratory nurse specialist

The project steering committee agreed governance arrangements at this point: the specialist respiratory team would be guests of the surgery and the clinical responsibility for the patient would remain with the GP.

A letter from the WHCCG Respiratory lead and lead for Long Term Conditions, inviting all 52 practices in West Hampshire to participate in the project was subsequently circulated in their weekly email communication. Monthly meetings for the project steering committee were arranged to ensure that the project was delivered within tight timescales of four months.

Two practices, Fordingbridge and Bursledon, responded to the invitation. One further practice responded but owing to time limitations, it was agreed to concentrate on the first two respondents. The third practice was instead offered a bespoke training package for COPD and asthma.

Fordingbridge practice is based in a market town, on the outskirts of the New Forest, serving a practice population of approximately 13,500. They have ten GPs, and at least two trainee doctors working in the practice. The nursing team includes three nurse practitioners, two practice nurses and three healthcare assistants. In contrast, Bursledon practice is based in the suburbs of Southampton serving a population of 3,500. They have one GP, one nurse practitioner, two practice nurses and one healthcare assistant.

The clinical project team (0.8wte Band 7 and 1.8wte Band 6 respiratory nurses with expertise in COPD and asthma management, education and mentoring, primary and secondary care and project management experience) met with the practice team including a GP, nurse and
manager/administrator (where possible) to agree the practice level objectives of the project. IT support from the practice for running electronic searches on their databases and to install and run GRASP-COPD/Asthma audit tool (AAT) was agreed. Administrative support from the practice in terms of sending out invitations to patients, booking patients into clinics and reminding patients of their appointment date and time was agreed at this stage. No direct financial incentives were offered to the practice, however, free membership of the Primary Care Respiratory Society was offered to both practices (normal cost £59).

With the IT support from the practices, the clinical project team undertook the electronic searches to identify patients with symptoms suggestive of COPD and/or asthma and to identify patients with poorly controlled COPD and/or asthma. At the same time, the clinical project team ensured that logistical details were addressed. These were as follows:

- Draft and agree (with steering group and practice team) patient invitation letters for complex and case finding clinics
- Agree equipment needed and identify where this would be sourced and stored
- Agree paperwork for clinics and patient referral method back to the GP
- Ensure all members of the clinical project team had access to and were familiar with the electronic patient records in each surgery (Systm1, EMIS)
- Agree and ratify Patient Group Directive and Patient Specific Directive for administration of salbutamol with pharmacy governance committee for nurse-led case-finding clinic
- Agree dates and book rooms for the ‘case-finding’ and ‘mentorship’ complex clinics
- Agree mentorship and education provision for practice
- Agree GP support with searches

### 3.1.2 Case-finding searches

The clinical project team developed manual case-finding searches based on broad criteria with the intention of comparing the case-finding yield against the yield of the bespoke GRASP-COPD and ATT searches.

#### 3.1.2.1 Bursledon

**3.1.2.1.1 Manual case-finding search**

In Bursledon, the small practice size allowed the clinical project team to keep the inclusion criteria for the manual case-finding searches as broad as possible. Patients had to meet all of the following criteria:

- Aged 35 and over
- Smoking history
- No previous asthma/COPD

This search was run electronically by the practice manager and required no input from the clinical project team. A total of 1,065 patients were identified. Each of the 1,065 were manually reviewed by the clinical project team and had to meet one or more of the following inclusion criteria to be included in the next stage of the search:
• Prescribed inhalers within the last 12 months
• Hospital admission owing to respiratory factors within the last 12 months
• Lower respiratory tract infection within the last 12 months or repeated lower respiratory tract infections within the last five years
• Symptomatic (e.g. Cough, wheeze, breathlessness, sputum) without explanation

Of the 1,065 patients identified, 93 patients met one or more of the above inclusion criteria.

Exclusion criteria were as follows:

• Pregnancy
• Housebound
• Under secondary care for respiratory issue (or other related e.g. Cardiac for breathlessness)
• Active cancer
• At the GP’s discretion

Of the 93 patients identified, 13 patients were excluded leaving 80 patients to be invited for review.

3.1.2.1.2 GRASP-COPD and AAT searches
The 'case-finding modules' of the GRASP-COPD and AAT were also run. These searches identified 144 and 90 patients respectively. These patients were also screened by the clinical project team using the same inclusion criteria as the manual case-finding searches. Of the 144 and 90 patients identified, 41 COPD and 10 asthma patients met one or more of the inclusion criteria.

Exclusion criteria were the same as the manual case-finding search.

Of the 51 patients identified, 11 patients were excluded leaving 40 patients to be invited for review.

3.1.2.1.3 Total patients
Thus, 80 patients were identified by the manual search and 40 patients were identified by the GRASP and AAT searches totalling 120 patients in Bursledon to be invited in for review.

3.1.2.2 Fordingbridge surgery
3.1.2.2.1 Manual case-finding search
In Fordingbridge surgery, as the practice population was significantly larger, more specific filters had to be applied to ensure that the searches were manageable.

Patients had to meet all of the following criteria:

• Aged 35 and over
• Smoking history
• No previous asthma/COPD

In addition, they had to meet one or more of the following criteria:

• Prescribed a short acting beta-2 agonist (SABA) in the last 12 months
• Prescribed a long acting beta-2 agonist (LABA) in the last 12 months
• Prescribed a short acting muscarinic antagonist (SAMA) in the last 12 months
• Prescribed a long acting muscarinic antagonist (LAMA) in the last 12 months
• Prescribed an inhaled corticosteroid (ICS) or ICS/LABA combination in the last 12 months
• Prescribed prednisolone (an oral steroid) in the last 12 months

After direction from the clinical project team, the practice IT team were able to run this search independently. A total of 161 patients were identified. Each of the 161 were manually reviewed by the clinical project team and had to meet one or more of the following inclusion criteria to be included in the next stage of the search:

• Prescribed inhalers within the last 12 months
• Hospital admission owing to respiratory factors within the last 12 months
• Lower respiratory tract infection within the last 12 months or repeated lower respiratory tract infections within the last five years
• Symptomatic (e.g. Cough, wheeze, breathlessness, sputum) without explanation

Of the 161 patients identified, 22 patients met one or more of the above inclusion criteria.

Exclusion criteria were the same as had been applied in the Bursledon searches. No patients were excluded leaving 22 invited in for review.

3.1.2.2 GRASP-COPD search

A GRASP-COPD search was also performed in this practice, however, the AAT 'case-finding module' was not used owing to time constraints of the project and the large practice population. For the same reasons, not all patients identified through the GRASP-COPD search could be reviewed. There are a subset of patients highlighted by the GRASP-COPD search for immediate review: 69 patients were identified. The following inclusion criteria were applied to these patients by the clinical project team.

• Prescribed inhalers within the last 12 months
• Hospital admission owing to respiratory factors within the last 12 months
• Lower respiratory tract infection within the last 12 months or repeated lower respiratory tract infections within the last five years
• Symptomatic (e.g. Cough, wheeze, breathlessness, sputum) without explanation
10 patients met one or more of the inclusion criteria above.

Exclusion criteria were the same as had been applied in the Bursledon searches. No patients were excluded leaving 10 invited in for review.

Thus, 22 patients were identified by the manual search and 10 patients were identified by the GRASP-COPD search totalling 32 patients in Fordingbridge to be invited in for review.

3.1.3 Identifying patients with poorly controlled asthma/COPD for 'mentorship' complex clinics

3.1.3.1 Bursledon

Owing to the small size of the practice in Bursledon, the clinical project team was able to review all the patients on both registers: 176 on the asthma register and 60 on the COPD register.

Inclusion criteria for identifying complex patients with COPD were based on the DOSE index (Dyspnoea, Obstruction, Smoking, Exacerbations) used to stratify risk of deterioration in COPD. Thus, the criteria used were as follows:

- Exacerbations within the last 12 months
- Acute hospital admissions related to respiratory within the last 12 months
- MRC=/>3
- FEV1<50% predicted
- At the GP/practice nurse’s discretion

Inclusion criteria for identifying complex adult patients with asthma were based on NRAD ‘red flags’ outlined below:

- High use of LABA/ICS combinations
- High SABA use
- High SABA use, low inhaled corticosteroid use
- More than 2 prescriptions for in one year
- High SABA use, low inhaled corticosteroid use
- More than 2 prescriptions for prednisolone (an oral steroid) in one year
- High dose of a inhaled steroid on its own (equal to or more than 800mcg of Budesonide (or equivalent)

From the 60 patients on the COPD register and 176 on the asthma register, 11 and 33 met the inclusion criteria respectively.

Following this, clinicians from the practice team and clinical project team were allowed to suggest patients for review based on their clinical judgement. 1 COPD patient and 2 asthma additional patients were therefore identified.

Exclusion criteria were the same as in the case finding searches. 1 COPD patient and 3 asthma patients were excluded totalling 43 patients to be invited in for review.
3.1.3.2 Fordingbridge complex asthma

Fordingbridge practice requested that the clinical project team focus on reviewing their asthma population as this was a priority for the surgery. There were 840 patients on the asthma register and so, due to the large asthma patient population and project timescales only the AAT search using the NRAD ‘red flags’ (outlined above) criteria was run. In order to make the reviews manageable, only patients who met two or more of the inclusion criteria were identified.

Of the 840 patients on the asthma register, 214 patients met two or more of the inclusion criteria.

Following this, the clinical project team manually reviewed the list to exclude those already under secondary care.

As in Bursledon surgery clinicians from the practice team and clinical project team were allowed to suggest patients for review based on their clinical judgement. 12 additional patients were identified.

Exclusion criteria were as the same as in other searches. No patients were excluded leaving 39 invited in for review.

3.1.4 Logistics of project set-up

Whilst rooms had been booked at the initial practice set up meeting to ensure room availability, the clinical project team had to handle the challenging logistical issue of agreeing dates, times, rooms and staffing for both case-finding and complex clinics. The clinical project team decided that the case-finding clinics would always include two respiratory nurse specialists working independently of, but alongside each other. This was advantageous as it avoided lone working in an unfamiliar environment. Moreover, it allowed the nurse specialists to seek opinions from colleagues in case of particularly complex patients.

The complex mentorship clinic included two respiratory nurse specialists, a respiratory physician and a member of the clinical practice team. Therefore these clinics were more challenging to organise than the case finding clinics, taking longer to plan and requiring more space in the practice.

Patient invitation letters were sent by the practice administrative team to all patients identified through the case-finding and complex asthma/ COPD searches in both surgeries. The clinical project team had to oversee this logistically complicated process to ensure that the correct patients were invited to the appropriate clinic. Patients were invited to book an appointment with the surgery and offered a range of times and dates. The practice administrative team telephoned patients the day before the clinic to confirm appointment.

In order to maximise efficiency of the complex clinics, the clinical project team prepared for the clinics by manually reviewing the electronic records of all patients who had booked an appointment. A spreadsheet was created detailing clinically significant information about each patient. This included the number of exacerbations, hospital admissions and inhaler usage in the 12 months prior to the appointment etc. The clinical project team sought help from the community pharmacists in both practices to help extract data on medicines usage. In collecting this data and presenting it to the respiratory physician at the beginning of each clinic, it was easier for the physician to gain a brief understanding of the level of complexity of each patient prior to their arrival. It also allowed the clinical project team to prepare for potential interventions, e.g. knowing the patients’ inhalers allowed them to set up the correct placebo inhalers ready for inhaler technique checking.
Clinics were held as described as in Section 3.1.1. In the case-finding clinic, a definitive diagnosis was not communicated to the patient, but a suggestion of a potential diagnosis and recommendations for future management and investigations were given to the GP where appropriate. These were communicated through a letter to the GP or a paper copy of the consultation in addition to recording the consultation on the electronic record. In cases where action needed to be taken swiftly (for example in the case of suspected cancer or ongoing and previously undiagnosed chest pain), the GP was contacted directly either in person or through the electronic ‘tasking’ system.

In the ‘mentorship’ complex clinics, a discussion was held between the specialist respiratory physician, practice clinician and patient to decide on the management of that patient. In agreement with the patient, the practice clinician then carried out the necessary tasks required for the agreed management plan; this included prescribing medication, booking follow-up appointments or ‘tasking’ the patient’s own GP.

Following their review in clinic all patients were asked to provide unstructured, anonymous, written feedback.

The pathway of this project is outlined in Figure 1.

In addition to reviewing patients, the ‘mentorship’ complex clinics provided an opportunity for education of the practice staff and to identify training needs. A formal training-needs-analysis was planned but not undertaken owing to time restrictions of the project. Further ‘mentorship’ clinics are planned between the practice staff and clinical project team to consolidate learning from the complex clinics.

Once the clinics were completed, the clinical project team extracted and analysed the data. Results are detailed below.
Stakeholders:
AHSN/CCG/CL
AHRC/Clinical project team
Clinical Project team
Practice admin
Practice clinical team
GP

Figure 1 - Pathway of the project

1. Agree project objectives including governance arrangements
2. Draft information for circulation to practices
3. Ensure logistical details addressed e.g. Paperwork, equipment, PGDs/PSDs
4. Circulate to GP practices
5. Collate responses
6. Contact practice respondents
7. Arrange initial set up meeting with practices
8. Hold meeting; agree local project objectives and governance arrangements with practice team. Agree paperwork and invitation letter.
9. Book rooms
10. Install and run GRASP
12. Agree complex search parameters and run complex search
13. Provide GP list of patients to review
14. Apply nurse-led filters to identify patients for case finding and complex clinics
15. Agree dates for clinics, ensure room and staff availability
16. GP reviews patients
17. Practice sends out patient invitations
18. Practice books patients into clinics
19. Practice telephones patients to remind them of appointment
20. Clinics held
21. Patient feedback collated
22. Feedback to GP (paper) Electronic task sent for urgent appointments
23. Data collection and analysis
24. Follow up patients seen in clinic

WHO?
4 Study

4.1 Results:

4.1.1 Searches

4.1.1.1 Case finding

The manual search performed in Fordingbridge identified significantly fewer patients than in Bursledon (1,065 to 161). This was because of the additional medication based filters used in the Fordingbridge search owing to the large practice population compared to the broad search performed in Bursledon (for details on Bursledon search see Section 3.1.2.1).

The GRASP-COPD search performed in Fordingbridge also identified fewer patients than in Bursledon (144 to 69). This was because all patients identified by GRASP-COPD were used in the Bursledon search whereas the Fordingbridge search used only those patients identified by GRASP-COPD for immediate review.

The manual searches took significantly longer to perform than the GRASP-COPD searches. Across both sites, the manual searches took approximately 14 days of a Band 6/7 respiratory nurse specialist time compared to 4.5 days for the GRASP-COPD search.

Applying the nurse-led filters were the most time consuming part of the searches, however, these were significant steps in each of the searches, removing 72% or more of patients identified by the GRASP-COPD or manual searches.

<table>
<thead>
<tr>
<th>Search</th>
<th>Percentage of patients removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bursledon manual</td>
<td>91%</td>
</tr>
<tr>
<td>Fordingbridge manual</td>
<td>86%</td>
</tr>
<tr>
<td>Bursledon GRASP-COPD</td>
<td>72%</td>
</tr>
<tr>
<td>Fordingbridge GRASP-COPD</td>
<td>86%</td>
</tr>
</tbody>
</table>

The application of the nurse-led filters to the searches saved a significant amount of time, money and inconvenience to patients in the longer term.

In Bursledon, only 15 patients were identified by both the GRASP-COPD and the manual searches which is less than expected. This comparison was not made in Fordingbridge owing to the relative complexity of the searches.
No patients were excluded by the practice team in Fordingbridge whereas 24 patients were excluded by the practice team in Bursledon. This may have been because in Bursledon the single handed GP knew all the patients and could relatively quickly identify patients unsuitable for review. However in Fordingbridge the review was undertaken by the senior partner with patients taken from the lists of any of the 10 GPs in the practice.

Table 2

<table>
<thead>
<tr>
<th>Invitation/Booking/Attendance</th>
<th>Bursledon</th>
<th>Fordingbridge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invited</td>
<td>120</td>
<td>32</td>
</tr>
<tr>
<td>Booked</td>
<td>39</td>
<td>19</td>
</tr>
<tr>
<td>Attended</td>
<td>35</td>
<td>19</td>
</tr>
</tbody>
</table>

33% of those identified through both searches in Bursledon attended the case-finding clinic. 59% of those identified through both searches in Fordingbridge attended the case-finding clinic. The higher conversion of invitation to attendance rates in Fordingbridge may be because fewer patients were invited and the reception manager telephoned each patient to ask if they were attending the clinic rather than waiting for the patients to respond to the invitation letter as in Bursledon.

4.1.1.2 Case-finding: DNAs/cancellations

Graph 1

There were no patients who 'Did Not Attend' (DNA) in either surgery. There were four cancellations in Bursledon.
4.1.1.3 Case finding clinics: suggested diagnosis

Graph 2

Diagnoses suggested in case finding patients across both sites

- COPD suggested, 28%
- Asthma suggested, 30%
- Normal respiratory health suggested, 30%
- Alternative health issue suggested (non respiratory), 11%
- Other respiratory issue suggested, 2%

54 patients were seen in case-finding clinics across both sites; 59% (32) had a new respiratory diagnosis suggested. 28% (15) of patients seen had a diagnosis of COPD suggested, 30% (16) of patients seen had a diagnosis of asthma suggested, 2% (1) had an alternative respiratory condition suggested. 11% (6) had an alternative diagnosis (non respiratory) suggested. 30% (16) of patients seen left the clinic with a diagnosis of normal respiratory health.

Therefore, half of those with a suggested new respiratory diagnosis had asthma suggested and half of those had COPD. It is important to note that the case-finding clinics provided just a snapshot of the patients' respiratory health and therefore only suggestions were made to the GP of a potential diagnosis and recommendations made for further testing and management. This is particularly pertinent in the case of suggested asthma where non-specific respiratory symptoms and a clinical history may suggest a diagnosis but further longitudinal tests are necessary.
4.1.1.4 Bursledon focus: comparing the proportion of patients seen to the proportion of patients with a new respiratory diagnosis suggested identified by the GRASP search (i.e. GRASP COPD and AAT) and manual searches

89% of patients identified by GRASP-COPD/AAT (excluding those identified by both the GRASP and the manual searches), had a new respiratory diagnosis suggested by the respiratory nurse specialists. 58% of patients identified by manual search (excluding those identified by both the GRASP and the manual searches) had a new respiratory diagnosis suggested. Of the six patients identified by both the GRASP and the manual search, 50% had a new respiratory diagnosis suggested.

Including those identified by both the GRASP and manual search 73% of patients identified by GRASP had a new respiratory diagnosis suggested in comparison to 50% found by the manual search. This comparison was not made in Fordingbridge owing to the relative complexity of the searches.

The manual search demonstrated a higher sensitivity than the GRASP-COPD search, however the GRASP-COPD search demonstrated a higher specificity than the manual search. Yet, both searches required a significant investment of nurse time to filter out manually unsuitable patients. For example: the nurse filter removed 111 patients who would have been unsuitable for case finding review but had been identified in the initial GRASP COPD case finding search in Bursledon. This component of the searches is time consuming but a vital step, saving time and reducing cost for the project as a whole by identifying only those patients suitable for review. Additionally, this step minimises inconvenience to patients who might have been invited in for unnecessary review.

4.1.2 Characteristics of the patients attending the case-finding clinics:

4.1.2.1 Demographics
Of the 54 patients seen across both sites, 56% (30) were male, 44% (24) female. The average age was 59.

4.1.2.2 Spirometry
Of the 54 patients seen across both sites, 69% (37) had spirometry performed. Spirometry was not performed if contraindicated, the most common reason for contraindication was current chest infection.

4.1.2.3 Severity of airflow obstruction
31% (10) of the 32 patients with a new respiratory diagnosis suggested had a FEV1/FVC ratio less than 70% indicating airflow obstruction. 80% (8) had mild airflow obstruction, 20% (2) had moderate airflow obstruction. 63% of patients with mild airflow obstruction were found to have symptoms of breathlessness with MRC scores ranging from 2-4. Thus, even patients with only mild airflow obstruction may still be highly symptomatic.
4.1.2.4 **MRC**
23% of the 53 patients who had an MRC score recorded, reported a score of 3 or above indicating a level of breathlessness which is functionally disabling.

4.1.2.5 **BMI**
Of the 52 patients who had a BMI calculated, 10% (5) had a BMI of 21 and under, 58% (30) had a BMI of 22-29 and 33% (17) had a BMI over 30 or over (which is considered clinically obese in any patient).
4.1.2.6 Smoking

Of the 51 patients with smoking status recorded, 33% (17) were current smokers, 53% (27) ex-smokers and 14% (7) never smokers. Of the 17 current smokers, 65% (11) were given smoking cessation advice and 12% (2) were referred to smoking cessation services.

Graph 5

4.1.2.7 Onward referral:

Of the 54 patients seen, 48% (26) were referred to primary care for follow up or further investigations and 6% (3) were referred to secondary care.

Graph 6

4.1.3 Complex ‘mentorship’ clinics

4.1.3.1 Searches

Owing to the small practice size in Bursledon, the clinical project team was manually able to review all patients on the COPD and asthma registers. This was an advantage as there were a number of issues identified. For example, incorrect coding of diagnosis on patient electronic record meaning
that the practice was not receiving their Quality Outcomes Framework (QOF) payments despite meeting the QOF requirements. The clinical project team were therefore able to flag these issues up to the practice to address.

Table 3

<table>
<thead>
<tr>
<th>Search</th>
<th>Percentage of patients removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bursledon manual (COPD)</td>
<td>82%</td>
</tr>
<tr>
<td>Bursledon manual (asthma)</td>
<td>81%</td>
</tr>
</tbody>
</table>

Again, the nurse-led filtering of both searches, whilst requiring a considerable investment of time, was an important element of the process in order to avoid inviting patients in unnecessarily.

The ‘at risk’ component of the AAT was used in Fordingbridge to identify adult patients with poorly controlled asthma. If time and resources had permitted, all adult patients with any NRAD ‘red flag’ who were not already under secondary care would have been reviewed in the complex mentorship clinics. However, this was not possible owing to project capacity and time constraints. Therefore, the nurse-led filters in this case simply served to identify those patients with two or more NRAD red flags and to exclude those already under secondary care.

4.1.3.2 Attendance

Attendance to the complex clinics was high. 93% of all patients who booked an appointment attended the clinics. The 1 patient who did not attend was unable to travel to the clinic owing to a major road traffic incident in the surrounding area. The patient informed the clinic prior to her not attending. Again, the high attendance rates are most likely due to the fact that the patients booked their own appointments.

4.1.3.3 Change in diagnosis

Graph 7

<table>
<thead>
<tr>
<th>Changes in diagnosis and treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients who had a change in medication</td>
</tr>
<tr>
<td>Patients with asthma or ACOS where recommendations have been made for alternative management</td>
</tr>
<tr>
<td>Patients in whom primary diagnosis has changed</td>
</tr>
<tr>
<td>Additional health issues have been identified</td>
</tr>
</tbody>
</table>
It is significant to note that 23% (13) of the 56 patients seen in the complex clinics received a different diagnosis after review by the clinical project team. Potential reasons identified by the clinical project team include:

1) Inaccurate initial diagnosis
2) The patients' condition changed over time e.g. Asthma to Asthma and COPD Overlap Syndrome (ACOS)
3) A correct diagnosis had been made previously but not been recorded in the electronic record
4) The necessary differential diagnostic tests had not been performed to identify the condition

As shown in graph 8, 3 patients who attended the complex clinic did not have a previous respiratory diagnosis. After review in the clinic they were given a diagnosis and appropriate management and treatment advice.

Graph 8

4.1.3.4 Change in medications/management

It is also significant to note that 71% (40) of patients seen in the complex clinic had a change in medication following review and 73% (33) of patients with asthma or ACOS had recommendations made for alternative treatment or management. Thus, by ensuring treatment appropriate to the individual's condition these changes have the potential to:

(a) improve patients' quality of life
(b) reduce waste
(c) reduce wasteful prescribing
(d) reduce risk of admission
(e) reduce cost
(f) reduce burden across local health economy

### 4.1.3.5 Severity

Of the 47 patients who were on a Step of the asthma treatment guidelines, 6% (3) were on step 1, 26% (12) were on step 2, 47% (22) were on step 3, 17% (8) were on step 4 and 4% (2) were on step 5.

Of the 30 patients on whom an MRC score had been recorded, 33% (10) had MRC1, 40% (12) had MRC 2, 23% (7) had MRC3 and 3% (1) had MRC4.

Of the 56 patients who attended, 34 had spirometry performed, 50% (17) of these had a FEV1/FVC ratio less than 70%. 7% (1) had mild airflow obstruction, 71% (10) had moderate airflow obstruction, 21% (3) had severe airflow obstruction.

Graph 9

It is interesting to note from this that the majority of patients identified as poorly controlled were not those with the most severe airflow obstruction. This seems to suggest that severity of airflow obstruction is not necessarily representative of complexity of disease or level of symptoms.

### 4.1.3.6 BMI

Of the 55 patients who had a BMI calculated 4% (2) had a BMI 21 and under, 62% (34) had a BMI 22-29 and 35% (19) had a BMI 30 and over.
4.1.3.7 Smoking
Of the 55 patients who had smoking status recorded, 31% (17) were never smokers, 22% (12) were current smokers and 47% (26) were ex-smokers. Of the 17 current smokers, 100% were offered smoking cessation advice and 17% (2) were referred to smoking cessation services.

4.1.3.8 Onward referrals
Of the 56 patients seen, 7% (4) were referred on to secondary care and 66% (37) were referred on to primary care.
Graph 12

Onward referrals

- Number of patients referred to secondary care: 7%
- Number of patients referred to primary care: 66%
4.1.4 Discussion of results relevant to both case-finding and complex clinics

4.1.4.1 Attendance rates
The clinics had high levels of attendance. This may be owing to the fact that patients were:

a) invited to make their own appointment thus meaning that patients were motivated to attend
b) offered a range of clinic times and dates to suit them thus increasing the possibility that they could attend
c) All patients were telephoned by the practices the day before their appointment to remind them of the appointment time and confirm attendance

4.1.4.2 BMI
The results demonstrated that 35% of the patients seen in the complex clinics had a BMI of 30 or over and 4% had a BMI of 21 or under. A comparable amount of patients seen in the case finding clinics (i.e. 33%) had a BMI of 30 or over however there were significantly more (i.e. 10%) who had a BMI of 21 or under. The prevalence of a high BMI is pertinent to all patients but particularly so in patients with asthma, where this group is both more likely to have an exacerbation and inaccurate diagnosis. It is also important to recognise the 10% prevalence of a low BMI in the case finding clinics, as patients who go on to develop COPD with a low BMI are at risk of worse outcomes than those with a slightly higher BMI.

4.1.4.3 Smoking
Smoking cessation is:

1. The single biggest factor in prevention of COPD
2. One of the most important interventions in COPD and asthma management

Although in the case-finding clinics some patients declined smoking cessation advice and referral, 100% of patients in the complex clinics were receptive to advice and support and 17% were referred to smoking cessation services. Moreover, a higher proportion of patients seen in the case-finding clinics were current smokers (i.e. 33%) in comparison to 22% in the complex clinics. This seems to demonstrate that patients who have confirmed respiratory diagnosis are more open to smoking cessation interventions.

In the case-finding clinics, even patients who were deemed to have normal respiratory health received smoking cessation advice as an intervention. These patients had already been identified as at risk of developing respiratory problems and this vital intervention could help them quit smoking and thus stop or slow the development of respiratory issues.

Given that both the GRASP-COPD and manual search were conducted using smoking history as an inclusion criteria it is interesting to note that 14% had no history of smoking. This is likely to be due to inaccuracies in coding of smoking status in the past, a common issue highlighted when conducting the manual search.
4.1.5 Patient feedback results

The clinical project team consulted the CLAHRC Patient and Public Involvement (PPI) champion for interpretation of the collated patient feedback. His view was that this feedback demonstrates a significant unmet need in community settings for the time and skills to educate patients about long-term conditions. This investment of time and skills in a familiar environment at a time when the patient's condition is relatively well controlled has the potential to considerably benefit patients, empowering them to self-manage their condition and reduce the burden for carers. Furthermore, this may have an important impact on quality of life for both patients and carers.

Every patient was asked to provide written feedback on the service provided, whether positive or constructive. The format of this feedback was left to the individual, allowing for unbiased, open comments about any aspect of the service. Of the 110 patients seen in both the case finding and complex clinics across both sites, 44% (48) provided written feedback. One piece of written feedback from the case finding clinics implied slight frustration at not receiving an immediate formal diagnosis.

"Good to have a deep analysis of my respiratory issues. Didn’t categorically get an answer but I understand the reasons behind why such a diagnosis would be gradual” Additional verbal feedback supported this slight frustration, however 100% of the written feedback described the clinics as a positive experience. "...and then I met the wonderful nurses...and had a consultation. I was given...tablets and just one inhaler for the morning, WHAT a difference just after one day I felt better than I ever have!”

Analysis of the written feedback identifies several common themes:

(a) 48% (23) identified the provision of advice/information/education

"I thought all the staff...listened intently to my history and current situation. The clinic was very much aimed towards me and my care and management of the disease... Handled very professional and compassionately. It was pitched at exactly the right level for me with attention to detail."

(b) 46% (22) identified the clinics as "Very/really helpful" or "helpful"

“Today has been really helpful. I really gained from having this today. Learned more about my asthma and hopefully will get better.”

(c) 10% (5) expressed appreciation of locating specialist services in the community

"I would like to say how appreciated I was at having the whole procedure to my tests for my breathing done at my own surgery and all under one roof." [sic]

Feedback from patients was overwhelmingly positive from all clinics both in terms of patient experience of the clinic and interventions made. One patient made the effort to feedback retrospectively and therefore was able to comment on the positive impact that the changes made to her asthma management had on her quality of life, symptoms and well-being.
5 Act

5.1 Conclusions

- The objectives of this project have been met by the efficiencies created through inter-organisational working and collaboration of resources and skills across primary and secondary care including commissioners.
- The clinical project team had a balance of knowledge and skills across the spectrum of respiratory conditions, primary care, secondary care and project management. This was vital to the success of the project allowing for appropriate allocation of tasks to match the skill mix and effective communication within the clinical project team and between primary and secondary care teams, and the development of inter-organisational relationships. The project management experience within the team allowed the project to be delivered within challenging time scales.
- Allowing GP practices to volunteer to participate in the project meant that the practice teams were motivated to achieve the project objectives and worked towards achieving these objectives within a tight timeframe.
- The manual case-finding search was more sensitive and identified a large number of patients for review but was less specific in that it yielded a larger number of patients with normal respiratory health. The GRASP-COPD search was less sensitive but more specific in that more patients had a potential diagnosis suggested. Whilst GRASP-COPD is a more efficient search both in terms of time and yield (proportion of patients seen to a proportion of patients with a diagnosis suggested) it is clear that the tool requires significant modifications in order to make it fit-for-purpose without the inclusion of a nurse-led filter.
- NIHR CLAHRC Wessex is currently designing a research study comparing electronic methods of case-finding with the aim of modifying the GRASP-COPD tool.
- The AAT is an efficient and effective tool for identifying patients with poorly controlled asthma or at risk of deterioration needing minimal nurse-led filtering. The AAT predominantly identifies patients with poor medication concordance and so community pharmacists are a useful resource in supporting practices with this use of this tool.
- In both case-finding and complex clinics, severity of symptoms did not necessarily correlate with severity of airflow obstruction. In the case-finding clinics although the majority of patients were identified with mild obstruction they were presenting with symptoms such as breathlessness. Therefore case-finding even in this population is vital as, with a diagnosis, symptoms can be addressed by initiating appropriate treatment. When identifying patients with poorly controlled disease for complex review, it is important to use an index such as 'DOSE' that takes factors other than airflow obstruction into account.
- Case-finding is important but needs to be as part of a process of ensuring early and accurate diagnosis with a clear plan for management of each individual.
- In both the case-finding clinics and complex clinics referrals to secondary care were low (6% and 7% respectively). The complex clinics demonstrated how specialist expertise can be provided in primary care to benefit both patients and primary care practitioners without the need for extensive, expensive secondary care technologies. This is supported by evidence from various NHS organisations including NHS England\textsuperscript{14} and the King’s Fund\textsuperscript{15} suggesting that ensuring specialist expertise is used to support the delivery of care outside hospital has the potential to improve patient experience and access to care.
• Education was a key part of the 'mentorship' clinics and informal feedback from the clinical practice team suggests that ongoing support, particularly in refining more specialised skills, such as spirometry, would be beneficial for patient care.

5.2 Reflections on completion of the project

• A valuable lesson from this project has been the importance of 'Going with the energy'16 ie: identifying one or two supportive practices to pilot new care models before rolling out across the local health economy.

• An important step in the identification of complex patients in Fordingbridge was the training of the clinical practice team and IT manager on the use of the AAT. This enabled an agreement that the clinical project team would review patients with 2 or more NRAD 'red flags' initially alongside the practice team. The practice team could continue this model of care in their independent review of the remaining patients identified.

• The clinical project team did not collect data on the number of patients who declined smoking cessation advice or referral. This would have been useful in completing the smoking cessation statistics.

• A standardised approach to documentation would be beneficial in both case-finding and complex clinics to ensure that all metrics are recorded and communication of interventions to the practice team is consistent.

• The number of patients identified without symptoms and spirometry suggestive of COPD but with non-specific respiratory symptoms was higher than expected and on reflection the parameters for identifying respiratory disease other than COPD should have been more defined.
5.3 **Recommendations**

- Development of integrated respiratory services should include representation from primary and secondary care and ideally organisations that promote innovation across both.
- Accessible specialist respiratory support including both physicians and nurses should be located in or provided to primary care practices and patients and their carers.
- A generic invitation from the CCG to participate in future projects and service developments should be sent out to all practices in a locality rather than targeting specific practices in order to allow motivated practices to participate initially.
- Patients should be free to book an appointment at a time and date of their choosing within reason.
- Patients should be telephoned to encourage uptake of appointments and confirm attendance prior to appointment.
- Specialist respiratory education and mentorship should be a key component of any clinic.
- Ensure that diagnostic parameters for identifying respiratory disease other than COPD are clearly defined.
- Ensure that the skill mix of the clinical team reflects the broad nature of respiratory conditions to account for all presenting patients and their potential diagnosis rather than focusing on COPD and/or asthma. The clinical team requires a broad skill mix including project management, education and mentoring and understanding of processes in primary and secondary care.
- GRASP-COPD may be used as a case-finding tool in preference to the manual search but modifications need to be made.
- The AAT is useful when identifying patients with poorly controlled asthma or at risk of deterioration and practices teams (clinical and IT) should be trained in using it. Community pharmacists are an effective resource to support practices in achieving this.
- Smoking status on electronic records is often inaccurately recorded. To improve any case-finding strategy more consistent recording of smoking status would be helpful.
- The specialist clinical team should seek to create long-term relationships with partners in primary care to encourage education and mentoring, enabling the development of specialist skills including spirometry and the rapid uptake of new standards and innovations in practice.
- Respiratory Nurse Educators should be linked to specialist centres to ensure consistently high standards of education and care.
- Follow recommended project pathway (see Figure 2).
Figure 2 Recommended Project Pathway

**WHO?**

- **Stakeholders:** AHSN/CCG/CLA HRC/ Clinical project team

**Clinical Project**

- Circulate project information to GP practices
- Collate responses
- Contact practice respondents

**Commissioning stakeholders**

- Arrange initial set up meeting with practices
- Hold meeting: agree local project objectives and governance arrangements with practice team. Agree paperwork and invitation letter.
- Book Rooms

**Practice admin**

- Install and run modified version of GRASP
- Run complex search using AAT and DOSE parameters
- Agree dates for clinics, ensure room and staff availability

**Practice clinical team**

- Provide GP list of patients to review
- GP reviews patients
- Practice sends out patient invitations

**GP**

- Practice books patients into clinics
- Practice telephones patients to remind them of appointment
- Clinics held

- Patient feedback collated
- Feedback to GP (paper) Electronic task sent for urgent appointments
- Data collection and analysis

**Follow up patients seen in clinic**
6 REFERENCES


