Report of the Evaluation of the Greater Manchester Community Pharmacy Inhaler Technique Service

Prepared by

Nicola J Gray, Naomi C Long and Noah Mensah

For

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For further information **about this Service,** please contact **Community Pharmacy Greater Manchester enquiries@cpgm.org.uk**

Executive Summary

Background: It is widely recognised in primary care that inhaler technique amongst patients is often poor[1]. Whilst prescribing might be optimal, if a patient cannot use their inhaler properly, there is a risk that their lack of control will result in treatment interventions becoming more intensive (such as unnecessarily high preventer doses). The cost of medicines waste resulting from suboptimal inhaler use is not inconsiderable, especially considering the unit cost of many reliever inhalers. Poor condition control also leads to extra cost with regard to GP and nurse appointments and hospital admissions.

Community Pharmacy Greater Manchester co-ordinated a Service development project across seven areas (Bolton, Bury, Heywood Middleton & Rochdale, Manchester, Stockport, Trafford, Tameside & Glossop) funded by the former Strategic Health Authority, supported by each of the former Primary Care Trusts (PCTs), with contributions from pharmaceutical companies[2]. In this Service, pharmacists did an enhanced MUR for patients using inhalers for asthma or COPD. The Service offered patients a series of three consultations over a 6-month period, with special dispensation from each PCT for pharmacists to do two MURs in that time. Training events were provided for the pharmacists, and they were supplied with equipment and resources to undertake the Service. The Service was in operation from September 2012 until November 2013.

Service Description *- The pharmacists asked patients to complete the ACT or CAT measure of condition control at months 0 and 6. They used an In-check®DIAL device to measure inspiration rate for MDIs and DPIs. Some pharmacists also had an AIM machine in-store to check flow, synchronisation and breath-holding for patients using MDIs. If a patient's visual check of technique was moderate or poor (as opposed to good), they were asked to return. At this point the pharmacist could give education and/or recommend a change in device or the addition of a spacer (both of which would need the agreement of the prescriber). A brief second consultation was done in month 3-4, repeating the In-check® DIAL measurement and technique check with ongoing advice. At month 6 the enhanced MUR consultation and condition control measures were repeated. Pharmacists were asked to give smoking cessation advice as appropriate.*

The aim of the Service was to provide an enhanced medicines use review (MUR) service for asthma and COPD patients to achieve a number of objectives (see table overleaf).

Methods: The evaluation explored operational data and also included inputs from Service users (a survey of 40 respondents and 6 telephone interviews), Service providers (a structured interview of 55 providers and in-depth interviews with 3 'high activity' providers) and other stakeholders (4 telephone interviews with other health professionals and a focus group with 3 members of the project team). A combination of these data inputs has enabled us to gauge whether and how the Service met its stated objectives.

Results: Nine hundred and six users were engaged in the Service by 73 pharmacies across Greater Manchester. Activity varied considerably across the pharmacies and areas: only 14 of the 73 pharmacies engaged more than 20 users throughout the Service period. The mean age of a Service user was 56.9 years, and one-quarter of those engaged were 75 years and over. Three-quarters of the users reported asthma as their diagnosis (74.3%, total n=906). Most people said that they had been shown how to use their inhaler before (83.4%, n=741), but many of them added that it had been a long time ago, and/or they did not feel that it had been done properly.

Most users (64.9%, n=531) had only MDI devices (there could be more than one if, for example, they were using a reliever and preventer MDI – this was not specifically recorded). Just over one-quarter of users had both a MDI and DPI device (26.3%, n=215). It was difficult to retain users in the Service over the three consultations: 906 users attended the first visit, but this was down to 266 by the second visit and only 130 for the third visit, so it is important that the gains made during one consultation are explored.

[1] Fink JB, Rubin BK. Problems with inhaler use: a call for improved clinician and patient education. *Resp Care* 2005; 50: 1360-74.
[2] AstraZeneca, Boehringer Ingelheim, Chiesi, Clement Clarke, GSK, Napp and TEVA.

The aim of the Service was to provide a medicines use review (MUR) service for asthma and COPD patients to achieve...	
Objective	**Data addressing the objectives**
Improved patient outcomes through:	
Improved inhaler technique;	• *By the end of the first visit, after advice from the pharmacist, 61.6% of MDI users and 89.1% of DPI users had managed to bring their inspiration flow rate into range (from a baseline of 20.9%/ 67.1% resp.).* • *By the second visit, 77.1% of MDI users and 59.0% of DPI users had visibly improved their inhaler technique.*
Improved patient understanding and hence adherence with inhaler therapy;	• *Most users in the survey reported increased understanding and confidence about their inhalers and their condition.* • *Most of the pharmacist interventions were to provide education, rather than to recommend changes or refer users on to other services – the Service was very self-contained.*
Optimising use of inhaler therapy (including a change of device);	• *25 device changes / spacer additions were seen in the second visits, indicating that the intervention had influenced some prescribers.* • *Where an AIM machine was available, the percentage of pharmacist recommendations to change the device, or to add a spacer, doubled.*
A reduction in adverse events / exacerbations;	• *The user survey suggested a very small reduction in the prescribing of steroids and antibiotics, and in emergency hospital admissions.*
Ensuring that patients who smoke are offered appropriate smoking cessation advice.	• *All user survey respondents who reported being a smoker when they used the Service reported being offered stop smoking advice, and a significant number of them made a quit attempt as a result.*
Reduction in waste of inhaler therapies through:	
A possible reduction in prescribed inhalers for poorly controlled conditions	• *Some users reported using less of their reliever medication after using the Service as their improved technique enhanced the effect of the preventer.*
Patients being encouraged to only order the items they need	• *Most users in the survey felt that they knew more about how to order the inhalers they needed since using the Service.*
Other indicators of improvements:	
Reduction in use of other health services	• *Approximately 20% of users in the survey reported making fewer GP or practice nurse visits; 10% reported fewer emergency hospital admissions.*
Quality improvement in condition management / symptom control	• *At visit 3, when asked how often they used their reliever inhaler - one indicator of condition control -29.0% of users (n=29) said that they used it up to 1-3 times a week, which was a significant increase on the baseline level of 20.9%. Under half of responding users were using the reliever once a day or more (42.0%, n=42), a notable decrease on the baseline level of 60.5%.* • *The proportion of users with asthma scoring 20 or more on the ACT, indicating reasonable or good symptom control, increased from 29.2% at visit 1 to 70.8% at visit 3 (NB – much smaller numbers at visit 3).* • *The proportion of users with COPD scoring 20 or less on the CAT, indicating low to medium impact of the COPD condition on their lives, increased from 49.3% at visit 1 to 73.0% at visit 3 (NB – much smaller numbers at visit 3).* • *Over half of user survey respondents reported an increase in their self-rated quality of life since using the Service.*

Conclusion and Recommendations: The Service has shown that an inhaler technique check by a community pharmacist has the potential to benefit patients who use inhalers. The cohort of patients as a whole who have seen a pharmacist for the Service have shown improvement trends in terms of inhaler technique, target inspiration flow rate, asthma/COPD control indicators and quality of life measures. There was considerable enthusiasm for the Service from all groups participating in the evaluation.

Recommendations regarding the development of the future Service would be:

- Redesign the training to include more advice about strategies for managing recruitment and recall
- Reduce the number of consultations to two at most
- Consider separating the inhaler check from the MUR and resource it as a separate enhanced service
- Consider empowering pharmacists - by PGD or other appropriate means - to add a spacer device or to change the device type within the consultation
- Implement a more streamlined, electronic data collection system
- Include all users of inhalers in the target audience, and competent children and young people
- Consider more deployment of non-pharmacist staff in the Service
- Put AIM machines into more pharmacies
- Continue to engage multidisciplinary advocates at a GM level and help to ease any tension in local areas
- Develop effective feedback and benchmarking strategies to motivate pharmacists

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Glossary

Term and/or Abbreviation	Meaning
ACT™	**Asthma Control Test™**
AIM machine	**Aerosol Inhalation Monitor** machine that tests each of three parts of the inhalation process with a MDI inhaler – flow, synchronisation and breath
CAT™	**COPD Assessment Test™**
CCG	**Clinical Commissioning Group –** new organisation responsible for the delivery of primary care in a locality
CPGM	**Community Pharmacy Greater Manchester**
DPI	**Dry powder inhaler**, including the Accuhaler®, Handihaler® and Turbohaler®
Gillick Competence	Framework for judging the capacity of children and young people to consent to treatment
GM	**Greater Manchester**
HMR	**Heywood, Middleton and Rochdale**
In-check DIAL®	Handheld machine for measuring inspiration rate
ICS	**Inhaled corticosteroid**
LPC	**Local Pharmaceutical Committee** – represents all pharmacy contractors in a local area
MDI	**Metered dose inhaler**, including the Autohaler®, Easibreathe® and Evohaler®
MUR	**Medicines Use Review** – A conversation between a pharmacist and a patient about their medicines
MUR quota	400 MURs can be done by one pharmacy in a year
PCT	**Primary Care Trust** – former organisation responsible for the delivery of primary care in a locality
PMR	**Pharmacy Medication Record** – data from dispensing and services
QIPP	**Quality, Innovation, Productivity and Prevention** programme
T&G	**Tameside & Glossop**

1. Introduction

1.1 Existing Research and Policy

It is widely recognised in primary care that inhaler technique among patients is often poor (Fink & Rubin, 2005). Whilst prescribing might be optimal, if a patient cannot use their inhaler properly, there is a risk that their lack of control would result in treatment interventions becoming more intensive - such as unnecessary hospital admissions, increased practice visits, and higher preventer inhaler doses. The medicines waste resulting from suboptimal inhaler use is also considerable: the unit cost of these therapies can be expensive if much of the medication is lost to the atmosphere.

Providing time, space and expert guidance for patients so that they can maximise their benefit from the inhaler device should be the first line of action if symptoms are not controlled. There is a concern that many health professionals do not themselves know how to teach inhaler technique (Baverstock *et al*., 2010). Pharmacists are all taught as part of their undergraduate course about different inhaler devices and the MPharm dispensing curriculum always includes inhaler technique demonstration within coursework and assessment. It seems logical that primary care should deploy a trained and accessible professional to provide this support.

Recent NHS guidance about improving outcomes for patients with COPD and asthma links in with the NHS outcomes framework (DH England, 2012). There are opportunities for community pharmacy to:

- Reduce respiratory mortality in the under-75s (Domain 1);
- Enhance the lives of patients with respiratory long-term conditions by supporting self-management and decision-making (Domain 2);
- Ensure that patients have a positive experience of care by empowering them through information and education (Domain 4).

A community pharmacy project in the Isle of Wight is showcased in this NHS Companion Document (DH England, 2012: p36). Out of over 1,000 COPD or asthma patients who had an enhanced consultation with the pharmacist, 48% of those reviewed after 6 months had an improvement in their respiratory symptoms. The project reported that reliever therapy (measured by ePACT) showed that within the first year costs of selective beta-agonists fell by 22.7% - a saving greater than seven times the initial investment by the PCT. Additionally, within 12 months, the Isle of Wight PCT was able to demonstrate that emergency admissions due to asthma had reduced by 50%, and deaths by 75% (NICE Shared Learning Database, 2010-11).

A recent evaluation of a similar Service in South Yorkshire found that pharmacists could bring most patients using inhalers into their target inspiration range during one consultation, and referral to other providers was usually not needed to provide direct benefit for the patient (Auckland *et al.,* 2014).

The project team have also been interested in the findings of Hardwell *et al.* (2011) that inhaler technique training did not improve the quality of most patients' metered dose inhaler (MDI) use, and one feature of this project is the use of an AIM machine in some of the Service pharmacies.

This report underlines the importance of teaching and checking correct inhaler technique as a first-line intervention: *"Studies suggest that the majority of people who use inhalers do not do so correctly thus severely limiting drug delivery and effectiveness. Regular checking and teaching of inhaler technique by health professionals should be the first step in optimising drug therapy. Improving inhaler technique can have a substantial effect in improving symptoms and outcomes and reducing costs" (DH England, 2012: p35).*

1.2 Background to the Service

In 2012, seven LPC/PCT partnerships across Greater Manchester secured approximately £100,000 collectively in QIPP and Innovation funding to implement a new service to improve inhaler technique (henceforth referred to as 'the Service'). The seven participating areas were Bolton; Bury; Heywood, Middleton & Rochdale; Manchester; Stockport; Tameside & Glossop, and Trafford.

1.2.1 Aim and intended Service outcomes

The aim of the Service was to provide an enhanced medicines use review (MUR) service for asthma and COPD patients which aimed to achieve:

(a) Improved patient outcomes through

- Improved inhaler technique;
- Improved patient understanding and hence adherence with inhaler therapy;
- Optimising use of inhaler therapy (including change of inhaler device if needed);
- A reduction in adverse events associated with inhaler treatment;
- A reduction in prescribed items for exacerbation of condition (antibiotics, oral steroids);
- Ensuring that patients who smoke are offered appropriate advice with regard to smoking cessation therapy.

(b) Reduction in waste of inhaler therapies through

- Improved inhaler technique;
- A possible reduction in prescribed inhalers for poorly controlled conditions;
- Patients being encouraged to only order those items that they need.

The project proposal asserted that the outcomes listed would **support the QIPP programme through a reduction in prescribing spend on inhalers** through

- Reduced prescribing of blue inhalers as other inhalers are used more effectively (using "brown" inhalers correctly at the prescribed dose may result in a reduction of "blue" inhalers).
- Reduced need for additional therapy for poorly controlled asthma or COPD.
- Less wastage as prescriptions are synchronised and only the inhalers needed are ordered.
- Improved management of patient's asthma or COPD, measured through the use of technique demonstration and standard questions (including ACT/CAT scores) at initial MUR and during follow up consultations.

An increase in appropriate prescribing and use of preventer inhalers might also support the programme in the interest of increased quality of prescribing, health gain, and anticipated savings in A&E presentations, GP visits, and hospital admissions (ref: Louise Gatley LG, 7/2/13).

1.2.2 Coverage and operation of the Service

Seven LPCs and PCTs across Greater Manchester have agreed to participate, which creates a network of over 300 pharmacists in almost 200 pharmacies in the Service area. Training events took place at milestones from September 2012, as LPC/PCT areas came on board.

Service Description – The outline of the Service was as follows:

- A Pharmacist would carry out a Medicines Use Review (MUR) and feed back information to the patient's GP.
- Those patients that showed poor or moderate inhaler technique would then be recruited into the project, even if their other clinical indicators were good.
- Three - four months after the initial MUR the patient would be asked to return to the pharmacy for an inhaler technique check.
- Six months after the initial assessment the patient would be asked to return for a second MUR.

Patients were recruited by pharmacies to the project. An extension to the original timescale was agreed, with new patients being recruited until the end of May 2013. Thus the final engagements with patients occurred by the end of November 2013.

Each patient was eligible to complete two MURs[3]: one at month 0 and one at month 6. These MURs had to be included in the overall MUR quota (which was 400 per year in 2012) for the pharmacy.

The patient's name was removed from the data collection form before submission to the Service team, and converted to initials. No postcode information was included. Gender information was added during the project, and was not available for all patients. A copy of the data collection form at each milestone was sent to the patient's GP. The assessment of inhaler technique as good, poor or moderate included the appropriate read code for GP data systems. Pharmacists were encouraged to engage with their local practice/s about the project, and an information sheet for GPs was prepared by the Service team.

[3] With the permission of the primary care organisations, as only one MUR is normally permitted per patient per year.

2. Methods

2.1. Method Choice

The methods for the project were chosen to meet the following criteria:

- To involve a range of stakeholders in the evaluation
- To employ methods that would enable maximum participation
- To make best use of data already collected during the operation of the Service
- To explore the project objectives within the limited resources of the evaluation fund, and the evaluation timescale (9 months)

The methods chosen were:

- Statistical exploration of anonymised operational Service data
- A structured telephone survey of pharmacist Service providers
- A postal survey of Service users
- Semi-structured face-to-face interviews with 'high activity' pharmacist Service providers
- Semi-structured telephone interviews with practice staff (GPs and a practice nurse)
- Semi-structured telephone interviews with Service users
- A focus group discussion with the project team

2.2 Exploring the Service Objectives

Table 2.1 below revisits the Service aims and objectives and shows how data collected mapped on to an understanding of whether, and to what extent, objectives have been met.

The aim of the Service was to provide a medicines use review (MUR) service for asthma and COPD patients which aimed to achieve...	
Objective	**Data that will allow us to determine whether the objectives have been met**
(a) Improved patient outcomes through	
• Improved inhaler technique;	• Repeated assessment from operational data
• Improved patient understanding and hence adherence with inhaler therapy;	• Patient self-report
• Optimising use of inhaler therapy (including a change of device);	• Changes in therapy from operational data and patient interview self-report, and from pharmacy / practice data
• A reduction in adverse events / exacerbations associated with inhaler treatment;	• Patient self-report, and pharmacy / practice data
• Ensuring that patients who smoke are offered appropriate advice with regard to smoking cessation therapy.	• Patient self-report of whether advice was given (and /or remembered).
(b) Reduction in waste of inhaler therapies through	
• Improved inhaler technique	• Repeated assessment from operational data
• A possible reduction in prescribed inhalers for poorly controlled conditions	• Patient self-report and pharmacy / practice prescribing data
• Patients being encouraged to only order those items that they need	• Patient self-report of whether advice was given (remembered).

Table 2.1 – Matching data to Service objectives

The extrapolation of these Service outcomes to support QIPP targets - in terms of reduction in inappropriate reliever inhaler prescribing / increase in appropriate preventer inhaler prescribing, and reduction in costs of associated therapies - would be difficult to realise during the life of the Service and outside the scope of this evaluation. Quality improvement in condition management / symptom control, however, might be addressed by looking at the repeat measures in the operational data, supplemented by targeted patient interview questions and insights from pharmacy and practice data.

2.3 Description of Methods

a) Statistical exploration of anonymised operational Service data
b) A structured telephone survey of pharmacist Service providers
c) A postal survey of Service users
d) Semi-structured face-to-face interviews with 'high activity' pharmacist Service providers
e) Semi-structured telephone interviews with practice staff (GP or practice nurse)
f) In-depth case study of a small number of patients (combining extraction of specified pharmacy PMR data, GP practice data, and a semi-structured telephone interview with the patient)
g) Semi-structured telephone interviews with Service users
h) A focus group discussion with the project team

Ethics and Research Governance

In August 2013, the evaluation protocol and pre-pilot documentation were sent to Mr Dayle Roberts, the Research Management and Governance Coordinator (Primary Care) at the Greater Manchester Comprehensive Local Research Network. He confirmed that this was service evaluation and that no NHS REC or R&D approval was required[4]. Standards of good research practice (such as informed consent, secure storage of data) have been observed in all aspects of the fieldwork.

a) Statistical exploration of anonymised operational Service data

A range of data has been collected by the Service team as part of the operation of the Service. Pharmacist providers submitted paper forms to the Project Administrator (LG), who then entered the data into an Excel spreadsheet. Data recorded at each stage of the Service is listed in Table 2 overleaf. The Project Administrator entered data for one patient on the same row of the spreadsheet. This meant that she had to match up patients by initials and date of birth when each of their forms came through over the 6 months for which they were engaged with the project.

Providers also sent back forms for people who had participated in the first MUR but who had had 'good technique' and were therefore not asked to return. A shortened dataset was entered for each of these 'good technique' patients, and this is shown in Table 2.

Data from the Excel spreadsheet were transferred into SPSS statistical software version 21. Basic descriptive statistics were employed to prepare tables and graphs. Where possible, comparative statistics (chi-square tests) were also used to explore the significance of differences between groups of observations.

[4] By email – 5th August 2013.

Registration (Month 0) MUR assessment and reporting form	Month 3-4 Inhaler check form	Month 6 MUR assessment and reporting form
• Date of registration • GP practice name • Patient initials • Gender (for some) • Date of birth • Pharmacist's name • Presenting condition (asthma or COPD) • Current inhaler therapy • Background assessment (series of 5 questions e.g. do you have any problems using your inhaler?) • Asthma Control Test™ (ACT) / COPD Assessment Test™ (CAT) results • In-Check results • Visual assessment • Frequency of blue inhaler use • Inhaler technique action/recommendation (consider change of device, consider use of a spacer, education provided, other) • Inhaler technique assessment/conclusion (good, moderate or poor) • AIM machine results (from some pharmacies)	• Date of registration • GP practice name • Patient initials • Gender (for some) • Date of birth • Pharmacist's name • Presenting condition (asthma or COPD) • Changes to inhaler therapy • In-Check results • Inhaler technique assessment/conclusion (good, moderate or poor)	• Date of registration • GP practice name • Patient initials • Gender (for some) • Date of birth • Pharmacist's name • Presenting condition (asthma or COPD) • Current inhaler therapy • Background assessment (series of 5 questions e.g. do you have any problems using your inhaler?) • Asthma Control Test™ (ACT) / COPD Assessment Test™ (CAT) results • In-Check results • Visual assessment • Frequency of blue inhaler use • Inhaler technique action/recommendation (consider change of device, consider use of a spacer, education provided, other) • Inhaler technique assessment/conclusion (good, moderate or poor)

b) Structured telephone survey of pharmacist Service providers

A structured telephone interview schedule was deployed to explore the experience of service providers. This would enable us to gather provider views without taking a lot of their time (it was created and tested to take less than 10 minutes). It would also potentially increase our response rate over a postal survey, which may lie unanswered in the pharmacy among all the other papers.

The interview schedule was developed with the input of the Service team, and piloted with two pharmacists before formal deployment. The topics to be explored with pharmacists were:

- Experience of providing the service (e.g. workload, ease of data collection, use of the monitoring equipment, job satisfaction);
- Feedback from patients who accepted the Service;
- Reasons for refusal from those who did not;
- Repeat visits (i.e. was it easy or difficult to secure the 3-4 and 6-month return visits?);
- Perception of the remuneration for the Service;
- Involvement, if any, of other pharmacy staff in the Service;
- Engagement to promote the Service with patients and health professionals;
- Feedback from other health professionals;
- Ways in which the Service could be optimised;
- Aspiration for the future of the service (A priority for them, or not?).

We compiled a list of all the pharmacies who had contributed at least one patient form to the Service team. We also compiled a shorter list of pharmacies who had been trained, but had then not returned any forms. We had a slightly different interview schedule for these pharmacies.

A research assistant (NL) phoned all the pharmacies on these lists to gather data according to the schedule. The interview was timed to take no more than 10 minutes. Data from the structured interview forms were coded and entered into an Excel spreadsheet. From there data were transferred to SPSS v21 statistical software for basic descriptive analysis.

c) A postal survey of Service users

A self-completion postal survey was undertaken to engage a range of Service users across all the areas of Greater Manchester. A 4-page self-completion survey was developed with the help of the project team, and piloted with a Service user before wider distribution. Topics explored with Service users included:

- What was their experience like (in terms of things like privacy and information-giving)?
- Did the pharmacist give them any advice about their inhaler?
- Would they recommend the Service to someone else who used inhalers?
- Did they talk to anyone about the Service, like their GP/practice nurse?
- Were any changes made to their inhalers?
- Had their quality of life changed?
- Would they like the Service to continue?

Three hundred surveys were printed and packed up for distribution in prepaid packs to 57 pharmacies who had taken part in the project. From the provider telephone interviews, we had estimated information about the number of patients seen by each of these pharmacies. We also knew where pharmacists were no longer in place, so we did not send packs to pharmacies where no Service providers remained. We sent 2-6 packs to each pharmacy, depending on how many people they estimated they had recruited. The pharmacies were asked to address the information packs to patients, without spending time thinking too much about selecting patients. In that way, we would get a random sample. This strategy protected patient confidentiality as the evaluation team would receive no information about patients until they consented, but it would be impossible to follow up non-responders.

Each pack contained a cover letter, a survey, and a freepost return envelope direct to the evaluation lead.

It was decided to combine the survey with a prize draw, to increase the motivation of Service users to reply. We offered one prize of a £50 high street voucher. A separate prize draw reply slip was enclosed as part of the covering letter. The respondent could put the slip in with their completed survey. Once received by the evaluation lead (NJG) in the post, the draw slips and anonymous surveys were immediately separated so no link could be made between the two.

Data from completed surveys were entered into an Excel spreadsheet and then transferred to SPSS statistical software version 21 for basic descriptive analysis.

d) Semi-structured face-to-face interviews with 'high activity' pharmacist Service providers

Three pharmacists were identified, with and by the Service team, who had seen a high number of patients. Each of these pharmacists was invited to take part in a semi-structured face-to-face interview with the evaluation lead (NJG). Informed consent was obtained for the interview. The interview schedule explored why the providers thought they had been able to recruit a large number of patients, and how/whether they interacted with other health professionals.

Each interview was recorded on digital audio. NJG made fieldnotes of the main themes of the discussion, which could be checked against the recording. Interviews were anticipated to take between 30 and 45 minutes. Thematic analysis of the interviews was undertaken, using a framework approach based around the questions asked but not preventing other themes emerging.

e) Semi-structured telephone interviews with practice staff (GPs and practice nurses)

The ten pharmacies who had been identified by the Service team as 'high activity' were asked to suggest a local GP or practice nurse who could be approached for a semi-structured telephone interview about the Service. Information packs were sent to these GPs, which contained an information sheet, consent form and freepost reply envelope to the evaluation lead. NJG then arranged the interview with the health professional. A fee of £50 was paid to each GP or nurse who took part. The interview schedule explored whether health professionals perceived there to be a problem among patients with inhaler technique, their experience of the Service, and their thoughts about whether the Service should continue (and with any improvements).

NJG took fieldnotes during each telephone interview. Interviews were created to take no longer than 15-20 minutes. Thematic analysis of the interviews was undertaken, using a framework approach based around the questions asked but not preventing other themes emerging.

f) In-depth case study of a small number of patients

In order to explore whether the use of health services and medicines had really changed before and after a patient used the Service, we asked each of the three 'high activity' pharmacists to send an information pack to 5 patients that would enable us to do a small case study. In this case study, we hoped to combine pharmacy PMR data and GP practice data to see whether inhaler prescribing and ordering had changed over a period of 6 months before the first engagement with the Service and the 6 months afterwards – one year in all. We would also request practice data about appointments and hospital admissions.

We created a detailed patient consent form that specified all the separate pieces of data that we would request from their pharmacy or GP. The patient could also consent on this form to a semi-structured telephone interview (see section g). The information pack contained an information sheet, a consent form and a freepost envelope back to the evaluation lead.

Once the evaluation lead had told each of the three pharmacists which of their patients had given consent, the pharmacists sought the specified data for them.

g) Semi-structured telephone interviews with Service users

Most of these interviews were undertaken with patients recruited for the case study work. During the distribution of the patient survey, however, there was an opportunity to boost interview numbers. On the prize draw slip that was separate from the anonymous survey form, respondents could tick a box if they wanted more information about an interview. When separating the slips from surveys, NJG could then send out an informed consent pack for the interview, which contained an information sheet, consent form and freepost reply envelope. A research pharmacist (NM) then arranged the interview with the patient. A £10 high street voucher was sent to each patient who took part. The interview schedule explored patients' experience of the Service, and their thoughts about whether the Service should continue (and with any improvements).

NM took fieldnotes during each telephone interview. Interviews were anticipated to take about 30 minutes. Thematic analysis of the interviews was undertaken, using a framework approach based around the questions asked but not preventing other themes emerging.

h) A focus group discussion with the project team

All members of the project team were invited to a focus group discussion. Informed consent materials were sent out to each member by email. The topics to be explored were:

- Drivers leading to the establishment of the Service
- Positive and negative aspects of running the Service
- Learning points for a revised Service

The focus group discussion was scheduled for one hour. The discussion was audio recorded and fieldnotes were taken.

3. Results

3.1 Operational Data

Service activity in the Pharmacies

Seventy-three pharmacies returned data to the project team. Across the seven localities, the area with the most submitted records was Manchester, followed by Bolton and Tameside & Glossop (Figure 3.1.1).

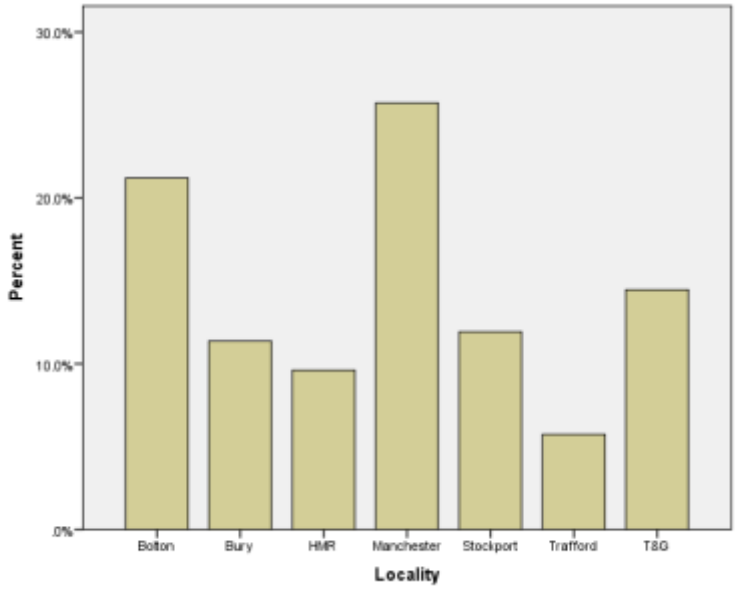

Figure 3.1.1 – Users from each locality (n=906)

Much of the service data represents the work of a relatively small number of pharmacies (Table 3.1.1). Tameside & Glossop had the highest mean number of users per pharmacy (21.8), but this was largely due to the high activity in 2 pharmacies. The returns from 14 (out of 73) pharmacies represent over half of the total records (55.5%, n=503).

Locality	Number of Pharmacies	Mean number of users / pharmacy	Range	Number of Pharmacies returning >20 users
Bolton	21	9.1	1-47	Two (24 and 47)
Bury	5	20.6	4-53	Two (22 and 53)
HMR	5	17.6	11-35	One (35)
Manchester	23	10.1	1-25	Four (21,22,23 and 25)
Stockport	6	17.5	1-66	Two (29 and 66)
Trafford	7	7.4	1-26	One (26)
T&G	6	21.8	3-65	Two (45 and 65)
Total	**73**	**--**	**--**	**14**

Table 3.1.1 – Returns by locality, noting high activity pharmacies

Characteristics of Users

There were 906 separate Service users logged in the operational database. The mean user age was 56.9 years (range 1-114 years[5]). Figure 3.1.2 shows the age range by 10-year bands: the proportions increase steadily for each decade.

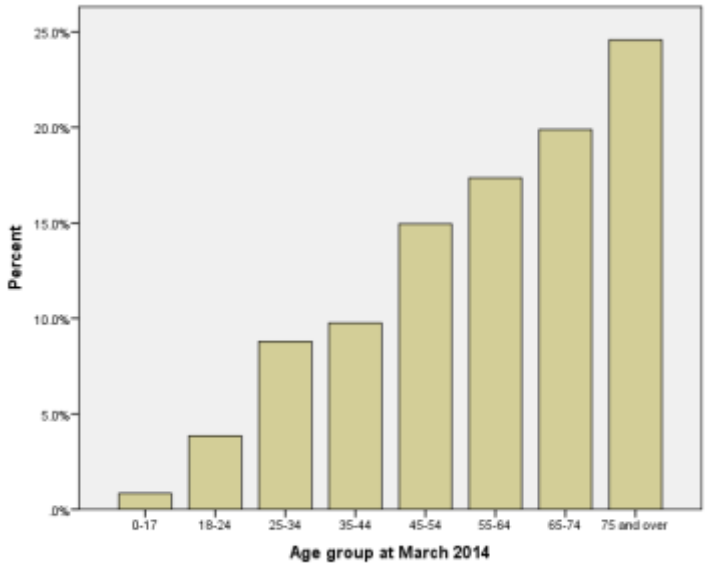

Figure 3.1.2 – Users of the Service, by age band (n=830 - 76 missing)

The original paperwork did not require the pharmacist to record the sex of the user. Of the 185 users whose sex was recorded, there was a fairly even split as 57.3% were female.

Three-quarters of the users reported asthma as their diagnosis (74.3%, total n=906).

Most people said that they had been shown how to use their inhaler before (83.4%, n=741), but many of them added that it had been a long time ago, and/or they did not feel that it had been done properly.

Baseline condition control scores

When asked how often they used their reliever inhaler - one possible indicator of condition control - only 20.9% of users (n=181) said that they used it up to 1-3 times a week. At least half of responding users were using the reliever once a day or more (60.5%, n=523)[6].

The ACT scores from the users with asthma showed a baseline where almost three-quarters of them had ACT scores reflecting poor control (Figure 3.1.3a overleaf). The CAT scores from the first visit showed that half of users (50.7%, total n=217) had scores that reflected high or very high impact on their lives (Figure 3.1.3b overleaf).

[5] There are likely to be some mis-reported data here at the extremes of the dataset: people aged under 18 were not included in the Service, and there were some extremely old participants.

[6] This is not as specific as we would like, but some people described their use as 'rarely' or 'often' and they had to be categorised differently as this could not be mapped to x times a day/week/month.

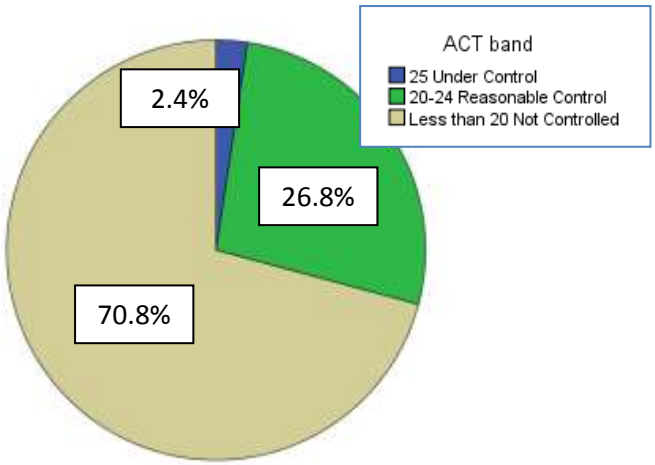

Figure 3.1.3a– ACT scores at first visit (total n=624)

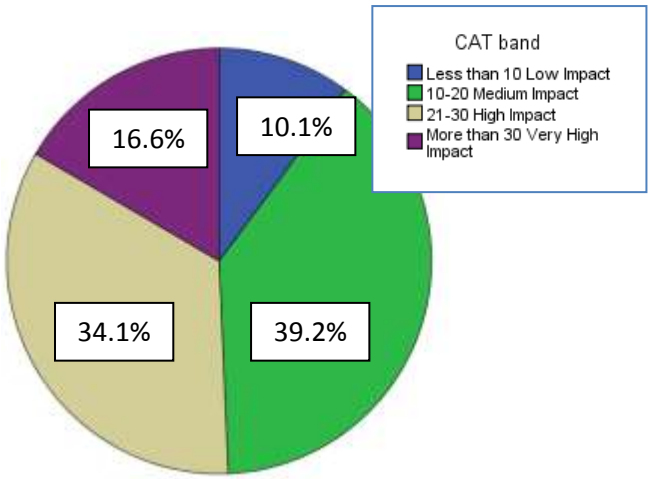

Figure 3.1.3b – CAT scores at first visit (total n=217) ('Impact' refers to impact of COPD on their life)

Device Use

Figure 3.1.4 shows the device combinations seen among users.

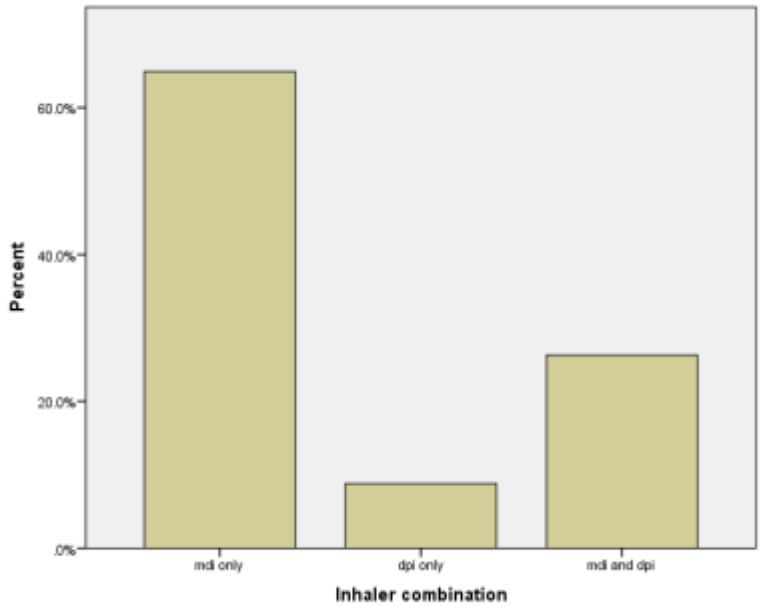

Figure 3.1.4 – Device combinations reported by Service users (total n=818)

Most users (64.9%, n=531) had only MDI devices (there could be more than one if, for example, they were using a reliever and preventer MDI – this was not specifically recorded). Just over one-quarter of users had both a MDI and DPI device (26.3%, n=215).

User performance – In-check DIAL® readings and visual technique check

Of the 636 reported first attempt scores with the In-check DIAL® ***for MDI users***, over three quarters (78.0%, n=496) were not in range (i.e. above or below 30-60 l/min).

Of the 258 reported first attempt scores with the In-check DIAL® ***for DPI users***, one-third (32.9%, n=85) were not in range (i.e. above or below 30-90 l/min).

Thus more DPI users achieved their target range of 30-90 l/min at the first attempt than MDI users of their target range.

By the third attempt, incorporating advice from the pharmacist, ***61.6% of MDI users*** and ***89.1% of DPI users*** had managed to bring their performance into range. These changes are summarised in Table 3.1.2.

Device type (target range)	% In range on first attempt (n)	% In range by 3rd attempt (n)
MDI (30-60 l/min)	20.9 (133)	61.6 (415)
DPI (30-90 l/min)	67.1 (173)	89.1 (230)

Table 3.1.2 – Initial In-check DIAL® performance, and % of users in range by the third attempt (with pharmacist advice)

The pharmacist was asked to visually assess technique. Table 3.1.3 shows the pharmacist's assessment of technique for MDI and DPI users at the first visit:

Device Type	% of MDI users (n=730)	% of DPI users (n=273)
Poor	57.9	38.1
Moderate	40.8	57.1
Good[7]	1.2	4.8

Table 3.1.3 – Pharmacist's assessment of inhaler technique for DPI and MDI users at visit 1

AIM machine tests

Some pharmacies had an AIM machine to use in their consultations. At visit 1, 97 people had an AIM machine test and, of those, almost three-quarters of users failed the test (71.4%, n=70). Twenty-five of the people who failed the AIM test had met the target range on the In-check DIAL®.

Pharmacist Recommendations in the first consultation

Most pharmacists reported that they had provided education in the consultation as their main recommendation (87.7%, n=795: Table 3.1.4). The incidence of recommending a device change or addition of a spacer was doubled (in terms of percentage only – numbers are much smaller for AIM tests) when the pharmacist had also had the facility of the AIM machine check.

Pharmacist Recommendation	% of cases Overall (n=906)[8]	% of cases AIM only (n=97)
Education Provided	87.7	76.3
Add a spacer	9.1	18.6
Device change	6.4	12.4
Referral to another professional	0.6	0.0
Other (such as stop smoking advice)	1.9	1.0

Table 3.1.4 – Pharmacist recommendations at the first visit – overall, and when the AIM test was available

[7] Users with Good technique were not generally recruited to the Service, but pharmacists made specific notes in these cases that they felt further review was necessary (e.g. they had a poor condition control score).
[8] Total % is more than 100% as pharmacists could make more than one recommendation.

Users in the Second Consultation

Two hundred and sixty-six people came back for a second consultation. They undertook a repeat of the In-check DIAL® measurement and the visual technique observation.

Changes in Performance from the First to the Second Consultation

Changes in technique

Tables 3.1.5a and 3.1.5b show the change in inhaler technique seen between consultation 1 and consultation 2 for (a) MDI users and (b) DPI users.

Technique	% (n=192)	Technique change	% (n=192)
Good	59.4	Improved	77.1
Moderate	30.2	No change	18.8
Poor	10.4	Worse	2.1
		Missing	2.1

Table 3.1.5a – Inhaler technique ratings for MDI users, including changes in technique

Technique	% (n=85)	Technique change	% (n=83)
Good	64.7	Improved	59.0
Moderate	24.7	No change	27.7
Poor	10.6	Worse	3.6
		Missing	9.6[9]

Table 3.1.5b – Inhaler technique ratings for DPI users, including changes in technique

Both groups showed significant improvement in technique from the first visit, most notably in the MDI group.

Changes in the proportion of those achieving the target range

Tables 3.1.6a and 3.1.6b show the change in the proportion of users achieving the target In-check DIAL® range between consultation 1 and consultation 2 for (a) MDI users and (b) DPI users.

Target Range Achieved?	% (n=194)	Change in Individual Achievement	% (n=195)
Yes	82.0	Improved	23.6
No	13.4	No change	65.6
Not applicable[10]	4.6	Worse[11]	5.6
		Missing[12]	5.1

Table 3.1.6a – Inhaler In-check range achievement for MDI users, including individual changes in technique

[9] These missing values occurred most often because the user did not have this type of device in the first visit so there are no comparative results.
[10] Using a spacer.
[11] 'Worse' results usually occurred because the project team insisted that the 3rd attempt had to be in range – most of these users had at least one of the attempts in range, but not necessarily the 3rd attempt.
[12] These missing values occurred most often because the user did not have this type of device in the first visit so there are no comparative results.

Target Range Achieved?	% (n=87)	Change in Individual Achievement	% (n=83)
Yes	100.0	Improved	1.2
No	--	No change	88.0
		Worse	1.2
		Missing	9.6

Table 3.1.6b – Inhaler In-check range achievement for DPI users, including individual changes in technique

By the third attempt, 82.0% of the 194 MDI users were in range, and 100% of the 87 DPI users. There was improvement in achievement for almost one-quarter of MDI users (23.6%, n=46). It was notable, however, that the gains in more users achieving the target In-check DIAL® range were smaller than gains in technique.

Other Features of the Second Visit

For 233 of these repeat visits, the pharmacist noted whether any change in device had been made. A change had been made in 10.7% of cases (n=25).

Some pharmacists noted in free text a significant improvement in ACT or CAT scores, but this was not consistently reported as part of the dataset, and some patient-reported improvements such as smoking quit attempts and increased confidence in inhaler use.

Users in the Third Consultation

One hundred and thirty people came back for the third consultation. They undertook a final repeat of the In-check DIAL® measurement and the visual technique test. By the third attempt, 81.3% of the 80 MDI users were in range, and 100% of the 36 DPI users. This was very similar to the figures for the second consultation. The improvements seen in inhaler technique were maintained in the third visit (Table 3.1.7).

Device Type	% of MDI users (n=102)	% of DPI users (n=47)
Poor	7.8	8.5
Moderate	15.7	21.3
Good	76.5	70.2

Table 3.1.7 – Pharmacists' assessment of inhaler technique for DPI and MDI users at visit 3

Third visit condition control scores

When asked how often they used their reliever inhaler - one possible indicator of condition control -29.0% of users (n=29) said that they used it up to 1-3 times a week, which was a significant increase on the baseline level of 20.9%. Under half of responding users were using the reliever once a day or more (42.0%, n=42) which was again a notable percentage decrease on the baseline level of 60.5%.

The ACT scores from the users with asthma at visit 3 showed an improvement trend - bearing in mind the limitation of much lower numbers - from baseline (Figure 3.1.4 overleaf).

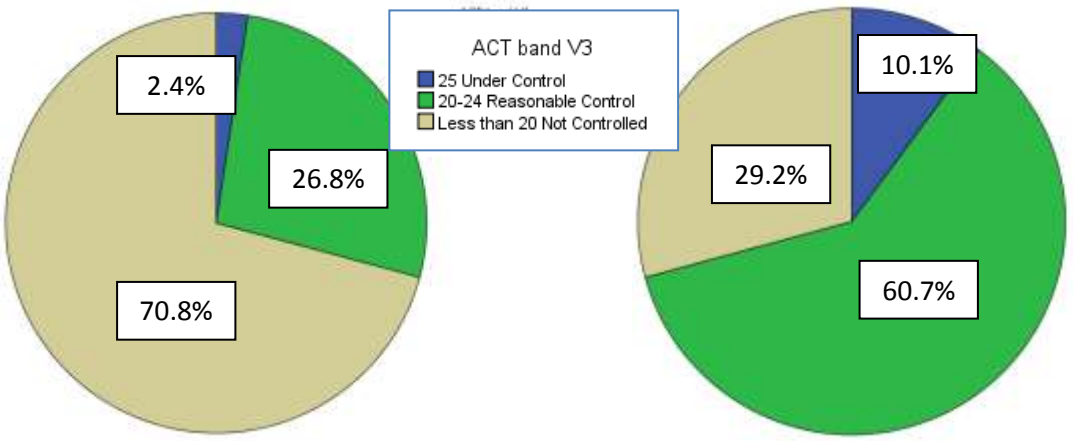

Figure 3.1.4 – ACT scores at visit 1 (total n=624) and visit 3 (total n=89)

Almost three-quarters of asthma users had moved towards reasonable control (score 20-25) (70.8%, n=63), as opposed to the baseline where almost three-quarters had a 'Not controlled' score less than 20.

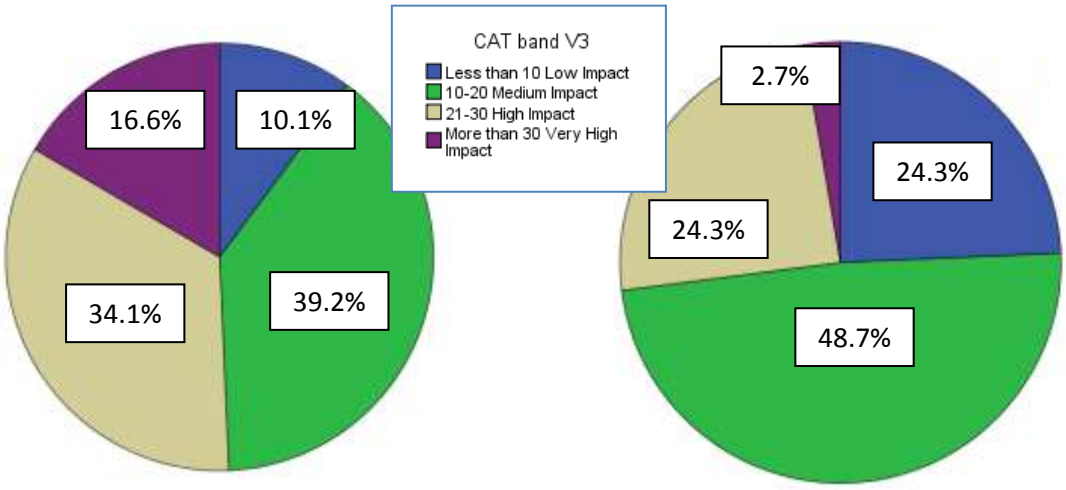

Figure 3.1.5 – CAT scores at visit 1 (total n=217) and visit 3 (total n=37)
('Impact' refers to impact of the condition on life)

Bearing in mind the difference in numbers of users (37 at visit 3 compared with 217 at visit 1), there was also a trend towards a lower CAT score and less impact of the condition on users' lives (Figure 3.1.5). Almost three-quarters of the third visit users had a CAT score less than 20 (73.0%, n=27).

Key Messages from Operational Data

- Service activity was spread unevenly across pharmacies and localities, with a small number of high-performing pharmacies responsible for much of the activity
- Pharmacists were able to bring a significant number of users into range on the In-check DIAL test for their inhaler device) during the first consultation
- There was significant attrition in the numbers of users who attended for a second and third consultation
- Nevertheless, there was an improvement trend in terms of inhaler technique rating and whether the In-check DIAL target range was achieved for both MDI and DPI users at the second visit
- There was also an improvement trend in terms of condition control, as indicated by better ACT/CAT scores and reduced reliever use, in the third consultation
- Most of the pharmacist interventions were to provide education, rather than to recommend changes or refer users on to other services
- Where an AIM machine was available, the percentage of pharmacist recommendations to change the device, or to add a spacer, doubled[13]
- Some device changes were seen by the second visits, indicating that the pharmacist's intervention had influenced some prescribers

[13] There were low numbers of consultations, however, where the AIM machine was available.

3.2 Postal survey of Service Users

Forty completed survey forms were received from Service users across Greater Manchester. This represented a 13.3% response rate. The response rate may have been higher, as we do not know exactly how many packs were sent out by the pharmacies. This is a relatively low rate, and thus the responses could not be considered generalisable to the full group of Service users. When it is considered, however, that the Service had started a long time before the survey was sent out (it could have been months since they attended), and that the distribution of survey packs relied on the co-operation of busy pharmacies, the respondents show diversity and their opinions do provide useful insights.

Characteristics of Respondents

Table 3.2.1 shows how many users responded from each area. It also shows the number of pharmacies who had been interviewed in each area, and thus who had distributed packs. There is a broad similarity between the two datasets, with Manchester users perhaps under-represented in the sample.

Group	Bolton	Bury	HMR	Manchester	Stockport	Trafford	T&G
Users	16	3	4	3	3	4	7
Pharmacies	17	6	3	13	3	7	6

Table 3.2.1 – Number of users and pharmacies from each GM area taking part in the evaluation (Total=40 users and 55 pharmacies)

Half of the respondents were women (50.0%, n=20), and just under half were male (3 respondents did not report their sex). The mean age of responding users was 59.2 years, with a range from 18-81 years (n=37). Most of the respondents reported a white ethnic group (87.5%, n=35), with 2 Asian/Asian British and 1 mixed group user also participating (2 people chose not to report their ethnic group). Most of the respondents had asthma (Figure 3.2.1); 'other conditions' were shortness of breath and emphysema.

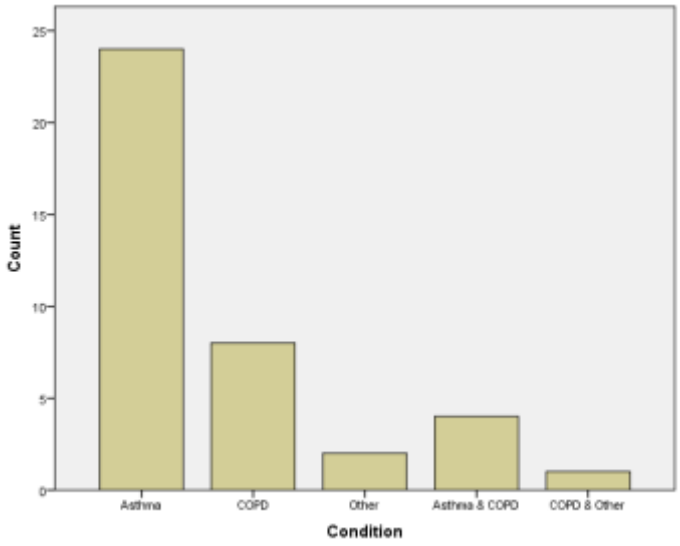

Figure 3.2.1 – Diagnosed conditions reported by user respondents (n=40)

Most of the users did not have to pay for their prescriptions (82.5%, n=33), reflecting the older age group represented. Most of the users used the pharmacy in question all the time to get their inhalers (90.0%, n=36: three used it 'sometimes' and one person had just started with inhalers). Most self-rated their health as 'Fair' or 'Good' (Figure 3.2.2 overleaf).

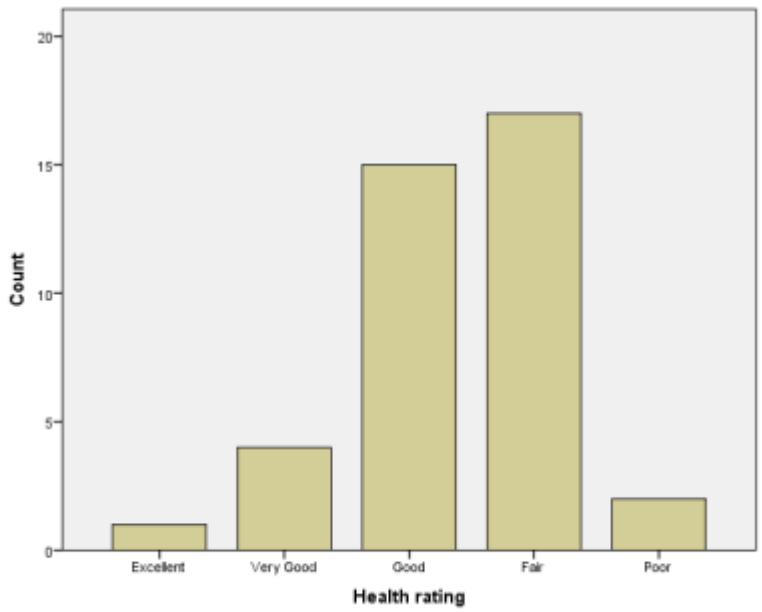

Figure 3.2.2 – Self-rating of health by user survey respondents (n=39)

Experience of the Service

We asked about different aspects of the Service, and the key findings about the patient experience were very positive:

- Almost all users felt the place where they talked to the pharmacist for the Service was private (97.5%, n=39: one did not feel it was private);
- Almost all users felt that the appointment length was about right (95.0%, n=38: one user thought it was too short and the other was not sure);
- Almost all users felt that the pharmacist made sure they understood what was happening in the consultation (97.5%, n=39: one user was not sure);
- Almost all users felt that they could ask the pharmacist questions (97.5%, n=39: one (different) user was not sure)
- Most users felt that their understanding of the information from the pharmacist was 'just right' (92.5%, n=37: two users found it 'too easy' and one found it 'too hard');
- Twenty-nine people had attended more than one consultation with the pharmacist – of those, most thought making the follow-up was 'easy' (65.5%, n=19) and the others thought it was 'OK' (34.5%, n=10)
- Almost all users would recommend the Service to a friend who had inhalers (95.0%: one user said No and one answer was missing)
- Almost three-quarters of users said that using the Service had made them more likely to talk to their pharmacist about their medicines (72.5%, n=29: the other users said they would be 'just as likely' to talk to the pharmacist)

Illustrative written comments from users about their experience are given in Box 3.2.1.

> It helped me to appreciate more about what the pharmacy can offer.
>
> I found the pharmacist very easy to talk to and she listened to me and answered very clearly.
>
> I felt it was very informative and he concentrated on ME! Until I understood PROPERLY. I hardly use my other inhaler now, whereas before I used both quite often. My chest feels lighter now.
>
> (On whether the location was private) No, as customers to the chemist passed in/out in this location.
>
> The chemist has asked, since our first meeting, if or not any problems concerning the inhaler have arisen and went over the procedure two or three times.

Box 3.2.1 – Written comments from survey respondents about their Service experience

Impact of the Service on Inhaler Use

Users were asked what, if anything, had changed about their inhaler use since they saw the pharmacist (Table 3.2.2).

Possible Impact	% of users (n=40)
I am thinking more carefully about how I breathe	72.5
I use my preventer inhaler more regularly	52.5
I do not use my reliever inhaler as much	37.5
I have got different inhalers from my doctor	17.5
I have had less antibiotics for chest infections	10.0
I have had less steroid tablets for emergencies	5.0
Other impact (comments were around using their inhaler in a better way)	5.0

Table 3.2.2 – Reported impact on inhaler use and condition (respondents could choose more than one option)

Almost three-quarters of users reported that they were thinking more carefully about they breathe when using the inhaler (72.5%, n=29), over half were using their preventer more regularly (52.5%, n=21), and over one-third were using their reliever inhaler less regularly (37.5%, n=15). A minority had seen a change in their inhaler prescription (17.5%, n=7), and a smaller - but still notable - minority reported receiving less steroids or antibiotics.

Another question in the survey further explored changes made to prescriptions for inhalers. Eleven users (27.5%) reported a change in their prescription[14] (they could report more than one change):

- 9 had received a spacer
- 6 had had their device changed
- 3 now had a preventer inhaler
- 2 had had a dose increase for an inhaler

[14] There is some inconsistency in the answers to different questions from different individuals – more people responded 'Yes' to the later question about inhaler prescription change than did for the earlier question about getting different inhalers from their doctor.

Users were asked to report their use of specific health services since they had the Service (Table 3.2.3).

Health Service	% Users reporting use since attending the inhaler Service (n=40)				
	Less of them	More of them	Just the same	Never used	Missing
Visits to the GP	22.5	2.5	60.0	2.5	12.5
Visits to the Practice Nurse	20.0	10.0	47.5	15.0	7.5
Home visits by the GP	7.5	--	7.5	52.5	32.5
Visits to A&E / casualty	7.5	2.5	10.0	47.5	32.5
Emergency hospital admissions	10.0	--	10.0	47.5	32.5

Table 3.2.3 – Self-reported health service use since attending the Inhaler Service

A significant minority of users reported fewer appointments with their GP (22.5%, n=9) or practice nurse (20.0%, n=8) following the Service. Four users (10%) reported fewer emergency hospital admissions. There were few reports of more use of any of these general health services; indeed, greater use of practice nurse appointments may indicate a renewed motivation to gain control of the condition.

Over half of users reported that their quality of life had improved since they used the Service (60.0%, n=24). Most of the remaining users felt that it had stayed the same (30.0%, n=12), but 4 other users were 'not sure'.

Users were also asked whether they had talked to different groups of people about the Service, and the responses showed a variety of conversations taking place:

- 26 had talked to family or friends
- 11 had talked to their nurse
- 7 had talked to their GP
- 4 had talked to hospital staff

One of the telephone interviewees reported, for example, that she was trying to convince her husband to visit the pharmacy for the Service as well, as she felt that he was not using his inhaler properly.

Smoking Cessation Advice

Eleven users reported being a smoker at the time they used the Service, and all of them reported that the pharmacist had provided advice about smoking cessation. Seven users made a quit attempt following this advice.

Empowerment of Patients

A series of questions towards the end of the survey explored knowledge and confidence about inhalers and the asthma or COPD condition since using the Service (Table 3.2.4 overleaf).

Aspect of knowledge or confidence	% of users (n=40)			
	Yes	No	Not sure	Missing
Do you feel you know more about your inhalers?	92.5	2.5	2.5	2.5
Do you feel more confident about using your inhalers?	80.0	--	2.5	17.5
Do you feel you know more about when or how to order your prescriptions for your inhalers?	75.0	--	5.0	20.0
Do you feel you know more about your condition (asthma or COPD)?	77.5	5.0	5.0	12.5

Table 3.2.4 – Self-reported knowledge and confidence of users after the Service

The majority of users felt that their knowledge and confidence had improved on all aspects explored, including more knowledge about when or how to order their prescriptions for inhalers.

Final Comments about the Service from Users

Twelve respondents added written comments at the end of the survey. They are reproduced here in full as written:

- *It has helped me*
- *As I do not see the practice nurse until January 2014, I can add nothing more*
- *In many cases the chemists outshine the doctors on this matter. They instruct, show, do and advise on correct usage of the product, advise you on times to take, when to take, how to take and what to do if you miss or double dose. The doctors rarely match up this quality of information and there is a 99% better chance of getting this information (in an emergency situation) from the chemist.*
- *Very Good*
- *I do feel more for my inhalers but I still hath bad wrething [wheezing?] all time*
- *I didn't realise I had slipped into bad habits using the inhalers. The service certainly helped me.*
- *Just I found it very helpful*
- *It is a great assett to asthma sufferers and would be an advantage for them to learn more.*
- *Very useful. Helped me with my asthma and how to control it properly.*
- *I don't feel the need now to continue but would if asked and would recommend it to anyone.*
- *The service is essential. After many years I found my technique was wrong. The pharmacist put me right and now I'm using far less inhaler and I feel a lot better. The pharmacist was excellent, explaining, and being patient. She was wonderful and professional.*
- *I feel more patients would benefit from this service.*

3.3 Case studies of selected patients in 'high activity' pharmacies

Three 'high activity' pharmacists were asked to identify some patients for whom we could collect complementary data from the PMR, notes from the inhaler Service consultations, practice records and telephone interviews. The resulting dataset for seven recruited patients was constituted as follows:

- We were able to capture PMR data for all 7 patients
- We were able to describe the consultations for all 7 patients
- We interviewed six patients (one refused consent for this, but gave consent for data extraction)
- We obtained practice data for two patients only, and we have not reported them here

Table 3.3.1 overleaf shows the main features of the seven patients' consultations with the pharmacists. Whilst the original intention was that this purposive sampling would probably bring out the best possible patient outcomes, the resulting cases probably do reflect a more realistic variety of scenarios. They do include patients who completed all three consultations and who saw tangible improvements, but they also include patients who – at the other extreme - only attended for one consultation and have been resistant to recall.

Themes from the Interviews

Users in the telephone interviews echoed the positive survey responses about the consultation.

> *"I find the pharmacy doing this is better than the asthma nurse as they take more of an interest"*

A user who took part in the telephone interviews summed up the impact of the Service:

> *"She [pharmacist] told me to puff into the machine and I wasn't doing it right. She showed me how to do it and in the end I did get it right"*

One telephone interviewee summarised some tangible improvements in their quality of life:

> *"As I said, I'm sleeping much better and I've got more energy – there's no doubt about that"*

Three of the seven telephone interviewees described how they were using the reliever less often. In one case they reported that one reliever inhaler was now lasting up to six months. The other two telephone interviewees found that they were ordering a reliever inhaler every two months instead of every month.

Another telephone interviewee noted the contribution that the pharmacy had made – despite having a lot of experience of using an inhaler, they still benefited from the extra education given by the pharmacist:

> *"I've been using it [inhaler] for years, but she [pharmacist] gave me a better insight about how to use it"*

Some of the telephone interviewees had suggestions for improving the Service. Their suggestions were:

- Reducing number of consultations from three to two
- Targeting all patients using inhalers, especially those also on steroid inhalers to 'catch' more people
- Including this as part of a wider medicines review, suggesting that they were not aware of the existing MUR service

ID Number and patient demographics	Visit	Technique assessment	AIM result (if available)	ACT score	Other notes
PP01 – female aged 76 years – reliever, combined inhaler	1	Poor	Fail	14	The patient was using salbutamol reliever 2-3 times a week. She did not have enough 'breath power' to operate a MDI. She was advised to use a spacer.
	2	Good	N/A (using spacer)	25	She had been able to stop using the salbutamol inhaler.
	3	Good		25	Still no use of the salbutamol inhaler. Reported that she had no wheezing, no coughing, and was sleeping well.
PP02 – female aged 58 years – preventer and reliever – had just received steroids & antibiotics before first visit	1	Moderate	Fail (synchronisation)	13	
	2	Good	Pass	23	Much improved – the patient said that she had had a chest infection at the first visit and this was why she had poor results.
	3	Good	Pass	24	The patient reported 'rare' use of the reliever inhaler.
PP03 – female aged 71 years – preventer and reliever – a 'new starter' on inhalers	1	Poor	N/A (using spacer)	11	Not using salbutamol, as she did not think it worked.
	2			23	The patient reported that – after 12 months – her cough had stopped, she was sleeping better, she had more energy - but she still had a croaky voice.
	3	Good		23	The patient was still reporting better sleep, more energy and no cough.
PP04 – female aged 71 years – preventer and reliever inhaler, oral aminophylline and spacer	1		AIM was machine not yet in the pharmacy	23	There was a mistake in technique – she was not inhaling prior to MDI use. Inspiration rate too high – started at 110 and brought it in range to 35. She had had a spacer for a long time – she was using it erratically with the preventer (not the reliever), and it had not been replaced for over a year. She did not have a self-management plan from the GP.
	2	Good	Fail (synchronisation)	--	No medicines had changed, but the patient was basically well. She had remembered the suggested technique changes well. Her inspiration rate was much better, at 42. The patient said that her chest had been much better this winter. She did not have to use the salbutamol inhaler as much as before, despite still having some chest infections. She still had no self-management plan from the GP.

PP06 – female aged 44 years – preventer (combined) and reliever inhaler	1	Poor	Fail (Synchronisation)	5	She had not been using her preventer inhaler at all. Pharmacist advised regular use of the preventer, with a review again in 4 weeks. She showed poor technique for the MDI reliever (specifically poor synchronisation), but good technique for the DPI preventer. The patient was advised to either use an Aerochamber with the MDI reliever or change to another device. Education was given and the patient was referred to the asthma nurse for follow-up. At an informal follow-up opportunity, the patient reported an improvement in their symptoms after starting to use the preventer on a regular basis.
PP07 – male aged 49 years – preventer (combined) and reliever inhaler	1	Poor	---	15	Patient was using the MDI reliever inhaler every day. He did not want an Aerochamber – it was difficult to carry. The pharmacist recommended a device change from a MDI to a DPI. The GP accepted the recommendation. The reliever inhaler is still being used every day. There is a challenge that the patient does not come himself into the pharmacy – his wife collects the prescription.
PP08 – female aged 68 years – preventer and reliever inhaler	1	Poor	Not done – patient obviously unable to use MDI	14	Patient was not able to use a MDI as she had arthritis. She was not able to press down the canister. She was trying to do it with the palm of her hand. This meant that MDI inhaler aid devices were not viable. Pharmacist recommended changing to an Easibreathe® breath-actuated inhaler for both preventer and reliever. This recommendation was accepted by the GP. The pharmacist explained that the reliever was only to be used as needed.
	2	Good	N/A	20	Patient reported that her asthma was better controlled. The arthritis, however, was slowing her down. She had been getting out of breath with the housework, and now it was much better. Her ordering of reliever inhalers had also reduced to one every 2-3 months.

Table 3.3.1 – Summary of in-depth case studies from the 'high activity' pharmacies

Main messages from the user survey and case studies:

- The user experience of the consultation was good in terms of privacy, understanding and the attitude and helpfulness of the pharmacist
- Most users reported more confidence and knowledge about their inhalers and condition
- Some users reported making fewer GP and practice nurse visits
- Users questioned the usefulness of three consultations
- Many users showed that they had maintained good practice from the education in the consultation in that they were thinking carefully about their inhaler breathing, they were using their reliever less often and they were using their preventer regularly
- All the users who were smokers at the time of the Service reported getting stop smoking advice, and some of them acted upon it to make a quit attempt
- Many users reported improvements in their quality of life as a result of the Service

3.4 Structured Telephone Survey with Pharmacist Providers

We spoke to 72 provider pharmacies for whom we had seen submitted data in the CPGM combined dataset. Of those, 17 pharmacies told us that the trained person had moved on. We were thus able to undertake interviews with 55 provider pharmacists. We spoke to at least one pharmacist in each GM area: the number of providers from each area is shown in Table 3.4.1.

Bolton	Bury	HMR	Manchester	Stockport	T&G	Trafford
17	6	3	13	3	6	7

Table 3.4.1 – Number of pharmacies taking part in the provider interview across Greater Manchester (Total=55)

Half of the pharmacists interviewed described themselves as 'pharmacy managers' (52.7%, n=29); the sample also included 'pharmacists', 'pharmacy owners', 'relief pharmacists' and 'second pharmacists'. Some identified themselves as superintendent pharmacists or in local pharmacy policy roles.

One-third of the pharmacies (32.7%, n=18) identified themselves as a multiple pharmacy, so the sample over-represents independent pharmacy when compared with national figures (one-third of pharmacies (38.6%) nationally at 31/3/13 [HSCIC, 2013], as opposed to two-thirds here).

The pharmacies showed variation in prescription item dispensing, one marker of workload. When asked whether they dispensed more or less than the 2012 average of 6,548 items per month, 43.6% (n=24) said they dispensed more, 41.8% (n=23) said less, and 14.5% (n=8) said about average.

Recruitment of Patients to the Inhaler Service

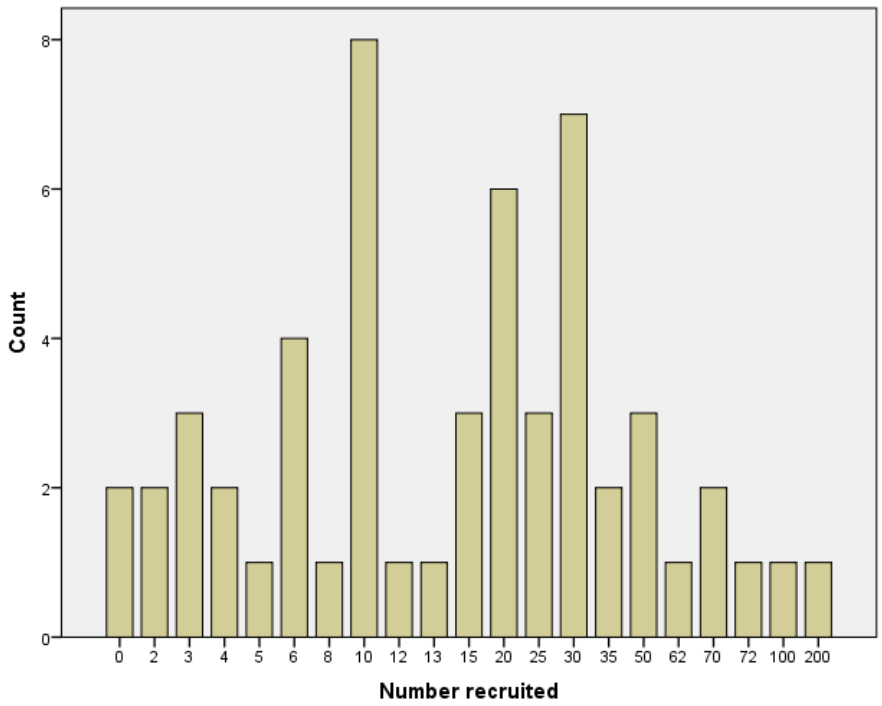

Figure 3.4.1 – Estimated recruitment figures from each pharmacy (n=55)

We asked pharmacists to estimate how many patients they had recruited to the Service (without going through their paperwork), just to see how active they felt they had been. The mean of these estimates was 25.58 people, with a median of 15, and the range was 0-200 (Figure 3.4.1).

Pharmacists recruiting over 20 patients were classified as 'higher activity' for the purpose of the interviews, and were asked why they thought they had been able to recruit relatively high number. Twenty pharmacists offered opinions about contributing factors (more than one, in some cases):

- Having good existing relationships with patients, and offering them new services (n=9)
- That asthma/COPD services were a priority for their pharmacy (n=8)
- That they had many patients with asthma/COPD coming to their pharmacy (n=5)
- combining the consultation with a MUR or prescription (n=4)
- having an enthusiastic or proactive pharmacist (n=3)
- having a second pharmacist, creating time to talk (n=1)

Pharmacists recruiting less patients were, in contrast, asked what might have been the reasons for this. Eight pharmacists offered opinions (more than one, in some cases):

- There was a good asthma clinic nearby (n=3)
- They had no time to do the Service (n=2)
- They had reached their MUR quota (n=1)
- It was hard to bring patients in for appointments (n=1)
- It was not a priority for them (n=1)
- They did not have many patients using inhalers (n=1)

We asked pharmacists to estimate (a) the proportion of patients they asked who took part and (b) the proportion of patients who subsequently returned for the second and third consultation. The results are shown for comparison in Table 3.4.2 below. This showed that almost two-thirds (65.4%) of pharmacists were recruiting over half of the patients they asked, but only about a quarter (27.3%) reported retaining over half of their patients through the subsequent consultations.

% rate	0-25%	26-50%	51-75%	76-100%
(a) Recruitment	27.3	3.6	14.5	50.9
(b) Retention	41.8	27.3	10.9	16.4

Table 3.4.2 – Percentage recruitment and retention estimated by pharmacists (n=53)

The main reason for refusal from patients, that pharmacists reported, was that patients did not think they needed help. Another reason was that an appointment was made but people did not come back. There were also some pharmacists who acknowledged that there was a very good asthma clinic nearby. Several pharmacists said that 'No one refused'.

Perceived impact of the Service on inhaler technique and prescribing

Most pharmacists (81.8%, n=45) thought that they had seen a positive change in technique in over half of their patients who had used the Service (Table 3.4.3).

Proportion	0-25%	26-50%	51-75%	76-100%
% of pharmacists who thought this proportion of patients had shown positive technique change from the Service	5.5	7.3	23.6	58.2

Table 3.4.3 – Pharmacist perception of the extent of positive impact on inhaler technique (n=52 – 1 pharmacist stated they did not know, and 2 did not answer)

The pharmacists were evenly split about their perception of the impact of the Service ***on prescribing*** for their patients. Of the 52 pharmacists who responded to the question, 26 said that they had seen changes and 26 said that they had not. Changes seen included:

- Prescribing of a spacer device
- Change in inhaler device type
- A smaller quantity of a device being prescribed at a time
- A dose being specified on the prescription (that was previously missing)
- Use of a spacer combined with a lower dose of inhaled therapy

Talking to other professionals about the Service

Three-quarters of the pharmacists interviewed (74.5%, n=41) reported that they had spoken to at least one type of local health professional about the Service. Sometimes they had spoken to several different stakeholders in a practice (Table 3.4.4).

GP	Practice Manager	Nurse
56.4%	12.7%	21.8%

Table 3.4.4 – Percentage of pharmacists speaking to different local health professionals about the Service

Willingness to continue the Service

When asked if they would like the Service to continue, most pharmacists said they would (85.5%, n=47). The pharmacists who said No or Unsure suggested that they would be open to let the Service in a modified form (shorter consultation, more GP support).

When asked to rate, on a scale of 1 (low) to 10 (high), how important this Service was alongside other services they provided, the mean rating was 7.42 (n=55), with 33 pharmacists rating it from 8-10. This indicates a considerable level of support.

Rating of different aspects of the Service

We asked pharmacists to rate – from 1 to 5, where 1 was poor and 5 was good – different aspects of providing the Service. Table 3.4.5 shows their mean response for each aspect.

Aspect	Mean (n)	Overview of Pharmacist Explanatory Comments [Response notes]
Reaction of other health professionals	2.33 (40)	Nurses thought they were being 'checked up on'. Doctors did not respond to suggestions. Lack of co-operation and resistance to service. GP not acting on suggestions. Some were helpful and others did not want to know. *[15 said 'not applicable'.]*
Time taken to complete each consultation	2.94 (52)	Took too long. Forms did not help. Took as long as was needed for each person.
Ongoing support from the project team	3.08 (52)	Some said they didn't get or need anything. Some felt the only feedback they got was negative. Some wanted a pharmacy visit. More feedback needed.
Data collection tools	3.13	Electronic would be better. Too fiddly. Too complex. Confusion at the beginning – ambiguous in places. Too time consuming.
Communication from the project team	3.15 (53)	Some said they didn't get or need anything. De-motivation from a negative email message early on in the project. Positive comments about LG's contribution.
Amount of payment	3.26 (46)	Not cost-effective. More money needed for second consultation. *[9 said 'don't know'.]*
Speed of payment	3.35 (17)	Some thought they had not yet been paid. *[35 said 'don't know' and 3 'not applicable'.]*
Reaction of patients	3.74 (54)	Improved quality of life – patient said they felt like a different person.
Equipment provided	4.15	Some didn't get equipment until very late. Some pharmacies reported not getting a promised machine (possibly the AIM machine). Some didn't get all the equipment they needed. Placebo inhalers good but had to source own mouthpiece adapters.
Training	4.20	Lots of pharmacists there – a bit chaotic.
Job satisfaction	4.35	Initially great but became demoralising over time. Good when they actually did it. Not good when patients did not return – incomplete. Felt they had done some good.
Confidence in doing consultations	4.56 (54)	Confusing forms affected confidence. Became more confident as time went on.
Overall experience	***3.73***	Some disillusionment as the Service went on. 'Loved it'. Did not always get prioritised – some felt they could have got more out of it.

Table 3.4.5 – Mean rating of different aspects of the Service, low to high, with explanatory response examples (n=55 unless otherwise stated)

The aspects of the Service drawing the least positive ratings from the pharmacists were the reaction from other health professionals, the time taken to complete each consultation, support from the project team, and the data collection tools. Conversely, the pharmacists gave higher ratings to equipment, training, job satisfaction and confidence doing the consultations.

Suggestions for Improving the Service

The improvements that pharmacist providers suggested for the Service were as follows:

Streamlining the Service
• More streamlined paperwork, ideally in electronic format and aligned to existing MUR • Align follow-up checks to when patients naturally return for repeat prescriptions, not strictly to time limits • Reduce the Service commitment to two consultations – one initial and one follow-up • Consider telephone follow-up • Involve other pharmacy staff in administration
Better Inter-disciplinary working
• CPGM should facilitate better support from other local health professionals • Organise multi-disciplinary training • Encourage referrals from practices • Consider a joint Service happening in the practice and pharmacy • Put posters about the Service in practices and pharmacies • Avoid competition if there is a good asthma clinic nearby
Providing Incentives
• Pay an enhanced MUR fee for the first consultation • Better payment for the middle check • Incentivise patients to get regular checks • More feedback and communication from the Service team about performance • Run the payment year from April to March, alongside MURs
Training Enhancements
• Completing the paperwork • Systems for recalling patients • Organise refresher/revision events
Extending Reach
• Extend the Service to children and young people under 16 • Include all respiratory conditions where inhalers may be used

Main messages from Pharmacy Providers:

- It was generally felt by the pharmacists that there was real merit in being able to spend time with a patient and check their technique and they felt that they had made a real difference in people's lives
- Pharmacists felt that the vast majority of patients were unaware that they had not been using their inhalers effectively, and some had had no advice on usage since their initial diagnosis and prescription, which in some cases had been decades.
- Most pharmacists felt that the positive points of providing the service had been the training, the equipment and the satisfaction gained from helping patients
- The negative points had been the complexity of the paperwork, the difficulty in getting patients to come back for a second visit, and the lack of changes made by GPs in response to pharmacy suggestions
- Pharmacies in very close proximity to good asthma clinics or adjoined to GP practices tended to find it more difficult to recruit patients
- Pharmacies who had already been close to reaching their MUR quota when the project started could not recruit many patients
- Recruitment was more successful in those pharmacies with a second pharmacist who could spend more time purely on enhanced services, or where the ratio of elderly patients was high
- Most pharmacists wanted the Service to continue, subject to improvements including simplified data collection procedures, reducing the number of consultations, widening the target group, and getting central support to promote the Service to GPs and practice nurses
- There was a significant number of pharmacists who had moved on and whose value from training had been lost to the project

3.5 In-depth interviews with 'High Activity' Pharmacists

Interviews were conducted with three pharmacists – each from a different GM locality – who had seen significant numbers of patients for the Service. They worked in different settings (high street / health centre / retail park), with different ownership (large multiple, small multiple, independent). This suggested that the success of the Service was not dependent upon the characteristics of the pharmacy, but rather on the characteristics of the pharmacist.

They themselves had high, yet differing motivations, for getting involved shown by two examples here:

> *"It's got to be good for us as a store, and as an individual as well – so we always try and go along to see what's happening from the start... I'm always up for doing something new...It's exciting and interesting to be at the forefront."*

> *"It [respiratory disease] is a big issue in the pharmacy – we've got a lot of patients with respiratory conditions, and skin conditions, as they're both asthma- and eczema-linked...So it was something that for a large number of patients who walk in, it will make a difference to them. And I'm an independent prescriber – that's my speciality, asthma – so it was a good thing for me to get involved in."*

Whilst each remembered the training session positively, it seemed that these pharmacists drew as much value from other experience, maybe existing expertise (as above) or later on-the-job training helped by local reps:

> *"[At the training] Slightly overwhelming at first, the amount of stuff you were given....I was really impressed as they explained the concept of the project....I was thinking through to myself how we would flag patients up to participate....I think I learned a lot more afterwards, from the reps, than on the night."*

They had each developed strategies to enable effective recruitment of patients, with an example shown here:

> *"I worked out a system...As soon as a patient presented with a prescription with an inhaler, I'd give them the ACT quiz to do while I was doing the prescription. Then I'd had a conversation based on that 'Oh, I notice that you've got a score of [that] – there's potential to improve that. I'm just in a new study. I've got a new gadget that might help to improve your symptoms. Would you have some time? Five minutes, and we'll just go through it'."*

Regarding workload, they had developed strategies to enable them to do an in-depth private consultation without stopping the rest of the work in the pharmacy:

> *"The staff are trained to know that if I'm in there, they can knock on the door and say 'Can you check this, please?' They [Service users] are patients; they know that life goes on."*

Other staff were also playing some part in sharing administrative tasks and identifying patients for recruitment:

> *"We'd put a sticker on the prescription bag, which means the staff giving it out to the patient would say 'Have you got a few minutes to sit down with the pharmacist?' So they'd get involved in that way."*

> *"Up to the extent they [other staff] get involved is helping them to fill in the ACT score, if they don't understand the question or if they need translating."*

Pharmacists were asked about their success at recruitment:

> *"Very few people turn me down! [Laughs]"*

Circumstances in a local surgery had also allowed one pharmacist to capture patients who did not have access to a nurse, acknowledging that it was difficult to engage patients who thought they had already been reviewed:

> *"The nurses have changed quite a bit. In the last 2 years we've had about 4 nurses change over. There hasn't been a consistent nurse there...There was a gap for about 4-5 months...I think that was where I caught most of my patients...Sometimes when they say 'Oh I had a review with the nurse about a month ago', they don't see the point of coming in here and sitting down with you to have a review."*

Very few patients objected to being asked, but some had reacted strongly to the possible accusation that they did not know how to use their inhaler and the pharmacist had to be prepared for this:

> *"A very small percentage took umbrage at the thought that they might be doing something wrong."*

Patients newly started on inhalers could get fast access to the pharmacist, where the nurse might not be accessible:

> *"The doctor will just ring up and say 'I'm starting her [patient] on an inhaler – can you just show her how to use it?' Yes, many times...It was [like that] before the project, and it still continues."*

What these pharmacists strongly agreed upon was that retention of patients had been far more challenging than initial recruitment, but again they had created strategies to do this:

> *"Capturing people was fine, and then I realised after the first month 'How am I going to get these patients back?' And I originally thought I'll just go into their records and I'll have their contact details. But we didn't have the contact details. So I think the paperwork could have been improved by having a phone number option. So we started capturing that..."*

> *"I think what was important for me was retention. Because it was a 3-phase study, it was hard to get the people back...But the way I did it was to book an appointment – 'We can change it if we need to', always take a phone number – hopefully a mobile, and a week before they were due I'd send a text through NHS mail to say 'Hi, it's me – your next appointment is due – if you need to change it, please phone X'."*

In the consultation, simple but effective analogies could really get complex messages – like the need to breathe in slowly for MDI devices - through to patients:

> *"The speed of inspiration is so key...The rep said...'It's like a bike going down a hill. If you go too fast you're just gonna crash when you turn that corner at the bottom, but if you're steady and slow you'll get round the corner'. People get that, and that's what you need – easy analogies. So her visit was really instrumental, I think, in helping me to explain to patients."*

This quote also showed that respiratory product reps working with the pharmacies had helped the pharmacists to hone their skills.

The use of the AIM machine in the consultation also helped to uncover poor technique (each of these pharmacies had an AIM machine because of their high activity:

> *"The In-check was what you used straight away. You used the placebos to demonstrate. But also – when someone was on a MDI – I used the AIM machine as well to check the three parts of the whole thing. And it was the synchronisation where people tended to fail on the AIM machine."*

> *"The nurse told her not to use the Aerochamber because her inhaler technique was fine. And when we'd looked at the AIM machine, the synchronisation was red all the 3 times. I made her use it a few more times – 5 times – and it still wasn't getting it right. So she needed to use the Aerochamber really, despite the nurse telling her she didn't need to use it. Because she had done a visual check of the inhaler technique, and the nurse thought it was fine...Nurses don't use the In-check device...they rely on visual checks and peak flows and things...They've started doing the ACT score as well."*

The last quote was an example of some tension that might occur between pharmacists and practice nurses. The pharmacists were positive about their respective roles, but acknowledged that problems could occur.

> *"I didn't have any tension...I did have lots of comments saying 'Why didn't the nurse show me right? I've always done it like this, and she always tells me it's right.' So we have got a training issue there."*

Showing the nurses the AIM machine and talking through the Service could smooth the way.

> *"In the past I actually called one of the nurses to use the AIM machine, to see this is what we do."*

Going into the practice and training staff could be a good result:

> *"I went over to the practice and talked to them. I then got invited to deliver a one-hour training to all the doctors and trainees and nurses. So I went over with my bag of tricks there."*

Whilst they had seen quantitative changes in ACT and CAT scores for returning patients that showed improved control, they recognised that quality of life gains were what meant most to the patient:

> *"It's always about – OK, we've improved ACT scores tremendously, demonstrates that their asthma is much better controlled – but it's the quality of life that keeps coming up. The lack of coughing, the lack of waking up at night, the ability to do stuff more – all that kind of thing."*

All agreed that there was immense job satisfaction from doing the consultations:

> *"Excellent. Particularly when you got good patient outcomes and you're getting letters from GPs saying 'That's fantastic, excellent' – that really enhanced job satisfaction."*

> *"It was great to see the patients in those 'light bulb moments', and see what a difference you could make."*

One of the pharmacists had, in MURs, also identified two patients who needed referral for lung cancer and this had built their relationship and trust:

> *"There have been a few cases where we've picked up patients where a referral has led to a differential diagnosis that it was more than asthma or COPD...of lung cancer...then patients start building their relationship – building their trust in the pharmacist. Because of your referral – they've caught it...There were a couple of patients [in a MUR] who were –despite taking a high dose of ICS, a long-acting beta-2 – and they were still getting out of breath. They were getting pains in their chest. They weren't people with cardiovascular problems. And a lot of cough. They were actually referred very urgently. Blood in their cough as well. They were sent for a chest X-ray, and that's where they found out."*

Another pharmacist succinctly described a memorable patient whose improvement had even caused the GP to write to the pharmacist to thank them:

> *"He [patient] came in in one of those motorised wheelchairs. Really struggling. Awful ACT. Using an MDI. Recommend a change of device. Went...to a very high(ACT) score, completely changed his quality of life, resulting in a letter from the GP."*

Going forward, these pharmacists echoed the themes in the survey about streamlining paperwork and considering reducing the number of consultations. They recognised that even if people did not come back for the formal appointment, they had still taken important messages on board:

> *"I think that just because we didn't get people back in, it doesn't mean they haven't changed their lifestyle."*

The greater involvement of other staff could also be considered in terms of skill mix. These pharmacists were already involving staff as they could, but recognised that qualified technicians may be able to take on a greater role:

> *"Getting the staff involved in recruiting patients, and getting the staff trained if you've got a dispenser, who can be trained in checking the inhaler technique...I think if they allow one technician to come, that would be a good thing....Because sometimes it gives <u>them</u> a bit of something else to do, motivates them as well...You can ask my staff and they say it's a 'VIP' thing, because only pharmacists can do it!"*

These insights, from pharmacists who had managed to make the Service work well for their patients, may be helpful in the design of a future Service and to be shared in the associated training.

Main messages from In-depth Interviews with 'High Activity' pharmacists:

- Characteristics of the pharmacist, and not necessarily the pharmacy, are likely to be important in the performance of the Service
- Different motivations abound for taking part
- Whilst recognising the limitations of the initial design (complex paperwork etc.), these pharmacists were creative in devising strategies to make the Service fit with their pharmacy systems in terms of recruiting patients, recalling patients, and skill mix
- The continuation of the high activity was probably promoted by positive feedback from patients, and sometimes other health professionals
- These pharmacists had engaged actively with local health professionals to tell them about the Service
- Whilst acknowledging possible and actual tension with other professionals, particularly practice nurses, pharmacists were diplomatic with patients and some good synergy was happening
- These pharmacists acknowledged the contribution of the equipment like the AIM machine and In-check device, and the experience of local reps, in helping them to maximise their effectiveness
- For a future vision of the Service, pharmacists saw greater involvement of other staff
- Job satisfaction had been enhanced for these pharmacists by taking part

3.6 Practice Staff Interviews

We received a very disappointing response to our interview participation requests by practice staff, despite emphasising that the interview would be short and offering a reasonable fee.

We interviewed four practice staff (two GPs and two practice nurses). Insights from these interviews must thus be considered with those significant limitations in mind. Like the patient case studies, they probably represent the most positive views of the Service.

All agreed that patients experienced challenges in using inhalers, and that this tended to be technique rather than understanding the dosage:

> *"Patients comprehend the dosage and frequency, but not the technique."*

Staff also noted that patients might not be aware that their technique was a problem – they might be happy with their own efforts. There was concern that people in need – including those who might score highly on the condition control measures like ACT – would not be included. By normalising this pharmacy check to all people who use inhalers, more people might take part and realise that they have not actually been using it properly:

> *"People who have been using inhalers for a long time think that they know what they're doing...For the last 12 months we* [practice] *have been intensively checking inhaler technique. Many of them are quite surprised. 'I've been taking this for 20 years – are you mad?'"*

Practice staff saw a particular advantage in having the pharmacy Service for fast access by patients who were newly started on inhalers. They recognised that their capacity to do ad-hoc in-depth training for newly-diagnosed patients was limited:

> *"I can say to patients, 'If you can't get hold of me, pop into the pharmacy.'"*

GPs acknowledged that they might not be as good at inhaler training as their practice nurses and the pharmacists providing the Service. Some thought that multi-professional training would be good. They thought the penetration of the Service might be limited, however, in areas where practices feel that they provide very good support to respiratory patients. It was recognised by practice staff that there might be duplication, and thus tension, between pharmacies and practices for this activity.

> *"Even doctors are not so sure about teaching technique."*

One GP referred positively to the use of the AIM machine in the pharmacy for this service – equipment that they did not have – and said that the patients liked to see their performance through the lights for each stage. Another member of staff, however, felt that the machine results themselves could be inaccurate if the operator did not themselves press the button at the right time, so it was important to use both observation and the machine.

Nurses were using 'dummy inhalers' for their checks and they liked the fact that the pharmacist could use the patient's own 'live' inhalers.

Practice staff were happy to know that the check had been done, and to have that information for their records. One staff member said they would like the pharmacist simply to report how many checks had been done each day for their patients – whether the results were good or poor.

The GPs noted few prescription changes as yet. One staff member commented that device change might not be necessary if the technique can be optimised with the pharmacist's help. Conversely, another staff member said that the pharmacist had recommended a device change when they thought more effort should first be put into teaching good technique:

"I think 'No, let me teach them first!'"

One staff member noted that there had been some differences of opinion about patients between practice nurses and pharmacists. It was also commented that pharmacists may not think broadly enough about the problems that people have with their inhalers; for example, those with movement-limiting conditions like arthritis.

The incorporation of the technique training in a broader medication review had pros and cons. One staff member reported that some people thought that they did not have to go to the practice because their check had been done at the pharmacy: this could be problematic as repeat prescriptions depended on the practice check. Conversely, another staff member thought that it was best as part of a broader medicines review.

All of these staff felt that pharmacists had a role in teaching inhaler technique, and wanted the Service to continue.

Main messages from Practice Staff

- The pharmacy Service was useful to extend capacity and to provide fast access for patients with newly-prescribed inhalers
- Equipment in the pharmacy Service had advantages over practice resources
- The Service should be normalised for all patients on inhalers
- Practices should be notified regularly how many checks had been done for their patients, regardless of the result
- The emphasis should be on teaching technique and not moving too quickly to device change
- There will inevitably be some differences of opinion
- Good communication was needed to reduce duplication and tension between professionals

3.7 Reflections from the Project Team

A focus group was held with three members of the project team towards the end of the evaluation period. The group was asked to reflect on their experience of planning and operating the Service. Group members were also asked how they might improve a future Service.

Bringing Local Areas Together

This project had involved seven local areas, when Primary Care Trusts (PCTs) were still in existence. One area had secured funding from the then North West Strategic Health Authority (SHA) to provide the Service, and then other areas were encouraged to apply. Seven areas took part. A strength of the project had been that one LPC representative and one PCT representative had participated - in partnership - from each area.

The group formed across the 7 areas designed the training, paperwork and specification, and engaged the pharmaceutical companies. There was always a critical mass at the project meetings to move the Service forward. There were some planned variations between the PCTs: one PCT had secured some extra money and had wanted to further enhance the project but had not, in the end, implemented those variations.

The fact that someone had taken a lead, and created a Service that others could pick up, had been a strength:

> *"If you're going to do a Greater-Manchester-wide project, you want a Greater-Manchester-wide specification that people sign up to and do it all the same way. Otherwise you start getting all the cross-border issues and things which we wanted to get rid of. And we did get rid of."*

There were no disagreements between the areas involved during the project. The only challenge had been that each PCT had received its own money from the innovation fund, and it had been difficult to transfer money to the central project fund for CPGM. This would have to be considered in future projects. CPGM is now a formal entity with its own account, but had not been so at the beginning of this project.

The team believed that there has been a lot of interest in the project in GM because of its scale.

Working with Pharmaceutical Companies

Group members felt that their work with seven different pharmaceutical companies had been a positive feature of this Service:

> *"It was the first time that pharmacy at the level of GM had sat down in a room with the pharma companies at the same time."*

These companies had contributed to the training sessions and provided equipment for pharmacies. All companies supplied their placebo inhalers. TEVA provided the AIM machine to some pharmacies on a rotational basis, and miscellaneous items like stickers and posters. In some areas, it was felt that the relationship forged by the inhaler technique project may have improved relationships:

> *"There's a recognition that the companies can act in an altruistic way."*

Other Partnerships

The project team had also worked with respiratory leads - GPs and nurses - and there had been joint working between the project team and a COPD nurse specialist in producing the podcasts:

> *"It's a big issue that we actually managed quite a diverse multi-disciplinary work environment – successfully."*

The podcasts were felt to be a valuable output from the project, recorded in primary and secondary care settings. It was reported that they are now even being used for training in Schools of Pharmacy and as they were funded with NHS money they are freely available (https://wessexhiecpartnership.org.uk/wires/video-series/inhaler-technique/).

Engaging and Training Pharmacists

There was a focus for the engagement and training on the fact that many health professionals did not know how to teach inhaler technique, but that pharmacists really should know. That seemed to engage people. They trained pharmacists from 191 pharmacies, and approximately 300 pharmacists at 6 events. The training meetings were large (100 pharmacists). Other professionals attending noted the enthusiasm of the pharmacists. Aspects included were:

- Overview of why technique is important (including pharmacokinetics etc)
- Overview of the consultation process and paperwork
- Demonstration of how to use the equipment (principally the In-Check® device)

In retrospect, the one-hour didactic session at the beginning had been too long. In future, groups of 20 would be a better format for training. Having a pre-event webinar as a compulsory criterion to attend would also give good preparation. The rest of the training could concentrate on good practice, including ideas about issues general to a number of similar services, including a need to help pharmacists to devise suitable patient recall systems.

It was felt that future training should involve technicians – *"Because technicians have time to do it".* Many of the tasks – helping patients to complete the condition scoresheets (ACT/CAT), and then bringing the pharmacist in as needed – could be done by technicians. It was felt that technicians would like to do this – they just needed the training.

Training for the next version of the Service should include recognition of "what went wrong" in the first project and how we can learn from that e.g. providing tips on patient recall strategies.

Running the Service

There was a specified period for the Service. It was launched in September 2012 and ran for 6 months. Although many pharmacists were trained, once the Service was launched not everyone got involved:

> *"Some people ran with it – and other people didn't!"*

It was difficult to keep up with requests for new forms and placebo inhalers, and posting the forms was expensive. It was onerous for the project administrator (LG), and others helped.

It was felt that pharmacists were not good at completing the Service paperwork; experience had shown the project team that – beyond the FP10 prescription form – pharmacists did not perform well with other service paperwork.

It was felt that someone should be employed to 'chase' pharmacists in a future version of the Service, and that person did not need to be a pharmacist.

Similarly, getting the optimum skill mix in the pharmacy to provide the Service was key. There was recognition that new commissioners want to get the right person providing the right service at the right price. It is necessary to cost the Service, however, according to the value it provides.

Challenges

It was an enhanced MUR, but this was a challenge if the MUR quota had already been used. Many enthusiastic pharmacists would have already completed their quota. If a patient had co-morbidities, it was difficult to concentrate on the inhalers so this may need to be a more focused separate prescription intervention service.

There was frustration that many of the pharmacists who came forward for training did not convert that opportunity to activity:

> *"My concern was that we trained a lot of pharmacists who did nothing...'Why have you wasted our time in training?' Because actually that training was quite expensive to put on."*

Activity was skewed to a small number of 'high-performers'. A review of the accounts showed that three pharmacies accounted for approximately 40% of all payments made by the beginning of February 2014. It was felt that the excuses given for non-recruitment were weak. Pharmacist turnover was recognised as a major challenge. There was recognition, however, that the Service represented a cultural shift for pharmacists from traditional demand-led activities typified by dispensing:

> *"It's not that people don't care – it's getting pharmacists to respond to a non-demand-led service... Pharmacists in general are very good with demand-led services, where someone comes in and says 'I want'. We are not as good at going out <u>to</u> people and getting them to sign up for things."*

The other challenge has been to secure agreement with GPs for recommendations of device change.

Future Opportunities

It was acknowledged that there had been a misperception that children and young people aged under 18 could not take part in a MUR. The original Service specification had thus not included people under the age of 18. Now that this had been clarified, the team felt very excited that they could offer this Service to suitably competent children and young people. The challenges would be to ensure that the pharmacists could assess Gillick competence; that they themselves felt competent to work with children and young people; and that the parents were brought on board and fully involved. The team were planning to create new podcasts with children and young people as resources to support the extension of this Service. It would be important to think about this project as a 5-year initiative to robustly explore outcomes for patients (ACT/CAT score changes, change in device, reduction in GP visits, quality of life).The group felt that a lot has been learned from this project, and the learning will be applied to the next opportunity.

4. Discussion

There was a strong feeling of enthusiasm across all stakeholder groups about the Service:

- Most users reported feeling more confident and knowledgeable about their inhalers
- Many pharmacist providers reported great satisfaction from providing the Service and seeing instant feedback as patients' technique improved within one consultation
- Other health professionals recognised the benefit of an accessible service for patients with new inhaler prescriptions or immediate need, complementing their own efforts
- The project team felt that a lot had been learned and that partnership working had improved

There were many points raised, however, that should be considered in any future model of the Service. It might be helpful to think of these points in terms of:

- Service design and resources
- Relationships with other professionals, and
- Workforce

Service Design & Resources

Users raised no concerns about the principles of the Service – they recognised that it could help them to improve their inhaler technique, and many noted that it had been a long time since they had been shown how to use their inhaler. The only area where users queried the Service design was for the number of consultations involved – there were some who felt that improvement could be achieved in less than 3 visits.

Users and pharmacists felt that some people were not being included under the current terms; notably children and young people. It was felt that other people who use inhalers for respiratory conditions beyond asthma and COPD should also be included.

The intensity of the paperwork was mentioned by many pharmacists; some reported that it had put them off doing the Service (or they did the Service but did not report it, as they would get the MUR fee anyway). Many wanted an electronic interface for data entry.

Some pharmacists thought that the Service might stand alone, and that combining it with the MUR might put too much pressure on a consultation when a user has several other medicines and/or conditions. It was very difficult to persuade people to come back for more than one consultation. The first consultation was not remunerated (beyond the MUR fee), but was intensive, and it was hard to get people to return.

Pharmacists cited a range of resources that had been helpful in the consultations. Not all of these had been supplied by the project team. Pharma company representatives had been helpful to some of the pharmacists. The podcasts had proved useful, especially for the users to refer back to at home.

Most of the consultations resulted in education being provided by pharmacists, rather than recommending changes or making referrals. There were, however, a significant minority of situations where a change in device was recommended, usually moving away from MDI inhalers. If the AIM machine had been available in more of the pharmacies, this proportion may have increased. If a change of device or addition of a spacer was recommended, pharmacists were dependent upon GPs to effect these changes. The existing

relationship of a pharmacist with local GPs influenced how straightforward it might be to do this. Many pharmacists were frustrated if their recommendations were ignored.

Relationships with other Professionals

In common with other enhanced pharmacy services, existing relationships with local GPs and other professionals had an impact on service delivery. Some pharmacists reported contacting local health professionals to tell them about the new Service, but it was unclear whether many of them were personal calls as opposed to letters or emails.

There was evidence of some tension between the pharmacists and practice staff, particularly practice nurses. Some practice nurses may have felt threatened by the service; there was a report of at least one angry visit of a local nurse to a pharmacy.

Pharmacists reported contacting local health professionals - but not in person. In the in-depth interviews with 'high activity' pharmacists, it was apparent that each of them had made personal contact.

Workforce

Non-pharmacist staff are involved on the fringes of the service (e.g. flagging up prescriptions). They could possibly play a greater role. Obvious extensions of their tasks could be making the approach, helping patients to complete the ACT/CAT scoresheets, and recording data from consultations. Technicians may also be able to do the actual technique check and then bring in the pharmacist at the end to review the data and make recommendations. But this would not be possible if the Service remains linked to MUR.

Pharmacists wanted feedback, ongoing training, and to share good practice. This could be done through an email group or periodic meetings.

Further attention should be given to the co-ordination of multi-disciplinary services in a locality. Each professional has a valuable contribution to the patient's care.

There is a good argument to be made that this technique check is very useful for any patient who has an inhaler. That assertion would lead to a need for the Service to be offered to all possible patients. The rapid turnover of pharmacists in pharmacies poses a huge challenge to this aim. Many pharmacists are trained and move on. This might be addressed by involving other staff members.

Table 4.1 below lists the Service aims and objectives and shows how data collected has mapped on to an understanding of whether, and to what extent, objectives have been met.

The aim of the Service was to provide a medicines use review (MUR) service for asthma and COPD patients to achieve...	
Objective	**Data addressing the objectives**
Improved patient outcomes through:	
• Improved inhaler technique;	• *By the end of the first visit, after advice from the pharmacist, 61.6% of MDI users and 89.1% of DPI users had managed to bring their inspiration flow rate into range (from a baseline of 20.9%/ 67.1% resp.).* • *By the second visit, 77.1% of MDI users and 59.0% of DPI users had visibly improved their inhaler technique.*
• Improved patient understanding and hence adherence with inhaler therapy;	• *Most users in the survey reported increased understanding and confidence about their inhalers and their condition.* • *Most of the pharmacist interventions were to provide education, rather than to recommend changes or refer users on to other services – the Service was very self-contained.*
• Optimising use of inhaler therapy (including a change of device);	• *25 device changes / spacer additions were seen in the second visits, indicating that the intervention had influenced some prescribers.* • *Where an AIM machine was available, the percentage of pharmacist recommendations to change the device, or to add a spacer, doubled.*
• A reduction in adverse events / exacerbations associated with inhaler treatment;	• *The user survey suggested a very small reduction in the prescribing of steroids and antibiotics, and in emergency hospital admissions.*
• Ensuring that patients who smoke are offered appropriate advice with regard to smoking cessation therapy.	• *All user survey respondents who reported being a smoker when they used the Service reported being offered stop smoking advice, and a significant number of them made a quit attempt as a result.*
Reduction in waste of inhaler therapies through:	
• A possible reduction in prescribed inhalers for poorly controlled conditions	• *Some users reported using less of their reliever medication after using the Service as their improved technique enhanced the effect of the preventer.*
• Patients being encouraged to only order those items that they need	• *Most users in the survey felt that they knew more about how to order the inhalers they needed since using the Service.*
Other indicators of improvements:	
• Reduction in use of other health services	• *Approximately 20% of users in the survey reported making fewer GP or practice nurse visits; 10% reported fewer emergency hospital admissions.*
• Quality improvement in condition management / symptom control	• *At visit 3, when asked how often they used their reliever inhaler - one indicator of condition control -29.0% of users (n=29) said that they used it up to 1-3 times a week, which was a significant increase on the baseline level of 20.9%. Under half of responding users were using the reliever once a day or more (42.0%, n=42), a notable decrease on the baseline level of 60.5%.* • *The proportion of users with asthma scoring 20 or more on the ACT, indicating reasonable or good symptom control, increased from 29.2% at visit 1 to 70.8% at visit 3 (NB – much smaller numbers at visit 3).* • *The proportion of users with COPD scoring 20 or less on the CAT, indicating low to medium impact of the COPD condition on their lives, increased from 49.3% at visit 1 to 73.0% at visit 3 (NB – much smaller numbers at visit 3).* • *Over half of user survey respondents reported an increase in their self-rated quality of life since using the Service.*

Table 4.1 – Addressing the Service objectives

5. Conclusions and Recommendations

5.1 Conclusions

The Greater Manchester Community Pharmacy Inhaler Technique Service has shown that an inhaler technique check by a community pharmacist has the potential to benefit patients who use inhalers. The cohort of patients as a whole who have seen a pharmacist for the Service have shown improvement trends in terms of inhaler technique, target inspiration range, asthma/COPD control indicators and quality of life measures.

Activity in the Service has varied widely across localities, and across pharmacies within those localities, and this evaluation has explored some of the reasons for this variation. Where there has been high activity, a number of good outcomes have been identified for both users and the pharmacists who provide the Service. Feedback to pharmacy teams must be actioned in order to keep providers engaged and motivated.

Wider deployment of AIM machines in the participating pharmacies would probably uncover more problems in MDI technique needing device change or addition of a spacer. That might, in turn, start to erode the remaining proportion of users who still had not improved their MDI technique by the second and third check. Access to this machine in more pharmacies might also stimulate more Service activity.

There is potential for good multi-disciplinary working for the benefit of the patient, but there are some possible tensions between pharmacists and practice nurses that must be acknowledged openly and addressed where they occur locally. Central support from the project team and its multidisciplinary advocates and partners might be needed to facilitate this.

Many suggestions have been made to optimise the Service, most notably to streamline record-keeping and to help pharmacists to maximise recruitment and retention, and these should be addressed if the Service is to be re-commissioned.

The project team should consider how they can make the Service as self-contained as possible so that the impact on the workload of other health professionals is minimised, and the pharmacist is empowered to make reasonable changes to benefit the patient right from the first consultation.

5.2 Recommendations regarding the development of the future Service would be:

- Redesign the training to include more advice about strategies for managing recruitment and recall
- Reduce the number of consultations to two at most
- Consider separating the inhaler check from the MUR and resource it as a separate enhanced service
- Consider empowering pharmacists - by PGD or other appropriate means - to add a spacer device or to change the device type within the consultation
- Implement a more streamlined, electronic data collection system
- Include all users of inhalers in the target audience, and competent children and young people
- Consider more deployment of non-pharmacist staff in the Service
- Put AIM machines into more pharmacies
- Continue to engage multidisciplinary advocates at a GM level and help to ease any tension in local areas
- Develop effective feedback and benchmarking strategies to motivate pharmacists

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