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Community pharmacy wider roles project

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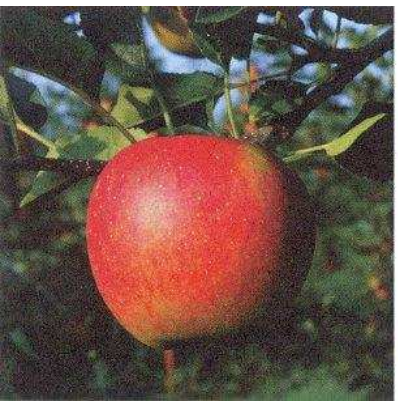
June 1999




COMMUNITY PHARMACY WIDER ROLE PROJECTS

FINAL REPORT

In 1996 the NHS Executive's Pharmaceutical and Optical Branch invited health authority bids to carry out pilots testing some form of extended role for community pharmacy. In 1997 it funded twelve pilots. Six of these were repeat and/or instalment dispensing schemes and the others were testing various extended adherence and/or pharmaceutical care services.

1. BACKGROUND

These initiatives have to be set against the background of present changes in the NHS. In particular, in terms of the development away from a health service based on secondary care to one based more on primary care (Hassell et al., 1998, p. 5). Debates about the way community pharmacy should develop took place as long ago as 1971 when the then Pharmaceutical Society suggested that pharmacists should move towards a more patient-oriented and clinical role (Eaton and Webb, 1979, p. 74). However, in recent years these debates have been sharpened. The 1986 Nuffield Report and the 1996 White Paper, Choice and Opportunity: Primary Care in the Future, emphasised the need for community pharmacists to become more involved in the Primary Health Care Team (PHCT). The new 1997 White Paper, The New NHS, signals further changes in primary care by giving professionals who make prescribing and referring decisions more financial and clinical responsibility. This development could offer community pharmacists further opportunity to integrate more into the PHCT (Ruston et al., 1998, p. 2).

The 1996 White Paper advocated the development of community pharmacy in a way that would lead to a better use of prescribed medicines; wider recognition of pharmacists as the first port of call for minor ailments; health promotion and the provision of advice on medicines to other health care professionals. Having identified legal barriers to these developments, it proposed legislation that would give health authorities greater flexibility over the purchase of community pharmacy services and to enable NHS community pharmacists to apply to provide services from a local or neighbouring health authority (DoH, 1996, pp. 9-10). The 1997 White Paper said that pharmacists would 'need to be drawn in [to the PCGs] to contribute as appropriate to the planning and provision of services' (DoH, 1997, p. 9/13). Although the Department of Health did not include pharmacists as members of the boards, some health authorities are approaching pharmacists to do specific tasks and, in some cases, have included them on the boards (Livingstone, 1998, pp. 161-2).

The pilots have also to be understood in terms of developments within community pharmacy. In particular, there has been a significant shift away from people working in small independent pharmacies to multiples or supermarket pharmacies. Employee pharmacists now outnumber independent contractors, challenging the nature of service traditionally provided by pharmacists (Magirr, 1995, p. 876). There has also been a growing trend towards pharmacists working in health centres alongside GPs and dentists and chiropodists (Harding and Taylor, 1990, p. 464). These changes have led to some sense of insecurity, particularly amongst independent proprietors. For example, two Local Pharmaceutical Committees (LPCs) in London told a Government-sponsored review of London's health services that the Department of Health was not providing enough backing to independents and that 'pharmacy owners…have to live under a constant threat of possible relocation of neighbouring surgeries

into health centres where there is always an auction for the highest rent-paying pharmacy tenant'.[1] Independent proprietors also regard the Government's recent support for the abolition of Retail Price Maintenance for pharmacy within the Competition Bill as a threat to their livelihood.

Finally, a large body of research has shown the negative consequences that arise when patients' medication is not properly managed. According to a recent report by the National Pharmaceutical Association (NPA), studies have found that a significant proportion of hospital admissions stemmed from poor adherence to medication. They have also shown that some patients discharged from hospitals have not been able to maintain the prescribed regimen, and that patients on complex regimens are particularly vulnerable to poor adherence. In terms of drug wastage, one study on residual medicines in private households showed that 8% of the medicines were regarded either as 'finished' or 'never used' (NPA, 1998, pp. 8-9). The Royal Pharmaceutical Society (RPS) also addressed the question of patient adherence in an important report called From Adherence to Concordance (1997). The RPS and the NPA are therefore committed to the need for pharmacy to adapt to a changing environment. The RPS initiated Pharmacy in a New Age (PIANA) which envisages developing community pharmacists' involvement in the management of medicines; the management of long-term conditions; the promotion and support of healthy lifestyles and advice and support for other healthcare professionals.

These practical developments have been reflected in the growth of pharmacy practice research (PPR) over the last fifteen years or so, marked by a variety of significant developments such as the RPS's establishment of the College of Pharmacy Practice in 1981; the 1986 Nuffield Committee of Inquiry into Pharmacy, the 1987 Government White Paper Promoting Better Health and the formation of a number of pharmacy practice units in universities (Mays, 1994, pp. 9-11). However, the need to justify extending community pharmacy's role was an important aspect of PPR. Moreover, it has suffered from limited input from researchers outside pharmacy and there has been evidence of bias resulting from pharmacists, in some cases, both carrying out projects and doing their own evaluations (Mays, 1994, pp. 2-3). Within this growing body of work, few attempts have been made to think about pharmacy in the context of wider health services research (Mays, 1994, pp. 16-7).

The Pilot Projects

In the following we provide a brief description of the twelve pilots funded by the Department of Health. Some of these projects have not yet finished. The classifications 'RDS' and 'EAS' have been used for simplicity. 'RDS' includes repeat and instalment dispensing schemes. 'EAS' includes adherence and pharmaceutical care schemes. We have specified the type of project more precisely in the summary boxes at the start of each case outline.

REPEAT AND/OR INSTALMENT DISPENSING SCHEMES

Repeat Dispensing Scheme 1 (RDS 1) developed an instalment dispensing scheme to test its acceptability from the point of view of the pharmacists, doctors and patients and workload implications; to test a new form of remuneration for pharmacists; to evaluate the impact of the service on patient adherence. Participating GPs were responsible for patient recruitment. The study targeted patients suffering from TB, drug misuse, depression and the elderly or confused with a known history of non-adherence. The assessments took place in the pharmacy.

Repeat Dispensing Scheme 2 (RDS 2) aimed to identify the benefits of a pharmacy controlled repeat and instalment dispensing service through an examination of its effect on

GP workload, the potential for making savings in drug costs, general acceptability from the point of view of the pharmacists, doctors and patients, and to test the feasibility of such a scheme in an area with a relatively high proportion of prescription charge payers. It targeted mixed chronic patients and the assessment was mainly pharmacy-based although there were some home-based assessments with housebound patients.

Repeat Dispensing Scheme 3 (RDS 3) recruited patients stabilised on long-term medication through GP practices. It aimed to identify the acceptability of a repeat dispensing scheme for patients, pharmacists and doctors as well as to consider whether such a service could improve patient care, in terms of adherence and assessment of side-effects, and impact on drug costs. It targeted mixed chronic patients and the assessments were pharmacy-based.

Repeat Dispensing Scheme 4 (RDS 4) carried out the largest of the repeat dispensing schemes, covering four localities. By testing slightly different services in each of these areas, it aimed to examine how different repeat dispensing schemes might affect repeat prescribing costs and patients' quality of life, as well as to compare different remuneration systems for pharmacists and the effect of patients' versus pharmacists' retention of subsequent instalments of initial prescriptions. It targeted mixed chronic patients and the assessments are pharmacy-based.

Repeat Dispensing Scheme 5 (RDS 5) designed a repeat dispensing scheme that aimed to identify appropriate patient groups, to evaluate the benefits from the point of view of doctors, pharmacists and patients, to identify barriers and constraints to the implementation of a repeat dispensing practice and to make recommendations about remuneration for pharmacists. It targeted mixed chronic patients and the assessments were carried out in the pharmacy.

Repeat Dispensing Scheme 6 (RDS 6) is piloting a scheme aimed specifically at patients suffering from depression. In the light of evidence that many patients do not reach therapeutic level in their drug therapy, it aims to consider whether pharmacists can help patients to make optimal use of anti-depressant drugs. The community pharmacists will dispense the drugs in monthly instalments, reviewing the patient for adherence and side effects at each dispensing. The evaluation will look at the scheme's impact on health outcomes, drug costs, general acceptability and feasibility. The assessments will take place in the pharmacy; although participating pharmacists will have to have a private consultation area.

EXTENDED ADHERENCE PROJECTS

Extended Adherence Scheme 1 (EAS 1) ran a pilot project that aimed to see whether pharmacists could identify patients who needed adherence support; to establish reasons for poor adherence; to raise awareness of adherence difficulties amongst health care workers; to identify appropriate patient groups who needed help with adherence; to identify an appropriate patient referral system; to improve patients' use and understanding of their medicines and to consider the scheme's potential to prevent drug wastage. It targeted mixed chronic patients and the assessments took place at home.

Extended Adherence Scheme 2 (EAS 2) designed an extended adherence project that focused on patients suffering from hypertension. It aimed to examine whether regular pharmacist reviews of patients' medication taking and side effects could improve patients' adherence and blood pressure control. It also aimed to look at the potential benefits of such a scheme for pharmacists and doctors. The assessments took place in the pharmacy.

Extended Adherence Scheme 3 (EAS 3) ran a pilot study that explored how community pharmacists, in co-operation with GPs, could contribute to the care of patients with stable angina. It aimed to analyse changes in patient management resulting from the delivery of six evidence-based interventions; to determine how pharmacist-run review clinics could affect patients' quality of life and to explore the pharmacist, doctors' and patients' views on the review clinics.

Extended Adherence Scheme 4 (EAS 4) ran an extended adherence project where the pharmacist assessment took place in patients' homes. It targeted elderly and confused patients. It aimed to develop ways of identifying patients who are at risk of non-adherence through the Patient Medication Record (PMR); to implement an adherence management action plan for these patients; to equip the participating pharmacists with the necessary skills; to evaluate the potential costs and benefits of such a service for the patients, professionals and the NHS.

Extended Adherence Scheme 5 (EAS 5) is piloting a service based on a mixture of pharmacy and domiciliary-based visits by pharmacists. It is targeting elderly patients with mental health difficulties. The pharmacists work in liaison with existing mental health care teams to assess patients' needs.

Extended Adherence Scheme 6 (EAS 6) is piloting a pharmaceutical care service in Sheffield involving twelve pharmacists. The project aims to investigate the impact of a community pharmacist based adherence/pharmaceutical care support service for heart failure patients given that adherence to medication is likely to reduce risk of hospitalisation and improve quality of life. Having reviewed the patients' adherence, the pharmacists submit a care plan to the GPs for approval. The aim of the study is not to look at health outcomes but to assess the acceptability of such a service for pharmacists, patients and doctors.

Two goals underlie all these projects in so far as they aim to find ways of improving patients' use of their medications and to discover ways of helping to reduce the NHS drugs bill (although this second goal was more explicit in four of the repeat dispensing schemes). However, their distinctive features are important in considering what aspects of extended roles are feasible; namely where the reviews took place; how patients were recruited; types of patients targeted; the use of specially designed prescriptions; whether patients had freedom of choice of pharmacy (in the repeat dispensing pilots); kinds of remuneration systems for the pharmacists and the GPs, and the different geographical localities with unique demographic features.

2. CHSS CENTRAL EVALUATION

The Department of Health appointed a central evaluation team at the Centre for Health Services Studies (CHSS) at the University of Kent to carry out an overall evaluation of all of these pilot projects. Our aim in this project was two-fold. First, to provide methodological support to the local sites piloting community pharmacy extended role projects and second, to provide an over-all evaluation of the pilot projects.

Objective One: Support

The study was divided into two stages. In the support stage we liaised with sites and provided them with academic support about the projects' evaluation, including advice on setting up the projects, data collection tools and data analysis. We concentrated our efforts mainly on projects that had no local links with academic departments, including RDS 1, EAS 1, RDS 3 and EAS 5. We provided EAS 4 and RDS 2 Health Authorities with moderate support. A local university worked with EAS 4 Health Authority and a hospital academic unit provided RDS 2 HA with academic support. Our support role was minimal in the sites that had strong academic support through links with local universities, namely, EAS 2, EAS 3, EAS 6, RDS 4 RDS 5, RDS 6.

Starting in June 1997 members of the central evaluation team made a number of visits to the individual sites to introduce themselves, assess the sites' needs and provide further support if and when needed. We visited the sites with the lowest level of academic support first and then started to make visits to those needing less academic input from the CHSS. Team members gave advice to the sites on setting-up, appropriate data collection tools, analysis and, especially for those sites without local academic links, moral support and encouragement for project managers (see table 2.1).

The CHSS team carefully followed each site's progress, keeping a log of any developments or changes in procedure and implementation problems. The key issues that arose included difficulties in patient recruitment and GP co-operation. We shall explore these questions in further detail in the case studies.

In their evaluations, the majority of the sites used questionnaires rather than focus groups or in-depth interviews to ascertain the pilot's acceptability to the patients, pharmacists and doctors. The team provided support on an individual basis, both face-to-face and by telephone. The team's initial input primarily centred on questionnaire design. We received draft questionnaires from all of the sites and provided suggestions for revision in writing where appropriate or necessary. We provided advice on sampling in relation to patients, patient inclusion criteria and the appropriateness of control groups. The team also provided a framework for analysing cost data for the four repeat dispensing sites.

EAS 1 The central evaluation team advised on the design of questionnaires for patients, referrers and carers. We recommended on the minimum sample size of patients to be interviewed, and modified this in the light of a shortfall in recruitment. We discussed recruitment blocks and ways of getting around them. We successfully liaised with the site in order to overcome initial concerns about our access to patients. We helped the site with data input and analysis and recommended the use of an independent researcher to help with these. We commented on the draft final report.

The project was based on a qualitative analysis of interview data and provided some descriptive statistics on the project's acceptability to the key stakeholders; changes in adherence and health outcomes; storage and hoarding and drug wastage. Data sources included a referral form; assessment form; care plan; follow-up assessment form; care plan

review; medicines disposal forms; GP recommendation form; GP reply form; patient questionnaire; referrer/carer questionnaire; pharmacist questionnaire.

RDS 1 The central evaluation team provided advice on questionnaire design for the pharmacists, GPs and patients. We discussed the difficulties of getting a high response rate for the patient groups concerned and recommended some face-to-face interviews. We suggested simplifying GP and pharmacist logs to make them more manageable. The team met up with the steering group to discuss recruitment difficulties and recommended providing an incentive for GPs to participate and to liaise more with practice managers. We reviewed the draft final report and made suggestions for its revision.

The evaluation focused on four main areas including, the service's general acceptability; its impact on patient health and adherence; value added by pharmacists and costs. Data sources included: prescriptions; post-intervention questionnaires for GPs and pharmacists; pre and post-intervention patient questionnaires; GPs' logs of patient contacts and details; pharmacist logs on patient details, dispensing, interactions with patients; informal conversations with GPs and pharmacists; patient medical records and pharmacy dispensing records. Data were analysed using Access database and Excel spreadsheet. Because the number of patients enrolled was low, the project manager did not perform any statistical analyses, although she did provide some descriptive statistics.

RDS 3 The central evaluation team made comments on questionnaire design for the patients, GPs and pharmacists (pre and post-intervention). We advised on the set up of a database and cost analysis. The project manager carried out an analysis of general acceptability for the pharmacists, GPs and patients. Data sources included: pre and post-intervention questionnaires for the pharmacists, doctors and patients; patient intervention forms (completed by pharmacists) with information on patients' understanding of and adherence to their medicines and record of action taken (if any) by the pharmacist; GP referral forms; The project manager carried out a quantitative analysis of savings in drugs costs using Excel 3.11 with data on patient's gender, age group, exemption status; GP ID code and surgery post-code; drugs prescribed (BNF category) and dose prescribed; date of dispensing; quantities dispensed and cost of dispensed drugs from PPA listings.

RDS 2 The central evaluation team provided comments on the draft questionnaires for the patients. We liaised with the site over progress and helped it to get local ethical approval for the central team to carry out a joint focus group with patients. We advised on price sources to be used to measure changes in drug costs (BNF) and on databases. The central evaluation team is also inputting cost data into Excel database and analysing them according to the framework provided for the repeat dispensing schemes' drug cost analysis.

Data sources included: prescriptions; pharmacist-held prescription event record (e.g. recording any changes in medications, supply of medicines, problems identified and action taken); pharmaceutical care record (to document an events/communication that occurred outside pharmacist review and collection of prescription); referral letter from pharmacists to GPs; repeat prescription request form; pre-study patient questionnaire (to assess attitude to adherence to medicine; information needs; satisfaction with current repeat prescribing service); post-study patient questionnaire (to assess patients' views on pharmacists' role, extent to which service met their needs, and benefits or otherwise of the scheme).

EAS 5 The original plan for a local university department to support this pilot did not go ahead. The CHSS team therefore became the sole academic link. At the first visit, members of the central evaluation team raised queries about the patient sample size; patient inclusion/exclusion criteria and the nature of the pharmacists' intervention. At subsequent meetings we provided the project manager with advice on questionnaire design; patient entry criteria; patient randomisation into control and intervention groups; the need for screening out patients too confused to take part; ways of linking patients with pharmacies; pharmacist

recruitment; pharmacist remuneration and the use of health outcome scales. We supplied the project manager with a simple test of mental function (Abbreviated Mental Test); examples of adherence questions and patient consent forms. We also advised that cost issues would mainly turn on matters such as patient adherence for this particular type of project. However, we suggested that the project manager get a record of what was actually supplied (brand and quantity) for a costing to be carried out at the end of the project. Data sources include patient assessment questionnaire; domiciliary pharmaceutical assessment; domiciliary pharmaceutical care plan; pharmacist intervention form; Health of the Nation Outcome Scales (HONOS).

Table 2.1 **COMMUNITY PHARMACY WIDER ROLE PROJECTS SITE SUPPORT PROVIDED 1997-8**

Site	Number of Meetings	Main Academic Support	Support Needs	Support Provided
RDS 1	5	CHSS	High	Setup/Data Collection Tools/ Morale
EAS 1	6	CHSS	High	Setup/Tools/Analysis/ Morale
EAS 5	3	CHSS	High	Setup/Tools/Morale
RDS 2	2	Hospital academic unit & CHSS	Moderate	Tools
RDS 3	3	CHSS	Moderate	Setup/Tools/Analysis/ Morale
EAS 4	2	Local Univ.	Low	Setup/Tools
EAS 3	1	Local Univ.	Low	
EAS 2	1	Local Univ.	Low	
RDS 5	1	Local Univ.	Low	
RDS 4	1	Local Univ.	Low	
EAS 6	1	Local Univ.	Low	
RDS 6	1	Consultancy/ Local Univ.	Low	

EAS 4 The central evaluation team's role was minimal in this project. At the initial stages we commented on the questionnaire design and then liaised over the site's progress.

Data sources include: patient questionnaire administered by the pharmacist at the first and follow-up visit with information on collection timing in previous three months, understanding of medicines, use of medicines and inhalers, adherence and pharmacist action plan; quality of life questionnaire with data on mobility, self-care, usual activity, pain/discomfort and anxiety/depression; consent form for the disposal of unwanted medicines.

RDS 4 The central evaluation team did not need to provide any methodological support for this project. A university department is carrying out a qualitative evaluation of the pilots. Researchers in there are collecting data on the pilots' general acceptability to the patients, GPs (and other practice staff) and pharmacists and on changes in GP/pharmacist workload. Data sources include GP questionnaires; practice manager questionnaires and pharmacist questionnaires. They are also carrying out telephone interviews with a small sample of patients from each health authority area to provide in-depth information on patient experiences. The sample populations for the questionnaires include all GPs and practice managers in each practice and any other member of practice staff who had been closely involved with the study and community pharmacies who received study prescriptions for over 10 patients per month. Data from the questionnaires are being entered into the statistical package SPSS and frequencies of responses recorded. Qualitative information from all questionnaires is being coded and analysed.

Another university department is carrying out a quantitative evaluation. Data sources include: GP registers (newly sampled patients; patients ineligible for sampling; extra contacts with study patients); pharmacy registers (prescription forms for study patients; extra contact forms for study patients); patient questionnaire 1 (information about how patients get their repeat prescriptions and health); patient satisfaction questionnaires (information on acceptability, preferences and outcomes). The evaluators are collecting data on patient satisfaction with a sub-sample of patients per GP practice by postal questionnaire and a small number of qualitative patient questionnaires. SF-36 and Euro-Quol are being used to measure patients' health status before, during and after the repeat dispensing schemes.

EAS 3 The central evaluation team did not provide any methodological support for this project. The Health Authority commissioned a local university department to carry out an independent evaluation. The Department did a qualitative analysis of stakeholders' views of the service and a quantitative analysis of health outcomes.

Data sources included: Seattle Angina Questionnaire (SAQ) self-administered by patients at the first and last pharmacist review to provide information on health outcomes; Pharmacist records including general information on patient demographics, GP and pharmacist identity, angina grade, allergies and other medical conditions; information on activity status; weight and diet; smoking; cholesterol levels; aspirin therapy; Beta-blocker therapy and any other information; face-to-face interviews with pharmacists at the start and end of the pilot study; face-to-face interviews with a sample of GPs at the end of the study; in-depth interviews with group of 5 patients who took part in the clinics; telephone interviews with a group of 50 patients (selected by random to obtain a one in three sample); telephone interviews with a random sample (one in three) of non-attenders.

EAS 2 had a local academic link and the CHSS team therefore provided a low level of support to this site. At a meeting in November 1997, the central evaluation team discussed the need to find out whether there was a clinical effectiveness programme relating to hypertension taking place within primary care that could affect the project's outcome; the discrepancy between the number of patients who initially agreed to take part in the study and

the number who actually completed the initial questionnaire and consent form and the need to look at non-responders' characteristics. The team also discussed access to data relating pharmacist characteristics to patient outcomes and cost data.

Patient outcomes are being measured by data provided in the patient satisfaction questionnaires completed at the start of the study and at the 8-month follow up point; adherence data collected from intervention and control group patients at the start of the study and at the 6-month follow-up point through a semi-structured interview using a standard question series and blood pressure measurements obtained from the GP patient medical records for all patients. Patients who had low scores on the adherence questions are being cross-referenced with a) pharmacist profile (location; ownership; age; private counselling areas) and b) patient profile (age; sex; time since diagnosis; treatment and c) deprivation (through postcode analysis). Numbers of requests for information on health condition and requests for information on medication are being cross-referenced with a) adherence scores, b) pharmacist profiles and c) patient profiles. Data sources included patient profile; pharmacist profile; pre-study patient questionnaires; patient satisfaction questionnaires; pharmacist intervention form; GP response questionnaire; GP records (for blood pressure readings). Counts are being made of patients experiencing side effects; pharmacist responses (proportion of responders giving advice on information about health condition/medication; proportion referring patients to the GP and the proportion of GP referrals that made recommendations and the proportion that recorded follow-up).

RDS 5 The central evaluation team did not provide any methodological advice to this project. We reviewed the data collection tools and recorded the project's progress and the revised protocol that meant that the pharmacist would be remunerated on a patient-centred basis rather than item driven. In its evaluation, Birmingham Health Authority is carrying out both qualitative analysis of acceptability from the point of view of the patients, pharmacists and GPs and quantitative analysis of changes in drug costs as a result of the intervention. Data sources include a specially designed repeat prescription form; referral forms (pharmacist to GP); patient recruitment postal questionnaires; PMRs; post-intervention survey of patient satisfaction; focus groups with GPs and pharmacists.

EAS 6 commissioned an institute at a local university to carry out the evaluation of this pilot. The central evaluation team followed the project's progress and noted changes in its objectives. At the outset the aim was to carry out a randomised control trial of a pharmacist-led intervention to provide enhanced after-care to heart failure patients after discharge from hospital. There was going to be a baseline measurement of the patients' quality of life followed by assessments at one and three months using a validated questionnaire. The central evaluation team held a meeting with the IHA evaluators and noted that the project had changed from a randomised control trial to an exploratory "action research" project to look at service quality and problems from the patients, pharmacists' and GPs' standpoints. The project will no longer be looking at clinical outcomes.

Having suffered some delays with the ethics committee and recruitment blocks, the project is progressing. The evaluators have carried out a preliminary focus group with health professionals and a one-to-one interview with a hospital consultant with the aim of agreeing roles and priorities in the care of heart failure patients and how the pharmacy service would fit in with other agencies. To date, hospital and community pharmacists have recruited nineteen patients. The evaluators are going to explore the participants' views on the service through focus group discussions with the professionals and, possibly, patient questionnaires.

RDS 6 This pilot's need for methodological advice from the central evaluation team was low. A local university and consultancy are providing support and the lead researcher has a strong previous background in research of the type. There have been delays in the pilot's start, partly because of difficulties concerning ethical approval. The study is based on both

intervention and control groups of patients on treatment for depression and recruited into the project by the GPs. The evaluation aims to measure changes in clinical outcome; drug treatment costs; prevention of waste; impact on the community pharmacists and GPs; benefits for patients and feasibility beyond the pilot stage. Data collection tools include a diary for each patient including information on patient details; time spent by the pharmacist; number of visits made to the pharmacy; adherence to treatment; medication side effects; referrals back to the GP; changes in treatment; HAD scale (Hospital Anxiety and Depression Scale is a 14 item self report which is sensitive to changes in anxiety and depression); the number of patients dropping out of treatment; referrals and admissions to hospitals. Pharmacy held PMRs will also be used to verify information in the diaries and to record drug costs; GP held patient notes will also be used to provide information on the number of GP consultations with the patient during the intervention period. Interviews will be held with participants from both active and control groups.

Objective Two: Overall Evaluation

Our aim in the second part of our project was not to evaluate each site as such but to draw out common themes cutting across all the projects and to disentangle what was unique to each project and what was general to them. An overall evaluation also offered the opportunity to compare models and to draw out which aspects of the services worked well and which ones did not, such as the use of different types of prescription or remuneration levels for the pharmacists. This project examines six key themes:

- **General acceptability**
- **Feasibility**
- **Generalisability**
- **Impact on adherence**
- **Freedom of choice of pharmacy**
- **Impact on drug costs**

Issues Raised

We had some difficulties defining the central evaluation team's relationship with the individual sites concerning first, the degree of authority it had and second, the question of sharing data. Although most of the sites had a very clear idea of our support role and some of them found it a very valuable resource, the majority (initially at least) did not seem to be very clear about our evaluative role. Some of the sites were concerned about a conflict of academic interests and ethical issues surrounding access to patients.

There were also issues relating to comparability. Each of these sites had its own particular local rationale and local demographics. For example, the EAS 3 project reflected the health authority's aim to target action on three main diseases in the area, cardiovascular disease being one of them. The target patient group in the RDS 1 pilot reflected health problems characteristic of inner cities. The sites used different ways of measuring adherence too. For example, some sites used prescription pick-up dates and others asked the patients to

report on whether their adherence to their medicines has improved as a result of the pharmacist interventions. They also collected data on drug costs in different ways. Some projects wanted to see whether patients took fewer drugs in the intervention phase than in the pre-intervention stage. Others considered whether the pharmacists' interventions could reduce drug wastage through an estimate of how many medicines they took from people's homes. Remuneration for the pharmacists and the doctors also varied across sites. The RDS 4 project in particular was interested in testing different forms of remuneration in different localities.

3. METHODOLOGY

The CHSS evaluation was divided into two parts. The first consisted of a qualitative analysis of the schemes' general acceptability. It is important to link research methods with the kinds of questions being addressed in any project. Our interest here was in exploring stakeholders' views on a particular service and what they thought was successful or not so successful about them. Thus the approach adopted was based on stakeholders' perspectives (See Ovretveit, 1998, p. 51), from which follows a qualitative method of data collection. Qualitative research refers to the use of methods for data collection that pay attention to actors' subjective perceptions (Faltermaier, 1997, pp. 357). It does not provide numerical answers to questions. Rather, it aims to illuminate people's experiences and views through the use of in-depth interviews, focus group discussions, observation and case studies (Pope and Mays, 1995, pp. 43-4).

We were interested in the perceptions of people who had a stake in the new services and who would influence their possible implementation in the future. In this case, this meant the service providers (the community pharmacists); the service recipients (the patients) and health care professionals involved in the pilots (GPs). GPs and pharmacists were the main referral sources. In some cases, there were other sources, such as carers or nurses. However, we focused on the main referrers for resource reasons and consistency. We were also interested in the attitudes of other actors who took part in the projects' set-up, namely, the project managers and Local Medical Committee (LMC) and Local Pharmaceutical Committee (LPC) representatives (See figure 1).

Pilot interviews were carried out with local GPs in December 1997 and with pharmacists based in EAS 1 in February 1998. We used these to finalise our interview schedules and began collecting data in April 1998. We could only start this phase after the local sites' interventions and own interviews had been carried out. We interviewed the professional stakeholders by telephone and carried out focus group discussions with patients organised jointly with the local project manager in each site. Resource considerations meant that it was possible to do one focus group in each locality. We had to revise the scope of our data collection with respect to patients in the light of some health authorities' and project managers' concerns. For example, there were worries about the ethical issues of contacting patients for contacting patients further and there were concerns that elderly patients attending a focus group several months after the intervention would not be appropriate. Other reasons were more practical, with patients seeming not to want to take part in the focus group and not getting enough numbers to make a group discussion worthwhile.

Sampling

A purposive sample of the professional stakeholders was selected to ensure that the study included pharmacists and GPs from as broad a range as possible. We selected the pharmacists primarily according to whether they worked in independents or multiples, whether they were

in rural or urban locations, and the extent of their involvement in the scheme. GPs were chosen according to practice size, whether they were in urban or rural locations and the extent of their involvement in the scheme. We also interviewed six out of seven project managers (whose pilots have been included in this report) and nine representatives from various relevant LPCs and LMCs. In selecting the quota for the sample we made a judgement about how many interviews it would be feasible to do given the time frame of our study and resources. We then proceeded to try and meet this target (six pharmacists and four GPs) in each pilot.

We liaised with the local project managers over setting up a focus group and they dealt with patient recruitment. The project manager either directly contacted (or indirectly through a practice manager) twelve patients in the hope that eight would agree to attend. In so far as the groups only included patients who consented to come, they were self-selected, raising the question of possible bias in their responses. This was unavoidable and means that the patients' responses need to be treated with caution.

Table 3.1 **INTERVIEWS WITH PROFESSIONAL STAKEHOLDERS**

Scheme	Number of Pharmacies	Number of pharmacists interviewed	Number of GP practices	Number of GPs interviewed
RDS 1	19	6	34	4
RDS 2	13	6	8	4
RDS 3	57	5	7	3
RDS 4.1	43	5	5	3
EAS 1	16	6	Open	4
EAS 2	12 (intervention)	5	Open	4
EAS 3	5	5	8	3
Total		**38**		**25**

Telephone Interviews and Focus Groups

We carried out semi-structured telephone interviews with a sample of pharmacists and GPs who participated in the scheme. There have been some concerns raised about the validity of these interviews compared with face-to-face ones. In terms of quality of data, the concern has centred on whether telephone interviews yield valid data, especially when they are about sensitive health-related topics. Research has produced inconsistent findings. Some of it has

indicated that telephone interviews are as useful as face-to-face ones. Other research has shown that interviewees tend to give shorter responses to open-ended questions and that the telephone interview proceeds faster than that face-to-face interviews. The obvious advantage however, is that such interviews facilitate cheap and fast access to geographically disparate groups (Thomas and Purdon, 1994, pp. 1-6). In this study, personal health issues were not explored and we found little evidence of respondents' reluctance to answer questions fully.

We used focus groups as a way of accessing patients' views of the services because they are a fast and cost effective way of interviewing a number of people. Like telephone interviews, there has been some debate about the validity of obtaining data through focus group interviews and they do have some limitations. In particular, recruitment tends to be based on convenience rather than representation and the group dynamics may affect individual opinions. However, they are a very useful way of doing exploratory research and their open format provides opportunities for gathering rich data (Stewart, 1990, pp. 16-7).

The professionals' telephone interview schedule consisted of open ended questions with prompts to be used if necessary and covering the following issues: reasons for taking part in the pilot; pilot's impact on job satisfaction/workload; use of other staff (pharmacy and GP practice); patients' views; pilot's impact on patients' adherence; pilot's impact on drug costs; pharmacists' role in the PHCT and attitudes towards pharmacists extending their roles in the areas identified by PIANA. The patient focus group schedule also consisted of open-ended questions with prompts. It centred on what the patients' pharmacy service was like before the pilot; what was different about the new pharmacy service; patients' relationship with the pharmacists; confidence in pharmacists' expertise; the new service's convenience; privacy; whether they thought it had helped them in taking their medications and the patients' idea of their ideal pharmacy service.

Table 3.2 **INTERVIEWS/FOCUS GROUPS**

Interviews/Focus Groups	**Numbers**
Community pharmacists	38
GPs	25
Project managers	6
LPC representatives	5
LMC representatives	4
Patient focus groups	3

Sites' Final Reports

The sites' own final reports have also informed our evaluation as secondary data sources. We have received final reports from EAS 1, EAS 3 and RDS 3 and draft reports from RDS 1 and RDS 5.

General Analysis

The telephone interviews were transcribed verbatim and the transcripts were analysed in terms of the key concepts outlined above, namely, general acceptability; feasibility; generalisability; adherence; costs and freedom of choice of pharmacy. We looked for recurring themes and selected illustrative quotations of recurring themes. We indicated in the text where views that were expressed were not generally held.

In the focus group discussions a member of the central evaluation team moderated and the local project manager was present. We explored the ways patients had received their medications in the past, how the new service differed from their previous experience, and whether they found the service acceptable. We transcribed the discussions verbatim and analysed the transcripts in terms of recurring themes that came up in response to these questions about the pilots.

Our analysis of **general acceptability** (for the professionals) turned on issues concerning workload, level of training, job satisfaction, and perceptions of appropriate roles for pharmacists. For the patients, **general acceptability** referred to their confidence in the pharmacists' skills, extent of contact with the pharmacists; the issue of GP/pharmacist roles; privacy; convenience; perceived improvement in use of medication and health. Our analysis of **feasibility** looked at stakeholders' views on whether the scheme worked in terms of workload, remuneration, and patient recruitment and prescription type where appropriate. Our analysis of **generalisability** centred on stakeholders' views on whether the projects could be rolled out nationally or whether they were more appropriate in some localities than others, especially in terms of particular local health needs. Our analysis of **adherence** was based on the stakeholders' perceptions of whether patient adherence had changed as a result of the interventions. By **adherence** we mean taking drugs in the way prescribed. We supplemented these findings with the health authorities' own findings, noting the way they collected information on adherence. Some of the sites considered it in terms of patient pick-up rates for their prescriptions. Others looked at it according to the results of a medicine cognisance test carried out at each intervention to see whether there had been any improvement in patient understanding.

Our analysis of **freedom of choice of pharmacy** was based on stakeholders' perceptions of the benefits or otherwise of patients regularly using the same pharmacy and their views on registration, voluntary or obligatory. Patient freedom to choose the dispensing pharmacy did not apply in all of the sites. The question was particularly relevant to the repeat dispensing projects where patients could only get subsequent supplies by going to the same pharmacy. However, where this issue was not specifically related to the particular scheme, we asked the interviewees for their views on the subject in principle.

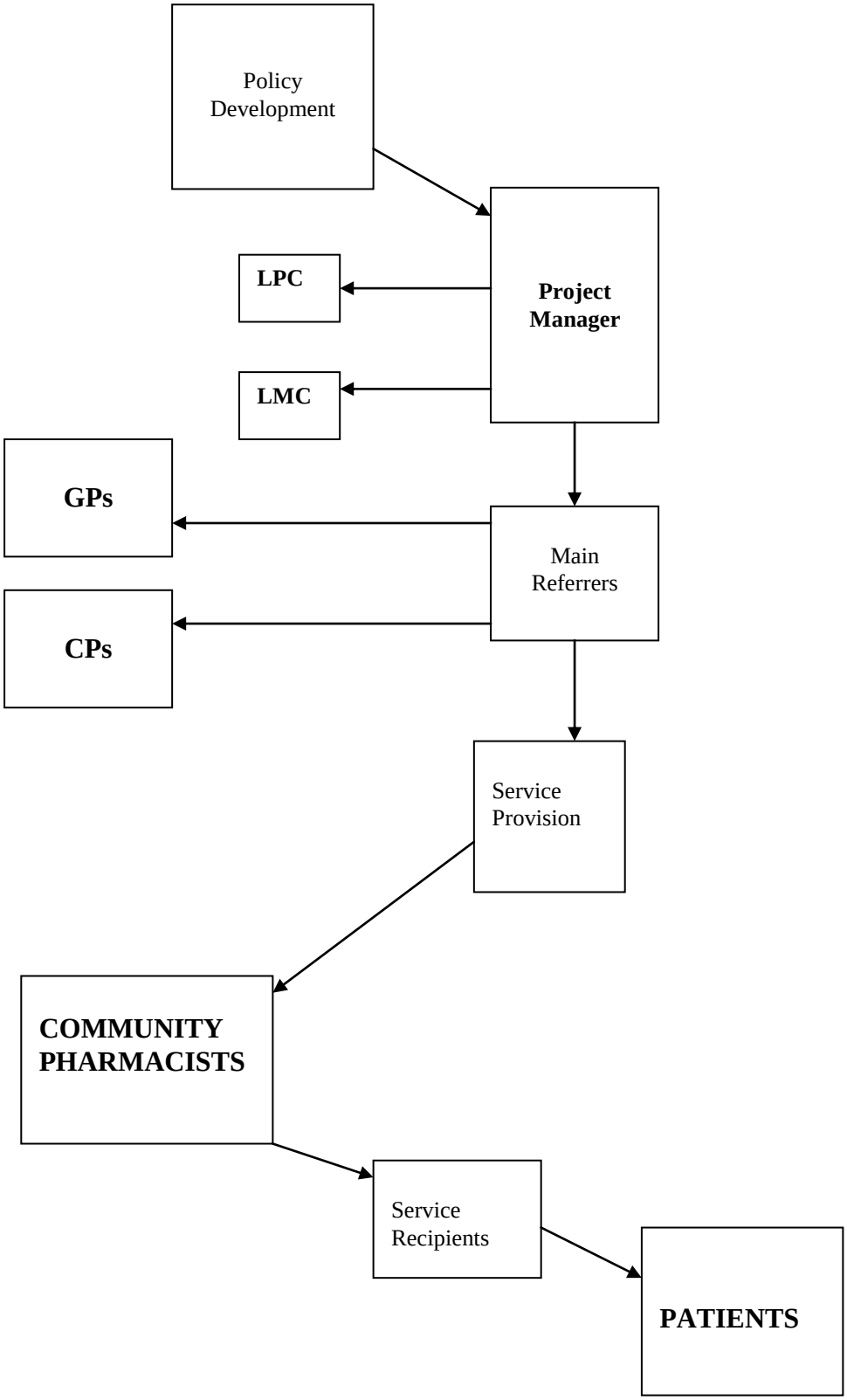
Costs Analysis

In the cost analysis section we summarised the level of savings made in relation to non-dispensed drug items for each of the pilot sites for which data were available. We explored some of the variations in savings both within and across the studies, drawing comparisons wherever possible. In the analyses savings were measured in four different ways, the results of which should be considered in combination. These four measures are:-

- As a total saving
- As a percentage of prescribed costs
- Number of non-dispensed items
- Average saving across these non-dispensed items

These were estimated for each site over the entire six-month period and per instalment. In addition, they were calculated separately in four subgroups, including: pharmacy type, drug category, pharmacy and GP practice. As an additional individual measure across the whole period, the average costs per prescription item was calculated based on the numbers of items prescribed and the total costs of items dispensed.

Figure 1 **KEY STAKEHOLDERS**



4. CASE STUDIES

In this report we have first of all described the individual sites' projects to provide an idea of their key characteristics and how they differ from each other. We then go on to provide an overall analysis in the results and discussion section. In this way, our general evaluation has been informed through a comparison of specific cases. In this report, we shall be looking at seven pilot projects. This includes repeat dispensing scheme types 1, 2, 3 and 4.1 and extended adherence schemes types 1, 2 and 3. RDS 4.1 is one of a number of pilots taking place under RDS 4. These are the sites where we carried out our own research. However, we are also including a brief description of RDS 5 because we are covering the cost analysis of this site in a separate section.

REPEAT AND/OR INSTALMENT DISPENSING PILOTS

REPEAT DISPENSING SCHEME TYPE 1 (RDS 1)
PILOT'S MAIN CHARACTERISTICS

Pilot type: Instalment dispensing
Patient groups targeted: TB; mental health; drug addiction; elderly and confused
Expected number of patients recruited: 150-200
Actual number of patients recruited: 32
Referral source (s): GPs
Number of participating pharmacies: 19
Pharmacist remuneration: £1.00 fee for each instalment dispensed and £1.00 fee for each observed consumption plus £10.00 fee on return of study documentation
Pharmacist reviews' location: Pharmacy
Number of participating GPs: 34 GP practices
GP remuneration: £25.00 per patient enrolled paid in two parts: on recruitment and on return of post-intervention documentation NB Introduced part way through the study

RDS 1 aimed to develop a community pharmacy service where medicines were dispensed in instalments for defined patient groups. The pilot differed from the repeat dispensing schemes in that its purpose was to provide a prescription where the total quantity of the drug prescribed is dispensed in small amounts at a time (three instalments per week). It targeted patients with a known history of poor adherence that fell into four main groups: TB sufferers, patients with mental health problems, drug abusers and the elderly and confused. GPs in the RDS 1 locality selected the patients into the scheme according to the defined inclusion criteria. Thirty-four GP practices and nineteen pharmacies took part in the scheme. Doctors were responsible for enrolling patients on to the scheme. The pharmacists got a fee of £10.00 on receipt of documentation. The PPA paid 94.1 pence of all instalments and the pharmacists had to claim a balance of 5.9 pence for every instalment from the RDS 1.

The project encountered some difficulties. In particular, patient recruitment was low. The manager and the steering group had anticipated recruiting around 150 to 200 patients, an informed estimate based on the number of GP surgeries running mental health and drug abuse clinics in the area and the two TB clinics. In the end, 32 patients were recruited. Out of these, there was a high number who were from a low socio-economic background. Many of them suffered from drug addiction problems or mental illness. No homeless or TB patients were recruited.

This low recruitment could have stemmed from demographic factors. As an inner city area, RDS 1 has a high level of homelessness and mobility. The very mobility of these patients made them difficult to recruit, even though they were precisely the patients targeted. Another possible factor related to patient consent. Doctors found that a number of patients did not want to take part in the project. Again, this difficulty could have flowed from the type of patients who were targeted. Patients who abused the drugs prescribed to them did not want small quantities prescribed at a time or observed consumption. It is possible that people suffering from mental health problems disliked being singled out and were worried about being stigmatised.

There were two reasons why no TB patients were recruited on to the scheme. The manager had contacted two TB clinics in the area and one of them did not enrol patients for practical reasons. However, the other refused to co-operate because they had already established a protocol and prescribing nurse to deal with non-compliant TB sufferers. This was significant, because for community pharmacists to work effectively in this area there is a need for co-ordination with other health care workers and it casts doubt on the need for pharmacist intervention in this way if nurses could do it.

The project also suffered from a lack of GP co-operation. Initially, it targeted two practices from each of the six RDS 1 local areas in order to reflect the variety of practice types and geographic distribution. Later, it invited all the GP practices in the Health Authority area to take part. The lack of co-operation could have reflected the workload associated with having to recruit patients. The doctors had to carry out an in-depth review of patients in order to recruit and then to complete post-intervention documentation.

GPs' lack of co-operation could have arisen because of the uncertainty surrounding remuneration. At first, the Health Authority did not provide the doctors with any financial incentive to take part in the scheme. It was only in response to low recruitment levels that the Health Authority offered the doctors remuneration. Doctors then got £25.00 per patient enrolled. This was paid in two parts: first, on recruitment and then after completion of the post-intervention documentation.

*It should be noted that ongoing conversations with the project's manger have informed some of the points made here.

REPEAT DISPENSING SCHEME TYPE 2 (RDS 2)
PILOT'S MAIN CHARACTERISTICS

Pilot type: Repeat and Instalment
Patient groups targeted: Chronic
Expected number of patients recruited: 200
Actual number of patients recruited: 185
Referral source (s): GP
Number of participating pharmacists: 13
Pharmacist remuneration: £30.00 fee for each patient who presented with a prescription
Pharmacist reviews' location: Mainly pharmacy-based, some domiciliary
Number of participating GPs: 8 GP practices
GP remuneration: £1000 to cover administration costs plus a printer

RDS 2 piloted a pharmacist controlled repeat prescribing scheme (PCRPS) for patients receiving medication for chronic conditions. The pilot had five main objectives:

- to identify potential benefits to patients
- to assess the service's impact on GP workload
- to identify potential savings in drug wastage
- to assess its acceptability to patients
- to test the feasibility of such a scheme in an area with a relatively high proportion of prescription payers.

In this scheme the GPs selected the patients. After obtaining the patients' consent, they wrote a three-part prescription to be dispensed by the participating pharmacists. The pharmacist dispensed the first part and arranged for the patient to collect the second instalment; he or she repeated this process at the second instalment and then, at the third dispensing the pharmacist carried out a medicine review and asked for a further three-part prescription from the GP incorporating any changes agreed with the doctor and the patient. Pharmacists were paid a fee of £30.00 for each patient in the scheme who presented with a prescription. The fee covered the professional and management aspects of each three-month period and did not reflect the number of items on the form.

This project was a success in terms of patient recruitment. One hundred and eighty-five patients were recruited, only just short of the 200 target. This could have stemmed from the simplicity of the referral process, with doctors being the only source of referral. The Health Authority's Pharmaceutical Adviser also consulted with the GPs at the outset and the practices got quite a high financial reward: £1,000 per practice to cover administration costs plus a printer. Some of the GPs we interviewed mentioned that this had been an incentive to participate. However, one of the key aims of the project had been to do a comparison between patients who pay for the prescriptions and those who do not. In the end, only 8 patients who paid for their prescriptions took part. This might have been because it was difficult for people who worked to visit the pharmacies. Or it could have resulted from doctors' perceptions about who needed the service most. Although the project manager asked them to recruit a broad range of patients, the GPs had considerable autonomy about who to recruit.

*Ongoing conversations with the project's manager have informed some of the points made here.

REPEAT DISPENSING SCHEME TYPE 3 (RDS 3)
PILOT'S MAIN CHARACTERISTICS

Pilot type: Repeat dispensing
Patient groups targeted: Stabilised on continuous therapy
Expected number of patients recruited: 400 maximum
Actual number of patients recruited: 242
Referral source(s): Practice receptionists; Practice managers; GPs
Number of participating pharmacies: 57
Pharmacist remuneration: Drug tariff fee (94.6p) for each instalment item dispensed and £5.00 fee for each completed structured intervention questionnaire when patient presented for each instalment
Pharmacist reviews' location: Pharmacy
Number of participating GPs: 7 practices
GP remuneration: £200 retainer fee for each participating practice plus £25.00 fee per patient recruited

This pilot aimed to investigate the feasibility of a community pharmacy-based repeat dispensing scheme from the pharmacists', GPs' and patients' perspective. Its objectives included:-

- an evaluation of the implications of the scheme for GP practices in terms of acceptability, benefits, convenience and time
- an evaluation of the acceptability, benefits and convenience of the scheme for patients and its impact on patient adherence
- an evaluation of the community pharmacy's role in improving patient care (e.g. side effects/ adherence); workload and perceived benefits to professional role
- identification of the impact of a pharmacy controlled repeat dispensing scheme on drug costs

Seven GP practices took part in this project and it was open to all pharmacies in the health authority area. The GP practices were responsible for recruiting patients on to the scheme and, although there was some GP involvement in this, practice receptionists and managers did most of the patient enrolment. The patient inclusion criteria include patients identified as taking repeat medication for six months before the pilot's recruitment phase; patients who would use a pharmacy within the health authority boundaries for the pilot's duration; patients who had been registered with the GP practice for at least six months and who were willing to collect their repeat medication at approximately 28 day intervals. The pilot excluded patients who were under the age of 16; taking the oral contraceptive pill; patients needing surgical supplies or regular injections.

The number of patients recruited fell below the original target, but not by much. Recruitment was disappointing because of the tendency to select patients on straightforward medication regimes and the low number of elderly patients on complex medication regimes. It is possible that this tendency arose because practice staff avoided choosing patients on complex regimes or chose patients they knew well or poor record keeping could have been the reasons (RDS 3 Draft Report, 1999, p. 65).

Patients were given a six-part prescription with red stickers indicating that they were on the project. The patients had freedom of choice of pharmacy (within the health authority boundaries) and could either hold on to the prescription instalments or leave them with a pharmacy of their choice. Levied patients had only to pay for the initial instalment.

Pharmacists presented with a pilot prescription had to carry out monthly reviews of the patients' medication needs when they came for their medication to be dispensed. The

reviews involved seeing whether patients were taking their medicines as prescribed; whether they were suffering from any side effects and whether they needed a change in supplies.

REPEAT DISPENSING SCHEME TYPE 4 (RDS 4)

Repeat Dispensing Scheme 4 was the largest of the pilots covering four geographical areas. The pilot had four main objectives:-

- to see whether a pharmacist managed repeat dispensing scheme could affect the cost of repeat prescribing and to estimate the size of this effect
- to test whether the repeat dispensing scheme affected the quality of patient care
- to test whether the payment of financial incentives to pharmacists in the repeat dispensing schemes affected the size of either of these effects
- to test the effect of pharmacist versus patient retention of prescription instalments on the size of these effects

In order to test these objectives, the schemes differed from each other in important respects. With respect to pharmacist remuneration, all of the pharmacists who took part were paid a fee of £1.83 for each monthly instalment of each item, but pharmacists in two of the areas were paid a percentage of any savings made as a result of non-dispensing of items on the repeat prescription. In two of the schemes the patients held the prescription instalments and in two the pharmacists held them. The prescriptions were specially designed. This case study is based on one of those areas (RDS 4.1).

Health Authority	Prescription	Remuneration
RDS 4.1	Patient choice	No % savings
RDS 4.2	Patient registration	No % savings
RDS 4.3	Patient choice	% savings
RDS 4.4	Patient registration	% savings

REPEAT DISPENSING SCHEME TYPE 4.1 (RDS 4.1)
PILOT'S MAIN CHARACTERISTICS

Pilot type: Repeat dispensing
Patient groups targeted: Patients on repeat medication based on randomised selection and excluding patients who were on controlled drugs; HRT or contraceptive pill alone (but if on HRT and medication for hypertension were included)
Expected number of patients recruited: 1,250
Actual number of patients recruited: 991
Referral source(s): GP practice (receptionists). CPs if patients already went directly to the pharmacist and had been randomised by the practice. Practice then asked the CP to recruit
Number of participating pharmacies: 43 (ranging from having anything between 1 and 238 patients; 11 pharmacies had 50+ patients)
Pharmacist remuneration: £1.00 per patient recruited plus a dispensing fee of £1.83 per item on the prescription whether the item was dispensed or not during the three-month intervention phase. No percentage of savings made
Pharmacist reviews' location: Pharmacy
Number of participating GPs: 5 GP practices
GP remuneration: £2.00 per patient recruited plus a printer

In this pilot, the repeat dispensing scheme was based on a system where the patient could choose which pharmacy to get their instalments dispensed from and they did not have to continue to use the pharmacy where the initial dispensing took place. The patients had to hold on to the prescription instalments. It was also one of the pilots where the pharmacists did not get a percentage of savings made.

The patient group included people who had been on medication for at least 12 months; were over 16 years old; had agreed to take part in the study; were not on HRT, the contraceptive pill or surgical appliances alone and were not on controlled drugs. The prescriptions were specially designed, in triplicate, coloured pink and stamped to show that they were project prescriptions.

REPEAT DISPENSING SCHEME TYPE 5 (RDS 5)
PILOT'S MAIN CHARACTERISTICS

Pilot type: Repeat dispensing
Patient groups targeted: Patients on repeat medication excluding those on HRT
Expected number of patients recruited: 350
Actual number of patients recruited: 350
Referral source(s): Identified from PMRs and screened for suitability by CPs and GPs
Number of participating pharmacies: Seven
Pharmacist remuneration: £30.36 per patient per three-month cycle plus drug costs paid
by PPA as normal (without the dispensing fee if items were undispensed)
Pharmacist reviews location: Pharmacy
Number of particpating GPs: 2 GP practices
GP remuneration: £15. 00 handling fee per patient
Freedom of choice of pharmacy: Pharmacist-held prescription instalments (Prescriptions were valid for three months)

RDS 5 was a repeat dispensing scheme that aimed to investigate the feasibility of a community pharmacy based repeat dispensing procedure for patients with regular repeat prescriptions. Its objectives included:-

- To develop a suitable and appropriate methodology
- To identify appropriate patient groups
- To evaluate the benefits from the perception of the patients, the GPs and the pharmacists
- To identify barriers and constraints to the implementation of a repeat dispensing practice
- To make recommendations on new forms of remuneration

Two GP practices took part based in two different localities. One of the practices was based in a suburb situated on a busy road and served by seven pharmacies. The second practice was in a multi-ethnic inner city area and served by three pharmacies. Seven pharmacies took part in the scheme, four of which served the first practice and three of which served the second.

Pharmacist remuneration was patient centred rather than item driven; the aim was to improve patient care through a service that monitored adherence and reviewed medication. GPs were reluctant to get closely involved in the project. Their role involved screening patients identified by the pharmacy PMRs and screened by the pharmacists for their suitability for the project. They were paid a £15.00 handling fee per patient.

In this pilot patients on repeat medication were targeted and it excluded those on HRT and asthma medication. The patients were selected by random after screening pharmacy PMRs. Those who agreed to take part had to use the same pharmacy throughout the three-month intervention cycle. The patients identified the pharmacy they wanted to use when they consented to participate. The project used specially designed prescriptions.

EXTENDED ADHERENCE/PHARMACEUTICAL CARE SCHEMES

EXTENDED ADHERENCE SCHEME TYPE 1 (EAS 1)
PILOT'S MAIN CHARACTERISTICS

Pilot type: Extended adherence support
Patient groups targeted: Mainly elderly and confused
Expected number of patients recruited: 200
Actual number of patients recruited: 63
Referral source (s): Hospital pharmacists; social/care workers; district liaison nurses; occupational therapists; community (psychiatric) nurses; sheltered housing wardens; private care agency staff; Age Concern; Crossroads; GPs
Number of participating pharmacists: 16
Pharmacist remuneration: £40.00 fee per assessment and £30.00 follow-up fee
Pharmacist reviews' location: Domiciliary
Number of participating GPs: 2 GPs referred patients into study
GP remuneration: £100 to cover administration NB: introduced part-way through the study

EAS 1 Health Authority piloted an extended adherence service based in two different localities. The pilot had a number of objectives:-

- To consider whether community pharmacists could identify patients who needed help with adherence
- to identify target patient groups
- to establish reasons for poor adherence
- to develop an appropriate referral system to identified community pharmacists
- to improve safe and effective use of medicines
- to reduce drug wastage
- to establish the resource implications of the service.

Sixteen pharmacists took part, carrying out domiciliary visits to patients referred into the scheme by a variety of different sources. Seven of these worked in independent pharmacies (six were proprietors), three worked for a small group and seven worked for a multiple. The pharmacists visited the patients in their homes to assess their adherence to their medications and to take action to help them if any problems were identified or to recommend action to the patients' GPs. The pharmacists received a fee of £40.00 per assessment and £30.00 per follow up visit. The patient selection criteria were broad and 63 patients participated. The majority was over sixty and nearly half of them were housebound. There were several referrals sources in this scheme, including care workers, district nurses, social workers, pharmacists and doctors. The GPs' role was minimal. They were one of a number of referral sources who had to refer patients who met the inclusion criteria into the scheme. They were paid a fee of £100.00 to cover administration costs.

This project had similar problems to those encountered by RDS 1. The number of patients actually recruited fell well below what was anticipated. There were a number of reasons for this. First, the multiplicity of referral sources might have led to a sense of diffused

responsibility. Second, there seems to have been some difficult local politics between the LMC and the LPC. This led some GPs to reject the scheme altogether because they felt they had not been sufficiently consulted about it. Financial incentive for the GPs to get involved was only moderate, and, like RDS 1, the payment was only introduced some months into the scheme.

EXTENDED ADHERENCE SCHEME TYPE 2 (EAS 2)
PILOT'S MAIN CHARACTERISTICS

Pilot type: Extended adherence
Patient groups targeted: Hypertension
Expected number of patients recruited: 300
Actual number of patients recruited: 261 (146 intervention; 115 control)
Referral source (s): Community pharmacists
Number of participating pharmacists: 23 pharmacies (12 intervention; 11 control)
Pharmacist remuneration: Intervention pharmacists: £100 fee to cover training and
patient recruitment and £100 per patient in four phases linked with return of study data.
Control pharmacists: £100 fee to cover training and patient recruitment
Pharmacist reviews' location: Pharmacy
Number of participating GPs: N/A
GP remuneration: None

EAS 2 Health Authority ran an extended adherence project in liaison with a local university department. In the light of research showing that many patients suffering from hypertension do not adhere to their prescribed treatment and evidence of patients' self-regulation of treatment, adjustment of doses and intermittent reductions or cessation of treatment, the project aimed to bring a patient-centred approach to adherence (EAS 2 Project Protocol, 1997, p. 1). Its objectives included:-

- the improvement of understanding of patients' beliefs and information needs
- the design and testing of a practical educational intervention tailored to patients' own concerns and needs
- the measurement of outcomes including self-reported adherence, patient satisfaction, repeat prescription frequency and blood pressure control
- the dissemination of the findings to patients, patient organisations, health professionals and health service managers

The study differed from the other adherence projects in that it targeted a single patient group and in that the interventions took place in the pharmacy or by telephone rather than in the patients' homes. It was also unusual in that it was based on a randomised control study whereby the pharmacists were divided into intervention and control groups. The scheme was offered to all 94 pharmacies in the area and 23 pharmacies participated: 12 intervention and 11 control. Patients were recruited through the PMR or by opportunistic selection on presentation of a prescription. The inclusion criteria were: all age ranges; both sexes; patients being treated only for hypertension; patients being treated for conditions in addition to hypertension; patients being treated for a short period of time (i.e. less than 2 years); patients being treated for a medium length of time (i.e. between 2 and 10 years); patients being treated for a long time (i.e. more than 10 years). The actual number of patients recruited fell a little short of the original target of 300, with 261 patients taking part. The intervention pharmacists recruited 146 patients and the control pharmacists recruited 115 patients.

The intervention pharmacists carried out a pharmacy-based/telephone assessment of the patients recruited at month one, three and five. They answered patients' concerns about their medicines, gave advice on adherence, advised the patients to go back to the doctors if necessary and/or made a recommendation to the GP where appropriate. The patients allocated to the control group received the usual care. All pharmacists got a lump sum of £100 to cover

training, patient recruitment and validation of hypertension with GP. Intervention pharmacists received £100 per patient in four phases linked with return of study data.

The GPs in this scheme played a minimal role in this project. The LMC was informed of the project and got a copy of the protocol plus the GP briefing document. The study patients' GPs received a project-briefing document and these GPs confirmed the diagnosis of hypertension and the time since diagnosis for each patient. They did not receive any remuneration for their part.

EXTENDED ADHERENCE SCHEME TYPE 3 (EAS 3)
PILOT'S MAIN CHARACTERISTICS

Pilot type: Pharmaceutical care and adherence
Patient groups targeted: Ischaemic Heart Disease
Expected number of patients recruited: 300
Actual number of patients recruited: 236
Referral source (s): GPs; community pharmacists; cardiac nurses
Number of participating pharmacists: 5
Pharmacist remuneration: £25 per hour
Pharmacist reviews' location: GP surgeries
Number of participating GPs: 8 practices, 17 GPs
GP remuneration: None

EAS 3 carried out a project aimed at improving the care of community-based patients with Ischaemic Heart Disease (IHD) through GP-Pharmacist collaboration. The project developed partly in response to the Health Authority's need to introduce effective ways of reducing morbidity and mortality rates in the light of targets set out in Health of the Nation. It also developed out of a previous GP-pharmacist prescribing initiative in the area. All of the pharmacists who took part had been involved in this earlier scheme. The project had three main aims:-

- to look at the use of six evidence-based interventions in patient management
- to consider the effect of pharmacist-run review clinic on angina patients' quality of life
- to examine pharmacists', doctors' and patients' attitudes towards the clinics.

Five pharmacists took part in co-operation with seventeen GPs based in eight practices. The GPs, pharmacists and cardiac nurses selected the patients for review and the pharmacists ran the clinics focusing on the six interventions. Three of the interventions related to life-style and included smoking cessation; physical activity and diet. The other three were therapeutic-based, including, aspirin; beta-blockers and statins. Pharmacists also looked at the use of nitrates, although they did not originally intend to. The clinics took place in the general practices.

The patient inclusion criteria were patients aged between 45 and 75 years with stable angina and receiving four or fewer prescribed medications for IHD. A total of 327 patients who satisfied the inclusion criteria were invited to attend the clinics during the three-month recruitment period and 236 (72%) of these went (EAS 3 Report, 1998, p. 45). The pharmacists carried out face-to-face reviews with the patients at the start and the end of the five-month study period. Between these reviews they did two interim reviews by telephone. The pharmacists collected data on the six interventions. Patients completed the Seattle Angina Questionnaire (SAQ) at the first and the last review. The SAQ assessed the impact of the clinics on patients' functional status and quality of life. The SAQ is a tried and tested measure of five aspects of IHD: physical limitation; anginal stability; anginal frequency; treatment satisfaction; disease perception.

The Health Authority commissioned independent evaluators based at a local university. The evaluators carried out a qualitative analysis of patient, GP and pharmacist perceptions of the clinics through in-depth semi-structured interviews. They also carried out a statistical analysis of the data collected on the six interventions and the SAQ (EAS 3 Report 1998, pp. iii-viii). We have summarised some of the Health Authority's findings in the following case study.

5. RESULTS/DISCUSSION

This study aimed to investigate the acceptability of various extended roles for community pharmacists to the key stakeholders, namely, the pharmacists, GPs and the patients; their impact on patient adherence and, in some of the main repeat dispensing projects, their impact on drugs costs. The study also aimed to consider the question of generalisability and feasibility. The following comments are based on research carried out in seven of the original pilots. These pilots reflect a mix of instalment and repeat dispensing schemes (RDS 1, RDS 2, RDS 3, RDS 4.1) and extended adherence and pharmaceutical care schemes (EAS 1, EAS 2, EAS 3). We are also commenting separately on drug costs savings for RDS 2, RDS 3 and RDS 5.

5.1 GENERAL ACCEPTABILITY

Simplifying a little, there appears to be a consensus of support in principle amongst the key stakeholders for community pharmacists extending their role into the management of medicines. The **pharmacists** welcomed their involvement in these pilots as a way of enhancing their professional development. For example, a pharmacist who took part in RDS 3 said,

> 'I got involved from an interest in the possibility of pharmacy taking on a further role in medicines management. Yes, for professional reasons really' (RDS 3 CP 3).

Out of the repeat dispensing schemes, RDS 2 and RDS 3 were the most successful. In RDS 3, the Health Authority's evaluation found that 84% of the pharmacists who took part in the study found it good or very good and only 4% found it poor (RDS 3 Final Report, 1999, p. 97). This satisfaction sprang partly from the pilots' simplicity. In some ways, the services built on the pharmacists' past experience rather than departed significantly from it. For example, a pharmacist who participated in RDS 3 said,

> 'it was different in as much as we interviewed the customers and had to keep the prescription instalments and fill in the forms. But it wasn't a major change though' (RDS 3 CP 2)

Moreover, the repeat dispensing pilots did not entail a marked increase in workload and the pharmacists viewed them as a way of increasing their job satisfaction.

RDS 4.1 had more mixed reviews. Three of the five pharmacists we spoke to supported the scheme, but two of these commented that better schemes were going on elsewhere. Two of the pharmacists were very critical of the pilot. Those who objected to the scheme did so mainly because they thought that the patients' freedom of choice of pharmacy inhibited continuity and was confusing in terms of patient payment in the case of levied patients. Given that patients' freedom of choice was maintained and pharmacists did not receive a percentage of any savings made, this pilot offered pharmacists little incentive.

Out of the extended adherence schemes included here, the pharmacists were quite satisfied in EAS 1 and very satisfied in EAS 3. Their satisfaction stemmed from getting out of

the dispensary and being able to work on issues they thought were compatible with their training. When asked about their reasons for getting involved in the schemes, the pharmacists typically cited professional development. For example a pharmacist who took part in EAS 1 said she got involved

> 'very much for professional development [and because I] saw it as an opportunity to move beyond simply handing over tablets and to get follow-through' (EAS 1 CP 1).

Pharmacists who took part in EAS 3 were the most enthusiastic. This was because they had had previous experience of projects and the Health Authority, backed by local university-based evaluators, had a well-defined purpose also rooted in strong previous experience.

EAS 2 was less successful from the pharmacists' point of view. This result could have stemmed from our having spoken to the wrong pharmacists. However, five of the twelve intervention pharmacists were interviewed and two others were contacted. Neither of these wanted to be interviewed and both expressed some dissatisfaction. It seems more likely that the reason for the pharmacists' reservations about this pilot stemmed from the extra workload relating to a control study. All of the pharmacists we spoke to reported that the documentation they had to complete at each patient review was too lengthy and time-consuming. Noting that the project co-ordinators had been supportive throughout the trial, a member of the LPC remarked that 'part of the problem is that practice research is very different from pure academic research' (EAS 2 LPC rep), suggesting that the study's academic component was why the pharmacists encountered problems.

Table 5.1.1 **GENERAL ACCEPTABILITY**

Project	**Pharmacists**	**GPs**	**Patients**
RDS 1	Generally quite supportive	Mixed	Mixed
RDS 2	Generally supportive	Generally supportive	Generally supportive
RDS 3	Generally supportive	Generally supportive	Generally supportive
RDS 4.1	Mixed	Generally supportive	Mixed
EAS 1	Generally quite supportive	Generally supportive	Generally supportive
EAS 2	Generally unsupportive	Mixed	Mixed
EAS 3	Generally very supportive	Mixed	Generally supportive

The **doctors** who took part in these pilots accepted the pharmacists' interventions in so far as they saw them fulfilling a support function, filling a gap in their own abilities to help with patient adherence and a group to whom they could delegate responsibility. Disregarding set-up difficulties stemming from lack of co-operation from GPs, there is evidence that the schemes relating to dispensing (RDS 2, and RDS 3) found greatest favour amongst GPs. This was because the doctors thought that pharmacists could take some of the burden out of repeat prescribing. There is general agreement that repeat prescribing in the UK not only takes up a lot of GP time, it does not necessarily ensure high quality care (Dowell et al., 1998, p. 1858). There is evidence from our research that the doctors appreciated the pharmacists' interventions because it took away some of the burden associated with repeat prescribing. GPs who took part in RDS 3 for example (where patients were supplied with a prescription based on six monthly instalments) noted that the pilot resulted in patients either coming half as often or cutting down visits about minor complaints. One doctor said,

> 'we saw less of the patients. Probably about a third of the people who did it, we saw them half as much as before. We used to see them every three months for things like blood pressure reviews' (RDS 3 GP 1).

And another said,

> 'it [workload] was reduced in the sense that I didn't have to sign the scripts every day. They were all done in one go…it wastes a lot of time signing repeats every day' (RDS 3 GP 1).

Some of the dissatisfaction expressed by doctors in RDS 2 stemmed less from principle than from practical issues such as patient recruitment, difficulties synchronising supplies and difficulties arising from use of a special prescription.

Out of the extended adherence projects, EAS 1 got most support from the GPs who took part (despite reports of lack of GP co-operation in the set-up stage). This was because the doctors perceived a need amongst the elderly population for help with adherence which they did not have the time to do. One GP, for example, said,

> 'Oh yes, over the last thirty years I've had worries. I've seen old people in their homes and when I've checked what they've had, there has been an amazing amount of unused drugs' (EAS 1 GP 1).

And another said,

> 'I just thought it might be something to help people at risk of compliance problems. I had thought there was a small but significant problem' (EAS 1 GP 2).

In contrast, doctors involved in EAS 2 and EAS 3 showed greater reservations and more mixed views. Their ambivalence reflected more deep-rooted concerns amongst doctors towards pharmacists taking on more clinical roles. These differences suggested that GPs

welcome an extension in community pharmacists' roles, but in limited areas. EAS 2 and EAS 3 differed from EAS 1 in that they were more clinically orientated.

Patients It was more difficult to gauge patients' attitudes towards pharmacists extending their roles because we were confined to investigating the attitudes of patients who consented to take part in the pilots and could not access those who refused to participate. Our findings on patients' views therefore stem from the limited number of focus groups with patients, our interviews with the pharmacists and doctors combined with the local sites' findings.

Out of the repeat dispensing schemes, patient support seemed strongest in RDS 2 and RDS 3 and weakest in RDS 1 and RDS 4.1. In the former, patients enjoyed the convenience of visiting a pharmacy rather than a surgery and having their medicines prepared by the pharmacists for pick-up. In a focus group discussion, one of the patients said that they liked the pilot because it was

> 'more convenient definitely. Making an appointment to see a doctor to get a prescription is so time wasting. Not just for the doctor, but for yourself too' (RDS 2 PT 1).

Patients who took part in RDS 3 held similar views.

The study that showed the greatest level of patient dissatisfaction was RDS 1. This was because the scheme stood alone in so far as one of the patient groups it targeted was people suffering from drug addiction difficulties. It is likely that drug addicts being treated with methadone or benzodiazepines would feel some unease about having to receive observed consumption. As one pharmacist said,

> 'They're drug addicts. They want to take a few valium and then sell the rest on the streets. They wanted the doctor to take "observed consumption" off the packet…They didn't like that' (RDS 1 CP 2).

The doctors also highlighted the difficulties stemming from the kinds of patients targeted in this project. They reported that a number of patients refused to participate. One of the GPs, for example, said

> 'one patient disappeared completely, she didn't like it at all. The other one found it difficult and inconvenient because he used to have his prescriptions monthly. And the third one, she was a drug addict, in the end I had to take her out of the trial because she just wasn't following the protocol' (RDS 1 GP 1).

In RDS 4.1, however, the professional stakeholders thought that the patients were ambivalent because they found the new system and prescriptions confusing.

Out of the extended adherence schemes, patient support seemed highest for EAS 1 and EAS 3 and weakest for EAS 2. In EAS 1 and 3 there were reports that the patients found the time the pharmacists could spend with them helpful and that they benefited in terms of their

understanding of their medications and adherence (EAS 1) and in terms of support for making life-style changes (EAS 3). A patient who took part in EAS 1, for example, said,

> 'As it was it was just prescriptions, doctor, pharmacists and there was nobody you could actually…now it's been marvellous…your chemist coming to visit you and converse with you about your medicines' (EAS 1 PT 4).

In contrast, EAS 2 pharmacists reported that some patients found the reviews time-consuming and repetitive. As one pharmacist said,

> 'They [the patients] didn't like having to answer the same questions over and over again…it was using up a lot of their time' (EAS 2 CP 4).

This dissatisfaction might also have reflected the fact that a number of the patients had been well established on treatment for hypertension and did not need the interventions.

5.2 ADDED VALUE: ADHERENCE

Given the potential health risks and cost to the NHS of poor patient adherence to medications, one of the principal goals in these pilots was to assess their impact on adherence. All of the projects were in some way concerned with this issue, however, the question of comparability arose because of the different ways the sites measured adherence. Some of them looked at adherence in terms of pick-up rates of prescriptions and others measured adherence from patients' self-reports, using different questionnaires. Moreover, it is difficult to gauge the pilots' impact on adherence because the local sites had difficulties measuring changes and because we had to rely on stakeholders' subjective perceptions. In the following we shall briefly describe the findings for each site included in this report.

Table 5.2.1 **IMPACT ON ADHERENCE***

Definite Improvement	**No/Minimal Improvement or Mixed Views**	**Potential for Improvement**
EAS 1	EAS 2	EAS 2
EAS 3	RDS 1	RDS 1
	RDS 2	RDS 2
	RDS 3	RDS 3
	RDS 4.1	RDS 4.1

*This table is based on the professional stakeholders' perceptions of whether patient adherence had improved as a result of the pharmacists' interventions. If the stakeholders did not think that the interventions had positively affected adherence, we asked them whether they thought they had the potential to improve adherence. Given the focus on subjective perceptions, the results have to be treated with caution. We found that the stakeholders perceptions sometimes differed from the local evaluations' results (e.g. in EAS 2 & 3).

EAS 1 It was not possible objectively to measure impact on adherence in this study because the tool used to measure changes (a medicines cognisance test) provided unreliable results because of low documentation return and some anomalies in the findings. However, all of the pharmacists who completed the Health Authority's post-intervention questionnaire thought that adherence had either always improved (53%) or that it had sometimes improved (47%) (EAS 1 Final Report, 1998, pp. 26-7). Moreover, the pharmacists made a number of interventions that could have benefited the patients. The Health Authority reported that medicines care cards were provided in 20 cases; there were 19 cases of communication with GP; 17 interventions involved the provision of a monitored dosage system; changes were made to the timing of doses in 13 cases; patients were advised to consult their GP or nurse in 5 cases; pharmacists organised medicines in 4 cases and other interventions included the supply of non-child resistant caps or different size bottles (EAS 1 Final Report, 1998, p. 21).

Most of the pharmacists thought that they had been able to help patients through advice or the provision of monitored dosage systems. For example, one of them said,

> 'Some of them I made reminder charts for and linked their tablets to meal times because a lot of them forget when to take their medication. And there was a specific case, a blind lady. She was completely blind and we hadn't realised it. So we've been able to highlight it on the PMR and now we put her tablets into different size bottles so she can tell which is which' (EAS 1 CP 2).

EAS 2 The local evaluators have not published their findings yet, however, the project co-ordinator has reported that the service significantly affected patient adherence. There was some support for this view amongst the pharmacists we spoke to, despite the practical difficulties involved in providing the service. One pharmacist, for example, said it benefited

> 'some of [the patients], yes. They [the patients] might say, for example, about diuretics, "I didn't know I had to keep taking them". So that was sorted out' (EAS 2 CP 1).

And another pharmacist said the intervention had an impact

> 'on their understanding, yes, definitely. Particularly some elderly patients who didn't know why they were taking it and who were confused about side effects. So I think the intervention helped to clarify things here…But I'm not sure whether it affected the way they took things' (EAS 2 CP 2).

However, others were a bit more sceptical. When asked whether the intervention affected adherence, one pharmacist said,

> 'In general, I'd have to say no. One patient did benefit…We made some alterations for her. She was having trouble swallowing powdery tablets, so we gave them to her in capsules. Also, with her codeine tablets we suggested that she took them at a different time of day. But just one patient out of eleven isn't very significant really' (EAS 2 CP 4).

EAS 3 Our findings on this pilot's impact on adherence are based on our own interviews and the results of the local evaluation carried out by a university department. The local evaluation reported changes in patient management relating to the pharmacists' delivery of six evidence-based interventions and based on an assessment of 208 patients (i.e. those who completed the trial: 88%). Looking specifically at adherence, the local evaluation found that the pharmacist interventions had a minimal impact. Having collected baseline data at the start of the study, the local evaluation found that self reports showing 'very good' levels of adherence to aspirin, beta-blockers and statins did not change significantly as a result of the

reviews. At the outset, 91% of patients taking aspirin, 91% of patients taking beta-blockers and 86% of patients taking statins reported that they 'never forgot a dose'. At the end of the reviews, these figures reached 92%, 93% and 89% respectively (EAS 3 Final Report 1998, p. 69). However, it should be noted that these figures derived from patients' self-reported estimates of how often they forgot a dose and, for this reason, may be unreliable.

Moreover, there was general agreement amongst the pharmacists we interviewed that the interventions had improved patients' adherence to their medications. One pharmacist said,

> 'Certainly with some of them [adherence] improved. Basically you found that they were missing out tablets and taking them at the wrong time. For example, they'd miss out a night-time dose…because it was more convenient to take it in the morning' (EAS 3 CP 2).

Another pharmacist said that the interventions had been beneficial in so far as they helped to identify patients who had not had their cholesterol levels tested for a long time (EAS 3 CP 1).

In terms of the lifestyle intervention, the study showed that by the final review the number of current smokers had decreased by 3%; that the number of patients who reported taking little or no exercise fell by 8% (there was no change in the proportion of patients overweight). In terms of therapeutic interventions, by the final reviews there had been an increase of 8% of patients taking aspirins (and this figure excluded only those who could not take aspirin); there was little change by the end of the review for beta-blockers; the number of patients prescribed statins increased by 13% (EAS 3 Final Report, 1998, p. vi).

RDS 1 It was difficult to measure the impact of this scheme on patients' adherence because the trial was only for a short period and because only a small number of patients took part (RDS 1 Draft Report, 1998). There is evidence from our interviews with pharmacists that the impact was minimal. They thought that this was because the service differed little from past practices, especially in relation to drug addicts. The exception being when the patients received observed consumption and, in another case, where a patient was particularly confused and benefited from daily instalments. Most of the pharmacists we interviewed did not think that their intervention necessarily improved patients' adherence, unless they took their medicines under observed consumption. However, the pharmacist working in the multiple said that her intervention had improved the patient's adherence because,

> 'he gets confused and he had to come in each day so there was one less thing he had to worry about. Safety-wise it helped too because there are drug pushers on the street and he didn't have any supplies' (RDS 1 CP 3).

Moreover, even if there had been no obvious improvement as a result of the pilot, the pharmacists thought instalment dispensing had the potential to improve adherence.

The doctors similarly thought that the trial did not really affect patient adherence. However, most of them could see potential benefits in these areas. They thought that there were some obvious candidates to target, including illicit drug users, patients suffering from TB or mental health conditions and the confused and elderly. One GP pointed out that it was invaluable for drug addicts' health because

> ‘the fact they were having it on a daily basis, yes – because if they take them all at once they’re at risk of overdose and then, over the next few days, they don’t have any and so they get withdrawal symptoms and are at risk of fitting’ (RDS 1 GP 4).

RDS 2 From our interviews with pharmacists and doctors who took part in this scheme, there are positive signs about its impact on patient adherence, the pharmacists thought their interventions benefited patients in different ways: by making them more aware of what they were taking, preventing build-up of unnecessary medicines in the home and reassuring them that they were taking their medicines properly and helping them to use them properly. One pharmacist recalled that one of his patients had a large amount of unused aspirins in his home. He took these away and made sure that the patient got the required monthly amount (RDS 2 CP 4). Another pharmacist discovered that her patient, who suffered from diabetes, had not been monitoring her glucose levels properly (RDS 2 CP 6). Another said,

> ‘Some of them improved the way they were taking them, or, by talking to them, I gave them the confidence to carry on the way they were doing it’ (RDS 2 CP 5).

Out of the doctors we spoke to there was also some grounds for optimism. Some thought that the schemes did improve patient adherence. Those who thought they did not, believed that in the long-term schemes likes this could make a positive contribution to adherence, particularly amongst the elderly (who were able to visit the pharmacy) and people stabilised on long-terms medication for chronic conditions such as asthma. One doctor said,

> ‘For certain categories of medicines it worked well. I suppose we’re talking about diabetic medication. This worked well because once people are stabilised they stay on the same dose for the rest of their life’ (RDS 2 GP 1).

RDS 3’s consideration of adherence was based on patient pick-up rates. It defined adherence as the situation when a patient picked up their instalments within a week (either way – early or late) of the anticipated pick-up date. Although patient pick-up rates varied between GP practices, across all of them, 63% of patients did not pick up their prescriptions on time and 10% of patients only picked up one or two prescriptions or none at all (RDS 3 Final Report, 1999, p. 70). These data are interesting but cannot tell us about the trial’s impact on adherence because there are no comparable pre-study data.

From our interviews, none of the pharmacists thought that the service had significantly affected adherence and some thought it had not at all. One pharmacist said,

> ‘It probably improved adherence in using inhalers. And, it gave the opportunity to talk to them (the patients) about other things they were using even if they weren’t on the prescription’ (RDS 3 CP 2).

However, those who thought there had not really been much of an impact believed this was because many of the patients recruited on to the scheme were so well established on their medications that they had ironed out any problems. As one pharmacist said,

> 'I think quite a few of the patients had been on medication for years…and it was a very routine thing for them. They all knew what they were doing' (RDS 3 CP 3).

RDS 4.1 The pharmacists had mixed views over whether their interventions had affected patient adherence. Three thought that the interventions had no impact on patient adherence. One of these thought so on the grounds that he already helped patients in this area and spent time going through their medications with them until they were well established (RDS 4.1 CP 5). However, two thought that improvements had been made. One recalled the case of a patient who had not been taking calcium supplements with her steroid treatment. After explaining to the patient that not taking the supplements could cause osteoporosis, she started taking them regularly (RDS 4.1 CP 1). In another case the dispenser reported two of the patients suffering from arthritis had been stockpiling tablets. On discovering that they only took the tablets when they were in pain, the pharmacist told them that they had to take their medication regularly (RDS 4.1 DISP/CP 4).

The doctors were unsure about whether the scheme had affected patient adherence. One of them thought that the pharmacists had not had enough time to get involved in this issue (RDS 4.1 GP 2). However the other two thought that it might have affected adherence in some cases and that such a scheme could probably benefit elderly patients on polypharmacy (RDS 4.1 GP 1; RDS 4.1 GP 3).

Adherence discussion

There is not, therefore, a lot of evidence that these pilot schemes significantly affected patient adherence. One possible reason for this is that some of the patients who took part were not necessarily the most appropriate ones because they had been well established on chronic medication and were able to manage their medicines well. A number of pharmacists and doctors who took part in the pilots mentioned that the patients enrolled were not always the ones who had noticeable difficulties with their medicines. None of the pilots included in this report dealt with patients starting a drug therapy. RDS 6 (which is ongoing) did focus on this issue, however, and its organisers have reported that initial results are encouraging.[2]

Moreover, it was unlikely that radical changes would take place because of the short-term nature of the trials. It should be noted that although there was some doubt about whether the actual pilots had affected patient adherence, the pharmacists and doctors we spoke to were unanimous in believing that the pharmacists' interventions had the potential to improve patient adherence, and consequently, health, in the long term. Furthermore, the anecdotal evidence provided by the pharmacists was promising.

However, if the stakeholders' perceptions were accurate, there is reason to suppose that EAS 1 and EAS 3 were the most successful in terms of adherence. This relative success could have been because in these two projects the pharmacists held the reviews outside the pharmacy, either in the patients homes (EAS 1) or in the GP surgeries (EAS 3). This suggests that having sufficient uninterrupted and private time with patients is the most effective way of improving adherence.

5.3 ADDED VALUE: COST DATA ANALYSIS

In this section we outline the cost savings analyses carried out on data supplied by three of the pilot sites: RDS 2, RDS 3 and RDS 5. Differences in study design makes a comparison of the savings made as a result of non dispensed items interesting and it is possible to speculate about some possible causes of the variation in savings across sites. However, it is important to bear in mind the limitations of such comparisons when we are not comparing like with like. The size, design and entry criteria for patients in the three sites differed and these differences will be discussed in the light of the results. Data received from the three sites also differed in the items supplied and methodology used in estimating non-dispensed drug costs. We have made adjustments where necessary to make comparison possible on as many issues as possible and, where necessary, we shall explain the adjustments with the required caveats.

First, we shall outline the methodology used for the analyses and the measurement used as indicators of savings made for the purpose of assessing the relative success of pilot intervention schemes. Second, we shall provide an overall summary of the results from each of the three sites allowing some broad comparisons. Third, we shall explore any apparent variations in drug savings in relation to known factors in each study. Finally, we shall consider some of the possible reasons for these variations in drug savings made between the sites.

Methodology

Collection of data

Three pilot sites have provided data: RDS 2, RDS 3 and RDS 5. Data relating to site RDS 3 was collected and entered by the project manager, and supplied to us in spreadsheet form. In RDS 2 the project manager supplied us with raw data which we entered and analysed using the format used in RDS 3. Being a larger study, RDS 5 collected and entered the data according to their own framework. The site provided us with their analyses and hard copies of results supplied in tables and we entered these into a spreadsheet for secondary analyses and extrapolated to enable comparison with the other two sites.

Estimation of savings on non-dispensed drug items

For RDS 2 and RDS 3, each individual drug item was included in a dataset with details of the prescribed cost and quantity. The dispensed cost of each of these items was also entered, being the full prescribed cost, part of the prescribed cost if fewer than the full prescribed quantity were dispensed, or a zero dispensed cost if no part of the item was dispensed to the patient. Details were also entered relating to the pharmacy, GP practice and BNF chapter of each item so that the total saving made on non-dispensed items in each of the resulting subgroups could be made. Although this saving was a theoretical sum it was estimated as the difference between the full cost of prescribed items and the actual cost of dispensed items.

In RDS 5, the patient sometimes received a prescription for PRN medication which could be dispensed in quantities at the discretion of the pharmacist rather than a stated quantity which could be either fully or partially dispensed. Partly as a result of this aspect of the study, the RDS 5 research team felt calculation of the theoretical cost of non-dispensed items was not appropriate. Instead, it used the number of items dispensed as a proportion of the number of items prescribed and applied this ratio to the cost of these dispensed items to derive a proxy estimated cost of items non dispensed. It was felt that this method would better reflect the costs of PRN medications and quantities of drugs that were only partly

dispensed. This difference has implications for the direct comparison of RDS 5 with results from the other two sites. This alternative approach to estimating the level of saving on non-dispensed items was subsequently applied to findings from RDS 2 and RDS 3, to allow a more appropriate comparison of overall performance of the intervention trial.

Measuring the impact of community pharmacy interventions on drug cost savings

The design of the studies and the nature of the data available makes it difficult to decide how best to evaluate the success of each of the intervention trials. For example, the total cost of non-dispensed drugs can be calculated as described above. However, this is of limited value without reference to the full prescribed cost of the drugs. Similarly, the enormous variation in the cost of individual items makes any focus on costs misleading because it does not necessarily reflect the level of input by the pharmacist. For example by focusing on financial savings, a pharmacist who chooses not to dispense one expensive item would appear to have made a greater contribution to the trial than another pharmacist who advises a large number of patients that they already have sufficient less costly drugs, such as analgesia for the forthcoming month. Another measure that would address this problem is the number of prescribed items that have not been dispensed. This count is also of limited value when considered in isolation. For example the number of items withheld is only meaningful relative to the number of items prescribed.

In order to address these dilemmas, the present analyses have measured savings in four different ways. The results of these should be considered in combination before making any conclusive judgement of the success of each intervention trial. These four measures are:-

- As a total saving
- As a percentage of prescribed costs
- Number of non-dispensed items
- Average saving across these non-dispensed items

These performance indicators have been estimated for each site over the entire six-month period and per instalment. In addition, they have been calculated separately for each subgroup of, pharmacy type, drug category, pharmacy and GP practice. As an additional individual measure across the whole period, the average costs per prescription item was calculated based on the numbers of items prescribed and the total costs of items dispensed. All analyses were carried out for the two sections of the trial period; instalments 1-3 and instalments 4-6. These have not been reported in this section as there were no variations observed that were different from those reported or of any additional interest.

Cost analysis results: overall summary

The highest level of saving was made in the RDS 5 study where the estimated cost of non-dispensed items was £21,443, which is 33% of the prescribed cost (see table 5.3.1). However, caution should be exercised in interpreting these results given the differences in study design and analysis. There was also some increase in savings over the six instalments rising from 26% of the dispensed cost in the first month to 48% in the sixth month of the study. Throughout the period, there was a total of 2,384 non-dispensed items, the average saving being £8.99. It is not possible to examine savings on individual items or to calculate the median saving or the range of individual savings. The average cost per item prescribed based on the cost of items dispensed, was found to be £5.51.

Table 5.3 1 **TOTAL EXPENDITURE ON DISPENSED ITEMS AND ESTIMATED COST OF NON-DISPENSED ITEMS IN PILOT SITE RDS 5**

Instalment	Expenditure on dispensed items (£)	Saving on non-dispensed items (£)	Saving as % of prescribed cost	Total prescribed cost (£)
Instalment 1	4,242	1,517	26	5,759
Instalment 2	9,003	3,757	29	12,760
Instalment 3	8,669	4,378	34	13,047
Instalment 4	8,695	2,847	25	11,542
Instalment 5	6,791	3,659	35	10,450
Instalment 6	5,838	5,285	48	11,123
TOTAL	43,238	21,443	33	64,680

The project at RDS 2 also made considerable savings of £4,793, representing 13% of the prescribed cost (See table 5.3.2). There was an increase in savings within the first three months and, after a decrease between the third and fourth months, a further increase over months four to six. There was a total of 696 non-dispensed items during the study, with an average saving of £6.89. The median saving was £2.94. Savings on the individual items ranged from just one pence for paracetamol up to £153 for immunosuppressants. The average cost per item prescribed based on the cost of items dispensed was £7.13.

Table 5.3.2 **TOTAL EXPENDITURE ON DISPENSED ITEMS AND COST OF NON-DISPENSED ITEMS IN PILOT SITE RDS 2**

Instalment	Expenditure on dispensed items (£)	Saving on non-dispensed items (£)	Saving as % of prescribed cost	Total prescribed cost (£)
Instalment 1	5256	297	5	5553
Instalment 2	5056	862	15	5919
Instalment 3	4613	1169	20	5782
Instalment 4	6422	684	10	7106
Instalment 5	5678	976	15	6653
Instalment 6	5088	805	14	5893
TOTAL	32113	4793	13	36906

The savings made by project RDS 3 were not as marked, although this was a smaller study, (see table 5.3.3). There was a saving of £439, or 3% of the prescribed cost. There were 65 non-dispensed items, having an average saving of £6.75, and the median saving was £3.75. Savings ranged from seven pence for aspirins up to £54.00 for some corticosteroids. There

was no increase in savings over the six months of the study. The average cost per item prescribed based on the cost of items dispensed, was found to be £6.39.

Table 5.3.3 **TOTAL EXPENDITURE ON DISPENSED ITEMS AND COST OF NON-DISPENSED ITEMS IN PILOT SITE RDS 3**

Instalment	Expenditure on dispensed items (£)	Saving on non-dispensed items (£)	Saving as % of prescribed cost	Total prescribed cost (£)
Instalment 1	2632	69	3	2701
Instalment 2	2609	100	4	2709
Instalment 3	2674	54	2	2728
Instalment 4	2901	68	2	2969
Instalment 5	2522	61	2	2583
Instalment 6	2110	87	4	2197
TOTAL	15,448	439	3	15,886

When the method for estimating the cost of non-dispensed items used in RDS 5 was applied to the other two sites, the percentage saving in relation to the prescribed cost in RDS 3 remained at 3%, and the saving at RDS 2, increased marginally from 13% to 15%. This suggests that this particular difference in methodology was not responsible for the larger saving in RDS 5. We shall consider possible explanations for this differential later.

Results: Variations in savings on non-dispensed items

We have looked at savings on non-dispensed items in four different ways, namely, pharmacy type; BNF categories; GP practice and pharmacy. We shall deal with each of these separately in the following.

Pharmacy type

In two of these three sites, the greatest savings were made by independent pharmacies, constituting a saving of 17% of prescribed costs and 49% of prescribed costs in RDS 2 and RDS 5 respectively. In RDS 3, a much higher number (41) of items were withheld at the multiple pharmacies and these corresponded to a higher percentage (7%), of prescribed cost, than the savings made by the other types of pharmacy. These results are shown in tables 5.3.4 & 5.3.5.

There could have been a number of reasons for the independents' greater contribution than the multiples' in the two cases. First, the independent proprietors were paid directly for the interventions whereas in some cases the multiple employees did not get the remuneration themselves. Second, the independent proprietors might have been more motivated than the employee pharmacists because of a perceived threat to their livelihood and third, there might have been more continuity with the patients in the independents because the multiples often have a number of pharmacy staff working at different times. It is more difficult, however, to explain the greater savings made by the multiples than the independents in RDS 3.

Table 5.3.4 **TOTAL SAVINGS ON NON-DISPENSED ITEMS AND SAVINGS AS A PERCENTAGE OF PRESCRIBED COSTS BY TYPE OF PHARMACY IN PILOT SITES RDS 3, RDS 2 AND RDS 5**

Pharmacy size	**RDS 3**		**RDS 2**		**RDS 5**	
	£	**%**	**£**	**%**	**£**	**%**
Independent	148	1	3,352	17	5,328	49
Small chain (2-5 branches)	0	0	746	9	8,055	31
Multiple	291	7	695	9	8059	29
TOTAL	439	3	4,793	13	21,443	33

Table 5.3.5 **NUMBERS OF NON-DISPENSED ITEMS AND AVERAGE SAVING PER NON-DISPENSED ITEM BY TYPE OF PHARMACY IN PILOT SITES RDS 3, RDS 2 AND RDS 5**

Pharmacy size	**RDS 3**		**RDS 2**		**RDS 5**	
	n	**mean (£)**	**n**	**mean (£)**	**n**	**mean (£)**
Independent	23	6.44	439	7.64	296	18.00
Small chain (2-5 branches)	1	0.16	135	5.52	1138	7.08
Multiple	41	7.09	122	5.70	950	8.48
TOTAL	65	6.75	696	6.89	2384	8.99

BNF Drug category

The drug categories of non-dispensed items have been compared for two sites (see tables 5.3.6 & 5.3.7). When the saving in terms of prescribed cost was examined, in RDS 3, the main savings were made on medication for skin, nutrition and blood, and endocrine disorders. If the number of items non-dispensed is used, however, the largest number of items non-dispensed were for the cardiovascular system. The greatest average saving was in the respiratory drugs group, having an average saving of £19.00, with a 6% saving in relation to prescribed costs being in the corticosteroids inhalers.

When the drug groups are divided into subcategories, there are some interesting findings. A marked saving of 13% was made in the group of drugs for psychoses although with such small numbers in the study, it is not advisable to draw conclusions from these results. There was a 19% saving on diabetic drugs, although it is not possible to distinguish between oral hypoglycaemics and equipment for monitoring blood sugar. Another large saving of 41% was made on the subgroup of drugs used to treat anaemia, with 19% being saved on vitamin preparations. Non-dispensed corticosteroid eyedrops presented a saving of 75% and emollients withheld represented a 35% saving. While it is helpful to examine exactly where the savings were made in relation to drug subgroup, caution must be exercised in too close a breakdown given the very small number of items that were not dispensed.

Table 5.3.6 **TOTAL SAVINGS ON NON-DISPENSED ITEMS AND SAVINGS AS A PERCENTAGE OF PRESCRIBED COSTS BY BNF CATEGORY IN PILOT SITES RDS 3 AND RDS 2**

BNF	RDS 3		RDS 2	
	£	%	£	%
Gastro-intestinal System	5	0	575	13
Cardiovascular System	110	1	787	6
Respiratory System	95	4	1,416	20
Central Nervous System	11	1	295	15
Infections	0	0	61	31
Endocrine System	92	15	501	18
Obstetrics, Gynaecology, and Urinary-tract Disorders	0	0	9	7
Malignant Disease and Immunosuppression	0	0	348	19
Nutrition and Blood	5	31	33	24
Muscoloskeletal and Joint Diseases	63	9	400	17
Eye	5	4	45	14
Ear, Nose and Oropharynx	0	0	39	20
Skin	54	29	130	21
Borderline Substances			45	19
Wound Management Products and Elastic Hosiery			108	48
TOTAL	439	3	4,793	13

Table 5.3.7 **NUMBERS OF NON-DISPENSED ITEMS AND AVERAGE SAVING PER NON-DISPENSED ITEM BY BNF DRUG CATEGORY IN PILOT SITES RDS 3 AND RDS 2**

BNF	RDS 3		RDS 2	
	n	mean (£)	n	mean (£)
Gastro-intestinal System	3	1.67	50	11.50
Cardiovascular System	20	5.48	194	4.05
Respiratory System	5	18.98	116	12.21
Central Nervous System	8	1.52	95	3.11
Infections	0	0	8	7.58
Endocrine System	9	9.17	67	7.48
Obstetrics, Gynaecology, and Urinary-tract Disorders	0	0	3	3.11
Malignant Disease and Immunosuppression	0	0	5	69.67
Nutrition and Blood	8	0.63	14	2.36
Muscoloskeletal and Joint Diseases	4	15.79	68	5.89
Eye	3	1.77	8	5.68
Ear, Nose and Oropharynx	0	0	6	6.57
Skin	5	10.70	41	3.18
Borderline Substances			10	4.45
Wound Management Products and Elastic Hosiery			11	9.79
TOTAL	65	7	696	7

In RDS 2, there was a more even spread of savings across the drug categories. If the 48% saving on wound management products and elastic hosiery are disregarded, the highest saving relative to the prescribed cost was in relation to drugs to treat infections, with a 31% saving. The saving was wholly made on antibacterial drugs within this BNF chapter heading. Similarly to RDS 3, there was 24% of prescribed cost saved on drugs for the nutrition and blood. These savings were evenly spread across the subcategories of vitamins, minerals and anti-anaemia remedies. There was also a 21% saving on skin medication, this being largely on wound cleansing preparations and topical circulatory products.

Also in line with the results from RDS 3, the highest number of non-dispensed items was in relation to cardiovascular drugs with 194 being felt to be not needed. These were diuretics (48 items), and antiplatelet and anticoagulents and protamine (57 items). 116 items for the respiratory system were not dispensed. Of these, 64 were for bronchodilators in inhaler form and 8 for oral bronchodilators. Of the remaining items, 41 were corticosteroid inhalers. This respiratory category also had the second highest average saving at £12.00. (The highest average saving was for immunosuppressants for a single patient who did not require a prescription because he obtained his drugs from the hospital outpatients).

It is interesting to examine this breakdown of subcategories further. A high proportion of topical rubiefacients for soft tissue problems such as rheumatics was non-dispensed (46%) although this finding is not noticeable at the main chapter level. There was a 30% saving on drugs acting on the nose, in an aerosol form. Chapter 6 of the BNF covers a wide range of endocrine system drugs and equipment. When this group is broken down, the savings were largely for diabetic drugs, with 52 non-dispensed items having a saving corresponding to 26% of the prescribed cost. Within this group 6.1, the saving on insulin was 42% of the prescribed cost and on diabetic equipment such as syringes and urine or blood test strips, 31%. A saving of only 8% was made on oral hypoglycaemics.

General Practitioner Practice

Seven practices took part in the study in RDS 3. The savings made ranged from less than 1% of prescribed costs to 9% in practice D and 29% in practice H, although this was misleading since it was the result of one saving in the first instalment. When the number of items withheld was considered, the lowest number was one item in practice H, ranging up to 23 items in Practice D, the exact reverse of the results based on the saving expressed as a percentage of the prescribed cost. This demonstrates the danger in focusing on one measure in isolation. There was no apparent increase in savings by any practice over the six instalments.

Four practices participated in RDS 2. Savings ranged from 10% to 17% of the prescribed costs. Performance in the four practices was similar with three practices having over around 200 items withheld compared to only 67 non-dispensed items in the fourth practice, although these did represent 10% of the prescribed cost. The trend across the six months in each practice mirrored the increases in the sample as a whole as a result of patient reassessment, as discussed above.

RDS 5 focused on only two practices, which achieved similar results of 33% and 34% of, prescribed costs in each case. The volume of prescriptions varied markedly, however, with 1,925 items being non-dispensed to patients of practice 1 and only 459 items not given to patients of practice 2.

Pharmacy

In relation to pharmacies used, there was also some variation. In RDS 3, there were 54 pharmacies out of a possible 57 who participated. The small number of non-dispensed items in this study makes any interpretation of these results difficult. It is useful to consider only

those pharmacies that received prescriptions from study patients in at least 3 of the instalments. This reduces the number to 36 and has the advantage of excluding one pharmacy with a 89% saving incurred on one month, which could serve to distort the results. Only 13 of these pharmacies made savings equivalent to at least 1% of the prescribed cost. The average saving across these was 3%, reflecting that of the study overall and the median saving was <1% because so few pharmacies made any significant saving. It was possible to examine the performance of individual pharmacists in relation to whether or not they had received training as part of other health authority work. This showed that those who had been involved in previous work made greater savings and there was also an increase in the level of savings per instalment over the 6 month period by those who had received health authority training for previous research work (see table 5.3.8).

The twelve pharmacies in RDS 2 made savings ranging from 1% to 22% of the prescribed costs, with numbers of non-dispensed items ranging from 4 to 229. The average and median saving per pharmacy were 10% in both cases. The same pattern of relative increases over the six months as discussed above was seen as in the study as a whole. In this pilot all pharmacists received the same training on commencement of the trial and none had been involved in health authority work previously so there were no differences in training.

RDS 5 involved seven pharmacies in the study. Savings relative to prescribed costs at this site ranged from 17% to 59%, although these results should be interpreted with extreme caution as in the case of this latter pharmacy, savings of 80% and 86% appear to have been made in the last two months of the study.

Costs analysis discussion

By far the largest financial saving corresponding to non-dispensed prescription items was made by RDS 5. This was the largest of the three samples and made a saving of £21,443, or 33% of the prescribed cost, compared with a saving of 13% in RDS 2 and 3% in RDS 3. It is useful to consider some differences in the three studies, which could account for some of this enormous differential.

Patient recruitment criteria

In RDS 5, patients were recruited to the study subject to their consent if they had received repeat prescriptions for two consecutive months. In RDS 3, potential recruits were identified as those who had been given at least six repeat prescriptions, and in RDS 2, subjects were deemed suitable if taking prescribed repeat medication for chronic conditions for at least six months. This difference in entry criteria may have influenced the high rate of saving in RDS 5 if some patients required medication for longer than two months but not for the duration of the six-month intervention period. Of the 8% attrition rate during the trial, the RDS 5 research team attributed some of this to misapplication of patients to the original repeat dispensing status.

Sample attrition

Although the RDS 5 project team did not consider poor adherence to be a large problem overall, some patients withdrew from the scheme and returned to ordering drugs with conventional white prescriptions. The problem was thought to relate mainly to pharmacy six towards the end of the period when the pharmacist and also the surgery dispensing the prescriptions become less motivated to encourage patients to remain on the scheme and a large number of patients withdrew. A problem arose, however, because from the pink prescriptions in circulation it appeared that the drugs from these patients were not being required without regard to the fact that alternative white forms were also being used. Some

cases were identified by the team and treated as part of the 48 patients lost to the study over the sixth month period, but it is possible that this occurred unnoticed in other cases.

Prescriptions not presented or not collected

By virtue of the study design and methodology used for estimating the cost of drug items not dispensed in RDS 5, it is possible that the savings figure included cases which would have been classified in other studies as prescriptions not presented or not collected, rather than solely those items not dispensed at the patient's specific request.

The low level of savings made in RDS 3 may be partly attributable to the high proportion of prescriptions not collected by patients. This issue is discussed in detail in the Health Authority's final report. Overall, 63% of patients did not collect the prescription on time. This may have been because the patient already had sufficient medication at home for the forthcoming month. The research team at RDS 3 calculated the theoretical saving that would have been made had all prescriptions been collected. This was based on the average prescription cost for each practice. When the items not collected were assumed to be not dispensed, savings ranged from 11% to 47% of the total estimated prescribed costs, with a mean saving of 24% and a median saving of 20%. This is arguably a more accurate comparison with the results of RDS 5.

Under scheme RDS 2, it was known that 13 patients who had been given trial prescriptions did not present them at instalment one. These were excluded from the study. A small number of prescription instalments were not collected on time, and of these 43, all were either collected late or delivered to the patient by the pharmacist.

Patient monitoring by pharmacist

Although each of the three studies was undertaken over a six month intervention period, RDS 2 and RDS 5 involved two repeat dispensing periods of three months whereas in RDS 3, patients were issued with six separate white prescriptions at the start of the trial, one for presentation each month during the trial. In this scheme, the pharmacist was responsible for interviewing patients with a questionnaire and would recommend a return consultation with the doctor at any point if the patient's condition required medical reassessment.

Under the scheme in RDS 5, patients could go to the surgery to request the second repeat prescription or if they preferred, the pharmacist would request it from the practice on their behalf. Although patients were not required to consult the doctor at one time during the period, the pharmacist monitored the patient at each visit and referred to the GP where necessary.

Patients participating in RDS 2 were similarly not required to revisit the GP during the period but the pharmacist had to complete a thorough full medicine review with each patient at the end of the first three month period before the second prescription was requested. This review removed any medicines considered unnecessary and is reflected in the results in table 2, where an increase in saving is made over the months 1-3 and then a reduction in instalment 4, after the prescription has been reviewed.

Remuneration methods

It is interesting to consider the possible impact of the different remuneration methods employed by each of the three sites. These methods are outlined in detail in Table 5.4.1. In RDS 3 the dispensing fee was paid on all items including those not dispensed. This system has the advantage that it does not create any disincentive to non-dispensing by the pharmacists. When compared to the system in RDS 2 where the dispensing fee was paid as normal only on each prescription item dispensed, thus providing such a disincentive, we might expect the savings to be greater in RDS 3, if the fee structures were having an effect on

dispensing behaviour. The results do not support such an hypothesis and the significantly greater savings made in RDS 2 suggest that the per item system of payment to pharmacies did not influence dispensing decisions.

In contrast to the item based payment systems in RDS 2 and RDS 3, the remuneration method employed in the RDS 5 study was that of an enhanced capitation-style fee paid per patient to cover project participation and dispensing. We might speculate that the large savings made in this study relative to the other two sites might be related to this method of remuneration, although there is no evidence to support a causal effect. The method does not create any incentives or disincentives to dispensing but the larger sums of money paid in a single payment may have been more salient to pharmacists than the monthly smaller fees paid in the other sites. Together with the identification card issued to patients in the study and the specially designed prescription forms used, the capitation fee might have served as a reminder of the special status of patients in the study, reinforcing pharmacist and patient identity as participants. If the remuneration method did have an impact on savings, this capitation method of fees would appear to be the most successful.

Table 5.3.8 **TOTAL SAVINGS ON NON-DISPENSED ITEMS AND AS A PERCENTAGE OF PRESCRIBED COST BY INSTALMENT IN RDS 3 ACCORDING TO WHETHER OR NOT THE PHARMACIST HAD BEEN INVOLVED IN PREVIOUS HEALTH AUTHORITY RESEARCH**

	Instalment 1		**Instalment 2**		**Instalment 3**		**Instalment 4**		**Instalment 5**		**Instalment 6**		**TOTAL**	
	£	**%**	**£**	**%**	**£**	**%**	**£**	**%**	**£**	**%**	**£**	**%**	**£**	**%**
Pharmacist had done other HA research	12.86	2	26.92	4	43.03	5	31.58	4	50.24	7	43.44	7	208.07	5
Pharmacist had not done other HA research	55.79	3	73.04	4	10.91	1	36.86	2	10.45	1	43.76	3	230.81	2
TOTAL	68.65	3	99.96	4	53.94	2	68.44	2	60.69	2	87.20	4	438.88	3

Patient registration with a pharmacist

Patient registration with a designated pharmacist may have contributed to the larger savings in RDS 5 and RDS 2 compared with RDS 3. Patients in RDS 3 did not register with a pharmacist but could present the repeat prescription each month at any pharmacist in the area. In some cases the pharmacist held on to the prescription at the patient's request for the three month period, but in other cases, the patient took the prescription away until the next instalment was due. This suggests that if patients were attending a variety of different pharmacies during the trial period, there may be less opportunity for the pharmacist to develop a rapport with them and to become familiar with their medication and medical conditions. However, in practice, over 90% of patients used the same pharmacy throughout the trial period.

In RDS 2 and RDS 5, the patient registered with a pharmacist who was responsible for monitoring them throughout the trial. In these schemes, but unlike RDS 3, pharmacists were paid a per capita fee for each patient registered, regardless of numbers of prescription items dispensed. In addition, in RDS 2, the pharmacist also prepared the medication for collection on an agreed date. If the medication was not collected, the pharmacist contacted the patient to remind them. This would account for the lower level of prescriptions not collected compared with that in RDS 3.

Categories of drug savings

Conclusions about types of drugs saved are not possible given the small numbers of items in some of the BNF chapter categories. Explanations for the patterns observed can only be speculative without knowledge of the reasons patients had for choosing not to request individual prescribed items. However, some consideration of the broad variations is interesting. It is unfortunate that details of drug category are not known for prescribed items in RDS 5. Overall, it appears that the items such as inhalers, creams, insulin, syringes and eye-drops which were not dispensed in finite unit doses, are those which patients tended to refuse. This may be because they did not use the prescribed quantity each month.

Another explanation for items not being required is that patients did not take the drugs as prescribed if they felt they were not essential. This may have been the case in relation to the high proportion of vitamins and anti-anaemia preparations, such as iron or folic acid. Non-adherence may also have accounted for the numbers of diuretic items not dispensed. Alternatively, patients may have purchased vitamins and iron tablets over the counter and then declined the prescription.

There were a large number of anti-coagulant drugs non-dispensed and in relation to aspirin 75 mg, this may have been because the patient regarded them as non-essential or chose to buy them. In terms of other anti-coagulants, doctors tend to supply prescriptions for warfarin in a variety of doses for patients who are on variable doses determined by frequent blood monitoring. In these cases, patients may have accumulated a surplus of small dose tablets that they chose to use during the trial.

Costs analysis summary

The results of the three pilot intervention schemes have shown that there is the potential to make some quite considerable financial savings on prescription items which are not required by patients and as a direct result of community pharmacist intervention. The exact level of these savings varied considerably across the three sites possibly as a result in differences in study design and research methodology

employed. Although this section has made comparisons among the three sets of results wherever possible, any overall cost evaluation based on direct comparison is very difficult given the very different frameworks, data characteristics and results of the three studies.

The results of short trials such as these six-month interventions do not take account of stores the patient may have at home, which they use over the early part of the period. It could be argued that a longer intervention would be required to ensure that the effects of patients storing and using up stocks of medicines would be evened out.

As highlighted elsewhere, the financial aspect of such pilot schemes is only part of project outcome and should not be considered in isolation from the other factors. However, an analysis of these savings on drug costs is important to an evaluation of the projects and ideally should be linked to outcome measures such as patient health status and any change in this over time to inform some cost benefit analyses.

5.4 GENERALISABILITY AND FEASIBILITY

By generalisability and feasibility we mean the schemes' potential for being 'rolled out' nationally and aspects of the pilots that seem important to successful implementation. There was general support for 'rolling out' the pilots nationally amongst the pharmacists we spoke to. The exception was EAS 2 where pharmacists thought that the pharmacy based reviews were not feasible because they were too time consuming. As one of the pharmacists put it

> 'You couldn't roll that scheme out because it wasn't designed to be rolled out. It was just to see whether some check on adherence could be sorted out. But there was too much involved in it to become a routine thing' (EAS 2 CP 1).

There is also a need to take account of the appropriateness of particular schemes in particular demographic areas. Schemes targeting people suffering from drug addiction or TB are mainly relevant in inner city areas where problems such as these are prevalent. For example, one of the pharmacists who took part in RDS 1 said the scheme

> 'could work where the situation warrants it. I can think of lots of places where it might be a waste of time, such as in rural areas…it wouldn't necessarily work there' (RDS 1 CP 1).

Some of the professional stakeholders also thought that the repeat dispensing schemes targeting chronically ill patients stabilised on long-term therapy were most appropriate in areas with a high level of stability amongst the populations. For example a GP who took part in RDS 2 said

> 'Our practice profile is probably particularly suitable to the scheme because we've got a stable population. But in an inner city, it would be difficult' (RDS 2 GP 3).

Despite this general support for rolling out the projects in principle, the stakeholders thought that modifications would be needed for the services to work routinely. There were a number of factors that seemed critical to successful implementation and a number of factors that seemed to act as barriers to implementation. Our comments on the following have been informed by interviews with the local project managers and the pharmacists and GPs.

Factors Important to Successful Implementation

We have identified five factors that would be key to successful implementation. These are: key personnel; choice of pharmacists; financial incentives; patient registration and patient targeting.

Key personnel

In terms of future implementation, there would be a need for some sort of central co-ordination that was locally based. Three of the project managers felt that their projects worked largely as a result of their own efforts in so far as they kept all the various workers focused on the common task. The project manager at RDS 2 put the pilot's success down to the Health Authority's decision to employ a manager to 'chivvy up' data collection. In RDS 3 the project manager kept in close contact with all the relevant stakeholders throughout the set-up period and she explained the scheme's success in terms of good communication and public relations and adopting a facilitator approach through meetings. Some of the most successful projects involved liaison work during the projects' set-up stage. For example, the local pharmaceutical adviser in RDS 2 had forged links with GP practice.

Two of the project managers mentioned the importance of the health authorities (EAS 2 and EAS 3). One of them thought that successful implementation might depend upon a steering group consisting of the HA; the LPC, the LMC and a medical adviser. In the light of these studies, it seems that this mixture would be vital. For example, specific problems arose where the LMC was not consulted. In EAS 1 the local difficulties with the LMC meant that a number of doctors refused to recruit patients on to the scheme. A member of the LMC said

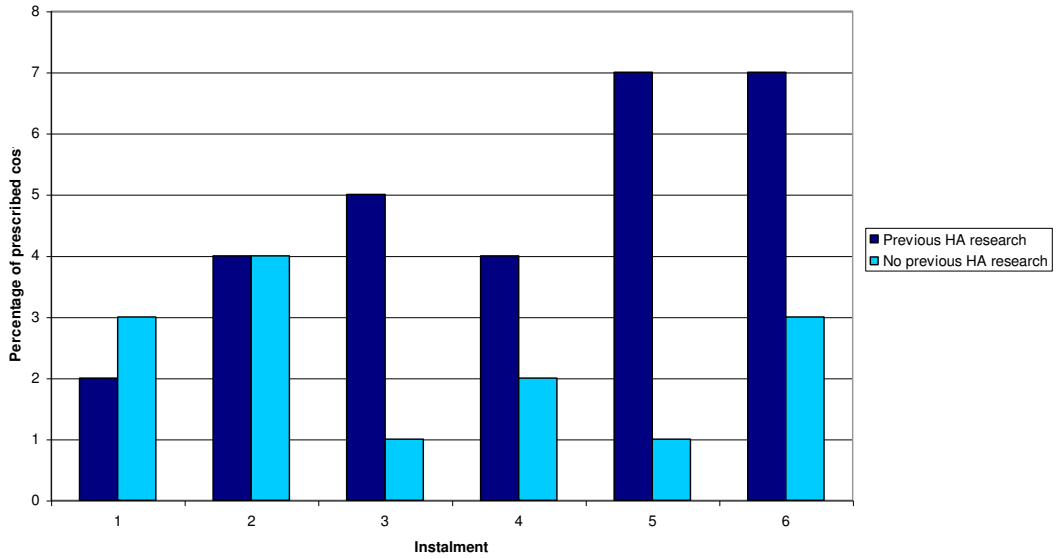
> 'the whole project emerged through debate between the pharmacists and the Health Authority. There was no medical input at all in deciding the area to be looked at. The protocols and the terms of reference, all these things were just presented to us. So the LMC said that we should have been consulted in the first place' (EAS 1 LMC rep).

Choice of pharmacists

Targeting the right kind of pharmacist also seemed important to the projects' relative success. EAS 3's local co-ordinator thought that this had been crucial to the pilot's achievements. In this project, the pharmacists had all been previously involved in initiatives with GPs and they were very committed to extending pharmacy's role into more clinical areas. This touches on the issue of motivation and one of the pharmacists who took part in this pilot thought that it would not suit all pharmacists.

> 'Not all pharmacists would be able to do it. Obviously you need a certain training. Some wouldn't be prepared to do it. They just wouldn't be interested…they wouldn't want to leave the shop' (EAS 3 CP 4).

***Figure 2*: Saving per instalment in RDS 3 by pharmacist involvement in previous HA research**



However, it should be noted that this scheme stood out from the others in its greater clinical orientation.

The success of the pharmacists' services also depended upon suitable training. Most of the pharmacists we spoke to had previously done relevant CPPE distance learning packages and, at the start of the pilots, received training sessions provided by the various local health authorities. They all felt adequately skilled to take on their new roles, despite some initial lack of confidence. However, they thought that their participation in the training sessions had been important to their ability successfully to carry out the services. Two project managers (RDS 2; RDS 3) thought that pharmacists who had some kind of particularly relevant training prior to their involvement in the pilots performed better and were more able to deal with problems relating to the prescriptions (Informal conversation with CPPE rep). It should be noted that these findings are impressionistic. However, it has been possible to illustrate graphically the variations in savings made by pharmacists who had done previous project work and pharmacists who had not in RDS 3 (see figure 2).

RDS 2's project manager reported that locums working in 'chain' pharmacies did not perform well and she speculated that this could have been because they did not feel they had ownership of the project. Our own interviews confirm this. Pharmacists who felt that the project had been imposed on them and that they had no control over it were the least satisfied. One of the pharmacists in EAS 2, for example, said

> 'Well I didn't [sign up for it]. I got lumbered with it! My predecessor signed up and wanted to get involved then…left the job and put my name down' (EAS 2 CP 4).

Pharmacists who took part in RDS 4.1 had similar misgivings that seemed to be linked to a lack of choice. As one put it

> '[it] was because our surgery was involved. It was the doctors who agreed to participate

> and so that made us involved' (RDS 4.1 CP 2).

Financial incentives

Remuneration for pharmacists is the source of some debate. The current system offers pharmacists little incentive for taking on medicines management because their income depends upon the items they dispense. Given this dilemma, there has been some consideration of ways to link remuneration with an advisory service on the management of medicines (Harper et al., 1998, p. 947). The RPS recently appointed a working group to examine new ways of remunerating community pharmacists. Recognising that the current remuneration system, based on items dispensed, deters pharmacists from taking part in some activities, the working group put forward twelve possible models for remuneration based on five basic principles, which, in short, were predicated on providing the NHS with value for money in combination with an improvement in quality of patient care through the provision of various pharmaceutical services.[3]

The schemes discussed here varied in the ways they remunerated the pharmacists and doctors (see table 5.4.1) and there seems to be some link between level of remuneration and success. In EAS 2 and EAS 3 the doctors were not remunerated because their role was minimal. In RDS 3 the doctors were paid £25.00 per patient recruited. Partway through the study RDS 1's research team also decided to pay doctors £25.00 per patient in two instalments. In RDS 2 the doctors were given £1000 to cover administration costs and a printer. In RDS 4.1 there was a fee of £2.00 for each patient recruited. All the pharmacists were paid a variable fee for service depending on the interventions they made and the number of patients they registered on the projects. EAS 3 also paid pharmacists for attending training sessions.

It is possible that RDS 2's success in patient recruitment compared with RDS 1's low recruitment reflected the differences in remuneration for the doctors who were the referrers. In RDS 2 doctors received £1,000 to cover administration and a printer and a number of them mentioned the payment as an incentive. Although RDS 1 paid doctors in the same way as RDS 3 in the end, the payment was not offered at the outset as in RDS 3. It was only introduced partway through the study in response to low recruitment. Moreover, RDS 4.1's project manager thought that GP practices would have been more enthusiastic if they had been given more money and reported that a number of practices refused to get involved partly for financial reasons and partly for workload reasons.

Some of the most dissatisfied pharmacists, moreover, had not been remunerated. In EAS 2, for example, some employee pharmacists commented on how they had not been remunerated themselves. When asked about remuneration one of the pharmacists said

> 'Our company pocketed most of it anyway! They gave us a proportion of it, which was OK. I thought what the independents got was reasonable' (EAS 2 CP 3).

And another said

> ‘It would have been nice if I’d got it. I remember thinking it was very generous’ (EAS 2 CP 4).

In this context, it should be noted that out of the five pharmacists we spoke to who took part in this pilot, the only one to report being satisfied was an independent proprietor.

Table 5.4.1 **REMUNERATION**

Pilot	GP remuneration	Pharmacist remuneration
RDS 1	£25.00 per patient recruited paid in two parts. NB: introduced part-way through study	£1.00 fee for each instalment dispensed and £1.00 fee for each observed consumption plus £10.00 fee on return of study documentation
RDS 2	£1000 to cover administration costs plus a printer	£30.00 fee for each patient who presented with a prescription plus normal dispensing fee
RDS 3	£200 retainer fee plus £25.00 per patient recruited	Drug tariff fees (94.6p) for each instalment item dispensed and for non-dispensed items and £5.00 fee for each completed intervention questionnaire
RDS 4.1	£2.00 per patient recruited	Dispensing fees plus £1.00 per patient
RDS 5	£15.00 administration fee per patient	£30.00 capitation fee for every three month period, no dispensing fees
EAS 1	£100 retainer fee NB introduced part way through study	£40.00 fee per assessment plus £30.00 follow-up fee
EAS 2	None	£100 fee to cover training and patient recruitment and £100 per patient in four phases linked with return of study data
EAS 3	None	£25.00 per hour

A recent study looking at community pharmacists’ attitudes towards extending their role found that however much pharmacists wanted to move towards the direction of pharmaceutical care, they did not see it as worth their while unless they were remunerated for the time spent providing services other than dispensing (Bell et al., 1998, pp. 289-90).

Our own research complements this study’s findings. The contradiction between seeking to make wider savings in the drugs bill and optimising community

pharmacists' income through number of items dispensed came through a number of interviews. One pharmacist, for example, said

> 'At the moment I don't get paid when I don't dispense...If someone wants to pay me [to make savings] then I'd welcome that' (RDS 4 CP1).

On the whole, the pharmacists we spoke to were happy to carry out these services because the health authorities remunerated them. A member of the LPC in EAS 1 said, for example,

> 'Proper remuneration would have to be given to the pharmacists. In this case, they were reasonably happy. It was just a trial. But the money wouldn't be enough if it continued in the same way. It would have to be streamlined and then the remuneration they got for the project would be OK' (EAS 1 LPC rep).

There was widespread support for a professional fee to compensate for loss of income from dispensing less.

A unifying concern was that the services' success depended upon having the appropriate support including an accessible supply of locum cover. The need for this was greatest in the pilots where the interventions took place outside the pharmacy. Pharmacists who took part in EAS 3 and carried out half-hour reviews with a number of patients strongly stressed difficulties finding locum cover. One of the pharmacists who took part in EAS 3 said,

> 'The problem was getting the locums. It's not easy to find one. It's a manpower problem really and it's going to get worse' (EAS 3 CP 2).

However, the pharmacists who did the reviews in their premises also envisaged staffing implications if they had to work with more patients.

Patient registration

There has been growing debate about the possibility of introducing patient registration with pharmacies. Part of this debate has been linked with the issue of remuneration. Patient registration could provide the basis for paying pharmacists a capitation fee. In our interviews we explored the stakeholders views on registration. We did this in an open ended way, allowing the pharmacists to define registration in their own way and then probing them on the matter of whether patients should be compelled to register with a pharmacy.

The repeat dispensing schemes differed from each other in terms of whether patients had to use the same pharmacy to get their subsequent supplies of medication after the initial instalment or whether they were free to use a different pharmacy at each instalment. In RDS 1, RDS 2 and RDS 5 the patients were asked to use the same

pharmacy throughout the trial. In RDS 3 the patients could choose whether to hold onto the prescriptions or give them to the pharmacist. In RDS 4.1 the patients were asked to hold on to the prescriptions (see table 5.4.2).

Table 5.4.2 **PATIENT REGISTRATION**

Pharmacist-held prescriptions	**Pharmacy or patient-held prescriptions**	**Patient-held prescriptions**
RDS 1	RDS 3	RDS 4.1
RDS 2		

If the aim is continuity of care, the repeat dispensing schemes depended on patients using the same pharmacy. Four of the six managers we spoke to thought that patient registration would be a prerequisite for 'rolling out' the repeat dispensing schemes. There is some evidence that pharmacists favoured the schemes where the patients had to go to the same pharmacy (RDS 2) or chose to in the vast majority of cases (RDS 3). Pharmacists who took part in RDS 4.1, where the patients were supposed to hold on to the prescription, complained that the patient choice led to a lack of consistency in care and problems tracking payments.

In principle, pharmacists and GPs tend to favour patients regularly using the same pharmacy. Both groups believe that such a practice would enhance patient care because it would enable pharmacists to identify drug interactions, side effects and to build up a relationship with the patient. For example, a pharmacist who took part in EAS 2 said

> 'Yes, generally I think it's [registration] a good idea. The reason is because you're more likely to get medication sorted, more likely to spot something that happened between prescriptions, more likely to know about the patient and, when they buy OTC drugs, you'd be able to intervene if you saw a problem' (EAS 2 CP 1).

However, there was minimal support amongst pharmacists and even less amongst doctors for patients being compelled to register with a pharmacy. Although these stakeholders thought that patients' regular use of the same pharmacy benefited patient care, they prioritised the principle of freedom of choice. They supported patient registration with a pharmacy so long as it was a voluntary arrangement and the patient could go elsewhere if practical considerations made it necessary or if they simply chose to. For example, one pharmacist said,

> 'Registration? It's a good idea and a bad idea. There's so much to sort out. What if I get on well with a doctor and he might

> prompt the patient to go to me?…If the patient chooses, that would be a better way. So then you could give them a form to fill in and send it off to their doctors. So at least you wouldn't be calling them in off the street' (RDS 3 CP 4).

An important issue when thinking about implementing patient registration is patient views. The RPS recently commissioned a survey looking at use of community pharmacies based on interviews with over 500 people. It found that there was a very high level of loyalty for repeat prescriptions in particular, with eight out of ten people using the same pharmacy (RPSGB, 1996, p. 16). Other studies have shown that younger customers are less likely regularly to use a single pharmacy than older ones. Another study found that 60% of users, both ordinary and high, were loyal to one pharmacy and that two thirds of both groups visited pharmacies about minor ailments. However, 25% would still go to their GPs. The study also found that 'high' users or people suffering from chronic illnesses tended to want more in terms of services from their pharmacists than 'ordinary' users (See Mays, 1994, pp.19-21).

There is evidence that patients who took part in these pilot repeat dispensing schemes were happy to use the same pharmacy for all their prescription instalments. In RDS 4.1, where patients were supposed to hold on to the prescriptions, there were a number of reports of patients asking the pharmacists to keep them instead. In RDS 3, moreover, where patients could choose to use the same pharmacy or to use different ones throughout the trial period, 93% of the patients who took part used the same pharmacy for all their instalment prescriptions (RDS 3, Final Report, 1999, p 3). Patients who took part in the focus group discussion in RDS 3 also indicated that they would not mind regularly using the same pharmacy and would not oppose registering with a single pharmacy, although one of them commented that it would only be acceptable as long as the pharmacy had the appropriate supplies. However, it should be noted that the patients who attended the focus group represented a particular patient group – the majority was in their retirement and they suffered from chronic conditions.

The matter of registration with a pharmacy touches on the wider question of choice in health care and the extent to which patients want it. There is evidence that despite government policies that have apparently given patients more choice, for example in relation to GPs, most patients tend to favour continuity. This suggests that continuity of care is more important than choice for patients, especially those suffering from chronic illnesses (See Calnan et al., 1998, p. 333). Applying this to pharmacy, it might be that registration should be targeted at specific groups (elderly and/or patients with chronic conditions) and that once community pharmacy begins to be perceived as relating to patient care as well as dispensing, patient registration will be generally accepted.

Targeting appropriate patients

Successful 'roll out' would also depend on targeting appropriate patients. A recurring theme in our interviews with the key stakeholders was that patients who were knowledgeable about their medicines and adhered well to them were included and were not necessarily the most appropriate ones. The pilots discussed here recruited patients in a number of ways. In RDS 1 and RDS 2 the GPs referred patients on to the scheme. In RDS 3, practice managers, practice receptionists and GPs referred patients. In RDS 4.1 GPs were the main referral source but they could pass this responsibility

on to the pharmacists. In EAS 1 there were a number of referral sources, including hospital pharmacists, social/care workers, district liaison nurses, occupational therapists, community/psychiatric nurses, sheltered housing wardens, private care agency staff, Age Concern, Crossroads and GPs. In EAS 2 the community pharmacists referred patients from the PMRs and in EAS 3 GPs, community pharmacists and cardiac nurses were the referral sources (see table 5.4.3).

Table 5.4.3 **PATIENT RECRUITMENT**

Scheme	Referral source	Nos. recruited	Type recruited
RDS 1	GP	Disappointing	Disappointing
RDS 2	GP	Satisfactory	Satisfactory
RDS 3	Practice managers; receptionists and GPs	Satisfactory	Disappointing
RDS 4.1	GP; CP	Satisfactory	Satisfactory
EAS 1	Multiple health care workers	Disappointing	Satisfactory
EAS 2	CP	Satisfactory	Disappointing
EAS 3	GP; CP; specialist nurses	Satisfactory	Satisfactory

In terms of numbers, patient recruitment was disappointing in two of the pilots (RDS 1 and EAS 1). There were specific difficulties in relations with the LMC in EAS 1. However, the problem of numbers could also have arisen because there were multiple referral sources leading to a sense of diffused responsibility. This scheme differed from the other extended adherence schemes in this respect.

The recruitment difficulties in RDS 1 stemmed from the nature of the patient groups targeted. The problems with recruiting patients in an inner city area and patients suffering from drug addiction or mental health problems could be treated separately. The Health Authority's community pharmacy facilitator thought that the disappointing recruitment arose partly because the scheme involved asking patients who were used to going to their pharmacy on a monthly basis to go every day or every other day. He noted that ethical problems were pertinent here, especially in relation to particularly vulnerable patients such as those suffering from depression. It would have been unfair to ask such patients to visit a pharmacy so frequently and then to withdraw this opportunity from them after the trial period.[4] Recruitment of patients suffering from drug addiction was also difficult. It might be important to consider whether GPs who run specialist clinics are the most appropriate referral sources here. The project manager found that GPs who held special clinics for patients suffering from drug addiction or mental health problems recruited more patients than the other

doctors. The question of specific training for the pharmacists involved is also important given that recent research has shown that illicit drug users wanted privacy and appreciated pharmacists who did not appear to hold negative attitudes towards them (Matheson, 1998, pp. 104-12).

In terms of type of patients recruited, there was disappointment in RDS 1, RDS 3 and EAS 2. In RDS 1 there was disappointment because no TB patients were recruited on the scheme. As mentioned in the case study description, this gap arose partly because a centre specialising in helping patients with TB did not co-operate with the project. In the other two schemes, it was felt that the patients who took part were not necessarily the most appropriate ones. In RDS 3 the project organiser was disappointed at the low number of patients on complex medication regimes. She thought this might have been because the practice staff chose patients they knew or patients who were on straightforward medication regimes (RDS 3 Final Report 1999, p. 95). In EAS 2 in contrast, the difficulty seems to have stemmed from recruiting patients from the PMRs. This was mainly because the information about patients' drugs in the PMR records did not provide a full picture of the patients' background. Two of the pharmacists thought this was key. One said that

> 'the patient recruitment process was a bit of a problem…If you send out a questionnaire to a random sample of patients and ask them to take part, well, you're not necessarily going to get the right patients' (EAS 2 CP 2).

And another one thought patient recruitment might have to be GP-led (EAS 2 CP 1). It seems likely that a specialist with in-depth knowledge of the patients' histories would be needed for satisfactory targeting of patients.

Possible Barriers to Successful Implementation

We have identified five possible barriers to successful implementation: GP co-operation; special prescriptions; paperwork; review setting and source of funding.

GP views

Relations between community pharmacists and GPs could present a barrier to implementing changes in community pharmacists' roles. Past research has shown that GPs have mixed views towards pharmacist involvement in patient care. Based on a survey of 744 GPs, one study showed that while GPs welcomed pharmacist participation in some activities, such as reporting on adverse drug reactions, they did not favour their participation in more patient care oriented activities such as screening (Spencer and Edwards, 1992, pp. 1670-2). However, other studies have had more optimistic findings. A survey of doctors and pharmacists in the Bexley area found considerable agreement between doctors' and pharmacists' views on various aspects of extended role as proposed in the 1987 White Paper, Promoting Better Health (Woodward, 1992, pp. 99-100). A more recent evaluation of the role of clinical pharmacists in general practice found that GPs accepted the vast majority of recommendations made by pharmacists in repeat medication clinics (Burtonwood et al., 1998, pp. 678-80).

Our own research confirmed this ambivalence. There was evidence of widespread support for community pharmacists helping patients to manage their

medicines better or participating in repeat dispensing. The doctors supported pharmacists extending their roles into these areas because they thought pharmacists had the appropriate training for such activities and that greater use of these skills could help reduce the doctors' workload and meet a need in the population for help with medicines taking.

However, GPs had more reservations about pharmacists taking on more clinically orientated activities. Although it was not uniformly so, there was much more scepticism expressed about pharmacists carrying out activities such as screening for cholesterol levels, blood pressure and so on. These views surfaced mainly in the two schemes reviewed here that developed this aspect of the extended role, namely EAS 2, which focused on hypertensive patients and EAS 3, which focused on patients suffering from IHD.

In EAS 3 the pharmacists were disappointed about their impact on the patients' use of beta-blockers and one of them thought this was because the doctors did not want to do this:

> 'We were quite keen on getting people on to beta-blockers. We had Health Authority guidelines and we had to adhere to them. But they [the doctors] had their own ideas and, at the end of the day, it was up to them what they gave their patients' (EAS 3 CP 3).

The doctors' reservations stemmed from their view that pharmacists did not have the relevant clinical training. The other reason for their reticence seemed to be a concern about pharmacists crossing the boundary between the professional roles and consequently undermining the doctor/patient relationship. As one LMC member said,

> 'My personal view is that I would be grateful for any advice from a pharmacist if I was prescribing something that was less than ideal. But it's quite concerning for the GP if, for example, the pharmacist felt the medication was less than ideal and told the patient that. It would be quite undermining of the GP's relationship with the patient. The patient might start to feel less confident in the doctor. So it should go the GP not the patient' (EAS 2 LMC rep).

The pharmacists also had mixed views on relations between the two professions. Many of them commented on how good their relationships were with GPs. However, a number of them also mentioned that GPs were not always co-operative. They thought that GPs felt threatened by some of their activities and were being obstructive. An LPC representative who took part in the EAS 2 pilot thought that one of the reasons it did not go as expected was a lack of GP co-operation.

> 'They [GPs] don't like you recommending any intervention because they see it as a threat…it's been like that in other projects

> too. GPs generally haven't been very co-operative' (EAS 2 LPC rep).

This LPC representative thought that the pilot would have worked better if the GPs had been involved in the training and more closely involved in patient recruitment. An LPC representative in another project held similar views.

> 'Very few of the medics wanted to be involved. They said they wouldn't have the time and didn't want the paperwork – as usual. Unless there's money going directly into their pockets, they don't want to co-operate' (EAS 1 LPC rep).

To some extent, the projects' success depended on GP co-operation. A number of the project managers we spoke to mentioned some difficulties over relations with GP surgeries. There were reports of GP practices refusing to take part (RDS 4.1; EAS 1; EAS 3) and communication difficulties over practical issues (EAS 3). In RDS 1 the project manager reported that some of the GPs complained about data. In EAS 2 the project manager thought that some GPs had been concerned about blood pressure measurements and interference from 'outsiders'. In a number of the other pilots too, pharmacists noted that GPs had not been present at the training sessions and that successful implementation in the future would depend upon doctors being aware of what the pharmacists were doing (RDS 1; RDS 2)

These findings indicate a need for some kind of locally based forum that would facilitate co-operation between pharmacists and doctors. Some research has shown that GPs who work closely with pharmacists in a health care centre tend to develop a more co-operative approach than those working in isolation from pharmacists (Harding and Taylor, 1990, p. 464). In the Netherlands, the government and the Dutch equivalent of the RPS (KNMP) promoted the establishment of consultation groups consisting of GPs and pharmacists who met at two-monthly intervals to discuss treatment and prescribing (Mason, 1998, p. 635). It might be that the emergent PCGs could act, at least partially, in this way.

Specially designed prescriptions RDS 1, RDS 2 and RDS 4.1 used specially designed prescriptions. In RDS 1 the prescriptions were designed with reference to existing Methadone prescriptions FP 10 (MDA) and FP 10 (HP) (Ad) and developed as a special prescription (FP 10 IDP KCW). They allowed a maximum of 4 drugs in 14 instalments over 28 days. They were coloured bright pink by the government printing office using carbonised paper with a duplicate; each prescription was numbered; pharmacists and patients had to sign for each instalment dispensing; a signature from the GP was needed to authorise observed consumption and patients whose consumption was observed also had to sign (RDS 1 Draft Report, 1998, p. 13). In RDS 2 the prescriptions had a format similar to existing FP 10 and they were the same size. However, they came in three-part NCR paper form; each sheet was a different colour and each triplicate had a unique number and a separate printer was needed. RDS 4.1 used computer generated tripartite prescription forms in NCR paper. They were designed in liaison with IT specialists in order to minimise disruption to practice software. The final version did not need to be reformatted but there was a need for a printer that was compatible with NCR paper.

The stakeholders had mixed views over the use of non-standard prescriptions and they caused more problems for doctors than for pharmacists. In RDS 1 and RDS 2 doctors reported that using non-standard prescriptions had hardware implications for the practices. For example, doctors or other practice staff dealing with the prescriptions had to switch between printers for different kind of print runs. Some of the doctors did not find this a problem. Others thought that the need for multiple signing was tedious (RDS 2 GP 3; RDS 2 GP 4) and one doctor commented

> 'The special pink prescriptions in triplicate were a trifle clumsy and the restriction on the number of items caused some inconvenience' (RDS 2 GP 5).

Some of the doctors felt that if the service became routine, this issue would have to be addressed and they would need a straightforward way of handling special prescriptions.

In RDS 4.1 a lot of effort was put into designing prescriptions that would cause the least convenience possible for the surgeries. In response to concerns about GP workload and the problems involved in hand-written prescriptions, the project organisers worked with an IT company to arrive at a design that would be compatible with existing GP software. Surgeries that did not have printers that were compatible with NCR paper were provided with one. On the whole, the doctors did not seem unduly put out by the special prescriptions. However, one mentioned difficulties handling the triplicate prescriptions in the printer (RDS 4.1 GP 3). One of the pharmacists in this project also noted difficulties with the prescriptions, saying that they were too flimsy (RDS 4.1 CP 2).

The difficulties involved in using non-standard prescriptions were also illustrated in another repeat dispensing project (RDS 5), which has not been included as a case study in this report. The local evaluators found that the prescription caused some confusion both amongst practice staff and pharmacists. Initially, doctors sometimes forgot to sign all three sections of the triplicate and pharmacists made queries about what to do about controlled drugs; PRN quantities; multiple dispensing on the same form; endorsing the right-hand column; patient signatures (RDS 5 Draft Methods Document).

In contrast, RDS 3 used the usual FP10 prescriptions in six monthly instalments with a red permanent sticker on the bottom left-hand side to indicate that it was a study prescription. On the whole, the doctors we spoke to found this system of prescribing straightforward, grumbling only slightly about having to sign six prescriptions at the same time (RDS 3 GP 2).

Paperwork

Most of the project managers thought that paperwork would obstruct a 'roll out' nationally. However, there was general agreement that the problems of excessive documentation and data collection were research factors that would not necessarily apply after the procedures had been evaluated and implemented as general good practice. The pharmacists and GPs we spoke to shared this view. None of them (with the exception of EAS 3) thought that the paperwork associated with the pilots would be feasible in a routine service. They nearly all qualified their complaints with the view that the paperwork was linked to the projects being pilots.

Amongst the professional stakeholders, there was unanimous opposition to lengthy paperwork. Neither the doctors nor the pharmacists thought that the services could be implemented successfully without a reduction in paperwork. For example, although the pharmacists who took part in RDS 2 supported the pilot, they did not think it would work routinely with the amount of paperwork they had to do. As one pharmacist said

> 'It was total chaos having to ask all those questions…well not so much having to ask them as record them' (RDS 2 CP 6).

A GP (who valued the scheme she took part in) said

> 'The paperwork…was voluminous and not compatible with the GP's life! We see a patient every five minutes…filling in all these forms, it was ludicrously over-administered. But it was so valuable that I was prepared to do it for the pilot' (RDS 1 GP 2).

These views were typical, with nearly every participant we spoke to holding them. However, the problems seemed particularly acute in EAS 2. In this scheme the local academic unit carried out a randomised control trial designed to measure objectively the affects of pharmacists' interventions on patient adherence. The documentation associated with randomised control studies would not be relevant in a situation where a service became routine.

However, where the pharmacists carried out clinical assessments of patients in a surgery setting (EAS 3), they thought that the documentation would be necessary if the service were to be implemented.

Review setting

Because they were concerned with dispensing, the RDS type schemes took place in the pharmacy (although in RDS 2 the pharmacists did make some domiciliary visits). The reviews centred on assessing patients for side effects, adherence and whether there was a need to make changes in the patients' medication.

The difficulties surrounding the pharmacy as a setting for the reviews was particularly acute where the pharmacists were dealing with people with drug addiction problems (RDS 1). Some of the pharmacists mentioned that having to observe a patient take their medicine was time-consuming and that it could be off-putting to other customers. Other research has shown that lack of privacy in the pharmacy is off-putting to patients who might want to get advice on sensitive issues and that a designated consultation area could overcome this and enhance the pharmacists' professional image by making customers take their advisory role more seriously (Harper et al., 1998, p. 947). So one way of getting around this issue would be to have a private counselling area. However, most of the pharmacists we spoke to saw this as ideal but unlikely because of resource implications.

The extended adherence/pharmaceutical care projects took place in a variety of settings: EAS 1 (patients' homes); EAS 2 (pharmacy) and EAS 3 (doctors' surgeries). Pharmacists who took part in domiciliary visits thought that they benefited patients

because it gave them time to go through their medicines and that such visits also had the potential to prevent hoarding and to facilitate the safe use of medicines. EAS 3 worked particularly well because the reviews took place in the doctors' surgeries, allowing the patients privacy and longer than usual consultations. It has been reported elsewhere that the pharmacists and the patients thought that the practice was more suitable for the reviews than the pharmacy.[5]

The pharmacy-based extended adherence project (EAS 2) was the least successful in terms of review setting. The pharmacists found it difficult carrying out lengthy reviews with the patients about how they were taking their medicines and side effects in the pharmacy. This could have been a product of the documentation related to a control study. It was generally agreed that reviews such as those carried out in this study were not feasible in busy pharmacies and that the patients found them tedious too.

Wherever the reviews were held, the professional stakeholders perceived implications for staffing. These were particularly evident when the pharmacists had to leave the premises (EAS 1; EAS 3). While they enjoyed being able to work in a different environment where they could spend uninterrupted time with the patients, a recurring theme centred on the need for easy access to locum cover.

Source of funding

Two of the project managers raised the issue of pharmacist remuneration. They thought that pharmacists' pay would require attention and that there might not be sufficient resources to provide incentives to apply the schemes across the country. A number of the pharmacists we spoke to reinforced this view. They thought that it would not be feasible to carry out the services routinely without the kind of remuneration they received for the pilots. However, they were sceptical about the prospects of getting adequate remuneration in the future. One LPC representative said,

> 'In the long term we could reduce the drugs bill and what we'd want is a share of that reduction. The treasury would quite happily put it back into their coffers and GPs would want a share of it. So we'd need to have some part of that saving' (EAS 2 LPC rep).

There is some evidence from the repeat dispensing schemes of greater savings being made in those pilots where the pharmacists received a fee. With respect to the extended adherence services, Primary Care Groups (PCGs) could be a possible source of funding. They are going to make use of pharmacists for prescribing advice and so there is potential for buying in services to help with adherence. However, the PCGs could not be a source of funding for repeat dispensing schemes because of the ethical issues involved in GPs directing patients to particular pharmacies. It might therefore be that repeat dispensing schemes could be rolled out as a national service.

6. CONCLUSION

This study aimed to investigate the acceptability of these pilot projects; their impact on patient adherence and drug costs and their generalisability and feasibility. In this section we shall provide brief descriptions of the study's conclusions.

General acceptability

With respect to general acceptability there is clear evidence of support for pharmacists extending their role into medicines management and repeat dispensing amongst pharmacists, doctors and patients. The pharmacists were unanimous in their support for extending their roles on the grounds that it would enhance their professional status and contribute to an improvement in patient care. However, they also identified some aspects of the pilots that would need to be streamlined for them to work routinely, including paperwork, ways of selecting patients, resource issues such as remuneration, locum cover and review setting and co-operation from GPs. The patients welcomed the pharmacists' activities as convenient and time saving, both in terms of their own time and GPs' time. They also enjoyed the potential for building up relationships with pharmacists whom they perceived as well qualified to give advice on their medications and side effects. However, a number of the professional stakeholders reported patients withdrawing from some of the schemes and finding the changes in the system, especially for the repeat dispensing services, confusing. The doctors supported the pharmacists' interventions because they thought they met a definite need amongst patients, especially the elderly, which they did not have the time to tackle. Their reservations focused not on pharmacists extending their roles as such but on pharmacists carrying out activities perceived to fall in medicine's domain.

Adherence

With respect to the pilots' impact on patient adherence and costs, there are also grounds for optimism. Although these pilots did not seem to have a dramatic impact on patient adherence, there was a consensus of opinion amongst the stakeholders that this was because they were too short term and that some of the patients included were not always the ones who needed the most help. There was general agreement that pharmacists could, in the long term, make a contribution to patient adherence. Moreover, the qualitative analysis highlighted anecdotal evidence of concrete benefits to a number of patients. Even though this occurred in a small number of cases it seems likely that, with more focused targeting of patients, the benefits in terms of adherence would be more marked.

Drug costs savings

There is also clear evidence that the pharmacists' interventions in the three repeat dispensing projects discussed here impacted on drug costs, ranging from 3 % savings on prescribed drug costs in RDS 3 to 33 % in RDS 5. RDS 2 fell in the middle of these with a savings of 13 %. The variation in results could have stemmed from a number of factors, including those associated with study design and process. However, there is some indication of a case for patient registration given that those sites where it was a part of the service made the highest savings and there seems to be a case for pharmacists receiving a professional fee to compensate for possible loss of income from dispensing for the same reason.

Implementation

Despite these findings, the schemes could only be implemented in the future if certain conditions were in place. It seems likely that there would be a need for some kind of central co-ordination; for targeting pharmacists who were strongly motivated for carrying out these extended activities and ensuring that the appropriate training was in place; appropriate financial incentives would also be critical as well as targeting appropriate patients and introducing some form of patient registration, although there is little support for obliging patients to register with a pharmacy.

The study also showed that there are a number of possible obstructions to rolling out these extended services. Problems arose over the level of paperwork; however, it was generally thought that this level was related to the services being pilots rather than inherent to the services. In the repeat dispensing schemes, difficulties arose over the specially designed prescriptions, especially for doctors. The setting of the pharmacists' reviews also were problematic in some cases and suggests the need for consultation areas. Problems also arose over doctors views. While doctors welcomed initiatives that did not seem to cross the boundaries between the professions, they had more reservations about activities that did. Most importantly, however, is the question of how such services could be funded. The stakeholders identified two clear difficulties here: first, compensating pharmacists for possible loss of income from dispensing and second, providing adequate resources for locum cover. It was felt that compensation for loss of earnings from dispensing could come from the savings in the drugs bill generated by the pharmacists.

Prioritisation

A further important matter is that of which groups of patients should be targeted as a priority. It was not possible to relate the drug cost savings data to particular age groups. In terms of disease groups, savings were made mostly in relation to patients suffering from chronic respiratory problems, diabetes and dermatological complaints. There was general consensus amongst the stakeholders that any service would need to target patients on large numbers of repeat prescriptions, which generally refers to chronic patients and the elderly. There was also a feeling that patients starting off on a new drug would be an appropriate target group to see whether pharmacists could identify adverse drug reactions early. None of the case studies in this report included patients starting on drug therapy. However, there is a pilot ongoing that is looking at initiating patients on anti-depressant treatment. Moreover, in some areas, especially inner city ones, there is a case for targeting patients with drug addiction problems and TB.

Cost effectiveness

These pilots also raised the issue of cost effectiveness. There are a number of ways of thinking about cost/benefit implications. Potential costs include detrimental effects on patient health as a result of failure to take essential prescribed medication or side effects and an associated opportunity cost if patients visit their GP concerning these negative health outcomes. Any intervention on the part of the pharmacist, whether the outomes on patient health are positive or negative, involves an opportunity cost of time spent providing advice.

Potential benefits include an improvement in patients' health status as a result of regular monitoring and appropriate dispensing more closely matched to their health needs. Side effects could be avoided, reducing the need for patients to visit their GP, constituting an opportunity saving in GP time. Patients may be satisfied with the

system and gain more confidence in the pharmacist. They may then be more likely to seek advice from the pharmacist in future for symptoms that may have previously gone unreported or necessitated a GP consultation. A further important benefit is the reduction in wastage of dispensed medicines. This would result in few surplus drugs being stored at home thus reducing the possibility of accidents. An associated benefit is the financial saving corresponding to non-dispensed drug items.

Cost effectiveness analysis and similar methods have been used in the economic calculation of a wide range of health care technologies and processes. They are applied with the intention of optimising the use of health care resources and arriving at positions of first, allocation efficiency (the best allocation of resources between alternative uses for different purposes) and second, technical efficiency (the best [most efficient] choice between alternative technologies or processes aimed at the same objective). The rigorous application of economic evaluation techniques for comparative purposes requires carefully structured collection of costs and resource use data for all options being compared. These options can then be compared against a baseline position. Cost-effectiveness comparisons would use a common measure of outcomes (e.g. some indicator of physical patient health) to evaluate against changes in cost.

This type of formal comparison was not possible in this project because local projects were already defined before the central evaluation team became involved. Consequently there was little consistency in the resource use and cost data that was collected and clear and objective outcome measures could not be established. Therefore the cost analysis is limited to measurement of costs, and, consideration of the scale and cause of changes can only be speculative. Nevertheless, as we have shown, there are grounds for thinking that these pilots had benefits for all the key stakeholders. There are indications that such services have the potential for preventing drug wastage and improving patients' use of their medications.

The study demonstrates that community pharmacists have the enthusiasm and commitment to take on new roles. The challenge is how to make the most of this commitment and who should be responsible for facilitating changes in pharmacists' roles. The new Primary Care Groups (PCGs) could take a part in this development. They do not have a role in managing the pharmacy contract nor access to the global sum so could not, for example, fund repeat dispensing via the national contract. However, they could pay for additional services such as prescribing advice. The study also raises the question of the role of the local health authorities and the Government. It may be that local co-ordination, based on national guidelines, would be appropriate.

APPENDIX: STAKEHOLDERS INTERVIEWED BY CHSS

Table 1 **RDS 1 PHARMACISTS**

Pharmacist	Location	Type	Pharmacist Characteristics	Pharmacy Setting (as perceived)
1	Urban	Independent	Male, qualified 1979, proprietor	Main road, surrounded by housing estates. Mostly deprived
2	Urban	Independent	Male, qualified 1980, proprietor	Main road. Mostly deprived
3	Urban	Independent	Male, qualified 1970, employee	Shopping area. Some deprived, but generally well off
4	Urban	Multiple	Female, qualified 1992, manager	Main road, residential areas. Mixture of extreme deprivation and wealth
5	Urban	Independent	Male, qualified 1984, proprietor	Main road, residential area. Mostly deprived but minority very well off
6	Urban	Independent	Male, qualified 1988, proprietor	Main road, residential area. Mixture well off and deprived

Table 2 **RDS 1 GPs**

GP	Location	Type	GP Characteristics	Practice Setting (as perceived)
1	Urban	Single-handed	Female, qualified 1959	Central, surrounded by retail stores, mixed social backgrounds
2	Urban	Group practice (2)	Female, qualified 1972	Central, residential and retail, deprived
3	Urban	Group practice (3)	Male, qualified 1983	Central, retail and residential, very wide social mix
4	Urban	Group practice (3), drug addiction clinic	Female, qualified 1958	Central, mainly well off

Table 3 **RDS 2 PHARMACISTS**

Pharmacist	Location	Type	Pharmacist Characteristics	Pharmacy Setting (as perceived)
1	Semi-rural	Small Chain	Male, qualified 1994, manager	Village, health centre, not particularly well off or deprived
2	Urban	Multiple	Female, qualified 1992, manager	High Street, village, residential area, affluent
3	Semi-rural	Independent	Male, qualified 1979, proprietor	Shopping area, residential, village, fairly well off
4	Urban	Small chain	Male, qualified 1969, locum	Main road, shopping precinct, working class
5	Semi-urban	Independent	Male, qualified 1977, proprietor	Main road, both well off and deprived
6	Semi-rural	Multiple	Female, qualified 1977, manager	Residential area, mixture very well off and less well off

Table 4 **RDS 2 GPS**

GP	Location	Type	GP Characteristics	Practice Setting (as perceived)
1	Urban	Group practice (3)	Male, qualified 1964	Housing area, small village with shops, well off
2	Urban	Group practice (7)	Male, qualified 1966	Main road, some shops, predominantly residential. Some very well off, but quite deprived
3	Semi rural	Group practice (9)	Female, qualified 1986	Main road surrounded by residential streets, well off
4	Urban	Group practice (3)	Female, qualified 1991	Suburbs, mixed population, some very affluent, others quite deprived
5	Rural	Group practice (9)	Male, qualified 1985	Main street, health centre, no deprivation

Table 5 **RDS 2 PATIENT FOCUS GROUP***

Patient Code	Male/Female	Age (approximately)
1	Male	Late 80s
2	Male	60s
3**	Female	Early 80s
4**	Female	Late 70s/Early 80s

*Jointly carried out by central evaluation team with local project manager

**These patients did not contribute a lot to the discussion, although they did express agreement with the other patients' views. In this respect there was a clear gender divide. It is important also to note that the results should be interpreted cautiously because of the small group size.

Table 6 **RDS 3 PHARMACISTS**

Pharmacist	Location	Type	Pharmacist Characteristics	Pharmacy Setting (as perceived)
1	Urban	Independent	Male, qualified 1961; proprietor	Residential and commercial area; working class
2	Urban	Multiple	Female, qualified 1962, consultant pharmacist	Small town, residential and commercial; neither particularly well off nor deprived
3	Urban	Multiple	Male, qualified 1968, manager	Small shopping parade. Not well off
4	Urban	Independent	Male, qualified 1982, proprietor	Residential area, main road, neither particularly well off nor deprived
5	Urban	Multiple	Male, qualified 1969, manager	Shopping precinct, fairly poor area

Table 7 **RDS 3 GPs**

GP	Location	Type	GP characteristics	Practice Setting (as perceived)
1	Urban	Single-handed	Male, qualified 1977	On a dual-carriageway, very deprived, lots of ethnic minorities
2	Urban	Group practice (2 ¾)	Male, qualified 1984	Residential area, neither particularly well off nor deprived
3	Semi-urban	Single-handed	Male, qualified 1975	Residential area, about 45% deprived and 35% ethnic population

Table 8 **RDS 3 PATIENT FOCUS GROUP**

Patient Code	Male/Female	Age (approximately)
1	Male	65+
2	Male	65+
3	Female	65+
4	Male	Under 60
5	Female	60+

Table 9 **RDS 4.1 PHARMACISTS**

Pharmacist	Location	Type	Pharmacist Characteristics	Pharmacy Setting (as perceived)
1	Urban	Independent	Male, qualified 1979, proprietor	Council estate but not particularly deprived
2	Urban	Multiple	Female, qualified 1974, manager	Small commercial centre, well off
3	Semi-rural	Independent	Male, qualified 1981, proprietor	Village, deprived in the north, well off in the south
4	Semi-urban	Multiple	Male, qualified 1971, consultant pharmacist	Retail park, well off
5	Semi-urban	Independent	Male, qualified 1990, proprietor	Near motorway, high level of people on income support but some very high income areas too

Table 10 **RDS 4.1 GPs**

GP	Location	Type	GP Characteristics	Practice Setting (as perceived)
1	Urban	Group practice (3 ½)	Female, qualified 1972	Village with small businesses and residential houses, not particularly well off but not deprived either
2	Urban	Single-handed	Male, qualified 1959	Outside town centre, not very well off, mainly ethnic minorities
3	Urban	Group practice (2)	Male, qualified 1977	On a green, well off, 4% ethnic minorities

Table 11 **EAS 1 PHARMACISTS**

Pharmacist	Location	Type	Pharmacist Characteristics	Pharmacy Setting (as perceived)
1	Urban	Multiple	Female, qualified 1996, employee pharmacist	Town centre, quite deprived
2	Urban	Independent	Female, qualified 1973, proprietor	Residential area, serves outlying villages, not well off but not too deprived area
3	Urban	Independent	Female, qualified 1979, proprietor	Main road, surrounded by residential houses, not deprived or well off
4	Semi-rural	Independent	Male, qualified 1971, proprietor	Large village, middle class
5	Urban	Health Centre	Female, qualified 1987, superintendent	Main road outside town centre, quite deprived
6	Rural	Independent	Male, qualified 1980, proprietor	Main road, deprived

Table 12 **EAS 1 GPs**

GP	Location	Type	GP Characteristics	Practice Setting (as perceived)
1	Urban	Group practice (2)	Male, qualified 1958	Main road, residential area, deprived
2	Semi-rural	Group practice (3)	Male, qualified 1979	Industrial and residential, deprived
3	Semi-rural	Group practice (7)	Male, qualified 1987	Main road, residential area, socially mixed
4	Urban	Group practice (3)	Male, qualified 1980	Residential area, deprived

Table 13 **EAS 1 PATIENT FOCUS GROUP***

Patient Code	Male/Female	Age
1	Male	65
2	Female	66
3	Female	69
4	Male	77
5	Female (carer of son aged 7)	

*Jointly carried out by central evaluation team with local project manager

Table 14 **EAS 2 PHARMACISTS**

Pharmacist	Location	Type	Pharmacist Characteristics	Pharmacy Setting (as perceived)
1	Urban	Multiple	Female, qualified 1987, manager	Main shopping area, run down
2	Rural	Small chain	Female, qualified 1986, employee	Small market town, high street, not particularly well off or deprived
3	Urban	Multiple	Male, qualified 1991, manager	Just out of town, next to GP surgery, fairly deprived
4	Urban	Multiple	Female, qualified 1995, manager	Attached to health centre, middling social class
5	Urban	Independent	Male, qualified 1977, proprietor	Just outside city centre, suburbs, mixture of affluent and deprived

Table 15 **EAS 2 GPs**

GP	Location	Type	GP Characteristics	Practice Setting (as perceived)
1	Urban	Group practice (6)	Male, qualified1991	Small shopping area, quite deprived
2	Semi-urban	Group practice (4)	Male, qualified 1981	Main street through village, residential area, not too deprived
3	Urban	Group practice (2)	Male, qualified 1980	Residential area, well off
4	Urban	Group practice (2)	Male, qualified 1964	Main road, residential and commercial, social mix but mainly quite deprived

Table 16 **EAS 3 PHARMACISTS**

Pharmacist	Location	Type	Pharmacist Characteristics	Pharmacy Setting (as perceived)
1	Urban	Variable	Female, qualified 1972, self-employed locum	Large village, middle class
2	Urban	Small chain	Male, qualified 1983, manager	Main road, surrounded by houses, deprived
3	Urban	Independent small chain	Male, qualified 1991, Manager	Shopping parade, surrounded by houses, deprived
4	Semi-rural	Multiple	Male, qualified 1966, Manager	Main road, large village, Middle class

Table 17 **EAS 3 GPs**

GP	Location	Type	GP Characteristics	Practice Setting (as perceived)
1	Semi-rural	Group practice (3.5)	Male, qualified 1973	Main road, residential, deprived
2	Mixed: urban & rural	Group practice (2)	Male, qualified 1962	Small town, council housing, deprived
3	Urban	Group practice (2)	Male, qualified 1981	Shopping area, deprived

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