

The Birmingham community pharmacy repeat dispensing project

By Keith A. Wilson, PhD, FRPharmS, Jill K. Jesson, PhD, John Varnish, MRPharmS, Robert Pocock, PhD, and Anne Barton

AIM • To investigate the feasibility of developing and piloting a community pharmacy-based repeat dispensing procedure, with a sample of appropriate patients receiving repeat prescriptions.

DESIGN • Pluralist methodology for data collection including patient survey by self-completion questionnaire, face-to-face patient interview, semi-structured interviews with pharmacists and GPs, monitoring forms for each dispensing interaction and recording of medicines supplied. Funding to community pharmacies of £30.86 per patient per three-month cycle.

SUBJECT AND SETTINGS • Naturalistic setting in Birmingham involving two contrasting locations — inner city and suburban. Six-month pilot involving 350 repeat dispensing patients, seven community pharmacies and two medical practices using purpose designed prescription form.

RESULTS • 82% of patients approached were willing to enter a repeat dispensing service and after six months 86% liked the system. The service was most effective in the practice with a well-established system for repeat prescribing and for patients on stable medication. Key pharmacy factors were motivation, continuity of pharmacist cover, space, reliable PMR and established relationship with prescribers. Over the six-month pilot a total of 24% of items available were not dispensed.

CONCLUSION • Successful repeat dispensing is dependent upon a good infrastructure in both the pharmacy and the medical practice and requires established inter-professional communication. The main advantages perceived by patients were convenience and time saved and 90% were prepared to register with their pharmacy to obtain the repeat service. Community pharmacists can help patients manage their medication at the point of supply and this can result in a short-term saving on medicines dispensed.

The Birmingham community pharmacy repeat dispensing pilot study was commissioned by the Department of Health as one of the £1m Community Pharmacy Wider Roles 1996–97 development projects. It was one of 12 pilots that were funded to explore the pharmacist's medicines management role in three main areas: repeat dispensing, extended adherence support and specialist services. The project was managed by Aston University Pharmacy Practice Group on behalf of Birmingham and Solihull health authorities.

The Royal Pharmaceutical Society set out a radical programme of professional development into the next century.^{1–4} Target 3 of the work programme⁴ of five key themes was “to agree an approach to ensure that a repeat dispensing system is in place in most community pharmacies by 2000”. This project was designed to provide evidence to support this policy objective.

When this study was commissioned in 1997, little had been published on repeat dispensing in the United Kingdom. At that time, a number of small-scale pilots were reporting success in cost-effective prescribing but all these involved pharmacists working within the GP practices. This project was distinctive in that it was pharmacy-based with a focus upon the supply role: “optimising a medication regimen, facilitating adherence to medication, organising supply and administration support and pro-

viding monitoring and feedback to the prescriber”,⁵ a process termed “medicines management”.

In recent years there has been a marked increase in interest in the number and type of repeat prescriptions issued by GPs. Several reports have tended to concentrate on a number of similar variables: the quantity of repeat prescriptions issued, the proportion of all prescriptions issued and the total cost to the medical practice drug budget and the National Health Service.^{6,7}

Claims have been made that the current practice for generating such repeat prescriptions results in over-prescribing, stockpiling of drugs by patients and all too infrequent review of therapy.⁸ Twenty years ago, Drury⁷ noted that GPs were dissatisfied with many of the systems adopted because they thought they encouraged “unbridled prescribing” and the production of repeat prescriptions was a dull and time-consuming task. Since then computerisation has shifted much of the prescription generation

work to computers and administrative staff, but for the GP the tedious task remains because of the legal requirement that each prescription is signed.

The Audit Commission,⁶ drawing on the work of Purves and Kennedy,⁹ estimated that repeat prescriptions account for 66 per cent of items and 79 per cent of primary care general practice drug expenditure. Analysing data on “endorsed for payment” prescriptions from six medical practices in one family health services authority, Davidson *et al* arrived at a much lower figure. They calculated that 29 per cent of items were repeats at a 32 per cent total cost.¹⁰

If we take the medical practice computer as “permission to order”, we see another picture. Looked at from this angle, a study in Leeds of prescriptions on the computers of 18 practices noted that only 57 per cent of repeat items that were allowed were actually ordered by patients.¹¹ So permission to have a repeat medication may not be the true figure to use for cost and quantity debates; it may be up to as much as 50 per cent lower. This is the only study identified to date that takes this approach, but if its results are valid it suggests a more qualitative understanding of the repeat prescription is needed than that obtained from GP computer records or dispensed and Prescription Pricing Authority-endorsed prescriptions. If we view the record as a “menu — permission to order”, where some items are essential but others are optional as needed, where the item

Dr Wilson head of pharmacy practice and Dr Jesson is research fellow in pharmacy practice at Aston University. Mr Varnish is a community pharmacist. Dr Pocock is chief executive and Ms Barton is research officer at MIEL Research Ltd, Birmingham. Correspondence to Dr Wilson, Head of Pharmacy Practice, Aston Pharmacy School, Aston University, Birmingham B4 7ET

Panel 1: Objectives

- 1 To develop a suitable and appropriate methodology to allow community pharmacists to dispense repeat medication without the need for the patient to visit the surgery and so contribute to the continuity of care as part of the primary health care team
- 1 To identify and recruit an appropriate group of patients for participation in the study and follow them through the introduction and implementation of the procedure devised
- 1 To evaluate the benefits of the repeat dispensing procedure by describing attitudes of pharmacists, general practitioners (GPs) and patients to, and their satisfaction with, the repeat dispensing procedure
- 1 To identify barriers and constraints to the implementation of a repeat dispensing procedure and propose models of best practice
- 1 To identify attitudes of patients to the concept of shared care involving the community pharmacist
- 1 To evaluate the acceptability of a remuneration method that is patient-based rather than item-driven

Panel 2: Outcomes

- 1 A measure of the proportion of patients receiving repeat prescriptions who might be interested in a pharmacy-based repeat dispensing service
- 1 Background data on attitudes to repeat dispensing and to the methods used to order and collect repeat prescriptions
- 1 A subjective perception of enhanced pharmaceutical care from the patient
- 1 Improved adherence to prescribed medication by study participants through better and more structured access to patient counselling
- 1 Improved job satisfaction for the community pharmacist
- 1 A measurable change in prescribed medicines from the patient medication records with a calculated reduction in drug expenditure and improved standards of pharmaceutical care

uptake for each one will automatically vary, we would obtain a different picture.

The small number of studies on this topic confirms that there are considerable methodological difficulties in generating empirical evidence about repeat prescriptions.

The most often quoted studies on repeat prescriptions have been undertaken from a point of view of the prescriber in primary care. By comparison research by pharmacists has focused on the new prescribing support role that a pharmacist might provide at the surgery. Such studies were designed to demonstrate what a pharmacist and prescriber can achieve by working together. For example, Goldstein *et al*¹² list the range of "problems" that community pharmacists in two health authority areas identified in a prescribing audit of patient medication records. A total of 9,762 problems were claimed, a rate of 56 per cent of all cases reviewed.

The point of identifying and quantifying the prescription issues is primarily to avoid waste and save money, but attention paid to clinical features could ensure better therapy for the patient and hence better outcomes, although it may increase costs. Estimates of cost savings vary with each study, but to take just one example, equivalence, we can see what the potential might be. The term "inequivalence" describes the addition by doctors of medications to a patient's repeat prescription menu without standard-

ising on a common number of days treatment. Estimates of the number of prescriptions with different quantities varies through 17 per cent,¹² 20 per cent,¹³ 23 per cent,¹⁴ and 37 per cent.¹¹ Standing *et al* reviewed prescriptions from 15 community pharmacies over a nine-month period.¹³ They estimated that 14 per cent of the total cost of those prescriptions could have been saved by standardising, or synchronising, the items.

To summarise, repeat prescriptions have been analysed by computer records, by pharmacy audit of patient records and by examining dispensed prescriptions. In the Grampian region of Scotland a feasibility study explored the potential for community pharmacists to take more control in the repeat prescribing process.⁸ The study was a randomised controlled trial of instalment dispensing, involving 62 community pharmacies, 19 medical practices and over 2,000 patients. The Grampian study found high levels of satisfaction and paved the way for the Department of Health initiative in England.

Aims This project was not based in a review of previous literature. It was a commissioned pilot project to research the implementation of a repeat dispensing service and to explore the practical implications. The literature review places the project in the context of what was already known and work already undertaken. As well as seeing the prescrip-

tion as an item, to be counted and analysed for problems, we set out to explore the social process around prescriptions. This process involves three key players — the prescriber, the patient and the pharmacist — as well as the counter staff in the medical practice and the pharmacy. The process is not universal and unchanging; it varies for some people over time.

The overall aim of the project was to investigate the feasibility of developing and piloting a community pharmacy-based repeat dispensing procedure, with a sample of appropriate patients receiving regular repeat prescriptions.

The commissioner of the study specified that there be a clear identification of both aims and objectives and expected outcomes or deliverables. These are shown in Panel 1. A purpose of the paper is to identify the extent to which the outcomes (Panel 2) were achieved.

METHODS

Setting The study involved a population of patients from two medical centres within the Birmingham conurbation. One medical practice was based in an outer city area, with a low ethnic minority population and predominately owner-occupied accommodation. Four local community pharmacists volunteered to be involved in the study. The second medical centre was located in an inner city area, within a highly mobile multi-racial, multicultural population. The three nearest community pharmacists dispensing prescriptions from this practice were invited to participate in the study.

Patient sample The sample frame was identified within each community pharmacy and comprised patients known to be receiving regular repeat prescriptions, confirmed wherever possible by the patient medication record. Unlike in other studies, this sample was not defined by disease, age, number of repeats or therapeutic criteria. The intention was to include as many different patients as possible to resemble a typical pharmacy profile. A total of 1,429 patients were identified as taking repeat medication. The names were then screened by the pharmacists and by their general practitioners to exclude those unsuitable for the study. The GPs determined the exclusion criteria. Clinical exclusion criteria were asthma (because these patients were involved in another local study), hormone replacement therapy and terminal disease. Other exclusion criteria were unstable medication, drug misusers and personal knowledge of the patients by their GP. Housebound patients were not excluded, allowing carers to participate.

After screening, there remained 1,050 patients, who were contacted by post with an introductory letter from their GP and the baseline questionnaire. The original plan was to include 50 patients from each of seven pharmacies (n=350). In fact, in three of the pharmacies the number of potential patients was fewer than 50. For these three pharmacies, therefore, 70 patients were included. This left a calculated number of 70 patients

for each of the remaining four pharmacies. The sample for each was drawn randomly from the patients willing to enter the study.

Induction Since the design was intended to be as naturalistic as possible, the pharmacists included were those based at the pharmacies serving the patients of the practice. There was a project induction session to introduce the design, aims and objectives of the study, an explanation of the FP10 PPA procedures and remuneration arrangements. This also covered the activities required of the pharmacists and provided instructions on how to complete the forms supplied to the pharmacies to monitor each patient interaction (monitoring forms). The project was pharmacy-based and the activities expected were those claimed to be undertaken by pharmacists daily in the course of their professional practice (everyday pharmaceutical care). After the study started, there was a site visit to each pharmacy and medical practice to reinforce understanding and there were periodic visits throughout the duration of the project.

Research instruments All the research instruments were based upon our knowledge of consumer behaviour, patient use of medication and the prescribing/dispensing process. The project used a pluralist methodology of data collection, drawing from a number of specially designed and piloted data collection instruments:

- 1 Patient-pharmacist interaction monitoring forms were used in each pharmacy. These included a checklist of expected pharmacist activities.
- 1 Patient behaviour, attitudes and experiences were obtained by self-completion postal questionnaire before the introduction of the pink three-month repeat prescription forms.
- 1 All the patients who were still involved at the end of the six months of the study were invited to be interviewed in their home to find out what they thought of the repeat dispensing process and experience. A total of 206 responded.
- 1 The experiences of community pharmacists, GPs and other associated health staff were collated over the duration of the project through telephone calls, field visits and a focus group discussion.
- 1 Finally, semi-structured face-to-face interviews were held with each community pharmacist and GP after the completion of the project.
- 1 A specially designed variation of the standard FP10 computer prescription form was agreed with DoH and the PPA. Forms were returned from the PPA for project analysis.
- 1 A retrospective analysis of prescriptions generated for each study patient in the eight months preceding the study was taken from medical practice patient records. This was used to make a correction for items not regularly required by the study patients. Calculations on cost savings were made by analysis of dispensed prescriptions correlated with the pharmacy-patient monitoring forms.

Two local research ethics committees approved project design and instruments.

Trial of remuneration method Contractors were paid a capitation fee for each patient enrolled in each phase of the project. The one-off payment was the same for all patients, irrespective of the number of items they received and was calculated on the basis of the average number of repeats in the HA area allowing an amount that would give twice the fee income for this average. As usual, the PPA paid drug costs. Each pharmacist contractor was paid £30.86 per patient per three-month cycle, using project funding. The fee was discussed with the DoH, the local HA and reported to the local pharmaceutical committee.

The overall aim of this payment method was to remove any disincentive not to supply and to provide some additional payment to recompense for the extra pharmaceutical care carried out during the project. The cost of medicines supplied was reimbursed in the normal way from the PPA.

Study intervention Each patient was entered for two three-month periods. Three months was the maximum that the PPA would accept for supply on the basis of a single form (hence the form was a triplicate). The total study period was in accord with the DoH timescale and the project was always envisaged as a pilot. The study ran from 1 February 1998 to 31 July 1998 during which time patients were supplied repeat medicines by the pharmacy. At the start of each study period, a three-part prescription was issued by the practice for all medicines authorised for repeat prescribing by the supervising GP. Pharmacists were provided with patient-pharmacist monitoring forms to record their activity. They were also supplied with duplicate pads of referral forms to allow communication with the GP. GPs were also provided with forms to notify medication changes to the pharmacist.

RESULTS

One outcome measure was the proportion of patients receiving repeat prescriptions who might be interested in a pharmacy based repeat dispensing service. A total of 1,050 patients were identified as suitable for entry to the study of whom 72 per cent returned a completed baseline questionnaire. Of these, 82 per cent (618) were willing to enter the study. A sub-sample of 350 was selected on a random basis, taking account of the patient's pharmacy. Over the course of the study a total of 48 patients (14 per cent of study) were lost. The level of patient loss reflects the dynamic nature of repeat dispensing in that the patients needs changes with time and are not static. The loss varied considerably between the practices — the inner city practice lost 25 per cent of the patients entered whereas the suburban practice lost only 8 per cent.

A profile of repeat prescription patients The returned self-completion questionnaire provided a demographic profile of the original

TABLE 1: DEMOGRAPHIC PROFILE OF THE WHOLE REPEAT PRESCRIPTION SAMPLE AND OF THE SUB-SAMPLE ENTERED INTO THE PILOT STUDY

Criterion	Whole group (%) (n=618)	Sub-sample (%) (n=350)
<i>Age (years)</i>		
Up to 21	2	1.5
22-32	3	2
33-42	5	5
43-52	8	8
53-62	17	17
63-72	29	28
73-82	28	30
83+	10	9
<i>Sex</i>		
Male	42	38
Female	58	62
<i>Ethnicity</i>		
White	89	89
Black Caribbean	6	7
Asian	5	5

sample of all (self-confirmed) repeat prescription patients identified at each practice (1,050). Most patients were female (62 per cent), white (89 per cent) and aged over 53 years. Table 1 shows the demographic profile of the 618 people willing to enter the study and of the project sub-sample of 350. The responses provided background data on attitudes to repeat dispensing and to the methods used to order and collect repeat prescriptions. Most (87 per cent) were exempt from prescription charges and were taking up to four items per day on a regular basis. Four out of five had been on repeat medication for over two years. A GP reviewed most patients at both practices at least once every six months. The majority used the same pharmacy every time for their supply (95 per cent) but 85 per cent stated that the pharmacist did not regularly talk with them when they visited. A large number would have liked more direct contact but there was a clear sub-group who did not wish for this contact.

The prescription process involves three stages: ordering, collecting and dispensing. The most common method for ordering a prescription was via a personal visit to the surgery (78 per cent). Three out of five patients collected their prescriptions from the surgery; 19 per cent of the group used a pharmacy collection service. Again most patients (75 per cent) collected their medicine from a pharmacy. Most patients were satisfied with the service they received both from their surgery and from the supplying pharmacy and suggestions of ways in which it could be improved mainly related to speed of response and the duration of supply.

Summary of interview findings After the study, interviews were completed with 206 project patients and 16 carers. The interview covered the experience of the project repeat dispensing service and it also served as a validation of the patient-pharmacist interaction records taken in the pharmacies during the study period. The demographic details of those interviewed were similar to

that of the sample frame and so validated the sampling process.

Patient experience and attitudes to the repeat dispensing intervention Most patients liked the repeat dispensing system (86 per cent) and the reasons given were primarily convenience and saving time; it cuts down on the three phases described earlier. Those who did not like the system did so because of perceived inconvenience (increased visits to the pharmacy, not being able to go to a different pharmacy and not being able to visit the surgery).

In terms of "problems", most of the patients reported no problems with their medication (91 per cent), most managed to take it as directed (89 per cent) and most did not skip doses (81 per cent). A small minority (15 per cent) had ever experienced side effects and when these occurred, most (77 per cent) had mentioned it to their doctor. These findings from the patient interviews were confirmed from the matched pharmacy monitoring reports.

Nearly all patients had interacted with someone when collecting their medicine from the pharmacy. However, although the project design anticipated that interaction would be with the pharmacist, this occurred in only 36 per cent of cases. Nevertheless, 59 per cent considered that the reception in the pharmacy had improved during the course of the project. To determine whether there was evidence of a relationship with the pharmacist, patients were asked whether they knew the pharmacist's name. Most (95 per cent) did not. In terms of patient consultation about their medication (pharmaceutical care), three quarters of patients said that they had been asked whether they required all the medicines (76 per cent) but only small numbers recalled being asked about side effects of their medication (10 per cent), about their general health (15 per cent) and about whether they had taken all the medication supplied last time (9 per cent). Many had not noticed any change in the way they were dealt with by the pharmacist (70 per cent).

When asked whether they considered that they had been paid the same attention as in the past, two thirds of patients (66 per cent) agreed and just under a third (32 per cent) believed that they had been paid more attention. This finding varied considerably between pharmacies. Most patients (58 per cent) believed that they were more confident in asking the pharmacist about aspects of their medication and 48 per cent believed that their relationship with the pharmacist had improved during the course of the project. There was clear support for the repeat dispensing project and 80 per cent stated that they liked the new repeat dispensing service. Although only 6 per cent considered that it had made a positive impact on their health, many noted that they had poor health anyway. Positive impact was largely interpreted in terms of convenience and reduced stress. Encouragingly, 90 per cent of those interviewed stated that they would be willing to register with a single pharmacy to receive a repeat dispensing service.

GPs' attitudes to the study At the start of the study, both practices claimed that they had an effective repeat prescribing system that operated within the practice. Following the study, the inner city practice admitted that although it had thought such a scheme existed, it now recognised that it had not. The practice had initially excluded a larger number of potential participants, mainly on the basis of unstable therapy. It had a higher drop out of patients and experienced more difficulty in implementing the repeat dispensing process partly because of the nature of the patient population but also because of organisation within the practice. Many problems were linked to management, for example, the use of the practice computer system, or to internal communication within the practice. A confounding problem was a generally low expectation of, and poor communication with, the local pharmacists. The practice perception of community pharmacists was of a competitive commercial operation.

The experience in the outer city suburban practice was different. This practice excluded few patients. It had a well-developed repeat prescription policy with a clear implementation strategy. The practice showed considerable commitment to the study. It began the study with positive relationships with its local pharmacists and with high expectations of what could be achieved. Overall, it was disappointed that there was not more communication with the pharmacists but considered that it was a useful exercise and had future potential.

Pharmacists' attitudes to the study The distribution of study patients across the seven pharmacies varied from 11 to over 70. The implications of this workload variation are not discussed here. The project also raised questions about the continuity of pharmacist cover within individual pharmacies and its impact upon relationship building both with patients and with practices. However, in general the pharmacists considered that the study gave them an opportunity to increase their professional role. They considered patients stabilised on their medication to be the most suitable for inclusion in a formalised repeat dispensing contract. The problems experienced during the project were mainly a consequence of the bureaucratic nature of the prescription process that was further complicated by the use of special triplicate prescription forms and problems with remuneration through the PPA. They confirmed that communications with the medical practices had not improved noticeably during the short period of the study but they were supportive of the concept.

Experience of the remuneration model During the study, the pharmacy contractors were remunerated on a per capita basis according to the number of patients entered into the study and using their pharmacy. The normal item fee was therefore removed. After the study, the only pharmacist to express the view that the payment was insufficient was the single contractor involved. The employee pharmacists were

more concerned that payment had gone to the company rather than to themselves since they considered that all the additional work and responsibility fell upon the practice pharmacist. One employee pharmacist had received additional remuneration from her employer and was satisfied both with this and with the total remuneration provided in relation to her workload.

Summary of calculations on medication

One intention of the project was to demonstrate a measurable change in prescribed medicines from the patient medication records with a calculated reduction in drug expenditure. Over the six-month course of the project, 24 per cent of the items available to the patients were not dispensed. Assuming an average item cost across the whole of the dispensed and non-dispensed items, this amounted to a cost saving of £13,000. This calculation assumes that patients would normally order all their allowed repeat medication. In real life this does not happen and in order to obtain a more accurate picture of patient behaviour, we addressed the practice medication records for the eight-month period before the study. We found that approximately half of the total sample of patients had unchanged medication throughout this period and the study period. When the study data were corrected to allow for medication not supplied during the preceding period there was a reduced saving of 11 per cent of items prescribed. The total cost savings of the study were approximately equal to the additional costs of the project remuneration package. It is important to note that this calculation did not allow for potential changes in health care costs arising from long-term improvements in patient care due to improved patient compliance.

In terms of the time implications, most pharmacists estimated consultations with study patients took less than two minutes; few took over five minutes. These figures do not differ markedly from those in other studies on pharmacist patient consultation time. There was no significant difference in the time spent in the two phases of the study.

DISCUSSION

This study was one of a number of Department of Health funded pilots whose aim was to explore the implications of rolling out a national repeat dispensing system. Our own interest was to understand the social dynamics involved in the repeat prescription process. The findings from the study must, however, be taken in the context of the pilot nature of the study, the number of patients, the number of GPs and practices, the number of pharmacists and the total duration. This paper presents a summary overview of the final project report submitted to the Department of Health.

A distinctive feature of this study was the pharmacy basis of the project, unlike other studies that have been based on medical practices. Using pharmacy data, we successfully identified and recruited a sample of

repeat dispensing patients and followed most them through the study. It is clear that most patients liked the repeat dispensing process and would be happy to enter into a more permanent arrangement. A major perceived gain was increased convenience and the resulting time saving.

This study looked at the implications for the supplier of repeat medication. It remains an ambition of the pharmacy profession to introduce a national repeat dispensing system. The Government has now indicated its intention that, by 2004, repeat dispensing will mean that patients will be able to get repeat prescriptions from a pharmacy, without having to contact their surgery each time.¹⁵

Our findings suggest a series of critical success factors to achieve maximum benefit from any such future service:

- 1 An established and effectively managed repeat prescribing system that is used by all practitioners within the practice
- 1 A commitment from medical practitioners to the introduction of the scheme and a willingness to develop new working relationships with pharmacists
- 1 An established and effective patient monitoring system within the pharmacy, preferably with the capability of logging patient data in addition to providing a record of dispensed medicines
- 1 Pharmacists who are enthusiastic about developing increased patient contact and who are committed to developing new working relationships with patients
- 1 Sufficient space within the pharmacy to provide room for discussion with patients in relative privacy from the shop
- 1 Continuity of the dispensing pharmacist within the pharmacy
- 1 A remuneration model that recognises that the key responsibility for the successful development and implementation of the service lies with the pharmacist in charge of the pharmacy and not with the contractor
- 1 Multidisciplinary training for pharmacists and GPs before the implementation of such a scheme

Our findings suggest that a properly implemented repeat dispensing system has the capability to save money in the short term but that, if fully implemented, the medium-term effect may be to increase prescribing costs through improved compliance. The long-term financial implications of more effective treatment of chronic conditions was outside the scope of this study.

This pilot has demonstrated the potential of a repeat dispensing system. However, achievement of maximum benefit will require a fundamental change in working practices for the pharmacist and recognition of the key role of the pharmacist as opposed to the pharmacy — the person as opposed to place.

The principal of patient-based, per capita funding was well accepted and had the benefit of removing any incentive to supply

unwanted items. The principle of patient based funding is therefore worthy of further development but will require appropriate changes at the level of the PPA.

Although the method adopted for the pilot requires revision, the study has provided an insight into the social context of repeat prescribing. Taking a repeat prescription as a “menu to order” offers an alternative method of understanding the repeat patient. In this study, about half of the patients remained on stable medication

before and during the project. Observing how the intervention procedures were rolled out in two different settings (inner and outer city populations), contrasting professional and organisational features are the critical factors that determine the changes that need to be implemented in a long-term trial.

This paper was accepted for publication on 12 June 2002.

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