

Evaluation of a practice-based clinical pharmacist scheme

By H. GRAY, M SC, MR PHARMS, M. MCKINNON, PHD, B SC and J. TOWNSEND, PHD, M SC

- **AIM** – To evaluate qualitatively the impact of a practice-based clinical pharmacist scheme introduced in east and north Hertfordshire in 1998 and to assess financial aspects of the scheme.
- **DESIGN** – Postal questionnaires were sent to participating general practitioners (GPs), practice managers, local community pharmacists and practice-based clinical pharmacists. In-depth interviews were held with a purposive subset of GPs.
- **SETTING** – East and North Hertfordshire health authority (E&NHHA). The study was carried out between June, 1998 and May, 1999.
- **OUTCOME MEASURES** – Impact of practice-based clinical pharmacists in terms of satisfaction and quality. Savings on prescribing costs were also estimated.
- **RESULTS** – 139 of the 215 GPs responded. 84 per cent felt that meetings with pharmacists were useful; 78 per cent felt that their prescribing had changed as a result of the scheme; 80 per cent were satisfied with the prescribing changes; 75 per cent felt that the pharmacist had helped the practice to save money; 65 per cent felt that they had learned more about prescribing; 89 per cent wished the scheme to continue; and 60 per cent wanted the pharmacist to undertake additional projects, such as training staff in repeat prescribing and paracetamol review. A saving of £400,000 in prescribing expenditure was attributed to the scheme in the first year.
- **CONCLUSIONS** – The practice-based clinical pharmacist scheme has been welcomed by the majority of practices. The scheme has also delivered significant financial advantages to practices.

Ms Gray is head of prescribing and medicines management, East and North Hertfordshire health authority, Dr McKinnon is a general practitioner and principal lecturer, centre for research in primary and community care, University of Hertfordshire and Professor Townsend is director for research in primary and community care, University of Hertfordshire. All correspondence should be addressed to Ms Gray

Prescribing is a major component of general practice and accounts for one-sixth of the total NHS expenditure. Health authority pharmaceutical advisors have a well-established role supporting and advising general practitioners on rational and cost-effective prescribing.^{1,2,3,4,5,6} However, it is recognised that this role is limited. Clinical governance, with its emphasis on prescribing standards and quality, and the drive for partnerships between primary health care workers, has underpinned the decisions to expand the pharmacy input to practices.^{1,2,3}

This paper presents a qualitative evaluation of a practice-based pharmacy scheme established within the East and North Hertfordshire health authority (E&NHHA) in 1998, and considers this in the context of the emerging primary care trusts.

THE SCHEME

Pharmacy support was offered to practices in E&NHHA which had forecast a significant overspend in their prescribing budget and which were willing to implement plans to improve prescribing. With the support of the local medical committee, £150,000 was top-sliced from the 1998/99 primary care prescribing budget of £42.2 million to fund a practice-based pharmacy scheme. Forty-two of the 68 general practices in E&NHHA agreed to participate in the scheme.

Four full-time pharmacists who had a minimum of three years hospital pharmacy experience and in possession of a postgraduate clinical pharmacy qualification were appointed. The role of the practice-based clinical pharmacist was to encourage patient-specific pharmaceutical care and foster a dynamic role for the pharmacist that would develop in line with the primary care team's needs. Prescribing projects undertaken by the pharmacists included:

- Generic prescribing
- Review of proton pump inhibitors
- Strength optimisation (eg, one 20mg tablet of simvastatin instead of two 10mg tablets can lead to considerable cost savings)

- Review of repeat prescribing procedures

Each practice was seen by a clinical pharmacist at least one half-day each week over the year.

METHODS

The impact of the scheme was evaluated qualitatively by means of questionnaires and in-depth interviews, and quantitatively by an assessment of savings made on prescribing expenditure over the year compared with the costs of the scheme.

The methodology for the evaluation began in the autumn of 1998 when the questionnaires were piloted and reviewed. The main questionnaires were sent out in early 1999. The collation of the data and evaluation were then undertaken in the summer of 1999. The financial data were collected through monthly reports from the pharmacists on changes made in practices over the period of the scheme, and from the prescribing data obtained from the Prescription Pricing Authority for the 12-month period from June, 1998, to May, 1999.

Satisfaction and quality The Centre for Research in Primary and Community Care at the University of Hertfordshire evaluated the impact of the practice-based clinical pharmacists, in terms of satisfaction and quality.

Questionnaires were developed in partnership with the public health department of the health authority. These were sent to four groups: the 215 general practitioners (GPs) in the scheme, their practice managers, a community pharmacy identified as being local to each practice, and all the practice-based clinical pharmacists.

Face-to-face interviews were carried out with a purposive subset of GPs to provide in-depth qualitative information.

Savings on prescribing costs Potential savings for each prescribing project were estimated by the pharmacists. The "actual realised" savings projected were those arising from agreed changes implemented in full during the year.

Table 1: Context of meetings between GPs and pharmacists

Context	Number of practices
GP met with pharmacist individually and at practice meetings	22
GP always met pharmacist individually	3
GP met the pharmacist at practice meetings only	7
Only senior partner met with pharmacist	2
GP and pharmacist met at the primary care group (PCG)	1
No meetings with GP	1

Table 2: Frequency of meetings between GPs and pharmacists

Frequency	Number of GPs
Weekly	5
Fortnightly	11
Monthly	56
Every two to three months	20
Rarely	4
When necessary	10
Only once	5
Did not meet	12
Total number of GPs responding	123

As some of the projects, such as the review of repeat prescribing, did not generate identifiable individual savings, a comparison of annual increase in prescribing expenditure between practices with and without pharmacy support was undertaken.

The net financial impact of the scheme was assessed, taking into account the cost of financing the scheme (salaries, training, computing, travel, evaluation costs, etc).

RESULTS: QUALITATIVE

The questionnaires sent to each of the four groups described above revealed the following:

General practitioner questionnaire 139 GPs (64.7 per cent) in 36 practices (85.7 per cent) responded.

Context and frequency of meetings In the majority of practices, GPs met with the pharmacist both individually and at practice meetings (Table 1). Monthly meetings were the most popular, although the range was from meeting weekly to meeting less than once in three months (Table 2).

The majority of GPs (117 [84.2 per cent]) felt that the meetings were useful. Only one GP thought that the time spent with the pharmacist was "too much," 30 (21.6 per cent) thought that it was "too little," 83 (59.7 per cent) thought that it was "about right" and 25 (18 per cent) did not know.

GP satisfaction A total of 111 GPs (79.9 per cent) were satisfied with changes suggested by the pharmacist. Comments from the GPs were generally positive. Many felt that the

scheme was worthwhile, that the pharmacist was a useful member of the team and that they would have liked to have the pharmacist for longer. Only two GPs felt that the scheme was a waste of practice time.

The majority of GPs (123 [88.5 per cent]) were keen for the scheme to continue, but eight (5.8 per cent) said they would not want to be part of a similar scheme, and eight (5.8 per cent) were neutral. In 25 practices (69.4 per cent), all the partners felt that the scheme should continue.

Patient satisfaction as reported by GPs 73 GPs (52.5 per cent) reported that patients had questioned changes to medication, and 43 (30.9 per cent) reported complaints from patients about the change to generic medicines. Some patients were confused by the changes and sought clarification. Complaints included onset of side effects, lack of efficacy and objections to changes in colour and shape of tablets and size of bottles.

Most GPs said that complaints were occasional and from only a few patients. Two GPs said they had complaints from a significant number of patients.

However, 97 GPs (69.8 per cent) felt that most patients were satisfied with the changes. Only six (4.3 per cent) felt that they were not, while 36 (25.9 per cent) were unsure or had made no changes.

Influence on prescribing practice Over three-quarters of the GPs (108 [77.7 per cent]) felt that their prescribing had changed as a result of the pharmacist input. They reported:

- More cost-effective prescribing, including switching to generics
- Improvement in repeat prescribing schedules
- Rationalisation of therapy, optimisation of dose and avoidance of waste

Nearly two thirds of the GPs (87 [62.6 per cent]) felt that the pharmacist had directly influenced their

repeat prescribing. Three-quarters of the GPs (104 [74.8 per cent]) felt that the pharmacist had helped the practice save money, seven (5 per cent) felt that the practice had not made any savings and 28 (20.1 per cent) did not know. In 18 practices (50 per cent), all the partners in the practice felt that pharmaceutical costs had been reduced, but the majority felt that the savings were small and some wondered whether they were sufficient to cover the pharmacist's salary. Also, 90 (64.7 per cent) felt that they had learned more about prescribing.

Most of the GPs (84 [60.4 per cent]) said that they would like the pharmacist to undertake additional projects. Suggestions for additional projects are listed in Panel 1.

Practice manager questionnaires Questionnaires were sent to 39 practice managers, of whom 33 (84.6 per cent) returned the questionnaires. Three of these did not complete the questionnaire, as they had not been visited by a pharmacist or had only been visited once. Of the 30 that completed the questionnaire, 24 (80 per cent) felt there were advantages to the scheme, including the following:

- Savings were made on prescribing expenditure
- Pharmacist was available for prescribing queries
- The pharmacist translated policy into practice
- The pharmacist was able to run routine audits
- There was someone else to do the work

Only two practice managers felt that there were any disadvantages, one saying it was inconvenient having the pharmacist there and the other that the computer system was slowed down by the pharmacist running searches.

Panel 1: Prescribing projects suggested by general practitioners

- Review of repeat prescriptions for nursing homes
- Review of paracetamol prescribing
- Help and advice with educating patients on antibiotic usage
- Advice on cholesterol lowering and secondary prevention of coronary heart disease
- Training of administrative staff in repeat prescribing schedules
- Reducing polypharmacy
- Liaising with authoritative bodies about drug monitoring guidelines
- Developing a practice formulary
- Extending review of repeat and acute prescribing
- Advice on the introduction of chlorofluorocarbon (CFC)-free inhalers
- Cost-effectiveness of targeted drugs such as statins and angiotensin converting enzyme inhibitors
- Review of cost-effectiveness of ulcer healing drugs

Table 3: Analysis of pharmacists' working time

Location	Average time (per cent)	Range (per cent)
Practice	66	50 to 80
Health authority office	29	10 to 50
Travelling	5	0 to 10

Community pharmacist questionnaires

Questionnaires were sent to 39 community pharmacies known to have had contact with the practice-based pharmacist and identified as the community pharmacy nearest to each practice. For dispensing practices, no community pharmacies were identified.

Twenty three community pharmacists (59 per cent) returned the questionnaire. Of these, 18 (78.3 per cent) were aware of the scheme. Six (26.1 per cent) reported having met with the practice-based pharmacist. Two (8.7 per cent) said that contact with the GPs had improved as a result of the scheme.

Nearly half the community pharmacists that responded (11 [47.8 per cent]) reported having been questioned by patients about the changes in their prescriptions. Ten pharmacists dispensed more generics and of these, six (60 per cent) were questioned by patients about the changes.

Clinical pharmacist questionnaires

Over the year there were only four practice-based clinical pharmacists working on the scheme at any one time. However, two left before the end of the year and a further two recruited. All six were invited to complete the questionnaire but only the four who were still working on the scheme did so.

Three of the four pharmacists ranked "improving the quality of prescribing" as the most important aspect of their role, with "saving money" as the second.

None of the pharmacists ranked "influencing patients" as a major aspect, although one ranked "influencing doctors" in second place. Two felt that their clinical skills were under-utilised, three said the post gave them job satisfaction and three saw the post as a good use of their time.

The time spent in the practice, office or travelling is presented in Table 3. The pharmacists were asked how the practice-based clinical pharmacist post might develop in the future.

Responses included:

- More emphasis on clinical skills (2)
- More contact with the patients (2)
- Fewer practices to visit with more time spent at each practice (1)
- More accountability to the PCG (1)

The pharmacists also provided some insight into their impact on patient care (Panel 2). In addition, the pharmacists provided more general comments about the scheme (Panel 3).

In-depth interviews with GPs A purposive random sample of 10 GPs were approached for an interview. Of those approached, three declined, one did not wish the interview to be recorded while the remainder agreed to a recorded interview of approximately 30 minutes. The interviews were semi-structured, and the views of GPs were explored in as much depth as possible. The responses were frank and covered a wide range of issues.

The main issues surrounding the implementation of the scheme were grouped into the categories reported below.

Overall attitude to the scheme The majority of the doctors interviewed welcomed the scheme and acknowledged that it had stimulated them to be more reflective about their practice. However, the scheme was interpreted as a criticism of their prescribing and many GPs said that there was a need on the part of the pharmacist to have good interpersonal skills.

The role of the clinical pharmacists The views and attitudes used to describe the relationship between the pharmacist and GP were positive and constructive. The pharmacists were seen as helpful and providing expertise. The pharmacists appeared to be invaluable in organising audits. The GPs were clear about wanting pharmacists to concentrate on quality, not cost control, and to be independent of the prescribing departments, whether PCG or health authority based.

Generic prescribing It was felt by many of the GPs that they had already implemented major changes to their generic prescribing, and that any further changes suggested by the pharmacist were not appropriate.

Changes in practice Many GPs welcomed the strength optimisation project. However, in other areas, comments indicated that they felt that few or no further changes could be made to their practice. Time constraints were usually highlighted as the essential barrier to change.

There was a perception among GPs that prescribing protocols are more likely to be implemented by nurses than by GPs. More cost-conscious GPs were willing to chase big savings by, for example, switching to generic salbutamol but not those yielding less savings, such as generic switches to beclomethasone. Little difference, however, had been made in the prescribing of drugs such as antibiotics, except in targeted practices. For the majority, most changes were made to repeat prescribing schedules. This was seen to be the most valuable project undertaken.

Discharge from hospitals Prescribing initiated in secondary care was an issue for several GPs. It was felt that hospital consultants often initiated expensive drug regimens, that their prescribing was done in isolation and demonstrated a lack of understanding of prescribing, its legal basis and cost implications in the community. The pharmacists were felt to have impacted more on hospital-initiated medication.

RESULTS: COST SAVINGS

The potential savings for each prescribing project, estimated by the pharmacists, amounted to £745,652, or 2.5 per cent of the total prescribing expenditure. The "actual realised" savings projected were those relating to agreed changes implemented in full during the year. These savings were esti-

Panel 2: Pharmacists' view of their impact on patient care

- Clinical interventions improved patient care and better and safer prescribing achieved
- Generic switches may have caused patient concern
- Improved quality of patient care due to team work
- Cost savings
- Improved services to patients
- Streamlined repeat prescribing

Panel 3: Pharmacists' general comments about the scheme

- Generally was well accepted by the GPs
- Audit projects were welcomed
- Repeat prescribing was re-organised
- In one practice GPs were resistant to change
- In general, the GPs were enthusiastic and the pharmacist felt like part of the team
- Dispensing practices preferred to run things themselves
- It took time to be accepted
- Pharmacists felt removed from the patients, and the job was too cost or drug focused
- More time was needed in each practice
- Majority of practices needed pharmacy support

mated at £419,000 or 1.4 per cent of the practices' annual prescribing bill. The "realised" savings, excluding the cost of the pharmacists, were £269,000, or 0.9 per cent of the prescribing budget. The cost of the clinical pharmacy scheme (salary, training, computing and travel) was £150,000. The returns to the scheme were therefore 2.8 times the cost. One practice funded additional pharmacy support for two days per week. By March, 1999, this practice had converted an £80,000 prescribing overspend for 1997/98, to a £30,000 underspend in 1998/99. This practice was able to contain its annual prescribing expenditure increase to just 3 per cent compared with the health authority average of 7.5 per cent. The estimates for "realised" savings in the prescribing expenditure correlated well with the difference in annual increase in prescribing expenditure between practices with a pharmacist compared with those without. On average, those without a pharmacist had an increased expenditure of 8.4 per cent over the year, whereas those with a pharmacist had an increase of 7.2 per cent.

DISCUSSION

Evaluation of similar projects have suggested improved health outcomes and cost savings.^{5,6} Savings of as much as 5 per cent of expenditure have been reported.² This scheme also demonstrated significant cost savings and achieved its financial target. The most significant cost savings were achieved in the practice with 0.5 whole time equivalent (WTE) pharmacist support. In individual schemes, the potential savings are likely to depend on the existing pattern and level of prescribing, contact time between practices and pharmacists and the degree of support and collaboration between the pharmacist and practice staff. Generally, the greater the level of pharmacist input in the practice, the more that can be achieved.

The reported "realised" savings assume that all changes are sustained for at least one year. This is possible, but there are some indications from the GP interviews that there may be barriers to maintaining the changes, and there is likely to be some relapse. Inclusion of pharmacists as regular members of the practice staff may help to reduce this effect, as they would continue to reinforce good prescribing practice.

Changes in prescribing practice The large majority of GPs agreed that the scheme resulted in them changing their prescribing practices. Several said that it had made them more aware of costs. Paradoxically, though, in the face-to-face interviews most of the GPs thought the scheme had had little impact on their prescribing, and that with generic changes, for instance, little more could be achieved. However, the increase in generic prescribing rate from 65

to 72 per cent over the year would suggest otherwise. Audit was valued, not least because it showed that prescribing practice was not as good as perceived. Some practices were unable to commit themselves to regular audit without the assistance of the pharmacist. Audit is a key tool in clinical governance and it is likely that pharmacists will continue to facilitate practice-based audit, and extend this to include assessment of implementation of National Service Frameworks and National Institute for Clinical Excellence guidance.

Hospital-initiated prescribing The majority of prescribing in primary care is led or influenced by secondary care. Although the introduction of integrated, cash-limited budgets has meant that any overspend in primary care prescribing can have a direct impact on secondary care services, there is limited appreciation of this by secondary care prescribers. The results from this scheme suggest that the practice-based pharmacists have helped to raise this awareness and, through communication with the secondary care pharmacy and medical staff, have empowered GPs to review and challenge hospital-initiated prescribing.

Future of practice-based pharmacists This project has demonstrated that, to be effective, practice based-pharmacists require not only a sound clinical knowledge base, but also excellent communication and negotiation skills and the ability to facilitate change. While many of the initial prescribing projects focused on "house-keeping" tasks, such as repeat prescribing, strength optimisation and generic switches, the pharmacists are keen to have more patient involvement and to explore opportunities for management of chronic diseases or minor ailments. The emerging primary care trusts (PCTs) should be aware of these aspirations in order to plan the future roles, training and job opportunities for PCT pharmacists.

Community pharmacy input The relatively low awareness of the scheme among community pharmacists was disappointing and suggests that further work is needed to integrate community pharmacists into the prescribing agenda and enlist their support in maintaining prescribing and medicines management projects in PCGs. The Government's pharmacy plan may help to facilitate this.

CONCLUSION

The practice-based clinical pharmacy scheme has been welcomed by the majority of practices. It has delivered significant quality improvements and has met its financial targets.

Improved liaison between secondary and primary care practitioners, development of

prescribing audit in general practice and implementation of individual prescribing projects in practices were identified as the key quality measures by GPs.

The scheme has realised significant financial advantages to practices and PCGs, with an estimated 2.8 times return on the investment (over £250,000 savings available for re-investment). A reduction of about 5 per cent in anticipated prescribing expenditure was attained in the practice with 0.5 WTE pharmacist support. This is in line with reports from other schemes nationally.

The high profile of "hands-on" pharmacists in the practices is key to achieving and sustaining these results.

In E&NHHA, the practice-based pharmacist scheme has been enthusiastically embraced. It is now a well established component of the emerging PCTs. The challenges for the new primary care organisations are the development and maintenance of the service, recruitment, training and retention of the pharmacy team, and collaboration with hospital and community pharmacists to ensure that the consistent, robust and transparent prescribing agenda is sustained across the health economy.

ACKNOWLEDGMENTS: The authors would like to thank Sunda Chita for her assistance in developing and piloting the questionnaires, and the practice-based pharmacists, GPs, practice managers and community pharmacists who participated in the study.

REFERENCES

1. Giles-Burness D. Cost-effective prescribing. *Prescriber* 1999;10(September 19):117.
2. Nixon PS. A prescribing advice service for general practitioners. *Pharm Manage* 1998;15:1-3.
3. Mason P. A pharmacist in the surgery — what better prescription for the new age? *Pharm J* 1996;256:192-5.
4. Jones T, Dandridge J. Professional liaison visits to improve prescribing rationality in primary care — techniques, problems and outcomes. In: McGavock H, editor. *Handbook of drug use research methodology*. Newcastle upon Tyne: Prescription Pricing Authority, 2000:216-37.
5. Bond C. Clinical pharmacy in the community. In: McGavock H, editor. *Handbook of drug use research methodology*. Newcastle upon Tyne: Prescription Pricing Authority, 2000:238-54.
6. Hughes CM, Turner K, Kitzpatrick C, Linton A, Laird T. The use of a prescribing audit tool to assess the impact of a practice pharmacist in general practice. *Pharm J* 1999;262:27-30.