

## Patient Evaluation of a Community Pharmacy Medications Management Service

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Many patients with chronic disease receive long-term drug therapy. Repeat prescriptions for these regimens in the UK can be considered equivalent to chronic use medications in the US. Their management has been the subject of critical review.<sup>1</sup> The benefit of involving pharmacists in decisions about repeat medication has been demonstrated. For example, a randomized, controlled trial showed that, compared with usual care, pharmacists identified more drug interactions and adverse events and reduced drug costs.<sup>2</sup> Enhancing the role of pharmacists has subsequently been incorporated into pharmacy strategies in all UK home countries.<sup>3-5</sup> The new community pharmacy contracts, as well as other recent regulatory changes, have increased pharmacists' contribution to the management of medications for chronic conditions in both community pharmacy and general practice settings.

The UK's National Health Service has adopted a rigorous, evidence-based approach to the introduction of new technologies, including new services. However, there have been few substantive, randomized, controlled trials published

**BACKGROUND:** A patient-centered approach is increasingly recognized as an important component in the evaluation of healthcare services.

**OBJECTIVE:** To assess patient satisfaction with, attitudes toward, and expectations of or experience with community pharmacy in general, and to evaluate the effect of the community pharmacy-led medications management service on these factors.

**METHODS:** Postal questionnaire surveys were completed at baseline and after 12 months (follow-up) as part of a randomized controlled trial of the service. The setting was 9 primary care organizations in England. Patients with coronary heart disease were recruited from general practice registers and randomly allocated to the intervention (pharmacy-led medications management service) or control group.

**RESULTS:** Survey response rates at baseline and follow-up were 88.4% (1232/1394) and 80.1% (1085/1355), respectively. The respondents indicated that they wanted pharmacists to provide dispensing, medications review, advice on medications and health, private consultation areas, and short visit times. At follow-up, intervention patients were more likely than control patients ( $p < 0.01$ ) to rate the service provided by their pharmacist with a higher level of satisfaction, and most intervention patients stated a preference for seeing their physician to discuss their medications, although this was less marked than in control patients (76% vs 85%;  $p < 0.01$ ). Intervention patients were also more willing than control patients to ask the pharmacist questions that they would be unable to ask a physician (20% vs 11%, respectively;  $p < 0.01$ ), to ask the pharmacist questions about their medications (32% vs 18%, respectively;  $p < 0.01$ ), and to recommend this practice to others (51% vs 40%, respectively;  $p < 0.01$ ).

**CONCLUSIONS:** Pharmacist intervention was associated with significant and positive changes in patient satisfaction. While patients probably continue to prefer a physician-led service, they value aspects of a pharmacy service. Patients generally preferred discussing medications with the family physician, but experiencing the community pharmacy-led service resulted in an attitudinal shift toward the pharmacist. These findings suggest a benefit in developing the community pharmacist's role as a reviewer of, and adviser on, patients' medications.

**KEY WORDS:** community pharmacy services.

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on the effects of medications management services led by community pharmacists. Our study, the Community Pharmacy Medicines Management Project, was a large, national, multicenter, randomized, controlled trial to evaluate the introduction of such a service for patients with coronary heart disease (CHD).

The intervention consisted of an initial consultation with a community pharmacist to review appropriateness of therapy, compliance and concordance, lifestyle, and social and support issues. Control patients received standard pharmaceutical care from their community pharmacists, which included opportunistic suggestions about changes in medication or advice on lifestyle and over-the-counter (OTC) medicines. Details on the outcomes and main results of the trial are reported elsewhere.<sup>6</sup>

The objectives of the work reported here were to assess patient satisfaction with, attitudes toward, and expectations of or experience with community pharmacy in general, and to evaluate the effect of the community pharmacy-led medications management service on these.

## Methods

In the UK, a primary care organization is the administrative unit responsible for delivery of all primary care services (eg, medical, pharmacy, dental, optical) in a defined geographical area. Nine primary care organizations in England participated in the Community Pharmacy Medicines Management Project. Patients in the study were aged 18 years or older and had a recorded history of CHD (defined as previous myocardial infarction, angina, coronary artery bypass graft, angioplasty). Patients were identified from family physician records and recruited via the family physician. Consenting patients returned their contact details to the researchers, who allocated unblinded subjects to either the intervention or control group and mailed them a questionnaire (preintervention). Reminders were sent after 2 and 4 weeks. All of the mailings included a paid reply envelope.

The questionnaire included questions on patient demographics and lifestyle; satisfaction, relationships with, and expectations of the pharmacist; and most recent experience with a local pharmacy visit. The questionnaire's content was determined by the project aims, other pharmacy service questionnaires, and the literature.<sup>6-8</sup> A follow-up questionnaire was mailed 12 months after the intervention had started (or a similar time period for people in the control group). It was based on the baseline version, with additional questions for intervention patients about their experience with the new service. A total of 1441 (control 500, intervention 941) patients were recruited into the trial.

The questionnaire included both fixed-choice questions and Likert scales to assess agreement with individual statements. Patient satisfaction was assessed by 15 statements,

to which participants responded on a 5-point linked scale (strongly agree, agree, neither agree or disagree, disagree, strongly disagree). The responses were cumulative, leading to an overall score between 15 and 75. Higher scores represented greater satisfaction. Full details on the development and validation of the satisfaction scale are presented elsewhere.<sup>7</sup>

The surveys were conducted between April 2002 and June 2004. Data were optically scanned into SPSS, version 11.5 (SPSS, Chicago, IL). A random sample of 10% of questionnaires was checked manually to verify data entry.

Data analysis primarily used descriptive statistics. Medians (interquartile range [IQR]) were calculated for skewed continuous data, and frequencies and valid percentages (ie, the percentage of those who answered each question) were calculated for categorical data. Responses to the Likert scales were dichotomized into (1) agree and strongly agree and (2) a combined group of neither agree nor disagree, disagree, and strongly disagree. Patients' preferences concerning elements of service that they would like to receive when visiting a pharmacy for prescription medications were analyzed using factor analysis with varimax rotation to assess any underlying main domains. Factor analysis attempts to identify a small number of underlying variables that explain the pattern of correlations (or variance) within a set of observed variables. Varimax rotation is a commonly used orthogonal rotation method that minimizes the number of variables that have high factor loadings on each factor and serves to simplify the interpretation of the factors.<sup>8,9</sup>

The internal consistency of the scales developed from these factors and the satisfaction score were assessed using Cronbach's  $\alpha$  statistic. Differences between intervention and control group at follow-up adjusted for baseline data were examined using multiple regression analysis.<sup>10</sup> Groups were considered to be independent for statistical purposes, as not all individuals responded to both variables. The effect of the intervention was presented as a mean difference for the overall satisfaction score, adjusted for differences in outcomes at baseline, sex, age, and previous CHD event, as well as for cluster effects within pharmacies, general practices, and areas. The Heckman selection model was applied to test and adjust for selection bias.<sup>11</sup> At follow-up, the  $\chi^2$  test was used to compare patient agreement with a series of statements beginning, "Compared with a year ago," across intervention and control patients. Since multiple tests were applied, a more stringent p value of less than 0.01 was used to denote statistical significance.

Ethical approval for the study was given by the Multi-centre Research Ethics Committee for Scotland, with confirmation by the local research ethics committee in each of the 9 primary care organization areas.

## Results

### SURVEY RESPONSE RATE AND PATIENTS' CHARACTERISTICS

Response rates were comparable across groups at both baseline and follow-up. At baseline, 1232 evaluable questionnaires of 1441 were returned. Forty-seven patients withdrew, giving an evaluable response rate of 88.4% (1232/1394).

During the follow-up period, 86 patients had died or withdrawn from the study and were not sent questionnaires. Of the remaining 1355 study participants, 1085 (80.1%) returned their follow-up questionnaire.

In the following reporting of the results, the denominators are variable since they report the numbers accurately responding to each question (ie, missing values are excluded).

At baseline, most respondents were older than 65 years (76%, 922/1214), male (68%, 828/1214), retired (71%, 856/1214), and white (99%, 1200/1214). The characteristics of respondents to the follow-up questionnaire were similar: 81% were older than 65 years (783/961), 69% male (661/956), 72% retired (686/956), and 99.7% white (953/956).

### EXPERIENCES WITH AND ATTITUDES TOWARD COMMUNITY PHARMACY

#### Patients' Experience of Being Asked about Key Treatment Issues at Their Most Recent Pharmacy Visit

At follow-up, more respondents from the intervention group compared with the control group reported being asked about their lifestyle (5.2% [37] vs 2.2% [8], respectively;  $p = 0.02$ ), problems with medications (11.4% [81] vs 6.2% [23], respectively;  $p = 0.005$ ), blood pressure (6.2% [44] vs 2.7% [10], respectively;  $p = 0.014$ ), or cholesterol (5.5% [39] vs 2.1% [8];  $p = 0.014$ ), although the absolute percentages were small.

#### Contact with the Pharmacist at the Most Recent Pharmacy Visit

Patients were asked about their contact with the pharmacist at their most recent pharmacy visit. There were no statistically significant differences between groups (ie, spoke to pharmacist 30% [213] vs 27.9% [103], respectively).

### PATIENTS' EXPECTATIONS

No item presented a statistically significant difference in preferences at the 1% level (Table 1).

After factor analysis, 3 main factors were identified from the list of 19 items: pharmacist and pharmacy-related

role (16 items), a wider advisory health-related role for the pharmacist (2 items), and a traditional technical dispensing role for the pharmacist (1 item) (Table 1). The first factor included items related to type of service provided by the pharmacist, pharmacy premises, and patient-pharmacist relationship. For each factor, there was high interitem correlation (Cronbach's  $\alpha$  between 0.79 and 0.95), confirming good internal consistency of the scales across trial groups and time (Table 2).

Overall, the statements that most patients either agreed with or strongly agreed with were "The pharmacist should be knowledgeable about the treatment of heart problems" and "The pharmacist should answer my questions satisfactorily." There was least agreement from the patients with the single statement in factor 3, "A pharmacist should only dispense prescriptions."

### PATIENT SATISFACTION

Different aspects of patients' satisfaction with their most recent pharmacy visit were assessed and a total score was calculated (Cronbach's  $\alpha$  intervention 0.91, control 0.90 at baseline). No substantial differences occurred between intervention and control patients at baseline (median 42.0; IQR 36–48 in both groups). At follow-up, the overall adjusted mean satisfaction score was significantly higher for intervention patients than for control patients (46.0, IQR 40–55 and 43.0, IQR 38–49, respectively;  $p < 0.01$ ). Four individual statements showed significant difference in satisfaction at the 1% level (Table 3).

### EXPERIENCE OF THE MEDICATIONS MANAGEMENT SERVICE

#### Delivery of Service

The medications management consultation lasted for a median time of 30 minutes (IQR 25–45). Most (98%) patients rated this as "about right." After their initial consultation, 28 patients (4% of those seen) reported having at least one more planned consultation with their pharmacist and 61 (8%) having at least one unplanned consultation during the 12 month follow-up period. Thus, almost 90% of patients reported only a single consultation with the pharmacist. Just over a quarter of patients (26%;  $n = 193$ ) said that they would have liked more planned consultations than they received and 69 (9%) would have liked further unplanned consultations.

Patients who experienced the service reported receiving various recommendations from the pharmacist related to lifestyle (15%), diet (15%), prescribed medications (17%), and OTC medications (4%). Most (94%) agreed/strongly agreed that the area in which their consultation was conducted permitted private discussion of their drug therapy.

Intervention patients were more likely to agree with the statement than control patients that, compared with one year ago, they knew more about their medications (73% vs

65%;  $p = 0.01$ ). There was very little difference between the groups in self-reported understanding of the importance of taking medications as prescribed (Table 4).

**Table 1. Patient Expectations at Baseline and Follow-Up<sup>a</sup>**

| Factor  | Intervention, % (n) |            | Control, % (n) |            | p Value |
|---|---------------------|------------|----------------|------------|---------|
|   | Baseline            | Follow-up  | Baseline       | Follow-up  |         |
| <b>1. Pharmacist and pharmacy-related</b>   |                     |            |                |            |         |
| My pharmacist should discuss my prescribed medications with my doctor.                              | 68.2 (545)          | 61.3 (434) | 64.7 (261)     | 53.3 (198) | 0.371   |
| A pharmacist could help me decide if my prescribed medications are doing what they are supposed to. | 76.5 (610)          | 65.3 (462) | 73.7 (300)     | 60.9 (227) | 0.458   |
| The pharmacist should be knowledgeable about the treatment of heart problems.                       | 91.7 (797)          | 87.7 (588) | 88.3 (357)     | 85.3 (309) | 0.424   |
| The pharmacist should explain how to take my prescription medications.                              | 60.2 (471)          | 58.9 (397) | 58.6 (234)     | 54.6 (200) | 0.544   |
| The pharmacist should tell me what to do if I miss a dose.  | 68.2 (532)          | 69.1 (464) | 68.8 (275)     | 64.1 (234) | 0.476   |
| The pharmacist should tell me about possible side effects.  | 84.3 (664)          | 84.4 (569) | 82.1 (334)     | 80.8 (294) | 0.086   |
| The pharmacist should ask me questions about OTC medications when collecting a prescription.        | 50.0 (391)          | 48.3 (323) | 51.6 (206)     | 44.8 (163) | 0.947   |
| The pharmacist should ask me questions about prescribed medications when buying OTC medications.    | 72.7 (571)          | 68.6 (462) | 69.4 (279)     | 69.9 (253) | 0.518   |
| The pharmacist should make me sure I understand how to take my prescription medications.            | 83.3 (658)          | 85 (576)   | 83.9 (340)     | 84.6 (308) | 0.939   |
| The pharmacist should talk privately with me.   | 53.9 (422)          | 45.7 (308) | 51.7 (209)     | 45.9 (166) | 0.171   |
| The pharmacist should make sure I don't wait too long for my prescription to be completed.          | 80.4 (722)          | 81.8 (551) | 79.3 (321)     | 79.7 (288) | 0.791   |
| The pharmacist should take a genuine interest in me as a person.                                    | 62.7 (494)          | 60.1 (408) | 60.4 (244)     | 56.4 (206) | 0.039   |
| The pharmacist should take my concerns seriously.   | 86.3 (678)          | 83.1 (560) | 84.1 (339)     | 77.2 (280) | 0.685   |
| The pharmacist should give me the opportunity to ask questions.                                     | 86.9 (682)          | 83.3 (563) | 85.2 (345)     | 82.3 (302) | 0.751   |
| The pharmacist should answer my questions satisfactorily.   | 92.4 (728)          | 90.8 (610) | 90.3 (365)     | 87.8 (316) | 0.813   |
| The pharmacist should explain about my heart problems in a way that I understand.                   | 80.2 (630)          | 76.3 (515) | 73.2 (295)     | 67.5 (247) | 0.563   |
| <b>2. A wider advisory health-related role for the pharmacist</b>                                   |                     |            |                |            |         |
| The pharmacist should give me information about my health as well as about my medications.          | 61.2 (480)          | 49.7 (334) | 62.2 (250)     | 46.1 (168) | 0.043   |
| The pharmacist should sort out any medical problems that I may be expecting.                        | 57.8 (454)          | 46.3 (312) | 55.6 (224)     | 43.5 (159) | 0.407   |
| Total N <sup>b</sup>  | 797                 | 610        | 365            | 316        |         |

OTC = over-the-counter.  
<sup>a</sup>Percentages represent respondents who agree/strongly agree with each statement.  
<sup>b</sup>This is the maximum denominator for a particular question. However, due to missing values, this value varies by question.

**Table 2. Factor Analysis**

| Factor                  | Baseline     |         |        | Follow-up    |         |        |
|-------------------------|--------------|---------|--------|--------------|---------|--------|
|                         | Intervention | Control | Pooled | Intervention | Control | Pooled |
| 1                       |              |         |        |              |         |        |
| variation explained (%) | 47.90        | 54.60   | 50.28  | 51.73        | 46.67   | 48.20  |
| mean score              | 2.04         | 2.04    | 2.04   | 2.05         | 2.17    | 2.09   |
| Cronbach's $\alpha$     | 0.94         | 0.95    | 0.94   | 0.95         | 0.93    | 0.94   |
| 2                       |              |         |        |              |         |        |
| variation explained (%) | 6.38         | 6.41    | 6.20   | 6.45         | 7.14    | 6.70   |
| mean score              | 2.19         | 2.19    | 2.19   | 2.32         | 2.48    | 2.38   |
| Cronbach's $\alpha$     | 0.79         | 0.85    | 0.81   | 0.80         | 0.81    | 0.80   |
| 3                       |              |         |        |              |         |        |
| variation explained (%) | 5.71         | 5.40    | 5.65   | 5.43         | 6.61    | 6.02   |
| mean score              | 3.25         | 3.15    | 3.22   | 3.17         | 3.09    | 3.14   |
| Cronbach's $\alpha$     |              |         |        |              |         |        |
| Total scale             |              |         |        |              |         |        |
| mean score              | 2.14         | 2.13    | 2.13   | 2.17         | 2.28    | 2.20   |
| Cronbach's $\alpha$     | 0.93         | 0.95    | 0.94   | 0.94         | 0.93    | 0.94   |

### ATTITUDES TOWARD FAMILY PHYSICIANS AND COMMUNITY PHARMACISTS

A smaller percentage of patients in the intervention group compared with patients in the control group agreed/strongly agreed that, compared with one year ago, they would prefer to see the physician about their medications (76% compared with 85%;  $p < 0.01$ ). After experiencing the service, intervention patients felt more able to ask the pharmacist questions that they would be unable to ask a physician (20% at follow-up and 11% at baseline;  $p < 0.01$ ) (Table 4).

Compared with a year before, intervention patients were more likely to ask pharmacists questions that they would not ask their physician, recommend to other people that

they should discuss their medications with a pharmacist, find it easier to talk with the pharmacist about their drugs and health, and ask the pharmacist questions about their medicines and health (Table 4).

### Discussion

Patient satisfaction with, attitudes toward, and expectations of or experience with community pharmacy in general were assessed. Our results suggest that the intervention was associated with significant, positive changes in attitudes toward the community pharmacist. Patients who received the new medication management service were more satisfied with their most recent pharmacy visit compared with those in the control group and had more posi-

**Table 3.** Patient Satisfaction at Baseline and Follow-Up<sup>a</sup>

| Statement  | Intervention, % (n) |              | Control, % (n) |              | Effect <sup>b</sup> | 95% CI     | p Value <sup>c</sup> |
|--|---------------------|--------------|----------------|--------------|---------------------|------------|----------------------|
|  | Baseline            | Follow-up    | Baseline       | Follow-up    |                     |            |                      |
| The CP seemed to take a genuine interest in me as a person.                            | 36.9 (281)          | 47.3 (168)   | 36.8 (148)     | 37.0 (122)   | 1.6                 | 1.0 to 2.6 | 0.05                 |
| I felt that others could listen.   | 16.9 (126)          | 18.7 (65)    | 18.8 (73)      | 14.6 (47)    | 1.2                 | 0.7 to 2.0 | 0.6                  |
| The CP told me how to take my prescriptions.   | 32.1 (240)          | 36.0 (121)   | 30.2 (117)     | 29.0 (94)    | 1.1                 | 0.7 to 1.8 | 0.6                  |
| The CP told me what to do if I missed a dose.  | 14.8 (109)          | 22.9 (75)    | 12.4 (48)      | 14.6 (47)    | 1.7                 | 0.9 to 3.2 | 0.08                 |
| The CP told me about possible side effects of my prescriptions.                        | 14.5 (107)          | 23.2 (76)    | 15.0 (58)      | 15.7 (51)    | 2.6                 | 1.4 to 4.7 | <0.01                |
| The CP gave me information about my health as well as my prescription medications.     | 6.0 (44)            | 17.2 (57)    | 6.8 (26)       | 8.0 (26)     | 2.7                 | 1.3 to 5.7 | 0.01                 |
| The CP asked about any over-the-counter medications I may be taking.                   | 10.6 (78)           | 17.6 (58)    | 7.7 (29)       | 12.5 (39)    | 1.2                 | 0.6 to 2.3 | 0.5                  |
| I was able to ask the CP all the questions I wanted to.                                | 55.8 (415)          | 63.4 (211)   | 53.7 (210)     | 55.8 (179)   | 1.4                 | 0.9 to 2.1 | 0.1                  |
| Any questions I had were answered to my satisfaction.                                  | 55.0 (395)          | 58.9 (189)   | 52.2 (194)     | 50.8 (157)   | 1.4                 | 0.9 to 2.2 | 0.2                  |
| Any medication problem I was experiencing was sorted out.                              | 34.8 (242)          | 40.2 (125)   | 33.7 (124)     | 30.4 (92)    | 1.6                 | 1.0 to 2.6 | 0.07                 |
| My concerns were taken seriously.  | 42.4 (295)          | 50.5 (158)   | 43.3 (159)     | 41.3 (41.3)  | 1.4                 | 0.8 to 2.2 | 0.2                  |
| I could understand the information I was given.  | 63.3 (444)          | 65.2 (206)   | 66.5 (244)     | 58.1 (176)   | 1.6                 | 1.0 to 2.6 | 0.04                 |
| Other pharmacy staff seemed to be knowledgeable about the treatment of heart problems. | 17.2 (123)          | 27.2 (84)    | 13.6 (51)      | 19.2 (59)    | 1.7                 | 1.0 to 3.0 | 0.06                 |
| I had to wait too long for my prescription to be completed.                            | 15.0 (109)          | 10.8 (36)    | 11.2 (43)      | 9.0 (28)     | 1.0                 | 0.5 to 1.9 | 1.0                  |
| The pharmacist made sure that I understood how to take my medications.                 | 43.5 (320)          | 49.0 (164)   | 41.3 (160)     | 35.9 (112)   | 1.9                 | 1.2 to 3.0 | <0.01                |
| Total score, median (IQR)  | 42.0 (36–48)        | 46.0 (40–55) | 42.0 (36–48)   | 43.0 (38–49) | 4.0 <sup>d</sup>    | 1.7 to 6.3 | <0.01 <sup>e</sup>   |
| Total N <sup>f</sup>   | 295                 | 211          | 244            | 179          |                     |            |                      |

CHD = coronary heart disease; CP = community pharmacist; IQR = interquartile range.

<sup>a</sup>Percentages represent respondents who agree/strongly agree with each statement.

<sup>b</sup>Effect of the intervention: odds ratio for each of the binary outcomes and a mean difference for the overall satisfaction score, adjusted for differences in outcomes at baseline, sex, age, and previous CHD event and for cluster effects within pharmacies, general practices, and areas.

<sup>c</sup>Difference between intervention and control groups at follow-up, adjusted for baseline data using multiple logistic regression.

<sup>d</sup>Heckman selection model.

<sup>e</sup>Difference between intervention and control at follow-up, adjusted for baseline data using multiple regression

<sup>f</sup>Maximum denominator for a particular question. However, due to missing values, this value will vary by question.

tive attitudes toward pharmacist involvement in medication management.

There are several strengths to this study. The survey achieved high response rates at both baseline and 12 month follow-up, enhancing the representation of the findings for the overall study population. Our study is the largest to have investigated and quantified patient attitudes toward, expectations of, and experience with community pharmacy services in the UK. It involved a large number of patients, physicians, and pharmacists, increasing the generalizability to the wider UK population. It provides important data on patient perspectives concerning existing and potential pharmacy provision.

Limitations of our study include the fact that, as the professionals volunteered to take part, patients were identified on the basis of CHD (and may therefore have differed from other patients). Also, only 25% of eligible patients consented to take part. We cannot say to what extent our results apply to populations outside of the UK, to younger subjects, or to patients affected with diseases other than CHD.

There may also have been other limitations, as the follow-up questionnaire was distributed approximately 12 months after the intervention questionnaire was first delivered and recall bias may have influenced responses. In particular, recall bias may have differed between respondents who were more satisfied (mainly intervention) and those less satisfied (mainly control).

In previous studies of interventions by community pharmacists, patient satisfaction has not always been shown to increase. One study of pharmacist involvement in lipid management showed a positive effect,<sup>12</sup> while another showed no effect.<sup>13</sup> Positive effects on satisfaction were

found in 2 studies involving patients with hypertension,<sup>14,15</sup> but not in a study of individuals with asthma.<sup>16</sup> One large study found significantly increased satisfaction among high-risk patients who were taking multiple medications and who had specific long-term conditions.<sup>17</sup> These apparently conflicting findings indicate that the assumption that patients will value services that pharmacists believe are important does not always hold. Understanding the reasons for these findings poses a challenge to researchers.

Hayashi et al.<sup>18</sup> hypothesized that “expressive” satisfaction occurs when a pharmacy service is “not strongly required but desirable.” However, if some patients question whether pharmacists should be operating in territory that is perceived to be beyond their recognized and legitimate role, then it might be expected that satisfaction could be lower. There is evidence that expectations are low among patients who have not experienced new services. The authors of one study concluded that, at least initially, patients did not see “any scope for the pharmacist’s role beyond product supply.”<sup>19</sup> High levels of satisfaction continue to be found among customers of pharmacies providing only traditional services.<sup>20</sup> However, since our study involved a large number of pharmacy sites (60) and a consistent pattern of increased satisfaction was observed, we believe that our results provide evidence that pharmacist-led medication review is welcomed by patients.

There is empirical evidence of an association between patients’ perceptions of personal attention received from the pharmacist and their satisfaction, with the latter increasing with increased perceived attention.<sup>21,22</sup> Another possible factor affecting satisfaction is continuity of the pharmacist providing care. In some previous studies, interventions were provided by a research pharmacist rather

**Table 4.** Patients’ Attitudes and Reported Behavior Compared with One Year Ago<sup>a</sup>

| Responses at Follow-up  | Intervention<br>(n = 689),<br>% (n) | Control<br>(n = 355),<br>% (n) | p Value <sup>b</sup> |
|---|-------------------------------------|--------------------------------|----------------------|
| I know more about my medications.   | 72.5 (495)                          | 64.7 (231)                     | 0.01                 |
| I understand more about why it is important to take my medications as prescribed.                                   | 76.6 (528)                          | 73.2 (260)                     | 0.26                 |
| I am more likely to take my medications as prescribed.  | 77.4 (527)                          | 74.6 (264)                     | 0.32                 |
| I am more confused about my medications.  | 4.2 (28)                            | 3.5 (12)                       | 0.61                 |
| Nothing has changed in the way I take my medications.   | 89.3 (608)                          | 90.3 (315)                     | 0.67                 |
| I do not feel it is beneficial to know more about my medications.   | 25.9 (176)                          | 25.8 (91)                      | 1.00                 |
| I am more likely to ask the pharmacist about my health.   | 38.7 (261)                          | 30.2 (104)                     | 0.01                 |
| I am more likely to recommend to others that they should discuss their medications with a pharmacist.               | 50.5 (336)                          | 39.4 (138)                     | <0.01                |
| I prefer to see the doctor about my medications.  | 75.9 (516)                          | 84.5 (300)                     | <0.01                |
| I am more able to ask the pharmacist questions that I would be unable to ask the doctor.                            | 19.5 (132)                          | 10.5 (37)                      | <0.01                |
| I am more confused about whether to ask the doctor or pharmacist about my medications.                              | 10.7 (72)                           | 10.3 (36)                      | 0.92                 |
| I am more likely to ask the pharmacist about my medications.  | 32.3 (218)                          | 21.6 (76)                      | <0.01                |
| I find it easier to talk to the pharmacist about medications.   | 32.3 (220)                          | 18.3 (64)                      | <0.01                |
| I find it easier to talk to the pharmacist about my health.   | 16.8 (114)                          | 8.5 (30)                       | <0.01                |
| I am less likely to think that pharmacists should be having consultations with patients about their heart problems. | 40.7 (276)                          | 33.9 (119)                     | 0.04                 |

<sup>a</sup>Percentages represent respondents who agree/strongly agree with each statement.  
<sup>b</sup> $\chi^2$ .

than the patient's usual pharmacist. In our study, most patients received the service from their community pharmacist, and there was an increase in the percentage of respondents agreeing that "the community pharmacist seemed to take a genuine interest in me."

Most patients were already satisfied with the service from their community pharmacist, and their general experience of visiting a pharmacy with a prescription remained unchanged during the study. However, the data indicate that intervention led to modest changes in the content of the interactions, with intervention more likely to report patients being asked at follow-up about lifestyle aspects, blood pressure, cholesterol levels, and problems with medications.

Most intervention and control patients saw a wider role for community pharmacists beyond dispensing, confirming findings of a US study.<sup>23</sup> The patients wanted the pharmacist to review their medications jointly with the physician and to provide advice on efficacy and safety of treatments, as well as their general health. However, it may still be difficult to convert positive attitudes to changed behaviors and acceptance of new services. Researchers studying consumer reactions toward nontraditional roles found that, although "consumers see value in pharmacists' services directly related to their medications, they may not be thinking of pharmacists in broader healthcare roles."<sup>24</sup> These researchers concluded that effective marketing of pharmacists' qualifications and the value of their services would be needed to shift these views. Other, more recent, work has shown a lack of understanding and inconsistent expectations from both professionals and patients about the role of pharmacists in medicine review services and the purpose of such services.<sup>25</sup>

Despite the intervention resulting in patients having a more positive attitude toward the pharmacist's wider role in discussing and resolving queries about medication, for many variables only a minority of respondents agreed with such statements. Our results show that many patients still prefer to discuss medication issues with their family physician. This range of ambivalent views about a pharmacy-led medication review has been found in other studies.<sup>26,27</sup> Changes in long-established expectations and preferences are likely to take considerable time to achieve, but our study shows that there is some potential for change. For some patients, a family physician will always remain their first choice of healthcare professional, regardless of the alternatives. This is particularly true of older patients (the majority of our sample), who are less likely to want physicians to delegate care to pharmacists, compared with younger patients.<sup>28</sup> It is unclear whether the more positive views among younger people will be sustained as they age or develop chronic medical conditions. Research regarding nurses suggested a lack of confidence in delegation of care from the physician to another healthcare professional, which probably stems from a lack of understanding about

professional competence, ethical codes, and limited first-hand experience of receiving wider healthcare services from the professional concerned.<sup>29</sup>

The type of patient-centered model defined by patients for the pharmacist visit in this study is comparable with the type in previous studies that explored what patients want from their general practitioner.<sup>30</sup> Patient preferences for a patient-centered approach to consultations in primary care included good communication, a partnership with healthcare professionals, and health promotion advice.

## Conclusions

Patient satisfaction with, attitudes toward, and expectations of or experience with community pharmacy in general were assessed. Pharmacist intervention was associated with significant and positive changes in patient satisfaction. While patients probably continue to prefer a physician-led service, they value aspects of a pharmacy service. A general preference for discussing medications with the family physician was evident, but experiencing the community pharmacy-led service resulted in an attitudinal shift toward the pharmacist. These findings suggest that there is benefit in developing the community pharmacist's role as a reviewer and adviser on patients' medications.

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### Appendix I. Community Pharmacy Medicines Management Evaluation Team

|                              |  |
|------------------------------|--|
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### Evaluación de un Servicio de Manejo de Medicamentos en Farmacia de Comunidad por el Paciente

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#### EXTRACTO

**TRASFONDO:** Un enfoque centrado en el paciente está cada vez más reconocido como un componente importante en la evaluación de los servicios de asistencia de salud.

**OBJETIVOS:** El propósito de este estudio fue evaluar, en primer lugar, la satisfacción del paciente con, las actitudes hacia, y las expectativas de o la experiencia con la farmacia de comunidad en general, y en segundo lugar, el efecto del servicio de manejo de medicamentos conducido por la farmacia de comunidad sobre estos parámetros.

**MÉTODOS:** Encuestas de cuestionarios postales fueron completadas al comienzo y después de 12 meses (seguimiento), como parte de un estudio controlado aleatorio (RCT) del servicio. El estudio se realizó en nueve organizaciones de cuidados primarios en Inglaterra. Pacientes con enfermedad cardíaca coronaria (ECC) fueron reclutados utilizando los registros de Prácticas Generales, y asignados al azar al grupo de intervención (el servicio de manejo de medicamentos conducido por la farmacia) o al grupo control.

**RESULTADOS:** El índice de la respuesta a las encuestas al comienzo y en el seguimiento fue de 88.4% (1232/1394) y 80.1% (1085/1355), respectivamente. Las personas que respondieron a las encuestas quisieron todos los siguientes servicios del farmacéutico: despacho de medicamentos, revisión de medicamentos, asesoramiento sobre medicamentos y sobre salud, áreas de consulta privadas, y tiempos de visita cortos. Durante el seguimiento, probablemente los pacientes en el



grupo de intervención más que los del grupo control ( $p < 0.01$ ), consideraron el servicio provisto por su farmacéutico con un nivel mayor de satisfacción. Durante el seguimiento, la mayoría de los pacientes en el grupo de intervención expresaron una preferencia de ver a su médico para discutir sus medicamentos, aunque esto no fue tan marcado como en los pacientes del grupo control (76% comparado con 85%;  $p < 0.01$ ). Los pacientes en el grupo de intervención también estuvieron más dispuestos que los pacientes del grupo control a: hacer preguntas al farmacéutico que no podrían preguntar a un médico (20% y 11% respectivamente;  $p < 0.01$ ); hacer preguntas al farmacéutico sobre sus medicamentos (32% y 18% respectivamente;  $p < 0.01$ ); y recomendar que otras personas hicieran lo mismo (51% y 40% respectivamente;  $p < 0.01$ ).

**CONCLUSIONES:** La intervención de los farmacéuticos estuvo asociada con cambios significativos y positivos en la satisfacción de los pacientes. Aunque los pacientes probablemente continúan prefiriendo un servicio conducido por médicos, ellos valoran aspectos de un servicio de farmacia. Una preferencia general de discutir medicamentos con el médico de familia fue evidente, pero el experimentar el servicio conducido por la farmacia de comunidad resultó en un cambio en la actitud hacia el farmacéutico. Estos hallazgos sugieren que hay campo para desarrollar el papel del farmacéutico de comunidad como revisor de y consultor de los medicamentos de pacientes.

Traducido por Brenda R Morand

#### L'Évaluation par le Patient des Services de Prise en Charge d'une Pharmacie Communautaire

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*Ann Pharmacother* 2007;41:1962-70.

#### RÉSUMÉ

**GÉNÉRALITÉS:** Une approche basée sur le patient est de plus en plus reconnue comme étant un aspect important dans l'évaluation des services de santé.

**OBJECTIF:** Le but de cette étude a été d'évaluer, premièrement la satisfaction du patient vis-à-vis des attentes ou expériences des pharmacies communautaires en général et, deuxièmement, l'effet des services de prise en charge sur ces attentes.

**MÉTHODES:** Dans le cadre d'un essai randomisé contrôlé (ECR) des services fournis, des questionnaires de sondage postaux furent complétés à une date donnée de départ et après un suivi de 12 mois. La mise en place de l'essai fut 9 organismes de soin de santé primaires en Grande-Bretagne. Les patients atteints de cardiopathie ischémique recrutés dans l'étude ont été sélectionnés des registres de cabinets de consultations et ont été repartis au hasard lors de l'intervention (services de prise en charge de la pharmacie) ou dans le groupe contrôle.

**RÉSULTATS:** Le taux de réponse au sondage à la date donnée de départ et le suivi furent respectivement de 88.4% (1232/1394) et 80.1% (1085/1355). La prodigation de soins, la révision du traitement, les conseils sur la médication et la santé, les consultations privées en pharmacie et les courtes durées de visites furent hautement souhaités par les personnes interrogées. Lors du suivi, les patients de l'intervention eurent de fortes chances d'évaluer les services fournis par leur pharmacien avec un haut niveau de satisfaction, comparé au groupe contrôle ( $p < 0.01$ ). De plus, la plupart des patients ont exprimé leur préférence de consulter un médecin pour discuter de leur traitement, même si ceci fut moins marqué dans le groupe contrôle (76% comparé à 85%;  $p < 0.01$ ). Comparé au groupe contrôle, les patients de l'intervention furent également plus disposés à: poser des questions au pharmacien (respectivement 20% et 11%;  $p < 0.01$ ; questions incapables d'être posées au médecin), poser des questions sur leur traitement (respectivement 32% et 18%;  $p < 0.01$ ), et recommander aux autres la même attitude (respectivement 51% et 40%;  $p < 0.01$ ).

**CONCLUSIONS:** L'intervention du pharmacien fut associée à des changements significatifs et positifs dans la satisfaction du patient. Bien que probablement les patients continuent de préférer les services d'un médecin, ils apprécient les aspects d'un service de pharmacie. Une préférence générale pour discuter du traitement avec le médecin de famille fut manifeste, cependant, l'expérience d'un service d'une pharmacie communautaire a résulté dans un changement d'attitude vis-à-vis du pharmacien. Ces résultats suggèrent qu'il existe une possibilité de développer le rôle du pharmacien communautaire comme conseiller sur la médication du patient.

Traduit par Thierry Youmbi