

# Patient and Physician Satisfaction With a Pharmacist-Managed Anticoagulation Clinic: Implications for Managed Care Organizations

*MCOs should consider adding pharmacist-managed anticoagulation clinics to the benefits of their members because both patients and physicians show a high level of satisfaction.*

## ABSTRACT

**Purpose:** To evaluate both patient and physician satisfaction with a pharmacist-managed anticoagulation clinic utilizing a fingerstick method of obtaining blood and point-of-service testing.

**Design:** The patient questionnaire consisted of nine Likert statements concerning their experiences with the clinic. The physician questionnaires consisted of five Likert statements regarding their perception of the clinic.

**Methodology:** We mailed the patient questionnaire and a self-addressed stamped envelope to all patients who had utilized the services of the clinic. We faxed the physician questionnaire to all physicians with patients attending the clinic. We analyzed the responses using Cronbach's alpha to determine reliability.

**Principal findings:** Of patient questionnaires, 79.0 percent were returned. The most positive responses were that the patients preferred fingerstick to venipuncture; they appreciated having their appointments kept on time; they trusted the pharmacist;

and they had adequate time during their appointments. Of physician questionnaires, 51.2 percent were returned. Their most positive responses were that their patients preferred fingerstick to venipuncture and that the information from the pharmacist was timely and complete.

**Conclusions:** Both patients and physicians appear to have high levels of satisfaction with a pharmacist-managed ambulatory anticoagulation clinic. Managed care organizations should consider adding pharmacist-managed anticoagulation clinics to their members' benefits.

## INTRODUCTION

It has been established that pharmacist-managed anticoagulation services can prevent warfarin-related hospital admissions and improve the overall quality of patient care.<sup>1,2,3</sup> Careful management of warfarin therapy has been associated with decreased warfarin-related hospital readmissions, length of stay<sup>4,5</sup> and warfarin-related complications such as major hemorrhages and thromboembolic events<sup>6,7</sup>. Patient education by pharmacists in clinics has improved patients' understanding of

their anticoagulation therapy<sup>8</sup> and probably increased patient compliance. In addition to patient compliance, anticoagulation pharmacists also assist in improving patients' control of warfarin, as evidenced by a greater percentage of prothrombin/international normalized ratio (PT/INR) levels within therapeutic range<sup>9</sup> and preventing potential harmful drug-drug or drug-food interactions<sup>1</sup>. One study indicated that a pharmacist-managed anticoagulation clinic may provide more efficient tracking of PT/INR levels than traditional physician management of anticoagulation<sup>10</sup>.

Although there is considerable literature supporting the clinical advantages of pharmacist-managed anticoagulation services, there are limited studies of patient and physician satisfaction with pharmacist-managed anticoagulation clinics.

## METHODS

### *Clinic description*

The outpatient anticoagulation clinic used in this study was associated with a not-for-profit hospital in Pueblo, Colo., a city with a population of approximately 100,000. This clinic opened in September 1997. The patients were referred by physicians from either inpatient or outpatient services. Physicians' referrals were voluntary, not mandated under any contract or other agreement. Patient appointments were scheduled for a half hour. This provided the pharmacist adequate time to meet with the patient and to enter a report of the visit in a computer and fax it to the patient's physician(s). At each appointment the pharmacist and the patient discussed current warfarin

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dosage schedule, adverse reactions, medication changes, and whether the patient missed any doses of warfarin. The pharmacist monitored PT/INR level using a fingerstick to obtain 10µL of capillary blood. The pharmacist then tested the blood with the CoaguChek system using nonhuman thromboplastin; the resulting PT/INR was available within two minutes. The pharmacist then showed the patient a chart with his past and current INRs, warfarin dosages, and the desired INR range. The pharmacist gave the patient educational materials, and they discussed them.<sup>11</sup> The patient's physician had authorized the pharmacist to adjust warfarin doses according to a protocol.

*Survey methods*

We developed two instruments to measure the satisfaction of patients and physicians with the pharmacist-managed anticoagulation clinic. The

patient survey consisted of a series of nine Likert statements with choices ranging in value from 1 ("strongly disagree") to 5 ("strongly agree") and a section to write comments. These are in Appendix A. One additional question asked respondents about frequency of emergency department use. To keep the responses anonymous, we did not ask for demographic information. There were no follow-up measures. The questionnaires were mailed to every patient attending the Anticoagulation Clinic as of Dec. 4, 1997. (One patient was excluded because he could read neither English nor his native Spanish.)

During May 1998, we drafted a physician satisfaction survey for the pharmacist-managed ambulatory anticoagulation service. This survey consisted of a series of 5 Likert statements with choices ranging in value from 1 ("strongly disagree") to 5 ("strongly agree") and a section to write comments. These are in Ap-

pendix B. We faxed them to the offices of 21 family practitioners, seven cardiologists, and seven internists who had patients enrolled in the clinic. The responses were anonymous, and we did not collect demographic information on the respondents.

We asked physicians to return the survey via facsimile, mail, or inter-office mail. We took no follow-up measures.

We then conducted descriptive statistical analyses using the patient and physician responses. Cronbach's alpha, a measure of reliability, was calculated for each of the surveys. Analyses were performed using Microsoft Excel (Redmond, Wash.) or SAS Version 6.12 (Cary, N.C.).

**RESULTS**

*Patient satisfaction survey*

We mailed 44 patient satisfaction forms. One was returned to us because its address was incorrect; another came back blank. Thirty-four usable forms were returned, for a response rate of 79.0 percent. An analysis for reliability using Cronbach's Alpha yielded a reliability coefficient of 0.86.

The mean responses to the survey are shown in Table 1. The questions whose answers indicated a high level of agreement were that fingerstick is the preferable test, that appointments were kept on time, that the clinic pharmacist's response to medication questions was trusted, and that there was adequate time to discuss concerns. All had mean values greater than or equal to 4.7.

The only question with a mean score below 4 was for parking, with a score of 3.79 + 1.24. Scores for all other questions were remarkably high. The only question besides parking that had a mean value of less than 4.5 was the question about feeling less anxious about their medications, which had a mean value of 4.37 + 0.85.

Additional written comments provided by patients were all positive toward the clinic. Eight patients provided written comments regarding

*Appendix A*

**CLINICAL PHARMACY ANTICOAGULATION SERVICE**

***Patient Satisfaction Survey***

**Please circle the number that best describes how you feel.**

1. Since I have been coming to the "Coumadin Clinic," I understand my medications better than before.

*(Respondents answered all questions (except No. 6) using this scale.)*

|                       |                       |                                   |                          |                          |
|-----------------------|-----------------------|-----------------------------------|--------------------------|--------------------------|
| <i>Strongly agree</i> | <i>Agree somewhat</i> | <i>Neither agree nor disagree</i> | <i>Disagree somewhat</i> | <i>Strongly disagree</i> |
| 5                     | 4                     | 3                                 | 2                        | 1                        |

2. I prefer having my blood tested by using one drop rather than the previous method.
3. The printed materials given to me have been helpful.
4. The appointments with the pharmacist have been kept on time.
5. The parking for the clinic is convenient.
6. I have had to go to the emergency room \_\_\_\_\_ times since I have been coming to the "Coumadin Clinic."
7. I feel less anxious about my medications since I have been coming to the "Coumadin Clinic."
8. If I have a question about my medications, I would trust an answer from the "Coumadin Clinic" pharmacist.
9. There is adequate time during my appointment at the "Coumadin Clinic" to discuss my concerns with the pharmacist.
10. The "Coumadin Clinic" has assisted me to live the best quality of life possible, given my medical conditions.

Write any further comments on the back of this sheet.

the clinic. Examples of comments include: "... they have time for me and my concerns"; "... it's a wonderful plan — please keep it going"; "I feel less anxious about ... my Coumadin"; and "This is the first time I have been regulated since 1991."

*Physician survey*

Of the 41 questionnaires faxed to the physicians' offices during May 1998, 21 were returned, for a response rate of 51.2 percent. The responses were analyzed for reliability using Cronbach's Alpha. This yielded a reliability coefficient of 0.87.

The mean responses for each question are shown in Table 2. No question had a mean response less than 3.50. The statements drawing the highest levels of agreement were that the anticoagulation clinic information was timely and complete, that the patients preferred the fingerstick method of testing, and that the clinic decreased the amount of time physicians spend on these patients. The statements with lower levels of agreement were that the clinic promoted positive outcomes in patients and that patients understood their medications better.

**DISCUSSION**

The results of this study suggest that this pharmacist-managed anticoagulation clinic is associated with high levels of both patient and physician satisfaction. Both patients and physicians appear to be satisfied with the pharmacist's ability to provide accurate and timely information regarding coagulation status. Patients also stated they preferred the fingerstick method of obtaining blood samples to traditional venipuncture.

The results of this study are consistent with a previously reported study examining pharmacist managed anticoagulation clinics.<sup>12</sup> In that study, Schueler and Kaden reported that patient satisfaction of a pharmacist managed anticoagulation clinic in a tertiary medical center was "favorable," although more specific results were not reported. Other studies of satisfaction with

*Appendix B*

**CLINICAL PHARMACY ANTICOAGULATION SERVICE**

**Physician Satisfaction Survey**

**Please return by fax, inter-office mail, or U.S. mail.**

1. My patients understand Coumadin better since they have been going to the St. Mary-Corwin Anticoagulation Clinic.

*(Respondents answered all questions using this scale.)*

|                       |                       |                                   |                          |                          |
|-----------------------|-----------------------|-----------------------------------|--------------------------|--------------------------|
| <i>Strongly agree</i> | <i>Agree somewhat</i> | <i>Neither agree nor disagree</i> | <i>Disagree somewhat</i> | <i>Strongly disagree</i> |
| 5                     | 4                     | 3                                 | 2                        | 1                        |

2. My patients prefer having their blood drawn by fingerstick rather than venipuncture.
3. The Anticoagulation Clinic has decreased the amount of time I spend on Coumadin patients.
4. The information I receive from the Anticoagulation Clinic is timely and complete.
5. The Anticoagulation Clinic has promoted positive outcomes in my patients.

Do you have any other comments that you would like to share concerning the Anticoagulation Clinic?

pharmacists suggest that offering personal service and convenience are important to consumers.<sup>13,14</sup> Because the anticoagulation pharmacist in the current study had sufficient time to spend with patients and was located in a building with convenient patient access, it is not surprising that patients were satisfied with the service.

Overall, the high response rate to both the patient and physician surveys indicates that there were positive sentiments among both groups. The fact that 21.2 percent of the patients and 52.4 percent of physicians wrote positive comments also demonstrates that both groups hold the pharmacist-managed anticoagulation clinic in high regard.

These responses show that the patients feel strongest about having a fingerstick rather than a venipuncture. They also feel strongly about having their appointments kept on time. The other two strong responses indicate that patients trust the information that they get from the anticoagulation clinic pharmacist and appreciate being given enough time to discuss their concerns with the

pharmacist.

A notable finding is the high degree of physician satisfaction with the service, since physicians are often uncomfortable delegating such important activities. It appears that the physicians referring patients to this specific anticoagulation service are satisfied with the results to date. One must keep in mind that these physicians are probably biased because they referred patients on a voluntary basis.

The response with the highest mean score from the physician survey was that the patients prefer fingerstick to venipuncture. This was not surprising, because it was the strongest response from patients. One third of the responding physicians strongly agreed that their patients understand warfarin better after attending the clinic. In addition, 38 percent strongly agreed with the statement that the anticoagulation clinic is promoting positive outcomes in their patients.

As with any research, this study has limitations that the reader should keep in mind when interpreting the results. First, no attempt was made to

**TABLE I Patient Responses to Pharmacist-Managed Anticoagulation Clinic Satisfaction Survey**

| Question  | N  | Mean | S.D. |
|---|----|------|------|
| Q1. Understand medications better   | 33 | 4.58 | 0.71 |
| Q2. Use of fingerstick preferable   | 33 | 4.88 | 0.42 |
| Q3. Printed materials helpful   | 32 | 4.59 | 0.71 |
| Q4. Appointments on time  | 33 | 4.82 | 0.64 |
| Q5. Parking convenient  | 33 | 3.79 | 1.24 |
| Q7. Less anxious about medications  | 30 | 4.37 | 0.85 |
| Q8. Trust the pharmacist  | 33 | 4.79 | 0.55 |
| Q9. Adequate time during appointment  | 33 | 4.73 | 0.63 |
| Q10. Assisted in providing best quality of life given existing medical conditions | 31 | 4.68 | 0.65 |

Response choices ranged from 1 = strongly disagree to 5 = strongly agree. Q6 was not a Likert statement and was not tabulated.

**TABLE II Physician Responses to Pharmacist-Managed Anticoagulation Clinic Satisfaction Survey**

| Question   | N  | Mean | S.D. |
|--|----|------|------|
| Q1. Patients understand Coumadin better                                    | 20 | 3.50 | 1.32 |
| Q2. Patients prefer fingerstick to venipuncture                            | 19 | 4.47 | 0.70 |
| Q3. The clinic has decreased the amount of time spent on Coumadin patients | 20 | 4.2  | 1.36 |
| Q4. Information from clinic timely and complete                            | 21 | 4.19 | 1.07 |
| Q5. Clinic has promoted positive patient outcomes                          | 20 | 3.85 | 1.27 |

Response choices ranged from 1 = strongly disagree to 5 = strongly agree

determine the extent of nonresponse bias. Because the surveys were anonymous, it was impossible to target persons who had not returned the survey. However, the response rates obtained in this study were remarkably high, 79.0 percent for patients and 51.2 percent for physicians. Another limitation of this study was the small sample size — 34 patients and 21 physicians. The results of this study are also limited to this particular clinic and pharmacist. Other results may be obtained in other settings or with different pharmacists. Nonetheless, pharmacists have consistently demonstrated the ability to appropriately monitor patients who receive anticoagulation therapy.

Managed care organizations

should consider adding payment for pharmacist monitoring of warfarin to their members' benefits. Others have demonstrated that pharmacist-managed anticoagulation clinics are effective, and we have shown that patients and physicians are satisfied with them.

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**NOTES**

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