

Patient Care Telephone Calls Received in Family Practice Offices

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The majority of patient care calls referred to practitioners at each of two family practice office study sites were related to medications. However, there were significant differences in the proportion of patient care calls managed by staff physicians, family practice residents, and clinical pharmacists which involved discussion of medication. There were also significant differences in the callers and types of medication related calls managed by each practitioner group.

Calls initiated by patients and those classified as refill requests accounted for the largest proportion of calls managed by staff physicians, residents, and clinical pharmacists. The majority of calls received by each practitioner group were managed without consultation. A follow-up office visit was recommended in approximately one half of all medication related calls.

The findings of this study may be useful in determining the personnel required to manage medication related telephone calls and in identifying potential areas for education and training of personnel in family practice.

Increasing attention is being directed toward more efficient delivery systems that provide primary health care to a large portion of the population. These systems may involve health care personnel, such as nurses, nurse practitioners, physicians' assistants, nutritionists, and clinical pharmacists, as well as physicians. These practitioners often rely on the telephone as a method of

communication with their patients, extending medical services to patients who do not need an office visit and to those who will not or cannot travel to the office.

Research has indicated that 5 to 20 percent of all patient care contacts are made by telephone.¹⁻⁴ Knopke et al¹ surveyed 100 Wisconsin family practice physicians and found that 14.9 percent of all their patient care contacts were by telephone. This figure is similar to 20 percent reported by Westbury in his description of the workload of a single family physician.² Hessel and Haggerty⁵ and Bergman et al⁶ have reported that pediatricians may spend from 12.5 to 25 percent of their working day on the telephone. The use of the telephone has

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been described for reporting results of laboratory tests,^{7,8} reminding patients of upcoming appointments,⁹ managing poisonings,¹⁰ and treating acute and chronic illnesses.^{4,11-17}

Telephone communication also provides patients an opportunity to discuss medication related problems with health care personnel.^{2,7,8,11-15,18-21} Inquiries concerning medication related problems account for 3 to 30 percent of all patient care telephone calls; medication related telephone calls may include requests for prescription refills or new medications.^{2,11,13-15} Helling et al²¹ reported that medication related calls may also include drug information questions concerning the proper use or adverse effects of medications. A study conducted by Greenlick et al,¹³ for a one-year period at a prepaid health care organization, documented that 33.9 percent of all physician initiated telephone calls were made to adjust medications.

As part of a study designed to evaluate the management of medication related telephone calls, information was recorded to provide a description of the telephone calls referred to practitioners in family practice offices. The objectives of this study were, first, to determine the volume and distribution of patient care and medication related telephone calls received at two family practice offices and, second, to determine if the characteristics of the patient care calls received by each practitioner group (staff physicians, family practice residents, clinical pharmacists) differed with respect to the following variables: (1) caller (patient, community pharmacist, third party, ie, family member, friend, nurse), (2) type of call (refill, new medication, drug information, other, ie, any call not classified by practitioner as refill, new medication, or drug information), (3) consultation with another provider, and (4) recommendation for follow-up.

Background

Medical services at the Oakdale, Williamsburg, and Iowa City, Iowa, family practice offices are provided by faculty and family practice residents from the University of Iowa Family Practice Residency Program. At each office, physician services are provided on a fee-for-service basis. The patient population served by the Williamsburg office

is primarily rural, whereas the populations of the Iowa City and, to a lesser extent, the Oakdale offices are more urban.

The University of Iowa College of Pharmacy provides clinical pharmacy services to each of these offices. The clinical pharmacist at each office holds an academic appointment and is salaried by the College of Pharmacy. The clinical pharmacy services at the Oakdale and Williamsburg family practice offices include management of medication related telephone calls as well as drug therapy consultation and monitoring and patient education.

At the Oakdale and Williamsburg offices, medication related telephone calls are referred to the clinical pharmacist unless the patient's primary physician is available. The receptionist immediately provides the physician or pharmacist with the patient's medical record and conveys any pertinent information regarding the inquiry. The practitioner reviews the medical record and medication history to evaluate the purpose of the medication, previous response to therapy, and pattern of drug utilization. The practitioner also assesses the patient's need to be seen in the office and, if indicated, encourages the patient to make an appointment.

Methods

The study was conducted in the University of Iowa family practice offices at Oakdale and Williamsburg. These sites were selected because the staff physicians, family practice residents, and clinical pharmacists in both offices were routinely involved in the management of medication related telephone calls.

Patient care telephone calls at each study site were identified by the receptionists. For each patient care call, receptionists were asked to record patient's name, the name of the caller (patient, community pharmacist, third party, ie, family member, friend, nurse), and the name of the practitioner to whom the call was referred (staff physician, family practice resident, clinical pharmacist).

The receptionists were not asked to record this information for calls not referred to practitioners (appointment scheduling, bookkeeping), nonpatient care calls referred to practitioners (adminis-

trative, personal), or patient care calls requesting laboratory or x-ray examination results.

The receptionists were asked to refer calls to physicians or clinical pharmacists in accordance with established office policy so that the results of the study would provide an accurate reflection of the practices in these offices. If the patient's attending physician was not available, calls identified by the receptionists as medication related were referred to the clinical pharmacist, while other patient care calls were referred to a staff physician or another resident.

During a preliminary sampling period, the receptionists at both offices were asked to record patient care telephone calls, as previously described, for a two-day period. The investigator (J.M.B.) was at the family practice offices during this preliminary sampling period to provide the receptionists an opportunity to discuss questions and recommendations for improvement of the data collection procedure. The duration of the data collection for the study was seven and six weeks at Oakdale and Williamsburg, respectively.

Medication related calls were identified by the physicians and clinical pharmacists, who completed a numbered questionnaire for each patient care telephone call as indicated by the receptionists' records. The type of medication related call was also recorded on the questionnaire by the practitioners. The questionnaires were usually distributed within a day of the call. The number on each questionnaire was recorded to ensure that all questionnaires were returned and all medication related telephone calls were identified.

Contingency analyses were used to determine the relationship between categorical variables. If the differences between observed and expected frequencies were found to be significant with respect to the chi-square distribution, the variables were considered to be significantly associated.²² Contingency tables were considered valid for analysis if all expected frequencies exceeded 1.00.²³

Results

Distribution of Patient Care Calls

The distribution of patient care calls among practitioners did not differ significantly between

sites. At Oakdale, the largest proportion of calls were referred to residents (38.5 percent) and the smallest proportion to the clinical pharmacist (29.1 percent). At Williamsburg, the proportion of calls referred to residents and the clinical pharmacist were similar (39.6 percent) and greater than the percentage of calls referred to staff physicians (20.9 percent).

Patient Care Callers to Each Site and Practitioner Group

Patients initiated 66.2 percent of all patient care calls to Oakdale and 48.2 percent of the calls to Williamsburg. A greater proportion of calls came from community pharmacists at Williamsburg (27.3 percent) than Oakdale (6.8 percent). These differences in the types of callers at each site were significant ($P < 0.01$).

The distribution of callers also differed significantly among practitioner groups ($P < 0.01$). The largest proportion of patient care calls to each practitioner group was initiated by patients. However, clinical pharmacists had fewer patient care calls from patients (45.9 percent) than staff physicians (68.8 percent) or residents (59.8 percent). Community pharmacists were the second most frequent callers to clinical pharmacists (35.7 percent) but were the least frequent callers to staff (9.1 percent) and residents (5.4 percent).

Patient Care Calls Related to Medications

The proportion of patient care calls related to medications differed significantly between Oakdale and Williamsburg ($P < 0.01$). At Williamsburg, 75.5 percent of all patient care calls referred to practitioners involved medications. This was larger than the proportion of calls related to medications at Oakdale (57.4 percent). The majority of calls received by the clinical pharmacists at Oakdale and Williamsburg were related to medications (97.7 and 98.2 percent, respectively). At Oakdale, medication related calls accounted for a smaller proportion of patient care calls to staff physicians (37.5 percent) and residents (43.9 percent) than Williamsburg staff physicians (62.1 percent) and

Table 1. Types of Medication Related Calls to Each Practitioner Group

Type of Call	Staff Physician		Resident		Clinical Pharmacist		All Practitioners	
	%	(No.)*	%	(No.)	%	(No.)	%	(No.)
Refill	50.0	(2.8)	32.8	(2.9)	80.2	(11.8)	60.0	(17.5)
New medication	27.8	(1.5)	22.4	(2.0)	2.1	(0.3)	13.2	(3.9)
Drug information	13.9	(0.8)	27.6	(2.5)	4.2	(0.6)	13.2	(3.9)
Other**	8.3	(0.5)	17.2	(1.5)	13.5	(2.0)	13.7	(4.0)
Total	100.0	(5.5)	100.0	(8.9)	100.0	(14.8)	100.0	(29.2)

$\chi^2=49.26, df 6, P<0.01$

*Average number of calls per week based on seven and six weeks of data collection at Oakdale and Williamsburg, respectively

**Any call not classified by practitioner as refill, new medication, or drug information

residents (60.0 percent). However, the proportion of patient care calls which were medication related did not differ significantly between sites for staff physicians, residents, or clinical pharmacists.

Distribution of Medication Related Calls

The distribution of medication related telephone calls among practitioner groups was not significantly different between sites. The clinical pharmacists managed approximately one half of all medication related calls during the study (50.5 percent). Approximately one third (30.5 percent) of the calls received were managed by residents, and the remainder by staff physicians (18.9 percent).

Medication Related Callers to Each Site and Practitioner Group

Although the largest proportion of medication related calls at Oakdale and Williamsburg came from patients (67.1 and 42.9 percent, respectively), community pharmacists initiated more calls to

Williamsburg (35.2 percent) than to Oakdale (11.8 percent). These differences between the distribution of callers at each site were significant ($P < 0.01$).

Patients were the most frequent callers to all practitioner groups. However, the distribution of callers varied significantly among practitioner groups ($P < 0.01$). Community pharmacists were the second most frequent callers to staff physicians (19.4 percent) and clinical pharmacists (36.5 percent) but were the least frequent callers to residents (8.6 percent).

Type of Calls to Each Site and Practitioner Group

The majority of medication related calls involved refill requests (60 percent). The proportion of calls classified as new medication, drug information, and other were approximately equal. There were no significant differences between the types of calls received at each site.

There were significant differences between the types of calls received by each practitioner group ($P < 0.01$). This distribution is presented in Table 1. Although refill requests were the most common

type of call to each practitioner group, these calls accounted for a larger proportion of medication related calls going to clinical pharmacists (80.2 percent) than to staff physicians (50.0 percent) or to residents (32.8 percent). Staff physicians and residents managed a greater proportion of new medication requests (27.8 and 22.4 percent, respectively) and drug information requests (13.9 and 27.6 percent, respectively) than did clinical pharmacists.

Rate of Consultation for Each Site and Practitioner Group

The rate of consultation was not found to be significantly different between sites. However, the rate of consultation did differ significantly among practitioner groups ($P < 0.01$). Staff physicians did not consult another practitioner regarding any of the medication related calls received during this study. The rate of consultation by residents (5.2 percent) was lower than that by clinical pharmacists (25 percent).

Rate of Recommendation for Follow-Up for Each Site and Practitioner Group

Follow-up was recommended in 55.8 percent of all medication related calls. Although practitioners at Oakdale recommended follow-up less often than did practitioners at Williamsburg (48.2 and 61.9 percent, respectively), there were no significant differences between sites. Similarly, the rate of recommendation for follow-up did not vary significantly among staff physicians (55.6 percent), residents (58.6 percent), or clinical pharmacists (54.2 percent).

Discussion

No attempt was made to alter the pattern of referral of telephone calls for the purposes of this study. Because of the dependence on office personnel to record telephone calls, the volumes of

patient care and medication related calls may be underestimated. However, there is no reason to believe that calls to a particular practitioner were unreported more often than others. Thus, the distributions of patient care and medication related calls to each practitioner group can be considered representative of the practice patterns at the Oakdale and Williamsburg family practice offices.

The callers initiating patient care and medication related calls differed significantly among practitioner groups and between sites. Although patients were the most frequent caller to each practitioner group, community pharmacists initiated more calls to clinical pharmacists than to staff physicians or residents. This finding is consistent with the offices' policies of referring medication related calls to the clinical pharmacists unless the patient's physician is available. Two local community pharmacists are most often utilized by patients at Williamsburg, whereas the community pharmacists utilized by patients at Oakdale are located over a wider geographic area. Although the types of calls received from community pharmacists were similar at each site, community pharmacists more often interacted directly with the family practice office at Williamsburg than at Oakdale, as demonstrated by the larger proportion of medication related calls from pharmacists at this site. This difference may be explained, in part, by the more individualized patient services provided by the two local pharmacists at Williamsburg as compared to the more urban pharmacists serving the Oakdale area. Medication related calls for institutionalized patients were most often initiated by a nurse or medication aide. Although the Williamsburg office provides medical services to nursing home and county home patients, the proportions of calls from third parties were similar at each site.

The types of medication related calls received were similar at each site, but differed significantly among practitioner groups. Refill requests represented a larger proportion of calls to clinical pharmacists than staff physicians or residents. New medication requests, which presented as symptomatic complaints, were referred more often to staff physicians or residents than to clinical pharmacists. Upon review of the questionnaires completed by the practitioners, it became apparent that the majority of drug information calls also presented as symptomatic complaints rather than

requests for information concerning medication.

The rate of consultation varied significantly among practitioner groups. Clinical pharmacists consulted another practitioner more often than staff physicians or residents. In a previous description of medication related telephone calls at Oakdale, it was reported that a follow-up appointment was made for approximately one half of all medication related calls managed by the clinical pharmacists.²¹ This was similar to the proportion of calls in which each of the practitioner groups in this study recommended that the patient be seen for follow-up.

Although there were significant differences in some characteristics of calls managed by each practitioner group, the data describing the calls received at these family practice offices may be representative of telephone calls received in other family practice offices. This type of information may be of value in determining the personnel required to manage patient care telephone calls.

Responsibility for management of medication related telephone calls has been described as part of the clinical pharmacist's role in family practice health care.^{8,19-21} In another phase of this study, the management of 72.6 percent of the medication related telephone calls received by clinical pharmacists was rated as "most appropriate" by a panel of family physicians and family practice clinical pharmacists.²⁴

Management of medication related telephone calls (accounting for 66.2 percent of all patient care calls referred to practitioners in this study) by clinical pharmacists could provide physicians with more uninterrupted time for other patient care activities. Nurses or receptionists routinely manage these calls in some medical offices; however, evaluation of their performance in this capacity has not been reported. Further study must be conducted to evaluate the cost effectiveness of non-physician practitioners in this role.

The findings of this study may be useful in identifying potential areas for education and training of personnel in family practice. Educational programs should be designed to provide family practice residents and practitioners with the communication skills necessary to provide patient care by means of the telephone. Family physicians must continue to recognize the importance of telephone communication in maintaining patient contact with the health care system.

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