

PERSPECTIVES

Telephone Medicine for Internists

D. Michael Elnicki, MD, Paul Ogden, MD, Michael Flannery, MD, Mark Hannis, MD, Sam Cykert, MD, for the TELI Group

The role of the telephone in medical practice is important, but often problematic. Mistakes in telephone diagnosis and triage can have severe consequences. An effective office system can reduce liability risks, and in some cases telephone contact can substitute for office visits. Internists feel unprepared to provide telephone care. Therefore, residency education needs to focus on documentation, consultant availability, and performance feedback. Research should focus on improving outcomes, reimbursement issues, and technologic advances. This article describes internists' telephone interactions with ambulatory patients, preparation for telephone medicine, and aspects of office telephone systems and makes comparisons with other primary care fields.

KEY WORDS: telephone medicine; internists; office systems; medical education.

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From its invention in 1876, the telephone has been linked to medical care. Alexander Graham Bell made the first telephone call, to his assistant, for medical assistance when he spilled sulfuric acid on himself. By 1897, a telephone consultation had been described in the medical literature, in which a physician reassured a mother that her child did not have croup after listening to the child cough near the telephone.¹ By the 1970s the telephone was described as having "become as much a part of the physician's equipment as the stethoscope."² Yet, the role of the telephone in medical practice remains complex and often troubling for both patients and physicians.

In the United States over 95% of homes possess at least 1 telephone.³ Not surprisingly, telephone contact with ambulatory patients is common. Primary care physicians in the United States receive an estimated 150 to 300 calls per week, of which about half deal with clinical issues.¹ The number of calls that a physician receives varies widely, and those who make themselves more avail-

able can expect to receive more calls.⁴ In general internal medicine practice, 25% of patient contacts are made via the telephone, which is second only to the proportion in pediatrics (27%).⁵

To help internists better understand their practice of medicine over the telephone, we reviewed all published reports and extracted information relevant to the telephone and the clinical practices and training of internists. A MEDLINE search from 1980 to the present, limited to studies in English and involving humans only, was done using the search terms *telephone* and *internal medicine*. Other sources were obtained from citations in retrieved articles. We have included material pertaining both to the education of internists and to clinical practice. Because telephone medical issues for other primary care practitioners are similar to those facing internists, parallels to and lessons from other disciplines are noted. These perspectives will also be of value to family physicians, pediatricians, nurse practitioners, physician assistants, and some specialists.

PROBLEMS WITH TELEPHONE PRACTICE

Inadequacies have repeatedly been demonstrated in medical care delivered over the telephone. A review cites one study of telephone diagnoses that found 20% to be incorrect on follow-up, and others that noted inappropriate triage decisions for common problems.¹ One report of pediatric care by emergency departments found inadequate histories, variable advice, and insufficient follow-up care.⁶ In another study, when tested with calls from role-play mothers and simulated pediatric cases, residents, private practitioners, and faculty members all were found to make serious errors, over half the histories were considered inadequate, and in a third of cases incorrect management decisions were made.⁷

The attitudes that physicians express about providing telephone medical care reflect these problems. Primary care physicians are often dissatisfied with telephone encounters and feel that many are inappropriate.^{8,9} In studies of pediatricians, 42% of those based in HMOs and 45% of those in fee-for-service practices felt dissatisfied with their telephone systems.¹⁰ Practicing internists have expressed a lack of confidence in their ability to practice telephone medicine.⁸ They feel particularly uneasy about prescribing medications for telephone contacts, perhaps because they feel unprepared by their residencies for these interactions.⁸

Received from West Virginia University, Morgantown, WV (DME); Texas A&M University, Temple, Tex (PO); University of South Florida, Tampa, Fla (MF); Oakwood Hospital & Medical Center, Dearborn, Mich (MH); and Moses H. Cone Memorial Hospital, Greensboro, NC (SC).

Address correspondence and reprint requests to Dr. Elnicki: Department of Medicine, West Virginia University, Morgantown, WV 26505; telephone 304-293-1965; fax 304-293-3530; e-mail: melnicki@hsc.wvu.edu.

The consequences of errors in telephone management can be severe, as telephone patient contacts are legally no different from office visits in terms of physician-patient obligations. In one example, poor management of a patient call led to a \$2.5 million judgment.¹¹ In that case a nurse gave advice that led to delay in diagnosing a case of meningitis. Although the jury concluded that using a nurse for telephone triage was acceptable, accepted protocols were not followed, and documentation was inadequate.

Physicians can take several measures to reduce their risk of liability. As the above case demonstrates, adequate documentation of calls is essential. The practices of physicians who are dissatisfied with their telephone system are less likely to document calls well.¹⁰ Many practices use a standardized encounter form to document calls efficiently. Written guidelines and protocols should be utilized. Staff should be well trained so that they understand their responsibilities and appropriate triage, and physician consultation should be available for backup. The system is more commonly a problem than the staff.¹¹ The system needs to function effectively with an evaluation and review policy for the office telephone system in place.¹²

INTERNAL MEDICINE PRACTICE

Several authors have examined the types of calls received by an internal medicine practice.¹³⁻¹⁶ The distributions of calls were strikingly similar in these studies: 45% to 47% were for symptoms, 11% to 16% for test results, 5% to 29% for prescriptions, 7% to 14% about medical questions, and 10% to 12% about administrative issues.^{13,15,16} Physicians demonstrated more variability in their telephone management, as reassurance alone was given for 29% to 64%. Early appointments were made in 19% to 49% of cases, and prescriptions were given for 12% to 38%.¹³⁻¹⁶

The reasons for calls and resulting actions in internal medicine are similar to those described in other primary care specialties. Examination of a large pediatric telephone service found that 59% of calls were for medical problems and 41% were for administrative issues.¹¹ A study of a family medicine practice found that 30% of calls were for medical advice, 19% for prescriptions, 12% for test results, and 9% for administrative issues.⁴ Fischer and Smith studied the dispositions established through calls in a family medicine setting and found 43% involved only giving home care advice, 26% required a prescription, 20% necessitated an urgent visit, and 11% required a routine office visit.¹⁷ One study examined telephone medical practice in a geriatric skilled nursing facility. Although there were 50 calls per patient per year, most calls were routine. For a fourth of calls, no intervention resulted, and in only a third was a treatment prescribed. Only 5% involved an acute illness, and only 0.5% required hospitalization.¹⁸

There are important differences between telephone medical practice in internal medicine and that in other

disciplines. Patient calls to internists tend to be both longer and more complex than those to other primary care physicians. One study found that calls to internists averaged 5.3 minutes, compared with 4.6 minutes for other primary care practitioners.¹⁴ The calls to internists were also more likely to be considered urgent and to result in an urgent patient contact. The patients were older and more likely to call with cardiovascular complaints.¹⁵

IMPACT OF MANAGED CARE

Managed care, with its emphasis on efficiency, will probably lead to increased use of the telephone for patient care. Patients who belong to an HMO have been shown to be more than twice as likely to call their physician than other patients.⁸ The same study found that a third of the patients would have made an emergency department visit if they had been unable to contact their physician's practice, and another 25% would have sought an office visit. One HMO has published practice standards for telephone care, which include answering within 4 rings, using a standard greeting, and immediately identifying emergencies. Quality control is done with random analysis of taped calls.¹⁹

Outpatient calls frequently lead to resource utilization, such as laboratory tests, prescriptions, and office visits.¹⁵ One staff-model HMO recently reported the use of a protocol for managing urinary tract infections in women by telephone. The authors were able to demonstrate lower costs than for baseline care, without increased adverse outcomes.²⁰ Telephone management protocols designed to control costs may be particularly adaptable to other common conditions for which physicians' management styles are variable and controversial, such as upper respiratory infections.²¹

PROVIDING TELEPHONE MEDICAL CARE

A few studies have addressed the question of providing outpatient follow-up care via the telephone. One study used telephone follow-up as a way to extend the time between office visits in a Veterans Administration clinic. The length of time between routine visits was doubled when 3 telephone calls were substituted. The authors found decreased costs, decreased resource utilization, and no deleterious effects on measured health outcomes.²² Another study focused on patients with hypertension and compared usual care, telephone counseling, and counseling in clinic. Both of the counseling systems were superior to usual care. The telephone system was as effective as clinic counseling, but the cost per patient with controlled blood pressure was less with telephone counseling (\$39 vs \$82 per patient).²³ A recent report described a randomized controlled trial using telephone advice from diabetes nurse educators to guide insulin therapy. Patients in the group receiving telephone advice had lower hemoglobin A1c levels than they had at the study's onset or than the

control group at the study's conclusion.²⁴ A Canadian study examined the use of a telephone support system to decrease a geriatric population's number of ambulatory physician encounters. Nurses placed regular calls to patients and were available to receive patient calls. Those receiving the telephone support tended to make fewer office visits (7.4 vs 8.6) than controls, but the difference was not statistically significant.²⁵ Although only limited data are available, it seems that telephone care can safely substitute for office visits in specific circumstances.

Who should provide telephone-based care to patients remains a controversial issue. Ideally, the care would come from the patient's regular physician, as there is evidence that this physician provides more efficient care. Patients were more likely to receive a referral (28% of calls) if their regular provider was not the person receiving the call.¹⁵ However, it is not always practical for the primary physician to answer a patient's call.

In many instances nonphysicians answer patient calls to a practice. Nonphysicians answering calls are more likely to ask patients to come in for office visits.²⁶ Studies suggest, however, that trained nonphysicians take more complete histories and can perform better in delivering telephone care.²⁶ In one study, a pediatric practice reported using trained health aides to handle patient calls. The aides were able to deal with 75% of calls related to health problems and to reduce the number of calls the physicians answered from 25 to 3 per day. Over 90% of the patients were satisfied with the system, and 92% felt that their problems were resolved over the telephone and that there were no bad outcomes related to the care delivered.²⁷ Training those who deal with patient calls results in the scheduling of fewer office visits, and less direct physician involvement is required.¹⁷ The available data suggest that nonphysicians can answer most patient calls if they are well trained, are supervised, and follows protocols.

TEACHING OPPORTUNITY

Until recently, much more attention was given to telephone medicine in other primary care disciplines than in internal medicine. Pediatric studies during the 1970s demonstrated inadequacies in medical histories obtained over the telephone by residents, which did not improve as the residency progressed.²⁸ One educational intervention attempted to remedy this problem, but the authors were unable to demonstrate improvement in residents' performance using a standardized patient format.²⁹ A survey of pediatric residency programs in 1986 found that although residents handled about 40% of the calls to the residency practices, less than half of the programs offered training in telephone medicine. The programs that did offer such training were more likely to document calls and to have specific systems in place for handling calls and for reviewing calls to their practices.³⁰ The same author then constructed a curriculum for pediatric residents, using role play and standardized patients, and was able to show im-

provement in residents' history-taking skills, but not in patient management, compared with controls.³¹ Other pediatric curricula have since been described but without tests of efficacy.^{12,32}

Problems were also noted in histories obtained by family medicine residents over the telephone, inspiring educational interventions.³³ One curriculum used standardized patients and audiotapes to teach telephone medical skills.³⁴ A similar program was subsequently able to demonstrate improvement in family medicine residents' attitudes about their patients' calls. After the educational program residents were less likely to describe patients' calls as "unnecessary" or to respond negatively to calls.³⁵ Another study that used standardized patients as part of a feedback and instruction program was able to show improvement in the telephone medical skills of family medicine clerkship students.³⁶

Internal medicine residents have reported spending a great deal of time dealing with patient telephone calls. Their calls lasted a mean of 7 minutes with another 8 minutes spent in follow-up efforts (e.g., calling pharmacies). Residents have reported spending an average of 4 hours weekly doing telephone medicine, which is about equal to the amount of time that they spent in ambulatory clinic.³⁷ However, residents expressed difficulty in dealing with patient calls. They lacked confidence in their abilities and felt that many of their patient calls were inappropriate. They felt poorly prepared by their residency programs and described little formal instruction on the subject.³⁸ In addition, residents' telephone interactions often went undocumented.³⁷ Despite these problems, they felt that telephone patient contacts were a rewarding part of their practices. In a multifactorial analysis, the factors related to comfort and satisfaction with telephone practice were chart availability (both as a reference and for documentation), receiving performance feedback, and having consultants available.³⁹

Recent graduates of internal medicine residency programs expressed opinions similar to those of residents. They felt less than confident in their ability to manage patients via the telephone and agreed that formal preparation in telephone medicine during residency is important.⁴⁰ Their satisfaction with the practice of telephone medicine was predicted by chart availability, by their feeling that the residency program had prepared them for managing patients by telephone, and by their comfort with prescribing narcotics via telephone.⁸

Internal medicine residency program directors also have displayed concern about their residents' ability to practice telephone medicine. A national survey of program directors in 1994 found that only 6% had a formal curriculum for residents in telephone medical care, and only 20% felt that their programs did a good job of preparing residents for this aspect of practice. Despite these findings, 62% felt that education in telephone medicine was important for internists, and 60% felt strongly that it should be included in residency curricula.⁴¹ Factors that

predicted program directors' comfort with their residents' telephone medicine skills included frequent documentation of calls handled by residents, availability of charts, and a clear definition of resident roles in telephone interactions.⁴²

The literature regarding instruction for internal medicine residents about telephone medical issues remains scanty. A "teaching office practice" developed by an academic medical center included training in telephone interactions in the curriculum, but specific instruction methods were not described or evaluated.⁴³ Another group developed and tested a curriculum for internal medicine residents, which incorporated lectures, videotapes, and role play to deliver 4 instructional modules. Residents who completed the curriculum showed improvement on an objective structured clinical examination (OSCE) that measured history taking, triage, and management skills. The effect was maintained in those tested 6 months later, and the residents expressed increased confidence when practicing telephone care.⁴⁴ Preparing residents to manage patient calls can yield objective results. A telephone coverage system used by trained residents in an academic internal medicine practice demonstrated favorable patient outcomes and a high degree of patient satisfaction.¹⁵

PRACTICAL CONCERNS

The office telephone system is critical to the success of telephone patient care. The system must be accessible, capable of handling an adequate volume of calls, and user friendly. The initial call should be handled by a capable screener who is trained in telephone medicine skills. The screener must understand the difference between routine calls and emergencies and should have a protocol for the those cases that must be called back immediately. A screener who is not a licensed medical professional should not give medical advice. The system should allow a non-medical screener to triage patient care calls to a nurse or other designated licensed medical person trained in telephone medicine. Increasingly, office practices are using electronic systems to perform the initial triage of calls, and the same considerations apply. Patients with medical questions need to have easy access to medical professionals.

An effective office system has a person, usually a nurse, who returns the calls regarding medical questions and makes triage decisions. That person must be trained to take a thorough telephone history and should use established protocols, which are available.¹² The triage person's job is to make a decision about the acuity of the case. The purpose of a telephone history is not to make a diagnosis, only a triage decision. The 4 main triage outcomes are *emergency*, which should be handled by interrupting the physician or calling 911; *urgent*, which should be handled within 1 to 2 hours, with a decision for care; *same day*, which should be handled with an appointment or later call back; and *routine*, which can be dealt with when convenient.

The physician must decide in this type of a system about the degree of involvement he/she wishes to have. The physician decides which types of calls should be returned, if a designated call-back time should be scheduled, or whether the triage nurse has the authority to deal with emergencies before approval. The system should contain elements that enable the responsible physicians to assess how it functions and to provide feedback to all involved. From a legal standpoint, the most important concern for everyone in the office is documentation of calls.

Dealing with ambulatory patients over the telephone differs from office practice in several ways. Visual cues to patient problems are absent and the reinforcement of impressions with physical examination is lost. Practicing medicine over the telephone primarily involves 2 basic skills: identifying the patient's problem and adequately triaging care. Communication skills are of paramount importance, as patient satisfaction with telephone medicine correlates with physician communication skills.⁴⁵ Telephone histories require the ability to listen for verbal cues or hidden agendas. The history must be thorough enough to rule out serious problems, and it should contain information on past medical problems, other medications, and allergies, especially when prescriptions are given by telephone. Once the provider makes a decision, that decision must be clearly stated to the caller, and the caller should repeat it to make sure that it is understood. Adequate follow-up care must be planned.

Prescribing practices tend to be different in telephone encounters than during clinic visits. The most common prescriptions are for psychotropic drugs (27.4%), followed by antibiotics (14.2%), diuretics (10.4%), and narcotic analgesics (10.4%).⁴⁶ The level of comfort handling requests for psychotropics and narcotics over the telephone was low in surveys of practicing internists and internal medicine residents, and even lower for after-hours calls.^{8,39} Many practices have instituted "no narcotics" rules for most of the after-hours calls because it is much more difficult to deal with the issues of prescribing controlled substances without the patient's chart.

Patients who overutilize the telephone create a distinct problem. These patients are often older, have multiple chronic medical conditions, have underlying psychosocial issues, are isolated, and are seeking reassurance. It is difficult to distinguish attention seeking from legitimate new concerns and set appropriate limits for calling, but a practice may need to set such limits. Education of patients is crucial. It may help to schedule frequent follow-up visits to reassure patients who otherwise would call frequently.

AFTER-HOURS CALLS

After-hours and weekend calls can be especially problematic. One study found that half of daytime calls were for administrative issues (scheduling, test results, or prescription refills) and half for patient care issues, but

only 8% of after-hours calls were for administrative issues.²⁶ Outside office hours, the advantages of access to the medical record and easy documentation disappear. When a physician covers for others and receives calls from patients not his/her own, uncertainty increases.

Many groups have contracted "nurse call" services to handle calls outside normal office hours,¹² while others have developed their own after-hours services.^{19,47} These services often use computerized protocols for appropriate triage and may have access to electronic medical records to verify diagnosis and medications. Studies have shown that these services are capable of handling large numbers of calls without adverse patient outcomes.⁴⁸ Managed care organizations have been using these services, under the belief that they are capable of cost-effective management of patients and will reduce inappropriate emergency department visits, but this premise has not been extensively studied to date. One after-hours service developed by an HMO has been described in detail. Nurses, using protocols, perform initial triage with backup from nurse practitioners and physicians. They handle 60 to 80 clinical calls nightly at a cost of \$0.36 per member per month.¹⁹

FUTURE DIRECTIONS

Currently, most physicians do not charge and most third party payers do not reimburse for telephone medical care. If physicians are expected to spend a significant amount of time in telephone encounters, reimbursement issues need to be addressed, particularly if controlling costs is a reason for increased telephone utilization. Physicians will be using their skills to minimize costly emergency department visits and exposing themselves to liability issues. The countering argument is that reimbursing telephone time may lead to abuse. The question of how much to reimburse also needs to be determined. One author suggested, in 1994, a rate of \$15 to \$25 for calls of 5 to 10 minutes.⁴⁹ Under most managed care systems, particularly capitated ones, telephone services can be included in the package of care provided. Still, issues of quality and the appropriateness of telephone interactions compared with direct encounters will need to be addressed. The issue of quality remains one of particular interest for managed care organizations because managed care patients rate their telephone care less favorably than do fee-for-service patients.⁵⁰ More research is needed on outcomes of telephone management of common problems in order to define ideal practice patterns and improve the quality of telephone management. A recent report emphasized how difficult it is to access primary care providers by telephone.⁵¹ Another major task in improving telephone medical care will be optimizing patients' access to their physicians.

It has been hypothesized that technological advances, such as electronic charting, will improve telephone practice. One study examined this issue by randomizing general internists regarding access to computerized medical

records. No differences were seen in emergency department visits or hospitalizations between patients of physicians with and physicians without the access. The authors thought that other practice issues played a stronger role in these decisions and that access to the records did not affect them.⁵² Electronic charts may not have evolved to the point where they contribute significantly to outcomes of general patient management. This subject will undoubtedly be reassessed as the technologies become more sophisticated and able to access more aspects of patient information. An example of future uses of computers and telephones is found in one study where a psychiatric interview was administered, in some cases by a computer and in others by a clinician. The computer-administered history was found to have roughly the same sensitivity and specificity as a clinician-administered version, and the agreement on diagnoses was high ($\kappa = 0.67$).⁵³ Specialized tasks and screening functions may be more suited to this technology than other medical issues.

CONCLUSIONS

Patient care via the telephone is an integral part of internal medicine practice and requires specific skills. Calls to internists are more complex than those to providers in other primary care disciplines and lead to significant resource utilization. Under selected conditions, telephone care can substitute for office visits. The initial cost savings of telephone management, particularly in capitated settings, need to be weighed against the costs of developing and maintaining an adequate system, the uncertainty involved in these interactions, and the need for adequate follow-up care. Each internist will need to find his/her own level of comfort with the scope of problems manageable by telephone contact. Office staff, when trained and equipped with protocols, can assist physicians with patients' telephone management. Interactions with patients need to be documented, and a system should be in place enabling access to patients' medical records and encouraging performance feedback.

There is clearly interest within the internal medicine community in formal training about telephone medical practice, and internal medicine residency programs have begun inserting these topics into their curricula. Educational efforts have been shown to improve residents' interactive telephone skills. Structured curricula emphasizing active learning have been particularly effective. Residents who have been trained in providing telephone medical care have been shown to exert beneficial effects on patient care outcomes.

Many issues regarding telephone medical care remain to be studied. How will advancing technology, such as electronic charting and computerized protocols, be incorporated into medical practice? If physicians are spending large and increasing amounts of time dealing with patients via the telephone, how will that care be compensated? The literature on optimum telephone practice patterns needs to

be strengthened. Physicians need evidence about which problems can be safely managed by telephone. Common, acute conditions, like urinary tract and upper respiratory infections, are examples. Telephone-based care may also have a role in routine follow-up care for chronic conditions like diabetes and hypertension.

As is much of medicine, this aspect of health care is evolving rapidly, and physicians will need to become adept at managing the telephone aspect of their practice.

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