Clinical telephone encounters: a literature review of procedures and empirical research in healthcare

Thatte, Hameer Hemant

http://hdl.handle.net/2144/14321

Boston University
BOSTON UNIVERSITY

SCHOOL OF MEDICINE

Thesis

CLINICAL TELEPHONE ENCOUNTERS: A LITERATURE REVIEW OF PROCEDURES AND EMPIRICAL RESEARCH IN HEALTHCARE

by

HAMEER THATTE

B.S., University of Massachusetts, 2005

Submitted in partial fulfillment of the requirements for the degree of

Master of Science

2014
Approved by

First Reader
Theresa Davies, Ph.D.
Director, M.S. Oral Health Sciences Program
Adjunct Assistant Professor of Biochemistry

Second Reader
Gouri Gupte, Ph.D.
Assistant Professor, Health Policy & Management
DEDICATION

First and foremost, I dedicate my thesis to Gurumayi, for whom this educational experience would not have been possible. A special feeling of gratitude goes to my loving parents, Dr. Hemant and Aditi Thatte, who have served as my rock throughout my professional and educational experience. Finally, my sister, Tejasi, and my brother, Kabir, continue to inspire me and I thank them for their unwavering support.
ACKNOWLEDGMENTS

I would like to express the deepest appreciation to my Public Health advisor, Dr. Gouri Gupte, whose mentorship and guidance have been invaluable throughout my experience as a master’s student at the Boston University School of Public Health. Dr. Gupte’s passion for quality improvement and strategic management has truly served as a beacon for my impending career in the healthcare industry. Furthermore, I would like to thank my Graduate Medical Sciences advisors, Dr. Theresa Davies and Dr. Gene Blatt, for their support and counsel during my tenure as a MAMS student. Finally, I wish to thank the directors of my respective master’s programs, Dr. Gwynneth Offner and Dr. Victoria Parker, for their encouragement and guidance over the years.
Telephone calls have become the primary mode of communication between patients and physicians outside of the office setting. The telephone’s importance primarily revolves around its potential to improve physician practices and augment the physician-patient relationship by positively affecting clinical outcomes and overall patient satisfaction. Specific interactions between the physician and patient are termed “encounters”; calls between physician and patient can only be considered “clinical telephone encounters” if they are documented with appropriate elements of a face-to-face encounter, to include history and clinical decision-making. In this thesis, we explore current literature in order to identify how clinical telephone encounters are defined, barriers to gathering data on the telephone, telephone encounter documentation methods, patient and physician perspectives of telephone encounters, telephone encounters in practice, as well as the major areas for improvement in telephone medicine.

We utilized traditional systematic search methods in order to identify original research studies and systematic reviews that evaluate telephone communication’s role as a medium of healthcare delivery. In reporting on the
effectiveness and utilization of telephone care, we principally rely on evidence provided by randomized controlled trials, controlled before-and-after studies, and guidelines published by leading authorities on telephone medicine.

The results show a three-function model to frame the telephone interview, which involves determining the problem’s nature, developing a therapeutic relationship with the patient, and simultaneously educating the patient while implementing the appropriate treatment plan. Several studies have outlined the importance of documenting clinical telephone encounters, including the highlighting of legal issues pertaining to the practice of medicine, the establishment of clear communication with the primary care physician, and the demonstration of any potential abuses of the system.

In practice, studies observing telephone follow-up of cardiac care after either myocardial infarction or surgery demonstrated improved behaviors and patient outcomes, including low-density lipoprotein cholesterol lowering, smoking cessation, improved exercise capacity, and the ability to return to normal activity in a more rapid manner. Telephone encounters may also prove to be appropriate for many acute disorders, respiratory tract infections, and common symptoms.

The results also indicate that charging for telephone calls may cause patients to value calls more, changing their views on telephone encounters from favors by the physician to professional treatment. Additionally, the consequences of errors in practicing telephone management have the potential to be severe; from a medicolegal standpoint, telephone patient contacts do not
differ from office visits in terms of physician-patient obligations. Finally, training physicians to be competent in telephone medicine is critical, for studies have shown that they tend to consider themselves incompetent at the task.

The literature has also shown that providing patient care over the telephone has proven to be an integral part of practicing medicine and requires familiarity (and even mastery) of specific skills. Telephone care has the potential to substitute for office visits under very certain circumstances. Our review also suggests limitations in the overall literature include the consistent quoting of a survey of how many residency programs teach telephone medicine in their curriculums. For example, the number (6%) that is consistently quoted is from a survey taken in 1995. Further studies should be done to determine whether that statistic has improved or changed dramatically in the nearly 20 years that have passed since that survey.

Finally, there are many questions regarding telephone medicine’s future. It is very likely that the volume of telephone calls between physicians and patients will continue its current growth trends, which necessitates maximal efficacy and efficiency of calls while ensuring cost-effectiveness and reduction. Disease-management strategies, created to empower patients with the ability to self-monitor, may result in more calls regarding the management of chronic illness. Additionally, cost-reduction strategies such as replacing scheduled visits with telephone calls may become the convention.
# TABLE OF CONTENTS

<p>| TITLE | ........................................................................... | i |
| COPYRIGHT PAGE | ....................................................................... | ii |
| READER APPROVAL PAGE | .................................................................. | iii |
| DEDICATION | ..................................................................... | iv |
| ACKNOWLEDGMENTS | .................................................................... | v |
| TABLE OF CONTENTS | ..................................................................... | ix |
| LIST OF TABLES | ..................................................................... | xi |
| LIST OF ABBREVIATIONS | ................................................................... | xii |
| INTRODUCTION | ........................................................................ | 1 |
| Elements of the Telephone Encounter | ................................................ | 2 |
| The Benefits and Uses of Telephone Medicine | .................................. | 5 |
| METHODS | ........................................................................ | 9 |
| RESULTS | ......................................................................... | 11 |
| Challenges Presented by Telephone Encounters | ...................................... | 11 |
| The Three-Function Model of the Telephone Interview | ................................ | 12 |
| Barriers to Gathering Data on the Telephone | ...................................... | 13 |
| Documenting Information Provided by the Patient | ................................... | 17 |
| Patient Perspectives on Telephone Encounters | ....................................... | 21 |</p>
<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Uses and Benefits of Telephone Medicine</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Examples of Effective Delivery of Healthcare Provided Using a Telephone</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>Important Elements of Effective Treatment Plan Negotiations and Patient Education during Telephone Encounters</td>
<td>17</td>
</tr>
<tr>
<td>4</td>
<td>Essential Elements of a Well-Documented Clinical Telephone Encounter</td>
<td>19</td>
</tr>
<tr>
<td>5</td>
<td>Common Barriers in Conducting Telephone Encounters and Potential Solutions</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>Necessary Skills for Effective Telephone Communication</td>
<td>39</td>
</tr>
<tr>
<td>7</td>
<td>Checklist for Telephone Encounter Skills Practice</td>
<td>40</td>
</tr>
</tbody>
</table>
LIST OF ABBREVIATIONS

FFS ........................................................................................................ Fee-for-Service
CPT .................................................................................................. Current Procedural Terminology
HCFA ......................................................................................... Health Care Financing Administration
HMO ......................................................................................... Health Maintenance Organization
OSCE ...................................................................................... Objective Structured Clinical Examination
PCMH ...................................................................................... Patient-Centered Medical Home
US ............................................................................................... United States
INTRODUCTION

The telephone has been a significant tool for healthcare delivery since its creation in 1876. In fact, the first recorded telephone call placed by Alexander Graham Bell (its inventor) was to call for medical assistance after he accidentally spilled sulfuric acid on himself (Car & Sheikh, 2003). Today, it has been approximated that 25% of internists’ interactions with patients are through the use of a telephone; this number may increase given the weight that managed care places on telephone access (Reisman & Stevens, 2002). The telephone’s importance primarily revolves around its potential to improve physician practices and augment the physician-patient relationship by positively affecting clinical outcomes and overall patient satisfaction. Telephone calls have become the primary mode of communication between patients and physicians outside of the office setting (Reisman & Brown, 2005).

Given the importance of telephone interactions between physician and patient (i.e. telephone encounters), we aim to provide a review of current literature that addresses the following areas:

• How does current literature define clinical telephone encounters?
• What are the barriers to gathering data on the telephone?
• How are telephone encounters documented in the literature?
• What are the patient’s and physician’s perspectives of their telephone encounters?
• How is telephone medicine currently practiced?

• What are the largest problem areas/areas for improvement moving forward with telephone medicine?

• What is the current state of telephone medicine training for physicians?

In this review, we limit our scope to clinical telephone encounters that occur between a physician and patient, for the physician generally has the greatest influence on the patient outcome and efficiency of care, regardless of the medium used for encounters (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000).

**Elements of the Telephone Encounter**

Specific interactions between the physician and patients are termed “encounters”. A formal definition for an encounter can be the “professional contact between a patient and a practitioner vested with responsibility for diagnosing, evaluating, and treating the patient’s condition…each encounter of face-to-face contact…requires a corresponding matching note in the medical record,” (Department of Veterans Affairs - Veterans Health Administration, 2010). Following that theme, calls between physician and patient can only be considered clinical telephone encounters if they are documented and that “documentation includes the appropriate elements of a face-to-face encounter,
namely history and clinical decision making,” (Department of Veterans Affairs - Veterans Health Administration, 2010). Medical history is critical to the efficacy of telephone encounters, especially when information from the laboratory testing and physical examinations is unavailable or lacking, for many diagnoses in internal medicine tend to be made using information from the medical history (Reisman & Stevens, 2002). Examples of telephone encounters include managing conditions such as heart failure (Clark, Inglis, McAlister, Cleland, & Stewart, 2007; Riegel, Carlson, Kopp, LePetri, Glaser, & Unger, 2002) and asthma (Gruffydd-Jones, Hollinghurst, Ward, & Taylor, 2005; Patel, Gray, Saltoun, & Grammer, 2009; Pinnock, Bawden, Proctor, Wolfe, Scullion, & Price, 2003).

One of the key distinctions of the telephone encounter from a traditional encounter is the lack of a physical meeting between physicians and patients; this prevents the possibility of conducting a physical exam. In order for telephone encounters to be effective, physicians must possess refined communication skills and knowledge. These skills are paramount, for physicians will have to make key decisions about whether a patient needs to be prescribed a medication, come in to the emergency department, or alter their current care plan, all without physical contact with the patient and, in many instances, lack of access to the patient’s medical record (Reisman & Stevens, 2002).

According to Lazare et al., the medical interview can be described as having three functions – information gathering, developing rapport, and educating
the patient (Lipkin, Putnam, & Lazare, 1995). Information gathering over the telephone is difficult because the medium precludes visual cues from the patient. The development of rapport proves to be a fundamental challenge over the telephone, for time tends to be limited and the likelihood of a pre-existing physician-patient relationship is low.

Finally patient education is a critical element of the telephone encounter. The telephone’s barrier to visual cues may prevent a physician from observing visual comprehension on the part of the patient (e.g. the absence of a blank-stare). Time limits and other distractions may also prevent effective patient education over the telephone (Reisman & Stevens, 2002).
The Benefits and Uses of Telephone Medicine

Telephone medicine’s benefits have a much larger scope than the management of an acute medical issue. Physicians have many potential reasons to speak to patients on the phone (Table 1). A number of these reasons have been explored and found to be relatively effective (Reisman & Stevens, 2002).

A major benefit that telephones provide for the physician is increased access to his or her patient (and vice versa). Telephone access allows for the discussion of new or recurring problems, medical advice, and potential treatment plans. In rural areas, the telephone can be efficient in providing the physician with information that is both vital and timesaving (Reisman & Stevens, 2002). Fiscally minded patients (i.e. those who may not necessarily be able to afford travel to the care setting) may use telephone calls with physicians to determine if office or emergency departments are needed. Regarding the productivity of working adults, a quick telephone call with the physician may assist the patient in avoiding missed workdays (Reisman & Stevens, 2002). Additionally, telephone calls may prevent patients with small children from the hassle of finding last-minute childcare. Patients can also utilize the telephone to obtain test results and refill medications in lieu of waiting until their next appointment. For patients that tend to avoid their regular follow-up visits (perhaps due to anxiety), the telephone could provide a less stressful medium through which they can speak to their physician (Reisman & Stevens, 2002).
Table 1. The Uses and Benefits of Telephone Medicine.

<table>
<thead>
<tr>
<th>Uses</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Augment issues raised at the office visit</td>
<td>• Improved access to care</td>
</tr>
<tr>
<td>• Allows follow-up on issues discussed during the visit:</td>
<td>• Allows patient access to his or her physician for problem- treatment/</td>
</tr>
<tr>
<td>• Reminders (e.g. smoking cessation), toleration treatment/efficacy</td>
<td>treatment/advice/disposition</td>
</tr>
<tr>
<td>• Give patients help with healthcare decisions at home</td>
<td>• Provides patient assistance with decisions at home (rather than a face-</td>
</tr>
<tr>
<td>• Modify treatment for chronic disease (e.g. hypertension, diabetes</td>
<td>to-face with the provider)</td>
</tr>
<tr>
<td>mellitus) based on home monitoring</td>
<td>• Increased patient satisfaction</td>
</tr>
<tr>
<td>• Refill medications</td>
<td>• Cost-savings for the patient</td>
</tr>
<tr>
<td>• Give test results</td>
<td>• Potential to improve quality of care/outcomes</td>
</tr>
<tr>
<td>• Diagnose problems early</td>
<td>• Potential for reimbursement</td>
</tr>
<tr>
<td>• Prevent unnecessary emergency department visits</td>
<td>• Improved efficiency in the managed care setting</td>
</tr>
<tr>
<td>• Follow up patients discharged from the hospital</td>
<td>• Prevention of unnecessary emergency department visits</td>
</tr>
<tr>
<td>• Provide information on suicide hotlines and counseling</td>
<td>• Improved patient outcomes</td>
</tr>
<tr>
<td></td>
<td>• Avoidance of missed days of work</td>
</tr>
<tr>
<td></td>
<td>• Reduced demand on office staff</td>
</tr>
<tr>
<td></td>
<td>• Doctor-Patient Rapport</td>
</tr>
<tr>
<td></td>
<td>• Heightens patient satisfaction</td>
</tr>
<tr>
<td></td>
<td>• Increases a sense of partnership between the physician and patient</td>
</tr>
<tr>
<td></td>
<td>• Allows the patient to communicate with the physician in a comfortable</td>
</tr>
<tr>
<td></td>
<td>environment</td>
</tr>
</tbody>
</table>

Additionally, the telephone affords patients increased access to the physician; this has the potential to decrease in-person medical service utilization, and increase resources and time for patients requiring in-person evaluation. One particular study demonstrated that patients who used the telephone to substitute certain scheduled follow-up visits had lower hospitalization rates, costs, and medication use (Reisman & Stevens, 2002). A second study found equivalent satisfaction levels in patients that either experienced a follow-up appointment by telephone or were seen by a physician in person (Reisman & Stevens, 2002). Some studies have also demonstrated that patients with telephone access to a physician are less likely to visit the emergency department (Reisman & Stevens, 2002). As a result of managed care, patients tend to be discharged from the hospital earlier. This trend creates a higher proportion of ill patients in the community; telephone follow-up of these patients has the potential to serve as a suitable and cost-saving method to guarantee clinical improvement (Reisman & Stevens, 2002).

In internal medicine, telephone calls tend to be grouped as doctor-initiated, patient/family-initiated, and those initiated by other medical employees (Reisman & Stevens, 2002). Patient-initiated calls tend to occur with the presentation of new symptoms, administrative issues, and in order to follow up with chronic medical issues. Physicians proactively conduct doctor-initiated calls as a follow-up for acute issues pertaining to office or telephone encounters, follow-up of chronic problems such as blood glucose measurements or elevated
blood pressure, or to evaluate the efficacy of novel medications (Reisman & Stevens, 2002). Table 2 provides examples of specific clinically focused effective delivery of healthcare provided using a telephone.

**Table 2. Examples of Effective Delivery of Healthcare Provided Using a Telephone.**

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Follow-up following transurethral prostatectomy</td>
</tr>
<tr>
<td>• Management of diabetes</td>
</tr>
<tr>
<td>• Monitoring of care and follow-up for depression</td>
</tr>
<tr>
<td>• Management of urinary tract infections in women</td>
</tr>
<tr>
<td>• Counseling for smoking cessation</td>
</tr>
</tbody>
</table>


Finally, one of the biggest advantages of telephone is their potential to reduce emergency department use. For example, one study by Delichatsios has shown that 33% of patients would have utilized the emergency department if they had been unable to make contact with a physician, while only 8% utilized an emergency department following confirmed telephone contact with a physician (Delichatsios, Callahan, & Charlson, 1998).
METHODS

We utilized traditional systematic search methods in order to identify original research studies and systematic reviews that evaluate telephone communication’s role as a medium of healthcare delivery. In reporting on the effectiveness and utilization of telephone care, we principally rely on evidence provided by randomized controlled trials, controlled before-and-after studies, and guidelines published by leading authorities on telephone medicine.

Through a comprehensive search, a total of 186 articles were identified. Complete details of each search strategy are available from the articles’ respective authors. Our search involved the entire coverage dates of the databases; it was not limited by the publication year. Moreover, we broadly searched beyond health research journals because many works covering clinical telephone encounters appear in other media, including various texts. A significant resource for this literature review came from the book *Telephone Medicine* by Anna B. Reisman and David L. Stevens. The book was written to provide clinicians with a basic understanding of the field of telephone medicine and the various ways in which it can be utilized to improve patient care. It provides an evidence-based approach to telephone management of many common symptoms, and covers many other topics such as medicolegal issues, difficult patient types, communication skills, office management, and documentation.
The abstracts of these articles were reviewed using two predetermined inclusion/exclusion criteria. First, the source had to report original empirical research from a peer-reviewed journal. This criterion excluded prescriptive articles, conceptual or theoretical articles, and conference articles. Second, the abstract had to explicitly mention telephone medicine (or any conceptually related term as listed above). This criterion eliminated articles that focused on the visual and internet-related components of telemedicine/telehealth, as well as telephone encounters conducted by non-physician personnel. Using these criteria, we retained and reviewed the full texts of 66 articles.

Our search involved looking for articles that discussed how telephones are being used in patient-care, what they are being used for, potential for universal telephone medicine concepts, and various barriers and challenges that face telephone medicine. As discussed in the introduction, we defined telephone encounters using Veteran’s Affairs directives, i.e. those telephone calls that included elements of a face-to-face encounter, namely documentation of history-taking and clinical decision-making (Department of Veterans Affairs - Veterans Health Administration, 2010).
RESULTS

We present results in relation to the basic components of the telephone encounter below, as well as its applications by physicians in a healthcare setting. The telephone interview has become a significant component of a physician’s workday and an integral part of the care given to the patient. And yet, physicians are reported as anxious when conducting telephone interviews as compared to the traditional face-to-face encounter (Curtis & Evens, The telephone interview, 1995).

Challenges Presented by Telephone Encounters

Telephone encounters present certain unique challenges. For example, the lack of physical contact creates an inability to perform either a physical examination or any office based diagnostic tests (e.g. electrocardiogram). The potential exists for the encounter to occur during stressful situations that may result between office visits, or even while an individual is driving while using his or her cellular phone. It can also be difficult to document the call when the physician is located in a non-medical setting (e.g. after-hours). After-hours telephone calls can cause an intrusion into the private life of the healthcare provider. Telephone encounters can also be shorter than traditional face-to-face office visits (Reisman & Stevens, 2002). Finally, for on-call physicians, it is distinctly possible that he or she has little to no knowledge of the patient and has
no access to the patient’s medical record, as well as the likely lack of a pre-existing physician-patient relationship (Reisman & Stevens, 2002). The challenges outline the necessity for a robust approach to the telephone interview.

**The Three-Function Model of the Telephone Interview**

A model described by Lipkin, Putnam, and Lazare (1995) has created a useful framework by which a telephone encounter can be described. According to them, the clinician performs three general functions on the telephone:

1) Determine the problem’s nature
2) Develop a therapeutic relationship with the patient
3) Educate the patient and implement the appropriate treatment plan

When determining the nature of a problem, it is imperative that the physician takes an effective history, assesses the patient’s response to the illness/medical issue, and generates and tests an appropriate hypothesis (Lipkin, Putnam, & Lazare, 1995). Taking an effective history is a critical element of the telephone encounter (Department of Veterans Affairs - Veterans Health Administration, 2010). A significant challenge posed by the determination of the problem’s nature is to identify the patient’s primary concern. Additionally, several studies have identified physicians’ inadequacies in history-taking (Perrin & Goodman, 1978; Katz, Pozen, & Mushlin, 1978). In a study by Perrin and
Goodman that compared pediatricians’ telephone management skills, it was determined that nurse practitioners regularly obtained more historical information than pediatricians (Perrin & Goodman, 1978).

**Barriers to Gathering Data on the Telephone**

Physicians face many difficulties when gathering data on the telephone. The more apparent examples include technical problems, hearing or speech issues, having to use a family member to communicate with the patient, and differences in language. Some technical problems can immediately be solved using a different telephone; it is imperative that family members should only be involved if the patient has problems with hearing, speech, or language (Reisman & Stevens, 2002). If the patient’s issue is not an emergency and the physician has a busy schedule, the physician should ask for the patient’s permission to discuss the issue at a later point that day.

Difficult problems may arise from variances in culture or communication style between physician and patient (Reisman & Stevens, 2002). Many studies have described that differences in cultural values potentially create a failure to effectively communicate or properly understand the problem. In many instances, physicians and patients do not properly respond to one another due to a lack of understanding of the other’s words, or perhaps due to the social context of the other’s actions and beliefs (Quill, 1995). The physician should also ensure that he or she is prepared for potentially difficult or frustrating communication issues,
such as the patient’s reluctance to reveal information (especially if they do not understand the question’s relevance to the issue). In these instances, it is essential that physicians downplay their own personal frustrations, at least until the telephone call is completed (Cassell, 1980). It is likely that frustrated or reluctant patients may be acting in such a manner due to anxiety; the physician should do everything in his or her faculties to assuage the patient’s concerns while striving to rule out any serious pathology (Reisman & Stevens, 2002).

When developing a therapeutic relationship with the patient, it is important for the physician to communicate respect, demonstrate his or her expertise, and apply/address the appropriate levels of communication. Creating rapport and a productive relationship with the patient can be difficult but necessary for a successful telephone encounter (Reisman & Stevens, 2002). The three main tasks involved in building rapport over the telephone are (Reisman & Stevens 2002):

1) Appreciating language and behavior that identify a deeper problem
2) Assessing and managing the patient’s emotional state
3) Instilling confidence in the patient (Reisman & Stevens, 2002)

The final function of the clinical telephone encounter as described by Lipkin, Putnam, and Lazare is patient education and the implementation of a treatment plan (Lipkin, Putnam, & Lazare, 1995). The model recommends that
the physician explain the diagnostic significance of the patient’s problem or symptom in terms of causation, seriousness, treatment, and prognosis. One of the telephone encounter’s primary benefits is the ability to assess whether the patient requires an in-person emergency evaluation and, if not, it affords the physician to reassure the patient and provide advice about managing symptoms (Lipkin, Putnam, & Lazare, 1995). During the telephone encounter, the patient should assist the patient in understanding the significance of the medical issue or illness, recommend the appropriate action and treatment, and clarify the required actions and potential side-effects of the appropriate medications and procedures. A critical aspect of the encounter is for the physician to obtain the patient’s agreement about the devised treatment plan, which should effectively account for the medical and psychosocial issues that pertain to the patient’s issue (Reisman & Stevens, 2002).

Since most problems presented on the telephone are generally immediate and explicit, the ability to obtain agreement and follow-through with the patient on management decisions is often simpler to attain than via an office encounter. This concept is directly dependent on the physician’s ability to communicate the care management plan clearly and simply, as well as how complex the issue that presents itself is and what other comorbid illnesses may also be present (Reisman & Stevens, 2002). As the telephone encounter proceeds, the physician will continuously negotiate (even during the history-taking process) with the patient until an agreement is reached. By the end of the telephone call, the
caller must agree that the care plan is appropriate, reasonable, and respects the patient’s individual priorities (Heaton, 1981; Davis, 1986).

Part of the telephone encounter involves educating the patient, which can potentially allow patients to learn how to utilize the office and emergency room more appropriately (and efficiently). Some studies have indicated that patients show poor recall of their diagnosis and treatment in person; however, patients making calls tend to recall the contents of the calls made to physicians (Lipkin, Putnam, & Lazare, 1995; John & Curtis, 1988). This is likely due to the fact that telephone calls initiated by the patient tend to involve urgent requests for help rather than more routine office visits for health maintenance or monitoring chronic disease. Callers will more consistently take the medication or adhere to instructions provided by the physician (Reisman & Stevens, 2002). Additionally, Table 3 discusses important elements of effective treatment plan negotiations and patient education during telephone encounters.
Table 3. Important Elements of Effective Treatment Plan Negotiations and Patient Education During Telephone Encounters.

- Verify the patient’s understanding of the medical issue
- Explain the problem’s nature and seriousness clearly
- Provide a specific opinion about the problem’s likely course
- Assess/address the patient’s potential emotional response to the information provided
- Advise the patient about potential management options (including medication)
- Negotiate the plan and establish potential feasibility
- Offer advice about when a callback is required
- Create a definitive plan regarding follow-up
- Have the patient repeat back his or her instructions
- Afford the opportunity for further questions
- Offer to speak with a family member to answer questions (if appropriate)


Documenting Information Provided by the Patient

Studies have shown that documentation of telephone advice is poor, with approximately 50% of telephone contacts being entered into the record (Car & Sheikh, 2003). Complete documentation is important for ensuring safe, effective, and efficient care while preventing the possibility of litigation. Reasons to document clinical telephone encounters include highlighting legal issues pertaining to the practice of medicine, allowing for the establishment of clear
communication with the primary care physician, and to demonstrate any potential abuses of the system (e.g. repeated requests for drugs or other controlled substances. At a minimum, the physician should document the date and time of the telephone call, the nature of the issue (even including quotes from the caller, if possible), and the advice provided by the physician (Reisman & Stevens, 2002). Additionally, documentation logs should be saved for seven to ten years, depending on the appropriate state statute of limitations (Robinson, Anderson, & Erpenbeck, 1997). Table 4 identifies essential points to document in a clinical telephone encounter according to Reisman (2002).

The rigors and stresses of daily medical operations create barriers to documentation. For example, physicians may find themselves too busy or receiving too many calls. Additionally, the physician may not be in the hospital when most of the calls are made by the patient/caller. Finally, no medical record may be available when the call comes in. Potential solutions include physicians learning to document efficiently, establishing a system with the medical records department to insert notes into the appropriate chart, and/or computerized medical records systems (Reisman & Stevens, 2002). Common barriers and potential solutions are discussed in Table 5.
Table 4. Essential Elements of a Well-Documented Clinical Telephone Encounter.

<table>
<thead>
<tr>
<th>History</th>
<th>Primary concerns and hidden or underlying concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Past medical history, to include allergies, surgeries, and medications</td>
</tr>
<tr>
<td></td>
<td>Relevant social and sexual history, to include drug use, potential for pregnancy (e.g. asking when the last period was and contraception use)</td>
</tr>
<tr>
<td></td>
<td>Potential cons or negatives that would result from ruling out emergencies</td>
</tr>
<tr>
<td></td>
<td>Other relevant supportive data (e.g. family member’s impressions and the physician’s observation of how the patient sounds)</td>
</tr>
<tr>
<td>Impression</td>
<td>Working diagnosis</td>
</tr>
<tr>
<td></td>
<td>Determining whether the patient needs to be seen in person (and if so, when)</td>
</tr>
<tr>
<td></td>
<td>Justification for ruling out more urgent problems</td>
</tr>
<tr>
<td>Management Plan</td>
<td>In-person evaluation (if, where, and when)</td>
</tr>
<tr>
<td></td>
<td>If 911 will be called (and by whom)</td>
</tr>
<tr>
<td></td>
<td>Potential home treatment – medications, fluids, etc.</td>
</tr>
<tr>
<td></td>
<td>When the patient should call the physician back</td>
</tr>
<tr>
<td></td>
<td>Confirmation of the patient’s understanding of the instructions and care plan (and the manner with which the physician was able to determine this, e.g. did the patient repeat the instructions or the plan)</td>
</tr>
</tbody>
</table>

Table 5. Common Barriers in Conducting Telephone Encounters and Potential Solutions.

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Potential Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>- When gathering information</td>
<td>- Conduct a more thorough history</td>
</tr>
<tr>
<td>• No physical examination</td>
<td>- Confer with the family (e.g. asking if they feel that the patient is sick)</td>
</tr>
<tr>
<td>• Cannot visually assess the patient</td>
<td>- Paying particular attention to the tone of voice, language, and speech rate</td>
</tr>
<tr>
<td>• Lack of non-verbal cues from the patient</td>
<td>- Asking the patient or his/her family for additional information</td>
</tr>
<tr>
<td>• Lack of a medical chart or the physician not remembering the patient</td>
<td></td>
</tr>
<tr>
<td>- Medical knowledge/experience issues</td>
<td>- Refer to a more experienced physician and follow-up with patient; seek out reference materials</td>
</tr>
<tr>
<td>• The physician’s lack of experience</td>
<td>- See previous solution</td>
</tr>
<tr>
<td>• Lack of reference materials</td>
<td></td>
</tr>
<tr>
<td>- Physician’s personal barriers</td>
<td>- Call the patient back and have a back-up/reserve physician available</td>
</tr>
<tr>
<td>• Busy work schedule</td>
<td>- Ensure the adequate creation of a cross-coverage system</td>
</tr>
<tr>
<td>• Out-of-the-office/vacation</td>
<td>- Create an effective system for ensuring that the note is entered into the chart</td>
</tr>
<tr>
<td>• Inconvenience of documentation</td>
<td></td>
</tr>
<tr>
<td>- Patient’s unique barriers</td>
<td>- Use the patient’s family to interpret; seek out the hospital’s professional interpreter and follow-up with the patient; enlist the help of a telephone company interpreting service</td>
</tr>
<tr>
<td>• Language differences</td>
<td>- Utilize effective and appropriate relationship-building skills</td>
</tr>
<tr>
<td>• Patient does not have an existing relationship with the physician</td>
<td></td>
</tr>
<tr>
<td>(or does not know the physician)</td>
<td></td>
</tr>
</tbody>
</table>

Patient Perspectives on Telephone Encounters

Patients have differences in their particular needs on the telephone versus in-person encounters. Patients often use the telephone as a convenient and economical first step into the healthcare system to familiarize themselves with the process. Once they are comfortable with the environment and have appropriately collaborated with the clinician, they can decide the appropriate action, whether it is addressing remedies to their symptoms over the phone or scheduling a face-to-face office visit (Reisman & Stevens, 2002).

A study by Stewart et al. outlines a taxonomy of various illness behaviors that would drive a patient to seek out a physician; contact with a physician is generally made because patients and their advocates have reached their personal tolerance limits for anxiety and discomfort (Stewart, Buck, & McWhinney, 1978). After a certain threshold is reached, patients have the desire to obtain professional advice. Physicians should bear in mind that it will likely be necessary to manage the caller’s anxiety in addition to any potential physical symptoms. It is likely that management of anxiety may be the only required physician intervention for many patients (Reisman & Stevens, 2002).

Patients are traditionally satisfied with their telephone care (Delichatsios, Callahan, & Charlson, 1998; Greenhouse & Probst, 1995). In one study, 66% of patients considered their telephone care to be either excellent or very good, while 21% of those surveyed rated their care as good. The highest satisfaction ratings
came from those who exhibited complete relief from their symptoms (Delichatsios, Callahan, & Charlson, 1998).

**Physician Perspective on Telephone Encounters**

Physicians tend to be dissatisfied with the telephone care performance; many consider the act of prescribing medications over the telephone to be uncomfortable (particularly to patients needing antidepressants or seeking narcotics) (Hannis, Elnicki, Morris, & Flannery, 1994; Hannis, Hazard, Rothschild, et al., 1996). Practicing internists have felt uneasy about prescribing medications because they felt unprepared by their residences for these particular interactions (Hannis, Hazard, Rothschild, et al., 1996). Nearly 33% of physician telephone contacts result in anger, frustration, and indifference (Curtis & Talbot, 1979). In studies of pediatricians, 42% of those based in Health Maintenance Organizations (HMOs) and 45% of those in fee-for-service (FFS) practices felt dissatisfied in their telephone systems (Katz, 1990). Irregardless, physicians are traditionally of the opinion that the use of telephone calls in medical care can be considered appropriate, although patients tend to consider more of their calls to be emergencies as compared to physicians (Reisman & Stevens, 2002). In nearly 33% of the telephone calls, physicians and patients may view the reason for the call differently. For example, one study showed that physicians have a tendency to identify the reason for most calls as physical problems, versus
patients who consider the primary reason for making a call as either concern or anxiety (Reisman & Stevens, 2002).

As late as 1995, only 6% of residency programs had formal training components, which likely contributes to the fact that many physicians express a lack of confidence in their abilities on the telephone (Flannery, Moses, Cykert, et al., 1995; Reisman & Stevens, 2002). It is important to bear in mind, however, that telephone encounters are not different from other areas of practice in which physicians have not been formally trained to do, such as diagnosing and treating depression (Reisman & Stevens, 2002).

**Telephone Medicine in Practice**

Several studies have explored the types of calls received by an internal medicine practice (Greenlick, Freeborn, Gambill, & Pope, 1973; Radecki, Neville, & Girard, 1989; Delichatsios, Callahan, & Charlson, 1998; Johnson & Johnson, 1990). The distribution of calls amongst these four studies were consistent – 45-47% of the calls were for symptoms, 11-16% were for test results, 5-29% for prescriptions, 7-15% for medical questions, and 10-12% or administrative issues (Greenlick, Freeborn, Gambill, & Pope, 1973; Delichatsios, Callahan, & Charlson, 1998; Johnson & Johnson, Telephone medicine: a general internal medicine experience, 1990).

Several randomized controlled trials have validated the utility of proactive doctor-initiated calls in patient care (Reisman & Stevens, 2002). Studies
observing telephone follow-up of cardiac care after either myocardial infarction or surgery demonstrated improved behaviors and patient outcomes, including low-density lipoprotein cholesterol lowering, smoking cessation, improved exercise capacity, and the ability to return to normal activity in a more rapid manner (Reisman & Stevens, 2002). Patients suffering from osteoarthritis who were contacted regularly on the telephone and whose physicians focused on the promotion of self-care experienced reduced pain and augmented physical activity (Reisman & Stevens, 2002).

In terms of reasons for calling, other primary care specialties had similar results to internal medicine. In one examination of a large pediatric telephone service, 59% of calls were for medical problems and 41% for administrative issues (Katz & Wick, 1991). A study of a family medicine practice found that 30% of calls were for medical advice, 19% for prescriptions, and 12% for test results (Solberg, Mayer, Setfert, Cole, & Holloway, 1998). A study by Fischer and Smith found that in a family medicine setting, 43% of callers received home care advice, 26% required a prescription, 20% required an urgent visit, and 11% needed an office visit (Fischer & Smith, 1979). Another study examined telephone medicine at a geriatric skilled nursing facility. Most calls were considered routine, although there were fifty calls per patient per year. For 25% of the calls, no intervention resulted, while 33% of the calls involved prescribing treatment. 5% involved acute illness, while only 0.5% required hospitalization (Fowkes, Christenson, & McKay, 1997).
There are differences in how telephone calls are placed to internists versus other primary care disciplines (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000). For example, patient calls to internists tend to be more complex and lengthier than those to other primary care physicians. One particular study determined that calls to internists last an average of 5.3 minutes, while other primary care practitioners received phone calls that last an average of 4.6 minutes (Radecki, Neville, & Girard, 1989). Calls to internists are more likely to be considered urgent and result in an urgent patient contact. Patients calling internists also tend to be older and have more cardiovascular issues (Delichatsios, Callahan, & Charlson, 1998).

Telephone encounters may prove to be appropriate for many acute disorders, e.g. musculoskeletal problems (such as low back pain), respiratory tract infections, and common symptoms (including headache and fever) (Car & Sheikh, 2003). However, only a few studies have been conducted that evaluate the appropriateness of telephone management for individual acute disorders. For those studies that have been conducted, telephone care has been demonstrated to provide safe and cost-effective care (e.g. in managing uncomplicated acute cystitis in women) (Car & Sheikh, 2003). However, a recent study that replaced clinic visits with telephone appointments did not find a reduction in medical service use, thus necessitating further research (Reisman & Stevens, 2002)
In the early months following admission for heart failure, standardized telephone case management has been demonstrated to reduce readmission rates and healthcare costs compared to traditional care models; it has also proven to be comparable to other disease management approaches. These results are especially critical because the Affordable Care Act mandates that hospitals with high risk-standardized readmission rates are subject to a Medicare reimbursement penalty as of 2013 (Crocker, Crocker, & Greenwald, 2012).

Additionally, researchers in the mental health community have identified the potential psychological advantages of communicating via telephone (e.g. a patient can participate, ask questions, and obtain support while avoiding the stress, time commitment, and expense associated with face-to-face contact) (Car & Sheikh, 2003). A study that observed cognitive behavior therapy administered by telephone for the treatment of depression in patients with multiple sclerosis saw patients with appreciably improved adherence to treatment and clinical outcomes (Mohr, et al., 2000). Management and follow-up care via telephone of people with depression has also demonstrated improved outcomes at a relatively modest cost (Simon, VonKorff, Rutter, & Wagner, 2000). However, a systematic review that analyzed the effect of published primary care-based telephone follow-up studies on post-discharge outcomes showed that none of the eligible studies demonstrated reduced readmissions or emergency department use in the post-discharge period (Crocker, Crocker, & Greenwald, 2012). Additionally, a review of telephone-delivery interventions meant to maintain post-intervention behavior
change in terms of physical activity and dietary behavior only has modest support (Goode, Reeves, & Eakin, 2012).

Several studies have also observed increased adherence to drug treatment and foot care instructions and behavioral recommendations in patients with type 2 diabetes mellitus (Car & Sheikh, 2003). Other examples of positive outcomes through telephone encounters include the management of anticoagulation, measurements of health, and patient-reported drug use from those individuals with asthma (Car & Sheikh, 2003).

Some studies have explored the question of providing outpatient follow-up care through the telephone. One study utilized the telephone follow-up to extend the time between office visits at a Veterans Administration clinic (Wasson, Gaudette, Whaley, Sauvigne, Baribeau, & Welch, 1992). Substituting three telephone calls for routine visits, the length of time between routine visits was found to be twice as long. The authors of the study found decreased costs and utilization, with no negative effects on measured health outcomes.

Another study observed patients suffering from hypertension and compared traditional care, telephone counseling, and counseling in the clinic (Bertera & Bertera, 1981). The authors found that both counseling systems were more effective than usual care. The telephone system proved to be as effective as clinic counseling, and the cost per patient with controlled blood pressure was found to be less with telephone counseling ($39 per patient for telephone counseling vs. $82 per patient for clinic counseling) (Bertera & Bertera, 1981).
Prescribing practices have a tendency to be different between telephone encounters and clinical visits. The most common prescriptions tend to be for psychotropic drugs (27.4%), antibiotics (14.2%), diuretics (10.4%), and finally narcotic analgesics (10.4%) (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000). The comfort level of handling requests for psychotropics and narcotics over the telephone has been low in surveys of practicing internists and internal medicine residents (and even lower for after-hours telephone calls). (Hannis, Hazard, Rothschild, et al., 1996; Elnicki, Keyserling, DeVallis, et al., 1996). Many practices have even instituted a “no narcotics rule” for most after-hours calls as a result of the difficulties in dealing with the issues of prescribing controlled substances without the patient’s chart or medical history readily available (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000).

The question of who shall provide telephone-based care to patients is a controversial issue (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000). Elnicki et al. believe that the idea telephone encounters should generally come from a physician, as there is evidence that the physician provides more efficient care. Patients were more likely to receive a referral (28% of their calls) if their regular provider was not the person receiving the call. Nevertheless, practicality remains an issue as to whether or not a physician will be able to answer the call (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000).

Finally, in terms of cost, several studies have demonstrated that targeted telephone care management programs can successfully reduce medical costs.
Charging for Telephone Calls and Physician Workload Credit

The question of whether or not physicians should be compensated for telephone calls has been subject to debate for many years. Those in favor of telephone fees claim that the risk assumed by physicians should be compensated. They emphasize that physicians would feel less exploited by patients over the phone, as well as decrease the likelihood of frequent calls for trivial or minor patients (Sorum, 1994). Charging for telephone calls may cause patients to value calls more, changing their views on telephone encounters from favors by the physician to professional treatment (Braithwaite & Unferth, 1993). Physicians would likely document calls in a more effective manner due to payments incentivizing follow-up calls and those that monitor active problems (Sorum, 1994). Additionally, more office time for telephone encounters would most likely be protected for telephone calls, which could save money in the long-run (Braithwaite & Unferth, 1993).

Individuals against telephone call fees (for physicians) claim that the cost to both physicians and patients would be high. For patients, medical costs would increase; for physicians, charging for telephone calls could breach their patients’
collective and respective trust. For example, a common patient perception that physicians make decisions out of greed has the potential to be enhanced by the introduction of telephone fees where none exist (Isaacman, 1993). Although telephone fees have the potential to discourage calls for minor or trivial complaints, they may also reduce the number of relevant and important calls, for patients tend to call because they do not know the cause of the symptoms (Reisman & Stevens, 2002; Isaacman, 1993). Additionally, calls that may be perceived as minor by the physician could be considered important to the patient (Isaacman, 1993). Creating a payment scheme for the large amount of calls made for reassurance (rather than for an acute medical issue) could be very difficult (Braithwaite & Unferth, 1993). Finally, it is inherently possible that physicians in a FFS-operation could abuse the system; some of them may begin to make frequent, unnecessary calls to boost their income (Reisman & Stevens, 2002).

For capitated plans such as managed care, increased telephone use may lead to cost-savings. Payment for the telephone service is included with the reimbursement for the office visit, which also provides physicians with disincentive to encourage patients to make frequent in-person visits (Reisman & Stevens, 2002).

Many physician organizations have come forward in favor of telephone compensation for physicians. The American Medical Association’s Council on Medical Service officially stated that physicians should be able to seek
reimbursement for telephone calls made to patients (Reisman & Stevens, 2002). Additionally, the American Society of Internal Medicine has stated that reasonable telephone services that are properly documented should be billable and reimbursable by patients or third party payers (American Society of Internal Medicine, 1990). They go on to discuss that problems evaluated on the telephone should involve either a new diagnosis or a new treatment; the telephone evaluation must save the patient from either an office or emergency department visit; and the physician must personally handle the telephone call (Reisman & Stevens, 2002).

On the other hand, nonreimbursable calls can include those that last less than two minutes and can be delegated to any staff member that is trained, provided that this situation minimizes documentation, the potential for liability, and avoids patient counseling (American Society of Internal Medicine, 1990).

In 1991, the Health Care Financing Administration (HCFA) regulations created three current procedural terminology (CPT) codes to identify telephone calls:

1) 99371 – for simple or brief calls (e.g. laboratory results or clarification of previous therapy or instructions)
2) 99372 – for intermediate calls (e.g. physicians advising a patient on a new problem, initiating a new therapy, or providing discussions of test results and future care plans)
3) 99373 – for complex or lengthy calls (e.g. counseling anxious patients or conducting lengthy discussions with patients and/or family members regarding the complex services necessary for an illness identified as serious) (Barton, Brown, Curtis, & Lichtenfeld, 1992)

Although these codes now exist, most Medicare carriers will not pay for telephone services (Barton, Brown, Curtis, & Lichtenfeld, 1992). Medicare policy states that telephone calls made prior to and following an office visit comprise a portion of the physician’s work during that particular office visit. For patients that hold managed care insurance, services have a scheduled fee; unbundling constitutes a policy violation (Barton, Brown, Curtis, & Lichtenfeld, 1992). However, Medicare will allow for separate reimbursement if the physician must obtain medical information from either a previous physician or a hospital via telephone. However, this will only be considered reimbursable if it is considered accepted practice within the community to do so (American Society of Internal Medicine, 1990). Additionally, Medicare reimburses for telephone calls in accordance with an anticoagulation therapy regimen if changes are made in the warfarin dosage (American Society of Internal Medicine, 1990). The concept of physician workload credit as it pertains to clinical telephone encounters is also an important one when considering charging for clinical telephone encounters; however, we are unfamiliar with any published studies exploring this concept.
The Impact of Managed Care

Managed care tends to emphasize efficiency, and thus will likely lead to increased utilization of telephone calls for patient care (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000). Patients belonging to an HMO have been identified as more than twice as likely to call their physician than other patients (Hannis, Hazard, Rothschild et al., 1996). Additionally, this same study determined that 33% of the patients would have made emergency department visits had they been unable to contact their physician, while a separate 25% would have pursued an office visit. One HMO has developed practice standards for telephone care; quality control is conducted with random analysis of taped calls (Wilkinson, Sansby, & Jennifer, 1997).

Outpatient calls have a tendency to utilize resources such as prescriptions, laboratory tests, and office visits (Delichatsios, Callahan, & Charlson, 1998). One study describes a staff-model HMO with a protocol for managing urinary tract infections in women by telephone. The authors of that study were able to exhibit lower costs than for baseline care without any increased adverse outcomes (Saint, Scholes, Fihn, Farrell, & Stamm, 1999). Telephone management protocols that are designed to control costs have the potential to adapt to other common conditions in which the physician’s management style is variable/controversial (e.g. upper respiratory infections) (Gonzales, Steiner, & Sande, 1997).
Areas for Improvement in Telephone Practice

While telephone medicine has generally improved access issues and served as a viable replacement for certain types of face-to-face visits, there are several areas for improvement; shortcomings have repeatedly been demonstrated in medical care delivered through the telephone. One review cites a study of telephone diagnoses that revealed 20% to be incorrect upon follow-up, while others have noted inappropriate triage decisions for common problems (Hallam, 1989). Additionally, a report of pediatric care by emergency departments found inadequate histories, variable advice, and insufficient follow-up care (Isaacman, Verdile, Kohen, & Verdile, 1992). Another study (involving a role-play exercise where mothers and simulated pediatric cases made telephone calls) identified that in 50% of the cases, residents, private practitioners, and faculty members made serious errors and took inadequate histories, while 33% of the cases saw incorrect management decisions made (Yanovski, Yanovski, Malley, Brown, & Balaban, 1992). Furthermore, a systematic review published in 2013 demonstrates that there has been very little comparative evaluation of different routine follow-up methods (including telephone encounters) in patients being discharged following surgery; thus, additional research is required to identify the role of telephone medicine for this patient set (Thompson-Coon et al., 2013).

The consequences of errors in practicing telephone management have the potential to be severe; from a medicolegal standpoint, telephone patient contacts
do not differ from office visits in terms of physician-patient obligations (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000). In one case, improper management of a call with a patient resulted in a $2.5 million judgment (Katz & Wick, 1991). In that case, accepted protocols were ignored and the documentation made by the medical staff was inadequate.

Additionally, patients who abuse or over-utilize the telephone create unique concerns. These patients tend to be older, suffer from multiple chronic medical conditions, are isolated, seek reassurance, and have psychosocial problems. It can be difficult to distinguish attention seeking from actual concerns and set an appropriate limit for calling the physician. Thus, educating patients is a crucial element of the telephone encounter process. Scheduling frequent follow-ups may be a viable solution to reassure patients who would otherwise make frequent calls (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000).

After-hours calls can also be problematic. One study determined that 50% of daytime calls were for administrative issues such as test results, scheduling, or prescription refills, while the other 50% were for patient care issues. However, that same study showed that only 8% of after-hours calls were for administrative issues. This poses a problem because the advantages of the office telephone encounter disappear, namely access to the patient’s medical records and an easy ability to provide documentation (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000). Uncertainty also increases when a physician covers for other
individuals and/or receives telephone calls from patients other than his or her own (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000).

In terms of patient safety, the first case to examine patient safety threats resulting from the practice of telephone medicine was published in 2007 (Killip, Ireson, Love, Fleming, Katirai, & Sandford, 2007). The results of this study identified many threats that were potentially serious to patient safety. 22% of total calls involved patient safety threats, which were all due to errors on the part of doctors, patients, or both (Killip, Ireson, Love, Fleming, Katirai, & Sandford, 2007).

Physicians have the ability to take measures to reduce their risk of liability and produce more effective telephone encounters. Documentation of the calls is essential; however, the practices of physicians who are dissatisfied with their telephone system are less likely to document calls well (Katz, 1990). In general, the system is more commonly a problem than the medical staff (Katz & Wick, 1991). Many practices have begun using a standardized encounter form to document calls efficiently. Written guidelines and protocols (such as those outlined in Reisman (2002)) should be utilized. Staff should be adequately trained so that they understand their responsibilities. The system needs to function effectively with an evaluation and review policy for the office telephone system in place (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000).
Teaching Telephone Medicine

Telephone encounters are one of the primary roles of physicians, both in terms of the workload quantity and the scope of medical care provided. Additionally, there are critical differences between face-to-face encounters and telephone encounters. Patients' attitudes toward physicians and medical staff have the tendency to be shaped by the manner in which telephone calls are handled (Johnson, Schmitt, & Wasson, Taming the telephone, 1995). If physicians and staff create the impression that they are concerned for the patient, knowledgeable in their craft, and well-organized, the caller will more likely be satisfied with the telephone service (even if the clinical outcome does not turn out to be favorable). Thus, individuals that serve on a medical staff should be adequately trained (Johnson, Schmitt, & Wasson, Taming the telephone, 1995). Training should cover interviewing etiquette/techniques and assessment procedures, the content of telephone advice protocols, and include practice sessions with direct feedback (Bartlett, 1995).

One of the most significant entering arguments for why telephone management training needs to be conducted for physicians is because they do not consider themselves very competent at the task (Reisman & Stevens, 2002). One study found a low self-confidence level (regarding telephone encounters) amongst practicing internists coupled with a desire for formal teaching in telephone medicine (Hannis, Hazard, Rothschild, et al., 1996). Another study found that in nearly 33% of telephone calls, physician perception of the main
reason for the call differed from the patient’s perception (Curtis & Talbot, The after-hour call in family practice, 1979).

Although most residency directors have expressed a belief in telephone medicine training, only 6% of internal medicine residencies were teaching telephone medicine in 1995 (Flannery, Moses, Cykert, et al., 1995). That number is growing, however, and studies have shown that appropriate, targeted training can help physicians improve physician telephone management performance and attitudes (Fleming, Skochelak, Curtis, & Evens, 1988; Ottolini & Greenberg, 1998; Smith & Fischer, 1980). Table 6 provides a suggestion of necessary skills that trainees should develop to learn effective telephone communication.

The literature regarding instruction of telephone medical issues remains sparse. Curtis and Evens (1983) create guidelines and a telephone encounter skills practice checklist that can be applied to a medical residency curriculum (Table 7). An academic medical center also developed a “teaching office practice” that included telephone interaction training in the curriculum, but specific instruction methods were neither described nor evaluated (Philbrick, Connely, Corbett, et al., 1990).

Another group developed/tested a curriculum that incorporated lectures, videos, and role-play exercises. Residents who completed the training showed improvement on an objective structured clinical examination (OSCE) that measured history-taking, management skills, and triage. The effect was found in
those tested six months following the course, and residents communicated improved confidence when practicing telephone medicine (Elnicki, Cykert, Linger, Ogden, & Hannis, 1997). Objective results can be yielded by preparing residents to manage patient telephone calls. It has been demonstrated that a telephone coverage system used by adequately trained medical residents in an internal medicine practice yielded favorable patient outcomes and a high degree of patient satisfaction (Delichatsios, Callahan, & Charlson, 1998). There is currently an intervention protocol underway that is assessing the effectiveness of training interventions on clinician telephone skills, although the results have yet to be published (Grewal, Kazeem, Pappas, Car, & Majeed 2012).

**Table 6. Necessary Skills to be Trained for Effective Telephone Communication**

| • Active listening and detailed history taking
| • Frequent clarifying and paraphrasing (in order to ensure that messages have been received in both directions)
| • Picking up cues, such as pace, pauses, as well as changes in voice intonation
| • Offering the patient opportunities to ask questions
| • Providing the patient with appropriate education
| • Effective and complete documentation

Note: because the assessment is based solely on the patient’s medical history and the management plan cannot be reinforced with non-verbal cues, it is imperative to be systematic when covering the issues.

Table 7. Checklist for Telephone Encounter Skills Practice.

<table>
<thead>
<tr>
<th>Checklist for Telephone Encounter Skills Practice</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. History Taking</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Opening</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Doctor’s name</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>ii. Nurse’s/receptionist’s name</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>iii. Caller’s name</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>iv. Patient’s name</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>v. Age/sex</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>vi. Personal physician</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. If yes, name of physician</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>b. Take appropriate clinician history</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Duration of problem</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>ii. Details of symptoms</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>iii. Previous history of problem</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>iv. Significant past medical history</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>v. Anything done to relieve symptoms</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>c. Determine actual reason for calling (if different)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Uncover fears about problem</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>ii. Assess emotional state of caller</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>iii. Establish urgency of caller’s needs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Obtain psychosocial history (if appropriate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Current occupation</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>ii. Living situation</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>iii. Recent changes/stress</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>iv. Support systems</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td><strong>II. Decision making</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Use appropriate screening questions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Stay open to new information</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>c. State opinion about the nature of the problem</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td><strong>III. Management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Make appropriate medical assessment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Recapitulate chief complaint</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>ii. State opinion about seriousness</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>b. Suggest a plan for management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Establish feasibility of plan</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td><strong>IV. Offer appropriate advice and reassurance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DISCUSSION

Providing patient care over the telephone has proven to be an integral part of practicing medicine and requires familiarity (and even mastery) of specific skills. The literature has shown that telephone care has the potential to substitute for office visits under very certain circumstances. Cost savings associated with telephone management, especially in capitated settings, needs to be assessed against the costs of developing an effective and sustainable system, the inherent uncertainty involved in interacting with the patient via telephone, and the necessity for acceptable follow-up care. Additionally, it is imperative that each physician finds his/her own level of confidence with the scope of problems manageable by telephone contact (most physicians that lack training seem to have indicated that they are nervous about conducting clinical telephone encounters on the phone). Telephone exchanges with patients need to be properly documented, and a sustainable system that enables access to patients' medical records and encourages performance feedback should be developed.

There is evidence of concrete interest within the physician community for formal training about telephone medical practice to be developed; some medical residency programs have begun inserting these topics into their training programs. Educational efforts have shown improvement in residents’ interactive telephone skills (Elnicki, Cykert, Linger, Ogden, & Hannis, 1997; Delichatsios,
Callahan, & Charlson, 1998). Organized curricula that place special emphasis on active learning have been particularly effectual. Medical residents trained in providing telephone medical care have had positive effects on patient care outcomes.

Although telephone medical care presents many opportunities, there are also many issues that require further study. The literature on optimum telephone practice patterns needs to be strengthened. Physicians need evidence about which problems (e.g. common, acute conditions such as upper respiratory and urinary tract infections) can be safely managed by telephone (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000). Further research also needs to be conducted into the telephone encounter’s relationship with routine follow-up care for chronic conditions such as hypertension and diabetes. Similar to many other aspects of medicine, this facet of healthcare continues to advance rapidly, and it is imperative that physicians become well versed at managing the telephone elements of their practice (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000). Additionally, although some studies have also demonstrated that patients with telephone access to a physician are less likely to visit the emergency department, further research is necessary as a result of a more recent study that replaced clinical visits with telephone appointments and did not find a reduction in medical service use (Reisman & Stevens, 2002)

Additionally, based on this review, there still seems to be a dearth of literature that specifically focuses on the relationship between telephone
medicine and quality. Histories obtained by telephone are traditionally considered against externally set criteria rather than against performance in direct encounters. Thus, history-taking alone tells us little about comparative quality (Hallam, 1989).

Many studies have included isolated elements of quality into their outcome measures, and they seem to indicate that quality will be the key to improving telephone medicine in the future (Car & Sheikh, 2003; Katz, Kaltsounis, Halloran, & Mondor, 2007; Katz, 1990; O'Mara, 1999; Hewitt, Gafaranga, & McKinstry, 2010; Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000). Quality remains a particularly important issue in the managed care sector, for managed care patients tend to view telephone care less favorably than FFS patients (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000). Studies looking at the relationship between quality of care and telephone medicine will need to go beyond determining whether telephone medicine is safe and effective (Institute of Medicine, 2001); more efforts need to be undertaken to explore whether telephone medicine is less or more safe and effective than traditional face-to-face care. The benefits to patients with access to clinical advice and care via telephone have been described as extremely positive (Hallam, 1989). No attention has been paid to the possible losses resulting from telephone care, however. The potential exists that efforts to improve patient access and extend services by promoting telephone encounters could result in the inadvertent screening out of face-to-face contacts if they are considered to be unnecessary.
by the physician (but not by the patient), thus diminishing accessibility. This could have deleterious effects on the elderly or otherwise disadvantaged, who may have poorer telephone skills (Hallam, 1989).

Another area of focus beyond quality measures that merit further exploration is the systemic training of telephone medicine. Undergraduate medical curriculums and specialist training programs dedicated to the topic of telephone encounters are necessary to prepare physicians for the opportunities and challenges that this technological medium presents. It is also imperative that the public remains informed on the correct and appropriate use of these resources (Car & Sheikh, 2003).

Furthermore, the essential components of the “ideal” telephone follow-up intervention have not been standardized throughout the literature, which may account for the lack of significant findings when searching for a meaningful effect of primary care-based telephone follow-up on readmission and emergency department visit rates (Crocker, Crocker, & Greenwald, 2012). Determining a consistent definition for what constitutes a meaningful telephone follow-up intervention would afford the opportunity for more effectively designed studies to explore this issue. Crocker et al. (2012) propose that pertinent components of a scripted telephone follow-up call may include an evaluation of clinical symptoms related to hospitalization; analysis of medication use, reconciliation, adherence, and complications; appointment and test scheduling, to include follow-up with the patients’ primary care providers; and targeted patient education,
Finally, the debate of compensating physicians for care will need to be addressed; if physicians are spending increasing amounts of time with clinical telephone encounters, it is important to determine how that care will be compensated. This is especially true if controlling costs is a primary reason for increasing telephone employment. By conducting telephone encounters, physicians will be applying their skills to curtail expensive emergency department visits while exposing themselves to various liability concerns (Elnicki, Ogden, Flannery, Hannis, & Cykert, 2000). The major countering argument is the potential for physicians to abuse the system. A viable solution to combat this potential abuse exists in most capitated managed care systems, in which telephone medicine can potentially be included as part of the provided care package.

Our review and synthesis suggests limitations in the overall literature include the consistent quoting of a survey of how many residency programs teach telephone medicine in their curriculums. The number (6%) that is consistently quoted is from a survey taken in 1995 (Flannery, Moses, Cykert, et al., 1995). Further studies should be done to determine whether that statistic has improved or changed dramatically in the nearly 20 years that have passed since that survey. Additionally, further exploration into the concept of physician workload credit specifically from clinical telephone encounters is warranted and creates potential research opportunities in the future.
Finally, there are limitations in our own research. The primary limitation is the scope in which we defined our search parameters. Our intent was to cover interactions between physicians and patients. However, given the US healthcare system’s move towards integrated care teams (e.g. PCMH) as well as its impending physician shortage, other providers are receiving more autonomy in providing care and have the ability to conduct telephone encounters as well. These individuals include nurse practitioners and physician assistants. Future literature reviews involving telephone medicine should take this fact into account.

The Future of Telephone Medicine

There are many questions as to the direction that telephone medicine will take in the future. It is very likely that the volume of telephone calls between physicians and patients will continue its current growth trends, which necessitates maximal efficacy and efficiency of calls while ensuring cost-effectiveness and reduction. Disease-management strategies, created to empower patients with the ability to self-monitor, may result in more calls regarding the management of chronic illness. Additionally, cost-reduction strategies such as replacing scheduled visits with telephone calls may become the convention (Reisman & Stevens, 2002).

When considering the future of telephone medicine, one must address the advent of telemedicine and the Internet. It is very likely that the proliferation of “smartphones” and the robust detail associated with mobile applications (or
“apps”) will promote a merging of telephone medicine with telemedicine and telehealth. Given the federal Health Information Technology for Economic and Clinical Health/American Recovery and Reinvestment Act legislation’s mandate of increasing meaningful use of health informational technology, these types of technological innovations will be critical to improving access to care for patients and maintaining compliance with federal regulations (Crocker, Crocker, & Greenwald, 2012). Although it remains too early to tell whether telephone medicine will be steadily replaced by these technologies or enriched by them, the latter seems more probable (Reisman & Stevens, 2002). As new technologies expand the clinicians’ capabilities to avert poor outcomes, the importance of efficient and effective telephone management will become steadily more important. The accuracy of telephone care will ultimately depend on continued research in the field and the sustained development of evidence-based medicine.

Crocker et al. (2012) posted a set of questions that need to be explored regarding future research opportunities in telephone medicine in primary care:

- Can telephone follow-up independently drive meaningful post-discharge outcomes?
- If telephone follow-up enables more primary care clinic visits, what components specific to the post-discharge clinic visit should be emphasized to reduce undesired post-discharge outcomes? (Crocker, Crocker, & Greenwald, 2012)
An understanding of the general level of primary care provider awareness and prevailing attitudes about post-discharge transitional care issues could be critical in developing and implementing telephone follow-up interventions should (Crocker, Crocker, & Greenwald, 2012). Additionally, for primary care telephone follow-up encounters, identifying which member of the care team (e.g. physician, nurse) is most effective could have significant workflow and financial implications. Because transitional care for hospitalized patients has become increasingly dependent on the cooperation and coordination of inpatient and outpatient teams, understanding which elements of those teams can most effectively implement post-discharge telephone follow-up could be critical to developing cost-effective and applicable models of post-discharge care (Crocker, Crocker, & Greenwald, 2012). Although Crocker et al.’s study involves primary care; these concepts should be explored throughout other specialties as well.

To date, the telephone has served as an alternative to self-referral to the emergency department, irrespective of insurance status or gender (Delichatsios, Callahan, & Charlson, 1998). In today’s era of managed care, cost-containment, and capitation, it is imperative that physicians enhance resource employment by improving patient satisfaction and outcomes that result from telephone medical care.
REFERENCES


Crocker, J., Crocker, J. T., & Greenwald, J. L. (2012). Telephone follow-up as a primary care intervention for postdischarge outcomes improvement: a systematic review. The American Journal of Medicine, 125.9, 915-921.


Department of Veterans Affairs - Veterans Health Administration. (2010, October 14). VHA DIRECTIVE 2010-049. ENCOUNTER AND WORKLOAD CAPTURE FOR THERAPEUTIC AND SUPPORTED EMPLOYMENT SERVICES VOCATIONAL PROGRAMS. Washington, DC, USA: Department of Veteran's Affairs.


Education

2014 (Expected): MPH (Health Policy and Management), MS (Medical Sciences)
Boston University School of Public Health and School of Medicine – Boston, MA

2005: BS – Microbiology (Dept. Honors, Cum Laude), Minor in Aerospace Studies
University of Massachusetts – Amherst (Commonwealth Honors College) – Amherst, MA

Experience

Feb. 2014 – Present: Student Intern – Tufts Medical Center Primary Care – Framingham, MA
Developing policies and administrative procedures for the nascent primary care center
Working directly with the practice manager to conduct quality improvement (QI) research that focuses on the center’s operations, supply-chain and patient in-processing

Jan. 2013 – June 2013: Research Assistant – VA Medical Center – West Roxbury, MA
Conducted QI research that focused on the center’s telemedicine program
Created process maps that describe physician-patient encounter and telemedicine documentation processes in order to identify deficiencies and perform root-cause analyses
Presented recommendations for corrective changes and implementation plans to senior medical staff
Performed literature and evidence reviews for benchmark identification

Jan. 2013 – May 2013: Quality Improvement Intern – Boston Medical Center (BMC) – Boston, MA
Developed a protocol for Spontaneous Breathing Trials (SBT) by utilizing the lean management process to help medical attending physicians, residents, nurse practitioners, and respiratory therapists decrease the mean number of ventilator days for intensive care unit patients
Created current and target state SBT process maps to identify systemic deficiencies and solutions
Apr. 2012 – Aug. 2012: Research Assistant – Boston University School of Medicine – Boston, MA
Developed an implementation plan, analysis protocol and Institutional Review Board submission for a novel approach to the graduate classroom learning experience
Utilized Assessment Design Framework Method (a cutting-edge educational neuroscience approach) to explore potential for improved information retention compared to traditional pedagogy

Primary responsibility: Coordinator between ballistic missile defense, space personnel, and the operations director; combat operations advocate for all Theater Ballistic Missile target sets
Developing organizational policy, procedures, and training program – ensures centralized planning, direction, control, coordination, and assessment of Air Force air operations

Primary responsibility: Developed and implemented specialized missile launch training program
Overhauled training program through introduction of objectives-based learning; new training system produced expert officers with a 99.5% test average ready to support US nuclear deterrence mission
Identified and corrected significant procedural flaws in the ICBM launch process – resulted in concise launch actions for the United States ICBM fleet (450 missiles across 4 states)
Revolutionized the ICBM targeting process – analyzed process deficiencies and created a streamlined procedure that improved efficiency of every targeting action for all US ICBMs

May 2009 – May 2010: Senior Administrator of Launch Simulators, Curriculum Development, and Records Compliance – Minot AFB, ND
Primary responsibility: Senior Combat Crew Commander Instructor; supervised/trained/certified/mentored a 32-member team comprised of project managers, compliance officers, curriculum developers, and instructors
Overhauled training program and introduced cutting-edge interactive simulators into the classroom setting – resulted in 30% increase of crew force’s headquarters exam pass rate and organization being named “Best Flight” during the 2010 headquarters inspection, which identified the most effective ICBM operations training system in the United States
Authored rewrites to Department of Defense-level security regulations – corrected significant deficiencies in security protocols and produced a safer, more secure ICBM fleet

Sept. 2006 – May 2010: ICBM Missile Combat Crew Member – 91st Missile Wing, Minot AFB, ND
Primary responsibility: directly accountable to the President for launch of 150 ICBMs upon direction
Led 15 crews during each nuclear alert and oversaw $3.3 billion in weapon system assets across an 8,500 square mile missile complex, resulting in successful execution of our nation’s deterrence mission and proper emergency management of the ICBM force
Project manager for a nuclear launch center reactivation plan following a $10.6 million Air Quality/Coolant upgrade – novel program allowed for recovery for 14 subsequent launch centers
Professional Development Experience

March 2013: Program Assistant – American College of Healthcare Executives Congress on Healthcare Leadership – Chicago, IL
Organized seminars, workshops, and networking events designed to present the latest healthcare leadership innovations to over 4,000 healthcare leaders

Relevant Graduate Coursework


Professional Affiliations

American College of Healthcare Executives, Academy Health, Institute for Healthcare Improvement, Project Management Institute

Current Student Organizations

Vice President – Boston University (BU) School of Public Health Association for Healthcare Leadership
Student Body Vice President (2012–2013) – BU Division of Graduate Medical Sciences
Institute for Healthcare Improvement Chair – BU School of Public Health Students for Quality Healthcare

Awards and Honors


Relevant Software Skills

Microsoft Office (Word, PowerPoint, Excel, Access), Adobe (Photoshop, Premiere)