The Use of Videotape in Internal Medicine Training

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THE IMPORTANCE OF COMMUNICATION between doctors and patients has been recognized for millennia. However, serious systematic inquiry in this area is of relatively recent origin. Students of the medical interview, such as Stoeckle and Billings,[1] mark 1939 as the beginning of the contemporary era of research and education in interviewing skills. In that year William Murphy and Felix Deutch began recording their psychiatric residents interviewing patients. The purpose of these recordings was to provide a "sound mirror" to help trainees identify critical junctures in the interviews and to track their courses and outcomes.

Over the past half century, medical educators and researchers have employed increasingly sophisticated recording devices to capture, analyze, and interpret the detailed ways in which doctors and patients share time and space during medical encounters. In addition, more sophisticated research methodologies have permitted investigators to link particular aspects of communication with specific outcomes of care.[2–5] This has led, in turn, to specific curricula and recommendations for interview skills training.[6]

Audio- and videotape technology is now routinely utilized in teaching undergraduate medical students interviewing skills.[7] There is growing evidence that as a teaching modality, it is superior to other forms of instruction such as didactic lectures and reading assigned textbooks.[8, 9] In an important study for medical education, Maguire and colleagues gave video feedback on interviewing skills to a group of first-year medical students.[10] Follow-up was conducted five years after the students went into practice. The investigators found that the improved communication skills of the group receiving video feedback continued when compared with a control group who received traditional training in interviewing skills.

In spite of the benefits, surprisingly little has been published that examines the actual process of incorporating recording systems into educational contexts or the specific benefits and barriers to developing a successful program.[11–15] Over the past 15 years, the authors have gained considerable experience in both the development and the exploration of the uses of video technology in undergraduate and residency education. Based on day-to-day experience, presentations at national meetings, feedback from residents and other learners, and a review of the literature, we discuss below: 1) the spectrum of uses of videotape in internal medicine training, 2) methods to create and maintain a successful videotaping program, and 3) barriers to a successful program.

USES FOR VIDEOTAPING PROGRAMS IN INTERNAL MEDICINE TRAINING

The effect of videotaping with preceptor review on short- and long-term change in interviewing skills has been demonstrated.[10, 14, 16–18] A special strength of video is that teacher and learner can examine, in addition to content, the effectiveness of the placement of particular interviewing behaviors. For example, a learner may attempt to be empathic but may misidentify a patient's emotion, resulting in an unsuccessful use of the skill.

Video permits immediate feedback about the usefulness of specific interviewing styles, the effect of which can be observed during subsequent interaction.[5, 10, 16–18] The advantage of video in reviewing doctor–patient interaction is the ability to integrate the process of communication with the provision of clinical service. The *application* of communication skills becomes the focus of the review rather than a coded form that notes the presence or absence of desired skills. Learners view their performance in the context of real patients' care, adding considerable importance to what may otherwise be viewed as an abstract exercise.

A second important use of video review of doctor–patient interaction is the ability to examine a learner's clinical decision-making skills. Beginning with the collection of data, one can also assess how data are organized and interpreted, how diagnostic information is delivered, and how counseling and treatment decisions are made. Teacher and learner can discuss the learner's reasoning/decision-making skills through the use and placement of particular questions or the manner in which diagnoses or plans are raised. The generation of differential diagnosis, the recognition of knowledge deficits, and the creation of a rational plan for remediation or improvement are all applications of the video-review process.

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A third area of focus is the organization of an office visit. The review process can focus on setting agendas, negotiating time constraints, preventing loss of focus, and handling conflict.[19] Discussion can relate to allotting time for the patient's emotional responses, handling conflicts that arise in planning evaluation or treatment, or successfully concluding a visit. Importantly, the process can be tailored to meet the educational needs of a learner and may be pursued in a stepwise fashion. For example, it is often not until the third year of training that most residents express concern about time-efficiency issues, a point when they are actively considering working in a busy practice.

Recognizing interactions in which trainees have problems is a fourth use of video feedback. Identifying an inability to handle emotional outbursts, for example, can be discussed and a corrective plan organized. The learner is able to see and hear the data upon which feedback is based. The result is a problem mutually agreed upon and a learner engaged in the corrective process, having the benefit of actually observing the behaviors involved as the basis for change or correction. Some other commonly recognized problem areas are working with patients who are demanding and manipulative, dealing with conflict, being empathic, sharing responsibility in decision making with patients, and evaluating and managing patients with specific aversive characteristics.

TABLE 1

The Experience of Being Taped and Reviewed

	Advantages	Disadvantages
Impact	■ Clearly portrays reality ■ Unavaoidable confrontation with performance ■ Extremely difficult to discount effects of interaction on diagnosis assessment and outcomes of care	■ May confront reality of suboptimal performance too drastically ■ May result in learner withdrawal from constructive criticism
"Microscopic" analysis	■ Demonstrates the actual moment when a behavior resulted in positive or negative process outcome ■ Specific content or process strengths and weaknesses can be identified in context ■ Quality of decision making graphically displayed ■ Permits focus on very specific poblem areas	■ Level of detail displays myriad errors in each encounter ■ May overwhelm learner ■ Can result in negative self-assessment
Permanence	■ Facilitates creation of teachable moments ■ Allows edited examples of behavior to be collected and used for teaching or research	■ Learner may fear what becomes of recording ■ Learner may perform artificially out of fear of evaluation
Group dynamics	■ Allows group members to share in giving and receiving feedback ■ Gives learner chance to utilize resources and expertise of other ■ Promotes the development of expertise and leadership in review process	■ May result in group fragmentation and multiple competing messages ■ May discourage individual disclosure, resulting in superficial discussion and commitment

Feedback about specifics of knowledge base can also be gleaned from reviewing tapes of visits. Accuracy of information given to patients, completeness of history taking, and synthesis of data are displayed through the interview.[20] Again, the power of the medium is emphasized when the assessment instrument is the actual communication, whether based in face-to-face interaction, record keeping, or case presentation.

It is possible, using cameras located throughout a practice, to record the sequence of care beginning with the doctor–patient interaction, extending to the construction of the written record, and ending, finally, with the presentation of the case to a clinic preceptor. In this way a comparison of performances within each domain can be undertaken and feedback provided. In one such study comparing the completeness of data recording for biomedical problems with that for psychosocial problems, it was found that trainees recorded three times as much biomedical information mentioned by patients during their encounters.[21]

By recording in the conference room, for example, and focusing on how a learner discusses the differential diagnosis of headache, a great deal can be learned about the discussant's knowledge and organizational skills. Perhaps as important, feedback can also be given to preceptors or colleagues.[22–24] Video can also be used to review lectures, demonstrations, small-group teaching, rounds, and practice supervision. Critical review can be conducted either independently or with an educational facilitator. Interestingly, individuals are often unaware of idiosyncratic behaviors that may impair their effectiveness as teachers. Examples are the excessive use of "OK," failing to keep eye contact with an audience, speaking in a monotone, or impolitely interrupting learners. The opportunity to identify such barriers and retape oneself attempting to change provides immediate feedback about the success of interventions. Whether in the examination room, the hallway, a conference room, or an office, the opportunity for teacher, a learner, or an educator to review teaching often leads to important discovery.

In addition to feedback, video review can be used for learner evaluation. As is discussed below, learners

need be clearly informed about whether the purpose of a video session is for feedback or evaluation. Keeping the two processes separated is a crucial component to a successful program. Feedback involves a nonjudgmental interchange where the learner receives information, can show ignorance or weakness, and is supported and guided in discovering ways to change and improve. Evaluation requires judgment and is generally used to determine the degree to which a learning goal or objective has been met relative to a norm or standard. In the world of video, evaluation of a tape can be remarkably direct and at times overwhelming. Therefore, we generally advise evaluation of a physician's interactions to be performed by direct observation, not by videotape.

As described earlier, video has special value in improving the interpersonal skills of caregiving and teaching. As a result, it can be used to enhance faculty development programs. For example, RMF served as a pre/post facilitator for a general internal medicine faculty interested in reviewing and improving their skills in preparing and delivering lectures. The opportunity to review stylistic idiosyncracies, the effect of planned exercises, and the success of learning exercises can be reviewed under a detailed eye to sort what particular aspects worked and which did not. Similarly, Skeff and colleagues have successfully used video in their faculty development program to improve teaching on rounds and in small groups.[22]

Video materials can form an integral part of a self-instruction library, working hand in hand with computer-based materials. At Highland Hospital, we videotape major conferences in the department and make copies available for staff unable to attend the lecture. They can sign out the tape and watch it either at home or at the department's Center for Human Interaction. In addition, trigger tapes and other instructional materials are available for individual use.

Many research uses for videotaped clinical encounters and teaching exercises exist.[18,25–28] A special contribution of video is the ability of the investigator to analyze nonverbal aspects of interaction. Neither recollection nor audiotape permits the analysis of the physical environment, gesture, and bodily orientation made available by video review. Reexperiencing a significant event and dissecting out how the process evolved can be a remarkable experience and serve as a qualitative research opportunity. In addition, videotaped encounters can be used as a stimulus for participants and faculty to independently review and comment on a naturally occurring experimental condition. In one study using this technique, we found that residents, their patients, and faculty independently stopped the tape at the same location (i.e., within an utterance of one another) more than 60% of the time.[16] A rapidly increasing body of work has employed video technology to create a library of interactions that can be coded and searched to explore clinical questions.

TABLE 2

Facilitating an Environment for a Successful Videotaping Program

Individual reviews

1. Establish a relationship based on teacher–learner mutuality. A useful rule of thumb is that the resident will treat patients the way he or she is treated by his or her supervisors.
2. Negotiate goals for the review with the learner.
3. Preview tapes prior to reviewing with the learner, whenever possible.
4. At the beginning of the review process, encourage the learner's observations first.
5. Praise the learner's strengths before offering criticism. Continue to identify and reinforce effective behaviors as well as discussing less effective or ineffective behaviors.
6. Offer criticism only after eliciting the learner's approach. Tie criticism to specific suggestions of an alternate approach.
7. Remember—no one looks good on videotape! Don't evaluate learners harshly for attempts to practice recommended techniques. It is better to attempt a skill, behavior, or content area and learn from errors than not to try at all. Interpret behaviors in the context of short- and long-term goals.
8. Seek collaboration with social and behavioral scientists in the review process.

Group reviews

1. Faculty/teachers should tape and critique their own encounters first, to demonstrate the safety of the environment and the benefit of the process.
2. Encourage learners to choose tapes and set agendas for the review.
3. Be particularly mindful of learners' perspectives when commenting on tapes in a group setting. One humiliating experience can cause irreparable damage to a program.
4. Introduce sessions by thanking the discussant for being willing to share his or her errors so that all can learn.
5. Solicit ongoing feedback from participants about the content and process of the experience.

FACILITATING THE ENVIRONMENT FOR A SUCCESSFUL VIDEO-BASED EDUCATIONAL PROGRAM

The process of video review is remarkably powerful, exposing minute aspects of the trainee's behavior to repeated analysis. Playing and replaying the tape gives teachers or other reviewers the unique opportunity to dissect another's behavior. Because it is so powerful, video review can be expressed as exploitative and punitive without the proper safeguards and structure. A summary of the strengths and weaknesses of video as a tool is shown in Table 1. Recognizing the effect of the medium is essential to its appropriate use.

The conditions that surround consent for taping, the review process, and the confidentiality of the videotape play a large role in determining the extent to which learners and colleagues will participate. In our experience, very few mistakes in judgment are tolerated in a video program before learners refuse to participate. (A guide to facilitating a successful videotaping program is shown in Table 2.) Remaining continuously aware of the power of the medium is essential.

In beginning a program, or introducing new house-officers to an existing program, it is best to have a faculty member review one of his or her less-than-optimal tapes

first. Demonstrating 1) the value of feedback in a safe supportive environment, 2) the ability of "experts" to learn from their practice, and 3) a willingness to share one's experiences clearly addresses the issue of safety through which every video program must successfully maneuver. At the beginning, learners should be allowed to choose the patients with whom they are taped. Then, at the review, the preceptor should hand the remote control to the learner and encourage him or her to stop the tape and select the issue on which he or she would like to focus. As a learner becomes familiar with the process, and feels safe, he or she will ask to be taped with more difficult patients and will share control of the issues to be discussed with the preceptor.

Many of the elements of clinical care with patients can be structured into the video-review process. For example, eliciting the full spectrum of issues on which the trainee wants to focus in the review is important in setting an agenda that is manageable given the time constraints of a video review. The same principles apply in eliciting the full spectrum of patient concerns and negotiating an agenda for the day's visit. This parallelism or parallel process is extremely useful in teaching and modeling desired practices. Similarly, reviewing with the learner what he or she plans to do differently as a result of the video review has its parallel in testing patient comprehension of information delivered in the clinical encounter.

In preparing for a review, it is helpful for the preceptor to view the tape in advance whenever possible. This facilitates the creation of a clearer prereview agenda. After focusing on the learner's objectives, the preceptor can redirect attention to a curricular item or follow-up of a previously identified problem if time permits. After determining the learner's agenda, and moving to the appropriate segment of tape, it is helpful to recognize and praise the learner's strengths before focusing on behaviors less well performed. When offering criticism, focusing on how a behavior might be performed more successfully reframes the resident's action into a learning opportunity. Often, after viewing a segment of interaction, the learner will volunteer alternative techniques. If felt useful, the learner and preceptor can then role-play the examined segment, trying out different techniques. In this fashion, the tape is viewed as a resource to improve skills rather than as evidence for a judgmental evaluation.

Group reviews are often experienced as even more powerful since both colleagues *and* teachers are present. We have found that it is important for faculty/preceptors to show their tapes first, role-modeling the safety of the process. Learners are then asked to choose a tape and a specific segment they wish to share. Over time, with the creation of a safe environment, our experience is that learners will share very sensitive and problematic aspects of their interactions in the hope of improving the groups' skills. One measure of the preceptor's success at creating a safe environment is the type of issues the learners choose to bring to the group.

Last, to create a successful video program, the video library must remain confidential. Although participants sign a release prior to taping, we routinely contact the taped participants for permission to use their tapes whenever we present videotaped material outside our program. No resident or faculty member wants to hear that his or her "poor performance" was shown at a scientific or educational meeting without his or her knowledge.

As an introduction to sharing taped segments, we first thank the participants for permitting us to show the tapes and remind the audience that "no one looks good on videotape." Criticism should be delivered in that context. When possible, we ask whether participants can attend the educational programs where their tapes are shown. When word is carried back to other learners that presentations are respectful, learners are more willing to cooperate.

BARRIERS TO A SUCCESSFUL VIDEOTAPING PROGRAM

Problems arise in the video-review process when the learner feels unsafe. Negativism, loss of control of the focus of a review, and confusing feedback and evaluation from a preceptor are most common. If the purpose of a taping is a scored evaluation exercise, the purpose should be carefully described. If feedback is the intent, the critique should include successful as well as less successful behaviors. Criticism should be tied to issues identified by the learner as problematic and should be delivered in a nonjudgmental style linked to useful suggestions for improvement. Holding the learner to a "gold standard" will result in a humiliating experience and subsequent refusal to participate in the program.

SUMMARY

By paying attention to the power of the medium and the method of feedback, videotaping programs can be a remarkably successful teaching and research tool. Learners can view their performance, review feedback on their own behavior, knowledge, and displayed attitudes, and develop plans to change behavior that can be followed up on subsequent tapings. In addition, trainees can share important experiences with each other and valued teachers.

Interviewing skills can be documented and preserved, creating a video library that allows trainees to actually visualize improvements in their own performances over time. An archive of many such performances allows trainees, faculty, and researchers alike comparative access to the complex challenges of the medical interview.

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REFLECTIONS

Life is short, the art long, opportunity fleeting, experience treacherous, judgment difficult.—HIPPOCRATES (c. 460 BC–357 BC), Greek physician. *Aphorisms*, 1; usually quoted in Latin as *Ars longa, vita brevis*