

Pilot Study of Personalized Video Visit Summaries for Patients With Cancer

Purpose The treatment of cancer is complex, which can overwhelm patients and lead to poor comprehension and recall of the specifics of the cancer stage, prognosis, and treatment plan. We hypothesized that an oncologist can feasibly record and deliver a custom video summary of the consultation that covers the diagnosis, recommended testing, treatment plan, and follow-up in < 5 minutes. The video summary allows the patient to review and share the most important part of a cancer consultation with family and caregivers.

Methods At the conclusion of the office visit, oncologists recorded the most important points of the consultation, including the diagnosis and management plan as a short video summary. Patients were then e-mailed a link to a secure Website to view and share the video. Patients and invited guests were asked to respond to an optional survey of 15 multiple-choice and four open-ended questions after viewing the video online.

Results Three physicians recorded and sent 58 video visit summaries to patients seen in multi-disciplinary GI cancer clinics. Forty-one patients logged into the secure site, and 38 viewed their video. Fourteen patients shared their video and invited a total of 46 visitors, of whom 36 viewed the videos. Twenty-six patients completed the survey, with an average overall video satisfaction score of 9 on a scale of 1 to 10, with 10 being most positive.

Conclusion Video visit summaries provide a personalized education tool that patients and caregivers find highly useful while navigating complex cancer care. We are exploring the incorporation of video visit summaries into the electronic medical record to enhance patient and caregiver understanding of their specific disease and treatment.

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INTRODUCTION

Population-based studies have demonstrated that more than one third of the US adult population has limited health literacy.¹ Poor health literacy reduces the ability to understand and participate in decision making, which leads to compromised patient health and safety. Suggestions for improving communication include the avoidance of medical jargon, communication of no more than three action items per visit, and the use of visual aids.² A cancer diagnosis is particularly stressful, and cancer treatment often involves consultation with more than one specialist, with complex surgical, radiation, and chemotherapy details that challenge understanding and recall. Moreover, with the advent of tumor genomic analysis and targeted and biologic therapies, physicians often struggle to improve patient comprehension and understanding.³

Patients with cancer have particularly high informational needs, which only slightly diminish months after the start of treatment.⁴ Many

physicians use generic written cancer educational materials after a consultation to provide the patient with foundational knowledge about their cancer and its treatment. More personalized forms of patient education to improve recall, including audio recordings of the interview, have been evaluated in multiple studies.^{5,6} Advances in technology have made recording and distribution of videos for education a facile process. A YouTube (San Bruno, CA) search lists > 5,000,000 cancer-related videos of which 65,000 are education videos for patients with cancer (since June 15, 2016). More than 63 articles were published during 2006 to 2013 about patients recording their physician visit on their own device.⁷ Patient-acquired videos of interactions with their physicians have generated considerable commentary from both physicians and patients.

Initial studies of providing patients with a full-length recording of their office consultation showed improved recall, but larger, more recent

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studies have shown a more modest benefit.^{6,8} Patients in these studies received a full-length recording of the entire office visit, without editing for the most important pieces of information that needed to be acted on. Comprehensive review of an hour-long patient consultation may be challenging and time consuming for patients, caregivers, family, and friends. We are not aware of published data to date that have evaluated a physician-generated video summary for patients and their caregivers. We hypothesized that provision of an immediately available, custom-recorded summary of the oncology consultation to the patient is feasible, with the recording adding < 5 minutes to the physician's visit. We analyzed the viewing and sharing of the video visit summary by the patients and explored patient reactions to the video with a structured survey and free-form comments.

METHODS

A convenience sample of six physicians in a gastroenterology malignancy subspecialty clinic were approached to participate in the pilot project, and two medical oncologists (J.C.K., V.S.) and one surgical oncologist (D.M.S.) agreed to record video visit summaries. The physicians who declined to participate listed time constraints in the clinic and unfamiliarity with the recording technology as the major reasons for not participating.

Physicians obtained verbal consent from patients who had a new treatment plan or a major change to a complex care plan to record and transmit a video visit summary. The patients were required to have Internet access at home, to provide an e-mail address, and to agree to receive the communication. Physicians recorded video visit summaries by using QuickTime (Apple, Cupertino, CA) on a laptop computer while in the clinic. The videos were uploaded to a hyper text transfer protocol secure server using a Web interface, which sent an automated e-mail message with a video link to the patient. The user was prompted to create a username and password on first-time login. Patients were then able to view the video on demand and to share it with family, friends, and caregivers. When a person was invited to view the video visit summary, he or she received an e-mail with a link that allowed them to view but not share the video visit summary. Patients and patient-invited caregivers

were asked to complete a short survey to provide feedback about their experience with the Web interface and video summary on first-time login.

Physicians recorded a 2- to 5-minute summary video at the end of the patient consultation. The general outline for the videos included a brief introduction of the video; a summary of the diagnostic testing, current diagnosis, and staging of the cancer; and a high-level overview of the treatment options for the cancer. To facilitate personalized videos with a compassionate tone, the content was left to the discretion of the recording physicians as well as allowed the video visit summary to be delivered in a style of communication congruent with the patient's informational needs. The entire process of recording and uploading videos was designed to minimize work for the physicians. The video visit summaries were recorded and delivered between September 2014 and January 2015.

To improve the survey response rates, we conducted phone follow-up interviews with patients who watched the video but did not complete the online satisfaction survey. The results of the surveys were tabulated with descriptive statistics. This feasibility study was reviewed and determined as not regulated by the institutional review board of the University of Michigan Medical School.

RESULTS

Two medical oncologists (J.C.K. and V.S.) and a surgical oncologist (D.M.S.) recorded video visit summaries in a GI malignancy clinic during this pilot study. In addition, J.C.K. recorded video visit summaries in a general oncology clinic. All the physicians were experienced clinicians, having graduated from medical school 12 to 31 years before this study. The physicians found that recording a video visit summary added approximately 5 minutes to a patient consultation and required a separate laptop computer to record the videos. Several additional physicians declined to participate in the project. The most common reason for declining was the extra work of learning the technology and the extra time needed to record the videos, but some were concerned with their appearance on the videos or about the videos being used later as evidence in litigation.

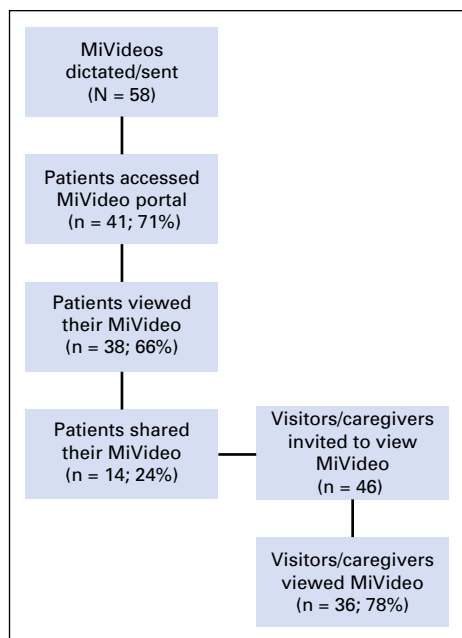


Fig 1. Patient interaction with MiVideo.

Video visit summaries were recorded for 58 unique patients (Fig 1). Their median age was 63 years (range, 26 to 88 years; Table 1). Approximately one half of the patients were male, and the majority of the patients were white, which reflects the demographics of the University of Michigan GI oncology clinic. The majority of the patients had colorectal cancer and pancreatic cancer as their primary diagnosis. One third of the patients had other malignancies, including breast cancer, lung cancer, and lymphoma.

Physicians recorded themselves while explaining the patient's cancer stage, cancer state (in remission or not in remission), and overall health state, and the videos were designed to include specific recommendations about the next diagnostic and therapeutic steps for the patient. The physicians did not follow a script while recording the summaries to allow for a personalized message to the patient. The recording was performed in the examination room to enhance transparency with the patient. The videos were uploaded to the secure server immediately after recording, with no postproduction editing. The median duration of the videos was 2 minutes (range, 1 to 5 minutes; 95% CI, 1 minute, 51 seconds, to 2 minutes, 10 seconds).

Thirty-eight patients (66%) logged in and viewed their video visit summary during the analysis period. The majority of the videos (n = 38) were viewed within the first 2 days after the visit. Only three patients or their caregivers accessed their

video for the first time > 1 week after their visit. The length of the video recording was not related to the number of times the video was viewed or shared. Fourteen patients invited 46 visitors to view their videos, and of the invited participants, 36 (78%) watched the videos.

At the completion of the first video viewing, participants were asked to complete a structured survey (Table 2) and to answer free-form questions (Table 3). Twenty-six patients or caregivers (68%) completed the follow-up survey online or by phone, and 17% of the invited guests completed the survey. Most users (both patients and guests) reported that the Website and video player were easy to use (4.7 on a five-point scale; data not shown). The majority of patients believed that the intervention improved their medical experience, helped them to remember the details of the discussion, facilitated sharing information with others, and allowed them to get more out of their visit. Almost all patients (25 of 26) expressed interest in receiving future visit summaries from their physicians.

The responses to the four open-ended questions were generally favorable (Table 3). Participants were asked about what they liked the best, what they liked the least, what additional features would be useful, and any additional thoughts they wanted to share. Eleven patients remarked that the video helped them to remember what they talked about with the physician, three mentioned that the ability to share the video was the

Table 1. Patient Characteristics

Variable	No. (%)
No. of video visit summaries	58
Median age, years (range)	63 (26-88)
Sex	
Male	31 (53.4)
Female	27 (46.6)
Ethnicity	
White	54 (93)
African American	3 (5)
Asian	1 (2)
Cancer diagnosis	
Colorectal	31 (53.5)
Pancreatic	10 (17.2)
Other	17 (29.3)
Type of oncologist	
Medical (two providers)	52 (89.7)
Surgeon (one provider)	6 (10.3)

Table 2. Patient Satisfaction Survey Results

Survey Question	Median Score* (range) (n = 26)
MiVideo was useful	6.56 (4-7)
I was able to understand (comprehend) what my doctor was saying in the video	6.60 (4-7)
I was confused by what my doctor was saying	1.46 (1-4)
Using MiVideo helped me remember what my doctor talked to me about	6.50 (4-7)
Having MiVideo helped me tell friends and family what my doctor talked about	6.36 (4-7)
MiVideo helped me get more out of my doctor's visit	6.48 (4-7)
I'm glad my doctor shared MiVideo with me	6.68 (4-7)
I would want to have more videos from my doctor in the future	6.72 (4-7)
I would recommend the MiVideo program to a friend with cancer	6.60 (4-7)

*Scale range 1 to 7, where 1 = strongly disagree and 7 = strongly agree.

best part, and five of six guests said that the experience helped them gain important information about the patient's condition. One patient had trouble receiving the video over a digital subscriber line, and another patient wanted an audio-only option. Among the positive comments were that the video provides details that may have been forgotten and that it saved time with trying to get answers to questions from the patient. The majority of free-text responses from patients (36 of 46) and guests (14 of 15) were positive.

DISCUSSION

To our knowledge, this study is the first to demonstrate that physician-recorded video visit summaries can be delivered to patients on a secure Web platform. The summaries were a personalized synthesis of the current situation of the patient's cancer stage, cancer state (in remission or not in remission), and overall health state and included specific recommendations about the next diagnostic and therapeutic steps for the patient. The Web-based platform allowed patients to review the videos at home and to share the videos with their caregivers, relatives, and friends who might not have been able to attend the consultation in person. Two thirds of the patients viewed the videos, which is consistent with the degree of patient participation in similar studies.⁹ More than one half of the patients who received a video summary used it to better understand their recent clinic visit, and one quarter of patients used it as a tool to communicate information to their family and friends.

The complexity of current cancer treatment and the desire for patients to receive full information about their cancer poses a significant challenge for the consulting oncologist.¹⁰ A typical consultation at a comprehensive cancer center will include a review of pathology reports; review, explanation, and interpretation of cross-sectional imaging; review and interpretation of numerous laboratory values; and formulation and scheduling of a therapeutic plan. Disease-specific literacy among patients with cancer may be even lower than that of the general population; in one study, only 5% of patients accurately identified their advanced-cancer stage and acknowledged the terminal nature of their illness.¹¹ Because of a rapidly changing therapeutic landscape, patients rely on health professionals to design and implement the therapeutic plan and provide information about the plan.¹²

Electronic equipment was not available until approximately 1990 to record physician consultations as they occurred in the routine office setting. An early study that randomly provided an audiotape to a cohort of 34 oncology patients demonstrated that receipt of an audiotape significantly increases patient recall and decreases anxiety 1 week after the initial consultation.⁵ In a separate study that randomly assigned patients with cancer to receive either an audiotape of the entire consultation or a summary letter, the majority of patients preferred the tape.⁸ Subsequent investigations of providing audiotapes to patients have produced conflicting results on the overall benefit of the tapes. A study that randomly assigned 200 patients to either receive or not receive a tape revealed that 75% of the patients listened to the tape and that recall of the

Table 3. Survey Text Comments

Survey Question	Patient Responses to Video	Family Responses to Shared Video
What did you like best about MiVideo?	<p>“Provides details which may have been forgotten or misunderstood.”</p> <p>“I could share with my family.”</p> <p>“Reviewing Dr’s orders.”</p> <p>“That it was an available option for reviewing the session.”</p> <p>“I can share it with other members of my family.”</p> <p>“Reminder of all we talked about.”</p> <p>“All good.”</p> <p>“Great synopsis for current condition.”</p> <p>“That it is available and I can review info. The sharing with family is very desirable but is time consuming and difficult to do.”</p> <p>“Clear and concise info.”</p> <p>“Personable.”</p> <p>“Remind[ed] me with what the doctor said.”</p> <p>“It reviews what the doctor said at the appointment. Sometimes you forget what was said.”</p> <p>“Dr Krauss reiterating what he told me in the office! Giving me the nurse number.”</p> <p>“Able to hear summary again and send to family.”</p>	<p>“Easy, short, direct, included pertinent info.”</p> <p>“Getting the information first hand from doctor since unable to attend.”</p> <p>“It keeps family up to speed on what is happening.”</p> <p>“It saved about an hour of my time trying to get answers to my questions from parents.”</p> <p>“This was AMAZING! I’m Jill’s niece, and a nurse at St Joes, so I help support her with medical issues. It was so incredible to hear directly from Dr Krauss instead of [a] second person so I have the wrap up of what’s been going on and the current plan so I can help keep my aunt and her family on track.”</p>
What did you like the least about MiVideo?	<p>“Having to change password after we set it up yesterday.”</p> <p>“It was not available online and noted as error/invalid.”</p> <p>“Over a slow DSL line (360 k[B]), it paused a lot while it was downloading. Over my hot spot (3 mB) it worked perfect.”</p> <p>“Nothing, although some family members had a difficult time signing in.”</p> <p>“We’re going to have to work on some new ties for Dr John.”</p> <p>“Lack of ease for sharing with my family.”</p> <p>“Everything was good.”</p> <p>“Nothing. Everything was fine.”</p> <p>Nothing for five respondents</p>	<p>“It was all perfect and incredibly helpful.”</p> <p>Nothing for three respondents.</p>
What additional feature, if any, do you think needs to be added to MiVideo to make your experience better?	<p>“We agree this is an important tool in managing cancer.”</p> <p>“Can’t think of anything.”</p> <p>“It needs to WORK!”</p> <p>“I think it would be nice to offer BOTH video or simply audio. Audio takes a lot less bandwidth to use, and for slower connections, that would be better than nothing.”</p> <p>Nothing for four respondents</p>	<p>“Add son and daughter to the relationship screen of this survey.”</p> <p>“None. Please don’t make this any more time consuming for the docs because I want them to keep using this!”</p>

(Continued on following page)

diagnosis, prognosis, treatment, and six other knowledge domains was improved by receiving the tape.⁶ However, other studies demonstrated more-modest benefits of audiotapes. In a study that randomly assigned 632 patients to either receiving or not receiving an audiotape of their initial consultation for breast cancer, the patients who received the tape felt more informed about the potential adverse effects of treatment of their cancer but did not believe that they had

improved communication with their oncologist.¹³ Another study randomly assigned 143 patients to receive a tape of their consultation, a general tape about their cancer, or no tape and demonstrated that recall of salient facts approximately 2 weeks after the consultation ranged from 41% to 44%, with no significant differences between groups.¹⁴ Education of patients by video may augment traditional print methods of patient education.

Table 3. Survey Text Comments (Continued)

Survey Question	Patient Responses to Video	Family Responses to Shared Video
What else, if anything, would you like us to know about your MiVideo experience?	<p>“We could not click the link to get to Website; we had to type it into our browser. It worked fine last night, but we had to change our password to access our video today. Don’t know why.”</p> <p>“Didn’t realize at first that my family had to have my username and password. Quickly figured it out.”</p> <p>“I was disappointed that there was no video to review.”</p> <p>“Also, it would be nice to enter multiple e-mail addresses to share with multiple family members instead of having to enter one at a time.”</p> <p>“This is a new level of information for us; it was extremely refreshing.”</p> <p>“I liked it very much!”</p> <p>“I just think it’s an amazing tool. So many times I can’t remember what doctor says, and this way I can.”</p> <p>“Great idea.”</p> <p>Nothing for two respondents</p>	<p>“Dr Krauss said the phone number at the end very fast.”</p> <p>“Great idea. Thanks.”</p> <p>“Please, please keep this going after your pilot. This was incredibly helpful. I couldn’t get the number choices to work on my survey but I want to give everything the highest marks.”</p> <p>“Go back and hear exactly what was discussed! I love it!”</p>

Abbreviation: DSL, digital subscriber line.

Generic videos for patient education before procedures, such as radiofrequency ablation for lung cancer and colonoscopy, also have been demonstrated to improve health literacy¹⁵ and quality of preprocedural preparation.¹⁶ Provision of an online video of patient discharge instructions from the emergency department improved patients’ understanding of their diagnosis.¹⁷ General education videos have been shown to be useful because they can be prepared once and used repeatedly to provide standard and specific information. General education videos have not been successful, however, at improving bowel preparations for colonoscopy or for increasing colon cancer screening rates.^{18,19} In a study of online-delivered content for weight reduction, the video content was superior to text content at improving weight loss.^{14,20}

Current electronic equipment can record high-resolution video and audio to a computer or a hand-held device. A neurosurgical practice reported its experience with providing video recordings for 2,800 office consultations and received surveys from 333 of the patients.⁹ The majority of the patients reported that they could remember more after viewing the videos and that the videos made them feel more at ease with their medical condition. The personalized recording of the clinician explaining the care plan can provide visual cues that may be crucial for learning.²¹ Video summation of the consultation maximizes the usefulness of the physician’s

expertise by providing continued patient education specific to the individual’s illness. Moreover, it acknowledges the emotional content of the message by empathetic facial expression, voice tone, and body language and can reflect the notion of reciprocity by suggesting therapeutic alternatives, three of the seven principles of physician-patient communication delineated by Roter and Hall.²²

The study has several areas for improvement. First, the majority of the patients had GI malignancies, so relevance to other populations cannot be determined. We believe that having the treating physician discuss the major decision points also could be helpful for patients with breast cancer, where women can choose lumpectomy, radiation, or mastectomy with or without breast reconstruction and have an equal overall malignancy-specific survival. Second, a video visit summary might not be useful for rapidly progressing and symptomatic acute leukemia, where information recorded one day could be irrelevant the next day. Third, the patients were all seen at a National Cancer Institute comprehensive cancer center that is a National Comprehensive Cancer Network member, and all patients were provided the clinic’s disease-specific standard written materials in addition to their video visit summary. Fourth, the content was specifically kept less scripted so that the clinicians could tailor the message to the patient’s learning style. No formal content analysis of the

videos was performed or the video content recall tested; thus, both these items could be considered in future studies of video visit summaries. Finally, despite an attempt to make the recording easy for physicians, several other physicians declined to participate in the project. The most common reason for declining was the extra work of learning the technology and the extra time needed to record the videos. Furthermore, some were concerned about their appearance in the videos and about the videos being used later as evidence in litigation.

The video visit summaries produced for this study provide physicians with a new means of communication to educate patients with cancer at critical junctions in their management. The ability to review and share the information empowers patients and their families. This pilot study demonstrates the feasibility of providing video visits in a

secure manner and had a limited success. Physicians will be reluctant to add one more piece of documentation to their busy schedule. Only 66% of the patients viewed the videos, but those who did believed that they were helpful. Although the onus of using MiVideo on physician practices was minimal, we acknowledge that it should perhaps be reserved for new patients and for those who require complex discussions to allow better inclusion of MiVideo in a busy oncology clinic schedule. The embedding of MiVideo in the electronic medical record to enhance patient and caregiver understanding of the specific disease and treatment may be a useful extension of this tool and currently is being developed.

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