Randomized, Controlled Trial of an Advance Care Planning Video Decision Support Tool for Patients With Advanced Heart Failure

BACKGROUND: Conversations about goals of care and cardiopulmonary resuscitation (CPR)/intubation for patients with advanced heart failure can be difficult. This study examined the impact of a video decision support tool and patient checklist on advance care planning for patients with heart failure.

METHODS: This was a multisite, randomized, controlled trial of a video-assisted intervention and advance care planning checklist versus a verbal description in 246 patients ≥64 years of age with heart failure and an estimated likelihood of death of >50% within 2 years. Intervention participants received a verbal description for goals of care (life-prolonging care, limited care, and comfort care) and CPR/intubation plus a 6-minute video depicting the 3 levels of care, CPR/intubation, and an advance care planning checklist. Control subjects received only the verbal description. The primary analysis compared the proportion of patients preferring comfort care between study arms immediately after the intervention. Secondary outcomes were CPR/intubation preferences and knowledge (6-item test; range, 0–6) after intervention.

RESULTS: In the intervention group, 27 (22%) chose life-prolonging care, 31 (25%) chose limited care, 63 (51%) selected comfort care, and 2 (2%) were uncertain. In the control group, 50 (41%) chose life-prolonging care, 27 (22%) selected limited care, 37 (30%) chose comfort care, and 8 (7%) were uncertain (P<0.001). Intervention participants (compared with control subjects) were more likely to forgo CPR (68% versus 35%; P<0.001) and intubation (77% versus 48%; P<0.001) and had higher mean knowledge scores (4.1 versus 3.0; P<0.001).

CONCLUSIONS: Patients with heart failure who viewed a video were more informed, more likely to select a focus on comfort, and less likely to desire CPR/intubation compared with patients receiving verbal information only.


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Sources of Funding, see page 59

Key Words: heart failure ■ quality of health care ■ quality of life

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**Clinical Perspective**

**What Is New?**
- A video decision aid for patients with advanced heart failure encouraged patients to have advance care planning conversations with their physicians.
- Patients better informed about their goals-of-care options led to more patients desiring care focusing on comfort and avoiding CPR and intubation.
- The incidence of patient-doctor conversations increased.

**What Are the Clinical Implications?**
- Advance care planning video decision aids stimulate and supplement patient-physician communication, enhance patients’ understanding of their goals-of-care options, and ensure that patients receive care that reflects their well-informed wishes.

A s a result of the prognostic uncertainty of heart failure and the multiple advanced therapies potentially available, it is difficult to know when the opportune time is to broach discussions about care preferences and future care options for patients with advanced heart failure.1 A recent consensus statement has suggested that patients have a discussion about overall goals of care annually.2 However, it is still challenging even for the best-intentioned clinician to know how to have these discussions. Despite major advances in lifesaving therapies, heart failure remains a highly morbid disease; patients with heart failure also have a much lower rate of use of end-of-life resources such as hospice.3

Advance care planning (ACP) is a process of shared decision making that informs and engages patients to ensure that the care delivered is concordant with their informed wishes.4 ACP is recognized as a standard for high-quality patient-centered care.4,5 Video decision support tools encourage ACP by stimulating informed conversations and helping people think about the choices they face.4,6 Video tools can help people envision future circumstances and deliberate about their decisions.4,7,8

Our group, the VIDEO Consortium (Video Images of Disease for Ethical Outcomes), has developed and evaluated several decision support tools to assist patients with ACP.7-11 Our previous work in patients with cancer suggests that video tools serve as catalysts to spark ACP conversations by informing patients about their options, leading to care decisions that are more aligned with patients’ preferences and values.7,9,10 Extending this research to patients with heart failure is important given its high prevalence and associated morbidity and mortality.12

We conducted a randomized trial of a goals-of-care video and ACP checklist among patients with advanced heart failure. Our primary hypothesis was that patients in the video-assisted intervention arm would be more likely to prefer medical care focused on quality of life and comfort compared with those who received only a verbal description of their options. Secondary hypotheses were that the video-assisted group would be less likely to want cardiopulmonary resuscitation (CPR) attempted or to be placed on a ventilator, more knowledgeable about their options, more likely to have ACP conversations with their physicians, and more likely to prefer what their physicians would choose for themselves in such circumstances.

**METHODS**

**Setting**
We conducted this study with 246 patients from 7 teaching hospitals: Massachusetts General Hospital (n=92), Newton-Wellesley Hospital (n=49), University of Colorado Hospital (n=40), Brigham and Women’s Hospital (n=33), Boston Medical Center (n=18), Nashville Veterans Administration Medical Center (n=8), and Vanderbilt University Medical Center (n=6). Institutional Review Board approval was obtained at each hospital. Study participants provided written informed consent.

**Participants**
We enrolled 246 participants from June 28, 2012, to February 7, 2015. Eligibility criteria included age ≥64 years, ability to provide informed consent, ability to communicate in English, and an established diagnosis of advanced heart failure with limited prognosis as defined by the criteria in Appendix A in the online-only Data Supplement. We excluded patients with a score of ≤6 on the Short Portable Mental Status Questionnaire.13

Study recruitment, data collection, and intervention administration were done by trained research assistants (RAs: physicians or nurses) at each hospital. The RAs underwent standardized training in all aspects of the research protocol, including use of structured scripts to administer the questionnaires.

RAs reviewed records of hospitalized and ambulatory patients with advanced heart failure to identify potential subjects. Each patient’s attending physician was asked to confirm eligibility and to approve approaching the patient for participation. Eligible patients were invited to participate, and informed consent was obtained from those who agreed.

After obtaining informed consent, the RA administered the Short Portable Mental Status Questionnaire to confirm final study eligibility. The RA administered a baseline questionnaire (demographics, self-reported health status, goals-of-care preferences, CPR/intubation preferences, and knowledge questions), after which participants were randomized to either the video-assisted intervention or verbal control arm. We used a central, computer-generated 2:2 block randomization design stratified on the basis of use of an implantable cardioverter-defibrillator at each institution, with assignments concealed in numbered envelopes.

**Video-Assisted Intervention Arm**
Participants randomized to the video-assisted intervention arm first listened to a description of the 3 goals of care read out...
We obtained verbal control participants’ goals-of-care preferences, CPR/intubation preferences, and knowledge before randomization during the baseline interview (baseline questionnaire) and then immediately after listening to the description of the goals of care (postintervention questionnaire). Patients with questions after hearing the verbal description were referred to their attending physician.

**Data Collection and Outcomes**

The baseline questionnaire included the following self-reported variables: age, race/ethnicity, sex, education, marital status, religion, health status, goals-of-care preferences, CPR/intubation preferences, and knowledge of ACP options.

We categorized patients’ goals-of-care preferences as follows: life-prolonging care, limited medical care, comfort care, or unsure. We categorized patients’ CPR preferences as “yes, attempt CPR,” “no, do not attempt CPR,” or “not sure.” Similarly, we categorized intubation preferences as “yes, attempt intubation,” “no, do not attempt intubation,” or “not sure.”

We assessed patients’ knowledge of goals of care as in previous studies using 5 true/false questions and 1 multiple choice question, each worth 1 point, for a summary score of 0 to 6 (higher score reflects greater knowledge; Appendix D in the online-only Data Supplement).

In both arms, the postintervention questionnaire included the following self-reported variables: goals-of-care preferences, CPR/intubation preferences, and knowledge questions.

We also asked the attending physician for each participant to report what code status (full code, do not resuscitate, do not resuscitate and do not intubate, or do not hospitalize/comfort only/hospice) they would prefer for themselves if they were in the patient’s situation (clinicians’ preferences).

We conducted follow-up interviews with participants over the phone at 1- and 3-month intervals after study enrollment. During the follow-up interviews, participants reported whether they had discussed goals of care with a clinician since the last study interview.

**Statistical Analysis**

All participants’ characteristics and outcomes were summarized as frequency and percentage for categorical variables and mean±SD for continuous variables. The primary outcome was participants’ stated goals-of-care preferences after intervention, defined as immediately after listening to the description of the goals of care for the verbal control arm and immediately after listening to the description of the goals of care and viewing the video for the video-assisted intervention arm.

We compared goals-of-care, CPR, and intubation preferences between the video-assisted intervention and verbal control arms using χ² tests. We used a 2-sample t test to compare participants’ mean knowledge scores between the 2 arms. To compare the agreement between participants’ CPR and intubation preferences with their clinicians’ code preferences, 16 participants without documented clinician’s preference were excluded from the analysis. Participants who were uncertain about their preferences were considered to prefer CPR or intubation for this analysis. We used the κ statistics to summarize the agreement for each study arm. Lastly, we used Fisher exact tests to compare goals-of-care discussions (at 1- and
3-month follow-up) between the 2 arms limited to patients with follow-up at each time point.

All reported P values were 2 sided, with values of $P<0.05$ considered statistically significant. We targeted a sample size of 246 subjects (123 subjects in each arm) to have 80% power for detecting a 20% absolute difference in preferences between the 2 groups, assuming that 50% of participants in the control group would choose comfort care.

**RESULTS**

**Study Participants**

A total of 682 patients were assessed for eligibility (Figure 1). Seventy-seven patients were excluded for clinical reasons because they did not meet eligibility criteria, 124 patients were excluded on the basis of physician's request, and 167 were excluded for other reasons (Table I in the online-only Data Supplement). We approached 314 patients for study participation. Five patients failed the mental status examination, and 63 declined (20%). Half of the 246 participants were randomized to the video-assisted intervention arm (n=123) and half to the verbal control arm (n=123). Participants were mostly white (85%) with a mean age of 81 years (SD=8 years), and 61% were male. Most participants (91%) had New York Heart Association class III disease, and 28% had an implantable cardioverter-defibrillator (Table).

**Goals-of-Care Preferences**

Participants’ goals-of-care preferences in both arms were similar at baseline (Table). After the interven-

![Figure 1. CONSORT (Consolidated Standards of Reporting Trials) participant flow diagram. CPR indicates cardiopulmonary resuscitation.](http://circ.ahajournals.org/)}
more participants in the video-assisted intervention arm preferred comfort care compared with those in the verbal control arm. In the video-assisted arm, 27 (22%) preferred life-prolonging care, 31 (25%) preferred limited medical care, 63 (51%) preferred comfort care, and 2 (2%) were uncertain (P<0.001; Figure 2).

### CPR and Intubation Preferences

The proportions of participants in the video-assisted intervention and verbal control arms wanting to forgo CPR and intubation were similar at baseline (Table). After the intervention, more participants in the video-assisted intervention arm preferred comfort care compared with those in the verbal control arm. In the video-assisted arm, 27 (22%) preferred life-prolonging care, 31 (25%) preferred limited medical care, 63 (51%) preferred comfort care, and 2 (2%) were uncertain. In the verbal control arm, 50 (41%) preferred life-prolonging care, 27 (22%) preferred limited medical care, 37 (30%) preferred comfort care, and 8 (7%) were uncertain (P<0.001; Figure 2).

### Knowledge Scores

Baseline knowledge scores were similar between the 2 groups at baseline (Table). After randomization, participants in the video-assisted intervention arm had higher
mean knowledge scores compared with the control participants (4.1±1.4 versus 3.0±1.5; P<0.001).

Comparing Patients’ and Clinicians’ Preferences
A majority of clinicians would choose to forgo CPR and intubation for themselves if they were in the patient’s situation (Figure 3). The concordance of clinicians’ and patients’ code preferences for CPR and intubation was higher in the video-assisted intervention arm (κ=0.13 for CPR and κ=0.14 for MV, respectively) than in the verbal control arm (κ=−0.05 for CPR and κ=0.06 for MV, respectively).

Follow-Up Goals-of-Care Conversations
One- and 3-month follow-ups were completed for 73 (59%) and 66 (53%) participants from the video-assisted intervention arm and 63 (51%) and 52 (42%) participants from

Figure 2. Patients’ postintervention goals-of-care preferences.

Figure 3. Postintervention preferences.
A, Patients’ and clinicians’ postintervention cardiopulmonary resuscitation (CPR) preferences. B, Patients’ and clinicians’ postintervention intubation preferences.
the verbal control arm. The follow-up rates were not significantly different between groups (Table II in the online-only Data Supplement). At follow-up, participants randomized to the video-assisted intervention arm were more likely to report goals-of-care conversations with healthcare providers compared with verbal control participants at 1 month (40% versus 6%, respectively; \(P<0.001\)) and 3 months (61% versus 15%, respectively; \(P<0.001\); Figure 4).

**Comfort With the Video**

The video was highly acceptable to participants assigned the intervention. Among the 123 video-assisted intervention participants, 97 (79%) were “very comfortable,” 24 (20%) were “somewhat comfortable,” and 1 (1%) was “not comfortable” watching the video. When asked whether they would recommend the video to other patients, 101 (82%) would “definitely recommend,” 17 (14%) would “probably recommend,” and 4 (3%) would “not recommend” the video.

**DISCUSSION**

This study evaluates an innovative approach to informing and involving patients with advanced heart failure in decisions surrounding their care. Video-assisted intervention patients were more knowledgeable about their care options, more likely to prefer medical care focused on quality of life and comfort, and more likely to prefer to forgo invasive interventions compared with patients in the verbal control group. Moreover, video-assisted intervention patients were more likely to make decisions that were concordant with the decisions that physicians caring for them anticipated making for themselves in the same situation, and they were more likely to initiate ACP conversations with their providers.

This trial is an important step forward because heart disease is the leading cause of death worldwide and because ACP has been slow to come to this clinical arena.\textsuperscript{16,17} Patients’ underestimation of poor prognosis, clinicians’ lack of communication training, and clinicians’ uncertainty about the trajectory of heart failure partly account for the lack of ACP conversations.\textsuperscript{18–20} However, patients and families deserve to learn their options for goals of care and to be able to make decisions and communicate them to someone who can help them meet those goals. Our approach using video decision support tools offers a scalable solution to enhance these conversations and ACP more broadly.

Videos help people foresee how they might feel about different health states, medical interventions, and the consequences of different actions.\textsuperscript{21} Decision support tools such as that described here can empower and activate patients, providers, and health systems to ensure that patients receive medical care that is aligned with their preferences.\textsuperscript{22} Interestingly, when provided with a verbal narrative alone, control patients in this study changed toward desiring more life-prolonging measures in terms of their goals of care, although this change was not statistically significant. It is plausible that at baseline before the verbal narrative, control patients did not have an understanding of this particular framework in terms of thinking about goals of care. Thus, their preferences after the verbal narrative reflect their exposure to these preferences. Notably, fewer patients were unsure of their preferences after the verbal narrative or the video intervention.

In this study, the video tool improved patients’ understanding of their options, influenced their preferences, and served as a catalyst to actually having the conversation with their clinician, the rate-limiting step in patient-centered care.\textsuperscript{23} Activating patients with advanced heart failure to initiate ACP conversations with their providers alleviates provider unease and uncertainty about discussing ACP under circumstances of prognostic uncertainty. Our video-assisted approach was designed to stimulate and supplement, not supplant, the conversations that patients should have with their clinicians. We believe that the success of the intervention shows that patients can be empowered to engage clinicians in ACP, a focus of recent national guide-
line changes promoting ACP as the standard of care. Video decision support tools can play a significant role in strengthening discussions with providers who may not feel comfortable having these discussions otherwise.

Our study has several important limitations. First, data collectors were not blinded to the randomization. Although this may have introduced bias, previous randomized studies in ACP have seldom been blinded to ease the burden on participants of addressing sensitive topics and because the nature of such interventions makes blinding challenging. Second, our study included predominantly white patients, limiting the generalizability of our findings. Third, in the intervention arm, patients viewed the video and received an ACP checklist. Although the checklist is considered an important component of the intervention to remind patients to discuss ACP with their clinicians, we do not believe that the checklist itself accounts for the differences in outcomes seen in this study. Notably, patients’ preferences and knowledge about CPR were assessed before they had a chance to review the checklist. Fourth, although the video-assisted intervention led to more goals-of-care conversations between patients and providers, we do not have any information on documented ACP discussions such as advanced directives, do-not-resuscitate orders, or hospice use. Finally, visual media can be manipulated to favor a particular decision. We are quite sensitive to this concern and extensively vetted all aspects of the video with a range of stakeholders. Furthermore, the facts that participants had an overwhelmingly positive impression of the video (96% recommend) and that the video led to increased knowledge are reassuring.

As the Institute of Medicine recently pointed out, although ACP and effective communication between patients and physicians are recognized as a standard for high-quality care, “achieving such a partnership is a challenge.” Medicare’s recent interest in billing mechanisms for reimbursement related to ACP is clearly an attempt to stimulate such conversations. Tools to empower patients and promote shared decision making related to ACP can help ensure that this time is well spent and may be required for payment. Video decision support tools provide a standardized and cost-effective means to address the immediate communication needs of our healthcare system and to ensure that patients receive care that reflects their well-informed wishes.

**DISCLOSURES**

Dr Paasche-Orlow receives compensation as a consultant to Nous Foundation, Inc. (www.ACPDecisions.org) a not-for-profit 501(c)3 foundation that disseminates educational videos. Dr Volandes is the president of the not-for-profit foundation. Dr Volandes has financial interests in the not-for-profit foundation, which were reviewed and are managed by Massachusetts General Hospital and Partners HealthCare in accordance with their conflict of interest policies. The other authors report no conflicts.

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**FOOTNOTES**


**REFERENCES**

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**ORIGINAL RESEARCH**

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Supplementary Appendix

“A Randomized Controlled Trial of a Video Decision Support Tool Regarding Goals of Care and Resuscitation Options for Patients with Advanced Heart Failure.”

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Appendix A: Eligibility Criteria

Patient Inclusion Criteria:

1. A diagnosis of advanced heart failure as defined by ALL THREE of the following:
   - New York Heart Association Class III or IV (NYHA III or IV) (III: marked limitation in activity due to symptoms, even during less-than-ordinary activity; IV: severe limitations, experiences symptoms while at rest), OR NYHA Class II (Slight limitation of physical activity. comfortable at rest, but ordinary physical activity results in fatigue, palpitation, or dyspnea) with the presence of an end stage comorbidity or severe comorbidity burden such that the patient is likely to survive less than one year.
   AND
   - A non-elective hospitalization, including observational stays, within the last 12 months OR documented home management of heart failure symptoms by medical personnel within the last 12 months.
   AND
   - Age greater than or equal to 64 at the time of the hospitalization.

2. Additionally ONE of the following must be met:
   - According to the attending physician’s best judgment the patient’s survival is limited to 2 years but may very well be less than 1 year (i.e. the physician would not be surprised if the patient died within one year from any cause)
   OR
   - Three heart failure hospitalizations (including observational stays), in the last year
   OR
   - One of the following:
     - One or more Systolic Blood Pressures < 90 within the last 6 months in the ambulatory setting
     - Na < 130 within the last 6 months
     - NTproBNP > 3,000
     - EGFR < 35
     - High diuretic use (160 mg po Lasix or equivalent)

3. The ability to communicate in English and provide informed consent.
4. Ambulatory patients must be return patients with an established relationship with the cardiologist (not a new consult).
5. Inpatients must have an established diagnosis of advanced heart failure; those with new onset heart failure will not be eligible.
6. A score of ≥ 7 on the Short Portable Mental Status Questionnaire (SPMQ).

Patient Exclusion Criteria:

- Not an established heart failure patient
- Candidate for transplant or mechanical circulatory support
• Patient has been referred to or enrolled in hospice care
• Psychiatric illness as determined by the physician that would make this study inappropriate.
• Any patient that has been excluded for transplant or circulatory support for psychological or psychiatric co-morbidities.

Note: For patients in the ambulatory setting, the research staff offered to conduct the study interview in clinic when space was available or at the patient’s home.
Patient and Family Checklist

This short guide will help make sure the doctors and nurses understand your wishes. In order to protect your rights, it’s important to follow these five steps:

#1. Understand Advance Care Planning

#2. View a video about options in heart failure

#3. Clarify your values and beliefs

#4. Document Your Conversation

#5. Revisit the Conversation

This guide will give you an overview of each of these five points.
#1. Understanding Advance Care Planning

Advance Care Planning is a process for you to:

- Think about what is important to you when you are very ill.
- Learn about what your medical options are when you are very ill.
- Learn important information to help you make informed decisions.
- Choose a loved one to make decisions for you or to have a written document stating your wishes to a doctor.

#2. Clarify Your Values and Beliefs

Some people have strong opinions about what would be important to them should they become very ill, while others may have certain things they would rather avoid. It’s important to clarify your values and beliefs. For example:

How important is it to you to avoid pain and suffering even if it means that you may not live as long?

How important is it that you are alert even if it means being in pain?

How important is it to be around family, friends or religious advisors?

How important is it to be at home when you die?

How important is it to be kept alive long enough for your family to see you before you die, even if you are unconscious?
#3. An Educational Video

The educational video provided reviews advance care planning and what your options are for medical treatments. The video gives you a step by step explanation of some of the information you may need to know to make sure your wishes for healthcare are met.

Each person is different so it’s important to watch the video so that you understand the decisions and information unique to you and your health.

“Using the videos helped me better understand the advance care planning discussion. I am a visual learner. The videos made things clear and easy to understand.”

-Henrietta, Boston, MA

#4. Document the Conversation

It’s important that there is a record of your wishes for healthcare as part of your medical record. This can be accomplished by completing an advance directive or by appointing a healthcare proxy.

It’s a good idea to discuss your thoughts, concerns and choices with those close to you. And you might want to choose a trusted family member or close friend who is willing to speak for you when you cannot speak for yourself. It is good planning to talk to your family and friends now about what is important to you to live well.

#5. Revisit the Conversation

Advance care planning is not a single conversation but a discussion over time.

Your wishes and preferences may change over time.

It’s a good idea to have numerous conversations about your preferences with your family, friends and healthcare providers.
PATIENT CHECKLIST

#1. Understanding ACP

#2. Clarify Values and Beliefs

#3. Use Educational Video

#4. Document the Conversation

#5. Revisit the Conversation
Appendix C: Knowledge Questions

Responses for questions 1-5:
True
False
Not Sure

1. Cardiopulmonary resuscitation or CPR is a medical procedure that is done on patients whose heart stops beating in an attempt to restart their heart.

2. Most patients with advanced heart failure that get CPR in the hospital survive and get to leave the hospital.

3. Most people with advanced heart failure who survive CPR and being placed on a breathing machine have very few complications from these procedures.

4. Comfort care is a type of medical care that can only be provided for patients living in hospice.

5. Once you talk with your doctor about the kind of medical care you want if your heart failure becomes very advanced, you cannot change your wishes in the future.

6. How many patients with advanced heart failure that get CPR in the hospital survive and get to leave the hospital?
   Almost all (more than 90%)
   About half (more than 50%)
   Few (less than 10%)
   Not sure
Table S1: Reasons for exclusion of 167 patients assessed for eligibility.

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<th>N</th>
<th>Reason</th>
</tr>
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<td>60</td>
<td>Unable to make contact with patient---not answering phone, patient out of room, no show for appointment, etc.</td>
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<tr>
<td>51</td>
<td>Doctor never responded to request for permission to contact patient</td>
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<tr>
<td>20</td>
<td>Discharged from hospital before RA could see patient</td>
</tr>
<tr>
<td>12</td>
<td>Other: family member declined for patient, patient is from another state, poor English, enrolled in other study, very hard of hearing, etc.</td>
</tr>
<tr>
<td>10</td>
<td>Died before contact could be made</td>
</tr>
<tr>
<td>8</td>
<td>New/exacerbated health issues</td>
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<tr>
<td>5</td>
<td>Went to hospice, already on comfort care.</td>
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<td>1</td>
<td>Incomplete pre-randomization survey</td>
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Table S2: Follow-Up Status by Arm at One and Three Months

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<th>Verbal Arm</th>
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<td>63</td>
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<td>10</td>
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<td>10</td>
<td>Declined all follow-up at post intervention (didn’t want, no phone, etc.)</td>
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<tr>
<td>Unable to talk at time---death in family, sick, etc.</td>
<td>0</td>
<td>3</td>
<td>Unable to talk at time---death in family, sick, etc.</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Confused/does not recall survey/dementia/stroke, etc.</td>
<td>4</td>
<td>2</td>
<td>Confused/does not recall survey/dementia/stroke, etc.</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Declined follow-up at this call, no further follow-up</td>
<td>5</td>
<td>1</td>
<td>Declined follow-up at this call, no further follow-up</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Site/RA error---no attempts made</td>
<td>0</td>
<td>1</td>
<td>Site/RA error---no attempts made</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Unable to talk at time---death in family, sick, etc.</td>
<td>123</td>
<td>123</td>
<td>Unable to talk at time---death in family, sick, etc.</td>
<td>123</td>
<td>123</td>
</tr>
</tbody>
</table>
중증 심부전 환자 대상의 비디오를 이용한 사전 치료계획 설명 및 의사결정 지원방법이 설명의 이해도를 높이고 안정요법의 선택비중을 늘린다

박훈준 교수 가톨릭대학교 서울성모병원 순환기내과

초록

배경
중증 심부전 환자에게 심폐소생술이나 기관지 삽관 등의 치료 목표를 설명하는 것은 어려울 수 있다. 본 연구는 심부전 환자를 대상으로 비디오를 이용한 의사결정 지원방법(video decision support tool)과 사전 치료계획 점검표(patient checklist on advance care planning)의 효과를 조사하였다.

방법
본 연구는 다기관, 무작위, 대조연구로서 2년 기대 사망률이 50% 이상인 64세 이상의 중증 심부전 환자 246명을 대상으로 비디오 보조 중재(video-assisted intervention)와 사전 치료계획 점검표의 효과를 구두설명(verbal description)과 비교하였다. 증세술 중재자는 치료 목표(생명연장요법(life-prolonging care), 제한요법(limited care), 안정요법(comfort care)과 심폐소생술/기관지 삽관에 대한 구두설명뿐 아니라, 생존 약물, 심폐소생술/기관지 삽관, 사전 치료계획 점검표에 대한 설명이 담긴 6분의 영상의 비디오를 추가로 사전하였다. 이번, 대조군은 구두설명만 받았다. 차이 분석은 안정요법을 선호하는 환자비율을 비교하였으며, 이차 결과는 증세 후 심폐소생술/기관지 삽관의 선호도와 설명에 대한 이해도(6개 항목; 범위 0-6)를 비교하였다.

결과
중재술군에서 27명(22%)이 생명연장요법, 31명(25%)이 제한요법, 63명(51%)이 안정요법을 선택하였으며, 2명(2%)은 불명확하였다. 대조군에서는 50명(41%)이 생명연장요법, 27명(22%)이 제한요법, 37명(30%)이 안정요법, 8명(7%)은 불명확하였다 (P<0.001). 대조군과 비교하여 중재술군은 심폐소생술(68% vs. 35%; P<0.001)과 기관지 삽관(77% vs. 48%; P<0.001)을 포기하는 경향이 있었으며, 높은 설명 이해도 점수를 보였다 (4.1 vs. 3.0; P<0.001).

결론
사전 치료계획에 대한 비디오를 사전한 심부전 환자가 구두설명만 받은 환자들에 비해 설명에 대한 이해도가 높고, 안정요법을 선호하였으며, 심폐소생술/기관지 삽관을 원하는 환자도 늘었다.
Randomized, Controlled Trial of an Advance Care Planning Video Decision Support Tool for Patients With Advanced Heart Failure

**BACKGROUND:** Conversations about goals of care and cardiopulmonary resuscitation (CPR)/intubation for patients with advanced heart failure can be difficult. This study examined the impact of a video decision support tool and patient checklist on advance care planning for patients with heart failure.

**METHODS:** This was a multisite, randomized, controlled trial of a video-assisted intervention and advance care planning checklist versus a verbal description in 246 patients ≥64 years of age with heart failure and an estimated likelihood of death of >50% within 2 years. Intervention participants received a verbal description for goals of care (life-prolonging care, limited care, and comfort care) and CPR/intubation plus a 6-minute video depicting the 3 levels of care, CPR/intubation, and an advance care planning checklist. Control subjects received only the verbal description. The primary analysis compared the proportion of patients preferring comfort care between study arms immediately after the intervention. Secondary outcomes were CPR/intubation preferences and knowledge (6-item test; range, 0–6) after intervention.

**RESULTS:** In the intervention group, 27 (22%) chose life-prolonging care, 31 (25%) chose limited care, 63 (51%) selected comfort care, and 2 (2%) were uncertain. In the control group, 50 (41%) chose life-prolonging care, 27 (22%) selected limited care, 37 (30%) chose comfort care, and 8 (7%) were uncertain (P<0.001). Intervention participants (compared with control subjects) were more likely to forgo CPR (68% versus 35%; P<0.001) and intubation (77% versus 48%; P<0.001) and had higher mean knowledge scores (4.1 versus 3.0; P<0.001).

**CONCLUSIONS:** Patients with heart failure who viewed a video were more informed, more likely to select a focus on comfort, and less likely to desire CPR/intubation compared with patients receiving verbal information only.

**CLINICAL TRIAL REGISTRATION:** URL: http://www.clinicaltrials.gov. Unique identifier: NCT01589120.

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Sources of Funding, see page 110

**Key Words:** heart failure • quality of health care • quality of life

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Clinical Perspective

What Is New?

• A video decision aid for patients with advanced heart failure encouraged patients to have advance care planning conversations with their physicians.
• Patients better informed about their goals-of-care options led to more patients desiring care focusing on comfort and avoiding CPR and intubation.
• The incidence of patient-physician conversations increased.

What Are the Clinical Implications?

• Advance care planning video decision aids stimulate and supplement patient-physician communication, enhance patients’ understanding of their goals-of-care options, and ensure that patients receive care that reflects their well-informed wishes.

As a result of the prognostic uncertainty of heart failure and the multiple advanced therapies potentially available, it is difficult to know when the opportune time is to broach discussions about care preferences and future care options for patients with advanced heart failure. A recent consensus statement has suggested that patients have a discussion about overall goals of care annually. However, it is still challenging even for the best-informed clinician to know how to have these discussions. Despite major advances in lifesaving therapies, heart failure remains a highly morbid disease; patients with heart failure also have a much lower rate of use of end-of-life resources such as hospice.

Advance care planning (ACP) is a process of shared decision making that informs and engages patients to ensure that the care delivered is concordant with their informed wishes. ACP is recognized as a standard for high-quality patient-centered care. Video decision support tools encourage ACP by stimulating informed conversations and helping people think about the choices they face.

Video tools can help people envision future circumstances and deliberate about their decisions.

Our group, the VIDEO Consortium (Video Images of Disease for Ethical Outcomes), has developed and evaluated several decision support tools to assist patients with ACP. Our previous work in patients with cancer suggests that video tools serve as catalysts to spark ACP conversations by informing patients about their options, leading to care decisions that are more aligned with patients’ preferences and values. Extending this research to patients with heart failure is important given its high prevalence and associated morbidity and mortality.

We conducted a randomized trial of a goals-of-care video and ACP checklist among patients with advanced heart failure. Our primary hypothesis was that patients in the video-assisted intervention arm would be more likely to prefer medical care focused on quality of life and comfort compared with those who received only a verbal description of their options. Secondary hypotheses were that the video-assisted group would be less likely to want cardiopulmonary resuscitation (CPR) attempted or to be placed on a ventilator, more knowledgeable about their options, more likely to have ACP conversations with their physicians, and more likely to prefer what their physicians would choose for themselves in such circumstances.

METHODS

Setting

We conducted this study with 246 participants from 7 teaching hospitals: Massachusetts General Hospital (n=92), Newton-Wellesley Hospital (n=49), University of Colorado Hospital (n=40), Brigham and Women’s Hospital (n=33), Boston Medical Center (n=18), Nashville Veterans Administration Medical Center (n=8), and Vanderbilt University Medical Center (n=6). Institutional Review Board approval was obtained at each hospital. Study participants provided written informed consent.

Participants

We enrolled 246 participants from June 28, 2012, to February 7, 2015. Eligibility criteria included age ≥64 years, ability to provide informed consent, ability to communicate in English, and an established diagnosis of advanced heart failure with limited prognosis as defined by the criteria in Appendix A in the online-only Data Supplement. We excluded patients with a score of ≤6 on the Short Portable Mental Status Questionnaire.

Study recruitment, data collection, and intervention administration were done by trained research assistants (RAs: physicians or nurses) at each hospital. The RAs underwent standardized training in all aspects of the research protocol, including use of structured scripts to administer the questionnaires.

RAs reviewed records of hospitalized and ambulatory patients with advanced heart failure to identify potential subjects. Each patient’s attending physician was asked to confirm eligibility and to approve approaching the patient for participation. Eligible patients were invited to participate, and informed consent was obtained from those who agreed.

After obtaining informed consent, the RA administered the Short Portable Mental Status Questionnaire to confirm final study eligibility. The RA administered a baseline questionnaire (demographics, self-reported health status, goals-of-care preferences, CPR/intubation preferences, and knowledge questions), after which participants were randomized to either the video-assisted intervention or verbal control arm. We used a central, computer-generated 2:2 block randomization design stratified on the basis of use of an implantable cardioverter-defibrillator at each institution, with assignments concealed in numbered envelopes.

Video-Assisted Intervention Arm

Participants randomized to the video-assisted intervention arm first listened to a description of the 3 goals of care read out...
We obtained verbal control participants’ goals-of-care preferences, CPR/intubation preferences, and knowledge before randomization during the baseline interview (baseline questionnaire) and then immediately after listening to the description of the goals of care (postintervention questionnaire). Patients with questions after hearing the verbal description were referred to their attending physician.

**Data Collection and Outcomes**

The baseline questionnaire included the following self-reported variables: age, race/ethnicity, sex, education, marital status, religion, health status, goals-of-care preferences, CPR/intubation preferences, and knowledge of ACP options.

We categorized patients’ goals-of-care preferences as follows: life-prolonging care, limited medical care, comfort care, or unsure. We categorized patients’ CPR preferences as “yes, attempt CPR,” “no, do not attempt CPR,” or “not sure.” Similarly, we categorized intubation preferences as “yes, attempt intubation,” “no, do not attempt intubation,” or “not sure.”

We assessed patients’ knowledge of goals of care as in previous studies using 5 true/false questions and 1 multiple choice question, each worth 1 point, for a summary score of 0 to 6 (higher score reflects greater knowledge; Appendix D in the online-only Data Supplement).7,10

In both arms, the postintervention questionnaire included the following self-reported variables: goals-of-care preferences, CPR/intubation preferences, and knowledge questions.

We also asked the attending physician for each participant to report what code status (full code, do not resuscitate, do not resuscitate and do not intubate, or do not hospitalize/comfort only/hospice) they would prefer for themselves if they were in the patient’s situation (clinicians’ preferences).

We conducted follow-up interviews with participants over the phone at 1- and 3-month intervals after study enrollment. During the follow-up interviews, participants reported whether they had discussed goals of care with a clinician since the last study interview.

**Statistical Analysis**

All participants’ characteristics and outcomes were summarized as frequency and percentage for categorical variables and mean±SD for continuous variables. The primary outcome was participants’ stated goals-of-care preferences after intervention, defined as immediately after listening to the description of the goals of care for the verbal control arm and immediately after listening to the description of the goals of care and viewing the video for the video-assisted intervention arm.

We compared goals-of-care, CPR, and intubation preferences between the video-assisted intervention and verbal control arms using χ² tests. We used a 2-sample t test to compare participants’ mean knowledge scores between the 2 arms. To compare the agreement between participants’ CPR and intubation preferences with their clinicians’ code preferences, 16 participants without documented clinician’s preference were excluded from the analysis. Participants who were uncertain about their preferences were considered to prefer CPR or intubation for this analysis. We used the κ statistics to summarize the agreement for each study arm. Lastly, we used Fisher exact tests to compare goals-of-care discussions (at 1- and

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The video begins with a physician introducing the patient to ACP and a 3-part goals-of-care framework (life-prolonging care, limited medical care, and comfort care), which was used and tested in previous studies.14 In the video, life-prolonging care images included a simulated code with clinicians conducting CPR and intubation on a mannequin; an intensive care unit with a ventilated patient being tended by respiratory therapists; and medications, including vasopressors, administered through a venous catheter. Visual images depicting limited medical care included a patient getting medications via a peripheral intravenous catheter, scenes from a typical medical ward service, and a patient wearing a nasal cannula. The video depiction of comfort care included a patient receiving oral medications at home, a patient with a nasal cannula on oxygen at home, and a medical attendant assisting a patient with self-care. In its development, the design, script, scenes, and structure of the video were reviewed for accuracy and appropriateness by experts in cardiology, critical care, geriatrics, palliative care, decision making, health literacy, medical ethics, and patients with heart failure. The research team performed all filming and editing of the video before the development of this study protocol following previously published criteria.15 All providers and patients included in the video (or their proxies) gave consent to be filmed.

We obtained video-assisted intervention participants’ goals-of-care preferences, CPR/intubation preferences, and knowledge before randomization during the baseline interview (baseline questionnaire) and immediately after listening to the description of the goals of care and viewing the video (postintervention questionnaire). Patients with questions after viewing the video were referred to their attending physician.

**Verbal Control Arm**

After randomization, participants in the verbal control arm listened to the same description of the 3 goals of care used in the video arm read out loud by the RA (Appendix B in the online-only Data Supplement). Participants in the control group did not watch the video or receive the ACP checklist. We used standardized procedures across sites to minimize interaction between RAs and patients during the interview. Specifically, RAs were not permitted to comment or answer questions while the patient listened to the verbal narrative or answered the interview questions; control participants were instructed to ask their physicians any questions they may have about goals of care.
3-month follow-up) between the 2 arms limited to patients with follow-up at each time point.

All reported \( P \) values were 2 sided, with values of \( P<0.05 \) considered statistically significant. We targeted a sample size of 246 subjects (123 subjects in each arm) to have 80\% power for detecting a 20\% absolute difference in preferences between the 2 groups, assuming that 50\% of participants in the control group would choose comfort care.

**RESULTS**

**Study Participants**

A total of 682 patients were assessed for eligibility (Figure 1). Seventy-seven patients were excluded for clinical reasons because they did not meet eligibility criteria, 124 patients were excluded on the basis of physician’s request, and 167 were excluded for other reasons (Table I in the online-only Data Supplement). We approached 314 patients for study participation. Five patients failed the mental status examination, and 63 declined (20\%).

Half of the 246 participants were randomized to the video-assisted intervention arm (n=123) and half to the verbal control arm (n=123). Participants were mostly white (85\%) with a mean age of 81 years (SD=8 years), and 61\% were male. Most participants (91\%) had New York Heart Association class III disease, and 28\% had an implantable cardioverter-defibrillator (Table).

**Goals-of-Care Preferences**

Participants’ goals-of-care preferences in both arms were similar at baseline (Table). After the interven-
tion, more participants in the video-assisted intervention arm preferred comfort care compared with those in the verbal control arm. In the video-assisted arm, 27 (22%) preferred life-prolonging care, 31 (25%) preferred limited medical care, 63 (51%) preferred comfort care, and 2 (2%) were uncertain. In the verbal control arm, 50 (41%) preferred life-prolonging care, 27 (22%) preferred limited medical care, 37 (30%) preferred comfort care, and 8 (7%) were uncertain (P<0.001; Figure 2).

### CPR and Intubation Preferences

The proportions of participants in the video-assisted intervention and verbal control arms wanting to forgo CPR and intubation were similar at baseline (Table). After the intervention, more participants in the video-assisted intervention arm preferred to forgo CPR and intubation (68% and 76%, respectively) compared with those in the verbal control arm (35% and 48%, respectively; P<0.001 and P<0.001, respectively; Figure 3).

### Knowledge Scores

Baseline knowledge scores were similar between the 2 groups at baseline (Table). After randomization, participants in the video-assisted intervention arm had higher

### Table. Participants’ Baseline Characteristics and Preferences

<table>
<thead>
<tr>
<th>Variables</th>
<th>Verbal Control (n=123)</th>
<th>Video Intervention (n=123)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean (SD), y</td>
<td>81 (9)</td>
<td>81 (8)</td>
<td>0.79</td>
</tr>
<tr>
<td>Women, n (%)</td>
<td>47 (38)</td>
<td>50 (41)</td>
<td>0.70</td>
</tr>
<tr>
<td>Race, n (%)</td>
<td></td>
<td></td>
<td>0.48</td>
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<td>White</td>
<td>102 (83)</td>
<td>106 (86)</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>17 (14)</td>
<td>11 (9)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>4 (3)</td>
<td>6 (5)</td>
<td></td>
</tr>
<tr>
<td>Education, n (%)</td>
<td></td>
<td></td>
<td>0.68</td>
</tr>
<tr>
<td>Elementary</td>
<td>10 (8)</td>
<td>6 (5)</td>
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<tr>
<td>Some high school</td>
<td>11 (9)</td>
<td>9 (7)</td>
<td></td>
</tr>
<tr>
<td>High school graduate</td>
<td>46 (37)</td>
<td>52 (42)</td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>20 (16)</td>
<td>24 (20)</td>
<td></td>
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<tr>
<td>College graduate</td>
<td>16 (13)</td>
<td>18 (15)</td>
<td></td>
</tr>
<tr>
<td>Postgraduate</td>
<td>20 (16)</td>
<td>14 (11)</td>
<td></td>
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<tr>
<td>Religion, n (%)</td>
<td></td>
<td></td>
<td>0.61</td>
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<td>Catholic</td>
<td>57 (46)</td>
<td>62 (50)</td>
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<tr>
<td>Christian (non-Catholic)</td>
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<td>38 (31)</td>
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<td>12 (10)</td>
<td>9 (7)</td>
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<tr>
<td>Other</td>
<td>21 (17)</td>
<td>14 (11)</td>
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<tr>
<td>Marital status, n (%)</td>
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<td>0.68</td>
</tr>
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<td>Married or with a partner</td>
<td>56 (46)</td>
<td>57 (46)</td>
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<tr>
<td>Widowed</td>
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<tr>
<td>Divorced</td>
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<td></td>
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<tr>
<td>Single</td>
<td>9 (7)</td>
<td>14 (11)</td>
<td></td>
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<tr>
<td>Self-reported health status, n (%)</td>
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<tr>
<td>Excellent</td>
<td>4 (3)</td>
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<td></td>
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<tr>
<td>Very good</td>
<td>14 (11)</td>
<td>12 (10)</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>32 (26)</td>
<td>34 (28)</td>
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<tr>
<td>Fair</td>
<td>41 (33)</td>
<td>46 (37)</td>
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</tr>
<tr>
<td>Poor</td>
<td>32 (26)</td>
<td>30 (24)</td>
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<td>NYHA class, n (%)</td>
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<td>II</td>
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<tr>
<td>III</td>
<td>112 (91)</td>
<td>111 (90)</td>
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<tr>
<td>IV</td>
<td>11 (9)</td>
<td>10 (8)</td>
<td></td>
</tr>
<tr>
<td>ICD, n (%)</td>
<td></td>
<td></td>
<td>0.89</td>
</tr>
<tr>
<td>Yes</td>
<td>36 (29)</td>
<td>34 (28)</td>
<td></td>
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<tr>
<td>Enrollment location, n (%)</td>
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<td>0.99</td>
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<tr>
<td>Inpatient</td>
<td>62 (50)</td>
<td>61 (50)</td>
<td></td>
</tr>
<tr>
<td>Clinic or home</td>
<td>61 (50)</td>
<td>62 (50)</td>
<td></td>
</tr>
</tbody>
</table>

(Continued)
Comparing Patients’ and Clinicians’ Preferences
A majority of clinicians would choose to forgo CPR and intubation for themselves if they were in the patient’s situation (Figure 3). The concordance of clinicians’ and patients’ code preferences for CPR and intubation was higher in the video-assisted intervention arm ($\kappa=0.13$ for CPR and $\kappa=0.14$ for MV, respectively) than in the verbal control arm ($\kappa=-0.05$ for CPR and $\kappa=0.06$ for MV, respectively).

Follow-Up Goals-of-Care Conversations
One- and 3-month follow-ups were completed for 73 (59%) and 66 (53%) participants from the video-assisted intervention arm and 63 (51%) and 52 (42%) participants from

Figure 2. Patients’ postintervention goals-of-care preferences.

Figure 3. Postintervention preferences.
A, Patients’ and clinicians’ postintervention cardiopulmonary resuscitation (CPR) preferences. B, Patients’ and clinicians’ postintervention intubation preferences.
the verbal control arm. The follow-up rates were not significantly different between groups (Table II in the online-only Data Supplement). At follow-up, participants randomized to the video-assisted intervention arm were more likely to report goals-of-care conversations with healthcare providers compared with verbal control participants at 1 month (40% versus 6%, respectively; \( P < 0.001 \)) and 3 months (61% versus 15%, respectively; \( P < 0.001 \); Figure 4).

**Comfort With the Video**

The video was highly acceptable to participants assigned the intervention. Among the 123 video-assisted intervention participants, 97 (79%) were “very comfortable,” 24 (20%) were “somewhat comfortable,” and 1 (1%) was “not comfortable” watching the video. When asked whether they would recommend the video to other patients, 101 (82%) would “definitely recommend,” 17 (14%) would “probably recommend,” and 4 (3%) would “not recommend” the video.

**DISCUSSION**

This study evaluates an innovative approach to informing and involving patients with advanced heart failure in decisions surrounding their care. Video-assisted intervention patients were more knowledgeable about their care options, more likely to prefer medical care focused on quality of life and comfort, and more likely to prefer to forgo invasive interventions compared with patients in the verbal control group. Moreover, video-assisted intervention patients were more likely to make decisions that were concordant with the decisions that physicians caring for them anticipated making for themselves in the same situation, and they were more likely to initiate ACP conversations with their providers.

This trial is an important step forward because heart disease is the leading cause of death worldwide and because ACP has been slow to come to this clinical arena.\(^\text{16,17}\) Patients’ underestimation of poor prognosis, clinicians’ lack of communication training, and clinicians’ uncertainty about the trajectory of heart failure partly account for the lack of ACP conversations.\(^\text{18-20}\) However, patients and families deserve to learn their options for goals of care and to be able to make decisions and communicate them to someone who can help them meet those goals. Our approach using video decision support tools offers a scalable solution to enhance these conversations and ACP more broadly.

Videos help people foresee how they might feel about different health states, medical interventions, and the consequences of different actions.\(^\text{21}\) Decision support tools such as that described here can empower and activate patients, providers, and health systems to ensure that patients receive medical care that is aligned with their preferences.\(^\text{22}\) Interestingly, when provided with a verbal narrative alone, control patients in this study changed toward desiring more life-prolonging measures in terms of their goals of care, although this change was not statistically significant. It is plausible that at baseline before the verbal narrative, control patients did not have an understanding of this particular framework in terms of thinking about goals of care. Thus, their preferences after the verbal narrative reflect their exposure to these preferences. Notably, fewer patients were unsure of their preferences after the verbal narrative or the video intervention.

In this study, the video tool improved patients’ understanding of their options, influenced their preferences, and served as a catalyst to actually having the conversation with their clinician, the rate-limiting step in patient-centered care.\(^\text{23}\) Activating patients with advanced heart failure to initiate ACP conversations with their providers alleviates provider unease and uncertainty about discussing ACP under circumstances of prognostic uncertainty. Our video-assisted approach was designed to stimulate and supplement, not supplant, the conversations that patients should have with their clinicians. We believe that the success of the intervention shows that patients can be empowered to engage clinicians in ACP, a focus of recent national guide-

![Figure 4. Patient-reported conversations with healthcare providers about their goals of care at 1- and 3-month follow-up.](image)
line changes promoting ACP as the standard of care. Video decision support tools can play a significant role in strengthening discussions with providers who may not feel comfortable having these discussions otherwise.

Our study has several important limitations. First, data collectors were not blinded to the randomization. Although this may have introduced bias, previous randomized studies in ACP have seldom been blinded to ease the burden on participants of addressing sensitive topics and because the nature of such interventions makes blinding challenging. Second, our study included predominantly white patients, limiting the generalizability of our findings. Third, in the intervention arm, patients viewed the video and received an ACP checklist. Although the checklist is considered an important component of the intervention to remind patients to discuss ACP with their clinicians, we do not believe that the checklist itself accounts for the differences in outcomes seen in this study. Notably, patients’ preferences and knowledge about CPR were assessed before they had a chance to review the checklist. Fourth, although the video-assisted intervention led to more goals-of-care conversations between patients and providers, we do not have any information on documented ACP discussions such as advanced directives, do-not-resuscitate orders, or hospice use. Finally, visual media can be manipulated to favor a particular decision. We are quite sensitive to this concern and extensively vetted all aspects of the video with a range of stakeholders. Furthermore, the facts that participants had an overwhelmingly positive impression of the video (96% recommend) and that the video led to increased knowledge are reassuring.

As the Institute of Medicine recently pointed out, although ACP and effective communication between patients and physicians are recognized as a standard for high-quality care, “achieving such a partnership is a challenge.” Medicare’s recent interest in billing mechanisms for reimbursement related to ACP is clearly an attempt to stimulate such conversations. Tools to empower patients and promote shared decision making related to ACP can help ensure that this time is well spent and may be required for payment. Video decision support tools provide a standardized and cost-effective means to address the immediate communication needs of our healthcare system and to ensure that patients receive care that reflects their well-informed wishes.

**REFERENCES**


