Assessment of freely available online videos of cardiac electrophysiological procedures from a shared decision-making perspective

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BACKGROUND Physicians recommend electrophysiological (EP) procedures to patients with arrhythmic risk. This involves shared decision-making (SDM). Patients increasingly search for additional information online. Freely available online videos are an attractive source.

OBJECTIVE We assessed freely available online videos for EP procedures from the perspective of SDM to determine if such videos can be shared with patients for SDM.

METHODS We searched for freely available online videos related to 6 common EP procedures limited to English language and duration between 1 and 10 minutes using Google and Bing. Data collected included date and source of upload, number of hits, and duration. Videos were assessed systematically for understandability, actionability (PEMAT tool), relatability, teamwork, and mention of risk.

RESULTS A total of 78 videos met our inclusion criteria, out of 960 video links. Overall inter-rater agreement was moderate to good. Video upload dates spanned 12 years and number of hits ranged from 87 to 594,000. The majority of videos (63%) were produced by health care systems or academic institutions. For all 78 videos the mean total PEMAT tool score was 48.6%. Thirty-five percent of videos showed a patient engaged in a conversation with the physician or a team member; 41% of videos showed other team members. The potential for complications was mentioned in 10%.

CONCLUSION The majority of online, freely available videos for common EP procedures lack features useful for SDM and may not be helpful for sharing with patients from that perspective. It is possible to create high-quality videos that can facilitate SDM.

KEYWORDS Shared decision-making; EP procedures; Videos; Understandability; Actionability; Risk; Teamwork

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Introduction

Cardiovascular disease is common in the United States, with more than 126 million adults affected in 2018.[1] Many patients have arrhythmias such as atrial fibrillation (AF), which affected 5 million adults in the United States in 2010.[1] In 2018, approximately 6 million were diagnosed with heart failure and arrhythmia was listed as one of the causes of death in 564,182 people.[1] Physicians recommend cardiac electrophysiological (EP) procedures as part of their treatment to patients with or at risk for arrhythmias. In the United States, more than 200,000 pacemaker procedures, 100,000 defibrillator procedures, and nearly 75,000 ablations are performed annually.[2–5] Still, disparities exist. Compared to White patients, Black and Hispanic patients are less likely to be counseled for or to undergo primary-prevention implantable cardioverter-defibrillator (ICD) implants and similarly less likely to undergo a cardioversion or an ablation procedure for AF than Whites.[6–8] The Institute of Medicine states that understanding and improving communication may be a key to addressing disparities in health outcomes.[9] Physicians make decisions jointly with patients when discussing procedures, and shared decision-making (SDM) is one aspect of improving patient-centered care. The Heart Rhythm Society guidelines emphasize the use of SDM and exemplify it in the 2017 guidelines for patients considering implantation of an ICD.[10]

As part of SDM and in the process of obtaining informed consent, patients and physicians discuss information typically in face-to-face clinical encounters. Patients trust their physicians as a source more than any other information channel for medical information.[11] Physicians sometimes provide additional educational materials, including decision aids, to improve patient-provider communication.[12] If patients have unanswered questions or find educational material difficult

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KEY FINDINGS

- Majority had a low understandability score.
- Only 10% even mentioned or discussed risks.
- Only 28% provided actionable information for patients.
- Short videos that provide quality information, discuss risk and give actionable information in an understandable format can be made.

to understand, they are motivated to seek additional information.[13,14]

Patients are increasingly seeking health information online, as shown in a 2017 US population survey.[15,16] However, the readability of online educational materials, even by professional organizations such as the American College of Cardiology, American Heart Association, and American Academy of Orthopaedic Surgeons, has been rated to be at a higher grade level than recommended, making it challenging for comprehension by broad audiences.[17–20] Additionally, most consumers are more likely to visit the top 10 web pages listed in their online search results, and in 1 study nonprint sources of information on health topics were most important for all literacy levels.[18,21] Videos are an attractive, frequently accessed nonprint source of information and are well suited to enable patients to become informed about procedures and their risks and benefits. We wanted to evaluate whether freely available online videos provide information in an understandable manner to a broad section of patients. An understanding of the recommended procedure as well as its potential risks and benefits is necessary for high-quality discussions in SDM.[22]

The aim of the project was to systematically study the characteristics of freely available online videos for 6 common EP procedures from the perspective of SDM to determine if the links to these videos could be shared with patients.

Methods

Two graduates entering medical school, a clinical electrophysiologist and a cardiologist, teamed up for this study. All data were collected only from publicly freely accessible websites. There were no human subjects and thus institutional review board approval was not required. The research has adhered to the relevant ethical guidelines.

Topic and video selection

For this study, 6 commonly performed EP procedures were selected. These were permanent pacemaker (PPM) implant, ICD implant, subcutaneous ICD implant, EP study for supraventricular tachycardia, radiofrequency ablation for AF (RFA-AF), and cryoablation for AF (CryoAF). For each of these procedures, appropriate search terms were entered in 2 search engines, Bing and Google, in June 2021. The search was limited to videos that were publicly accessible on the web and to the first 4 pages of search results with 20 hits per page. A list of up to 25 video links for each of the 6 procedures, based on the title and the time duration between 1 minute and 10 minutes, and limited to the English language, was compiled. (Appendix A - Search Terms and Appendix B - List of Video Links).

Data collection

Data collected included measures of website traffic (number of views, comments, likes and dislikes), duration of video, date originally uploaded, country of source and source type (health care system or academic institution, physicians, consumers, professional organizations, and product companies), data on relatability (showed a patient as a person), teamwork (team members shown, roles of team members defined), risks, and mention of x-rays. Each investigator independently assessed the quality of the information contained in the videos for understandability and actionability using the Agency for Healthcare Research and Quality's PEMAT (Patient Educational Material Assessment Tool) tool.[23] The PEMAT tool was developed with funding by the Agency for Healthcare Research and Quality, Department of Health and Human Services. It was iteratively and systematically developed with repeated input from a panel of experts in health literacy, health communications, content creation, patient education, communication, patient engagement, and health information technology. This tool assesses the understandability and actionability of print and audiovisual materials, an aspect of our research question. It allows a user to asses a material itself with no other information on how it was developed or who it was for. This is a structured tool that has strong internal consistency, reliability, and evidence of construct validity. It does not require training to use, and it is feasible to administer, score, and interpret the scores generated. We also assessed videos for discussion or mention of procedural risk, teamwork, and any social interaction with a patient. The tool was modified by removing the "Not Applicable" score option. (Appendix C – PEMAT tool). All items were scored. An item was scored as being present if 2 of the 3 reviewers scored it a 1. Total understandability and actionability scores were tabulated for each video. The number of videos that had each item for understandability and actionability was calculated as a percentage of total videos.

Assessment of video content for risk, teamwork, and relevance of the information to preprocedure, procedure, and postprocedure phases was assessed only by the principal investigator. Any mention of risk qualified as discussing risk. Showing members other than the primary operator even without explicitly stating roles of team members qualified as showing teamwork. Showing a social interaction with the patient qualified as showing the patient as a person.

Statistical methods

Continuous data are expressed as means and standard deviations (SD). The mean and SD for each question on the survey was calculated and expressed as a percentage. The common

Table 1 Objective surrogates of website traffic and video duration

Category (n)	Upload date range, m/y	Views	Likes	Dislikes	Comments	Video duration, s
PPM (20)	1/2009 – 12/2019	4228 ± 158,94	17 ± 151	2 ± 42	8 ± 84	253 ± 167
ICD (13)	2/2008 – 6/2020	6656 ± 56,06	12 ± 185	2 ± 13	2 ± 41	139 ± 177
SICD (9)	5/2013 – 10/2019	9788 ± 11,40	7 ± 38	1 ± 3	0 ± 3	221 ± 92
EPS/SVT (15)	4/2012 – 5/2019	14,945 ± 29,790	37 ± 116	3 ± 10	5 ± 7	192 ± 163
RFA-AF (12)	10/2010 – 6/2020	11,954 ± 90,02	13 ± 296	1 ± 21	4 ± 56	202 ± 164
CryoAF (9)	10/2011 – 8/2019	2428 ± 10,58	4 ± 43	0 ± 4	0 ± 4	150 ± 64
Total (78)	2/2008 – 6/2020	7580 ± 95,52	14 ± 170	1 ± 26	2 ± 53	177 ± 150

Values are mean ± standard deviation unless noted.

CryoAF = cryoablation for atrial fibrillation; EPS/SVT = electrophysiology study for supraventricular tachycardia; ICD = implantable cardioverter-defibrillator; PPM = permanent pacemaker implant; RFA-AF = radiofrequency ablation for atrial fibrillation; SICD = subcutaneous implantable cardioverter-defibrillator.

continuous variables for each category, such as views, likes, dislikes, comments, and video length, were reported as mean± SD. Each question, as well as the total understandability, actionability, and total scores across categories, were tested using 1-way analysis of variance (ANOVA). Inter-rater agreement was calculated using a Fleiss kappa score. Association between the total scores with length of video and number of views was tested using a Pearson correlation coefficient. R Statistical Software (Version 3.6.1; R Foundation for Statistical Computing, Vienna, Austria) was used for statistical analysis.

Results

From the initial 960 links, 125 were selected using screening criteria. Of these 125 links, 32 were excluded for the following reasons: was a PowerPoint presentation (n = 1), video game (n = 2), not in English (n = 2), significantly longer than 10 minutes (n = 4), or links led to the identical video (n = 23). The 3 investigators independently evaluated 81, 82, and 92 videos, respectively. The analysis was limited to the 78 videos that were evaluated by all 3 researchers. These included 20 PPMs, 13 ICDs, 9 subcutaneous ICDs, 15 EP studies for supraventricular tachycardia, 12 RFA-AF, and 9 CryoAF.

Inter-rater agreement

The overall inter-rater agreement was 0.581 ($P = .00$), which indicates moderate-to-good agreement between the 3 graders. The agreement for the understandability questions was 0.545 ($P = .00$) and for the actionability questions was 0.429 ($P = .00$). The majority of the questions had moderate-to-strong agreement, but a few individual questions had lower scores, indicating poor agreement (Q4, Q7, Q17). Overall, the graders were in agreement for all the videos and questions, indicating that the results can be replicated across graders of different educational levels and backgrounds and these results can be generalized to the larger population.

Objective features of website traffic

Table 1 summarizes the objective features of website traffic. The video upload dates spanned from February 2008 to June 2020. The number of views ranged from a low of 87 (CryoAF) to a high of 594,000 (PPM).

Video duration

Table 1 shows video duration. The videos ranged from 49 seconds to 669 seconds in duration. The range was wide for each category as well. Two videos were less than 1 minute long and 3 videos were longer than our cutoff of 10 minutes. There was no difference between the length of video and the source of the upload. There was no correlation between video duration and scores.

Total, understandability, and actionability scores

For all 78 videos the mean total score was 48.6% and scores ranged from 45% to 50% for the different procedure categories (Table 2). There was no difference in the total, understandabilty or actionability scores by procedure category. The mean understandability score was 59%. The mean score by category ranged from 56% to 64%. The majority were in the second and third quartiles. The mean actionability score was low at 13.8 for the entire group. The mean score by category ranged from 5.6% to 25%. The highest actionability score was for RFA-AF, at 25, and lowest for CryoAF, at 5.6

Understandability score: Individual items

Almost all videos (93%–100%) made their purpose evident (Table 3). Information was provided in the active voice in almost all videos (92%) and in a logical sequence (95%) and was clearly audible (90%). Eighty-five percent of videos used commonly used words. Medical terms, when used, were clearly defined in 63%. While 63% provided information in short sections, informative section headers were used in only 14%. Surprisingly, visual cues to draw additional attention to key points were seen in only 44% of videos. Text was rated as easy to read in 66% of videos. The illustrations were uncluttered in 58% of videos. Only 1 video used a table.

Actionability score: Individual items

Of all 78 videos, only 28% identified an action the user could take and 14% directly addressed patients or their caregivers when describing actions (Table 3). The actions were explicitly broken down into steps in 13% of videos. None of the

Table 2 Distribution of the average of scores obtained using the PEMAT tool

Category (number of videos)	PPM (20)	ICD (13)	SICD (9)	EPS/SVT (15)	RFA-AF (12)	CryoAF (9)	Total (78)	*P* value
Total score, mean (SD)	48.2% (21.1%)	45.3% (13.0%)	47.1% (12.8%)	46.7% (15.2%)	54.9% (14.0%)	50.33% (16.4%)	48.57% (16.2%)	.744
Understandability score, mean (SD)	57.7% (22.0%)	57.4% (15.6%)	59.0% (15.4%)	56.4% (13.2%)	64.1% (13.3%)	64.1% (18.8%)	59.3% (16.9%)	.789
Actionability score, mean (SD)	17.5% (29.4%)	5.8% (15.0%)	8.3% (12.5%)	15.00% (31.1%)	25.0% (28.2%)	5.6% (16.7%)	13.8% (25.1%)	.352

CryoAF = cryoablation for atrial fibrillation; EPS/SVT = electrophysiology study for supraventricular tachycardia; ICD = implantable cardioverter-defibrillator; PPM = permanent pacemaker implant; RFA-AF = radiofrequency ablation for atrial fibrillation; SICD = subcutaneous implantable cardioverter-defibrillator.

videos used charts, graphs, tables, or diagrams to help the user take actions. There was no significant difference in understandability or actionability by procedure type as analyzed using ANOVA.

Understandability score by category

When the items were grouped by categories for understanding as shown in Table 3, all items of word choice and style were present in 33%–77% of videos. It was striking that less than half had all items of layout and design. Only 1 video had all items of organization and only 1 video made effective use of visual aids.

As shown in Table 4, the majority of videos (63%) were produced by health care systems or academic institutions, followed by physicians, with 22% Total scores of videos were higher when produced by a professional body (eg, British Heart Foundation) or by health care system, at 55% and 52%,

Table 3 Percentage of videos having each item of understandability and actionability

Category (number of videos)	PPM (20)	ICD (13)	SICD (9)	SVT/EPS (15)	RFA-AF (12)	CryoAF (9)	Total (78)	*P* value
Makes purpose completely evident	95.0%	92.3%	100%	93.4%	100%	100%	96.2%	.846
Word choice and style								
Uses common language	75.0%	84.6%	77.8%	93.3%	91.7%	88.9%	84.6%	.687
When used, medical terms are clearly defined	65.0%	53.8%	33.3%	66.7%	75.0%	77.8%	62.8%	.365
Uses active voice	95.0%	92.3%	66.7%	93.3%	100%	100%	92.3%	.0643
All elements present	65.0%	53.8%	33.3%	66.7%	75.0%	77.8%	62.8%	.365
Organization								
Breaks information into short sections	60.0%	46.2%	88.9%	53.3%	66.7%	77.8%	62.8%	.344
Sections have informative headers	15.0%	7.7%	22.2%	6.7%	25.0%	11.1%	14.1%	.737
Information is in logical sequence	90.0%	100%	88.9%	93.3%	100%	100%	94.9%	.635
Provides a summary	15.0%	0%	0%	0%	0%	0%	3.85%	.107
All elements present	5%	0%	0%	0%	0%	0%	1.3%	1.0
Layout and design								
Uses visual cues to draw attention to key points	40.0%	38.5%	77.8%	20.0%	58.3%	44.4%	43.6%	.11
Text is easy to read	55.0%	69.2%	66.7%	73.3%	75.0%	66.7%	66.7%	.87
Words are clearly heard	85.0%	100%	66.7%	93.3%	91.7%	100%	89.7%	.133
All elements present	40.0%	38.5%	44.4%	13.3%	41.7%	44.4%	35.9%	.009
Made effective use of visual aids								
Illustrations are clear and uncluttered.	60.0%	61.5%	66.7%	46.7%	50.0%	66.7%	57.7%	.892
Uses simple tables	0%	0%	11.1%	0%	0%	0%	1.3%	.173
All elements present	0%	0%	11.1%	0%	0%	0%	1.3%	1.0
Clearly identifies at least 1 action the user can take	30.0%	15.4%	33.3%	20.0%	58.3%	11.1%	28.2%	.138
Addresses patient/family directly when describing actions	20.0%	0%	0%	20.0%	25.0%	11.1%	14.1%	.333
Breaks down any action into manageable, explicit steps	20.0%	7.7%	0%	20.0%	16.7%	0%	12.8%	.468
Explains how to use charts, graphs, tables, or diagrams to take actions	0%	0%	0%	0%	0%	0%	0%	1.00

CryoAF = cryoablation for atrial fibrillation; EPS/SVT = electrophysiology study for supraventricular tachycardia; ICD = implantable cardioverter-defibrillator; PPM = permanent pacemaker implant; RFA-AF = radiofrequency ablation for atrial fibrillation; SICD = subcutaneous implantable cardioverter-defibrillator.

Table 4 Videos and scores by source

Procedure (number of videos)	Consumer	Physician	Health care system	Professional body	Company	*P* value
PPM (20)	1	10	8	1	0	-
ICD (13)	0	3	7	1	2	-
SICD (9)	0	0	4	1	4	-
EPS/SVT (15)	0	3	12	0	0	-
RFA-AF (12)	0	1	9	0	2	-
CryoAF (9)	0	0	9	0	0	-
Total number (78)	1	17	49	3	8	-
Average scores by source of video, % (SD)						
Total understandability score	46.2 (N/A)	51.6 (22.1)	61.9 (14.3)	66.7 (17.8)	58.7 (16.9)	.209
Total actionability score	50.0 (N/A)	11.8(26.7)	14.8 (26.5)	16.7 (14.4)	6.3 (11.6)	.56
Total score	47.1 (N/A)	42.2 (21.1)	50.8 (14.4)	54.9 (17.0)	46.3 (13.5)	.39

CryoAF = cryoablation for atrial fibrillation; EPS/SVT = electrophysiology study for supraventricular tachycardia; ICD = implantable cardioverter-defibrillator; NA = not applicable due to very small numbers; PPM = permanent pacemaker implant; RFA-AF = radiofrequency ablation for atrial fibrillation; SICD = subcutaneous implantable cardioverter-defibrillator.

respectively, compared to those by physicians (43%) or a company (42%), but the difference was not statistically significant.

Relatability, teamwork, and risk-related content

Only 35% (11%-75%) of videos showed a patient engaged in a conversation with the physician or a team member (Table 5). Several videos did not show a patient, and some showed only the procedurally relevant part of the patient's anatomy. With regard to teamwork, 41% (11%–58%) showed other team members. This included videos where team members were shown in the room or standing near the operator, even if the video did not focus on any team member. Only 12% (0%–25%) clearly explained the role of at least 1 additional team member. Any mention of x-ray procedures (even without alluding to the risk from x-rays) was noted in 17% (0%–31%) of all videos. The potential risk for complications was mentioned in 10% (0%–25%). These videos listed several potential complications, such as bleeding, stroke, and cardiac perforation. An additional 14% (11 videos) mentioned the word "risk" in the context of the procedure as having minimal risk or lower risk compared to other similar procedures.

Phase of procedure

There were 13 videos that had information related to all the preprocedural, procedural, and postprocedural phases (Table 6). These videos consistently scored higher in understandability as well as actionability, but not statistically significantly. They were longer on average compared to videos that had information on only 1 or 2 of the phases.

One video was identified that was 561 seconds long; scored 76% on total score; provided preprocedural, procedural, and postprocedural information; showed a patient as a person; showed team members and defined their roles; and also discussed risks. An additional 6 videos scored similarly and had most of the above features but not all.

Discussion

Freely available online videos for 6 common EP procedures were assessed from an SDM perspective. The majority may be difficult for patients to understand. A few videos mentioned potential risks, and some contextually framed the procedure as less risky. A minority of videos provided actionable information. The majority of videos did not emphasize teamwork. It is possible to create videos that have greater understandability, provide actionable information, and discuss risks.

Relationship to previous studies

Our study methodology on analysis of information contained in online videos is similar in initially establishing search criteria, using multiple reviewers and a validated tool (PEMAT).[24,25] Several studies have found information content

Table 5 Percentage and number of videos containing information related to teamwork and risk

	Shows patient as a person	Shows other team members	Team member roles defined clearly	Exposure to x-ray/radiation mentioned	Risks mentioned
PPM	40% (8)	50% (10)	20% (4)	15% (3)	0% (0)
ICD	15% (2)	46% (6)	0% (0)	31% (4)	23% (3)
SICD	22% (2)	11% (1)	0% (0)	0% (0)	11% (1)
EPS/SVT	33% (5)	47% (7)	13% (2)	20% (3)	7% (1)
RFA-AF	75% (9)	58% (7)	25% (3)	17% (2)	25% (3)
Cryo-AF	11% (1)	11% (1)	0% (0)	11% (1)	0% (0)
Total	35% (27)	41% (32)	12% (9)	17% (13)	10% (8)

CryoAF = cryoablation for atrial fibrillation; EPS/SVT = electrophysiology study for supraventricular tachycardia; ICD = implantable cardioverter-defibrillator; PPM = permanent pacemaker implant; RFA-AF = radiofrequency ablation for atrial fibrillation; SICD = subcutaneous implantable cardioverter-defibrillator.

Table 6 Distribution by video content relevance to preprocedure, procedure, postprocedure

Video has information on:	Number	Time in seconds	Understandability score %	Actionability score %	Total score %
Preprocedure	2	213 (213)	61.5 (0)	0.0 (0)	47.1 (0.0)
Preprocedure and procedure	5	214 (84)	64.6 (12.9)	5.0 (11.2)	50.6 (10.7)
Pre- and postprocedure	2	149 (40)	65.4 ± 5.4	62.5 (17.7)	64.7 (8.3)
Procedure	46	211 (153)	53.8 ± 17.8	2.7 (12.1)	41.8 (14.6)
Procedure and postprocedure	6	166 (58)	66.7 ± 11.6	29.2 (29.2)	57.8 (11.4)
Postprocedure	2	240 (19)	57.7 ± 16.3	12.5 (17.7)	47.1 (8.3)
All 3 parts	13	339 (166)	74.0 ± 9.2	42.3 (31.3)	66.5 (11.9)

For each category, mean (SD) are shown.

in online videos for various medical conditions to lack reliability, to be not of high quality, to be at a higher reading level than recommended, and to not meet the needs of patients.[26–30] In contrast, we assessed content from a perspective of SDM and identify areas to target for improving quality of online videos.

Study findings and potential significance

SDM, while important, is difficult to implement in health care. Videos have the potential to address several barriers and facilitators, as identified in an umbrella review of SDM. These include barriers such as patients' lack of knowledge, difficulty in understanding medical information, and lack of time or resources for physicians. The review also identified facilitators such as use of simple terminology, explaining treatments and options, providing explicit choices, giving information in multiple modalities, and repetition of information at multiple time points.[31] Freely available online videos of EP procedures are an attractive and popular nonprint option for patients to obtain information. Although these videos have thousands of hits, the majority of these videos for EP procedures are difficult for patients to comprehend, given the low mean understandability score. Another physical barrier for informational videos is the use of small-sized screens on smart phones, especially for patients with impaired vision and hearing. This study showed that freely available videos made limited use of visual cues and headers, and thus this is a targeted area for improving the quality of such videos.

Another potential benefit of high-quality videos is their ability to minimize bias in information sharing. In a systematic review of SDM in oncology, physician communication was a key area with room for improvement. Black women received less communication than White women ($P < .0001$) and women over 65 years, received less communication compared to younger women.[34] All patients can be provided with links to good-quality videos to minimize some bias in access to information.

Another area of bias is in discussion of risks. Patients need to be well informed about the risks, benefits, and alternatives of the treatment to participate in SDM.[22] The majority of these videos (74%) did not even mention risk. It is concerning that 14% of videos contextually framed the procedure as less risky than an alternate procedure. Providing inadequate information about potential risk and depiction of procedures as less risky has the potential to create an inaccurate assessment of risk by patients. This can lead to biased decision-making. Videos can depict numerical risks visually, allow for proper framing, and add contextual information to minimize the effects of the order in which risks and benefits are presented,[33] and thus improve SDM.

Patients' preferences and values are an important component of SDM. Preferences are shaped by prior experience with health care. It is natural for patients to experience anxiety and decisional conflict when discussing EP procedures. Decision aids and videos that provide comprehensive and actionable information improve participation in care and reduce anxiety, as well as decisional conflict.[22,32,34] In this regard, 28% of these videos provided specific actionable information.

Providing information about safety and quality also can allay anxiety and reduce decisional conflict. Emphasizing involvement of a professionally trained team with specific roles can bolster patients' confidence. Only a third of the videos depicted teamwork, with even fewer explicitly describing roles of team members.

On the other hand, this systematic approach has identified some areas to target for improving the quality of videos for patient consumption. We found 1 video that, in 10 minutes, provided relevant, high-quality information in an understandable format; showed teamwork; discussed risks; and had actionable information. Using the experience of models such as Cochrane Reviews[35] and health informatics,[28] collaboration between physician organizations, media, and patient advocacy groups can produce high-quality videos that, if freely and widely disseminated, can promote health literacy, potentially reduce disparity, and be useful for SDM, a view suggested by other authors as well.[36,37]

Videos are a richer way to provide health information and can be a decision aid. However, it is unclear whether richer ways of depicting health information, while enhancing sense-making, will increase patient engagement in health decision-making.[38] There is little evidence that decision aids or SDM improve health outcomes in older individuals.[39]

Limitations

The study is a small sample and was restricted to freely available EP procedure–related videos on the internet. The word "educational" was not used in our search term. A search from a different geographic location or different search

engines will likely yield different results. The purpose and the audience for which the video was produced is not known. This was a semiqualitative review and some aspects of the evaluation were performed by only 1 reviewer. Although the videos were evaluated using a standard instrument and simple definitions, inherent biases of the reviewers cannot be excluded.

Conclusion

The majority of online, freely available videos for common EP procedures lack features that are considered useful for SDM and may not be useful for sharing with patients from that perspective. It is possible to create high-quality videos that have the potential to improve information exchange and facilitate SDM.

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Disclosures

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Authorship

All authors attest they meet the current ICMJE criteria for authorship.

Patient Consent

There were no human subjects and thus patient consent was not required.

Ethics Statement

The research has adhered to the relevant ethical guidelines.

Appendix

Supplementary data

Supplementary data associated with this article can be found in the online version at 10.1016/j.cvdhj.2022.06.003.

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