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### Authors

Russo, Jessica  
McDougall, Carey  
Bowler, Nicholas  
et al.

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# Pretest Genetic Education Video Versus Genetic Counseling for Men Considering Prostate Cancer Germline Testing: A Patient-Choice Study to Address Urgent Practice Needs

Jessica Russo, MS<sup>1</sup>; Carey McDougall, MS<sup>1</sup>; Nicholas Bowler, MD<sup>2</sup>; Ayako Shimada, MS<sup>3</sup>; Laura Gross, BA<sup>1</sup>; Colette Hyatt, MS<sup>4</sup>; William K. Kelly, DO<sup>5</sup>; Anne Calvaresi, DNP<sup>6</sup>; Nathan R. Handley, MD, MBA<sup>5</sup>; Irvin H. Hirsch, MD<sup>6</sup>; Joseph K. Izes, MD<sup>6</sup>; Costas D. Lallas, MD<sup>6</sup>; Mark Mann, MD<sup>6</sup>; James Ryan Mark, MD<sup>6</sup>; Patrick J. Mille, MD<sup>5</sup>; Donald Preate Jr, MD<sup>7</sup>; Edouard J. Trabulsi, MD<sup>6</sup>; Miranda Tsang, CRNP<sup>5</sup>; Thenappan Chandrasekar, MD<sup>6</sup>; Perry R. Weiner, DO<sup>6</sup>; Leonard G. Gomella, MD<sup>6</sup>; and Veda N. Giri, MD<sup>1,5,6</sup>

**PURPOSE** Germline testing (GT) for prostate cancer (PCA) is now central to treatment and hereditary cancer assessment. With rising demand for and shortage of genetic counseling (GC), tools to deliver pretest informed consent across practice settings are needed to improve access to GT and precision care. Here, we report on Evaluation and Management for Prostate Oncology, Wellness, and Risk (EMPOWER), a patient-choice study for pretest video-based genetic education (VBGE) versus GC to inform urgent practice needs.

**PATIENTS AND METHODS** Men with PCA or at risk for PCA (family history of PCA) were eligible and could choose pretest VBGE or GC. Outcomes included decisional conflict for GT, change in genetics knowledge, satisfaction, and intention to share results with family and/or providers. Descriptive statistics summarized results with counts and percentages for categorical variables and mean  $\pm$  standard deviation for continuous variables. Data were compared with Fisher's exact, chi-squared, or Wilcoxon two-sample tests. Mean change in genetics knowledge was compared with *t* tests. The significance level was set a priori at .05.

**RESULTS** Data on the first 127 participants were analyzed. Characteristics were White (85.8%), bachelor's degree (66.9%), and PCA diagnosis (90.6%). The majority chose VBGE (71%) versus GC (29%;  $P < .001$ ). No differences were observed in decisional conflict for GT or satisfaction. Cancer genetics knowledge improved in both groups without significant difference (+0.9 VBGE, +1.8 GC,  $P = .056$ ). Men who chose VBGE had higher intention to share GT results (96.4% VBGE *v* 86.4% GC,  $P = .02$ ). Both groups had high rates of GT uptake (VBGE 94.4%, GC 92%).

**CONCLUSION** A substantial proportion of men opted for pretest VBGE, with comparable patient-reported outcomes and uptake of GT. The results support the use of pretest video to address the critical GC shortage in the precision era.

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## INTRODUCTION

Germline testing (GT) for prostate cancer (PCA) is rapidly increasing, with a central role in determining eligibility for precision therapy among men with advanced PCA and increasing role in informing PCA screening strategies.<sup>1-6</sup> Furthermore, GT provides key information on hereditary cancer risk for men and their families.<sup>1,4</sup> Pathogenic variants in several DNA repair genes, particularly *BRCA1* and *BRCA2*, may determine which men with metastatic, castration-resistant PCA could respond to poly (ADP-ribose) polymerase (PARP) inhibitors. In 2020, the US Food and Drug Administration (FDA) approved olaparib and rucaparib for men with metastatic, castration-resistant PCA who carry *BRCA* pathogenic variants after progression on standard therapies on the basis of demonstrated

clinical activity.<sup>7,8</sup> Olaparib also received FDA approval for men with pathogenic variants in several additional DNA repair genes, such as *ATM*, *CHEK2*, *PALB2*, *BARD1*, *BRIP1*, *CDK12*, *CHEK1*, *FANCL*, *PP2R2A*, *RAD51B/C/D*, and *RAD54L*.<sup>7</sup> In the PCA screening setting, men with pathogenic variants in *BRCA2* are recommended to start screening at age 40 years, with a similar consideration for men with pathogenic variants in *BRCA1*.<sup>6</sup> Furthermore, GT provides information on hereditary cancer syndromes such as hereditary breast and ovarian cancer and Lynch syndrome, which can lead to multiple cancer risks for men and their male and female blood relatives.<sup>6,9</sup> Current guidelines recommend that all men with metastatic PCA, high-risk localized disease, and intraductal or cribriform histology, or who are of Ashkenazi Jewish

## ASSOCIATED CONTENT

### Appendix

Author affiliations and support information (if applicable) appear at the end of this article.

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## CONTEXT

### Key Objective

Thousands of men are eligible for prostate cancer germline testing (GT) to inform precision therapy, screening, and hereditary cancer risk, necessitating alternate delivery models of pretest genetic education given the shortage of genetic counseling (GC). This study evaluated a pretest genetic education video to determine patient choice for video versus GC and assessed key patient-reported outcomes to support clinical use for enhanced access to GT.

### Knowledge Generated

Among 127 males, the majority chose pretest video versus GC. No differences were observed in decisional conflict for genetic testing and satisfaction. Men who chose video reported higher intention to share results with family. Both groups had high uptake of GT.

### Relevance

These novel results in the setting of prostate cancer GT reveal high uptake of pretest video, support use of pretest video as part of informed consent for GT, and address the critical GC shortage.

ancestry (with any stage of PCA) have GT.<sup>5,6</sup> Additional testing criteria are based on family cancer history, including the breast, ovary, prostate, uterus, colon or rectum, pancreas, upper bowel, kidney, and specific skin cancers due to the potential links to hereditary cancer syndromes.<sup>5,6</sup> Therefore, many thousands of men are now eligible for GT with implications for precision therapy and screening.

With this rise in volume of men needing genetic testing, there is increasing demand for genetic counseling (GC). Best practice dictates that individuals undergo appropriate pretest informed consent to make an informed decision for genetic testing.<sup>1,5,6,10</sup> Pretest discussions need to include understanding of cancer inheritance, purpose of testing, risks and benefits of testing, multigene panel options, types of potential results, implications of results for treatment, screening, and cancer management, implications of hereditary cancer risk for blood relatives, genetic discrimination laws, and possible reproductive implications.<sup>1,10</sup> Classically, these pretest discussions have been conducted solely by genetic counselors, who are trained professionals in the principles and practice of genetic testing with attention to ethical delivery of care.<sup>11</sup> However, with the current increase in men in need of GT, there is an increasing need for alternate delivery of pretest informed consent in nongenetic practices as referral of all men to GC is currently not sustainable. In 2019, there were 5,250 genetic counselors reported in the United States,<sup>12</sup> which is insufficient to meet the rising demand of patients in need of GC. Indeed, there is a rise of urologists and oncologists ordering GT in their practice to have timely results to inform therapy and management of men with PCA. One study reported that approximately 23% of urologists surveyed ordered genetic testing in their practice or had a combination approach of practice ordering testing or referral to GC.<sup>13</sup> Another study surveying academic oncologists reported that 15% performed their own pretest counseling, ordering of testing, and post-test disclosure, while an

additional 45% used a combination approach of practice ordering testing and referral to GC.<sup>14</sup> As such, approaches to delivery of pretest information are needed to facilitate nongenetic practices and providers in the genetic evaluation process.

Various alternate delivery approaches to GC have been reported.<sup>15</sup> Telephone-based GC has been shown to be noninferior to standard GC with regard to patient-reported outcomes, particularly in the setting of breast and ovarian cancer genetic testing.<sup>16,17</sup> Telegenetics with video-based GC has also been reported to have high patient satisfaction compared with in-person GC.<sup>18</sup> However, there has been a scarcity of literature regarding tools to facilitate delivery of pretest information by urologists and oncologists to accelerate the genetic evaluation process and meet the rising need of patients in need of PCA GT.

The Evaluation and Management for Prostate Oncology, Wellness, and Risk (EMPOWER) study was therefore developed as a patient-choice study to evaluate video-based genetic education (VBGE) versus GC among men with PCA or at risk for PCA referred for GT. The goal was to determine key patient-reported outcomes of men who chose video or GC for pretest informed consent to help streamline genetics care delivery across practice disciplines with attention to best practice. Here, we report interim results on the first cohort of participants to inform practice given the rapidly developing need for GT in PCA precision medicine.

## PATIENTS AND METHODS

### Study Process and IRB Approval

The EMPOWER study was approved by the Institutional Review Board at Thomas Jefferson University. Men with a personal history of PCA and unaffected males who were at higher risk for PCA (family history of PCA) were eligible for the study. Upon referral, the study coordinator contacted men for interest in participating in the study. Men could choose VBGE or a GC session with a genetic counselor.

Upon informed consent, men were asked to complete three surveys during the course of their participation: baseline survey (survey 1; No. = 127 completed), post-VBGE and post-GC counseling survey (survey 2; No. = 100 completed), and postresults disclosure survey (survey 3; No. = 78 completed). Participants who chose to proceed with genetic testing underwent multigene testing of 51 genes through Invitae. Genes tested included *ABRAXAS1*, *APC*, *ATM*, *AXIN2*, *BAP1*, *BARD1*, *BLM*, *BMPR1A*, *BRCA1*, *BRCA2*, *BRIP1*, *CDK4*, *CDKN2A*, *CHEK2*, *EPCAM*, *FANCA*, *FANCB*, *FANCC*, *FANCD2*, *FANCE*, *FANCF*, *FANCG*, *FANCI*, *FANCL*, *FANCM*, *GREM1*, *HOXB13*, *MLH1*, *MLH3*, *MRE11*, *MSH2*, *MSH6*, *MUTYH*, *NBN*, *PALB2*, *PMS2*, *POLD1*, *POLE*, *PTEN*, *RAD50*, *RAD51C*, *RAD51D*, *SMAD4*, *SMARCA4*, *SMARCB1*, *SMARCE1*, *STK11*, *TP53*, *WRN*, *WT1*, and *XRCC2*. [Figure 1](#) displays the study flow. All participants received post-test GC for disclosure of genetic results.

### Genetic Education Video

A short video (11 minutes, 19 seconds) was created by the Jefferson Cancer Genetics team that addressed cancer inheritance, purpose of testing, risks and benefits of testing, multigene panel options, types of potential results, implications of results for treatment, screening, and cancer management, implications of hereditary cancer risk for blood relatives, genetic discrimination laws, and possible reproductive implications.<sup>1,10</sup> A link to the video was sent to men who chose VBGE to view, with the opportunity to ask questions to the study coordinator before proceeding with genetic testing.

### Survey Measures

**Baseline survey.** Survey 1 included demographic information (age, race, education, marital status, and ethnicity), reason for choosing VBGE or GC, and family history. Knowledge of cancer genetics was assessed using a 14-item knowledge scale adapted from prior studies of cancer genetics (Cronbach's alpha .92).<sup>19-21</sup> Preliminary results from this survey have been published in a PCA genetics context.<sup>21</sup> Respondents answered each statement by marking True or False. Each correct answer was scored with a point, with higher scores reflecting greater knowledge. Health literacy was measured using three items from the Short Test of Functional Health Literacy in Adults.<sup>22</sup> These items are as follows: (1) How often do you have someone help you read hospital materials? (2) How confident are you filling out medical forms by yourself? (3) How often do you have problems learning about your medical condition because of difficulty understanding written information? Responses were on a five-point Likert scale. Numeracy was assessed using a validated measure of three probability questions and was scored as the total number of correct responses.<sup>23</sup> Anxiety was assessed using the Generalized Anxiety Disorder-7 scale, a seven-item scale to assess a patient's overall anxiety status.<sup>24</sup> Responses were

on a four-point scale (not at all sure, several days, over half the days, and nearly every day) with higher responses indicating greater anxiety (Cronbach's alpha .92).<sup>24</sup>

**Survey after pretest information.** Survey 2 was administered after participants viewed the pretest genetic education video or had pretest GC. The survey readministered questions regarding knowledge of cancer genetics to assess change in knowledge.<sup>19-21</sup> Decisional conflict for genetic testing was assessed using the validated Decisional Conflict Scale.<sup>25</sup> This survey includes 16 questions with responses on a five-point scale (yes, probably yes, unsure, probably no, and no) with higher scores indicating greater decisional conflict (Cronbach's alpha .78-.86).<sup>25</sup> Satisfaction was assessed using the validated Genetic Counseling Satisfaction Scale.<sup>26</sup> This survey includes six items with responses on a five-point scale (strongly disagree, somewhat disagree, uncertain, somewhat agree, and strongly agree) with higher scores indicative of greater satisfaction (Cronbach's alpha .83).<sup>26</sup>

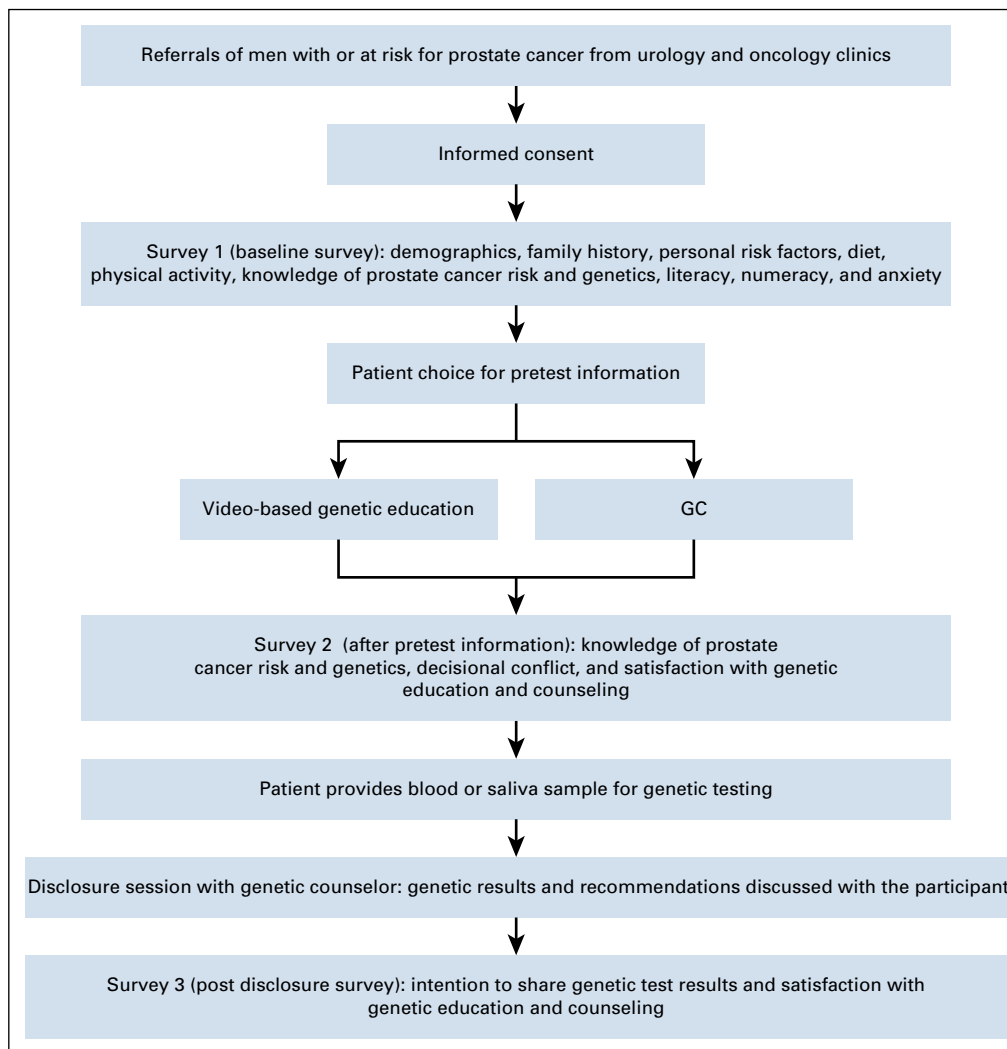
**Postdisclosure survey.** Survey 3 was administered after participants received their genetic results and recommendations by a genetic counselor. Satisfaction with the process was readministered as on survey 2.<sup>26</sup> Intention to share results with primary care provider (Will you share your genetic test results with your primary care provider? Yes, no, don't know) and family members (Will you discuss your genetic test results with your family? Yes, no, don't know) was assessed using a single question for each.

### Statistical Analysis

The cohort characteristics were summarized with counts and percentages for categorical variables and means and standard deviations for continuous variables. The comparison of these characteristics by genetic education type (VBGE v GC) was conducted with the Fisher's exact test, chi-squared test, or two-sample *t* test. The proportions of participants who receive VBGE and GC were calculated, and the proportion of participants who received VBGE was reported with its 95% CI. Also, this proportion was compared against the threshold of 50% with the exact binomial test. The total score for knowledge of cancer genetics, decisional conflict score, and satisfaction at postgenetic education were summarized by means and standard deviations and compared by genetic education type with or two-sample *t* test. The significance level of all tests was a priori set at .05. All the analyses were performed with SAS 9.4 (SAS Institute Inc, Cary, NC).

### RESULTS

The EMPOWER study is ongoing, and this report includes data on the first 127 participants with complete data available for analysis. [Table 1](#) summarizes the characteristics of the cohort. The majority were White (85.8%), had a bachelor's degree (66.9%), were married or living with a partner (78.0%), had a current or prior diagnosis of PCA (90.6%), and had a mean age of PCA diagnosis of



**FIG 1.** Evaluation and Management for Prostate Oncology, Wellness, and Risk study flow. GC, genetic counseling.

61.6 ± 8.1 years. The majority (85.7%) had a family cancer history. No significant differences were observed in characteristics between men who chose VBGE or GC. Importantly, no differences were noted in baseline medical literacy, numeracy, or anxiety between participants choosing VBGE or GC.

The majority of men preferred VBGE (n = 90, 71%) versus GC (n = 37, 29%;  $P < .001$ ). Major reasons for choosing VBGE among the 90 males included more convenience (62.2%), less time commitment (37.8%), and no wait time associated with video (20.2%). The GC arm was conducted in-person, by telehealth, or by phone (n = 37). Major reasons for choosing GC included ability to ask questions to a genetics provider (62.2%) and preference or ability to do the visit from home (for telehealth or phone options [21.6%]; Appendix Table A1). No significant differences were observed in decisional conflict for genetic testing ( $P = .318$ ) or satisfaction with the process ( $P = .904$ ) between men who chose VBGE or GC (Table 2). Cancer

genetics knowledge improved in both groups though slightly greater in the GC group of borderline significance (+0.9 VBGE, +1.8 GC,  $P = .056$ ). Both groups had high rates of GT uptake (VBGE 94.4%, GC 92%).

Genetic results are shown in Table 3. Of 127 participants, nine participants did not proceed with genetic testing and one participant had sample failure at the time of this report. Therefore, these results encompass 117 participants. Overall, 10.3% of the cohort had a pathogenic or likely pathogenic variant identified (n = 12) along with three participants who had an increased risk allele identified (2.6%). Variants of uncertain significance were identified in 40.2% (n = 47), and 47% (n = 55) had negative genetic test results (Table 3). No differences in genetic results were observed by modality of pretest genetic education and counseling.

A third survey was administered after receipt of genetic results by a genetic counselor for both arms of the study, and 78 men completed this postdisclosure survey

**TABLE 1.** Descriptive Characteristics of the Cohort

Characteristic	All (N = 127)	GC (n = 37, 29%)	Video (n = 90, 71%)	P
General demographic characteristics				
Age at consent, mean (SD)	65.5 (8.7)	64.7 (10.7)	65.8 (7.8)	.529
Race, No. (%)				
White or Caucasian	109 (85.8)	32 (86.5)	77 (85.6)	.779
Black or African American	16 (12.6)	4 (10.8)	12 (13.3)	
Asian	2 (1.6)	1 (2.7)	1 (1.1)	
Hispanic or Latino, No. (%)				
Yes	3 (2.4)	1 (2.7)	2 (2.2)	1.000
Ashkenazi Jewish, No. (%)				
Yes	24 (18.9)	8 (21.6)	16 (17.8)	.615
Education, No. (%)				
Less than high school	1 (0.8)	0 (0.0)	1 (1.1)	.881
High school or General Educational Development test	14 (11.0)	5 (13.5)	9 (10.0)	
Vocational or technical school, some college, or associate degree	27 (21.3)	8 (21.6)	19 (21.1)	
Bachelor's degree or higher	85 (66.9)	24 (64.9)	61 (67.8)	
Marital status, No. (%)				
Never married	5 (3.9)	1 (2.7)	4 (4.4)	.643
Married or living with partner	99 (78.0)	27 (73.0)	72 (80.0)	
Separated	4 (3.1)	1 (2.7)	3 (3.3)	
Divorced	17 (13.4)	7 (18.9)	10 (11.1)	
Widowed	2 (1.6)	1 (2.7)	1 (1.1)	
Family cancer history				
Any first-degree or second-degree relative with cancers of the prostate, breast, ovary, colon, uterus, or pancreas				
Yes	108 (85.7)	33 (91.7)	75 (83.3)	.273
PCA Characteristics				
PCA diagnosis, No. (%)				
Yes	115 (90.6)	31 (83.8)	84 (93.3)	.095
Age at PCA diagnosis, years, mean (SD) <sup>a</sup>	61.6 (8.1)	59.5 (8.5)	62.4 (7.9)	.089
Gleason score, No. (%) <sup>b</sup>				
5	1 (1.0)	1 (3.9)	0 (0.0)	.436
6	29 (28.2)	8 (30.8)	21 (27.3)	
7	38 (36.9)	10 (38.5)	28 (36.4)	
8	11 (10.7)	1 (3.9)	10 (13.0)	
9	21 (20.4)	6 (23.1)	15 (19.5)	
10	3 (2.9)	0 (0.0)	3 (3.9)	
AJCC stage grouping, No. (%) <sup>c</sup>				
T1-T2	63 (62.4)	20 (83.3)	43 (55.8)	.061
T3-T4	22 (21.8)	3 (12.5)	19 (24.7)	
Metastatic	16 (15.8)	1 (4.2)	15 (19.5)	

(Continued on following page)

**TABLE 1.** Descriptive Characteristics of the Cohort (Continued)

Characteristic	All (N = 127)	GC (n = 37, 29%)	Video (n = 90, 71%)	P
Medical literacy				
How often do you have someone help you read medical material? No. (%)				
All or most of the time	17 (13.4)	5 (13.5)	12 (13.3)	.606
Some of the time	18 (14.2)	7 (18.9)	11 (12.2)	
Little or none of the time	92 (72.4)	25 (67.6)	67 (74.4)	
How often do you have problems leaning about your medical condition because of difficulty understanding written information? No. (%)				
All or most of the time	4 (3.1)	1 (2.7)	3 (3.3)	1.000
Some of the time	13 (10.2)	4 (10.8)	9 (10.0)	
Little or none of the time	110 (86.6)	32 (86.5)	78 (86.7)	
How confident are you filing out medical forms by yourself? No. (%)				
Not at all or a little bit	8 (6.3)	4 (10.8)	4 (4.4)	.410
Somewhat	13 (10.2)	3 (8.1)	10 (11.1)	
Quite a bit or extremely	106 (83.5)	30 (81.1)	76 (84.4)	
Numeracy				
Numeracy, No. (%)				
Low	27 (21.3)	6 (16.2)	21 (23.3)	.657
Moderate	63 (49.6)	20 (54.1)	43 (47.8)	
High	37 (29.1)	11 (29.7)	26 (28.9)	
Anxiety (GAD-7 scale)				
Anxiety disorder scale, No. (%)				
None (0-4)	90 (71.4)	23 (62.2)	67 (75.3)	.350
Mild (5-9)	26 (20.6)	10 (27.0)	16 (18.0)	
Moderate (10-14)	6 (4.8)	3 (8.1)	3 (3.4)	
Severe (15-21)	4 (3.2)	1 (2.7)	3 (3.4)	

NOTE. Indications for study eligibility and genetic testing included any male with a diagnosis of PCA or any unaffected male with a family history of PCA. Abbreviations: AJCC, American Joint Committee on Cancer; GAD, generalized anxiety disorder; GC, genetic counseling; PCA, prostate cancer; SD, standard deviation.

<sup>a</sup>Calculated only for those with PCA diagnosis (n = 115).

<sup>b</sup>Calculated only for those with PCA diagnosis (n = 115), and there were 12 (10%) missing.

<sup>c</sup>Calculated only for those with PCA diagnosis (n = 115), and there were 14 (12%) missing.

(Table 4). Men in both groups had high intention to share results with their family members, with a significantly higher percentage among men who underwent pretest VBGE compared with GC (96.4% VBGE v 86.4% GC,  $P = .02$ ). There was also high intention to share GT results with primary care providers in both groups (62.5% VBGE v 72.7% GC), although not significantly different. Satisfaction scored highly among men in both groups with no

differences observed. Furthermore, over 80% of men in both groups reported genetic testing to be helpful in their overall health care plan (Table 4).

## DISCUSSION

With the rise in precision medicine indications for PCA treatment and recognition of multiple genes involved in PCA hereditary risk,<sup>1-4,7,8</sup> there has been a significant need

**TABLE 2.** Immediate Postgenetic Education Survey

Measures	All (N = 100) <sup>a</sup>	GC (n = 28)	Video (n = 72)	P
Change of cancer genetics knowledge, mean (SD)	+1.2 (2.0)	+1.8 (2.1)	+0.9 (2.0)	.056
Decisional conflict score (range: 0-100), mean (SD)	16.5 (16.8)	19.3 (17.0)	15.5 (16.8)	.318
Satisfaction (range: 6-30), mean (SD)	26.5 (3.7)	26.6 (3.3)	26.5 (3.8)	.904

Abbreviations: GC, genetic counseling; SD, standard deviation.

<sup>a</sup>Among 127 participants at baseline, 27 males did not complete the survey after pretest GC or pretest video.

**TABLE 3.** Genetic Test Results (n = 117)<sup>a</sup>

Genetic Results	All (N = 117)	GC (n = 34)	Video (n = 83)	P
Negative, No. (%)	55 (47.0)	17 (50.0)	38 (45.8)	.678
VUS, No. (%) <sup>a</sup>	47 (40.2)	13 (38.2)	34 (41.0)	.785
Pathogenic or likely pathogenic, No. (%)	12 (10.3)	4 (11.8)	8 (9.6)	.743
Increased risk allele, No. (%)	3 (2.6)	0 (0.0)	3 (3.6)	.555

Abbreviations: GC, genetic counseling; VUS, variant of uncertain significance.

<sup>a</sup>Among 127 participants, nine participants did not proceed with genetic testing and one participant had sample failure at the time of this report. Therefore, these results encompass 117 participants.

to address the relative shortage of GC.<sup>12</sup> Expansion of GT guidelines and current FDA approvals for PARP inhibitors has led to many thousands of men being eligible for GT and in need of information to make informed decisions for testing.<sup>1,5-8</sup> Furthermore, millions of men who are PCA survivors are also now eligible for GT to assess hereditary cancer risk for themselves and their families.<sup>27</sup> This rising need for GT has placed a strain on the health care system, with long wait times for GC which hinders rapid return of test results. As a result, urologists and oncologists have increasingly started ordering GT in their practices and have a need for tools to provide men with appropriate pretest information to make an informed decision for genetic testing to adhere to best practice recommendations.<sup>1,5,6,10</sup> Therefore, this report details interim results from the EMPOWER patient-choice study of VBGE versus GC to address the critical need for pretest genetic education tools in non-genetic practices given the growth of testing indications.

Our results show that the majority of men chose pretest video over GC when making a decision for genetic testing. Convenience, less time commitment, and no wait times for a GC appointment were noted as reasons for choosing pretest video, which are important real-world aspects to

consider. Importantly, no differences were noted in key patient-reported outcomes for making a decision for genetic testing, including decisional conflict and satisfaction, which are previously published validated outcomes supporting genetic delivery models.<sup>16-18</sup> Improvement in cancer genetics knowledge was observed in both groups and was notably higher among men who chose pretest GC of borderline significance; however, this may be a function of lower baseline cancer genetics knowledge among this group. Pretest GC may be more beneficial for men who have lower cancer genetics knowledge to ask questions to a GC and ensure understanding before proceeding with genetic testing. Our results also showed that a significantly higher percentage of men who chose VBGE intended to share result with their families, although this was also high in the GC group. This is of key importance given the hereditary nature of genetic testing, with implications for cascade testing of blood relatives, cancer risk information, and cancer screening recommendations that need to be delivered to male and female relatives.<sup>1,10</sup> Overall, there was high uptake of over 90% among men who chose pretest video or pretest GC, indicating that a video-based strategy did not lead to lower genetic testing.

**TABLE 4.** Intention to Share Results and Satisfaction After Genetic Disclosure (n = 78)<sup>a</sup>

Questions	Total	GC (n = 22)	Video (n = 56)	P
Will you discuss your genetic test results with your primary care provider? No. (%)				
Yes	51 (65.4)	16 (72.7)	35 (62.5)	.498
No	13 (16.7)	4 (18.2)	9 (16.1)	
Don't know	14 (17.9)	2 (9.1)	12 (21.4)	
Will you discuss your genetic test results with your family? No. (%)				
Yes	73 (93.6)	19 (86.4)	54 (96.4)	.020
No	3 (3.8)	3 (13.6)	0 (0.0)	
Don't know	2 (2.6)	0 (0.0)	2 (3.6)	
Did you find genetic testing to be helpful in your overall health care plan? No. (%)				
Yes	64 (82.1)	19 (86.4)	45 (80.4)	.878
No	4 (5.1)	1 (4.5)	3 (5.4)	
Don't know	10 (12.8)	2 (9.1)	8 (14.3)	
Satisfaction postdisclosure (range: 6-30), mean (SD)	27.1 (5.3)	27.6 (3.8)	26.8 (5.7)	.930

Abbreviations: GC, genetic counseling; SD, standard deviation.

<sup>a</sup>Among 127 participants, 49 participants did not complete this postdisclosure survey.



Aspects to implementing pretest video in urology and oncology practices need to be considered. Time to view the video, space to view the video privately, and practice expertise in genetics to answer patient questions about genetic testing are needed to ensure that men understand considerations of genetic testing and have their questions answered.<sup>1,10</sup> If the video is viewed outside of the clinical appointment, then the follow-up to address questions and to coordinate test ordering are important implementation aspects to consider. Overall, nongenetic practices who opt for using a pretest video and order genetic testing need to gain working knowledge of genetic testing and build collaborations with GC to ensure appropriate referral of patients in the pretest and post-test setting for comprehensive recommendations.<sup>1,10</sup>

There are some considerations and limitations to note. The results are from a patient-choice strategy rather than a randomized trial, although this is reflective of real-world practice. Our results provide key information regarding men's actual choice for pretest video which was substantially higher than for pretest GC, supporting resource development of pretest video in nongenetic practice

settings. Furthermore, our results of patient-reported outcomes are an important next step in care delivery assessment preceded by prior published randomized trials where outcomes such as decisional conflict and satisfaction supported genetic delivery models. The majority of study participants were White and college-educated; therefore, it is imperative to study digital solutions to pretest genetic delivery across diverse populations to ensure generalizability. Furthermore, there is increasing recognition of digital barriers in health care particularly coming to light in the COVID-19 pandemic and postpandemic era relevant to underserved populations which need to be addressed.<sup>28</sup> Our results are also an interim update but were necessary to report at this time given the emerging critical practice need for tools and strategies to streamline pretest informed consent, with recent FDA approvals for PARP inhibitors among men with metastatic disease.

In conclusion, our results support the use of pretest genetic education videos in nongenetic practices to address the shortage of GC and advance GT to capitalize on the progress in precision medicine. Further research in diverse populations and across practice settings is warranted.

## AFFILIATIONS

<sup>1</sup>Cancer Risk Assessment and Clinical Cancer Genetics Program, Sidney Kimmel Cancer Center, Thomas Jefferson University, Philadelphia, PA

<sup>2</sup>Sidney Kimmel Medical College, Thomas Jefferson University, Philadelphia, PA

<sup>3</sup>BioStatistics Facility, Department of Pharmacology and Experimental Therapeutics, Thomas Jefferson University, Philadelphia, PA

<sup>4</sup>University of Vermont Medical Center, Burlington, VT

<sup>5</sup>Department of Medical Oncology, Sidney Kimmel Cancer Center, Thomas Jefferson University, Philadelphia, PA

<sup>6</sup>Department of Urology, Thomas Jefferson University, Philadelphia, PA

<sup>7</sup>Delta Medix Urology, Scranton, PA

**Data analysis and interpretation:** Nicholas Bowler, Ayako Shimada, William K. Kelly, Nathan R. Handley, Irvin H. Hirsch, Joseph K. Izes, Costas D. Lallas, James Ryan Mark, Edouard J. Trabulsi, Thenappan Chandrasekar, Leonard G. Gomella, Veda N. Giri

**Manuscript writing:** All authors

**Final approval of manuscript:** All authors

**Accountable for all aspects of the work:** All authors

## AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

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### Jessica Russo

**Stock and Other Ownership Interests:** Agenus

### Colette Hyatt

**Stock and Other Ownership Interests:** GenomeSmart

**Consulting or Advisory Role:** GenomeSmart

### William K. Kelly

**Honoraria:** Janssen Oncology, Bayer

**Consulting or Advisory Role:** Merck Sharp & Dohme

**Research Funding:** Novartis, Janssen Oncology, Bayer, Exelixis, Seattle Genetics, Endocyte, Amgen, BioClin Therapeutics, Sarah Cannon Research Institute, Roche

**Travel, Accommodations, Expenses:** Janssen Oncology, Merck Sharp & Dohme

### Anne Calvaresi

**Consulting or Advisory Role:** Tolmar

**Speakers' Bureau:** Janssen Oncology, Deciphera

## CORRESPONDING AUTHOR

Veda N. Giri, MD, Medical Oncology, Cancer Biology, Urology, Sidney Kimmel Cancer Center, Thomas Jefferson University, 1025 Walnut St, Suite 1015, Philadelphia, PA 19107; e-mail: [Veda.Giri@jefferson.edu](mailto:Veda.Giri@jefferson.edu).

## EQUAL CONTRIBUTION

J.R. and C.M. contributed equally to this work.

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## AUTHOR CONTRIBUTIONS

**Conception and design:** Colette Hyatt, Anne Calvaresi, Mark Mann, Veda N. Giri

**Administrative support:** Jessica Russo, Donald Preate

**Provision of study materials or patients:** Colette Hyatt, William K. Kelly, Irvin H. Hirsch, Costas D. Lallas, Donald Preate, Thenappan Chandrasekar, Leonard G. Gomella

**Collection and assembly of data:** Jessica Russo, Carey McDougall, Nicholas Bowler, Laura Gross, Anne Calvaresi, Costas D. Lallas, Mark Mann, Patrick J. Mille, Donald Preate, Miranda Tsang, Thenappan Chandrasekar, Perry R. Weiner, Veda N. Giri

**Nathan R. Handley****Research Funding:** Nektar**Irvin H. Hirsch****Stock and Other Ownership Interests:** Keystone Mobile Partners**Edouard J. Trabulsi****Consulting or Advisory Role:** GenomeDx**Speakers' Bureau:** Johnson & Johnson, Janssen, Astellas Medivation, Pfizer**Leonard G. Gomella****Consulting or Advisory Role:** Astra Zeneca/Merck**Patents, Royalties, Other Intellectual Property:** Patents Held by Thomas Jefferson University**Veda N. Giri****Stock and Other Ownership Interests:** Novopyxis**Honoraria:** Invitae, Ambry Genetics**Speakers' Bureau:** Janssen

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## APPENDIX

**TABLE A1.** Summary of Reasons for Preference for Pretest Video Versus GC

<b>Reasons for Mode of Delivery</b>	<b>GC (n = 37)</b>	<b>Video (n = 90)</b>
Please indicate why you would like to learn about genetic testing by GC (mark all that apply), No. (%)		
Want to talk with family before having GC	2 (5.4)	—
Too busy to watch the video today	2 (5.4)	—
Want to be able to ask my provider questions	23 (62.2)	—
Want to do the visit from my home	8 (21.6)	—
Other	1 (2.7)	—
Please indicate why you would like to learn about genetic testing with video (mark all that apply), No. (%)		
Less time commitment	—	34 (37.8)
No cost associated with video	—	6 (6.7)
No wait time associated with video	—	18 (20.0)
More convenient	—	56 (62.2)
Other	—	1 (1.1)

Abbreviation: GC, genetic counseling.