

Patient Perceptions of How Physicians Communicate During Prostate Cancer Screening Discussions: A Comparison of Residents and Faculty

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Background: Residents are required to demonstrate competency in communication skills. Prostate cancer screening discussions are examples of complex physician-patient communication processes, requiring an objective presentation of the known risks, potential benefits, and scientific uncertainties surrounding screening. National organizations recommend shared decision making (SDM) in these discussions. **Methods:** A stratified analysis to contrast resident and faculty outcomes was planned as part of a randomized controlled trial comparing decision aids for prostate cancer screening in a suburban Washington, DC, residency practice. All eligible men between the ages of 50 and 70 years scheduled for a wellness examination with either a resident or a faculty physician were randomly assigned to one of two intervention arms (Web- or paper-based decision aid) or to the control group (no pre-visit education). Patients were asked to complete exit surveys that evaluated their perceptions of key elements of SDM for prostate cancer screening (PCS). **Results:** Patients seen by resident physicians were younger than patients seen by faculty, and a smaller proportion had undergone previous prostate-specific antigen (PSA) testing. Patients seen by residents and faculty reported similar levels of the elements of SDM (eg, knowledge about PCS, achieving their desired locus of control for the decision) and similar time spent discussing screening. Both groups also had nearly identical decisional conflict scores and PSA testing rates. Residents discussed more PCS topics (6.3 versus 5.3 topics), including more topics that might influence a patient to decide against screening, than did faculty physicians. **Conclusions:** According to patient perceptions, residents appeared to perform as well as faculty in SDM and other aspects of PCS discussions, although the topics that they covered with patients might have differed.

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“Interpersonal and communication skills that result in the effective exchange of information and collaboration with patients” are areas of competency that each family medicine resident must acquire during training, as stipulated by the Accreditation Council for Graduate Medical Education (ACGME).¹ It is left to individual residency programs to “define the specific knowledge, skills, behaviors, and attitudes required, and provide educational experiences as needed in order for their residents to demonstrate” those skills.

Learning how to perform health maintenance examinations and preventive care are also crucial skills to acquire during residency training.¹ Discussions of prostate

cancer screening are important but controversial parts of these visits for men at increased risk for prostate cancer and also for average-risk men over 50 who have a life expectancy of at least 10 years.^{2,3} Because of the multi-faceted issues and scientific uncertainties involved with prostate cancer and prostate-specific antigen (PSA) screening, the United States Preventive Services Task Force (USPSTF) and the American Cancer Society recommend that physicians and patients reach a decision about screening collaboratively via shared decision making (SDM).²⁻⁴ SDM allows patients to be informed and to include their values in the process. The American Urologic Association also states that the potential benefits and risks of PSA testing should be discussed with patients.⁵

SDM exemplifies a complex collaborative patient-physician information exchange. A variety of theoretic-

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cal models and definitions for SDM have been proposed in the literature,⁶⁻¹¹ but none has been accepted as the uniform standard. One such definition is that of the USPSTF, which in 2004 defined SDM as a process of decision making in which the patient: “(1) understands the risk of the disease to be prevented, (2) understands the preventive service, including the risks, benefits, alternatives, and uncertainties, (3) has weighed his or her values, and (4) has engaged in decision making at the desired level.”²⁴

SDM can be a difficult endeavor, however, even for experienced clinicians. It requires a thorough understanding of the medical issues and the state of what is known and unknown about a topic, the ability to translate these concepts into terms that an individual patient can understand, and an awareness of the information necessary for an individual patient to make a well-informed decision. The manner and quality with which this information exchange occurs is known to have a direct bearing on the ultimate decisions that patients make, potentially altering outcomes and patient satisfaction.¹²⁻¹⁹

Physician learners (eg, residents) would be expected to be less proficient with such a complex communication task as SDM, but few data exist regarding resident physicians’ capacity to perform SDM. Compared to more seasoned faculty physicians, one would expect residents to have not only less clinical experience but also fewer opportunities to communicate with patients, including information sharing and collaborative decision making.²⁰ Consistent with this hypothesis, prior studies suggest that residents tend to interrupt patients more frequently than faculty physicians, impeding an effective physician-patient information exchange.²¹ To further complicate the process, residents and patients may differ in their views about SDM. Depending on the decision studied, residents may overestimate or underestimate the level of decision control that their patients desire.²²

Understanding resident communication regarding prostate cancer screening is therefore important in filling a void in the empirical literature, both for discerning how well they care for the many patients they see and for evaluating and improving curricula for residency training. We previously hypothesized that a Web-based educational decision aid would help promote SDM about prostate cancer screening at the time of a routine health maintenance examination.^{23,24} In the study reported here, we collected data to test that hypothesis, to assess resident physician communication skills by measuring key elements of SDM, and to address a second hypothesis that patients would perceive residents as less competent than faculty physicians in communications about prostate cancer screening decisions.

Methods

The study was conducted at a large suburban family medicine residency practice in the Virginia suburbs of Washington, DC. The majority of the practice’s patients are white, well-educated, of high socioeconomic status, and Internet literate.²⁵ Resident and faculty physicians see patients in identical settings in the office. This study was reviewed and approved by the Virginia Commonwealth University Institutional Review Board.

Group Assignments

During the recruitment period for this study (June 2002–June 2004), 1,073 men between the age of 50 and 70 years were called via telephone after they had scheduled a wellness examination. The enrollment process was identical for all participants, regardless of whether they were scheduled to see a faculty physician, a second-year resident physician, or a third-year resident. Visits with first-year residents were excluded.

Eligible patients were randomly assigned to one of two intervention groups or to a control group. In the first intervention group, before the appointment, patients were invited via e-mail to review a Web-based decision aid.²⁶ In the second intervention group, patients were mailed a print decision aid with identical content. The control group received no pre-visit education. Patient allocation was stratified by physician to ensure that each physician’s patients were similarly distributed across the three study groups.

Post-visit Evaluation

Immediately after the visit, patients and physicians were asked to complete an exit survey regarding multiple aspects of the decision-making process for prostate cancer screening that had occurred during the encounter. At the time this trial was designed, no accepted metrics for SDM were available, and theoretical constructs for SDM were ill-defined. Some instruments for measuring SDM, such as OPTION²⁷ and COMRADE,²⁸ have subsequently been proposed but none, even now, are uniformly accepted as a reference standard.²⁹ To arrive at a theoretical construct for this trial, we therefore adopted the USPSTF definition for SDM,⁴ which hinges on whether the patient has acquired knowledge about the disease and the test, applied personal preferences, and engaged in the decision at the desired level.

We gathered accepted, validated instruments to act as a proxy for each of these SDM components and inserted them in the questionnaire. For knowledge of the disease and the risks and benefits of testing, we adapted the instruments developed by Volk and colleagues.³⁰ As a proxy for examining whether the patient’s preferences were considered, we examined the patient-perceived locus of decision-making control, as measured by the Control Preference Scale or CPS.^{31,32} The CPS, which was the primary outcome measure for the trial, allows

for five choices ranging from A to E, where A represents total patient control without physician input, choice E was the opposite, and C was an equally shared decision. Further, we used CPS to look for concordance between patients' preferred locus of control for decisions regarding prostate cancer screening, and how they perceived the decisions were actually made, as a proxy for engagement in the decision at the desired level. We also measured parameters about the decision in addition to these SDM metrics, including the Decisional Conflict Score (DCS)^{33,34} to measure patients' overall "comfort" with the decisions they had made regarding prostate cancer screening, perceptions of time spent discussing screening, recalled topics covered in the discussion, and whether a PSA test was actually ordered.

Taken together, these survey items attempted to assess decision-making processes (eg, locus of decision control and time spent discussing screening), and outcomes (eg, knowledge about prostate cancer, decisional conflict) as well as rates of PSA testing. Further details about the study protocol are provided elsewhere.^{23,24}

Data Analysis

For this report, outcomes were compared for resident physicians (both second- and third-year residents) and faculty physicians. We performed statistical analyses

using SAS version 9.1.3 (SAS Institute Inc, Cary, NC).

Descriptive statistics were calculated, including the mean decisional conflict and knowledge scores, as well as the frequency of other encounter outcomes. A multiple regression analysis was performed for all differences between resident and faculty physicians, adjusting for patient age and intervention arm.

We used two-sided tests with a significance level of 0.05 unless otherwise noted. We used two-sample *t* tests and analysis of covariance to assess changes in DCS, knowledge, time, and number of topics discussed. We used Fisher's exact test and logistic regression to assess differences in PSA test use and to assess the concordance between locus of actual decision-making control and that preferred by the patient.

Results

Of 1,073 men scheduled for health maintenance examinations, 398 could not be reached, and 178 were excluded because they met one or more of the following exclusion criteria: blood work scheduled before the examination (79), declined participation (33), history of prostate cancer (30), already enrolled (29), did not have e-mail (24), or were enrolled in another study (9). Thus, 497 subjects (74% of men reached by telephone,

46% of men having health maintenance examinations) were contacted, met inclusion criteria, agreed to participate, and were randomized. There was no significant difference in the proportion of patients seeing faculty and resident physicians who completed the exit surveys (86% versus 89%, $P=.43$).

All 43 eligible physicians on site participated in the study, including 13 faculty and 30 residents. While faculty and resident physicians had a similar gender distribution, faculty were older and tended to see a greater volume of patients (Table 1). Patients seen by faculty were older than those seen by residents, and a greater proportion had undergone prior PSA testing (Table 1). When controlled for age, the difference in previous PSA testing was no longer significant. However, a similar proportion of faculty and resident physicians' patients

Table 1
Faculty and Patient Demographics

	Faculty	Resident	P Value
Faculty Versus Resident Physician Characteristics			
Physician gender (% male)	46%	43%	1.0
Physician mean age (years)	43.1	29.7	<.001
Number of physicians	13	30	<.001
Scheduled number of patients per half day	12	9	N/A
Faculty's Versus Residents' Patient Characteristics			
Number of study patients seen	350	145	N/A
Study patient mean age (years)	57.4	55.0	<.001
Average number of study patients seen per physician	26.9	4.8	<.001
Answered questionnaire at visit	86%	89%	.46
Prostate Screening Knowledge Test: ³⁰ Percent Correct	75%	77%	.43
Previous PSA testing*	72%	58%	.005*
Intending to get a PSA test	74%	76%	.80
Enrolled in the Web/brochure/control arm	45%/41%/15%	48%/37%/16%	.71
Encounters where physicians felt they knew the intervention arm to which patient randomized	20%	13%	.14

PSA—prostate-specific antigen

* Residents saw younger patients, who were less likely to have a baseline PSA. Correcting for age, this *P* value increases to .08.

reported that they intended to get a PSA test prior to the office visit, and similar proportions were randomized into the three pre-visit educational intervention arms.

The elements of SDM reported by patients for both faculty and residents were similar (Table 2). Specifically, patients reported comparable knowledge about prostate cancer screening, loci of decision-making control, and concordance between the locus of control that patients stated they preferred for making the decision to screen and the locus they felt had actually been used for the decision. Decisional conflict (DCS <2, indicating low conflict), time spent discussing screening (approximately 5 minutes), and receipt of PSA tests (85%) were also similar for both groups (Table 2). The only significant difference was that patients seen by residents reported that physicians discussed more topics related to prostate cancer screening (6.3 versus 5.3 screening topics, $P=.003$) (Table 2). This difference persisted even after adjusting for patient age, prior PSA testing, and intervention arm (6.4 versus 5.4 screening topics, $P=.007$).

For patients who completed the survey, Figure 1 contrasts the topics they recalled discussing with their physician (faculty or resident) during their office visit. Little difference existed with regard to discussing risks of prostate cancer, benefits of testing, and options for testing. However, the residents' patients were more likely than faculty patients to report discussing certain topics: risk of dying from prostate cancer (66% versus 47% of encounters, $P=<.001$), risks of prostate cancer testing (70% versus 59% of encounters, $P=.040$), what a high PSA score means (72% versus 59% of encounters, $P=.012$), chance of a false positive test (66% versus 54% of encounters, $P=.033$), treatment options (58% versus 41% of encounters, $P=.002$), and complications

of prostate treatment (51% versus 36% of encounters, $P=.004$). These differences persisted after adjusting for patient age and intervention group.

Discussion

Our data suggest that resident physicians approach the prostate cancer screening decision-making process in much the same way that faculty do, based on the elements for SDM that we measured. One might expect residents to emulate the style favored by the faculty who train them. Indeed, our findings indicate that patients in both groups reported similar decision-making processes (locus of decision control, time spent discussing screening) and outcomes (knowledge about prostate cancer, decisional conflict, rates of PSA testing).

The only detected difference in the decision-making process was that residents appeared to discuss certain topics more frequently than did faculty. While we do not know the details of the discussions between the residents and patients, the topics they discussed more avidly than faculty included those more likely to deter a patient from PSA testing—the risks of the test, the chance of false positive results, and the complications of treatment. Conversely, topics that might motivate a patient to get a PSA test (eg, the benefits of testing) were discussed at a similar frequency with both groups of patients.

There are several potential explanations for the observed differences in the discussions. The simplest interpretation of the data is that faculty presented an overly positive perspective of the value of PSA testing, whereas residents were more neutral—or conversely, that residents presented an overly negative view of the value of PSA testing. Alternatively, faculty physicians may have relied more heavily on their prior relation-

Table 2

Patient Survey Reports of the Prostate Cancer Screening Decision-making Process

	Faculty	Residents	P Value**
Percent reporting a shared locus of decision control (CPS response C)*	36%	36%	1.0
Percent reporting the patient had an active locus of decision control (CPS response A or B)*	53%	56%	.60
Percent reporting the patient had a passive locus of decision control (CPS response D or E)*	11%	8%	.38
Percent of patients with concordant preferred and actual locus of decision-making control	68%	71%	.57
Mean decisional conflict score (DCS)***	1.54	1.56	.74
Mean minutes discussing prostate cancer screening	5.1	5.5	.23
Mean number of prostate cancer screening topics discussed	5.3	6.3	.003
PSA test ordered at today's visit	85%	85%	1.0

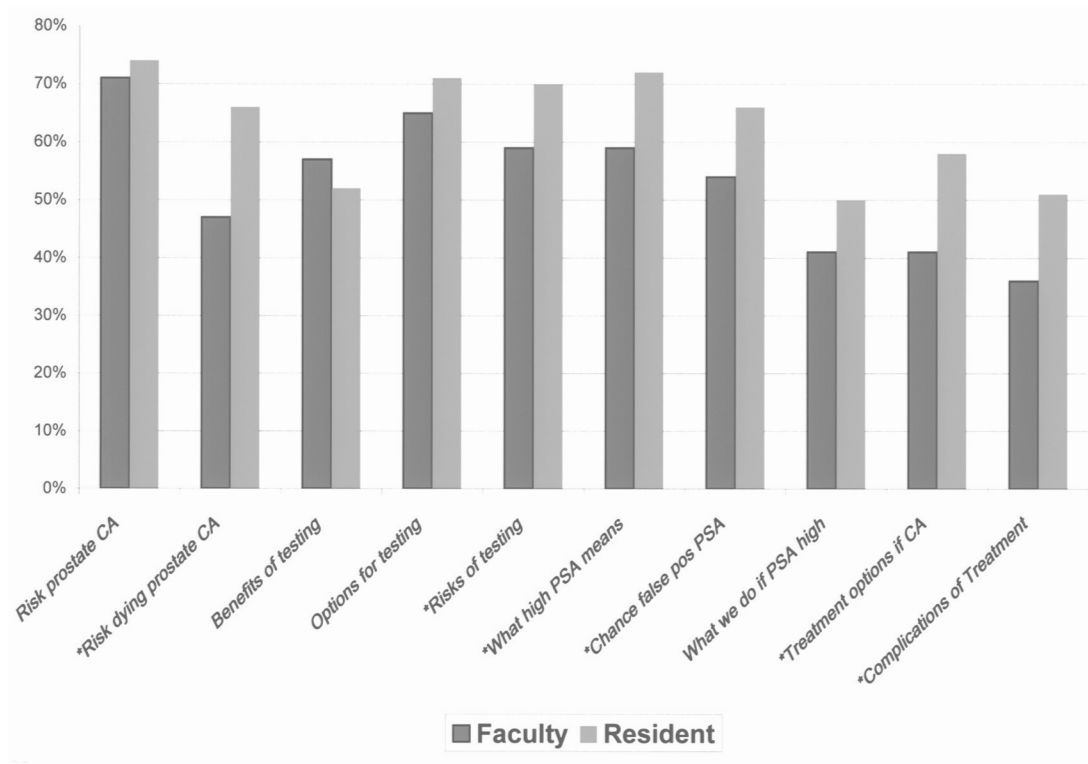
* Locus of decision-making control measured by Control Preference Score (CPS),^{31,32} a 5-point scale, A to E, where A represents total patient control without physician input, choice E is the opposite, and C is an equally shared decision.

** The general significance levels hold as shown after adjusting for age and intervention arm.

*** A DCS < 2 denotes "comfort" with the decision-making process.^{33,34}
PSA—prostate-specific antigen.

Figure 1

Frequency That Prostate Cancer Screening Topics Were Discussed (Patient Survey Report)*



Patient Survey Responses*	Faculty	Resident	P Value
Risk of prostate cancer	71%	74%	.560
Risk of dying from prostate cancer**	47%	66%	<.001
Benefits of testing	57%	52%	.400
Options for testing	65%	71%	.180
Risks of testing**	59%	70%	.040
What a high PSA means**	59%	72%	.012
Chance of a false positive PSA**	54%	66%	.033
What we do if PSA high	41%	50%	.090
Treatment options if cancer diagnosed**	41%	58%	.002
Complications of treatment**	36%	51%	.004

PSA—prostate-specific antigen

* Patient surveys (filled in immediately after visits) included whether these particular topics were discussed.

** Denotes responses with *P* values <.05.

ships with their patients, allowing them to take shortcuts with current discussions because of previous conversations with those patients. In addition, since more faculty patients had undergone previous PSA testing, faculty may have felt less need to revisit negative themes. We lack data on the length and nature of prior physician-patient relationships to validate this conjecture, although it seems plausible. Ultimately, however, because rates of prostate cancer screening were similar for both sub-

groups of patients, the difference may have less bearing on clinical outcomes than on patients' satisfaction with the decision-making process and with the quality of the information on which their choices were based.

Overall, as measured by selected patient perception measures following clinical encounters, residents appear to have performed in a similar manner to their faculty counterparts. Compared to specific ACGME competency requirements, the residents appear to

have demonstrated “knowledge and skills” with regard to “exchange of information and collaboration with patients”¹ as reflected in their patients’ low decisional conflict scores, their patients exercising desired level of control, and the comprehensive coverage of topics their patients recall from the discussions.

Limitations

The results presented here have several important limitations. First, the outcome data derive from patient and physician surveys focused on SDM elements and rely on self-report rather than direct observation of the discussion. Additional helpful information would include, but not be limited to, the length and nature of the physician-patient relationship,³⁵ the patient’s level of satisfaction with the physician, communication styles, degrees of clinician-patient engagement, and facility in knowledge transfer.

Second, a large proportion of patients (86%) were exposed to pre-visit educational material.²³ This intervention was intended to improve the SDM process between the physician and patient but may also have influenced the content and/or direction of discussions, as well as the parts of the discussion the patients remembered. Further, although the decision aid assignment was reportedly known by only 20% of faculty physicians and 13% of residents (Table 1) at the time of visit, the use of the actual decision aid during discussions cannot be ruled out and likewise may have altered discussions. The comparison between the physician groups remains valid, however, as similar proportions of patients seen by faculty and residents were randomized to each intervention arm (Table 1).

Third, the high socioeconomic status and Internet connectivity of the practice population may not generalize to other practice settings. Indeed, patients’ communication needs and expectations of physicians, as well as physicians’ perceptions of patients’ desires for information and communication, could be quite different in other populations.³⁶ Finally, the absence of an observed difference in SDM parameters may reflect a lack of statistical power to detect a difference. The sample size that we enrolled provided adequate power for the primary outcomes of the trial²³ but had only 78% power to detect a difference of 15% between residents and faculty.

Conclusions

Our results suggest that, according to multiple measures of patient perceptions, residents appear to perform as well as faculty physicians in engaging patients in the complex communication process of prostate cancer screening discussions. Further research should explore this hypothesis in relation to other complex clinical decisions and should consider expanded metrics (including newer instruments for SDM) and larger, more

diverse study samples to evaluate other characteristics of physician-patient communication that are interrelated with the core elements of SDM.

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Conflict of interest: Dr Krist is a faculty member, practicing physician, and partial owner of Fairfax Family Practice Residency, where the study was conducted.

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