



Published in final edited form as:

*Patient Educ Couns.* 2011 September ; 84(3): 386–392. doi:10.1016/j.pec.2011.04.023.

## The impact of patient-centered communication on patients' decision making and evaluations of physicians: A randomized study using video vignettes\*

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### Abstract

**Objective**—To assess the impact of patient-centered communication (PCC) behaviors on patients' evaluations of physicians and acceptance of clinical recommendations.

**Methods**—We randomized 248 patients to view video-recorded, standardized vignettes, depicting a cardiologist using a high vs. low degree of PCC while recommending bypass surgery to a patient with angina and 3-vessel coronary artery disease. We compared patients' ratings of the physician and their decision making in response to the physician's recommendation, for high vs. low PCC vignettes.

**Results**—Patients viewing high PCC vignettes rated the video physician more favorably overall (3.01 vs. 2.12,  $p < 0.001$ ) and as more competent (3.22 vs. 2.66,  $p < 0.001$ ) and trustworthy (2.93 vs. 2.28,  $p < 0.001$ ) than those viewing the low PCC version (0–4 range for all scales). Patients viewing the high PCC version more frequently said they would undergo bypass surgery (96% vs. 74%,  $p < 0.001$ ) if they were the patient in the video.

**Conclusion**—Patients expressed greater confidence in physicians who used more PCC behaviors, and greater willingness to accept an evidence-based recommendation.

**Practice implications**—PCC may make physicians more effective in the delivery of evidence-based care.

### Keywords

Physician-patient relations; Patient-centered care; Communication; Decision making

## 1. Introduction

Patient-centeredness is considered an essential element of high-quality healthcare [1]. At the core of patient-centeredness is the idea that healthcare providers, and the systems within which they work, will deliver care that is attentive to the needs, values, and preferences of

\*Presented in part at the International Conference on Communication in Health Care, Verona, Italy, September 6, 2010.

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**Conflict of interest** Neither of the authors has a conflict of interest to declare.

patients [2]. For physicians, the most important tool for making care more patient-centered is communication.

Patient-centered communication (PCC) is the set of skills and behaviors used by physicians to promote a relationship in which patients actively participate as partners in healthcare decision making and management [3,4]. Different models have been proposed to describe the patient-centered relationship [5–7], but certain elements are universal. One is the concept of mutuality, involving power sharing and collaboration between physicians and patients [3]. This concept is typically contrasted with the more traditional, paternalistic model of the doctor-patient relationship. Another commonly described element is a “whole person” orientation to patient care, in which physicians attend not only to patients' biological needs, but also to the psychological, social, and behavioral dimensions of health and illness [8].

### 1.1. PCC and outcomes

A growing body of evidence supports the potential value of physician PCC in promoting healthcare's “triple aim” of enhancing patient experiences, reducing cost, and improving health [9]. Numerous studies have found that PCC is associated with greater patient satisfaction [10–12]. PCC has also been shown to be associated with higher patient trust [13], lower use of diagnostic tests [14,15], and improved health status [16]. Many of these studies have been observational and therefore unable to establish a causal relationship between PCC and outcomes. It is possible that PCC simply occurs more readily in clinical encounters with less challenging patients, i.e., patients who are predestined to have higher satisfaction and better outcomes. In this scenario, PCC is just a by-product of better clinical encounters, not a core ingredient.

Stronger evidence comes from intervention studies testing the effects of training physicians in PCC [17,18]. These interventions have had mixed results. Though successful in promoting PCC in the clinical encounter, their impact on patient experiences has been variable, with studies showing higher patient satisfaction, no difference, and even lower satisfaction with PCC-trained physicians compared to controls [17,18]. This variable response could have resulted from differences in the content and effectiveness of physician training, from variable implementation of PCC by physicians, or from true differences in the impact of PCC. Addressing this last possibility is best accomplished by studies that test, in an experimental fashion, whether the same information, communicated using more vs. fewer patient-centered behaviors, has different effects on patients' evaluations of care. Few studies, however, have employed this design.

**1.1.1. PCC and decision making**—Another gap in the evidence on PCC is the lack of studies examining its impact on decision making. One of the central purposes of PCC is to change the dynamic of decision making in the clinical encounter, by promoting a shared process in which the patient is actively engaged in medical decisions [18,19]. PCC does not necessarily mean giving patients more decision-making responsibility. Particularly in the context of life-threatening or high-risk situations, patients often expect the physician to take primary responsibility for making decisions [11,20]. In such situations, a patient's perception of shared decision making may be more about feeling that the physician has heard and processed the patient's cognitive and emotional needs, concerns, and preferences in making a recommendation, than about the patient herself actively deliberating over treatment options. As an approach that prioritizes patients' concerns and preferences in shaping decisions, PCC should theoretically lead to patients' feeling more comfortable accepting physicians' recommendations. There has been relatively little research, however, on the impact of PCC on patients' evaluations and acceptance of physician recommendations.

We sought to address these gaps in the evidence by testing whether the degree of PCC employed by a physician affects patients' evaluations of the physician and acceptance of clinical recommendations. To accomplish this, we developed video-recorded vignettes depicting physicians delivering the same clinical content and recommendation using two different approaches, one high and one low in PCC behaviors. We hypothesized that patients viewing the more patient-centered version would rate the physician more positively and be more likely to accept the physician's recommendation than patients viewing a less patient-centered encounter.

## 2. Methods

### 2.1. Vignette development

We developed vignettes involving a visit between a cardiologist and a patient with progressive angina who recently underwent coronary angiography revealing 3-vessel coronary artery disease (CAD). The physician reviews the angiogram results and recommends coronary artery bypass graft surgery (CABG), citing evidence of improved quality of life and long-term survival. The patient expresses fear about the surgery; the physician provides reassurance, citing statistics about peri-operative risks. A discussion ensues about treatment alternatives, including angioplasty and conservative management with medical therapy and lifestyle modification. The physician closes by reiterating his/her recommendation of CABG as the best option.

We chose this scenario for several reasons. First, CABG for patients with chronic angina and 3-vessel CAD is supported by clinical trials and represents the standard of care for most patients [21], making the physician's recommendation evidence-based. Second, non-emergent CABG is a “preference-sensitive” procedure; even in situations where it is supported by strong evidence, its use should ideally be guided by patients' values and priorities [22], making PCC particularly salient in this context. Third, there are substantial risks to either undergoing or foregoing CABG in the setting of 3-vessel CAD. This high-stakes context increases the potential impact of physician communication behaviors that influence patients' confidence in the physician's recommendation. Finally, evidence shows that patients rely heavily on physician recommendations in weighing options for treating CAD [23], which heightens the clinical relevance of studying recommendation acceptance in this situation.

**2.1.1. Operationalizing PCC**—There is currently no consensus regarding the specific communication behaviors that constitute PCC [10,20]. Epstein et al. have asserted that PCC may not represent a single construct, and that in operationalizing PCC, researchers should choose behaviors that are theoretically linked to the outcomes being measured [20]. Others emphasize that the core of PCC is attention to the affective (vs. instrumental) dimensions of communication, including responding to patients' emotional states and concerns [11,12,24–26]. We began by choosing core elements included in nearly all models of PCC: a biopsychosocial orientation and a partnered approach to doctor–patient interactions [18]. We then chose verbal communication behaviors commonly mentioned as ways of promoting these ideals, and non-verbal behaviors considered important in communicating affect [11,24]. We created two different versions of our clinical vignette – low vs. high PCC – by varying these behaviors (Table 1). We kept the vignettes the same in other respects, including clinical information, numeric estimates of risk and benefit, alternative options discussed, and strength of recommendation.

Verbal behaviors conveying a biopsychosocial orientation included empathic statements, eliciting and validating patient concerns, exploring patient context and individualizing discussions about care. Behaviors conveying partnership promotion included rapport

building and partnership statements, patient education, and linguistic simplicity. Nonverbal behaviors reinforced verbal behaviors in both categories. Affect was varied through voice tone and facial expressions. Attentiveness and presence were conveyed through eye contact, nodding, and leaning forward.

**2.1.2. Evaluating face validity of vignettes**—We vetted draft vignette scripts with multiple patients and primary care practitioners, two cardiologists, a physician assistant who counsels patients about cardio thoracic surgery, and a researcher with expertise in decision making about CAD treatment options. Each version of the vignette went through multiple iterations. Reviewers judged the final versions to have accurate content and realistic dialogue.

**2.1.3. Video production**—We produced the video vignettes in collaboration with a California-based film production company (Crosskeys Media Works). Eight professional actors, 4 men and 4 women, played the role of the cardiologist. Two actors, 1 man and 1 woman, played the role of the patient. A professional director guided standardization of behaviors among actors. Physician-actors wore scrubs, white coat, and stethoscope. Vignettes were filmed from a point-of-view (POV) angle: the patient was heard but not seen, and the physician faced the camera when speaking. We used this technique to facilitate study participants' assuming the role of the patient when they viewed the vignettes. We also filmed separate vignettes using male and female patient voices, to enable male and female study participants to better relate to the patient in the video.

The high PCC vignettes were longer in duration than the low PCC versions, because of the added verbal and nonverbal behaviors. The actors attempted to alter dialogue pace to keep the duration similar across versions, but this resulted in less realistic takes. In the final takes, high PCC versions averaged 5 min 20 s, while low PCC versions averaged 4 min.

Multiple takes of each vignette version were filmed for each pairing of physician and patient actors. We chose final takes based on quality and similarity of behaviors. The final set included 32 videos: 8 physician-actors performing 2 vignette versions (low and high PCC), each with 2 patient voices (male and female). The videos were placed on DVD-ROM media. When a video is selected, an introductory screen appears first, giving a brief patient history. The patient is introduced as a 55-year-old man (or woman) with hypertension and gradually worsening chest pain, who had a positive exercise treadmill test leading to an angiogram. The introduction explains what an angiogram is, that this is the patient's 2nd visit to this heart specialist, and that the purpose of the visit is to discuss angiogram results.

## 2.2. Setting, participants, and study procedures

We recruited study participants at a hospital-based, adult primary care clinic in the Western United States. To recruit patients for whom a vignette about CAD treatment options would have some relevance, we approached consecutive patients 40 or older whose medical records indicated a diagnosis of CAD or CAD risk factors (smoking, hypertension, diabetes, or hyperlipidemia). Patients were told that the study purpose was to examine patients' decision making about heart disease. Acutely ill patients and those with cognitive or severe visual impairment were ineligible. Patients agreeing to participate gave informed consent and received \$20 for their time. The study was approved by the Legacy Health System Institutional Review Board.

After obtaining informed consent but before randomizing patients, research assistants (RAs) administered a brief questionnaire evaluating participants' demographic characteristics, cardiac history, familiarity with different CAD treatment options, and preferred role in making medical decisions [27].

**2.2.1. Randomization**—Each of our 32 videos was given an alphanumeric code. To achieve randomization, the study principal investigator (SS) used a computerized random number generator to generate separate sequences of video codes for male and female participants. RAs followed these sequences in assigning participants to a video. Male and female participants were assigned to vignettes with a male or female patient voice, respectively. RAs were unaware of the alphanumeric codes linked to each video, effectively concealing condition allocation from the RAs. The principal investigator was not involved in enrolling participants or in video assignments.

**2.2.2. Post-vignette evaluation**—Participants viewed the assigned video in private. Afterwards, RAs administered a second questionnaire assessing patients' impressions of both the video physician and the recommendation of CABG (Appendix A). Participants completed 5-point Likert scales rating the video physician's competence (4 items, Cronbach's alpha 0.84), their trust in the physician (10 items, Cronbach's alpha 0.94) [28], how much they liked and felt comfortable with the physician (3 items, Cronbach's alpha 0.94), and their evaluation of the physician overall (1 item). Participants reported their perception of the necessity of CABG for the patient in the video, on a 6-point scale from absolutely unnecessary to absolutely necessary. Finally, they were asked to rate their likelihood of undergoing CABG and of obtaining a second opinion, if they were the patient in the video (4-point scales from definitely not to definitely).

### 2.3. Data analysis

We used *t*-tests and chi-square tests to compare participant characteristics by condition assignment (low vs. high PCC vignette). We modeled participants' ratings of the video physician as continuous variables and compared scores for low vs. high PCC versions using *t*-tests. We modeled decision-making outcomes as ordinal variables and tested differences using chi-square tests for trend. We also dichotomized decision-making outcomes at relevant cut points and used standard chi-square tests to examine differences by level of PCC. To determine whether the impact of PCC varied among patient subgroups, we tested for interactions of vignette version with age, sex, education, and decision-making role preferences, for all outcomes. Analyses were conducted using Stata/SE 11.1 (College Station, TX, USA).

## 3. Results

### 3.1. Participant characteristics

We approached 373 patients; 27 were ineligible due to acute illness (17), cognitive impairment (7), visual impairment (2), or age under 40 (1). Among 346 eligible patients, 98 declined participation, primarily stating lack of time (55) or interest (31). Characteristics of the 248 participants completing the study (72% participation rate) were balanced across low vs. high PCC vignettes (Table 2). The mean age of participants was 58. Most were women, and about half reported some familiarity with CABG. The majority of participants preferred a shared approach to medical decision making.

### 3.2. Ratings of video physicians

Compared to participants viewing a low PCC vignette, those viewing a high PCC vignette rated the video physician as more competent and trustworthy and felt they would be more comfortable with him/her if they were the patient in the video (Table 3). Global ratings of the physician were 22% higher (2.12 vs. 3.01 on a 0–4 scale) in the high PCC version. There was significantly greater variability in ratings for the low PCC vignettes (SD 1.05–1.26 vs. 0.65–0.90,  $p < 0.001$  for Bartlett's test for equal variances for all rating variables), indicating that reactions to the low PCC version were more heterogeneous compared to the high PCC

version. To explore reasons underlying this heterogeneity, we tested for interactions between participant characteristics and PCC version. We found a significant interaction for education level, but not for age, sex, or decision-making role preference. Although ratings were higher for the high PCC version in all subgroups, the difference between high and low PCC was narrower for participants with less education (data not shown).

### 3.3. Decision-making outcomes

Compared to participants viewing a low PCC vignette, those viewing the high PCC version rated the necessity of CABG for the patient in the video substantially higher (Table 4). CABG was deemed at least somewhat necessary by 87% viewing the low PCC version vs. 99% viewing the high PCC version ( $p < 0.001$ ). Participants viewing the high PCC version also said they would be more likely to undergo CABG (96% vs. 74%,  $p < 0.001$ ). Level of PCC was not associated with participants' wanting a second opinion (82% for low vs. 74% for high PCC,  $p = 0.15$ ). Tests for interactions revealed that the impact of PCC on desire for a second opinion varied by age, with younger patients being more inclined to seek a second opinion after viewing the low PCC version. There were no interactions between decision-making outcomes and sex, education level, or decision-making role preference.

## 4. Discussion and conclusion

### 4.1. Discussion

In this randomized, controlled study, we found that the same clinical content and recommendation were perceived more positively when a physician used more PCC behaviors. We standardized clinical scenarios in terms of the physician's rationale for the recommended plan, evidence about risks and benefits, and strength of recommendation. We examined the impact of PCC on decision making about undergoing CABG for 3-vessel CAD, a high-stakes situation in which most patients rely heavily on physicians to guide decisions [23]. We found that patients expressed more confidence in the physician and a greater likelihood of following the recommendation when the physician communicated in a more patient-centered manner.

Prior studies using video vignettes to evaluate PCC have shown each study participant two different versions and asked them to state their preference between PCC and a more biomedical [29], doctor-centered [30], or physician-directed [31] communication style. Overall, most patients in these studies preferred PCC, but a substantial number preferred the alternative. This finding was remarkably consistent; in separate studies conducted on different continents, Swenson et al. [29] and Dowsett et al. [30] both found that about one-third of patients preferred a biomedical or doctor-centered video encounter to a more patient-centered version. A limitation of the approach used in these studies is that patients were asked to compare one communication style to another, rather than rate a single style to which they were randomly assigned. When comparing approaches, patients may weigh in favor of what they are accustomed to. Notably, patients in these studies overwhelmingly preferred the video that reflected their own physicians' communication style [29,31]. Our study avoided this potential bias by asking patients to react to a single video, without a "benchmark" with which to compare it. We found that patients had mixed reactions to the low PCC videos, as evidenced by a high variance in ratings. With the high PCC version, reactions were more uniformly positive. This suggests that while some patients may not care about the degree of patient-centeredness a physician exhibits, or may even prefer a less patient-centered style, a high PCC approach is likely to be preferred by the majority of patients.

The impact of PCC was greater among more highly educated patients. This is consistent with findings from prior studies that preferences for a patient-centered approach are

associated with higher levels of education [29], occupation [30], and social class [31]. This may reflect cultural differences in patients' preferred role in the doctor–patient relationship; lower perceived ability to participate in decision making among patients with low health literacy or self-efficacy; more competing demands among socio economically disadvantaged patients, resulting in a greater tendency to offload medical decisions to physicians; or a mismatch in how doctor–patient communication scholars (including us) and patients from lower social classes construe patient-centeredness.

Our findings extend those of prior studies by demonstrating that PCC results in patients' perceptions of the physician not just as a better communicator but also as a more competent practitioner. McKinstry found that patients valued PCC for encounters addressing more psychosocial content (e.g., depression) but preferred a more assertive, physician-directed communication style for physical problems (e.g., a bleeding mole or treatment of rheumatoid arthritis) in which patients' individual context was less relevant [31]. Most clinical situations, however, are not *either* biomedical or psychosocial. Situations like the one in our vignette, where patients rely on physicians for technical expertise but where emotional and psychosocial matters are also highly relevant, probably account for the majority of clinical encounters (e.g., decisions about surgery, management of chronic illness, genetic testing). In such settings, instrumental and affective communication are both important, and PCC is likely to be the preferred approach.

Our findings in comparison to those of prior studies, conducted several years ago, may also reflect evolving expectations about the doctor–patient relationship. PCC has been widely promoted as an ideal communication style over the last decade, in part reflecting the adoption of a quality-of-care framework that includes patient-centeredness as a core element [1,25]. We found that over 3/4 of the patients in our study preferred a shared approach to decision making. Moreover, we found evidence that PCC may be particularly important for younger patients, whose preferences represent the future of patient expectations. Our findings may therefore reflect a growing expectation among patients for physicians to engage in PCC.

**4.1.1. Limitations**—We measured patients' reactions to a single, simulated clinical scenario and recruited patients from a single setting. Our results should therefore be generalized cautiously. Additionally, we evaluated hypothetical, rather than real, decision making. In real-world settings, patient evaluations and decision making are influenced by many variables that were not taken into account in our study. Therefore, our numerical point estimates, in particular, should be interpreted cautiously. Simulation, however, confers the benefit of isolating the effects of specific variables, and in this study we were able to study the impact of PCC independent of other factors, including patient context, physician personality, and healthcare setting. Additionally, by asking participants to rate physicians they did not already know, we were able to avoid the potential bias introduced by patients' tendency to give very high ratings when evaluating their own physicians [30].

Our vignette scripts varied multiple behaviors considered to be part of PCC. It was therefore not possible to determine the effects of individual behaviors. Future research might explore the effects, and dose effects, of specific behaviors, although it is possible that PCC behaviors may not produce the same effects in isolation as when combined. In other words, PCC may be more of an approach to care than a collection of behaviors [20]. In addition, some have argued that PCC should be an adaptive process, in which physicians vary their approach to care based on individual patient preferences [20,32]. We used standardized vignettes and were therefore only able to test a pre-specified rather than a flexible approach to PCC. Our findings with regard to patients' preference for shared decision making, and the positive effects of PCC behaviors that we observed, suggest that our specification of PCC was in line

with most patients' preferences. However, it is possible that an approach matching physician style to patient preferences would have had an even greater effect, particularly among patients with lower levels of education. Interactive, computerized video technology might be used in future studies to test the effects of an adaptive approach to PCC.

We were unable to separate the effects of PCC from any potential effects of encounter duration. As in other studies of both real-world and simulated encounters [14,29,31], PCC required more time in our study than a standard approach to communication. If time spent with the patient had a significant influence in our study, one might have expected to see larger differences in participants' desire for a second opinion than in other outcomes, such as the perceived necessity of CABG. Still, it is possible that some of our findings were influenced by time spent, a possibility that might be explored in future studies. Again, it is important to consider whether spending more time is a variable that can be isolated, or if it is simply part of PCC. Finally, although we used a validated scale to measure trust in physician [28], our other outcome measures were developed for this study and should therefore be interpreted in light of their lack of prior validation.

## 4.2. Conclusion

Our study provides evidence that PCC results in greater confidence among patients and greater likelihood of accepting an evidence-based recommendation. Patients rated physicians using PCC behaviors more favorably not only on interpersonal dimensions of care (e.g., trust, liking) but also on technical competence. This may reflect changing norms about what constitutes a good physician. In this era, when patient-centeredness is considered a core element of healthcare quality, and access to medical information is greater than ever before, patients may expect a more mutual, partnered approach to doctor-patient relationships.

Our findings extend the evidence base on PCC by demonstrating that PCC behaviors influence not only patients' impressions of an encounter, but also patients' processing of the information a physician provides, including a recommendation to undergo surgery. This may reflect that even with the same clinical information, patients feel more comfortable with a physician's recommendation when they perceive that contextual issues and emotions have been taken into account.

## 4.3. Practice implications

Substantial resources and effort have gone into evaluating the comparative effectiveness of different medical tests and treatments. Understanding the effectiveness of different approaches to care is essential to improving population health. This knowledge base, however, will not, in and of itself, result in better outcomes; it must be translated and contextualized to meet individual patients' needs. Physicians play a crucial role in translating and contextualizing clinical evidence, particularly in situations where patients rely on physicians to guide decision making. Our study indicates that PCC has the potential to make physicians more effective in delivering evidence-based care.

Our finding that the impact of PCC was less pronounced among less educated patients suggests that there may not be a single prescription for implementing PCC. Making care patient-centered may be particularly challenging when socioeconomic differences create "social distance" between doctors and patients [33]. Unless it can be executed in a way that meets the needs of all patients, PCC might improve overall quality but exacerbate existing disparities in healthcare. To avoid this unintended consequence, future research should seek to improve our understanding of how to enhance the effectiveness of physician communication for all patients.



## Acknowledgments

This research was supported by the Robert Wood Johnson Foundation, through its Generalist Physician Faculty Scholars Program. Dr. Saha was additionally supported by the United States Department of Veterans Affairs. The views expressed in this article are those of the authors and not necessarily those of the United States Department of Veterans Affairs or the Robert Wood Johnson Foundation.

**Role of funding source** The sponsors played no role in study design; collection, analysis and interpretation of data; writing of the report; or the decision to submit the paper for publication.

## Appendix A

**Outcome measures**

**Rating of physician competence:**

**For these questions, I would like to know how much you agree with the following statements about the doctor in the video. Even if you feel you do not have enough information to give a firm opinion, we would like you to give your general impression or gut feeling.**

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The doctor seemed like he/she had good training.	4	3	2	1	0
The doctor did not seem highly qualified.	4	3	2	1	0
I would let that doctor treat me for problems with my heart.	4	3	2	1	0
The doctor did not seem very competent.	4	3	2	1	0

**Trust in physician:**

**For these questions, I would like to know how much you would agree with the following statements about the doctor, if you were the patient in the video. Again, even if you feel you do not have enough information to give a firm opinion, we would like you to give your general impression or gut feeling.**

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I doubt that the doctor would really care about me as a person.	4	3	2	1	0
I think that doctor would be considerate of my needs and put them first.	4	3	2	1	0
I would trust that doctor so much I would always try to follow his/her advice.	4	3	2	1	0
If that doctor told me something is so, then I would believe it must be true.	4	3	2	1	0
I would distrust that doctor's opinions and would like a second one.	4	3	2	1	0
I would trust that doctor's judgments about my medical care.	4	3	2	1	0
I would feel that doctor was not doing everything he/she should about my medical care.	4	3	2	1	0
I would trust that doctor to put my medical needs above all other considerations when treating my medical problems.	4	3	2	1	0
I would trust that doctor to tell me if a mistake was made about my treatment.	4	3	2	1	0
I would worry that the doctor may not keep the information we discussed totally private.	4	3	2	1	0

**Liking/comfort with physician:**

**For these questions, I would like to know how much you would agree with the following statements about the doctor, if you were the patient in the video. Again, even if you feel you do not have enough information to give a firm opinion, we would like you to give your general impression or gut feeling.**

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I think I would like that doctor as a person.	4	3	2	1	0
I do not think that doctor and I would get along very well.	4	3	2	1	0
I would feel very comfortable with that doctor.	4	3	2	1	0

**Global rating of physician:**

In general, how would you rate this doctor?

**Global rating of physician:**

(1) Poor  (2) Fair  (3) Good  (4) Very Good  (5) Excellent.

**Necessity of CABG:**

	Absolutely necessary	Very necessary	Somewhat necessary	Somewhat unnecessary	Very unnecessary	Absolutely unnecessary
If you were the patient in the video, how necessary do you think it would be for you to have bypass surgery?	5	4	3	2	1	0

**Likelihood of undergoing CABG, getting a second opinion:**

If you were the patient in the video, would you...	Definitely	Probably	Probably not	Definitely not
...have bypass surgery?	3	2	1	0
...get a second opinion?	3	2	1	0

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**Table 1**

Communication behaviors in low vs. high PCC video vignettes.

Communication behavior	Vignette version	
	Low PCC	High PCC
Verbal		
Empathic statements	Absent	Present
Eliciting and validating patient concerns	Absent	Present
Exploring patient context/individualizing care	Less	More
Rapport building and partnership statements	Fewer	More
Patient education	Less	More
Language	Biomedical/complex	Lay
Nonverbal		
Affect	Neutral	Positive
Attentiveness/presence	Low	High

PCC: patient-centered communication.

**Table 2**

Participant characteristics, by video vignette assignment.

Participant characteristics	Vignette version		p-value
	Low PCC (n = 114)	High PCC (n = 134)	
Age, mean (SD)	57.8 (10.4)	57.8 (11.4)	0.98
Female, n (%)	66 (58)	80 (60)	0.77
Race/ethnicity, n (%)			0.66
White/Caucasian	61 (54)	70 (52)	
Black/African-American	47 (41)	60 (45)	
Other	6 (5)	4 (3)	
High school degree or greater, n (%)	95 (84)	114 (86)	0.72
History of CAD, n (%)	25 (22)	19 (14)	0.11
History of prior CABG, n (%)	4 (4)	5 (4)	0.93
Somewhat or very familiar with CABG, n (%)	58 (51)	62 (46)	0.47
Close family or friend who has had CABG, n (%)	52 (46)	55 (41)	0.47
Decision-making role preference, n (%)			0.54
Doctor decides what is best	5 (4)	2 (1)	
Doctor considers patient preferences but makes final decisions	13 (11)	13 (10)	
Doctor and patient make decisions together	88 (77)	109 (81)	
Patient makes final decisions	8 (7)	10 (7)	
Assigned to female video physician, n (%)	54 (47)	71 (53)	0.38

PCC: patient-centered communication; CAD: coronary artery disease; CABG: coronary artery bypass graft surgery.

**Table 3**

Ratings of video physicians, by video vignette assignment.

Rating dimensions*	Vignette version		p-value
	Low PCC (n = 114)	High PCC (n = 134)	
Physician competence, mean (SD)	2.66 (1.05)	3.22 (0.65)	<0.001
Trust in physician, mean (SD)	2.28 (1.06)	2.93 (0.65)	<0.001
Like/feel comfortable with physician, mean (SD)	2.37 (1.26)	3.20 (0.69)	<0.001
Global rating, mean (SD)	2.12 (1.26)	3.01 (0.90)	<0.001

PCC: patient-centered communication.

\* Range for all rating dimensions was from 0 to 4, with 4 representing the highest possible rating.



**Table 4**

Patient decision making, by video vignette assignment.

Decision making outcomes	Vignette version		<i>p</i> -value
	Low PCC ( <i>n</i> = 114)	High PCC ( <i>n</i> = 134)	
Perceived necessity of CABG, <i>n</i> (%)			<0.001
Absolutely unnecessary	2 (2)	0 (0)	
Very unnecessary	4 (4)	0 (0)	
Somewhat unnecessary	9 (8)	2 (2)	
Somewhat necessary	29 (26)	17 (13)	
Very necessary	46 (41)	65 (49)	
Absolutely necessary	22 (20)	49 (37)	
Would obtain a second opinion, <i>n</i> (%)			0.16
Definitely not	6 (5)	11 (8)	
Probably not	15 (13)	24 (18)	
Probably	20 (18)	24 (18)	
Definitely	72 (64)	75 (56)	
Would undergo CABG, <i>n</i> (%)			<0.001
Definitely not	10 (9)	0 (0)	
Probably not	20 (18)	5 (4)	
Probably	42 (37)	52 (39)	
Definitely	41 (36)	77 (57)	

PCC: patient-centered communication; CABG: coronary artery bypass graft surgery.