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Specialties Differ in Which Aspects of Doctor Communication Predict Overall Physician Ratings

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BACKGROUND: Effective doctor communication is critical to positive doctor–patient relationships and predicts better health outcomes. Doctor communication is the strongest predictor of patient ratings of doctors, but the most important aspects of communication may vary by specialty.

OBJECTIVE: To determine the importance of five aspects of doctor communication to overall physician ratings by specialty.

DESIGN: For each of 28 specialties, we calculated partial correlations of five communication items with a 0–10 overall physician rating, controlling for patient demographics.

PATIENTS: Consumer Assessment of Healthcare Providers and Systems Clinician and Group (CG-CAHPS®) 12-month Survey data collected 2005–2009 from 58,251 adults at a 534-physician medical group.

MAIN MEASURES: CG-CAHPS includes a 0 ("Worst physician possible") to 10 ("Best physician possible") overall physician rating. Five doctor communication items assess how often the physician: *explains things*; *listens carefully*; *gives easy-to-understand instructions*; *shows respect*; and *spends enough time.*

KEY RESULTS: Physician showing respect was the most important aspect of communication for 23/28 specialties, with a mean partial correlation (0.27, ranging from 0.07 to 0.44 across specialties) that accounted for more than four times as much variance in the overall physician rating as any other communication item. Three of five communication items varied significantly across specialties in their associations with the overall rating ($p<0.05$).

CONCLUSIONS: All patients valued respectful treatment; the importance of other aspects of communication varied significantly by specialty. Quality improvement efforts by all specialties should emphasize physicians showing respect to patients, and each specialty should also target other aspects of communication that matter most to their patients. The results have implications for improving provider quality improvement and incentive programs and the reporting of CAHPS data to patients. Specialists make important contributions to coordinated patient care, and thus customized approaches to measurement, reporting, and quality improvement efforts are important.

KEY WORDS: doctor–patient relationship; specialty care; quality improvement; patient satisfaction.
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INTRODUCTION

Effective doctor communication is critical in establishing and maintaining positive doctor–patient relationships.[1–4] Good communication skills, including taking time to listen and providing clear explanations, are among the qualities that patients most desire in physicians.[5,6] Consequently, patients' reports of doctor communication are the strongest predictor of overall doctor ratings, for both primary care physicians[7–9] and specialists.[10,11]

Effective doctor–patient communication predicts better health outcomes[12,13] such as symptom resolution, physiologic measures (e.g. blood pressure, blood sugar level), pain control (e.g. cancer pain, dental pain), and physical functioning.[14–18] Accordingly, medical groups, purchasers, and governmental payors increasingly use doctor–patient communication measures for quality improvement (QI) and in pay-for-performance systems.[19,20]

The Consumer Assessment of Healthcare Providers and Systems (CAHPS®) surveys are the national standard for evaluating patients' health care experiences.[7,21–25] CAHPS surveys focus on aspects of care (1) that patients have identified as important, and (2) for which patients are the best or only source of information. The CAHPS Clinician and Group survey (CG-CAHPS) focuses on ambulatory care and is intended to provide comparative performance information on individual clinicians, practice sites, and medical groups to facilitate consumer choice, and to inform and guide QI. The CG-CAHPS survey includes an overall rating of the physician plus four multi-item composites: access to care, coordination of care, doctor communication, and office staff courteousness and helpfulness.[26,27] The five doctor communication items assess how often the physician: *explains things*; *listens*

carefully; *gives easy-to-understand instructions*; *shows respect*; and *spends enough time*.

Pay-for-performance programs have focused on primary care physicians (PCPs) to assure that preventive services are delivered.[28] Although many organizations are eager to develop a pay-for-performance system for specialists, logistics have been difficult,[29–31] and the use of patient-experience-of-care measures in specialty care remains rare.[20,32] However, pay-for-performance programs and QI must begin to engage more specialists, because specialists are responsible for a large and growing proportion of patient care.[33]

Understanding whether patients value aspects of doctor communication differently depending on the type of specialist seen may inform the design of QI interventions. If patients value similar aspects of doctor communication, then a uniform QI approach may be best, but if the importance varies by specialty, programs tailored to the most valued aspects for a given specialty may be appropriate. While pay-for-performance approaches may need to be consistent across specialties, knowing which aspects of communication are most important overall may inform pay-for-performance design.

This paper examines variation in the relationships between different aspects of communication and patients' ratings of their physicians, across a wide range of medical and surgical specialties. Given the emotional nature of showing respect in a relationship compared to the procedural aspect of providing information (listens carefully, instructions easy to understand, explains things),[34] we hypothesize that showing respect will be more important than the three aspects of communication which focus on information exchange and spending enough time.

METHODS

Data

The CG-CAHPS survey includes a 0 ("Worst physician possible") to 10 ("Best physician possible") overall physician rating, and multiple items assessing four care domains: *access* (three items), *courteous/helpful office staff* (two items), *care coordination* (three items), and physician *communication* (five items). The five doctor communication items assess how often the physician: *explains things*; *listens carefully*; *gives easy-to-understand instructions*; *shows respect*; and *spends enough time.* The response options are: *Never, Almost never, Sometimes, Usually, Almost always,* and *Always.* All items ask patients about their experience with a specified physician in the last 12 months. The survey includes patient characteristics that are used for case-mix adjustment.

The data analyzed here represents five administrations of the CG-CAHPS survey over 3 years (April 2006; August 2006; Feb 2007; Feb 2008; Jan 2009) from one large medical group with numerous specialists. At each administration, 100 patients were sampled from every physician who had seen 100 or more unique patients in the prior 12 months, exceeding the 45 patients per physician recommended for acceptable reliability (0.70) at the physician level.[26,35]

The survey instrument named the reference physician and asked the respondent to confirm having had at least one visit with that physician in the past year; only such surveys were retained for analysis. The survey was administered by mail, with a second survey sent by mail after 14 days to those who had not responded. No telephone follow-up was used. Response rates of 36–45 % across five administrations yielded 63,441 respondents.

After excluding those not providing an overall physician rating (3,597), not responding to at least one composite (1,346), or ineligible via their psychiatric or pediatric status (247), 58,251 cases remained for analysis (92 %). Respondents saw 534 physicians:100 primary care physicians, 227 non-surgical specialists, and 207 surgical specialists (Table 1).

Construction of 28 Specialty Groups

To examine associations between specific aspects of communication and the overall physician rating, we defined 28 specialties by pooling groups of similar physician specialties that contained fewer than 300 patients. We used

Table 1. 28 Specialties and Service Line with Number of Physicians and Patients Analyzed

Specialty	Service line	Number of physicians	Number of patients
Primary care physicians			
Internal medicine	Medical	54	3,638
Geriatric medicine	Medical	12	1,033
Family practice	Medical	34	1,781
Non-surgical specialists			
Oncology-hematology	Medical	37	4,695
Rheumatology	Medical	25	2,958
Endocrinology	Medical	19	1,873
Cardiology	Medical	27	3,728
Pulmonary disease	Medical	21	2,565
Infectious disease	Medical	10	969
Nephrology	Medical	10	865
Neurology	Medical	37	4,531
Radiation oncology	Medical	5	474
Pain management-int med	Medical	7	622
Gastroenterology	Medical	24	2,603
Dermatology	Medical	25	2,162
Allergy & immunology	Medical	5	396
Surgical specialists			
Ophthalmology	Surgical	36	5,160
Surgical oncology	Surgical	7	1,175
Urology	Surgical	21	3,197
Radiology-interventional	Surgical	4	310
Obstetrics/gynecology	Surgical	29	2,938
Otolaryngology	Surgical	12	1,807
Neurological surgery	Surgical	12	1,507
Vascular surgery	Surgical	6	877
Plastic surgery	Surgical	5	534
Orthopedic surgery	Surgical	24	3,146
Thoracic/cardiac surgery	Surgical	7	810
Surgery general	Surgical	19	1,897

three factors to guide definition of the specialty groups: (1) 2-digit customized specialty code based on the April 2003 version of the Centers for Medicare and Medicaid Services health care provider taxonomy physician codes (effective July 1, 2004); (2) service line (medical vs. surgical, which includes obstetrics); and (3) PCP vs. specialist. These 28 categories of specialties and the number of physicians and patients in the analytic data set appear in Table 1.

Analytic Approach

For ease of comparison, we rescaled all CAHPS measures to a 0–100 possible range. CAHPS scores are comparable across physicians only after case-mix adjusting for patient characteristics that are generally beyond a physician's control and affect CAHPS scores. We used case-mix adjustors similar to those used by O'Malley et al.[36] and Martino et al.[37]: age, education, self-reported general and mental health, and gender in all analyses (see Table 2 for details). All standard errors were corrected for clustering of patients within physicians.[38,39]

In order to compare overall ratings and patient-reported communication by specialty, we calculated case-mix adjusted means of the overall physician rating and five doctor communication items for each of the 28 specialties, testing each adjusted mean against the mean of all other specialties.

Our primary aim was to measure the extent to which each aspect of doctor communication item was associated with the overall physician rating. We were also interested in whether the "key drivers" of these ratings differed by specialty.

We used a single linear regression model to address these primary aims. This model predicted the overall physician rating from (a) five doctor communication items; (b) 27 specialty indicators; (c) interactions of (a) and (b); (d) main effects of the access, coordination of care, and office staff composites; and (e) wave of administration and case-mix variables. Variable sets (a–c) are the primary independent variables and variable sets (d–e) are our control variables. To more easily compare the strength of association between communication items and overall physician ratings, we present regression results as partial correlation coefficients. These correlations may range from −1 to +1, with 0.00 meaning no association, and values of 0.02, 0.15, and 0.35 (positive or negative) corresponding to small, medium, and large effect sizes, respectively.[40] To test whether these correlations varied across specialties, we applied partial F-tests to the regression results.

RESULTS

Patients

Patient characteristics appear in Table 2. The mean age was 60 (SD=16.9), and 59 % of patients were female. A majority was non-Hispanic White (69 %), with many who were Asian/Pacific Islander (11 %), Hispanic (10 %), or Black (5 %). Over half of patients (58 %) had a 4-year college degree. Forty percent of patients saw a physician for surgical care (including obstetrics) and 11 % of patients saw a primary care physician.

Table 2. Patient Characteristics

Characteristic	N	Percent of sample (*N*=58,251)
Age		
18–24	1,028	2
25–34	4,374	8
35–44	6,106	11
45–54	9,046	16
55–64	12,480	21
65–74	12,434	21
75–84	9,213	16
85+	3,570	6
Female	34,419	59
Race/ethnicity		
White, non-Hispanic	40,122	69
Asian/Pacific Islander	6,264	11
Hispanic	5,796	10
Black	3,014	5
Native American	155	0
Other and multiracial	1,923	3
Unknown/missing	977	2
Education		
8th grade or less	1,117	2
Some high school but did not graduate	1,582	3
High school graduate/GED only	6,258	11
Some college but no 4-year degree	15,745	27
Four-year college degree only	12,860	22
More than 4-year college degree	20,689	36
Self-rated general health		
Excellent	7,580	13
Very good	17,619	30
Good	19,002	33
Fair	10,694	18
Poor	3,357	6
Self-rated mental health		
Excellent	18,175	31
Very good	19,119	33
Good	14,280	25
Fair	5,597	10
Poor	1,080	2
Service line		
Surgery (including obstetrics)	23,358	40
Medical	34,893	60
Primary care physician	6,452	11
Time period visit dates		
1: Visit dates 5/05–4/06	10,284	18
2: Visit dates 10/05–8/06	9,360	16
3: Visit dates 3/06–2/07	10,030	17
4: Visit dates 3/07–2/08	14,250	24
5: Visit dates 2/08–1/09	14,327	25

Mean Patient Experience Scores by Specialty

Table 3 reports the case-mix adjusted means of the overall physician rating and five doctor communication items for

Table 3. Case-Mix Adjusted Means for Global Physician Rating and Five Communication Composite Items

	Global physician rating†	Show respect	Listen carefully	Instructions easy to understand	Spend enough time	Explain things
Overall	90	92	91	90	88	91
Primary care physicians						
Internal medicine	91**	93***	93***	92***	89**	93***
Geriatric medicine	90	94*	94***	92***	91***	93***
Family practice	88	92	90	90	87	91
Non-surgical specialists						
Oncology-hematology	91**	94**	92*	91*	89*	92*
Rheumatology	92*	95***	94***	93**	94***	94***
Endocrinology	88	91	90	90	89	90
Cardiology	90	93	92	91*	89	92*
Pulmonary disease	90	93	91	91	89	91
Infectious disease	95***	97***	96***	96***	95***	96***
Nephrology	87	89	87	87	83**	87
Neurology	88	92	91	89	90*	91
Radiation oncology	88	93	91	91*	87	91
Pain management-int med	86	93	90	90	87	90
Gastroenterology	86**	90	89	88	86	89
Dermatology	86*	91	90	90	86	90
Allergy & immunology	82	86	85	85	85	85
Surgical specialists						
Ophthalmology	91**	91	90	91	87	90
Surgical oncology	91**	91	90	90	87	90
Urology	88	90	88	88	84*	89
Radiology-interventional	92	93	92	93	91	91
Obstetrics/gynecology	88	91	89	88	85	88
Otolaryngology	87	88**	87**	86*	83**	88*
Neurological surgery	91	91	90	89	86	90
Vascular surgery	90	92	91	90	87	91
Plastic surgery	89	91	91	90	89	91
Orthopedic surgery	83**	84***	83***	82***	78***	84***
Thoracic/cardiac surgery	91*	91	90	89	86	90
Surgery general	90	91	91	89	87	91

†Physician level standard deviation of 5, root error variance of 17. Physician level SD is square root of physician variance component from model predicting global physician rating from case-mix adjustors and specialty indicators. Root error variance is from same model
**p< 0.05, **p< 0.01, ***p< 0.001 for test of whether mean for designated specialty differs from mean for all other specialties, adjusting for case mix*

the 28 specialties. The adjusted mean overall physician rating was 90 out of 100. CAHPS overall ratings are often similarly skewed,[41] but these ratings are nonetheless reliable (able to distinguish groups, plans, and hospitals) and support tests of means and correlations[42] at recommended sample sizes.[43] The mean physician-level reliabilities of the overall rating and the five communication items were 0.88 to 0.92 at the observed sample sizes, indicating high reliability.[44]

As a sensitivity test for influential outliers, we set three standard deviations below and three standard deviations above the overall means on overall ratings and communication items as our outer limits, and recoded individual responses outside those limits to those boundary values. Only negative outliers were observed, 2–4 % of observations across items, and recoded results were very similar to the primary results presented here.

Significantly higher-than-average means for the overall physician rating were found for six specialties (three non-surgical: infectious disease, oncology-hematology, and rheumatology; and three surgical: surgical oncology, ophthalmology, and thoracic/cardiac surgery), with infectious disease specialty physicians having the highest mean (95). Dermatology, gastroenterology, and orthopedic surgery had significantly lower-than-average mean overall ratings.

Infectious disease, oncology-hematology, and rheumatology had significantly higher-than-average adjusted means on all five doctor communication items. Infectious disease had the highest means, 5–7 points above average. Orthopedic surgery and otolaryngology had significantly below-average adjusted means on all five items; the lowest means were in orthopedic surgery, 7–10 points below average. Two of the three types of PCPs—geriatric medicine and internal medicine—also

had significantly higher-than-average adjusted means on all five communication items.

Partial Correlations of Communication with Overall Rating, by Specialty

Table 4 presents partial correlations of communication items with the overall rating by specialty from a linear regression model predicting the overall physician rating from case-mix adjustors, specialty, five communication items, their interactions, and adjustor variables [R^2=0.71, F (191, 533)=50,670, p<0.0001].

Showing respect was the item most strongly related to the overall physician rating. Its average partial correlation with the overall physician rating (0.27; range: 0.07–0.44, largest correlation for 23/28 specialties) was a medium-to-large[40] effect size that was more than twice as large and uniquely explained more than four times as much of the variance in overall ratings as any other aspect of communication. The other four items had small-medium average partial correlations with the overall rating (0.09–0.13); physician explaining things was the least correlated.

The relative importance of specific aspects of communication varied significantly by specialty for three communication measures: physician showing respect, giving easy-to-understand instructions, and spending enough time (p<0.05). For example, spending enough time was the most important communication dimension for interventional radiology (r=0.35), but mattered little for infectious diseases (r=0.01). Providing easy-to-understand instructions was the most important dimension for both geriatric medicine (r=0.26) and pulmonary disease (r=0.21), but mattered little for radiation oncology (r=−0.02). Physician showing respect

Table 4. Correlation† of Communication Composite Items with Global Physician Rating for 28 Specialties

		Show respect		Listen carefully		Instructions easy to understand		Spend enough time		Explain things		
Simple correlation		0.77		0.77		0.75		0.73		0.73		
Average partial correlation across 28 specialties		0.27		0.13		0.13		0.11		0.09		
Partial F test of interaction with specialty		1.62		1.28		1.90		2.86		1.42		
P-value for partial F test		p=0.03		p=0.16		p=0.004		p<0.001		p=0.08		
	N	Partial correlation										Partial R from Items
Primary care physicians												
Internal medicine	3,369	**0.21**	***p*<0.001**	**0.14**	***p*<0.001**	**0.14**	***p*<0.001**	**0.16**	***p*<0.001**	0.06	p=0.08	0.33
Geriatric medicine	959	**0.19**	***p*=0.005**	**0.14**	***p*=0.03**	**0.26**	***p*<0.001**	**0.08**	***p*=0.04**	**0.10**	***p*<0.001**	0.37
Family practice	1,606	**0.29**	***p*<0.001**	**0.18**	***p*<0.001**	**0.06**	***p*=0.04**	**0.13**	***p*<0.001**	**0.12**	***p*<0.001**	0.38
Non-surgical specialists												
Oncology-hematology	4,409	**0.28**	***p*<0.001**	**0.12**	***p*<0.001**	**0.10**	***p*=0.002**	**0.13**	***p*<0.001**	**0.09**	***p*=0.008**	0.36
Rheumatology	2,843	**0.22**	***p*<0.001**	**0.29**	***p*<0.001**	**0.10**	***p*<0.001**	**0.13**	***p*<0.001**	0.04	p=0.24	0.40
Endocrinology	1,729	**0.26**	***p*<0.001**	0.09	p=0.09	**0.17**	***p*<0.001**	**0.14**	***p*<0.001**	**0.11**	***p*=0.009**	0.37
Cardiology	3,470	**0.23**	***p*<0.001**	**0.14**	***p*<0.001**	**0.14**	***p*<0.001**	0.07	p=0.07	**0.13**	***p*<0.001**	0.34
Pulmonary disease	2,447	**0.18**	***p*<0.001**	**0.17**	***p*<0.001**	**0.21**	***p*<0.001**	**0.16**	***p*<0.001**	0.05	p=0.28	0.36
Infectious disease	908	**0.33**	***p*<0.001**	**0.18**	***p*=0.004**	**0.14**	***p*=0.001**	0.01	p=0.93	0.03	p=0.59	0.41
Nephrology	787	**0.27**	***p*<0.001**	0.09	p=0.14	0.10	p=0.07	**0.06**	***p*=0.02**	**0.12**	***p*=0.01**	0.32
Neurology	4,246	**0.28**	***p*<0.001**	**0.12**	***p*<0.001**	**0.18**	***p*<0.001**	**0.15**	***p*<0.001**	0.05	p=0.13	0.39
Radiation oncology	434	**0.26**	***p*<0.001**	0.08	p=0.26	−0.02	p=0.69	0.20	p=0.09	0.09	p=0.25	0.35
Pain management-int med	589	**0.24**	***p*=0.04**	−0.03	p=0.71	**0.16**	***p*=0.01**	**0.20**	***p*<0.001**	**0.21**	***p*=0.03**	0.41
Gastroenterology	2,451	**0.28**	***p*<0.001**	**0.12**	***p*<0.001**	**0.21**	***p*<0.001**	**0.09**	***p*=0.001**	**0.08**	***p*=0.03**	0.39
Dermatology	1,888	**0.28**	***p*<0.001**	**0.10**	***p*=0.01**	**0.14**	***p*<0.001**	**0.15**	***p*<0.001**	**0.14**	***p*<0.001**	0.38
Allergy & immunology	385	**0.36**	***p*<0.001**	**0.20**	***p*=0.007**	0.11	p=0.07	**0.09**	***p*=0.003**	**0.14**	***p*<0.001**	0.46
Surgical specialists												
Ophthalmology	4,538	**0.23**	***p*<0.001**	**0.08**	***p*=0.01**	**0.10**	***p*<0.001**	**0.11**	***p*<0.001**	**0.11**	***p*<0.001**	0.30
Surgical oncology	1,031	**0.40**	***p*<0.001**	0.03	p=0.72	0.08	p=0.22	**0.13**	***p*<0.001**	−0.03	p=0.45	0.43
Urology	2,920	**0.26**	***p*<0.001**	**0.12**	***p*<0.001**	**0.14**	***p*<0.001**	**0.08**	***p*=0.04**	**0.12**	***p*<0.001**	0.35
Radiology-interventional	286	0.07	p=0.24	**0.23**	***p*=0.03**	**0.19**	***p*=0.002**	**0.35**	***p*<0.001**	0.04	p=0.25	0.47
Obstetrics/gynecology	2,745	**0.31**	***p*<0.001**	**0.11**	***p*=0.002**	**0.13**	***p*<0.001**	**0.17**	***p*<0.001**	0.08	p=0.06	0.39
Otolaryngology	1,663	**0.27**	***p*<0.001**	**0.16**	***p*=0.003**	**0.15**	***p*=0.002**	**0.08**	***p*=0.007**	**0.11**	***p*=0.005**	0.37
Neurological surgery	1,406	**0.26**	***p*<0.001**	**0.17**	***p*<0.001**	**0.11**	***p*<0.001**	0.02	p=0.76	**0.14**	***p*=0.009**	0.36
Vascular surgery	789	**0.18**	***p*<0.001**	**0.23**	***p*=0.009**	**0.14**	***p*=0.006**	**0.14**	***p*=0.03**	−0.03	p=0.71	0.36
Plastic surgery	500	**0.44**	***p*<0.001**	**0.24**	***p*=0.01**	0.04	p=0.48	0.02	p=0.86	0.10	p=0.22	0.51
Orthopedic surgery	2,899	**0.33**	***p*<0.001**	**0.14**	***p*=0.001**	**0.09**	***p*<0.001**	**0.07**	***p*=0.009**	**0.16**	***p*<0.001**	0.41
Thoracic/cardiac Surgery	747	**0.38**	***p*<0.001**	0.01	p=0.90	0.07	p=0.29	0.07	p=0.06	**0.15**	***p*<0.001**	0.42
Surgery general	1,763	**0.32**	***p*<0.001**	0.10	p=0.07	**0.12**	***p*=0.006**	0.08	p=0.05	**0.15**	***p*<0.001**	0.39

†Simultaneous partial correlations are from a model that included patient-level control variables (time period of doctor visit, gender, age, education, general health, mental health, access to care, coordination of care, and helpfulness of office staff)
R^2= 0.71
*Cells for which p< 0.05 appear in **boldface***

was especially important for plastic surgery (r=0.44), but much less so for interventional radiology (r=0.07).

DISCUSSION

While specialty care is sometimes viewed as purely technical, there is evidence that doctor communication strongly predicts patients' overall ratings of specialists.[10,11,45,46] This study extends these findings in demonstrating that the aspect of communication most strongly related to the overall physician rating for most specialties was the physician showing respect.

We also found that three of the five measured aspects of doctor communication—shows respect, easy-to-understand instructions, and spends enough time—vary by specialty in the extent to which they predict overall physician ratings, suggesting that patients value these aspects of communication differently depending on the type of specialty care they are seeking.

The patterns of variation are consistent with the nature of the specialty care. For example, the especially high importance of respect for plastic surgery patients may reflect vulnerability that such patients feel in that setting. Easy-to-understand instructions may be especially important in geriatric medicine because of cognitive limitations of some older patients and in pulmonary disease because of the inherent complexity of the necessary instructions. Interventional radiology involves very specialized procedures and requires that extensive information be conveyed to patients; accordingly, we see greater importance of time than respect in this setting. The substantial importance of showing respect, listening carefully, and spending enough time for rheumatology may reflect that specialty's long-term doctor–patient relationships.

These results have different implications for clinical practice, QI, and for improving the measurement and reporting of patient ambulatory experience with specialists. QI initiatives by physician practices must understand and work with underlying care processes that influence CAHPS scores, whereas for simplicity and optimal measurement, pay-for-performance systems and other external measurement systems only need to focus on the CAHPS domains themselves. These analyses suggest that specialist pay-for-performance initiatives should focus on showing patients respect.

For QI efforts by physician practices, the varying importance of specific aspects of communication also suggests that specialists should target the aspects of communication that are most important for that specialty, given the daunting number of physician communication interventions vying for specialists' limited time.[47] Nevertheless, the consistent importance of physicians showing respect across all specialties suggests that it should be a QI target for all specialties. Physicians showing respect in ways that patients understand may have additional benefits, such as increasing patient comfort with disclosing sensitive information and greater patient adherence to treatment.

Hardee et al. (2008) suggested that physicians foster respect by reinforcing a patient's dignity and notes that physicians should be sensitive to patients' perspectives and health beliefs and express genuine curiosity about them as individuals. Providers can demonstrate respect for what the patient has to say by eliciting the patient's perspective ("habit 2" of the Four Habits model[48]):

- Ask for the patient's ideas about his or her illness ("What do you think might be causing this problem?" "What worries you the most about this?")
- Elicit specific requests from the patient ("How might you and I work together to solve this problem?" "I see you've been downloading information from the Internet. Tell me what you've come up with so far, and I'll share my thoughts with you.")
- Explore the impact on the patient's life ("How is this affecting your ability to get through your day?")

With regards to the aspects of communication whose importance varies more across specialties, practices need to understand the workflow and care processes that influence the important aspects of doctor–patient communication for their specialty. Care delivery interventions and training aimed at influencing communication with the patient (including all physicians, nurses and other clinical staff) should emphasize the most influential and relevant aspects of communication for that specialty. For example, easy-to-understand instructions may need particular emphasis for geriatric medicine (r=0.26), pulmonary disease (r=0.21), gastroenterology (r=0.21), and interventional radiology (r=0.19).

Since what patients perceive as good physician communication and respectful treatment may vary by patient demographics,[9] physician training should take a multicultural perspective,[49] especially given that institutional commitment to cultural sensitivity is associated with better overall performance and smaller disparities in patient experience.[50]

Reporting CG-CAHPS survey results as composites assumes that items within composites have similar relevance to different patient subgroups and recognizes the need to minimize cognitive burden in top-level data presentations. Our findings suggest that providing an optional drill-down that emphasizes the doctor communication items that are most important to a particular specialty might lead to better matching of patients to specialists. It may not be obvious to patients, for example, that their experiences with a pulmonologist or gastroenterologist might depend on these specialists' ability to provide easy-to-understand instructions. Further research could explore the value of item-level reporting to consumers.

This study has several limitations. While the response rates are similar to those for other surveys of outpatient and

inpatient experience,[51,52] and response rates are only weakly associated with non-response bias in well-conducted probability samples,[53] the possibility of non-response bias remains. Non-respondents tend to be less healthy and less positive in their evaluations of health care.[54,55] Nonetheless, such bias tends to be minimized in CAHPS surveys when case-mix adjustment is employed,[55,56] and while overall mean ratings may be overestimated, bias that differently affects the partial correlations by specialty that are the focus of this work is especially unlikely. Similarly, patient reports about care are potentially subject to social desirability pressures; this tendency is greater for interviewer-administration than the self-administered mode used in this study. There is also no reason to expect socially desirable responding to differentially affect the individual CAHPS communication items in a way that varies by specialty and thus biases the reported correlations.

In addition, the observed patterns may to some extent reflect demographic differences in the physicians practicing various specialties, rather than differences inherent in the specialties themselves; nevertheless, such demographic differences are more likely to affect mean scores by specialties than the correlations of communication with the overall physician rating. Because we studied only a single medical group, our findings may in some way be specific to the location or culture of that group. Nevertheless, the medical group studied is very large, with numerous specialties and specialists, and serves a very ethnically diverse international patient population. Finally, caution is warranted in inferring causal direction from this cross-sectional data.

Despite these limitations, these results have clear implications for QI efforts, pay-for-performance initiatives, and improving CAHPS reporting of experiences with specialists. Interventions should emphasize respectful treatment of patients for all specialists, and tailored interventions should focus on the particular aspects of communication most valued by those seeking a given form of specialty care. In addition, these findings highlight the potential to better inform patients in their physician choices by focusing their attention on the aspects of communication that may matter most to patients seeking similar care.

The importance of provider respect for patients suggests a need for additional research to identify provider behaviors that convey respect to patients, such as qualitative interviews with patients of both PCPs and a variety of specialists and interviews with their physicians about their specific communication behaviors.[57] A randomized longitudinal test of a communication intervention might follow.

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