Use of Public Performance Reports

A Survey of Patients Undergoing Cardiac Surgery

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Context.—Publicly released performance reports ("report cards") are expected to foster competition on the basis of quality. Proponents frequently cite the need to inform patient choice of physicians and hospitals as a central element of this strategy.

Objective.—To examine the awareness and use of a statewide consumer guide that provides risk-adjusted, in-hospital mortality ratings of hospitals that provide cardiac surgery.

Design.—Telephone survey conducted in 1996.

Setting.— Pennsylvania, where since 1992, the Pennsylvania *Consumer Guide to Coronary Artery Bypass Graft [CABG] Surgery* has provided risk-adjusted mortality ratings of all cardiac surgeons and hospitals in the state.

Participants.—A total of 474 (70%) of 673 eligible patients who had undergone CABG surgery during the previous year at 1 of 4 hospitals listed in the *Consumer Guide* as having average mortality rates between 1% and 5% were successfully contacted.

Main Outcome Measures.—Patients' awareness of the *Consumer Guide*, their knowledge of its ratings, their degree of interest in the report, and barriers to its use.

Results.—Ninety-three patients (20%) were aware of the *Consumer Guide*, but only 56 (12%) knew about it before surgery. Among these 56 patients, 18 reported knowing the hospital rating and 7 reported knowing the surgeon rating, 11 said hospital and/or surgeon ratings had a moderate or major impact on their decision making, but only 4 were able to specify either or both correctly. When the *Consumer Guide* was described to all patients, 264 (56%) were "very" or "somewhat" interested in seeing a copy, and 273 (58%) reported that they probably or definitely would change surgeons if they learned that their surgeon had a higher than expected mortality rate in the previous year. A short time window for decision making and a limited awareness of alternative hospitals within a reasonable distance of home were identified as important barriers to use.

Conclusions.—Only 12% of patients surveyed reported awareness of a prominent report on cardiac surgery mortality before undergoing cardiac surgery. Fewer than 1% knew the correct rating of their surgeon or hospital and reported that it had a moderate or major impact on their selection of provider. Efforts to aid patient decision making with performance reports are unlikely to succeed without a tailored and intensive program for dissemination and patient education.

JAMA. 1998;279:1638-1642

INFORMATION on the quality of care provided by physicians, hospitals, and health plans has traditionally been collected for internal quality assurance and has almost always remained confidential.[1] However, the last decade has seen explosive growth in the publication of reports on the quality of care.[2] Large-scale purchasers of health care services have driven the process, but state health agencies and traditional accrediting bodies are now demanding that health care providers furnish performance data for public use.[3,4]

Public performance reports are intended to guide patients' selection of providers, aid purchasers in contracting decisions, and stimulate quality improvement among providers. Prior research suggests that providers change their behavior in various ways in response to public reporting,[5-7] but much less is known about the ways consumers use performance data.[8,9] In spite of this, national consumer publications such as *Consumers Digest*,[10] *U.S. News and World Report*,[11,12] and *Newsweek*[13] now publish rankings of health plans and hospitals on patient satisfaction and quality of care. Both the Agency for Health Care Policy and Research[14] and the Health Care Finance Administration[15] have launched major programs to develop, evaluate, and disseminate quality measures to inform consumers selecting health plans and other medical care services.

The Pennsylvania Health Care Cost Containment Council has been at the forefront of this trend in the collection, analysis, and reporting of hospital and provider-specific data on cardiac surgery since 1992. The agency regularly publishes and disseminates risk-adjusted mortality rates on every Pennsylvania hospital, surgeon, and surgical group providing coronary artery bypass graft (CABG) surgery in its *Consumer Guide to Coronary Artery Bypass Graft Surgery*.[16-19] The agency distributed 15 000 copies of the first and second volumes of the *Consumer Guide* to hospitals, surgeons, public libraries, business groups, legislators, and the media.[20] It is available free to any individual who requests it. Public release of the *Consumer Guide* has received extensive media coverage.

Cardiac surgery is a dramatic event, frequently elective, with a significant operative mortality rate. Previous studies have shown that mortality rate variations are related to the quality of care.[21-26] Thus one might expect that patients or their advisors would be particularly motivated to use the reported data. We examined use of the Pennsylvania *Consumer Guide* by patients who underwent CABG surgery at selected hospitals.

METHODS

Sample

Forty-one Pennsylvania hospitals provide CABG surgery. Volume 4 of the *Consumer Guide* reported that 3 hospitals had lower and 5 had higher than expected mortality rates. We selected 4 hospitals that performed at least 400 operations within 1 year that are located in different regions of the state and that were willing to participate in our study.

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At each hospital, we asked individual surgeons or surgical groups to participate. Eighteen of 24 practicing surgeons agreed to participate. Participating surgeons performed 86% of all the CABG procedures in the 4 hospitals.

The *Consumer Guide* bases its rating on a hospital's in-hospital mortality rate relative to its expected mortality rate.[7] Expected mortality rates are derived from clinical data describing the patients' preoperative severity of illness. During the year immediately prior to our survey, the 4 study hospitals received 3 distinct *Consumer Guide* ratings: 2 had a lower than expected mortality, 1 had higher than expected mortality, and 1 was within the expected mortality range. Similar to the range of hospitals statewide, the study hospitals' unadjusted in-hospital mortality rates ranged from 1% to 5%.

Each participating cardiac surgeon or group provided a list of patients who had undergone cardiac bypass surgery between July 1995 and March 1996 — the months following the June 1995 public release of volume 4 of the *Consumer Guide*. The overall sample included 1140 cardiac surgery patients. After excluding patients known to have died, we randomly selected 200 patients from each institution. To eliminate duplicate entries at1 hospital, we adjusted each hospital's sample to 196 patients. Human research review committees at each hospital granted permission to survey patients.

Survey Design

Using patient focus groups, expert advice, and formal pretesting, we developed a telephone survey to assess patients' perception of their decision making prior to surgery. The survey assessed 4 issues:

1. To what extent patients were aware of the *Consumer Guide* before or after they underwent cardiac surgery, and whether characteristics of the patients or their hospitals were associated with such awareness. Specifically, we described the *Consumer Guide* and then asked, "Have you heard of this booklet?"; "Have you ever seen a copy of this booklet?"; and "Did you become aware of it before or after your operation?" We collected information on patients, including age, sex, education, income, marital status, self-reported health status, type of insurance coverage, length of time with heart disease, and number of prior coronary catheterizations. We also asked respondents which of 3 possible choices they considered most important: choice of hospital, choice of surgeon, or choice of surgical group.

2. To what extent they used the *Consumer Guide*. We asked if they knew how the *Consumer Guide*'s categorical mortality rating had ranked their hospital, surgical group, or surgeon and whether they discussed the mortality rating with physicians or other health professionals.

3. The level of general interest they had in performance reports such as the *Consumer Guide*. We developed 3 measures of patient interest in performance reports. First, we described the content of the *Consumer Guide* to all patients, even those who had already seen it. We then ascertained their level of interest in the *Consumer Guide*. We posed a scenario in which patients needed another CABG operation and asked whether they would change surgeons if the surgeon they had intended to use was reported to have had more deaths than the average surgeon in the previous year. We also asked about their willingness to pay ($0, $5, $10, $20, $50, $100) for a copy of the *Consumer Guide*.

4. Identify the constraints or barriers limiting patients' opportunity to use performance reports. We inquired about 5 potentially important constraints: time, distance to the hospital, opportunity to leave the hospital between the decision to operate and the actual operation, cost, and restrictions imposed by insurance companies or health plans. Specifically, we asked how many days passed between the decision that they needed surgery and the actual operation and whether this was enough time to learn about the surgeon and hospital. We asked whether they knew of other hospitals that performed CABG surgery within a "reasonable distance" of home as well as how important it was to them to undergo cardiac surgery at a hospital near home. We asked patients whether the decision to operate was made while they were in the hospital and whether they had remained an inpatient during the time between the decision and the operation. We asked, "Did the cost of the operation affect your choice?" We also asked if restrictions by insurance influenced their key choices.

Data Collection and Analysis

Telephone interviews with patients were conducted from June through December 1996 by Datastat (Ann Arbor, Mich). The statistical significance of differences in responses was assessed by a χ^2 test for binary response items and by a Wilcoxon rank sum test for pairwise comparisons of ordinal scaled responses. To evaluate the significance of associations between sociodemographic characteristics and awareness of the *Consumer Guide*, we calculated odds ratios (ORs) and 95% confidence intervals (CIs). Two-tailed P values are reported for all comparisons. More than 95% of respondents answered each of the items with the exception of the query about income (80%). Nonrespondents to specific questions were excluded from the analysis of those questions.

RESULTS

Response Rates and Sample Characteristics

Of the 784 patients we attempted to contact, we completed interviews with 474 (60%). Among the original cohort, 111 patients (14.2%) could not complete the survey: 38 had died, 64 were too disabled, 7 had language incompatibilities, and 2 failed to recall having had an operation. Another 137 otherwise eligible patients (20.3%) refused participation, and 62 patients (9.2%) could not be contacted. The response rate among eligible patients was 70.4% (range, 68.7%-74.0% among the participating hospitals).

Characteristics of the respondents appear in Table 1. Comparing the frequency of each characteristic across the 4 hospitals, respondents differed in education levels ($P<.01$), in number of days between deciding an operation was needed and undergoing the operation ($P=.03$), and in the proportion reporting the following sources of payment for the operation: private insurance ($P=.02$), Blue Cross/Blue Shield ($P=.03$), and health maintenance organization ($P<.01$). Respondents from different hospitals also varied with respect to the factor most influencing their choice (hospital vs surgical group vs surgeon) ($P<.01$). Respondents were similar with respect to age, sex, marital status, self-reported health status prior to surgery, income, number of prior catheterizations, and length of time with heart disease. They were also similar in the proportion of those reporting that Medicaid or Medicare paid in part for the operation.

Awareness, Knowledge, and Use of the *Consumer Guide*

Table 2 summarizes the number and proportion of patients reporting awareness, knowledge, and use of the *Consumer Guide*. Ninety-three of the patients (20%) were aware of the *Consumer Guide*, and 56 (12%) of those said they knew of it prior to their operation. Two thirds of these patients (n=37) had only heard of the guide, while one third (n=19) had actually seen a copy. Eighteen (4%) reported knowing the hospital's categorical mortality rating (higher than, lower than, or within the expected number of deaths). Eleven (2%) reported that the information influenced the choice of hospital, but only 4 of these knew the correct categorical rating, which amounted to less than 1% of all respondents. Only 6 (1%) reported discussing the ratings with a physician.

Similarly, very few patients reported knowing the *Consumer Guide*'s categorical rating of the surgeon or surgical group (n = 7). Four patients claimed that the *Consumer Guide* was a major or

Table 1.—Characteristics of the Study Population*

	No. of Respondents From Hospital				
	All Respondents	1	2	3	4
Total sample	**784**	196	196	196	196
Ineligible	**111**	30	23	22	36
Completed surveys	**474**	114	128	121	111
Age, y					
<55	69 (15)	17 (15)	15 (12)	17 (14)	20 (18)
55-64	122 (26)	27 (24)	36 (28)	30 (25)	29 (26)
65-74	203 (43)	55 (48)	50 (39)	52 (43)	46 (41)
≥75	80 (17)	15 (13)	27 (21)	22 (18)	16 (14)
Female	125 (26)	29 (25)	31 (24)	31 (26)	34 (31)
Married	361 (76)	86 (75)	96 (75)	94 (78)	85 (77)
Health status prior to operation					
Excellent or very good	163 (35)	42 (37)	42 (33)	42 (35)	37 (34)
Good	163 (35)	31 (27)	46 (37)	48 (40)	38 (35)
Fair or poor	143 (30)	40 (35)	38 (30)	31 (26)	34 (31)
Education†					
0-11 years	94 (20)	13 (12)	25 (20)	28 (23)	28 (25)
High school graduate	176 (37)	35 (31)	48 (38)	51 (42)	42 (38)
Some college, college graduate, advanced degree	200 (43)	65 (58)	53 (42)	42 (35)	40 (36)
Income					
<$15 000	76 (21)	11 (12)	23 (24)	20 (22)	22 (27)
$15 000-$30 000	114 (32)	30 (33)	30 (32)	31 (34)	23 (28)
$>30 000	168 (47)	49 (54)	41 (44)	41 (45)	37 (45)
Length of time with heart disease, y					
<1	214 (51)	45 (45)	60 (55)	59 (58)	50 (48)
1-5	79 (19)	17 (17)	24 (22)	19 (19)	19 (18)
>5	123 (30)	38 (38)	26 (24)	24 (24)	35 (34)
No. of prior catheterizations					
0	34 (7)	12 (11)	5 (4)	10 (8)	7 (7)
1	249 (54)	61 (54)	63 (50)	63 (53)	62 (58)
≥2	181 (39)	41 (36)	57 (46)	46 (39)	37 (35)
Days between decision to operate and operation†					
<3	178 (38)	55 (48)	46 (36)	40 (33)	37 (33)
3-7	157 (33)	35 (31)	43 (34)	45 (37)	34 (31)
>7	139 (29)	24 (21)	39 (30)	36 (30)	40 (36)
Insurance coverage					
Medicare	245 (53)	55 (50)	63 (51)	67 (55)	60 (55)
Medicaid	51 (11)	8 (7)	20 (17)	12 (10)	11 (10)
HMO†‡	85 (19)	29 (27)	29 (25)	14 (12)	13 (12)

*Hospitals 2 and 3 had a lower than expected mortality rating, hospital 1 had a within-expected mortality range rating, and hospital 4 had a higher than expected mortality rating, according to volume 4 of the *Consumer Guide to CABG Surgery*. Values are expressed as number (percentage).
†$P<.05$ for comparison across hospitals.
‡HMO indicates health maintenance organization.

Table 2.—Awareness, Knowledge, and Use of the *Consumer Guide* (N = 474)

	No. (%)
Aware of *Consumer Guide*	93 (20)
Aware prior to surgery	56 (12)
Exposure to *Consumer Guide*	
Heard of it	37 (8)
Seen a copy	19 (4)
Report knowledge of hospital ratings	18 (4)
Report that information was a major or moderate influence in choice of hospital	11 (2)
Report correct rating of hospital	4 (1)
Report knowledge of surgeon or surgical group rating	7 (2)
Report that information was major or moderate influence in choice of surgeon or surgical group	4 (1)
Report correct rating of surgeon or surgical group	4 (1)
Discussed *Consumer Guide* with surgeon or other physician	6 (1)

moderate influence on the choice of surgeon or knew the correct categorical rating of the surgeon or surgical group. Altogether, only these 4 patients reported that the *Consumer Guide* was a major or moderate influence on the choice of hospital or surgeon and reported the correct categorical mortality rating of the hospital, surgeon, or surgical group.

Factors Influencing Awareness

Table 3 displays patient characteristics correlated with awareness of the *Consumer Guide* prior to surgery. Patients were significantly more likely to report awareness of the *Consumer Guide* prior to the operation if they were younger than 65 years (OR, 2.00; CI, 1.14-3.51), had attended college (OR, 2.10; CI, 1.19-3.70), reported poor or fair preoperative health status (OR, 1.88; CI, 1.06-3.33), or reported having heart disease for more than 1 year (OR, 1.91; CI, 1.05-3.50). Men were somewhat more likely than women to be aware of the *Consumer Guide* prior to surgery (OR, 2.03; CI, 0.96-4.27), and patients with incomes greater than $30 000 were also somewhat more likely to be aware (OR, 1.81; CI, 0.97-3.38). Rates of awareness of the *Consumer Guide* did not differ significantly among patients operated on in hospitals with categorical ratings higher than, lower than, or within the expected mortality range, nor were they related to whether the patient had previously been admitted to the same hospital or to the number of days between the decision to operate and the date of the operation. In a logistic regression analysis with "being aware of the *Consumer Guide* prior to surgery" as the dependent variable, younger age ($P<.01$), higher attained education level ($P<.01$), and higher health status ($P=.02$) were statistically significant predictors of "being aware" in the final model.

Patient Interest

Table 4 shows findings on 3 measures of patient interest in the *Consumer Guide*. After the content of the *Consumer Guide* was described to all patients, 264 (56%) reported being somewhat or very interested in seeing a copy if they required another operation. Younger patients ($P=.0002$), those having some college education ($P=.003$), and those who were aware of the *Consumer Guide* prior to surgery ($P<.05$) were most likely to be somewhat or very interested in seeing a copy if they needed another operation. There was no significant difference in level of interest between patients who were and were not aware of the *Consumer Guide* at the time of the survey.

Most patients reported that they probably or definitely would change surgeons if they learned that their surgeon had a higher than expected mortality rate in the previous year. Nearly one third of patients said they would definitely change surgeons under this scenario. Nevertheless, one third of the patients reported that they would not be willing to pay any money to see a copy of the *Consumer Guide*. Thirty-five percent reported that they would be willing to pay at least $20 to see a copy. Only 8% said they would be willing to pay $50 or more.

Barriers Affecting Consumer Choice

Table 5 provides data on selected barriers to consumer choice for cardiac surgery patients. Thirty-eight percent had fewer than 3 days to decide on a hospital or surgeon before their operation. Only 12% of all the patients surveyed perceived that they had less than enough time to learn about the surgeon and hospital. However, 19% of the patients with fewer

Table 3.—Percentage of 474 Patients Reporting That They Were Aware of the *Consumer Guide* Before Their Most Recent Open Heart Procedures

		Aware Before	
	No. (%)	Odds Ratio	95% Confidence Interval
Overall	56 (12)	. . .	. . .
Age, y*			
<65	31 (16)	2.00	1.14-3.51
≥65	25 (9)		
Sex†			
Male	47 (14)	2.03	0.96-4.27
Female	9 (7)		
Education*			
Some college, college graduate, or advanced degree	33 (17)	2.10	1.19-3.70
High school graduate or less	23 (9)		
Income†			
>$30 000	28 (17)	1.81	0.97-3.38
≤$30 000	19 (10)		
Health status prior to operation*			
Fair or poor	24 (17)	1.88	1.06-3.33
Good, very good, or excellent	32 (10)		
Had prior admission to hospital at which CABG was performed‡			
Yes	23 (13)	1.14	0.64-2.01
No	32 (11)		
Hospital rated higher than expected mortality			
Yes	17 (15)	1.51	0.82-2.79
No	39 (11)		
Length of time with heart disease, y*			
≥1	32 (16)	1.91	1.05-3.50
<1	19 (9)		
Days between decision and operation			
<3	21 (12)	1.00	0.56-1.77
≥3	35 (12)		

*$P<.05$.
†$P = .06$.
‡CABG indicates coronary artery bypass graft.

Table 4.—Measure of Cardiac Surgery Patient Interest in Consumer Information on Cardiac Surgery (N = 474)

	No. (%) of Respondents
Patient's declared interest in obtaining the *Consumer Guide*	
Don't know	26 (6)
Not at all interested	133 (28)
Not very interested	51 (11)
Somewhat interested	106 (22)
Very interested	158 (33)
Willingness to change surgeons	
Don't know	78 (16)
Definitely would not change	51 (11)
Probably would not change	72 (15)
Probably would change	127 (27)
Definitely would change	146 (31)
Willingness to pay, $	
0	149 (33)
5	64 (14)
10	80 (18)
20	125 (27)
50	20 (4)
100 or more	18 (4)

Table 5.—Barriers to Use of Performance Reports (N = 474)

Patient-Reported Barriers to Use of Performance Reports	No. (%) of Respondents
Time <3 days between decision to operate and procedure	178 (38)
"Less than enough" time to learn about surgeon and hospital	58 (12)
No hospital in a reasonable distance	157 (33)
Distance "somewhat important" or "very important" in choosing a hospital	311 (66)
Remained in same hospital between decision to operate and operation (if inpatient at time of decision to operate [n = 241])	205 (43)
That cost affected choice	8 (2)
Managed care or insurance restriction	19 (4)

than 3 days to decide perceived that they had less than enough time, while 7% of the patients who had more than 7 days perceived that they had less than enough time ($P<.01$). Thirty-three percent of patients reported that there was no alternative hospital within a reasonable distance. Sixty-six percent of all the patients considered distance somewhat or very important in determining their choice of hospital, and these patients were more likely to report that there was no alternative CABG surgery hospital within a reasonable distance of their home (38% vs 23%, $P<.01$).

Forty-three percent of patients remained in the same hospital from the time it was decided that they would need an operation until the operation was performed. Only 2% reported that cost played any role in the choice of hospital, and only 4% perceived any restriction imposed by managed care insurance.

COMMENT

We are unaware of any previous studies of patient use of outcome data to choose physicians and hospitals.[20] Because of the extensive publicity given to the Pennsylvania *Consumer Guide to Coronary Artery Bypass Graft Surgery*, its 5-year track record, the salience of a major heart operation, and the 5-fold variation in mortality rates among hospitals, we expected that the *Consumer Guide* would be widely used by patients selecting providers for CABG surgery. We found just the opposite. It is striking that even among those who were aware of the *Consumer Guide* before surgery, almost no one used it in decision making.

What could account for the lack of awareness and use of the *Consumer Guide* among cardiac patients? First, referring physicians are a very important source of information about the quality of surgical specialists. Our previous survey of cardiologists[7] and a similar study conducted in New York State[27] showed that very few of these providers discussed the *Consumer Guide* with patients, citing skepticism about the accuracy of its methods. The present survey confirms that these discussions are indeed rare.

As in New York State, the process for dissemination relies primarily on media, such as television and newspapers. Unlike a hospital quality reporting program in Cleveland, Ohio, the *Consumer Guide* is free. However, efforts to distribute it to patients appear to have been inadequate. It is possible that budget constraints, criticism of technical aspects of the reports, and political pressure from hospitals and physicians in Pennsylvania have deterred more aggressive dissemination of the *Consumer Guide* by the Pennsylvania Health Care Cost Containment Council. However, poor distribution alone cannot explain our observation that very few patients who were aware of the *Consumer Guide* ratings were able to comprehend and make use of them accurately.

A significant number of patients face serious constraints in their ability to seek and use the *Consumer Guide*. We found that most patients have a limited amount of time for decision making. Many perceived that there were no alternative cardiac surgery hospitals within a reasonable distance despite the fact that the hospitals we studied were relatively near other hospitals that provide CABG surgery. Finally, some patients may be skeptical of the value of such data. A recent survey of Americans' use of quality data on health plans found that the public values anecdotal reports from such trusted sources as relatives and friends more than objective reports from such sources as the government and the news media.[28]

Our study provides conflicting information about patients' interest in the sorts of quality data that are frequently suggested to be useful to consumers. Although few patients used the *Consumer Guide*, a much larger number expressed interest in seeing a copy when it was described to them. One third of patients said they would definitely switch surgeons if they found that their surgeon had a higher than expected mortality rate. On the other hand, one third of them were unwilling to pay any amount to see the *Consumer Guide*, and most were unwilling to pay more than $20. Patients may view such information as a public good that should be inexpensively available.

Of course, public reporting of performance data may help improve quality of care even if patients do not use the data in selecting providers. Both employers and insurers may use such data in contracting decisions. Hospitals may use the reports to select physicians and curtail physician privileges.[29,30] Health care providers may use the reports to identify specific clinical areas for quality improvement efforts and gauge their success.[6] Nevertheless, providing data on quality directly to consumers to inform them as they choose providers is a notion with very wide political and popular appeal.[15]

Our study has several limitations. We surveyed patients from only 4 hospitals. These hospitals or the patients they serve may differ from other hospitals or patients. However, if willingness to participate in our study signals a more sympathetic attitude toward the *Consumer Guide*, then estimates of awareness and use might be even lower in other hospitals or patient groups. We surveyed patients after surgery. Some respondents may have forgotten their exposure to the *Consumer Guide* or may have reported that they were aware before surgery when in fact they only learned of the *Consumer Guide* afterward. Although we surveyed patients relatively soon after surgery, we cannot exclude the possibility that recall bias may have artificially lowered our estimate of awareness and use of the *Consumer Guide* among cardiac surgery patients. Another limitation is the inherent challenge of interpreting the responses of consumers regarding their interest in a publication that few have directly seen. We also had limited power to examine differences among hospitals. Our study had a power of 0.80 to detect a 15% absolute difference in rates of awareness (10% vs 25%) among patients at the 4 hospitals. Finally, our design precluded an evaluation of patients who considered but did not have surgery or who went to cardiac surgery centers outside of Pennsylvania after reading the *Consumer Guide*.

Despite these limitations, we found formidable evidence that public reporting of mortality outcomes in Pennsylvania has had virtually no direct impact on patients' selection of hospitals or surgeons. Nevertheless, a substantial number of patients expressed interest in data on mortality outcomes and claimed that they would use such reports in their decision making. Clearly, measurement and public reporting of physician and hospital performance is only a prelude to serving this interest. Existing quality measurement efforts have been criticized for methodological reasons.[31,32] Although the methodological barriers to reliable and valid performance measurement are substantial, delivering performance information to patients in an effective and usable format could prove even more formidable. Further efforts to develop quality information for general public use should explore the use of Internet-based and other media for communicating quality information. Providers may also play an important role. Without a tailored and intensive program for dissemination and patient education, efforts to aid patient decision making with performance reports are unlikely to succeed.

This work was supported by a grant from the Henry J. Kaiser Family Foundation. Dr Schneider was the recipient of a National Research Service Award (5T 32 PE 11001-8) from the Department of Health and Human Services.

The authors wish to thank Floyd J. Fowler, PhD, for invaluable assistance with the survey's design; D. Lynn Morris, MD, and Mary Ann Wertan, RN, for assistance with survey pretesting; staff at Datastat for diligent management of survey fieldwork; Matthew Liang, MD, MPH, for thoughtful comments on an earlier version of the manuscript; and the surgeons, hospital staff, and patients whose gracious cooperation made this research possible.

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