The Effect of Publicly Reporting Hospital Performance on Market Share and Risk-Adjusted Mortality at High-Mortality Hospitals

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BACKGROUND. It is unclear whether publicly reporting hospitals’ risk-adjusted mortality affects market share and mortality at outlier hospitals.

OBJECTIVES. To examine hospitals’ market share and risk-adjusted mortality from 1991 to 1997 at hospitals participating in Cleveland Health Quality Choice (CHQC).

RESEARCH DESIGN. Time series.

SUBJECTS. Changes in market share were examined for all patients hospitalized with acute myocardial infarction, heart failure, gastrointestinal hemorrhage, obstructive pulmonary disease, pneumonia, or stroke at all 30 nonfederal hospitals in Northeast Ohio. Patients insured by Medicare were used to examine changes in mortality.

MEASURES. Trends in market share (proportion of patients with the target conditions discharged from a given hospital) and risk-adjusted 30-day mortality.

RESULTS. CHQC identified several hospitals with consistently higher than expected mortality. The five hospitals with the highest mortality tended to lose market share (mean change −0.6%, 95% CI −1.9–0.6), but this was not significant. The only outlier hospital with a large decline in market share had declining volume for 2 years before being declared an outlier. Risk-adjusted mortality declined only slightly at hospitals classified by us as “below average” (−0.8%; 95% CI, 2.9–1.8%) or “worst” (−0.4%; 95% CI −2.3–1.7). However, risk-adjusted mortality at one hospital changed from consistently above expected to consistently below expected shortly after first being declared an outlier.

CONCLUSION. Despite CHQC’s strengths, identifying hospitals with higher than expected mortality did not adversely affect their market share or, with one exception, lead to improved outcomes. This failure may have resulted from consumer disinterest or difficulty interpreting CHQC reports, unwillingness of businesses to create incentives targeted to hospitals’ performance, and hospitals’ inability to develop effective quality improvement programs.

Key words: Quality of health care; quality indicators; health care; benchmarking; mortality; hospital mortality; consumer participation; hospitals. (Med Care 2003;41:729–740)

In 1989, businesses, hospitals, and physicians in a four-county area surrounding Cleveland formed a unique, voluntary partnership, called Cleveland Health Quality Choice (CHQC) to institute a “health care market reform program that would reliably and objectively measure and compare patient outcomes. . .” Information on hospitals’ risk-adjusted mortality rates and risk-adjusted

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This research was supported by grant number R01 HS09969 from the Agency for Health care Research and Quality.

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length of stay was publicly reported while the CHQC program was operational between 1991 and 1999. The strategy behind CHQC was clearly articulated:

“If Cleveland businesses can reliably identify the highest quality, cost-effective hospital services, then this information can be used to encourage their employees to choose these institutions for their hospital care. In turn, with the incentive of more patient volume and reliable comparative information, hospitals will strive to maintain or improve their quality of care, while controlling their costs.”

The CHQC program identified hospitals whose risk-adjusted length of stay, satisfaction, or risk-adjusted mortality rates were higher than expected. Public reports of hospital performance were published in the main local newspaper and made available in pharmacies and over the internet. Nevertheless, claiming that employer groups and other health care purchasers were not using this information for selective contracting, several hospitals withdrew from the program in 1999, stating that the cost of participation was not justified. Their withdrawal ultimately led to the demise of the program, although there was no objective evidence available at the time on whether CHQC was actually meeting its goals.

Although many individuals and groups have advocated publicly reporting hospital outcomes, relatively few studies have examined whether publicly reporting performance actually affects hospital volume or outcomes. Schneider and Epstein found that 87% of cardiology in Pennsylvania reported that public reports had minimal or no influence on their referrals for coronary artery bypass grafting (CABG). Only 12% of patients who had undergone CABG in Pennsylvania were even aware of the existence of public reports. Patients in New York State who were enrolled in managed care plans were actually less likely to use hospitals with lower mortality rates for CABG than patients with private fee-for-service, despite the fact that hospital mortality rates had been publicly available for a decade.

In contrast, in a survey of cardiologists in New York State, 38% said published reports on CABG mortality rates “somewhat” or “very much” affected their referral pattern. Publication of an “obstetrics consumer report” for hospitals in Missouri was followed by a rapid increase in car seat programs, nurse educators for breast feeding, and a reduction in the use of cesarean sections. Finally, 30-day mortality after CABG in New York State declined a dramatic 41% between 1989 and 1992 after their public reporting system was instituted. However, other states that did not have public reporting systems in place experienced similar declines, although one study found that the decline in mortality after CABG was greater in New York than for the United States as a whole.

This study had two main goals: First, we sought to examine whether hospitals that were identified as mortality outliers were more likely to lose or gain market share compared with hospitals with average mortality. Observing a change in market share at outlier hospitals would suggest that health care purchasers or patients altered their choice of providers in response to the CHQC mortality data. Second, we examined whether hospitals with higher than expected mortality had greater declines in 30-day mortality over time compared with hospitals with average mortality rates. Observing a decline in mortality at outlier hospitals would suggest that the mortality data either led clinicians to improve practice directly or that quality management staff introduced programs to improve care.

Methods

The Cleveland Health Quality Choice Program

Between 1991 and 1997, all 30 nonfederal hospitals in greater metropolitan Cleveland participated in the CHQC program. Every 6 months, hospitals provided the CHQC program with a list of all patients discharged with a principal diagnosis of any one of 6 target medical conditions: acute myocardial infarction (AMI), congestive heart failure (CHF), gastrointestinal hemorrhage (GIH), chronic obstructive lung disease (COPD), pneumonia, and stroke (see previous publication for list of ICD-9 codes). Transfers from other acute care hospital were excluded (< 1%). Detailed clinical information was abstracted from patients’ charts by medical records technicians at each hospital using standard forms and several processes to ensure reliability. These data were used by CHQC to develop disease-specific risk-adjustment models, which were then used to determine hospitals’ observed/expected mortality rates. Data files were provided for this project from the CHQC program. Analyses were conducted using SAS 8.01 (SAS Institute, Cary, NC).
Identification of High-Mortality Hospitals

Every 6 months, CHQC used these models to analyze whether participating hospitals’ observed in-hospital mortality rates were greater than expected at either \( P < 0.01 \) or \( P < 0.05 \), not statistically different than expected, or less than expected at either \( P < 0.01 \) or \( P < 0.05 \). Outlier status was represented in CHQC reports with the following symbols: worse than expected at \( P < 0.01 \), \( \downarrow \); worse than expected at \( P < 0.05 \), \( \downarrow \); better than expected at \( P < 0.05 \), \( \uparrow \); and better than expected at \( P < 0.01 \), \( \uparrow \). Outlier status (ie, whether hospitals’ observed/expected mortality rate was statistically different than 1) was reported for several different outcomes. The first was “general medical diagnoses.” For this, CHQC combined risk-adjusted outcomes for all 6 medical conditions (AMI, CHF, GIH, COPD, pneumonia, and stroke). We used hospital outlier status for general medical diagnoses as our main independent variable for this study. In addition, the CHQC program identified hospital outliers for selected clinical subgroups, including a combined category of “cardiovascular disease” (AMI and CHF combined), a combined category of “respiratory disease” (pneumonia and COPD), and for the four individual diagnoses with adequate numbers of patients and deaths for meaningful analysis (AMI, CHF, pneumonia, and COPD). We repeated all analyses using hospital outlier status for these clinical subgroups. Mortality outliers for stroke and GI hemorrhage were published only during the latter periods, and there were too few outliers for us to conduct analyses.

We searched local libraries and hospitals to obtain the biannual reports published and disseminated by CHQC. For each report from May 1993 through November 1997 (the end of the period for which we had long-term mortality data available), we identified all hospitals that CHQC publicly labeled as high or low mortality outliers for (1) general medical conditions, and (2) specific diagnosis subgroups as described above. From these data, we determined the time when a hospital was first identified as an outlier for general medical diagnoses as well as their cumulative outlier status based on the number of times they were identified as an outlier for general medical diagnoses over the entire period. Cumulative outlier status was classified as “below average” if a hospital had observed/expected mortality greater than expected at \( P < 0.05 \) on two occasions or \( P < 0.01 \) once, and “worst” if it had observed/expected mortality greater than expected more frequently than this. The same method was used to classify hospitals as “above average” and “best.” Hospitals that were never identified as having higher than expected or lower than expected mortality were classified as average. Hospitals identified only once as a borderline (\( P < 0.05 \)) high or low mortality outlier were also classified as average because this was likely to be a random event, and we thought a single report would be unlikely to influence patients’ or providers’ actions. This same process was repeated to determine the time a hospital was first identified as an outlier for general medical diagnoses as well as their cumulative outlier status for cardiovascular disease, respiratory disease, AMI, CHF, pneumonia, and COPD.

Changes in Hospitals’ Market Share

We defined market share as the number of discharges for the 6 general medical conditions at a hospital divided by the total number of general medical admissions at all hospitals participating in CHQC. Additional analyses were conducted in which we defined market share based only on admissions for the selected clinical subgroups (eg, admissions for cardiovascular disease). Using the CHQC database, we determined the number of admissions at each hospital for all general medical conditions combined and for the clinical subgroups for each of the 12 six-month CHQC study periods between July 1991 and December 1997 (CHQC did not release data for January to June 1992).

We first examined changes in market share at individual hospitals after a hospital was first identified as an outlier. Market share trends were examined graphically, and no inflection points were found that could be temporally related to when a hospital was first identified as an outlier. We then examined changes in market share over the entire study period in relationship to cumulative outlier status. To determine whether cumulative outlier status affected market share for general medical diagnoses (ie, the proportion of all patients in Cleveland with the 6 target diagnoses who were discharged from an individual hospital) between 1991 and 1997, we conducted linear regression with market share (%) as the dependent variable. Independent variables included main effect terms for cumulative outlier status (best, above average, below average, and worst),
study period (entered as a continuous variable), and interaction terms between outlier status and study period (using the four dummy variables year*worst, year*below average, year*above average, and year*best). Our null hypothesis was that the interaction terms would not be significant (ie, changes in volume over time were not related to whether a hospital was identified as an outlier). Similar analyses were conducted for cardiovascular disease and respiratory disease; the results were similar to those for general medical diagnoses, so they are not presented here.

In addition, we conducted multivariate linear regression models to determine whether market share was different during periods immediately after being reported as an outlier. Market share was entered as a continuous dependent variable. Independent variables included, hospital (random effect), year (entered as a continuous, fixed effect), interaction terms between year and all individual hospital outliers to model temporal trends in market share that were not related to being reported as an outlier, and a series of dummy variables indicating each hospitals’ outlier status at each time point over the study period (ie, higher than expected at P <0.01, higher than expected at P <0.05, lower than expected at P <0.05, and lower than expected at P <0.01, corresponding to the arrows shown in Table 1). The latter set of variables served as our main independent variables to determine whether market share was different during periods immediately after a hospital was reported to be an outlier.

Changes in Hospital’s Risk-Adjusted 30-Day Mortality

The CHQC program did not collect unique patient identifiers that could be used to track mortality after discharge. To track 30-day mortality, we linked CHQC data to MEDPAR files. For this, we restricted our analysis to CHQC patients who had Medicare listed as their primary insurance, which was 57% of all patients with AMI, 78% for CHF, 88% for stroke, 69% for pneumonia, 66% for GIH, and 55% for COPD. We then linked CHQC admissions to corresponding MEDPAR admissions based upon hospital identifier, primary discharge diagnosis, gender, birth month, and birth year. This resulted in an 89% exact, unique match rate. We determined 30-day postadmission mortality using the “Admission to Date of Death Interval” field in the MEDPAR file.

After merging the CHQC and MEDPAR files, separate databases were created for the 6 conditions. Some patients had qualifying admissions in more than one disease category (eg, an admission for AMI and an admission for pneumonia), and both admissions were kept in their respective databases. In addition, some patients had more than one admission for the same primary diagnosis (ie, readmissions). Analyses of mortality rates can be biased if there are differences in readmission rates across hospitals and over time. Therefore, we used a similar methodology to previous studies and selected only an individual’s first admission within the CHQC disease-specific database. We also searched MEDPAR files from 1989 to 1997 and excluded patients who had an admission with the same diagnosis anywhere in the United States in the 2 years before their index admission in CHQC.

The CHQC risk-adjustment models could not be used directly for this study because they were modified periodically between 1991 to 1997, and they used in-hospital mortality as the dependent variable. We therefore developed new logistic regression models of 30-day mortality. The methods for this, including variables, model fit, and calibration, have been published previously.

We conducted analyses of trends in risk-adjusted mortality to answer two specific questions: First, did trends in risk-adjusted mortality between 1991 and 1997 differ for hospitals that were identified as outliers by CHQC compared with those that were not (ie, cumulative outlier status)? For this analysis, logistic regression was conducted with patient vital status 30 days after admission (“30-day mortality”) as the dependent variable. Independent variables included cumulative outlier status (see above), study period (entered as a continuous variable), diagnosis, and diagnosis-specific predicted 30-day mortality as the adjuster for admission illness severity (see above). Similar to the analysis of trends in patient volume, our main independent variables were the interaction terms between outlier status and study period. Analyses were conducted using the SAS GLIM MIX program to adjust for temporal changes in the volume of patients cared for at individual hospitals and to adjust standard errors for the clustering of patients within hospitals. Hospital indicator variables were entered as random effects, and year and patients’ predicted 30-day mortality were entered as fixed effects.
We also analyzed individual outlier hospitals separately. In addition to analyzing trends over the entire study period, we analyzed changes in 30-day mortality after a hospital was first identified as a high-mortality outlier. As before, patients’ vital status 30 days after admission was used as the dependent variable. Diagnosis, diagnosis-specific predicted 30-day mortality, and study period were included as independent variables. We also included a term indicating the number of study periods after the hospital was first identified as an outlier (set equal to zero for all periods before the first report of being an outlier). If the beta coefficient for this term was significantly different than zero, this would indicate that there was a change (ie, an inflection point) in a hospital’s temporal trend in risk-adjusted mortality after being labeled a high-mortality outlier.

Results

Between April 1993 and November 1997, the CHQC program identified several hospitals that had consistently higher than expected mortality (“below average” and “worse” in Table 1) or consistently lower than expected mortality (“above average” and “best”) for all medical diagnoses combined. Most notably, hospitals 9, 13, and 22 had prolonged, consecutive periods of higher than expected mortality, and hospital 12 was consistently better than expected. Based upon mortality rates for general medical diagnoses, a total of 5 hospitals were classified as “worst,” 5 as “below average,” 1 as “above average,” and 2 as “best” (Table 1).

Hospital outlier status (ie, best, above average, average, below average, and worst) was not sig-
significantly related to changes in market share for the 6 medical conditions between 1991 and 1997 (Fig. 1). The five “worst” hospitals tended to lose market share (mean change −0.6%, 95% CI −1.9–0.6), but this was not statistically significant. Similarly, we found no evidence that market share was significantly different during the periods in which a hospital was reported as being an outlier by CHQC. Specifically, during the periods in which hospitals were identified by CHQC as having a higher than expected mortality with $P < 0.01$ significance (represented with a bold down arrow $\triangleright$, see Table 1), the adjusted difference in market share was −0.22 absolute percentage points (95% CI −0.73–0.29; $P = 0.40$) lower than during periods in which the hospitals were not outliers. During the periods in which hospitals were identified by CHQC as having a higher than expected mortality with $P < 0.05$ significance ($\triangleright$, see Table 1), the adjusted difference in market share was 0.21 absolute percentage points higher than for periods in which hospitals were not identified as outliers (95% CI −0.14–0.56; $P = 0.24$).

We also examined individual trends at the three hospitals (9, 13, and 22) with the most consistently poor performance (Fig. 2). Market share at hospital 13 was fairly steady throughout the entire study period. For hospital 22, market share declined from 5.9% to 5.3% after being identified as an outlier, and then rose back to 6.2% after it was no longer identified as an outlier. However, these trends were not statistically significant. Hospital 9 gradually lost market share starting in period 5, which was almost 2 years before the first time that CHQC publicly identified the hospital as an outlier (Fig. 2, broken line). Thus, the start of the decline in market share was not temporally related to any possible adverse publicity from CHQC. Analyses of changes in market share for cardiovascular disease (AMI and CHF combined) and respiratory disease (COPD and pneumonia combined) also showed no significant trends at outlier hospitals.

Hospital outlier status was also not significantly related to changes in risk-adjusted 30-day mortality between 1991 and 1997 (Fig. 3). In 1991, the 30-day mortality rate for the 6 general medical diagnoses combined was 12.2%. Between 1991 and 1997, the absolute change in risk-adjusted 30-day mortality at “average” hospitals was −0.5% (95% CI, −1.8–1.0%). Risk-adjusted mortality declined only slightly at hospitals classified as “below average” (−0.8%; 95% CI, −2.9–1.8%) and at hospitals classified as “worst” (−0.4%; 95% CI −2.3–1.7). Mortality tended to increase at the hospital classified as “above average” and the two hospitals classified as “best.” Most of the increase in mortality for the “best” hospitals was due to changes in the performance of hospital 12. During the study period, hospital 12 changed ownership and subsequently lost much of its key medical staff. It eventually declared bankruptcy in 1999.

When trends were analyzed at individual outlier hospitals, only one hospital (22) showed significant improvement in risk-adjusted mortality after being identified as a high-mortality outlier (Fig. 4). During the first five study periods (1991–1993), observed mortality was consistently greater than expected ($P = 0.03$ by sign test). Between the fourth and fifth study periods, CHQC identified hospital 22 as a high mortality outlier (it was not identified as an outlier until that time because of CHQCs limited power to detect statistical outliers and because of the lag time between collection of the data and reporting). During study periods 6 to 12, observed mortality was consistently equal to or below expectation ($P = 0.008$ by sign test), suggesting that an important improvement occurred shortly after the hospital was first publicly identified as having higher than expected mortality.

There was also no apparent relationship between outlier status and mortality trends when we conducted separate analyses for cardiovascular disease (AMI and CHF combined), respiratory disease (COPD and pneumonia), and the individual medical conditions. However, hospital 22 was again an exception. The first report that separately addressed risk-adjusted mortality for cardiovascular disease was released in June 1994, and hospital 22 was identified as a high-mortality outlier ($P < 0.05$; in subsequent reports it was $< 0.01$). Between 1991 and 1994, hospital 22 had an observed/expected mortality ratio for cardiovascular disease ranging from 1.27 to 1.41. But, for 1995, 1996, and 1997 the observed/expected mortality ratios were 0.99, 0.87, and 0.86, respectively.

**Discussion**

The CHQC program identified several hospitals that had mortality rates that were consistently better or worse than expected. If patients or purchasers were interested in using quality data to make decisions regarding optimal sites to receive medical care, the reports published by CHQC
provided strong data that would discourage people from getting care at high-mortality hospitals. Nevertheless, we find no evidence that hospitals identified as high-mortality outliers lost market share or that hospitals with better than expected mortality gained market share. This is consistent with reports that purchasers did not use the information from CHQC for selective contracting and did not create financial incentives for their employees to use hospitals with the best performance (personal communication, Patrick J. Casey from the Health Action Council of Northeast Ohio). Moreover, our findings suggest that CHQCs public reports of hospital outlier status did not directly affect individuals’ choice of hospitals independently of any actions by their employer.

The CHQC program did not conduct surveys of the public’s awareness of their reports or whether the reports were interpretable. A previous study found that only 12% of patients undergoing CABG in Pennsylvania were even aware of the public reports of surgeons’ and hospitals’ risk-adjusted mortality rates. Thus, the lack of effect of public reporting on market share in our study may merely reflect the fact that we still have limited understanding of how to disseminate information on health care quality to consumers in a way that is understandable and motivates them to act on this information. The CHQC reports were complex, reporting hospitals’ outlier status for multiple outcomes (mortality, length of stay, and satisfaction) and for several different conditions and procedures (general medical diagnoses, specific medical conditions, surgical procedures, intensive care, and obstetric care). Hospitals often performed well in some areas and poorly in others. Although this level of detail may have been desirable for purchasers, it likely posed a daunting task for consumers attempting to digest the information and make health care decisions.

Even if we learn to communicate health care quality information more effectively to consumers, it still may be difficult for reports of hospital performance to influence volume of care for medical conditions. Most admissions for AMI, CHF, GI hemorrhage, COPD, and stroke are emergencies. Patients may have little or no choice but to go to the nearest hospital. Although some patients are initially seen in doctors’ offices before being admitted, it is unlikely that patients’ opinions would affect doctors’ choice of hospital under these circumstances. For reports of hospital quality to affect
market share, the reports probably would have to motivate patients' to change their regular source of care to a doctor affiliated with a higher quality hospital. However, a usual source of care may be a powerful anchor. For example, how often would a patient with stable coronary artery disease be willing to break ties with his physician and seek a new one because the hospital where he might someday be hospitalized with an AMI has a higher than expected mortality? In the case of CHQC, this problem was compounded by the fact that the majority of the very high mortality hospitals (ie, designated by us as “worst”) were located in suburban areas where there was no competitor within reasonable distance (data not shown). Thus, many people had limited ability to seek care at a better hospital that was close to home.

In contrast to our findings for changes in market share, our analyses of the relationship between outlier status and changes in risk-adjusted mortality leave some cause for optimism. One hospital did show dramatic and statistically significant improvements in risk-adjusted mortality shortly after it was first identified by CHQC as a high-mortality outlier. Nevertheless, in general there was no significant improvement in performance after a hospital was identified as a high-mortality outlier even for those hospitals with consistently higher than expected risk-adjusted mortality rates. Our results are less favorable than those of Hannan et al,12 who found marked declines in 30-day mortality after CABG in New York State hospitals between 1989 and 1992 after a public reporting system was instituted. The improving mortality after CABG has been attributed to several factors, including quality improvement programs at high-mortality hospitals; an exodus of low-volume, high-mortality surgeons; an improvement in the performance of low-volume surgeons, and better performance among surgeons who were new to the system.6,27

There are important differences between previous projects that publicly reported outcomes for CABG and CHQCs profiling of hospitals’ outcomes for medical conditions.12,28 The CHQC program did not analyze individual physician per-
formance, and it is unlikely that most physicians would care for enough patients with these conditions to allow for accurate physician profiling. Thus, high-mortality hospitals cannot identify problematic physicians. Therefore, there cannot be an exodus of providers with worse outcomes, as was thought to be the case in New York for CABG. Quality improvement strategies also differed. For example, the New York Department of Health worked actively with outlier hospitals in a collaborative manner to improve quality of care, whereas CHQC functioned under a competitive model in which hospitals had to internally develop their own quality improvement plans. It is unclear whether CHQC outlier hospitals had the organizational leadership and experience in quality improvement necessary to develop and implement successful programs on their own.

This study has several limitations. Market share at hospital 22 declined 10% after being identified as an outlier. This decline would certainly have caused consternation among hospital administrators. However, our power to detect a difference of this size in a single hospital was low. Thus, it remains possible that public declaration of outlier status led to an important change in market share at one hospital. This is of particular interest because hospital 22 was the one outlier hospital for which 30-day mortality actually improved. We also had somewhat limited power to detect changes in 30-day mortality, although this was less problematic than for market share. In addition, regression to the mean may partly explain why low mortality hospitals actually showed nonsignificant trends toward increasing mortality over the study period. In addition, the focus of this analysis was on population-level effects, and it is possible that highly educated patient subgroups used the data from CHQC to make health care decisions.

Another limitation is that the CHQC program did not assess hospitals' compliance with recommended therapies (ie, aspirin and beta blockers for patients with AMI). It is possible that processes of care improved but were not reflected in lower mortality. However, previous studies have found that hospitals with higher prescribing rates for beta blockers and aspirin have lower risk-adjusted mortality for patients with AMI, therefore, we should have been able to detect some decline in mortality if there had truly been clinically important improvements in processes of care. Similarly, we have no systematic information regarding attempts to improve care at participating hospitals through new quality initiatives (eg, care pathways,

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**FIG. 3.** Adjusted change in risk-adjusted 30-day mortality (absolute percent ±95% CI) for Medicare patients hospitalized from 1991 to 1997 according to hospitals' cumulative outlier status for general medical conditions. *General medical conditions included acute myocardial infarction, congestive heart failure, gastrointestinal hemorrhage, pneumonia, chronic obstructive pulmonary disease, and stroke (Table 1 for ICD-9 codes used). See the Methods section for a full description of how hospitals' cumulative outlier status was defined and for the details of the multivariate model.
Thus, we cannot determine whether high-mortality hospitals did not initiate quality improvement efforts in response to the CHQC reports, or whether programs were begun but were not efficacious. Interviews with the Medical Director at hospital 22, the one outlier hospital that showed significant improvement, suggested that the improvements were temporally related to changes in hospital staff; several quality improvement programs were initiated, but these began after there had already been substantial improvement in risk-adjusted mortality. Finally, our study was conducted in only one market and only one period of time. The influence of publicly reporting hospital performance is likely to depend greatly on local health care market issues as well as general market forces (e.g., unemployment rate).

Meyer and colleagues emphasize that if an employer or other purchaser has never shown willingness to selectively contract based upon quality information, providers may not feel motivated to invest in quality improvement. Under CHQC, several hospitals were identified as having significantly higher than expected mortality, longer than expected length of stay, and worse patient satisfaction. Yet, none of these hospitals lost contracts because of their poor performance. In fact, the publicly stated reason why the Cleveland Clinic Health System withdrew its hospitals from the CHQC program, thereby causing its demise in 1999, was that the information was not being used by purchasers. As others have emphasized, for value based purchasing to work purchasers will need to resist community pressures to ensure there will be no “losers.” They must visibly use the data. Changes in hospital market share and changes in risk-adjusted mortality may be linked: the former may need to be threatened before intensive efforts to improve the latter begin in earnest.

Acknowledgment

The authors thank Lynne Lloyd, Dwain Harper, and George Weiner for their assistance throughout all stages of this project.
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