

A Quality Improvement Framework for Equity in Cardiovascular Care: Results of a National Collaborative

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Abstract: Disparities in the quality of cardiovascular care provided to minorities have been well documented, but less is known about the use of quality improvement methods to eliminate these disparities. Measurement is also often impeded by a lack of reliable patient demographic data. The objective of this study was to assess the ability of hospitals with large minority populations to measure and improve the care rendered to Black and Hispanic patients. The *Expecting Success: Excellence in Cardiac Care* project utilized the standardized collection of self-reported patient race, ethnicity, and language data to generate stratified performance measures for cardiac care coupled with evidence-based practice tools in a national competitively selected sample of 10 hospitals with high cardiac volumes and largely minority patient populations. Main outcomes included changes in nationally recognized measures of acute myocardial infarction and heart failure quality of care and 2 composite measures, stratified by patient demographic characteristics. Quality improved significantly at 7 of the 10 hospitals as gauged by composite measures ($p < .05$), and improvements exceeded those observed nationally for all hospitals. Three of 10 hospitals found racial or ethnic disparities which were eliminated in the course of the project. Clinicians and institutions were able to join the standardized collection of self-reported patient demographic data to evidence-based measures and quality improvement tools to improve the care of minorities and eliminate disparities in care. This framework may be replicable to ensure equity in other clinical areas.

cular care remain and are often associated with worse health outcomes (Jha et al., 2005; Lillie-Blanton, Evadne Rushing & Ruiz, 2002; Mead et al., 2008; Smedley, Stith, & Nelson, 2002). As a result, Black, Hispanic, and other minority patients are often at risk of receiving less effective medical and surgical cardiovascular care (Bradley et al., 2004; Jha et al., 2005; Thomas et al., 2007; U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality, 2006).

The dynamics underlying these disparities appear to be complex and rooted in several mechanisms. Some disparities may arise from differences in care rendered to different groups by a single provider (Schulman et al., 1999). In these instances, the presence of provider bias and stereotyping is often invoked as a causative factor. Differences in the quality of care rendered to different populations may also be a function of lower quality care delivered in settings or even geographic regions with disproportionately high percentages of minority patients (Bach et al., 2004; Baicker et al., 2004; Chandra & Skinner, 2003). Given these multiple etiologies, addressing and eliminating disparities in care may require strategies that eliminate any gaps in a provider's practice while raising quality overall in settings that treat large numbers of minority patients.

In recent years, researchers have demonstrated the ability of evidence-based guidelines and associated quality improvement tools to improve care (Eagle et al., 2002; LaBresh et al., 2004; Mehta et al., 2002; Schwamm et al., 2008). Other work has shown that the use of these approaches may also eliminate racial or ethnic disparities while improving care for all (Sehgal, 2003). However, progress has been hampered by the lack of high-quality data on individual patient race, ethnicity, and language. Most U.S. hospitals collect this information, but there is little evidence that they do so in a systematic

Keywords

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Introduction

While the quality of cardiovascular care has slowly improved in U.S. hospitals (Bradley et al., 2006; Jencks, Huff, & Cuerdon, 2003; Williams et al., 2005), it is still far from optimal. And despite improvement, large disparities in the cardiovascular care of racial and ethnic minorities persist (Geiger, 2001; Lillie-Blanton, Evadne Rushing, & Ruiz, 2002; U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality, 2005; 2006; 2007). Even after adjusting for possible confounding factors, including differences in access to care and disease severity, racial and ethnic disparities in many forms of cardiovas-

way (Hasnain-Wynia & Baker, 2006; Hasnain-Wynia, Pierce, & Pittman, 2004; Regenstein & Sickler, 2006). Without these data, it is difficult for health systems and professionals to understand unwarranted variations in care between population groups, identify root causes of disparities, and implement strategies to improve care. Thus, there remain large opportunities to better identify and care for those patients less likely to receive evidence-based therapy.

In this article, we describe the results of the *Expecting Success: Excellence in Cardiac Care* national collaborative of the Robert Wood Johnson Foundation (RWJF). This project sought to determine whether the joining of a quality improvement framework with the standardized collection of self-reported patient race, ethnicity, and language data could improve care and reduce disparities in hospitals treating large numbers of Black and Hispanic patients. It focused on the rigorous collection and analysis of stratified quality data as part of an overall strategy to increase adherence to evidence-based therapies for all patients.

Methods

Project Design

The Robert Wood Johnson Foundation worked with experts in quality improvement, performance measurement, patient race and ethnicity data collection, and organizational change to design the hospital collaborative framework. This team defined the project's clinical areas, target population, quality measures, and hospital recruitment strategy. The George Washington University School of Public Health and Health Services (GW) served as the organizational home for the project's management.

The study population comprised patients discharged with a primary diagnosis of acute myocardial infarction (AMI) or heart failure (HF), due to the prevalence of these conditions and the presence of widely accepted relevant national quality measures for hospital reporting. Black and Hispanic populations were chosen as the focus for improvement given their size as America's largest minority groups and the strength of the evidence for their receipt of lower quality care (Mead et al., 2008; U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality, 2005). Performance was evaluated based upon a set of 14 AMI and HF quality measures reported

to the Centers for Medicare and Medicaid Services (CMS) as part of the Hospital Quality Initiative. In addition, seven other measures, including test measures, measures of quality improvement tool use, and "all-or-none" composite Measures of Ideal Care (MIC) for AMI and HF, respectively, were collected (Table 1). The MICs offer a more patient-centered approach by determining whether or not a patient received all critical aspects of care that he or she should receive given the best available clinical evidence. It also allows for a single measurement of quality for a given condition instead of multiple measures which individually may depict deceptively favorable performance (Institute of Medicine, 2006).

All general U.S. acute care hospitals were eligible to apply to be part of the collaborative. A solicitation was sent to a subset of 380 hospitals identified using Medicare and Medicaid data; the solicitation-targeted hospitals with large cardiac volumes and high minority or publicly insured populations. One hundred twenty-two hospitals completed an initial letter of intent. Thirty were invited to complete a full application, 16 were visited by the project team for a 1-day site visit, and 10 were selected for participation.

Study Hospitals

The 10 participating hospitals were selected on the basis of their diverse patient population, commitment to the project, and past record of implementing major change initiatives. Each hospital received \$200,000 in funding to partially defray project costs. Key characteristics of selected hospitals are provided in Table 2. Seven of these hospitals were teaching hospitals and the remaining three were community hospitals.

Each hospital formed an interdisciplinary team to oversee its participation in the project. In general, they included a senior administrative leader, senior clinical leadership, directors of quality improvement, information technology staff, directors overseeing patient registration, and nurse managers overseeing cardiac units. Each team had a designated project director and members committed to clinical quality improvement as well as the need to change patient registration and information systems to accommodate the accurate collection of patient race, ethnicity, and language data. In the first 6 months of the project, each team created a

Table 1. Inpatient Measures Collected in the *Expecting Success Collaborative*

Type of measure	Measures
Acute myocardial infarction (AMI)/Heart attack	<p><i>CMS measures</i></p> <ul style="list-style-type: none"> ● AMI-1: Aspirin at arrival ● AMI-2: Aspirin at discharge ● AMI-3: Angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) for left ventricular systolic dysfunction ● AMI-4: Adult smoking cessation advice/counseling ● AMI-5: Beta blocker prescribed at discharge ● AMI-6: Beta blocker on arrival ● AMI-7a: Thrombolytic agent received within 30 minutes of hospital arrival ● AMI-8a: Percutaneous coronary intervention (PCI) received within 90 minutes of hospital arrival* ● AMI-T1b: Cholesterol testing within 24 hr after hospital arrival ● AMI-T2: Lipid lowering therapy at discharge <p><i>Project test measures</i></p> <ul style="list-style-type: none"> ● Dietary counseling during hospital stay ● Standardized AMI/ACS orders present in record ● Discharge document for AMI/ACS present and signed in record ● MIC measure: received all measures AMI-1:AMI-8a
Heart failure (HF)	<p><i>CMS measures</i></p> <ul style="list-style-type: none"> ● HF-1: Discharge instructions ● HF-2: Evaluation of left ventricular systolic (LVS) function ● HF-3: ACE inhibitor or ARB for left ventricular systolic dysfunction ● HF-4: Adult smoking cessation advice/counseling <p><i>Project test measures</i></p> <ul style="list-style-type: none"> ● Standardized HF orders present in the record ● Discharge document for HF present and signed in the record ● MIC measure: received all measures HF-1:HF-4
*PCI received within 120 min prior to July 1, 2006.	

work plan with specific goals for improvement and associated strategies. The initial “change package” provided to all participants included tools, such as standard order sets, evidenced-based clinical practice guidelines, and diet and medication guidelines, developed by the American College of Cardiology (ACC) and the American Heart Association (AHA) for use with patients with AMI or HF. The newly created Physician/Patient Agreement for Care and Treatment (PACT) was made available by the ACC. Other resources included abstraction guidelines and definitions for the relevant project measures, project fact sheets, and a customizable slide presentation for use by each hospital in internal and external communications. All hospital teams received training on rapid-cycle quality improvement techniques.

Patient registration staff and other key personnel at each hospital were trained by the Health Research & Educational Trust on the standardized collection of patient race, ethnic-

ity, and language data, allowing the hospitals to report the quality measures on a monthly basis stratified by patient demographics (Hasnain-Wynia et al., 2007). An essential project component was that hospitals adopt a uniform approach that relied on patient self-reporting of race and ethnicity separately, consistent with the U.S. Office of Management and Budget guidelines (Office of Management and Budget, 1997). All hospitals attended workshops on this during an initial project meeting. Subsequently, their current practices in collecting these data were assessed using a brief survey instrument and telephone interviews with key hospital staff; followed by on-site training at the hospital.

Throughout the collaborative, the participating hospitals' efforts were closely supported and managed by the GW project office. Hospitals each attended seven collaborative meetings during the 32-month project; several included participation by the hospital CEOs.

Table 2. Characteristics of *Expecting Success* Collaborative Hospitals

Institution	Location	Hospital ownership	Discharges* 2005	Percent of AMI/HF patients race = Black 2006 [†]	Percent of AMI/HF patients ethnicity = Hispanic 2006 [‡]
Del Sol Medical Center	El Paso, TX	Investor owned	14,493	1	85
Delta Regional Medical Center	Greenville, MS	Public	8,729	68	<1
Duke University Hospital	Durham, NC	Not-for-profit	37,738	35	<1
Memorial Regional Hospital	Hollywood, FL	Public	32,180	24	16
Montefiore Medical Center	Bronx, NY	Not-for-profit	57,587	24	34
Mount Sinai Hospital Medical Center	Chicago, IL	Not-for-profit	19,877	83	11
Sinai-Grace Hospital	Detroit, MI	Not-for-profit	21,151	87	<1
University Health System	San Antonio, TX	Public	21,869	9	65
University of Mississippi Health Care	Jackson, MS	Public	27,332	71	1
Washington Hospital Center	Washington, DC	Not-for-profit	44,841	62	1

*Source. CMS HCRIS file, FY2005 Medicare cost report data, from 1st quarter 2009 release.
^{†‡}Source. Data reported by the *Expecting Success* hospitals to the GW project office based on those patients eligible for AMI and HF project measures in 2006.

Initially, the meetings had a strong training focus and through time transitioned to a highly transparent hospital sharing and collaborative learning experience. Hospitals also participated in monthly conference calls and received six site visits from the GW project office during this time period. Additionally, each hospital had access to the project's password-protected Web site displaying each hospital's data (with hospital identifiers), ensuring a high degree of transparency among institutions. The George Washington University, Committee on Human Research, Institutional Review Board (IRB) exercised oversight over this work. The IRB received a full study application and deemed it exempt from review and approval as the activities involved fell outside the scope of human subjects' research as defined by federal regulations.

Data Reporting and Analysis

Monthly hospital reporting of aggregate quality data stratified by patient race, ethnicity, and language began 4 months after the initial collaborative meeting and were submitted via the project Web site. In all cases, the data for the quality measures represented the same set of patients that were included in the hospitals' submission of performance measures to CMS. Some hospitals included all eligible patients while others included a sample of the eligible patients per CMS guidelines (Centers for Medicare & Medicaid Services and The Joint Commission, 2006). One hospital was unable to provide data for the first quarter of the col-

laborative (October–December 2005). The GW project office downloaded the quality data and reconciled the counts across the race, ethnicity, and language variables to ensure accuracy. In cases where inconsistencies were discovered, hospitals were asked to resubmit the data. At the end of year one and for each subsequent quarter, GW provided the hospitals with individual reports that included summary charts and statistical comparisons of the performance for White versus Black, Hispanic versus non-Hispanic, and English versus Spanish-speaking patients. At the conclusion of the collaborative, hospitals were provided with an expanded report that included additional analyses and a CD-ROM that contained their own data in a Microsoft Access database with a built-in menu of reports.

The first quarter performance (Q4 2005) was compared to the last quarter performance (Q4 2007) for each individual measure and the "all-or-none" MICs. The MICs were selected as the primary outcome variable since they reflect the optimum care for patients. The chi-square test was used to compare hospital performance in the initial quarter of the collaborative to the final quarter. For the comparisons of MIC performance by patient race, ethnicity, and language, the data were aggregated into 6-month intervals rather than quarters in order to obtain a sufficient sample size in the subgroups for analysis. The chi-square test was also used to compare White versus Black, Hispanic versus non-Hispanic, and English versus Spanish-speaking patients in the first and last 6-month intervals. All analyses were conducted using SAS version 9.1.

The average performance across all hospitals was calculated for each core measure in the first and last quarter of the collaborative and the change over time was obtained. These numbers were compared to the national averages and changes calculated by the Joint Commission. No statistics were computed because the raw data including sample sizes for the Joint Commission averages were not available and because the 10 project hospitals were not independent of the Joint Commission data; they are included in the national numbers. However, in the absence of a formal control group they do give us some idea of the relative improvement of ES hospitals compared to the nation.

Results

Changes in Overall Quality

Since the hospitals were already collecting quality measures for AMI and HF, the first quarter and last quarter were compared to examine improvements in the MICs. Seven of the 10 hospitals showed a statistically significant improvement in both the AMI and HF MICs (Figures 1 and 2). Two of the remaining hospitals also

showed modest but nonstatistically significant gains in both MICs.

The change in individual measures in the project hospitals was compared to changes in nationally publicly reported quality data for the same time period (Table 3). The average performance of project hospitals improved at least as much as the national average on all measures and was markedly better on half of them (AMI-3, 4, 5 and HF-1, 4). The collaborative average was below the national average on 9 of the 10 measures in Q4 2005 but was at or above the national average on seven of the nine measures in Q4 2007. One measure is not compared in Q4 2007 due to its discontinuation in national public reporting (AMI-6). Another measure (AMI-7a) was not included due to insufficient data from the project hospitals. Lastly, a third measure (AMI-8a) was not included in the comparison because the measure definition was altered by CMS during the project timeframe.

Trends in Disparities

All 10 project hospitals were able to fully implement the standardized collection of race, ethnicity, and language data. As a result, all

Figure 1. Percent of Patients Receiving All Recommended AMI[†] Care (Measure of Ideal Care—MIC) by Hospital First Quarter (Q4 2005) and Final Quarter (Q4 2007)[‡].

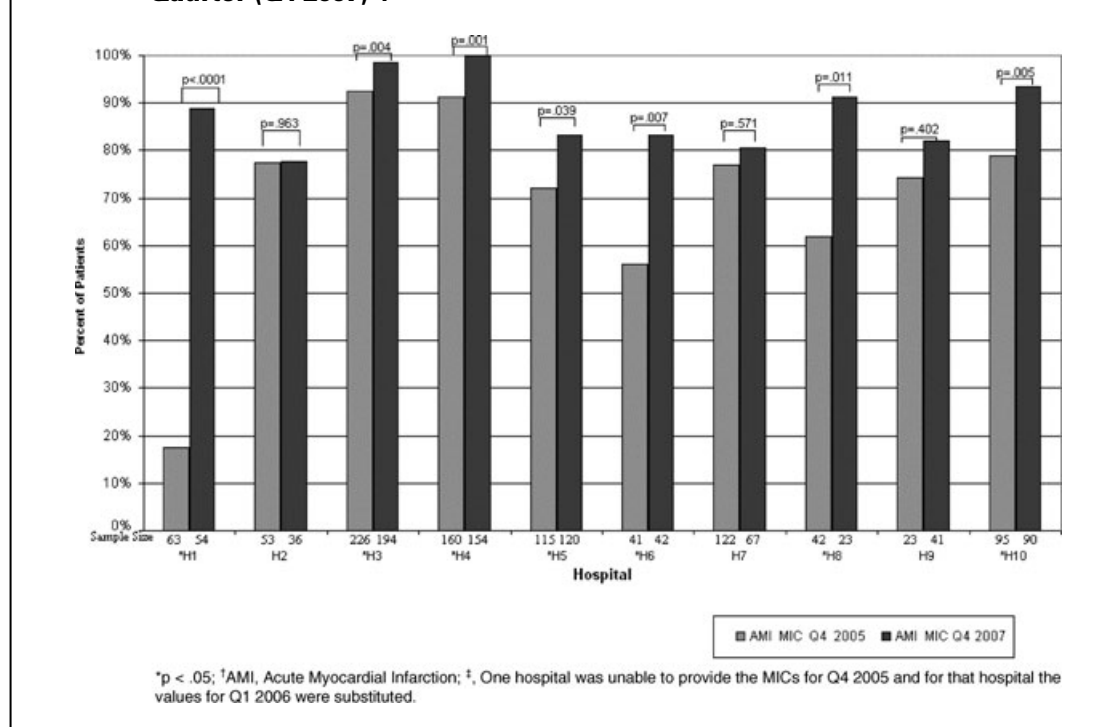
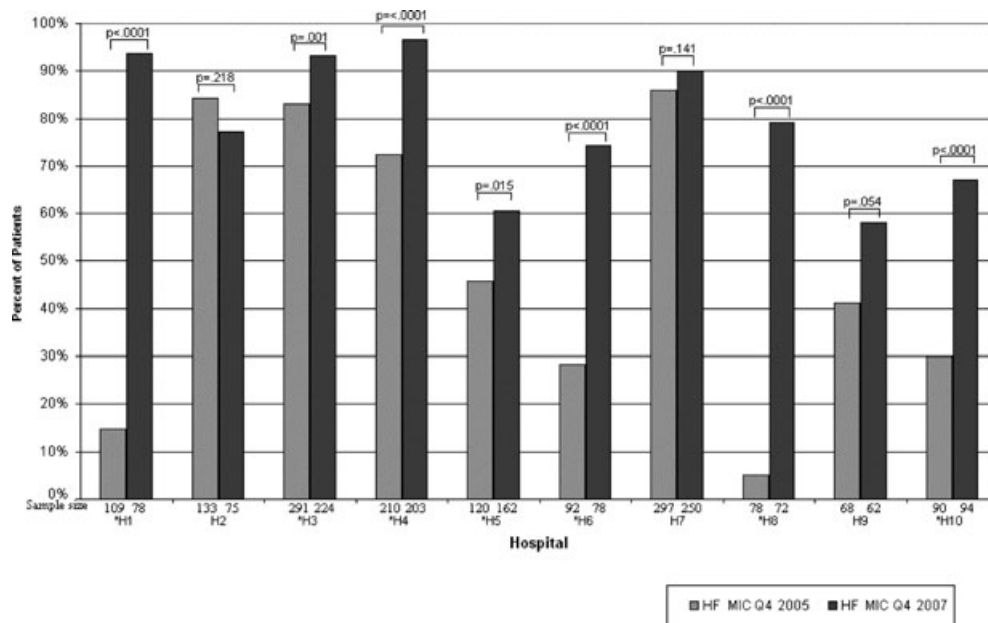


Figure 2. Percent of Patients Receiving All Recommended Heart Failure Care (Measure of Ideal Care—MIC) by Hospital First Quarter (Q4 2005) and Final Quarter (Q4 2007)†.



*p < .05; †, One hospital was unable to provide the MICs for 4th quarter 2005 and for that hospital the values for 1st quarter 2006 were substituted.

Table 3. Change in Hospital Performance on AMI and Heart Failure Core Measures

Measure	Expecting success hospitals average*			National average†		
	Q4 2005	Q4 2007	Increase in percentage	Q4 2005	Q4 2007	Increase in percentage
AMI-1	95	98	3	96	98	2
AMI-2	94	97	3	96	97	1
AMI-3	74	94	20	85	93	8
AMI-4	84	96	12	95	98	3
AMI-5	93	98	5	96	98	2
AMI-6	88	94	6	93	—	—
HF-1	54	82	28	64	80	16
HF-2	94	98	4	92	96	4
HF-3	82	91	9	84	92	8
HF-4	76	98	22	88	97	9

*Data for 2005 Q4 were not available for one hospital and values for Q1 2006 were substituted for that hospital. †Joint Commission 2009. Downloaded from www.qualitycheck.org on May 26, 2009.

were able to stratify quality data by these patient demographic characteristics. Individual hospital data were analyzed to detect the presence of healthcare disparities within each institution. In order to examine hospital performance by race, ethnicity, and language, the first quarter of 2006 was considered the initial period which gave the hospitals time to standardize the data

collection process using the project-specified race, ethnicity, and language categories. Due to the relatively small sample sizes in the racial and ethnic subgroups, comparisons were made during the initial 6-month period (January–June 2006) and the final 6-month period (July–December 2007). Seven of the 10 hospitals had no statistically significant disparities by race or

ethnicity or language in the initial 6-month interval. Of the three remaining hospitals, one had a statistically significant disparity in the AMI MIC by race, one had a significant disparity in the HF MIC by ethnicity, and one in both measures by race in the initial 6-month period. In all cases, the disparity observed in the initial 6-month period had disappeared by the end of the collaborative; care on these measures significantly improved for all patients in the first two hospitals.

Discussion

The results of this collaborative project demonstrate the promise of improving care for underserved minority populations and reducing and even eliminating disparities. It may also serve as a model for initiatives designed to address disparities in other clinical conditions. Quality measures improved substantially over a short period of time for thousands of patients across different care settings, some of which underperformed initially relative to national benchmarks. This project demonstrated that hospitals treating heavily minority populations have the ability to achieve dramatic improvements in the quality of care they deliver.

While there have been many multi-hospital quality improvement efforts, we are not aware of any that have focused specifically on the area of equity, identified as one of the Institute of Medicine's domains of quality (Institute of Medicine, 2001). The standardized collection of self-reported patient race, ethnicity, and language data across the project hospitals was a critical adjunct to these efforts and differentiates this project from other hospital collaboratives. Many hospitals anticipated resistance from staff as well as patients, believing that both groups would be uncomfortable with the request of patient demographic data. A planned communications campaign, including printed literature and training sessions for hospital personnel appears to have allowed standardized collection of self-reported patient race, ethnicity, and language data to go forward with greater ease than expected. Asking patients about their race, ethnicity, and language in the healthcare setting today has proved feasible.

The standardized collection of self-reported patient demographic data allowed the identification of significant racial or ethnic disparities in care at three hospitals. One institution used

this information as the basis of a root-cause analysis eventually pointing to a disparity in quality based on the existence of a subset of community physicians with large panels of minority patients; these physicians' adherence to clinical care guidelines was suboptimal. At another organization, the collection of these data dramatically changed perceptions of the hospitals' demographic composition and the institution became aware of a large previously unrecognized cohort of Spanish-speaking patients. While the data did not reveal disparities in cardiac care at another institution, the hospital was able to stratify clinical data in multiple conditions and found large racial and ethnic disparities in readmission rates. Hence, the implementation of the standardized collection of self-reported patient demographic data had implications far beyond the identification of disparities in cardiac care on isolated inpatient clinical measures. We expect that the importance of linking better demographic data to evidence-based strategies designed to eliminate disparities will be brought into even sharper relief by health system reform. Recently, The American Recovery and Reinvestment Act of 2009 (Recovery Act known commonly as the stimulus bill; ARRA, 2009) created clear expectations that federally supported clinical health information systems would be able to collect patient race, ethnicity, and language data to use for quality improvement purposes. Equity and disparities thus may become routine areas of inquiry and accountability for clinicians and hospitals.

All project hospitals improved their overall quality of care using the collaborative framework. This improvement was greatest for HF patients as compared to AMI patients. This may not be surprising, as performance on the HF measures started out much lower, while many hospitals had already achieved relatively high performance on the AMI measures. While the improvement in individual measures was more marked, the MIC is perhaps a better gauge of overall quality at these organizations because it reflects whether or not a patient received all the care he or she should have. The fact that all the hospitals in the collaborative were able to adopt the composite measures may bode well for national efforts to move away from multiple discrete quality indicators to fewer summary measures.

The larger improvement seen in these hospitals relative to all hospitals nationally may

reflect several dynamics. First, on many measures the project hospitals on average began the collaborative with quality scores that lagged behind the national average. The range was large, and some hospitals exceeded national norms on some measures. Nevertheless, the opportunities for improvement at these hospitals serving large numbers of minority patients were considerable. The fact that the project institutions achieved greater improvement as compared with the national averages during the same time period has critical implications for disparities and quality of care. If one accepts that much of the inequity in U.S. healthcare is rooted in minority patients receiving their care in settings that underperforms others, then this finding of large improvement in high-minority settings shows that this scenario is amenable to significant change. Concentrating national focus on raising quality in these organizations could be an effective way to reduce disparities in healthcare. We have no reason to believe that these results are unique to cardiovascular care; this model could be used to address quality and eliminate disparities in other clinical areas.

These findings also have implications for quality improvement in general. An intense, highly collaborative initiative can improve quality if it incorporates clearly defined goals with rigorous measurement standards but allow hospitals tactical flexibility in how they achieve the goals. While project sponsors and experts made clear recommendations to hospitals on the value of certain tools linked to evidence-based guidelines, no specific improvement methodology was mandated. Hospitals had flexibility in precisely what actions they took as long as overarching project goals were addressed. However, measurement was tightly prescribed allowing trend analyses, tests of significance, and comparability between institutions. This combination allowed the hospitals and sponsors to have objective information on how each organization was doing, while allowing maximum leeway for local characteristics as well as institution-specific innovation. In some project hospitals, energies were primarily directed toward the use of evidence-based tools such as standard admission order sets or revamped patient discharge instructions. Others also focused on analyzing and redesigning processes such as the response for patients requiring PCI or on improved care management and transition processes. One participant linked hospi-

talist compensation to performance on project measures.

This initiative in actuality built on existing improvement activities in all its hospitals. Existing strategies were reevaluated, often in light of the experiences of other participating hospitals. Care tools, such as standard orders and discharge documents, were adopted and revised using more explicit methods of rapid-cycle improvement. Champions for change were identified, and interdisciplinary teams were formed with explicit goals and work plans. Quality data were available for review on at least a quarterly basis. This environment almost certainly benefited from the presence of national, publicly reported measures of AMI and HF quality. But the results of these hospitals when compared to those of the nation as a whole indicate that a structured collaborative approach to quality may independently improve performance beyond what should otherwise be expected. Nevertheless, the notable feature of this undertaking is the combination of these more generic quality improvement methods to the collection of race, ethnicity, and language data with an explicit focus on the domain of equity. Most activities did not focus on adopting innovations or processes designed to impact select racial or ethnic groups.

Several major limitations should be noted. These hospitals were not randomly selected; this is a shortcoming common in quality improvement projects which require a specific organizational commitment on behalf of a hospital or other institution. Each hospital received a \$200,000 grant to participate in the project. Results may not be representative of what might be expected in an organization not receiving such funds. However, this was probably a modest amount given the size of these organizations with budgets running in the hundreds of millions of dollars and the extensive scope of the project. Criticism of the reproducibility of these results may rest more on the unique atmosphere created in an intense collaborative with the imprimatur of a highly visible national philanthropy.

Other limitations are based on the nature of data collection from the hospitals. The collaborative depended on hospital-reported aggregate data sorted by patient demographics. The data were examined by GW staff for internal inconsistencies. The data were also compared and found to be consistent with the data reported by these hospitals under the CMS

Hospital Compare program which conducts hospital audits. However, the collaborative sponsors did not abstract this data from the patient record and did not conduct a separate independent audit. Finally, the comparisons between the project hospitals and the rest of the nation must be viewed with caution. Comparing means of a 10-hospital group to those of thousands of hospitals may raise important issues of skew, with the smaller group means being affected by the performance of a few outliers. We did not compare the collaborative hospitals to a set of matched controls; conceivably such an analysis might paint a different picture and should be strongly considered in the future.

Conclusions

The collection of self-reported patient race, ethnicity, and language data can be used to create stratified reports of quality measures. This can be coupled to evidence-based tools and quality improvement techniques to improve care in hospitals treating large numbers of minority patients and eliminate disparities. The combination of these techniques may hold great promise for improving quality in an increasingly diverse nation.

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Core CPHQ Examination Content Area

III. Performance Measurement & Improvement

Objectives

1. Summarize the linkage between healthcare disparities and quality improvement.
2. Design a hospital-based race, ethnicity, and language data collection initiative.
3. Understand major causes of healthcare disparities for minorities.

Questions

1. Racial and ethnic disparities in cardiovascular care are (pick one)
 - a. Solely due to insurance status
 - b. Virtually nonexistent
 - c. Not easily measured
 - d. Persistent and related to a number of factors including access as well as provider bias
2. The hospital collection of patient racial and ethnic demographic data is (pick one)
 - a. Common but often inaccurate
 - b. Common and generally accurate
 - c. Very rarely done
 - d. Illegal
3. One finding of this study was that (pick one)
 - a. Hospitals are able to standardize their collection of patient racial and ethnic data
 - b. Disparities cannot be reduced
 - c. Significant disparities were found on most study measures
 - d. Overall improvement on quality was not possible
4. The collection of patient demographic data was (pick one)
 - a. Often opposed by hospital staff
 - b. A source of some staff anxiety that was reduced through training
 - c. Generally rejected by patients
 - d. Only possible for language data
5. The findings of this study demonstrate that (pick one)
 - a. It is very hard to improve quality in hospitals with many minority patients
 - b. Improving quality requires race-blind strategies
 - c. Disparities are only due to bias
 - d. Improving quality in high-minority hospitals could reduce national disparities

6. Disparity reduction efforts in healthcare settings should (pick one)
 - a. Be focused solely on cardiac disease as there is not evidence of other disparities
 - b. Not be expected to impact quality
 - c. Build upon, and incorporate, existing improvement efforts
 - d. Only use strategies tailored to certain ethnic groups
7. The lack of random selection and the use of grant dollars to support study hospitals
 - a. Is a limitation on the validity of the findings
 - b. Has no bearing on the study's implications for the hospital industry
 - c. Shows that provider stereotyping was in play
 - d. Invalidates the entire study
8. The collection of patient race, ethnicity, and language data is (pick one)
 - a. A violation of patient confidentiality
 - b. Increasingly expected under federal law
 - c. Very expensive
 - d. Illegal in most states
9. A best practice for gathering and recording patient demographic data is (pick one)
 - a. Patient self-reporting of race and ethnicity separately, consistent with the U.S. Office of Management and Budget guidelines
 - b. Having registration clerks determine patient race and ethnicity based on their observation
 - c. Keeping such data collection secret from staff
 - d. Only having doctors collect this data in medical record
10. All-or-none composite measures of quality are (pick all that apply)
 - a. Generally to be avoided
 - b. Sometimes a good way to measure the entire patient experience of care
 - c. Sometimes simpler to use than many individual measures
 - d. Unusable for disparities measurement