ORIGINAL ARTICLE

Use of Data by Hospitals in North Carolina to Identify Disparities in the Care and Outcomes of Minority Patients

Donald E. Pathman, Randall Teal

BACKGROUND Hospitals are now called upon to use available data—information on the use of services, patient satisfaction, and core quality measures—to identify disparities in the use and outcomes of services for minority patients. This study assesses whether and in what ways hospitals in North Carolina use data to understand the experiences of minority patients.

METHODS Semistructured telephone interviews were completed with chief executive officers (CEOs) and other administrators from a broad sample of North Carolina hospitals. Participants were asked about their hospitals' use of data to compare experiences of minority and nonminority patients and about any other minority-focused initiatives. Responses were analyzed using a grounded theory approach.

RESULTS A total of 28 CEOs and administrators from 17 (77%) of 22 targeted hospitals participated fully in the interviews. Participating hospitals ranged in size from fewer than 60 beds to more than 700 beds and were equally distributed across the state's 3 geographic regions. Three hospitals (18%) reportedly analyzed data by patient race to assess satisfaction, specific clinical outcomes, adverse events, and/or use of services. Respondents cited barriers to analyzing hospital data by patient race and ethnicity as lack of resources, not knowing how to perform these analyses, and not seeing the need. Respondents for 10 hospitals (59%) reported other types of hospital programs targeting the needs of minority patients, including cultural-sensitivity training for staff and initiatives in local communities.

LIMITATIONS Participating hospitals may not reflect all North Carolina hospitals in their minority-focused efforts, and respondents may not have known about all relevant programs in their hospitals.

CONCLUSIONS Few hospitals in North Carolina are proactively identifying disparities between minority and nonminority patients by use of data.

Racial and ethnic disparities in health and health care in the United States are well recognized, and national goals have been set for their elimination. The need now is to learn how best to meet these goals [1-3]. To date, promising population-level approaches have been found in the forms of health-promoting media campaigns and the enlistment of community health workers [1, 3] and by ensuring good access to health care [3, 4]. For disparities that arise within hospitals, the focus has been to reduce language barriers by hiring bilingual staff and interpreters, to hire for staff diversity, and to train all staff in culturally appropriate care [1, 5-6]. This study looks at another, more recently advocated approach to address disparities within hospital care, which is for hospitals to use on-hand data to identify differences in care and outcomes for their minority and nonminority patients. This study assesses how often this approach is now used by hospitals in North Carolina.

The Institute of Medicine of the National Academies [1]. and others [7-10] have advocated for the use of the concepts and tools from quality improvement to address the problem of racial and ethnic disparities that arise within hospitals. Central in this approach is to have hospitals use available data to identify differences in the care and outcomes of minority and nonminority patients and then intervene to reduce identified disparities [11]. Hospitals might, for instance, look for race-group differences in short- and long-term outcomes from services provided, in process indicators of good quality care, in indicators of the timeliness and appropriateness of services patients receive, and in patient satisfaction. The most practical and useful ways to use data to understand the experiences of minority patients are not yet known. As of 2005, 78% of acute care hospitals nationally gathered information on their patients' race, and 51% gathered information on their patients' ethnicity, but fewer than 1 in 5 then used this information to compare racial and ethnic patient groups in terms of care received and outcomes [12].

A total of 32.8% of North Carolina's population is part of a racial or ethnic minority group, including African Americans (21.6% of the total population), Hispanics/Latinos (7.4%), and Native Americans (1.3%) [13]. There are known race and ethnic group differences in health insurance coverage, in the likelihood of seeing a physician, and in rates of infant death, diabetes, teen pregnancy, and death from heart disease, stroke, and prostate cancer [14]. Differences in hospital service use and outcomes within North Carolina have not been reported, to our knowledge.

Electronically published July 25, 2011.

Address correspondence to Dr. Donald Pathman, Cecil G. Sheps Center for Health Services Research, University of North Carolina–Chapel Hill, Campus Box 7590, Chapel Hill, NC 27599-7590 (don_pathman@unc.edu).

N C Med J. 2011;72(3):177-182.
0029-2559/2011/72302

TABLE 1.
Characteristics of 17 Participating Hospitals, Overall and by Region

Characteristic	Overall	Region		
		Coastal (n = 6)	Piedmont (n = 6)	Mountain (n =5)
Size, no. of beds				
Overall, mean	303	315	328	259
1-99	7	2	3	2
100-249	3	1	1	1
≥250	7	3	2	2
Ownership type, no. of hospitals				
Public	4	3	0	1
Nonprofit, non-governmental	11	3	4	4
For profit	2	0	2	0
County population				
Total no. of residents, mean[a]	164,293	129,144	264,336	86,420
Minority residents, % of total[b]	25.5	34.8	27.8	11.7
Residents living below poverty line, % of total[b]	14.8	16.5	12.5	15.6

[a]Data are from 2009.
[b]Data are from 2008 [13].

In 2008, North Carolina joined 22 other states that require all hospitals to collect race and ethnicity information about their patients [8, 15]. But beyond now collecting race information, it is not known how many North Carolina hospitals have begun to combine patient race and ethnicity data with their clinical and administrative data to identify racial and ethnic disparities in care and outcomes. Gathering this information is the principal aim of this study. A secondary aim is to begin to identify the characteristics of hospitals and communities where race and ethnicity group comparisons are being used to identify disparities. We anticipate that the use of data to understand the particular experiences of minority patients is more common in larger hospitals, which have more resources and staff, and in hospitals in counties with greater minority population proportions, where issues involving race and ethnicity are more salient. For perspective, we also identify other minority-focused initiatives (ie, initiatives not based on data) that hospitals participate in. This study was conducted as part of the UNC Health Care System's ERACE (Eliminate Racial and Ethnic) Disparities Initiative, a health system–wide effort to identify and address disparities for minority patients by use of data.

Methods

Surveyed hospitals. Data for this study were gathered through telephone surveys of chief executive officers (CEOs) and other key informants working at a broadly representative sample of North Carolina's 118 general, acute care hospitals. We randomly selected 3 hospitals from each of 6 strata created by geographic region (Coastal, Piedmont, and Mountain) and number of licensed beds (1-99, 100-249, and ≥250). We added 3 of the state's 4 principal academic hospitals (the UNC Health Care System, with which we are affiliated, was excluded) and a fourth hospital, with <99 beds, in the Piedmont region, whose CEO helped confirm for us that other CEOs would likely be able to respond to the interview's questions. The final targeted sample numbered 22 hospitals. The study was approved by the Biomedical Institutional Review Board at the University of North Carolina–Chapel Hill.

Our goal for each hospital was to interview a minimum of 1 individual and, when suggested by initial respondents, other individuals in positions where they should be aware of their institution's efforts to meet the special needs of minority patients. An introductory letter was mailed to CEOs, explaining that survey participation was voluntary and confidential. Some CEOs forwarded the letters to other staff, who were instructed to respond for their hospitals. During interviews, some respondents referred us to other colleagues they felt could provide additional information, whom we then contacted. When CEOs did not respond to several invitations to participate, we contacted other individuals at their hospitals in appropriate positions, such as directors of patient relations and directors of nursing.

Interviews and secondary data. Telephone interviews were scheduled for times convenient to the interviewees. When possible, a list of the interview questions was forwarded in advance to help respondents understand the thrust of the study, to promote trust, and to allow participants to prepare their responses. Interviews were conducted from July through November 2009 by a single member of the research team. Interviews lasted 10-45 minutes, with an average duration of 21 minutes.

A semistructured interview guide was prepared with which to query 2 principal topics reported in this article: (1) whether hospitals offered programs and services and/or had constituted committees and advisory groups to address the special needs of racial and ethnic minority patients and communities, apart from interpreter services, which should be ubiquitous; and (2) whether hospitals examined data to understand the needs and care received by minority patients, with comparisons on 13 specific types of data then queried (Table A1, Appendix, available only in the online edition of the NCMJ). The interviewer took notes of participants' responses during interviews and immediately afterward wrote these out in greater detail. Secondary data on county demographic characteristics were drawn from the US Census [13].

Data coding and analysis. We used a grounded theory approach in analyses, allowing important points and response categories to emerge from the data inductively [16]. On the basis of the first few interviews, we created an initial list of codes and coding rules for responses to each question posed

TABLE 2.
Use and Nonuse of Data on Patient Race and Ethnicity by North Carolina Hospitals

Characteristic	Activity or reason
Use data	
Hospital 1	Data are used to compare Hispanic patients with respect to patient satisfaction, in-hospital infections, falls and injuries, and length of stay.
Hospital 2	Data are stratified by ethnicity as part of management of interpreter services.
Hospital 3	Data on patient demographic characteristics, including race and ethnicity, are used to create semiannual reports on resource use. Data have also been used to examine differences among racial and ethnic groups with respect to hospital infections, adverse outcomes, and readmissions.
Do not use data[a]	
4 hospitals	The hospitals cannot afford the cost or do not have the resources required for added analyses. At one hospital, the "breakout of minorities in data for a critical access hospital…is just not a priority now. No time or resources [are available] to go into such excruciating detail."
3 hospitals	The hospitals do not perceive a need. At one hospital, the goal is to meet all patients' needs, so there is no perceived need to do race and ethnicity analyses. A second hospital believes it is "hitting its targets" with respect to minority patients. A third hospital does not believe there are racial and ethnic differences to warrant separate analyses.
3 hospitals	The hospitals rely on information provided by county health department and the state.
1 hospital	The hospital finds it difficult to gather race and ethnicity information on patients.

[a]Eleven respondents representing 8 hospitals reported, without prompting, information about why their hospitals had not performed race-specific analyses of their data.

to participants. We also coded information interviewees provided on why their hospitals did not offer minority-focused services, although this was not explicitly queried. The interviewer then coded interview responses from all subjects, and the second team member reviewed the codes. Coding differences were settled through discussion and consensus.

We describe respondent hospitals and report simple counts and percentages of the types of minority-focused services that hospitals provide. We include all services mentioned, even in the few instances when not all respondents for a given hospital reported a particular service. Last, we calculate simple group proportions to identify the characteristics of hospitals and their counties where minority-focused services are offered.

Results

Seventeen (77%) of the 22 targeted hospitals participated fully in the interviews. The 5 hospitals that declined participation included 1 academic hospital, 1 or more hospital in each of the 3 regions of the state, and hospitals in the middle- and high-bed-count groups. Reasons given for not participating included (1) a prohibition on survey participation by a parent hospital system, (2) a lack of interest in the study, and (3) a belief that the hospital had too few minority patients to warrant minority-focused services.

A total of 28 interviews were completed with representatives from the 17 participating hospitals. Among the respondents were 7 CEOs and 11 of their designees. After CEO, the next most frequent job titles of respondents were directors of a hospital service area, including director of quality and director of education (n = 8), diversity director or officer (n = 3), hospital vice president (n = 3), director of patient relations or patient-centered care (n = 2), chaplain (n = 2), chief nursing officer (n = 2), and director of community outreach (n = 2). Respondents had served in their current positions for an average of 4.9 years.

The participating hospitals were equally distributed across the 3 regions of the state and varied greatly in their county population sizes, racial compositions, and poverty proportions (Table 1). Hospitals ranged in size from fewer than 60 beds to more than 700 beds.

Use of hospital data to understand the care and outcomes of minority patients. Respondents for only 3 hospitals (18%) reported that their hospitals performed some kind of analysis that used information about patient race (Table 2). One of the 3 hospitals had compared patients of various races and ethnicities with regard to satisfaction, in-hospital infections, falls and injuries, and length of stay. A second hospital had used patient count data and service-use comparisons to plan and budget for interpreters and other services for Hispanic patients. A third hospital used race and ethnicity data to understand and plan for service use and to compare patient groups in terms of in-hospital infections, adverse outcomes, and readmissions.

Although respondents were not asked why their hospitals had not looked at on-hand data separately by patient race, 11 respondents, who represented 8 of the hospitals, volunteered reasons for not doing so (Table 2). Respondents for 4 hospitals volunteered that their hospitals lacked the resources or could not afford the extra work to perform race-specific analyses. Respondents for 3 hospitals stated that their hospitals perceived no need for race-specific analyses because the hospital intended and/or succeeded in meeting all patients' needs. Three hospitals reportedly relied on county and state data from other sources, such as Healthy Carolinians [17] and the Center for Disease Control's Behavioral Risk Factor Surveillance Survey [18], to understand local minority health care needs.

Other minority-focused services provided by hospitals. Apart from efforts to use patient data to identify race-specific issues, respondents for 10 hospitals (59%) reported other initiatives to address the needs of minority patients (Table 3). Five hospitals provided cultural-sensitivity training for all employees, and 5 hospitals addressed the needs of minority patients through initiatives in local communities, often in partnership

TABLE 3.
Non–Data-Based Programs and Services Offered by 17 Participating Hospitals to Minority and/or Poor Patients

Program(s), service(s)	Hospitals, no. (%)	Examples
Programs targeting minorities[a]		
Cultural-sensitivity training for staff	5 (29)	Mandatory cultural diversity training; communication tool kit
Community outreach	5 (29)	HBCU partnership to recruit staff; annual health fair for Hispanic residents
Committees and/or advisory groups specifically addressing needs of minority patients	2 (12)	Diversity committees; interpreter services advisory group to address health issues among Hispanic residents
Programs targeting low-income, uninsured, and at-risk groups (not explicitly minority patients[b])	5 (29)	Cancer-navigation program; health screening for low-literacy patients; hospital-funded clinic in a poor, predominantly Hispanic community

Note. HBCU, Historically black colleges and universities.
[a]Two hospitals offered 2 types of service (ie, cultural-sensitivity training and community outreach).
[b]Although participants were asked about hospital programs that targeted the needs of minority patients, respondents for 5 hospitals reported on programs that targeted local low-income and uninsured individuals, who tended to be minority residents.

with community organizations. The latter included participation in a clinic for migrant farm workers, an organ-donor program for minority residents, an annual health fair for Hispanic residents, and a program to recruit minority health care professionals. Two hospitals had constituted relevant committees: one had a diversity committee to speak for the needs of minority patients and local minority communities and to promote diversity among hospital staff, and the other maintained an advisory group for its interpreter services and to meet its Hispanic patients' needs more broadly.

Respondents for 5 hospitals volunteered information about clinical services their hospitals offered to meet the needs of local low-income and uninsured individuals, who the hospitals recognized were often from minority groups. The clinical services offered were principally primary care, disease detection, and disease prevention services, provided free or at a reduced rate (Table 3).

Features of sampled hospitals that used data to identify health disparities or implemented other minority-focused activities. Sampled hospitals that were larger and either public or nonprofit were more likely than other sampled hospitals to offer some non–data-based program, outreach, or committee to address the needs of racial and ethnic minority groups (Table 4). Only 3 hospitals were using data to understand minority issues, so we could not reliably identify characteristics that distinguished them from the other hospitals in the study. However, of possible importance, 2 of the 3 hospitals were in the group of largest hospitals, 2 were nonprofit/nongovernmental hospitals, and 2 were in the Coastal region. None of the 5 hospitals in the Mountain region of the state—where there are the fewest minority residents and smaller hospitals—used data to understand the experiences of minority patients, but most of the participating hospitals in this region offered other types of minority-focused services. Mean percentages of minority residents were somewhat higher in counties where hospitals used data to identify minority individuals' needs (33.7% vs 23.8%) and in counties where hospitals provided other types of minority-focused initiatives (28.5% vs 21.3%) than in counties that did not perform these activities.

Discussion

Analyzing clinical and administrative data to compare the care and outcomes of minority and nonminority patients is uncommon among North Carolina's hospitals, as it is for hospitals nationwide [12]. On the basis of reports from this study's 17 hospitals, roughly only 1 in 5 North Carolina hospitals compares information on various racial and ethnic patient groups to understand how such patients may differ from other patients in the services they receive and in their outcomes. In comparison, we estimate that approximately 3 in 5 hospitals in the state sponsor some other, non–data-based minority-focused initiatives. According to respondents, barriers to hospitals' use of data to understand the experiences of minority patients include a lack of resources and funding to perform this work and a lack of knowledge about how to do it. Further, some hospitals did not perceive a need for such efforts. Indeed, some hospitals have very few minority patients and, understandably, will give more attention to their many other pressing quality and service issues. But some hospitals in our sample acknowledged sizable minority patient populations but saw no need to perform race-specific analyses because of an organizational goal to meet all patients' needs, regardless of race or ethnicity. The belief that well-intentioned and well-designed but race-blind approaches will meet the access, service, and quality needs of all patient groups and generate equivalent outcomes is unfounded and contrary to the evidence [3, 7]. Numbers are too small to identify firm associations, but as we anticipated, hospitals in our sample that compared patient racial

and ethnic groups with relevant data were generally larger and located in counties with greater percentages of minority residents.

Hospitals may soon be asked to report quality performance measures stratified by race and to undertake minority-focused quality improvement efforts, to reduce identified disparities [11]. These initiatives must be data based. By use of data, hospitals can document differences in the care and outcomes of their minority and nonminority patients, they can constitute multidisciplinary care improvement teams to identify reasons for disparities, and they can design and undertake corrective interventions and then document program success. We do not know specifically how the 3 North Carolina hospitals in this study that perform race-specific analyses with data use this information to improve care.

The limitations of this study are several. It may be that hospitals that elected not to participate in the study were less likely than those that did participate to perceive a need for and perform analyses of race-grouped data. Reasons given by some of the hospitals that declined participation indicated that this was the case. Another possible limitation is that, because hospitals are often large, individual respondents in our study may not have known about all race-focused services offered in their institutions. We attempted to mitigate this possibility by interviewing individuals in leadership and other broad roles within their hospitals and, when a first respondent indicated that another individual might provide additional useful information, by interviewing 2 individuals within the hospital. With only a couple of exceptions, multiple respondents for a given hospital identified the same programs. Further, we suspect that programs that went unreported were less visible and, therefore, were likely more modest and less important to hospitals. Last, this study presents data from a 20% sample of North Carolina hospitals, and its numbers are too small to provide more than a general understanding that few hospitals in North Carolina now use data to identify the unique care needs and experiences for minority patients.

Disparities in hospital access, care, and outcomes for racial and ethnic minority groups are ubiquitous. Despite growing expectations for hospitals to proactively identify disparities for their minority patients on the basis of data, most US hospitals are not yet doing so. Hospitals in North Carolina are no different in this regard, even with minority residents making up nearly one-third of the state's population.

Use of data to identify disparities among minority groups is a new notion for hospitals, and widespread implementation of this activity will require a learning curve that lasts years. On the basis of these interviews, we anticipate that experts in the field of racial disparities need to identify best approaches to help hospitals in their efforts. Hospitals will also likely benefit from external technical assistance to initiate these analyses and interventions and will benefit from staff development and, perhaps, access to start-up funds. In the not-too-distant future, hospitals nationwide may be required to report key quality indicators of patient care separately for racial and ethnic groups and to intervene when disparities are identified, which will hasten the adoption of minority-focused data analysis to reduce racial health disparities [9, 11]. NCMJ

TABLE 4.
Characteristics of Hospitals That Use Data and Other Approaches in Minority-Focused Initiatives

Characteristic	Hospitals, no. (%)	
	Offers data-based interventions[a]	Offers non–data-based interventions[b]
Ownership type		
Public (n = 4)	1 (25)	3 (75)
Nonprofit, non-governmental (n = 11)	2 (18)	7 (64)
Private (n = 2)	0	0
Size, no. of beds		
0-99 (n = 7)	1 (14)	2 (29)
100-249 (n = 3)	0	1 (33)
≥250 (n = 7)	2 (29)	7 (100)
Region		
Coastal (n = 6)	2 (33)	4 (67)
Piedmont (n = 6)	1 (17)	2 (33)
Mountain (n = 5)	0	4 (80)

[a]Three hospitals used data to understand differences in care and outcomes for minority patients.
[b]Ten hospitals offered other types of minority-focused programs.

Donald E. Pathman, MD, MPH senior research fellow, Cecil G. Sheps Center for Health Services Research, and professor and director of research, Department of Family Medicine, School of Medicine, University of North Carolina–Chapel Hill, Chapel Hill, North Carolina.
Randall Teal, MA project manager, Cecil G. Sheps Center for Health Services Research, University of North Carolina–Chapel Hill, Chapel Hill, North Carolina.

Acknowledgments

We thank the interview respondents and hospitals, for generously participating in the study; and the fellows of the University of North Carolina National Research Service Award Primary Care Research Fellowship, for their insightful comments and suggestions as we prepared the manuscript.

Financial support. UNC Health Care Investments for the Future Initiative.

Potential conflicts of interest. D.E.P. and R.T. have no relevant conflicts of interest.

References

1. Institute of Medicine of the National Academies. Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care. Washington, DC: The National Academies Press; 2003.
2. Agency for Healthcare Research and Quality (AHRQ). National Healthcare Disparities Report, 2006. AHRQ publication no. 07-0012. Rockville, MD: AHRQ; December 2006. http://www.ahrq.gov/qual/nhdr06/nhdr06report.pdf. Accessed June 10, 2011.
3. Chin MH, Walters AE, Cook SC, Huang ES. Interventions to reduce racial and ethnic disparities in health care. Med Care Res Rev. 2007;64(5 suppl):7S-28S.
4. Agency for Healthcare Research and Quality (AHRQ). National Healthcare Disparities Report, 2009. AHRQ publication no. 10-

0004. Rockville, MD: AHRQ; March 2010. http://www.ahrq.gov/qual/nhdr09/nhdr09.pdf. Accessed June 10, 2011.
5. Reschovsky JD, Roukus ER. Modest and Uneven: Physician Efforts to Reduce Racial and Ethnic Disparities. Issue brief no. 130. Washington, DC: Center for Studying Health System Change; February 2010. http://www.hschange.com/CONTENT/1113. Accessed June 11, 2010.
6. Office of Minority Health, US Department of Health and Human Services (DHHS). National Standards on Culturally and Linguistically Appropriate Services in Health Care (CLAS). Washington, DC: US DHHS; March 2001.
7. Fiscella K, Franks P, Gold MR, Clancy CM. Inequality in quality: addressing socioeconomic, racial and ethnic disparities in health care. JAMA. 2000;283(19):2579-2584.
8. HRET Disparities Toolkit. Health Research & Educational Trust Web site. http://www.hretdisparities.org/Prin-4347.php. Accessed June 11, 2010.
9. Lurie N, Jung M, Lavizzo-Mourey R. Disparities and quality improvement: federal policy levers. Health Aff (Millwood). 2005;24(2):354-364.
10. Weinick RM, Flaherty K, Bristol SJ. Creating Equity Reports: A Guide for Hospitals. 2008. http://www2.massgeneral.org/disparitiessolutions/z_files/Disparities%20Hospital%20guide.qxp.pdf. Accessed June 11, 2010.
11. Institute of Medicine. Race, Ethnicity, and Language Data: Standardization for Health Care Quality Improvement. Washington, DC: The National Academies Press; 2009.
12. Regenstein M, Sickler D. Race, Ethnicity, and Language of Patients: Hospital Practices Regarding Collection of Information to Address Disparities in Health Care. Washington, DC: National Public Health and Hospital Institute; February 2006.
13. State and county quick facts: North Carolina. US Census Bureau Web site. http://quickfacts.census.gov/qfd/states/37000.html. Accessed April 28, 2010.
14. North Carolina Department of Health and Human Services (DHHS). Racial and Ethnic Health Disparities in North Carolina: Report Card 2006. Prepared by the Office of Minority Health and Health Statistics and the State Center for Health Statistics. Raleigh, NC: North Carolina DHHS; August 2006. http://www.schs.state.nc.us/SCHS/pdf/ReportCard2006.pdf. Accessed April 28, 2010.
15. NC Gen Stat §130A-16.
16. Strauss AL, Corbin J. Basics of Qualitative Research. 2nd ed. Newbury Park, CA: Sage; 1998.
17. Healthy Carolinians Web site. http://www.healthycarolinians.org. Accessed May 11, 2010.
18. Behavioral Risk Factor Surveillance System. North Carolina State Center for Health Statistics Web site. http://www.schs.state.nc.us/SCHS/brfss/index.html. Accessed May 11, 2010.