Increased Patient Delays in Care after the Closure of Martin Luther King Hospital: Implications for Monitoring Health System Changes

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Background: The safety net system remains an important part of the health care system for uninsured and minority populations, however, the closure of safety net hospitals changes the availability of care. Using community-based participatory research methods, we explored the impact of hospital closure among late middle aged and elderly racial/ethnic minorities in South Los Angeles.

Methods: Telephone survey of participants in both 2008, after hospital closure, and 2003, before hospital closure, who self-identified as African American or Latino, were over the age of 50 and lived in zip codes of South Los Angeles. We developed multiple logistic regression models on imputed data sets weighted for non-response and adjusted for self-reported measures of demographic and clinical characteristics to examine the odds of reporting delays in care.

Results: After adjusting for covariates known to influence access to care and distributed differently in the two survey samples, we found significantly greater delays in care. Following the closure of the Martin Luther King, Jr. safety net hospital, the adjusted odds ratios were 1.70 (95% CI 1.01, 2.87) for delays in care, 1.88 (95% CI 1.06, 3.13) for problems receiving needed medical care, and 2.62 (95% CI 1.46, 4.67) for seeing a specialist.

Conclusions: Our survey of older minority adults in South Los Angeles found increased delays in access to care for needed medical services after the closure of Martin Luther King, Jr. Hospital. As health care reform unfolds, monitoring for changes in access to care that may result from new policies will be important to address future disparities, particularly for vulnerable populations. (*Ethn Dis.* 2011;21(3):356–360)

Key Words: Hospital Closure, Older Minorities, Delays in Care

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Introduction

The ability to obtain care when needed is a goal of health systems worldwide.[1] One metric established by Healthy People 2010 for monitoring access to care is self-reported delays in care.[2] For many people, especially those who reside in disadvantaged communities, there are obstacles to obtaining needed care. Low-income communities with many uninsured or underinsured residents often rely on the safety net system to provide access to health care. Safety net systems, defined as providers who disproportionately care for the underserved, uninsured, and Medicaid patients, often encounter financial challenges that affect their ability to adapt to meet community needs.

In 2007, financial constraints and quality problems led to the closure of a safety net hospital, Martin Luther King, Jr. Hospital, in South Los Angeles. After this hospital's closure, South Los Angeles stakeholders and the community wanted to understand the impact on delays in care in order to inform efforts to restructure the delivery of health care services in their community. We used a community partnered research approach to design and execute a study to assess delays in care among middle aged and older minority adults.

Study Data and Methods

Primary Data Sources and Study Sample

Using community-based participatory research methods, we conducted a population-based telephone survey of late middle aged and elderly in South Los Angeles, in 2008, the year after hospital closure. The results from this new survey were compared to a previously conducted survey that was fielded in 2003 before the hospital was closed. Community input from local leaders and residents was incorporated in all phases of the study.[3] Community stakeholders identified concerns, and we used a consensus building approach to identify survey domains. Because more than 95% of South Los Angeles residents are either African American and Latino and more than 50% of all safety net outpatient visits are from those aged ≥50 years, we sampled that population.[4] The community-based telephone survey was developed using previously validated survey measures, many of which had been included in

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the 2003 comparison survey.[5] The sample was randomly selected from a listed household sample of phone numbers most likely to be in South Los Angeles zip codes. We made up to 15 phone calls at varying times of the day and days of the week. Mid-way through the study protocol, a $2 incentive mailing was also sent to increase participation. A $20 gift card was provided as an incentive for completion of the questionnaire.

We included South Los Angeles residents identified by their zip code of residence who self-identified as African-American or Latino, spoke English or Spanish and were aged ≥50 years. The telephone survey was completed by 708 participants representing 65% of contacted telephone numbers. If eligibility rates were similar among participants we could not reach, the response rate among eligible patients would be 63% (7.1% refusal rate; 92.9% cooperation rate).[6] For patients who consented, trained interviewers completed the survey either with computer aided telephone interviewing or paper and pencil. The RAND IRB approved this study protocol.

Pre-hospital Closure Survey

We compared our new results to similar measures included in the 2003 California Health Interview Survey (CHIS); a collaborative project of the University of California, Los Angeles (UCLA) Center for Health Policy Research, the California Department of Health Services, and the Public Health Institute. Sampling for this survey was performed within Los Angeles County by geographic areas referred to as medical service planning areas (SPAs). Residential telephone numbers were selected through random-digit dial sampling, and within each household, one adult (aged ≥18 years) respondent was randomly selected. We used the 2003 data from people who resided in the same zip codes and were in the same age and ethnic groups as the residents included in our 2008 survey. The survey data were weighted to reflect the sample frame.[7]

Measurement

The main outcome measure was self-reported delays in care. Respondents were asked about delays in care (dichotomized into any delay vs none), any problem in receiving needed medical care (dichotomized into any problem vs no problem), and any problem in receiving needed specialty care (dichotomized into any problem vs no problem).

Predictor or control variables for self-reported delays in care were based on a conceptual framework modified from Andersen's model of access to health care for low-income populations.[8] We collected data on predisposing factors (age, race/ethnicity, sex), enablers (insurance, poverty), and individual need (chronic conditions). We collected self-identified race/ethnicity data that were categorized into two mutually exclusive groups: non-Hispanic African American, and Latino. In addition, we obtained information about the presence or absence of chronic conditions, including diabetes, hypertension, asthma, and lung disease. Our study used self-reported household income and household size to calculate poverty level (based on 2008 Federal Poverty Level Guidelines).

Analysis

We performed both bivariate and multivariate analyses. Chi-square tests were used to test for differences in percentages between the 2003 and 2008 survey. Data on poverty were missing for 13% of respondents; for all other variables missing values were less than 4%. Prior to performing multivariate analyses, we imputed the missing 2008 poverty data based on ethnicity and age. For the 2003 survey, data were imputed by means of a hierarchical sequential hot deck method with donor replacement for all missing values.[5] In order to account for non-response, we created survey weights from 2000 US Census data on ethnicity, poverty, and age using data at the zip code level. Logistic regression models were used to estimate the odds of having each outcome measure adjusted for age, ethnicity, sex, insurance, poverty, and chronic conditions. Since the vast majority of study participants who were over 65 years were insured, we constructed an age/insurance combination variable with 3 categories: aged 50–64 years with insurance, aged 50–64 years without insurance, and aged ≥65 (excluding those who were uninsured, $n=10$). SAS PROC MIanalyze was used to combine results into adjusted odds ratios from the imputed datasets. All analyses were performed with SAS statistical software (version 9.1.3, SAS Institute Inc., Cary, NC, USA).

RESULTS

Study Population

The 2008 South Los Angeles survey included 708 African Americans and Latinos aged >50 years. Fifty-nine percent of the study population was female, 67% African American, 42% were aged >65 years, and 10% were uninsured (Table 1). The 2003 CHIS survey included 245 African Americans and Latinos aged >50 years. Sixty-one percent of the study population was female, 72% African American, 31% were aged >65 years; and 17% were uninsured. Compared to the 2008 sample, the 2003 sample had more adults aged 50–64 years, more uninsured, fewer African Americans and was similar in terms of poverty, sex and presence of chronic disease.

Delays in Care

Based on bivariate results, reported delays, problems receiving needed medical care and seeing a specialist were not significantly different before, compared

Table 1. Weighted, unadjusted demographic and clinical characteristics of older adults from survey of older persons in South Los Angeles (2008) compared to California Health Interview Survey (2003)

	Pre-hospital Closure* (2003)	Post-hospital Closure† (2008)	
	N=245 %	*N*=708 %	*P*
Age groups			
Ages 50 to 64	69	58	.008
Ages ≥65	31	42	
Sex			
Female	61	59	.6
Ethnicity			
African American	72	67	.3
Latino	28	33	
Income as % of federal poverty level (FPL)			
0–99% FPL	29	28	.8
Type of health coverage			
Insured	83	90	.03
Uninsured	17	10	
Chronic conditions			
Any chronic condition	64	71	.08
Asthma	9	11	.5
Diabetes	24	25	.7
Heart disease	17	14	.3
High blood pressure	60	63	.4

P for group comparison were from χ^2 tests;
* Weighted for age, sex, race/ethnicity, education, number of adults in the household, and non-telephone households.
† Weighted for age, poverty, race/ethnicity.

Table 2. Weighted, unadjusted percentage of delays in care between before (2003) and after (2008) hospital closure

	Pre-hospital Closure (2003) %	Post-hospital Closure (2008) %	*P*
Delays			
Reported any delay (yes vs no)	11	15	.1
Problem to receive needed medical care (yes vs no)	17	22	.3
Problem to see a specialist (yes vs no)	15	23	.08
Reported reasons for delays			
Due to transportation		7	
Due to hospital closure		12	
Due to cost of care or lack of insurance		60	
Delayed or did not get a medication prescribed		13	

Note: Shading indicates not asked in 2003 survey. No significant differences are present between 2003 and 2008 data on the weighted unadjusted comparisons at the $P<.05$ level. Questions asked included: During the past 12 months, did you either delay or not get medical care you felt you needed – such as seeing a doctor, a specialist, or other health professional? In the last 12 months, how much of a problem was it to receive the care, tests, or treatment you or your doctor believe was necessary – was it a big problem, a small problem, not a problem at all, or did you not need to have care, tests, or treatment? In the last 12 months, how much of a problem was it to see a specialist that you needed to see – was it a big problem, a small problem, not a problem at all, or did you not need to see a specialist? During the past year, was there ever a time when transportation problems kept you from getting the medical care you needed? Was the closure of Martin Luther King hospital a reason why you delayed or did not get the care you felt you needed? Was cost or lack of insurance a reason why you delayed or did not get the care you felt you needed? During the past 12 months, did you either delay or not get a medicine that a doctor prescribed for you? (yes/no)

to after the closure of the safety net hospital (Table 2). Seven percent delayed care due to lack of transportation, 12% reported a delay due to the hospital closure and 60% reported a delay due to cost of care or lack of insurance. These delays also affected accessing needed medications. Thirteen percent also delayed or did not get a medicine that the physician prescribed for them.

Effect of Hospital Closure

After adjusting for age, sex, socioeconomic status, race/ethnicity, insurance status, and presence of chronic conditions, covariates which were both known to influence access to care and were unevenly distributed in the two survey samples, we found significant delays in care. Following the closure of the Martin Luther King safety net hospital, the adjusted odds ratios (AOR) were 1.70 (95% CI 1.01, 2.87) for delays in care, 1.88 (95% CI 1.06, 3.13) for problems receiving needed medical care, and 2.62 (95% CI 1.46, 4.67) for seeing a specialist. (Table 3).

DISCUSSION AND POLICY IMPLICATIONS

Delays in seeking care among older urban community dwelling persons in South Los Angeles were significantly higher after the closure of the community's major safety net hospital.

This study has four important limitations. The study used a pre-post design, with only one before and one after point and no control group. The observed variation may thus have been due to secular trends that were not controlled in this analysis. Patients were recruited from one area of Los Angeles County, South Los Angeles. In addition, delays and the use of preventive services were self-reported and may have contributed to potential response bias; however, we used prospectively collected and previously tested measures

Table 3. Adjusted odds of delays in care after hospital closure in 2008 compared to 2003

Delays	Adjusted Odds Ratio (95% CI)	*P*
Reported any delay in care*	1.70 (1.01, 2.87)	<.001
Problem to receive needed medical care*	1.88 (1.06, 3.13)	<.001
Problem to see a specialist*	2.62 (1.46, 4.67)	<.001

* Controlling for age, sex, socioeconomic status, ethnicity, insurance status, and presence of chronic conditions; weighted for zip code level age, race and poverty. All odds ratios are comparing the delays after closure (2008) with before hospital closure (2003).

of self-reported delays. Finally, we do not know the health consequences of these self-reported delays. However, we used a community based-participatory research method to select these measures and the community stakeholders considered them to be very important.

Previous studies of the effect of hospital closure have focused on documenting differences in patient outcomes from administrative or survey data.[9–11] Other studies focused on changes due to distance traveled,[12–14] rural hospital closure,[9,15–20] and staffing changes.[21–23] Few studies have examined the impact of hospital closure on delays in care. Prior work has documented that health system changes are not the only reason to have delays in care. National rates show that almost 20% of the population has delayed or had difficulty getting needed medical care, and may be as high as 29% in low-income populations.[24–27] Our study contributes to this literature, strengthened by using community based participatory research methods.

To our knowledge, this study is the first to examine the impact of hospital closure using community based participatory methods. Our community partners and health policy leaders were able to leverage these results to inform ongoing efforts to improve health care services in South Los Angeles, particularly as efforts to re-open the hospital were underway.

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Health reform has passed, and it is hard to know the repercussions that it will have on the safety net. After the signing of Medicare Act in 1965, patients aged >65 disappeared from county hospitals.[9,10] In addition, changes in prenatal Medicaid rates moved much of obstetrical care out of county hospitals.[11,12] The health reform bill may result in a large number of people in disadvantaged communities in 2014 becoming members of the Medicaid program. As public safety net hospitals across the country face multiple and growing challenges, including the loss of reimbursement for uninsured populations and simultaneous declines in the Medicaid funding, it is likely that pressures on public safety net hospitals will increase. This change may result in the closure of more public safety net hospitals or significant reductions in services, additional delays in care and difficulty improving quality care.

This research underscores the need for future measures to monitor progress toward improved access to care. Efforts to increase insurance coverage and coordinate care in accountable care organizations also need outcomes for monitoring progress. As shown in San Francisco, the safety net can also be a setting for innovation and high-quality integrated care.[28] Using a medical home model may help to reduce or eliminate racial/ethnic health disparities[29–31] that are often linked to the health effects of poverty.

In the setting of hospital closure, it is critical to monitor multiple outcomes to understand both the intended and unintended consequences of hospital closure. The use of community advisory boards, community clinic input, and local stakeholder community forums can help inform efforts to address the local impact of hospital closure, particularly for vulnerable populations.

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