

Appendix

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Appendix Exhibit A1.

We believe that it is critically important to understand the experiences of all minority groups. However, in this study, we limited our focus to understanding the differences between blacks and whites for a number of methodological reasons. First, as prior work suggests, "black-serving" hospitals are quite different from those that disproportionately serve other minority groups. Therefore, our variable of "minority-serving" hospitals is constructed by examining the proportion of black patients only. In order to examine the experiences of other minority groups, it would necessitate creating several different hospital comparator groups each analyzed separately using different models and multiple interaction terms. We are pursuing separate studies to examine the experience of Hispanic patients with non-Hispanics and also other minority groups.

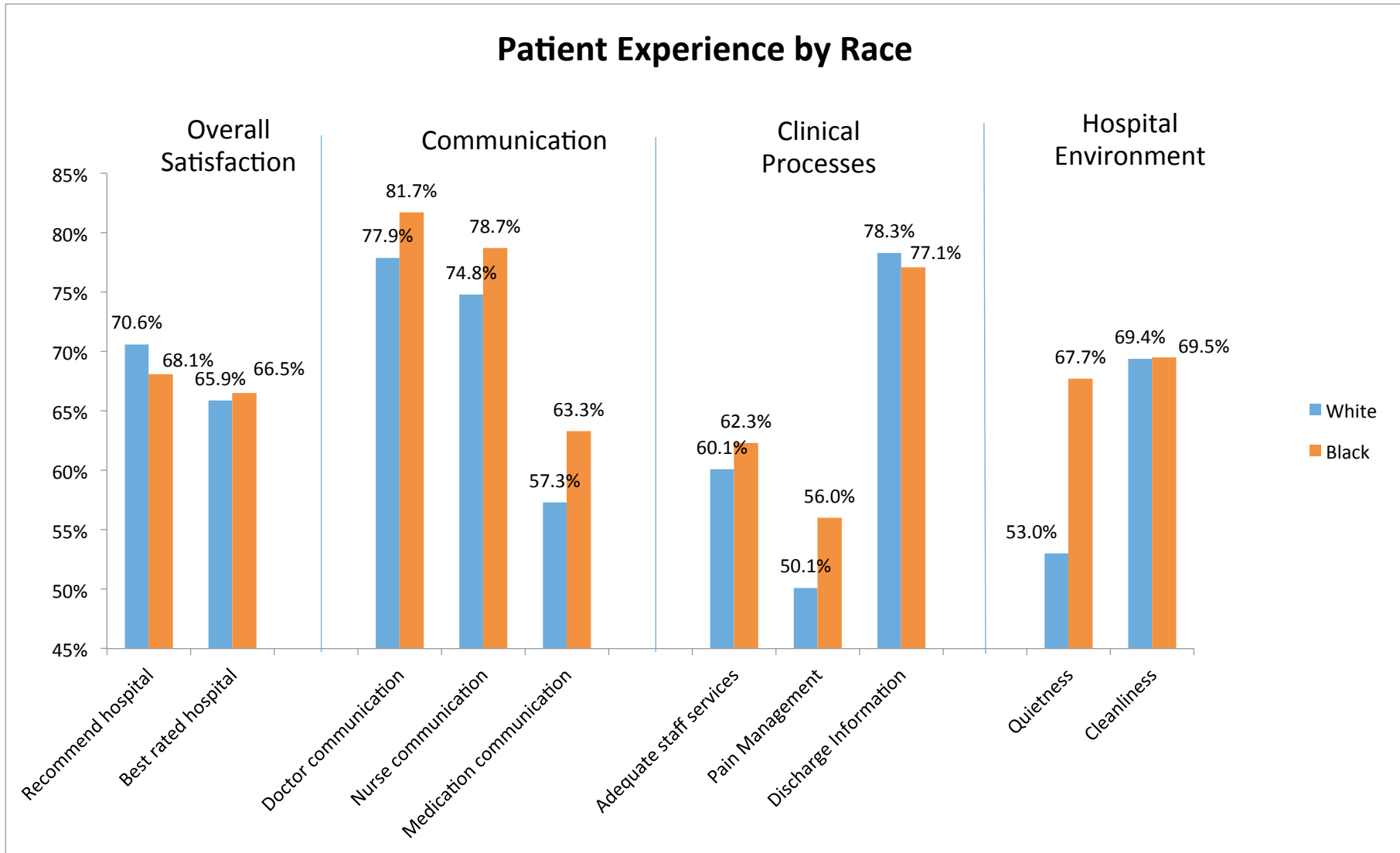
Appendix Exhibit A2. Characteristics by Site of Care

Characteristics	Minority Serving Hospitals	Non-Minority Serving Hospitals
Patient Characteristics		
No. of Patients	394,211	3,970,964
Age	(%)	(%)
< 65	58.4	49.1
65 - 69	10.2	11.0
70 - 79	18.0	21.6
80 +	13.4	18.0
Gender		
Female	63.1	62.1
Race		
Non-Hispanic White	52.4	88.2
Black	41.2	6.4
Education		
Less than high school	21.8	15.1
High school graduate or GED	32.2	32.8
Some college or beyond	45.9	62.2
Overall Health		
Excellent	12.4	13.0
Very good or good	55.4	58.1
Fair or Poor	32.2	28.8
Reason of Admission		
Maternity Care	9.8	11.7
Medical	57.5	52.3
Surgical	32.6	36.0
Hospital Characteristics		
No. of Hospitals	364	3432
Hospital Size	(%)	(%)
Small	10.2	20.7
Medium	53.7	55.9
Large	36.1	23.4
Teaching Status		
Major Teaching	34.8	13.3
Non-Major teaching	65.2	86.7

SOURCE: Author analysis of HCAHPS Data, 2009-2010. Differences between minority-serving and non-minority serving hospitals were all statistically significant with $p < 0.001$ for all characteristics.

Note: Some of the percentages do not add up to 100% due to rounding.

Appendix Exhibit A3. Patient Experience by Race (Overall, unadjusted)



SOURCE: Author analysis of HCAHPS Data, 2009-2010.

Caption: Patient Experience by race, unadjusted. The difference in performance score between blacks and whites was statistically significant for all measures ($p < 0.001$) except for two measures of patient satisfaction: best rated hospital and cleanliness of hospital environment ($p = 0.37$ and $p = 0.68$, respectively).

Appendix Exhibit A4: Patient Experience by Race (Expanded version of Exhibit 3)

HCAHPS Measure	Race				Race				Race				Between Hospital Difference
	Black	White	Diff B-W	P-value	Black	White	Diff B-W	P-value	Black	White	Diff B-W	P-value	
	Unadjusted				Adjusted by Patient Characteristics				Adjusted by Pt + Hosp Characteristics				
Overall Satisfaction													
Recommend hospital	68.1%	70.6%	-2.5%	<.0001	68.7%	70.5%	-1.9%	<.0001	69.7%	68.9%	0.8%	<.0001	-2.7%
Best rated hospital	66.5%	65.9%	0.6%	0.37	66.9%	65.9%	1.0%	<.0001	69.2%	65.3%	3.8%	<.0001	-2.8%
Communication													
Communication with doctors	81.7%	77.9%	3.8%	<.0001	81.1%	78.3%	2.8%	<.0001	82.7%	79.0%	3.8%	<.0001	-1.0%
Communication with nurses	78.7%	74.8%	3.9%	<.0001	78.4%	75.1%	3.3%	<.0001	80.9%	75.6%	5.4%	<.0001	-2.1%
Communication about medications	63.3%	57.3%	6.0%	<.0001	61.8%	57.9%	3.9%	<.0001	64.2%	58.8%	5.4%	<.0001	-1.5%
Clinical Management													
Adequate staff services	62.3%	60.1%	2.2%	<.0001	61.0%	60.7%	0.3%	0.01	65.2%	62.3%	2.9%	<.0001	-2.5%
Pain Management	56.0%	50.1%	6.0%	<.0001	53.2%	51.0%	2.2%	<.0001	54.7%	50.4%	4.3%	<.0001	-2.1%
Discharge Information	77.1%	78.3%	-1.2%	<.0001	76.3%	78.7%	-2.3%	<.0001	77.2%	77.7%	-0.5%	<.0001	-1.9%
Hospital environment													
Quietness of hospital environment	69.6%	53.0%	16.6%	<.0001	67.7%	53.9%	13.8%	<.0001	70.2%	56.2%	13.9%	<.0001	-0.1%
Cleanliness of hospital environment	69.5%	69.4%	0.1%	0.68	69.4%	69.5%	0.1%	0.7980	73.9%	71.1%	2.8%	<.0001	-2.9%

SOURCE: Author analysis of HCAHPS Data, 2009-2010. Note: This table is the expanded version of Exhibit 3 (includes actual satisfaction scores and not just differences).

Appendix Exhibit A5. Overall Patient Experience by Site of Care

HCAHPS Measure	Minority-Serving Hospitals	Non-Minority Serving Hospital	Difference	P-value
Overall Satisfaction				
Recommend Hospital	67.2%	71.7%	-4.5%	<0.001
Best Rated Hospital	64.5%	67.2%	-2.7%	<0.001
Communication				
Doctor communication	79.8%	78.5%	+1.3%	<0.001
Nurse communication	75.0%	75.4%	-0.4%	0.349
Medication communication	58.7%	58.3%	0.4%	0.284
Clinical Processes				
Staff Responsiveness	59.5%	60.7%	-1.2%	0.051
Pain Control	51.1%	51.3%	-0.2%	0.563
Discharge Process	76.4%	78.8%	-2.4%	<0.001
Hospital environment				
Quietness	59.4%	54.9%	5.5%	<0.001
Cleanliness	68.0%	70.0%	-2.0%	<0.001

SOURCE: Author analysis of HCAHPS Data, 2009-2010.

Note: Multivariable model adjusted for age, sex, overall health, education, type and source of admission, hospital size, teaching status, and controlled for clustering effect within hospitals.

Note: Values rounded to one decimal point and thus explains why some differences may seem off by 0.1%

Appendix Exhibit A6. The relationship between Health Status and Patient Experience for black and white patients

HCAHPS Measure	Fair or Poor Health Status			Good or Excellent Health Status			Interaction Between Health Status and Race (P-value) ^c
	Blacks	Whites	Difference Black-White ^a	Blacks	Whites	Difference Black-White ^b	
Overall Satisfaction							
Recommend Hospital	62.5%	62.7%	-0.2%	73.4%	71.5%	+1.8%****	<0.001
Best Rated Hospital	62.4%	58.6%	+3.8%****	73.4%	68.2%	+5.2%****	<0.001
Communication							
Doctor communication	76.7%	72.0%	+4.7%****	85.9%	81.9%	+4.0%****	<0.001
Nurse communication	74.7%	69.7%	+5.0%****	84.4%	78.1%	+6.3%****	<0.001
Medication communication	58.5%	53.1%	+5.4%****	67.6%	61.1%	+6.5%****	0.693
Clinical Processes							
Staff Responsiveness	57.6%	54.0%	+3.6%****	69.6%	66.0%	+3.6%****	0.78
Pain Control	49.0%	44.0%	+5.1%****	58.0%	53.1%	+4.8%****	0.16
Discharge Process	74.3%	75.7%	-1.4%****	78.7%	78.5%	+0.2%**	<0.001
Hospital environment							
Quietness	66.7%	52.5%	+14.3%****	73.4%	57.9%	+15.5%****	<0.001
Cleanliness	69.9%	67.4%	+2.5%****	76.7%	72.7%	+4.0%****	<0.001

SOURCE: Author analysis of HCAHPS Data, 2009-2010.

^a Represents the adjusted difference between Blacks Satisfaction Scores minus Whites Satisfaction Scores in patients who self-reported fair or poor health status.

^b Represents the adjusted difference between Blacks' Satisfaction Scores minus Whites' Satisfaction Scores in patients who self-reported good or excellent health status.

^c Test for interaction between level of education and race.

**** P-value <0.0001

** P-value <0.01

Note: Values rounded to one decimal point and thus explains why some differences may seem off by 0.1-0.2%.

Appendix Exhibit A7. Patient Experience by Site of Care

HCAHPS Measure	Minority Serving Hospitals			Non-Minority Serving Hospitals			Difference Across Hospitals By Race		
	Blacks	Whites	Difference Black-White ^a	Blacks	Whites	Difference Black-White ^b	By Blacks ^c	By Whites ^d	P-value (interaction) ^e
Overall Satisfaction									
Recommend Hospital	66.1%	68.0%	-1.9%*	73.1%	71.6%	+1.5%	-7.0%*	-3.6%*	<0.001
Best Rated Hospital	65.2%	64.2%	+1.0%	71.1%	67.0%	+4.2%*	-5.9%*	-2.8%*	<0.001
Communication									
Doctor communication	81.8%	78.6%	+3.3%*	82.7%	78.2%	+4.5%*	-0.9%	+0.4%	<.001
Nurse communication	77.3%	73.5%	+3.8%*	79.9%	75.1%	+4.8%*	-2.6%*	-1.6%	0.013
Medication communication	61.7%	57.0%	+4.7%*	63.4%	57.9%	+5.4%*	-1.7%*	-0.9%	0.060
Clinical Processes									
Staff Responsiveness	60.8%	58.7%	+2.2%*	63.3%	60.6%	+2.7%*	-2.5%*	+1.9%*	0.309
Pain Control	53.6%	49.5%	+4.1%*	56.7%	50.9%	+5.8%*	-3.1%*	+1.4%*	<0.001
Discharge Process	75.8%	76.8%	-1.0%*	76.4%	78.8%	-2.4%*	-0.6%	-2.0%*	0.010
Hospital environment									
Quietness	69.2%	54.9%	+14.3%*	70.3%	53.9%	+16.4%*	-1.1%	+1.0%	0.002
Cleanliness	70.1%	66.6%	+3.5%*	71.5%	69.9%	+1.6%*	-1.4%	-3.3%*	<0.001

SOURCE: Author analysis of HCAHPS Data, 2009-2010.

Multivariable model adjusted for age, sex, overall health, education, type and source of admission, hospital size, teaching status, and controlled for clustering effect within hospitals.

^a Represents the adjusted difference between Blacks Satisfaction Scores Minus Whites Satisfaction Scores in Minority Serving Hospitals only.

^b Represents the adjusted difference between Blacks Satisfaction Scores Minus Whites Satisfaction Scores in Non-Minority Serving Hospitals only.

^c Represents the adjusted difference between Blacks' Satisfaction Scores at Minority Serving Hospitals minus the Whites' Satisfaction Scores in Non-Minority Serving Hospitals.

^d Represents the adjusted difference between Whites' Satisfaction Scores at Minority Serving Hospitals minus the Whites' Satisfaction Scores in Non-Minority Serving Hospitals.

^e Test for interaction between site of care and the racial difference in patient experience between blacks and whites.

*P-value <0.001

Note: Values rounded to one decimal point and thus explains why some differences may seem off by 0.1%.