

OBSTETRICS

Black-white differences in severe maternal morbidity and site of care

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BACKGROUND: For every maternal death, >100 women experience severe maternal morbidity, which is a life-threatening diagnosis, or undergo a life-saving procedure during their delivery hospitalization. Similar to racial/ethnic disparities in maternal death, black women are more likely to experience severe maternal morbidity than white women. Site of care has received attention as a mechanism to explain disparities in other areas of medicine. Data indicate that black women receive care in a concentrated set of hospitals and that these hospitals appear to provide lower quality of care. Whether racial differences in the site of delivery contribute to observed black-white disparities in severe maternal morbidity rates is unknown.

OBJECTIVE: The purpose of this study was to determine whether hospitals with high proportions of black deliveries have higher severe maternal morbidity and whether such differences contribute to overall black-white disparities in severe maternal morbidity.

STUDY DESIGN: We used a published algorithm to identify cases of severe maternal morbidity during deliveries in the Nationwide Inpatient Sample of the Healthcare Cost and Utilization Project for 2010 and 2011. We ranked hospitals by their proportion of black deliveries into high black-serving (top 5%), medium black-serving (5% to 25% range), and low black-serving hospitals. We analyzed the risks of severe maternal morbidity for black and white women by hospital black-serving status using logistic regressions that were adjusted for patient characteristics,

comorbidities, hospital characteristics, and within-hospital clustering. We then derived adjusted rates from these models.

RESULTS: Seventy-four percent of black deliveries occurred at high and medium black-serving hospitals. Overall, severe maternal morbidity occurred more frequently among black than white women (25.8 vs 11.8 per 1000 deliveries, respectively; $P < .001$); after adjustment for the distribution of patient characteristics and comorbidities, this differential declined but remained elevated (18.8 vs 13.3 per 1000 deliveries, respectively; $P < .001$). Women who delivered in high and medium black-serving hospitals had elevated rates of severe maternal morbidity rates compared with those in low black-serving hospitals in unadjusted (29.4 and 19.4 vs 12.2 per 1000 deliveries, respectively; $P < .001$) and adjusted analyses (17.3 and 16.5 vs 13.5 per 1000 deliveries, respectively; $P < .001$). Black women who delivered at high black-serving hospitals had the highest risk of poor outcomes.

CONCLUSION: Most black deliveries occur in a concentrated set of hospitals, and these hospitals have higher severe maternal morbidity rates. Targeting quality improvement efforts at these hospitals may improve care for all deliveries and disproportionately impact care for black women.

Key words: disparities, obstetrics, quality of care, severe maternal morbidity

Deaths associated with pregnancy in the United States are the “tip of the iceberg”¹; for every maternal death, >100 women experience severe maternal morbidity, which is a life-threatening diagnosis, or undergo a life-saving procedure during delivery hospitalization.^{1,2} Severe maternal morbidity affects approximately 60,000 women annually in the United States.^{2,3} Similar to racial/ethnic disparities in maternal death, black women are more likely to experience severe maternal morbidity than white women.¹ Data

suggest that a significant proportion of maternal death and morbidity may be preventable,⁴⁻⁶ which makes the quality of health care delivered in hospitals an essential lever for improving outcomes and narrowing disparities.

Site of care has received increasing attention as a mechanism to explain disparities. Previous studies have documented that black women receive care in a concentrated set of hospitals and that these hospitals appear to provide lower quality of care.^{7,8} For example, investigators have found that hospitals with a higher proportion of black patients have higher mortality rates for surgery, heart attacks, and very low birthweight neonates.⁹⁻¹¹ In obstetrics, investigators documented that black-serving hospitals performed worse than other hospitals on 12 of 15 delivery-related indicators.¹² Whether racial differences in site of delivery contribute

to observed black-white disparities in severe maternal morbidity rates is unknown. The objectives of this study were to examine whether hospitals with high proportions of black deliveries have higher severe maternal morbidity rates and if such differences contribute to overall black-white disparities in severe maternal morbidity rates.

Materials and Methods

We used data from the 2010 and 2011 Nationwide Inpatient Sample of the Healthcare Cost and Utilization Project, a federal-state-industry partnership that is sponsored by the Agency for Healthcare Research and Quality. The Nationwide Inpatient Sample is a stratified sample that represents 20% of US community hospitals. Each record is weighted to account for the complex sampling; when weights are applied during analysis, nationwide estimates

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can be derived.¹³ The Nationwide Inpatient Sample data does not include personal identifiers. The Mount Sinai Program for Protection of Human Subjects (Institutional Review Board) deemed this research exempt.

Study sample

Delivery hospitalizations were identified based on International Classification of Diseases—ninth revision-Clinical Modification diagnosis and procedure codes and diagnosis-related group delivery codes.¹⁴ We examined all deliveries that occurred in hospitals with at least 10 deliveries annually because we wanted to analyze hospitals with an obstetric volume that was high enough to preclude hospitals with no routine obstetrics practice and therefore excluded 408 (77 unweighted) deliveries at 171 hospitals (35 unweighted). This resulted in the exclusion of 0.005% white deliveries and 0.007% black deliveries. We limited our analyses to black and white deliveries and excluded 2,472,365 additional deliveries on this basis. Some hospitals do not record data on race/ethnicity routinely in their hospital discharge summaries; thus, race was missing for 722 hospitals (152 unweighted), which was approximately 11.2% of the hospitals. Severe maternal morbidity was not different for deliveries in the hospitals with and without data on race (1.51 vs 1.34; $P = .37$). Our analysis thus included 5539 hospitals (1146 unweighted, 1140 unique hospitals for combined 2010-2011 dataset) that provided delivery services and 4,609,291 deliveries (942,622 unweighted). Only national estimates are presented in the results section.

Severe maternal morbidity

We used a published algorithm defined by investigators from the Centers for Disease Control and Prevention to identify severe maternal morbidity (primary outcome), which is a potentially life-threatening diagnosis or receipt of a life-saving procedure (eg, renal failure, shock, embolism, eclampsia, septicemia, mechanical ventilation, transfusion).² The algorithm includes 25 categories that capture indicators of organ-system

dysfunction. It hierarchically classifies all severe maternal morbidity hospitalizations that are associated with in-hospital death or transfer because of hospitalizations with severe complications, regardless of the length of stay. *In-hospital death* was identified with the use of the variable “died during hospitalization” and transfer status using “disposition of patient” or “admission source” in the Nationwide Inpatient Sample. Length of stay is also a part of this algorithm. Hospitalizations with severe morbidity rates and a short length of stay were not classified as cases of severe maternal morbidity as specified by the Centers for Disease Control and Prevention algorithm. *Short length of hospital stay* was defined as length of stay <90th percentile as calculated separately for vaginal, primary, and repeat cesarean deliveries. Length of stay restrictions were not applied to delivery hospitalizations with severe complications that were identified by procedure codes (eg, hysterectomy, blood transfusion, ventilation), as recommended.²

Black-serving delivery hospitals

Similar to methods used by Jha et al⁸ and Lopez and Jha,¹⁵ we ranked hospitals by their proportion of black deliveries among all deliveries and chose 2 cut-off points. We defined the top 5% of hospitals as high black-serving hospitals, the next 20% (those in the >5% to ≤25% range) as medium black-serving hospitals, and the remaining 75% of hospitals as low black-serving hospitals. Two hundred seventy-nine hospitals (5%) were designated as high black-serving; 1106 hospitals (20%) were designated as medium black-serving, and 4102 hospitals (75%) were designated as low black-serving.

Covariables

Risk adjustment variables were chosen by their association with the outcome, biologic plausibility, and previous research.^{16,17} Our aim was to adjust for factors that were likely to affect maternal morbidity and hospital of delivery. We included maternal sociodemographic characteristics (age, race, and income [the latter broken down by zip code]),

clinical factors (eg, multiple births, previous cesarean delivery) and comorbid conditions and antepartum complications (eg, diabetes mellitus, hypertension, preeclampsia, obesity, preterm labor, premature rupture of membranes, disorders of placentation).¹⁸ Hospital characteristics included teaching status, hospital ownership, delivery volume, rural or urban location, hospital region (Northeast, Midwest, South, and West), bed size, and percentage of Medicaid admissions as a proxy for the proportion of poor patients that the hospitals serve.

Analysis

We compared the characteristics of black vs white women with severe maternal morbidity with Rao-Scot chi square tests for categorical data. We used analysis of variance and chi square tests, as appropriate, to examine the characteristics of delivery hospitals according to the proportion of their black deliveries. For our primary outcome, risk-adjusted probability of severe maternal morbidity, we estimated 4 multivariable patient-level logistic regression models. Each model incorporated the survey weights; the variance estimates accounted for the Nationwide Inpatient Sample structure.¹³

The first model included race and patient risk factors only; the second included these variables plus indicator variables for whether the hospital was a high, medium, or low black-serving hospital. The third included these variables plus the other hospital levels variables listed earlier. For the fourth model, we included patient risk factors, race, and black-serving status of the hospital and variables that represented the interaction between race and black-serving status of the hospital. Using this model, we estimated the risk-adjusted predicted probability of severe maternal morbidity for 6 categories of race and hospital: black and white patients, respectively, at high black-serving hospitals; black and white patients, respectively, at medium black-serving hospitals; and black and white patients, respectively, at low black-serving hospitals. We used recycled predictions

to calculate predicted probabilities using the margins command; confidence intervals were estimated with the use of the delta method.¹⁹

We conducted 2 sensitivity analyses. First, we estimated the multivariable patient-level logistic regression model and added cesarean delivery as a covariate. Second, we conducted the analyses after excluding hospitals with <30 deliveries. All statistical analyses were performed with SAS system software (version 9.3; SAS Institute Inc, Cary, NC) and Stata/SE (version 13.1; StataCorp LP, College Station, TX). All tests were 2-tailed; a probability value of .05 was considered statistically significant.

Results

In 2010 and 2011, there were 3,584,639 deliveries to white women (78%) and 1,024,652 deliveries to black women (22%). Black women were more likely to be younger, have Medicaid insurance, live in lower-income zip code neighborhoods, and have more comorbid conditions than white women (Table 1). Of the 4.6 million total deliveries, 68,841 were associated with severe maternal morbidity (15.0 cases per 1000).

High black-serving hospitals provided delivery services for approximately 24.0% of all black deliveries, and medium black-serving hospitals cared for an additional 49.7% of black pregnant women. Thus, high and medium black-serving hospitals provided delivery services for 73.7% of all black deliveries. In comparison, high black-serving hospitals provided delivery services for 1.8% of all white deliveries, and medium black-serving hospitals provided delivery services for 16.0% of all white deliveries.

Both high and medium black-serving hospitals had different characteristics from low black-serving hospitals (Table 2). Black-serving hospitals were more likely to be located in an urban area, to be located in the South, to be a teaching hospital, to have a higher delivery volume, to have larger bed size, and to have a higher proportion of Medicaid deliveries.

TABLE 1
Patient characteristics by race

| Maternal characteristics | White | | Black | | Pvalue |
|--|-----------|------|-----------|------|--------|
| | N | % | N | % | |
| | 3,584,639 | 77.8 | 1,024,652 | 22.2 | |
| Maternal age, y | | | | | < .001 |
| <20 | 239,101 | 6.7 | 146,589 | 14.3 | |
| 20-29 | 1,831,669 | 51.1 | 582,108 | 56.8 | |
| 30-34 | 967,307 | 27.0 | 181,903 | 17.8 | |
| 35-39 | 439,096 | 12.2 | 89,397 | 8.7 | |
| 40-44 | 100,657 | 2.8 | 22,985 | 2.2 | |
| ≥45 | 6,809 | 0.2 | 1,670 | 0.2 | |
| Medicaid | 1,275,279 | 35.6 | 708,208 | 69.1 | < .001 |
| Income according to zip code, \$ | | | | | < .001 |
| <41,000 | 726,779 | 20.5 | 466,830 | 47.0 | |
| 41,000 to <51,000 | 870,385 | 24.6 | 213,907 | 21.6 | |
| 51,000 to <67,000 | 981,061 | 27.7 | 188,202 | 19.0 | |
| ≥67,000 | 965,345 | 27.2 | 123,605 | 12.5 | |
| Most prevalent comorbidities and complications | | | | | |
| Previous cesarean delivery | 582,580 | 16.3 | 182,113 | 17.8 | < .001 |
| Blood disorders | 345,259 | 9.6 | 188,671 | 18.4 | < .001 |
| Pregnancy hypertension | 146,757 | 4.1 | 65,796 | 6.4 | < .001 |
| Chronic hypertension | 51,908 | 1.4 | 34,120 | 3.3 | < .001 |
| Asthma/other pulmonary | 129,404 | 3.6 | 58,253 | 5.7 | < .001 |
| Multiple gestations | 66,946 | 1.9 | 18,705 | 1.8 | .43 |
| Placental disorder | 54,806 | 1.5 | 19,508 | 1.9 | < .001 |
| Gestational diabetes mellitus | 30,198 | 0.8 | 13,754 | 1.3 | < .001 |
| Diabetes mellitus other | 27,528 | 0.8 | 12,465 | 1.2 | < .001 |
| Diagnosis of obesity | 144,539 | 4.0 | 76,675 | 7.5 | < .001 |
| Cardiac disease | 15,635 | 0.4 | 3,805 | 0.4 | .007 |
| ≥1 Comorbidity/risk factor | 1,392,932 | 38.9 | 502,988 | 49.1 | < .001 |

Note: The data represent national estimates for deliveries in hospitals with at least 10 deliveries; 20% or less with missing race.

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Table 3 presents crude and adjusted rates of severe maternal morbidity by race and site of care. Unadjusted rates were higher among black women than white women (25.8 vs 11.8 per 1000 deliveries respectively; $P < .0001$). Excess comorbidities among black women explained a significant portion of this disparity. After adjustment for patient characteristics and comorbidities, the rates were 18.8 and 13.3, respectively

($P < .0001$). These rates are those that would be expected if patient characteristics and comorbidities in the population were distributed similarly among white women and black women, which leads to an increase for white women and a decrease for black women. Women who delivered in high and medium black-serving hospitals had higher severe maternal morbidity rates than those in low black-serving hospitals (29.4 and

TABLE 2
Hospital characteristics for high, medium, and low proportion of black deliveries

| Variable | High (n = 279) | | Medium (n = 1106) | | Low (n = 4102) | | Pvalue |
|---|-------------------|----------------|-------------------|------|-----------------|------|--------|
| | N | % | N | % | N | % | |
| Median black deliveries, % (range) | 58.6 (46.7, 98.6) | | 26.4 (20.8, 45.8) | | 2.2 (0.0, 20.5) | | |
| Bed size | | | | | | | < .001 |
| Small | 39 | 14.0 | 181 | 16.3 | 1186 | 28.9 | |
| Medium | 59 | 21.1 | 322 | 29.1 | 1267 | 30.9 | |
| Large | 176 | 63.1 | 589 | 53.3 | 1590 | 38.8 | |
| Missing | 5 | 1.8 | 14 | 1.3 | 59 | 1.4 | |
| Location | | | | | | | < .001 |
| Rural | 88 | 31.7 | 235 | 21.2 | 1606 | 39.2 | |
| Urban | 185 | 66.5 | 857 | 77.5 | 2437 | 59.4 | |
| Missing | 5 | 1.8 | 14 | 1.3 | 59 | 1.4 | |
| Hospital region | | | | | | | < .001 |
| Northeast | 39 | 13.8 | 145 | 13.1 | 698 | 17.0 | |
| Midwest | 59 | 21.0 | 111 | 10.1 | 1170 | 28.5 | |
| South | 181 | 65.1 | 802 | 72.5 | 1054 | 25.7 | |
| West | ≤2 ^a | — ^a | 48 | 4.4 | 1180 | 28.8 | |
| Hospital control | | | | | | | .110 |
| Government, nonfederal | 74 | 26.4 | 238 | 21.6 | 703 | 17.1 | |
| Private, nonprofit | 156 | 56.2 | 638 | 57.7 | 2767 | 67.4 | |
| Private, invest-owned | 44 | 15.7 | 216 | 19.5 | 573 | 14.0 | |
| Missing | 5 | 1.8 | 14 | 1.3 | 59 | 1.4 | |
| Teaching status | | | | | | | < .001 |
| Not teaching | 142 | 50.9 | 717 | 64.8 | 3280 | 80.0 | |
| Teaching | 132 | 47.4 | 374 | 33.9 | 763 | 18.6 | |
| Missing | 5 | 1.8 | 14 | 1.3 | 59 | 1.4 | |
| Delivery volume (quintiles) | | | | | | | .004 |
| Very low (12-1021) | 147 | 52.8 | 449 | 40.6 | 2637 | 64.3 | |
| Low (1022-1888) | 54 | 19.3 | 296 | 26.8 | 646 | 15.8 | |
| Median (1900-2829) | 34 | 12.3 | 185 | 16.7 | 386 | 9.4 | |
| High median (2833-4143) | 34 | 12.2 | 108 | 9.7 | 282 | 6.9 | |
| High (4155-13010) | 10 | 3.5 | 68 | 6.2 | 150 | 3.7 | |
| Percent Medicaid deliveries (quintiles) | | | | | | | < .001 |
| Very low (<15.8%) | 10 | 3.5 | 156 | 14.1 | 800 | 19.7 | |
| Low (15.9-23.4%) | 19 | 7.0 | 205 | 18.5 | 907 | 22.2 | |
| Median (23.4-30.6%) | 25 | 8.9 | 189 | 17.1 | 945 | 23.1 | |
| High median (30.6-39.0%) | 68 | 24.6 | 249 | 22.5 | 784 | 19.2 | |
| High (39.0-89.5%) | 156 | 56.1 | 307 | 27.7 | 646 | 15.8 | |

^a Number is masked based on the Healthcare Cost and Utilization Project privacy protection rules Note: The data represent national estimates for deliveries in hospitals with at least 10 deliveries; 20% or less with missing race.

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TABLE 3
Severe maternal morbidity rates by race and site of care, per 1000 deliveries

| Variable | Deliveries (national estimates), n | Unadjusted rate (95% confidence interval) | Rate adjusted for patient characteristics ^a (95% confidence interval) | Rate adjusted for patient characteristics ^a and site of care (95% confidence interval) | Rate adjusted for patient ^a , site of care, and hospital ^b characteristics (95% confidence interval) |
|--------------------------------|------------------------------------|---|--|---|--|
| Race | | | | | |
| White | 3,584,639 | 11.8 (11.2–12.5) | 13.3 (12.5–14.1) | 13.8 (12.9–14.7) | 13.8 (12.9–14.7) |
| Black | 1,024,652 | 25.8 (2.35–2.80) | 18.8 (17.1–20.5) | 17.3 (16.1–18.5) | 17.3 (16.2–18.4) |
| Site of care | | | | | |
| Low black-serving hospitals | 3,279,641 | 11.8 (11.0–12.6) | | 13.4 (12.6–14.3) | 13.5 (12.6–14.5) |
| Medium black-serving hospitals | 1,000,458 | 18.4 (16.8–20.1) | | 16.5 (15.1–17.9) | 16.5 (15.0–18.0) |
| High black-serving hospitals | 329,193 | 29.1 (21.6–36.5) | | 18.1 (13.5–22.7) | 17.3 (12.9–21.7) |

^a Patient characteristics include age, insurance, zip code income, comorbidities, and pregnancy complications¹; ^b Hospital factors include teaching status, bed size, location, region, control, volume of deliveries, and percentage of Medicaid deliveries.
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19.4, vs 12.2 per 1000 deliveries, respectively; $P < .001$). Adjustment for sociodemographic, clinical, and hospital factors attenuated these differences (17.3 and 16.5 vs 13.5 per 1000 deliveries, respectively; $P < .001$).

The Figure presents adjusted rates of severe maternal morbidity for black and white women by black-serving hospital status. Of the 6 groups, white patients at low black-serving hospitals had the lowest rates of adjusted severe maternal morbidity (12.3 per 1000 deliveries), and black patients at high black-serving hospitals had the highest rates (20.5 per 1000 deliveries). White patients at high black-serving hospitals also had elevated adjusted rates of severe maternal morbidity (19.2 per 1000 deliveries). As compared with white women who delivered at low black-serving hospitals, black and white women who delivered at high black-serving hospitals had 66.9% ($P = .002$) and 56.9% ($P = .006$), respectively, higher adjusted rates of severe maternal morbidity.

Results were essentially unchanged for the analysis that included cesarean delivery as a covariate in the multivariable model. Likewise, the results were unchanged when we used a different obstetrics volume (<30 deliveries annually) to exclude hospitals from the analysis.

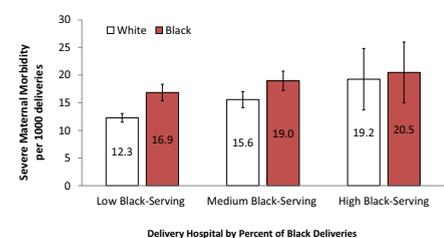
Comment

We found that severe maternal morbidity occurred more than twice as often in black deliveries than white deliveries. Although some of these differences were due to higher rates of comorbidity among black than white women, our data demonstrate that some of these disparities may be caused by differences in the health care settings in which white and black women receive obstetrical delivery care. We examined the concentration of delivery care for black women and found that one-quarter of hospitals provided care for three-quarters of all black deliveries in the United States. Hospitals that disproportionately cared for black deliveries had higher severe maternal morbidity rates after adjustment for patient and hospital characteristics.

Understanding the reason that racial disparities in maternal outcomes exist is the first step in eliminating them. Most research on racial/ethnic disparities in obstetrics has attributed differences in outcomes to social and biologic/genetic factors²⁰ and has not accounted for the systems within which obstetric care is delivered and how differences in quality of care may contribute to disparities.⁸ We found that both black and white patients who delivered in black-serving hospitals had a higher risk of severe maternal morbidity after accounting for

patient characteristics. Adjusting for differences in hospital characteristics had little effect on our primary findings and may suggest that quality of care at hospitals that disproportionately serve black women is lower than quality at low black-serving hospitals.

Our results are similar to findings in other reports.^{9–11,21,22} In obstetrics with the use of data from 7 states, investigators found that black-serving hospitals performed worse than other hospitals on most delivery-related indicators.¹² Our study builds on this previous work by giving national estimates and examining severe maternal

FIGURE
Risk-adjusted severe maternal morbidity rates for black and white deliveries by site of care

Adjusted rates of severe maternal morbidity for black and white women by black-serving hospital status.

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morbidity as the outcome of interest. Further, we used methods to categorize black-serving hospitals that were used in health care quality assessment^{8,14} and were able to examine both the concentration of care by race and the extent to which racial differences in site of care contribute to racial differences in severe maternal morbidity. In other areas of medicine, multiple studies have demonstrated that black women receive care in a concentrated set of hospitals and that these hospitals appear to provide lower quality of care. Disparities in outcomes that include acute myocardial infarction, surgical death, very low birthweight death and readmission for congestive heart failure and acute myocardial infarction have been found to be due to, in part, where minorities and white women receive care.^{9-11,21,22} Similarly, disparities in receipt of appropriate care such as thrombotic therapy, angioplasty, carotid imaging, and provision of timely antibiotics for pneumonia are lower in hospitals that serve a high proportion of black women.^{7,8,23} Our findings add to this body of literature and suggest that targeting interventions to improve care at hospitals that serve a high proportion of black women may reduce poor outcomes and racial/ethnic disparities.

After adjustment for patient- and hospital-level factors, we found that black women had a higher adjusted rate of severe maternal morbidity than white women. Our results confirm that the high risk of adverse outcomes faced by black women who give birth in comparison with white women in the United States and are similar to findings by others.^{16,24} Comorbidities and pregnancy complications have been demonstrated to be highly associated with severe maternal morbidity¹⁷ and have explained a significant portion of the elevated risk for severe maternal morbidity among black women in this cohort.

Both black and white women who delivered at high black-serving hospitals had higher adjusted rates of severe maternal morbidity. Chronic illnesses and pregnancy complications require close antepartum management, and it

is possible that the availability of high-quality antenatal care is limited for patients who deliver at black-serving hospitals. Targeted preventive community-based programs (both pre-conceptually and antenatally) in the catchment areas that serve these hospitals may be an important step to reducing disparities.^{25,26}

Our study had limitations. We used administrative data (International Classification of Diseases—ninth revision—Clinical Modification procedure and diagnosis codes) that do not contain important clinical data on severity of illness, which may have constrained our ability to risk-adjust adequately. For example, we were unable to control for adequacy of prenatal care, parity, medication exposure, number of previous cesarean deliveries, and other clinical factors that may be associated with severe maternal morbidity. In addition, our use of administrative data limited our ability to adequately adjust for obesity. We limited our study to care for black and white deliveries because administrative data sources are often less reliable for other race/ethnicity groups.²⁷ Nevertheless, we constructed a robust model that adjusted for variation in comorbidities and obstetric complications across these racial groups and hospitals.

Three-quarters of black deliveries in the United States occur in one-quarter of the hospitals, and our data suggest that these hospitals may provide lower quality of care. Our findings highlight the need for targeting quality improvement efforts that address both antenatal and delivery care factors for pregnant women who deliver at these hospitals. This strategy has the potential to improve care for all women who deliver in these hospitals and can have a disproportionate impact on the care of black pregnant women. ■

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