Racial and Demographic Inequities in the Management and Outcomes of Coronary Artery Disease and Acute Stroke

Analysis for RCOP NIS Sep Neuro1

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## Preamble:

* **Reference Papers:**
  + [Havenon et al. 2024](http://doi.org/10.1001/jamaneurol.2023.5416)
  + [Salman et al. 2025](https://doi.org/10.1097/MCA.0000000000001479)
* **Study Objective**: Investigate the association between race and inpatient outcomes for coronary artery disease (CAD) and acute stroke in U.S. hospitals from 2018 to 2020, adjusting for demographic, socioeconomic, clinical, and hospital-related factors.
* **Data Source**: Cross-sectional analysis using the National Inpatient Sample (NIS) database from 2018 to 2020, a representative sample of all-payer inpatient hospitalizations in the U.S.
* **Patient Selection**: Included all inpatient admissions for coronary artery disease (CAD) and acute stroke, identified using ICD-10 diagnosis codes. Patients were categorized into racial groups: White, Asian or Pacific Islander, Black, Hispanic, and Other.
* **Outcomes of Interest:**
  + In-hospital Mortality
  + Length of Stay (days)
  + Inflation-adjusted Total Charge ($) [adjusted to 2020 dollars, using CPI data by the U.S. Bureau of Labor Statistics]
  + Postoperative Intracranial Bleeding
  + Cognitive, Visual, and Motor Dysfunction
* **Statistical Analysis**: Univariable and multivariable analyses were conducted to evaluate the association between race and outcomes:
  + **Univariable Analysis:**
    - Continuous variables: Design-based Kruskal-Wallis test.
    - Categorical variables: Pearson’s X² test with Rao & Scott adjustment to account for survey design.
  + **Multivariable Analysis:**
    - Logistic regression for binary outcomes (e.g., in-hospital mortality, postoperative intracranial bleeding).
    - Linear regression for continuous outcomes (e.g., length of stay, total charges).
  + **Adjustments:** Models controlled for the following covariates:
    - **Demographics and Socioeconomic Factors**: Race, age, sex, income quartile, insurance payer.
    - **Clinical Factors:** Charlson comorbidity index, cardiac arrhythmias, diabetes mellitus, hypertension, myocardial infarction, obesity, and intervention type (thrombolysis/platelet inhibitors, decompressive craniectomy, or other).
    - **Hospital-Level Factors:** Region, bed size, location, and teaching status.
* **Software:** All statistical analyses were performed using R Statistical Language (Version 4.4.2; R Foundation for Statistical Computing, Vienna, Austria), incorporating survey-weighted procedures via the *survey* package to account for the complex sampling design of NIS.

## Baseline Table:

| **Characteristic** | **Overall** N = 641,890*1* | **White** N = 463,215*1* | **Asian or Pacific Islander** N = 16,845*1* | **Black** N = 94,940*1* | **Hispanic** N = 48,260*1* | **Other** N = 18,630*1* | **p-value***2* |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Age, y | 73 (12) | 74 (11) | 72 (12) | 68 (12) | 70 (12) | 71 (12) | <0.001 |
| Sex |  |  |  |  |  |  | <0.001 |
| Female | 269,055 (42%) | 188,425 (41%) | 6,340 (38%) | 46,390 (49%) | 20,495 (42%) | 7,405 (40%) |  |
| Male | 372,820 (58%) | 274,775 (59%) | 10,505 (62%) | 48,550 (51%) | 27,765 (58%) | 11,225 (60%) |  |
| Intervention type |  |  |  |  |  |  | <0.001 |
| Decompressive craniectomy | 1,535 (0.2%) | 945 (0.2%) | 45 (0.3%) | 320 (0.3%) | 150 (0.3%) | 75 (0.4%) |  |
| Other | 588,750 (92%) | 425,525 (92%) | 15,315 (91%) | 87,300 (92%) | 43,625 (90%) | 16,985 (91%) |  |
| Thrombolysis & platelet inhibitors | 51,605 (8.0%) | 36,745 (7.9%) | 1,485 (8.8%) | 7,320 (7.7%) | 4,485 (9.3%) | 1,570 (8.4%) |  |
| Income quartile |  |  |  |  |  |  | <0.001 |
| $1 - $51,999 | 193,530 (31%) | 118,610 (26%) | 2,040 (12%) | 48,955 (52%) | 18,450 (39%) | 5,475 (30%) |  |
| $52,000 - $65,999 | 171,810 (27%) | 131,935 (29%) | 3,055 (18%) | 20,485 (22%) | 12,265 (26%) | 4,070 (22%) |  |
| $66,000 - $87,999 | 148,540 (24%) | 114,795 (25%) | 4,425 (27%) | 14,825 (16%) | 10,210 (22%) | 4,285 (24%) |  |
| $88,000 or more | 118,140 (19%) | 91,165 (20%) | 7,175 (43%) | 9,130 (9.8%) | 6,360 (13%) | 4,310 (24%) |  |
| Insurance payer |  |  |  |  |  |  | <0.001 |
| Medicaid | 47,305 (7.4%) | 22,945 (5.0%) | 2,225 (13%) | 13,130 (14%) | 6,405 (13%) | 2,600 (14%) |  |
| Medicare | 479,695 (75%) | 362,020 (78%) | 10,995 (65%) | 61,835 (65%) | 32,725 (68%) | 12,120 (65%) |  |
| Other | 31,135 (4.9%) | 19,980 (4.3%) | 675 (4.0%) | 5,950 (6.3%) | 3,240 (6.7%) | 1,290 (6.9%) |  |
| Private | 83,085 (13%) | 57,805 (12%) | 2,935 (17%) | 13,880 (15%) | 5,865 (12%) | 2,600 (14%) |  |
| Hospital region |  |  |  |  |  |  | <0.001 |
| Midwest | 149,175 (23%) | 121,940 (26%) | 1,720 (10%) | 20,055 (21%) | 3,290 (6.8%) | 2,170 (12%) |  |
| Northeast | 111,700 (17%) | 82,095 (18%) | 2,865 (17%) | 14,015 (15%) | 7,580 (16%) | 5,145 (28%) |  |
| South | 274,465 (43%) | 190,445 (41%) | 2,670 (16%) | 52,715 (56%) | 21,845 (45%) | 6,790 (36%) |  |
| West | 106,550 (17%) | 68,735 (15%) | 9,590 (57%) | 8,155 (8.6%) | 15,545 (32%) | 4,525 (24%) |  |
| Hospital bedsize |  |  |  |  |  |  | 0.022 |
| Large | 343,355 (53%) | 248,325 (54%) | 9,535 (57%) | 51,175 (54%) | 24,430 (51%) | 9,890 (53%) |  |
| Medium | 186,310 (29%) | 133,040 (29%) | 4,425 (26%) | 27,530 (29%) | 15,830 (33%) | 5,485 (29%) |  |
| Small | 112,225 (17%) | 81,850 (18%) | 2,885 (17%) | 16,235 (17%) | 8,000 (17%) | 3,255 (17%) |  |
| Hospital location/teaching status |  |  |  |  |  |  | <0.001 |
| Rural | 42,250 (6.6%) | 36,540 (7.9%) | 265 (1.6%) | 3,825 (4.0%) | 800 (1.7%) | 820 (4.4%) |  |
| Urban, non-teaching | 109,970 (17%) | 83,655 (18%) | 3,170 (19%) | 12,060 (13%) | 8,480 (18%) | 2,605 (14%) |  |
| Urban, teaching | 489,670 (76%) | 343,020 (74%) | 13,410 (80%) | 79,055 (83%) | 38,980 (81%) | 15,205 (82%) |  |
| No. of comorbidities |  |  |  |  |  |  | <0.001 |
| No comorbidities | 1,905 (0.3%) | 1,585 (0.3%) | 45 (0.3%) | 120 (0.1%) | 105 (0.2%) | 50 (0.3%) |  |
| One comorbidity | 36,620 (5.7%) | 29,110 (6.3%) | 845 (5.0%) | 3,310 (3.5%) | 2,250 (4.7%) | 1,105 (5.9%) |  |
| Two or more comorbidities | 603,365 (94%) | 432,520 (93%) | 15,955 (95%) | 91,510 (96%) | 45,905 (95%) | 17,475 (94%) |  |
| Cardiac arrhythmias | 291,240 (45%) | 221,655 (48%) | 7,435 (44%) | 35,255 (37%) | 19,325 (40%) | 7,570 (41%) | <0.001 |
| Diabetes mellitus | 313,635 (49%) | 208,010 (45%) | 10,085 (60%) | 54,695 (58%) | 30,675 (64%) | 10,170 (55%) | <0.001 |
| Hypertension | 580,300 (90%) | 414,510 (89%) | 15,455 (92%) | 89,090 (94%) | 44,430 (92%) | 16,815 (90%) | <0.001 |
| Myocardial infarction | 214,170 (33%) | 152,840 (33%) | 5,770 (34%) | 33,145 (35%) | 16,040 (33%) | 6,375 (34%) | <0.001 |
| Obesity | 98,760 (15%) | 69,475 (15%) | 1,280 (7.6%) | 17,595 (19%) | 7,945 (16%) | 2,465 (13%) | <0.001 |
| *1*Mean (SD); n (%) | | | | | | | |
| *2*Design-based KruskalWallis test; Pearson's X^2: Rao & Scott adjustment | | | | | | | |

## Univariable Analysis:

| **Characteristic** | **Overall** N = 641,890*1* | **White** N = 463,215*1* | **Asian or Pacific Islander** N = 16,845*1* | **Black** N = 94,940*1* | **Hispanic** N = 48,260*1* | **Other** N = 18,630*1* | **p-value***2* |
| --- | --- | --- | --- | --- | --- | --- | --- |
| In-hospital mortality | 45,240 (7.1%) | 32,910 (7.1%) | 1,630 (9.7%) | 5,615 (5.9%) | 3,530 (7.3%) | 1,555 (8.3%) | <0.001 |
| Length of stay (days) | 4.0 (2.0, 8.0) | 4.0 (2.0, 7.0) | 5.0 (3.0, 9.0) | 5.0 (3.0, 9.0) | 5.0 (2.0, 9.0) | 5.0 (3.0, 9.0) | <0.001 |
| Inflation-adjusted total charge ($) | 55,431 (30,274, 110,756) | 51,257 (28,388, 101,877) | 78,470 (43,348, 157,285) | 59,124 (33,004, 116,087) | 78,709 (44,015, 156,803) | 74,407 (38,037, 149,623) | <0.001 |
| Post-operative intracranial bleed | 280 (<0.1%) | 200 (<0.1%) | 0 (0%) | 40 (<0.1%) | 35 (<0.1%) | 5 (<0.1%) | 0.5 |
| Cognitive, visual, & motor dysfunction | 1,655 (0.3%) | 1,110 (0.2%) | 70 (0.4%) | 295 (0.3%) | 110 (0.2%) | 70 (0.4%) | 0.074 |
| *1*n (%); Median (Q1, Q3) | | | | | | | |
| *2*Pearson's X^2: Rao & Scott adjustment; Design-based KruskalWallis test | | | | | | | |

## Multivariable Logistic Regression:

### In-hospital Mortality:

| **Characteristic** | **OR***1* | **95% CI***1* | **p-value** |
| --- | --- | --- | --- |
| Race |  |  |  |
| White | — | — |  |
| Asian or Pacific Islander | 1.34 | 1.18, 1.53 | <0.001 |
| Black | 0.88 | 0.82, 0.95 | <0.001 |
| Hispanic | 1.08 | 0.99, 1.18 | 0.081 |
| Other | 1.21 | 1.07, 1.37 | 0.003 |
| Age, y | 1.02 | 1.01, 1.02 | <0.001 |
| Sex |  |  |  |
| Female | — | — |  |
| Male | 0.93 | 0.89, 0.98 | 0.003 |
| Intervention type |  |  |  |
| Decompressive craniectomy | — | — |  |
| Other | 0.18 | 0.14, 0.24 | <0.001 |
| Thrombolysis & platelet inhibitors | 0.15 | 0.11, 0.20 | <0.001 |
| Income quartile |  |  |  |
| $1 - $51,999 | — | — |  |
| $52,000 - $65,999 | 0.86 | 0.81, 0.91 | <0.001 |
| $66,000 - $87,999 | 0.84 | 0.79, 0.90 | <0.001 |
| $88,000 or more | 0.84 | 0.78, 0.90 | <0.001 |
| Insurance payer |  |  |  |
| Medicaid | — | — |  |
| Medicare | 0.93 | 0.84, 1.03 | 0.2 |
| Other | 1.61 | 1.41, 1.84 | <0.001 |
| Private | 1.15 | 1.03, 1.29 | 0.012 |
| Hospital region |  |  |  |
| Midwest | — | — |  |
| Northeast | 1.14 | 1.06, 1.24 | <0.001 |
| South | 0.96 | 0.90, 1.03 | 0.3 |
| West | 1.19 | 1.10, 1.29 | <0.001 |
| Hospital bedsize |  |  |  |
| Large | — | — |  |
| Medium | 0.86 | 0.81, 0.91 | <0.001 |
| Small | 0.78 | 0.72, 0.83 | <0.001 |
| Hospital location/teaching status |  |  |  |
| Rural | — | — |  |
| Urban, non-teaching | 0.96 | 0.86, 1.09 | 0.6 |
| Urban, teaching | 1.34 | 1.20, 1.48 | <0.001 |
| Charlson comorbidity index | 1.13 | 1.11, 1.14 | <0.001 |
| Cardiac arrhythmias |  |  |  |
| No | — | — |  |
| Yes | 1.63 | 1.56, 1.71 | <0.001 |
| Diabetes mellitus |  |  |  |
| No | — | — |  |
| Yes | 0.78 | 0.74, 0.81 | <0.001 |
| Hypertension |  |  |  |
| No | — | — |  |
| Yes | 0.50 | 0.47, 0.53 | <0.001 |
| Myocardial infarction |  |  |  |
| No | — | — |  |
| Yes | 1.12 | 1.06, 1.17 | <0.001 |
| Obesity |  |  |  |
| No | — | — |  |
| Yes | 0.76 | 0.71, 0.82 | <0.001 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | | |

### Postoperative Intracranial Bleeding:

| **Characteristic** | **OR***1* | **95% CI***1* | **p-value** |
| --- | --- | --- | --- |
| Race |  |  |  |
| White | — | — |  |
| Asian or Pacific Islander | 0.00 | 0.00, 0.00 | <0.001 |
| Black | 1.07 | 0.46, 2.48 | 0.9 |
| Hispanic | 2.13 | 0.91, 4.98 | 0.082 |
| Other | 0.77 | 0.11, 5.61 | 0.8 |
| Age, y | 0.99 | 0.96, 1.01 | 0.2 |
| Sex |  |  |  |
| Female | — | — |  |
| Male | 1.51 | 0.83, 2.73 | 0.2 |
| Intervention type |  |  |  |
| Decompressive craniectomy | — | — |  |
| Other | 0.04 | 0.01, 0.12 | <0.001 |
| Thrombolysis & platelet inhibitors | 0.07 | 0.02, 0.24 | <0.001 |
| Income quartile |  |  |  |
| $1 - $51,999 | — | — |  |
| $52,000 - $65,999 | 1.31 | 0.64, 2.67 | 0.5 |
| $66,000 - $87,999 | 1.03 | 0.46, 2.29 | >0.9 |
| $88,000 or more | 0.57 | 0.20, 1.58 | 0.3 |
| Insurance payer |  |  |  |
| Medicaid | — | — |  |
| Medicare | 10,739,838 | 6,206,945, 18,583,073 | <0.001 |
| Other | 2,989,467 | 429,449, 20,810,177 | <0.001 |
| Private | 12,211,179 | 6,341,607, 23,513,424 | <0.001 |
| Hospital region |  |  |  |
| Midwest | — | — |  |
| Northeast | 0.65 | 0.29, 1.45 | 0.3 |
| South | 0.51 | 0.28, 0.95 | 0.033 |
| West | 0.62 | 0.27, 1.44 | 0.3 |
| Hospital bedsize |  |  |  |
| Large | — | — |  |
| Medium | 0.84 | 0.47, 1.50 | 0.6 |
| Small | 0.36 | 0.12, 1.04 | 0.059 |
| Hospital location/teaching status |  |  |  |
| Rural | — | — |  |
| Urban, non-teaching | 4,086,928 | 1,604,858, 10,407,761 | <0.001 |
| Urban, teaching | 8,435,566 | 5,884,561, 12,092,453 | <0.001 |
| Charlson comorbidity index | 1.09 | 0.99, 1.20 | 0.091 |
| Cardiac arrhythmias |  |  |  |
| No | — | — |  |
| Yes | 1.20 | 0.70, 2.07 | 0.5 |
| Diabetes mellitus |  |  |  |
| No | — | — |  |
| Yes | 0.54 | 0.28, 1.03 | 0.061 |
| Hypertension |  |  |  |
| No | — | — |  |
| Yes | 0.88 | 0.37, 2.13 | 0.8 |
| Myocardial infarction |  |  |  |
| No | — | — |  |
| Yes | 0.67 | 0.37, 1.21 | 0.2 |
| Obesity |  |  |  |
| No | — | — |  |
| Yes | 0.80 | 0.36, 1.79 | 0.6 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | | |

### Cognitive, Visual, and Motor Dysfunction:

| **Characteristic** | **OR***1* | **95% CI***1* | **p-value** |
| --- | --- | --- | --- |
| Race |  |  |  |
| White | — | — |  |
| Asian or Pacific Islander | 1.62 | 0.93, 2.83 | 0.087 |
| Black | 1.32 | 0.96, 1.81 | 0.086 |
| Hispanic | 1.01 | 0.64, 1.59 | >0.9 |
| Other | 1.37 | 0.75, 2.50 | 0.3 |
| Age, y | 0.99 | 0.98, 1.00 | 0.064 |
| Sex |  |  |  |
| Female | — | — |  |
| Male | 1.24 | 0.99, 1.55 | 0.063 |
| Intervention type |  |  |  |
| Decompressive craniectomy | — | — |  |
| Other | 0.52 | 0.13, 2.13 | 0.4 |
| Thrombolysis & platelet inhibitors | 0.17 | 0.04, 0.80 | 0.025 |
| Income quartile |  |  |  |
| $1 - $51,999 | — | — |  |
| $52,000 - $65,999 | 0.96 | 0.71, 1.31 | 0.8 |
| $66,000 - $87,999 | 1.19 | 0.88, 1.62 | 0.3 |
| $88,000 or more | 1.28 | 0.92, 1.78 | 0.15 |
| Insurance payer |  |  |  |
| Medicaid | — | — |  |
| Medicare | 0.70 | 0.47, 1.04 | 0.078 |
| Other | 0.33 | 0.16, 0.72 | 0.005 |
| Private | 0.70 | 0.46, 1.07 | 0.10 |
| Hospital region |  |  |  |
| Midwest | — | — |  |
| Northeast | 1.05 | 0.76, 1.44 | 0.8 |
| South | 0.68 | 0.51, 0.91 | 0.010 |
| West | 0.76 | 0.53, 1.10 | 0.15 |
| Hospital bedsize |  |  |  |
| Large | — | — |  |
| Medium | 1.12 | 0.87, 1.44 | 0.4 |
| Small | 0.73 | 0.53, 1.01 | 0.061 |
| Hospital location/teaching status |  |  |  |
| Rural | — | — |  |
| Urban, non-teaching | 0.64 | 0.36, 1.13 | 0.13 |
| Urban, teaching | 0.94 | 0.58, 1.51 | 0.8 |
| Charlson comorbidity index | 0.91 | 0.86, 0.97 | 0.002 |
| Cardiac arrhythmias |  |  |  |
| No | — | — |  |
| Yes | 1.20 | 0.96, 1.51 | 0.11 |
| Diabetes mellitus |  |  |  |
| No | — | — |  |
| Yes | 1.13 | 0.89, 1.44 | 0.3 |
| Hypertension |  |  |  |
| No | — | — |  |
| Yes | 1.20 | 0.81, 1.79 | 0.4 |
| Myocardial infarction |  |  |  |
| No | — | — |  |
| Yes | 1.10 | 0.86, 1.41 | 0.4 |
| Obesity |  |  |  |
| No | — | — |  |
| Yes | 1.06 | 0.78, 1.44 | 0.7 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | | |

## Multivariable Linear Regression:

### Length of Stay:

| **Characteristic** | **Beta** | **95% CI***1* | **p-value** |
| --- | --- | --- | --- |
| Race |  |  |  |
| White | — | — |  |
| Asian or Pacific Islander | 1.2 | 0.82, 1.6 | <0.001 |
| Black | 1.2 | 1.1, 1.4 | <0.001 |
| Hispanic | 0.97 | 0.77, 1.2 | <0.001 |
| Other | 1.3 | 0.95, 1.7 | <0.001 |
| Age, y | -0.04 | -0.05, -0.04 | <0.001 |
| Sex |  |  |  |
| Female | — | — |  |
| Male | -0.03 | -0.12, 0.06 | 0.5 |
| Intervention type |  |  |  |
| Decompressive craniectomy | — | — |  |
| Other | -11 | -13, -9.5 | <0.001 |
| Thrombolysis & platelet inhibitors | -12 | -13, -10 | <0.001 |
| Income quartile |  |  |  |
| $1 - $51,999 | — | — |  |
| $52,000 - $65,999 | -0.21 | -0.33, -0.09 | <0.001 |
| $66,000 - $87,999 | -0.11 | -0.25, 0.03 | 0.13 |
| $88,000 or more | -0.05 | -0.21, 0.11 | 0.5 |
| Insurance payer |  |  |  |
| Medicaid | — | — |  |
| Medicare | -1.8 | -2.1, -1.5 | <0.001 |
| Other | -1.4 | -1.8, -0.99 | <0.001 |
| Private | -1.9 | -2.2, -1.6 | <0.001 |
| Hospital region |  |  |  |
| Midwest | — | — |  |
| Northeast | 0.65 | 0.44, 0.85 | <0.001 |
| South | 0.35 | 0.20, 0.50 | <0.001 |
| West | -0.07 | -0.26, 0.12 | 0.4 |
| Hospital bedsize |  |  |  |
| Large | — | — |  |
| Medium | -0.87 | -1.0, -0.73 | <0.001 |
| Small | -1.4 | -1.6, -1.3 | <0.001 |
| Hospital location/teaching status |  |  |  |
| Rural | — | — |  |
| Urban, non-teaching | 0.77 | 0.60, 0.94 | <0.001 |
| Urban, teaching | 1.9 | 1.7, 2.0 | <0.001 |
| Charlson comorbidity index | 0.43 | 0.41, 0.45 | <0.001 |
| Cardiac arrhythmias |  |  |  |
| No | — | — |  |
| Yes | 1.5 | 1.4, 1.6 | <0.001 |
| Diabetes mellitus |  |  |  |
| No | — | — |  |
| Yes | -0.57 | -0.67, -0.47 | <0.001 |
| Hypertension |  |  |  |
| No | — | — |  |
| Yes | -1.8 | -2.0, -1.6 | <0.001 |
| Myocardial infarction |  |  |  |
| No | — | — |  |
| Yes | -0.40 | -0.50, -0.30 | <0.001 |
| Obesity |  |  |  |
| No | — | — |  |
| Yes | 0.04 | -0.10, 0.17 | 0.6 |
| *1*CI = Confidence Interval | | | |

### Inflation-adjusted Total Charge:

| **Characteristic** | **Beta** | **95% CI***1* | **p-value** |
| --- | --- | --- | --- |
| Race |  |  |  |
| White | — | — |  |
| Asian or Pacific Islander | 26,826 | 18,324, 35,328 | <0.001 |
| Black | 7,002 | 3,510, 10,495 | <0.001 |
| Hispanic | 34,046 | 28,650, 39,443 | <0.001 |
| Other | 40,770 | 31,337, 50,202 | <0.001 |
| Age, y | -1,462 | -1,627, -1,298 | <0.001 |
| Sex |  |  |  |
| Female | — | — |  |
| Male | 1,930 | 151, 3,710 | 0.034 |
| Intervention type |  |  |  |
| Decompressive craniectomy | — | — |  |
| Other | -240,639 | -275,186, -206,092 | <0.001 |
| Thrombolysis & platelet inhibitors | -205,957 | -240,666, -171,248 | <0.001 |
| Income quartile |  |  |  |
| $1 - $51,999 | — | — |  |
| $52,000 - $65,999 | 59 | -2,573, 2,692 | >0.9 |
| $66,000 - $87,999 | 854 | -2,170, 3,877 | 0.6 |
| $88,000 or more | 8,360 | 4,274, 12,446 | <0.001 |
| Insurance payer |  |  |  |
| Medicaid | — | — |  |
| Medicare | -7,227 | -12,466, -1,989 | 0.007 |
| Other | -10,241 | -16,659, -3,822 | 0.002 |
| Private | -7,219 | -12,973, -1,465 | 0.014 |
| Hospital region |  |  |  |
| Midwest | — | — |  |
| Northeast | 22,919 | 16,805, 29,032 | <0.001 |
| South | 16,735 | 13,118, 20,353 | <0.001 |
| West | 48,619 | 42,120, 55,117 | <0.001 |
| Hospital bedsize |  |  |  |
| Large | — | — |  |
| Medium | -15,055 | -19,302, -10,808 | <0.001 |
| Small | -28,629 | -32,984, -24,274 | <0.001 |
| Hospital location/teaching status |  |  |  |
| Rural | — | — |  |
| Urban, non-teaching | 31,537 | 28,005, 35,069 | <0.001 |
| Urban, teaching | 51,711 | 48,582, 54,841 | <0.001 |
| Charlson comorbidity index | 4,704 | 4,303, 5,106 | <0.001 |
| Cardiac arrhythmias |  |  |  |
| No | — | — |  |
| Yes | 29,550 | 27,307, 31,792 | <0.001 |
| Diabetes mellitus |  |  |  |
| No | — | — |  |
| Yes | -10,913 | -12,866, -8,959 | <0.001 |
| Hypertension |  |  |  |
| No | — | — |  |
| Yes | -34,321 | -38,624, -30,018 | <0.001 |
| Myocardial infarction |  |  |  |
| No | — | — |  |
| Yes | 148 | -1,911, 2,208 | 0.9 |
| Obesity |  |  |  |
| No | — | — |  |
| Yes | 4,121 | 1,474, 6,768 | 0.002 |
| *1*CI = Confidence Interval | | | |