Pancreatic Cancer Outcomes and Racial Disparities: A Nationwide Investigation of Mortality, Complications, and Costs

Analysis for RCOP NIS Sep Med1

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## Preamble:

* **Reference Papers:**
  + [Osagiede et al. 2023](https://doi.org/10.1177/10499091231218257)
* **Study Objective**: Investigate the association between race and outcomes in patients admitted with pancreatic cancer across U.S. hospitals from 2018 to 2020, adjusting for demographic, clinical, and hospital-related factors.
* **Data Source**: Cross-sectional analysis using the National Inpatient Sample (NIS) database from 2018 to 2020, a nationwide database that captures inpatient admissions in the U.S.
* **Patient Selection**: Included all inpatient admissions with a diagnosis of pancreatic cancer (ICD-10 codes C25.xx), categorized by race (White, Asian or Pacific Islander, Black, Hispanic, Native American, Other).
* **Outcomes of Interest:**
  + In-hospital all-cause mortality
  + Total hospital length of stay (days)
  + Total charge, inflation adjusted to 2020 ($) [adjusted to 2020 dollars, using CPI data by the U.S. Bureau of Labor Statistics]
  + Complications:
    - Intestinal obstruction
    - Post-operative bleeding
* **Statistical Analysis**: Univariable and multivariable analyses were conducted to evaluate the associations of insurance payer with each outcome.
  + **Univariable Analysis:**
    - Design-based Kruskal-Wallis test for continuous outcomes.
    - Rao & Scott-adjusted Pearson’s Chi-square test for categorical outcomes.
  + **Multivariable Analysis:**
    - Logistic regression for binary outcomes (e.g., in-hospital mortality, complications).
    - Linear regression for continuous outcomes (e.g., length of stay, total charge).
  + Adjusted for:
    - **Demographics:** Race, age, sex, residential income quartile, and insurance payer.
    - **Clinical Factors:** Pancreatic cancer location (head, body, tail, or other), type of surgery (partial pancreatectomy, total pancreatectomy, pancreatoduodenectomy), and Charlson Comorbidity Ind
    - **Hospital Characteristics:** Region, bed size, location/teaching status.
* **Software:** All analyses were conducted using the R Statistical Language (Version 4.4.1; R Foundation for Statistical Computing, Vienna, Austria), employing survey-weighted methods to account for the complex sampling design of the NIS.

## Baseline Table:

| **Characteristic** | **Overall** N = 329,935*1* | **White** N = 234,310*1* | **Asian or Pacific Islander** N = 11,285*1* | **Black** N = 45,415*1* | **Hispanic** N = 28,105*1* | **Native American** N = 1,400*1* | **Other** N = 9,420*1* | **p-value***2* |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Age, y | 68 (11) | 69 (11) | 68 (12) | 66 (11) | 65 (13) | 66 (12) | 67 (12) | <0.001 |
| Sex |  |  |  |  |  |  |  | <0.001 |
| Female | 158,050 (48%) | 108,385 (46%) | 5,860 (52%) | 24,885 (55%) | 13,835 (49%) | 715 (51%) | 4,370 (46%) |  |
| Male | 171,875 (52%) | 125,915 (54%) | 5,425 (48%) | 20,530 (45%) | 14,270 (51%) | 685 (49%) | 5,050 (54%) |  |
| Pancreatic cancer location |  |  |  |  |  |  |  | <0.001 |
| Body | 15,710 (4.8%) | 11,350 (4.8%) | 510 (4.5%) | 2,030 (4.5%) | 1,275 (4.5%) | 70 (5.0%) | 475 (5.0%) |  |
| Head | 95,030 (29%) | 68,575 (29%) | 3,475 (31%) | 12,520 (28%) | 7,540 (27%) | 400 (29%) | 2,520 (27%) |  |
| Other | 199,705 (61%) | 140,805 (60%) | 6,565 (58%) | 27,755 (61%) | 17,835 (63%) | 855 (61%) | 5,890 (63%) |  |
| Tail | 19,490 (5.9%) | 13,580 (5.8%) | 735 (6.5%) | 3,110 (6.8%) | 1,455 (5.2%) | 75 (5.4%) | 535 (5.7%) |  |
| Type of surgery |  |  |  |  |  |  |  | <0.001 |
| Other | 299,385 (91%) | 211,300 (90%) | 10,225 (91%) | 42,400 (93%) | 25,715 (91%) | 1,275 (91%) | 8,470 (90%) |  |
| Pancreaticoduodenectomy | 2,945 (0.9%) | 2,160 (0.9%) | 135 (1.2%) | 345 (0.8%) | 210 (0.7%) | 10 (0.7%) | 85 (0.9%) |  |
| Partial pancreatectomy | 26,980 (8.2%) | 20,355 (8.7%) | 885 (7.8%) | 2,625 (5.8%) | 2,145 (7.6%) | 115 (8.2%) | 855 (9.1%) |  |
| Total pancreatectomy | 625 (0.2%) | 495 (0.2%) | 40 (0.4%) | 45 (<0.1%) | 35 (0.1%) | 0 (0%) | 10 (0.1%) |  |
| Income quartile |  |  |  |  |  |  |  | <0.001 |
| $1 - $51,999 | 79,795 (25%) | 45,900 (20%) | 1,060 (9.5%) | 20,990 (47%) | 9,350 (34%) | 610 (47%) | 1,885 (21%) |  |
| $52,000 - $65,999 | 81,020 (25%) | 59,945 (26%) | 1,785 (16%) | 9,975 (22%) | 7,060 (26%) | 275 (21%) | 1,980 (22%) |  |
| $66,000 - $87,999 | 83,270 (26%) | 63,010 (27%) | 2,845 (26%) | 8,130 (18%) | 6,835 (25%) | 210 (16%) | 2,240 (24%) |  |
| $88,000 or more | 80,785 (25%) | 62,265 (27%) | 5,465 (49%) | 5,470 (12%) | 4,300 (16%) | 200 (15%) | 3,085 (34%) |  |
| Insurance payer |  |  |  |  |  |  |  | <0.001 |
| Medicaid | 28,735 (8.7%) | 13,330 (5.7%) | 1,225 (11%) | 7,005 (15%) | 5,525 (20%) | 215 (15%) | 1,435 (15%) |  |
| Medicare | 202,455 (61%) | 151,890 (65%) | 6,215 (55%) | 24,950 (55%) | 13,835 (49%) | 735 (53%) | 4,830 (51%) |  |
| Other | 14,575 (4.4%) | 8,920 (3.8%) | 535 (4.7%) | 2,670 (5.9%) | 1,755 (6.2%) | 145 (10%) | 550 (5.8%) |  |
| Private | 83,880 (25%) | 59,985 (26%) | 3,305 (29%) | 10,725 (24%) | 6,975 (25%) | 295 (21%) | 2,595 (28%) |  |
| Hospital region |  |  |  |  |  |  |  | <0.001 |
| Midwest | 73,470 (22%) | 59,815 (26%) | 1,075 (9.5%) | 9,230 (20%) | 2,055 (7.3%) | 340 (24%) | 955 (10%) |  |
| Northeast | 71,400 (22%) | 52,710 (22%) | 2,175 (19%) | 8,270 (18%) | 4,810 (17%) | 45 (3.2%) | 3,390 (36%) |  |
| South | 121,700 (37%) | 80,820 (34%) | 1,795 (16%) | 24,230 (53%) | 11,270 (40%) | 500 (36%) | 3,085 (33%) |  |
| West | 63,365 (19%) | 40,965 (17%) | 6,240 (55%) | 3,685 (8.1%) | 9,970 (35%) | 515 (37%) | 1,990 (21%) |  |
| Hospital bedsize |  |  |  |  |  |  |  | 0.033 |
| Large | 188,850 (57%) | 133,010 (57%) | 7,090 (63%) | 26,045 (57%) | 16,385 (58%) | 855 (61%) | 5,465 (58%) |  |
| Medium | 86,505 (26%) | 61,205 (26%) | 2,625 (23%) | 12,440 (27%) | 7,575 (27%) | 270 (19%) | 2,390 (25%) |  |
| Small | 54,580 (17%) | 40,095 (17%) | 1,570 (14%) | 6,930 (15%) | 4,145 (15%) | 275 (20%) | 1,565 (17%) |  |
| Hospital location/teaching status |  |  |  |  |  |  |  | <0.001 |
| Rural | 16,850 (5.1%) | 14,605 (6.2%) | 125 (1.1%) | 1,435 (3.2%) | 320 (1.1%) | 210 (15%) | 155 (1.6%) |  |
| Urban, non-teaching | 48,380 (15%) | 35,875 (15%) | 1,835 (16%) | 4,760 (10%) | 4,510 (16%) | 150 (11%) | 1,250 (13%) |  |
| Urban, teaching | 264,705 (80%) | 183,830 (78%) | 9,325 (83%) | 39,220 (86%) | 23,275 (83%) | 1,040 (74%) | 8,015 (85%) |  |
| No. of comorbidities |  |  |  |  |  |  |  |  |
| Two or more comorbidities | 329,935 (100%) | 234,310 (100%) | 11,285 (100%) | 45,415 (100%) | 28,105 (100%) | 1,400 (100%) | 9,420 (100%) |  |
| *1*Mean (SD); n (%) | | | | | | | | |
| *2*Design-based KruskalWallis test; Pearson's X^2: Rao & Scott adjustment | | | | | | | | |

## Outcomes Table:

| **Characteristic** | **White** N = 234,310*1* | **Asian or Pacific Islander** N = 11,285*1* | **Black** N = 45,415*1* | **Hispanic** N = 28,105*1* | **Native American** N = 1,400*1* | **Other** N = 9,420*1* | **p-value***2* |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Died during hospitalization | 16,240 (6.9%) | 960 (8.5%) | 3,955 (8.7%) | 1,875 (6.7%) | 150 (11%) | 920 (9.8%) | <0.001 |
| Length of stay (days) | 4.0 (3.0, 7.0) | 5.0 (3.0, 8.0) | 5.0 (3.0, 9.0) | 4.0 (2.0, 7.0) | 4.0 (3.0, 8.0) | 5.0 (3.0, 8.0) | <0.001 |
| Inflation-adjusted total charge ($) | 45,171 (24,437, 84,667) | 60,602 (32,821, 115,610) | 48,950 (27,097, 92,243) | 59,667 (33,391, 107,895) | 43,670 (21,673, 94,121) | 58,105 (31,767, 110,727) | <0.001 |
| Intestinal obstruction | 165 (<0.1%) | 0 (0%) | 50 (0.1%) | 20 (<0.1%) | 0 (0%) | 5 (<0.1%) | 0.7 |
| Post-operative bleeding | 1,025 (0.4%) | 95 (0.8%) | 205 (0.5%) | 130 (0.5%) | 5 (0.4%) | 65 (0.7%) | 0.078 |
| *1*n (%); Median (Q1, Q3) | | | | | | | |
| *2*Pearson's X^2: Rao & Scott adjustment; Design-based KruskalWallis test | | | | | | | |

## Multivariable Logistic Regression:

### All-Cause Mortality:

| **Characteristic** | **OR***1* | **95% CI***1* | **p-value** |
| --- | --- | --- | --- |
| Race |  |  |  |
| White | — | — |  |
| Asian or Pacific Islander | 1.22 | 1.04, 1.42 | 0.012 |
| Black | 1.22 | 1.12, 1.34 | <0.001 |
| Hispanic | 0.92 | 0.81, 1.03 | 0.2 |
| Native American | 1.56 | 1.03, 2.38 | 0.036 |
| Other | 1.43 | 1.19, 1.71 | <0.001 |
| Age, y | 1.02 | 1.02, 1.02 | <0.001 |
| Sex |  |  |  |
| Female | — | — |  |
| Male | 1.05 | 0.99, 1.12 | 0.11 |
| Pancreatic cancer location |  |  |  |
| Body | — | — |  |
| Head | 0.83 | 0.69, 0.99 | 0.039 |
| Other | 1.51 | 1.28, 1.79 | <0.001 |
| Tail | 1.20 | 0.97, 1.48 | 0.086 |
| Type of surgery |  |  |  |
| Other | — | — |  |
| Pancreaticoduodenectomy | 0.56 | 0.36, 0.87 | 0.009 |
| Partial pancreatectomy | 0.33 | 0.27, 0.41 | <0.001 |
| Total pancreatectomy | 0.56 | 0.21, 1.55 | 0.3 |
| Income quartile |  |  |  |
| $1 - $51,999 | — | — |  |
| $52,000 - $65,999 | 0.97 | 0.89, 1.06 | 0.5 |
| $66,000 - $87,999 | 0.93 | 0.85, 1.01 | 0.10 |
| $88,000 or more | 0.83 | 0.75, 0.91 | <0.001 |
| Insurance payer |  |  |  |
| Medicaid | — | — |  |
| Medicare | 0.74 | 0.65, 0.84 | <0.001 |
| Other | 2.09 | 1.78, 2.46 | <0.001 |
| Private | 1.13 | 1.00, 1.28 | 0.052 |
| Hospital region |  |  |  |
| Midwest | — | — |  |
| Northeast | 1.41 | 1.24, 1.60 | <0.001 |
| South | 1.02 | 0.93, 1.11 | 0.7 |
| West | 1.25 | 1.12, 1.38 | <0.001 |
| Hospital bedsize |  |  |  |
| Large | — | — |  |
| Medium | 1.06 | 0.98, 1.14 | 0.2 |
| Small | 1.20 | 1.05, 1.36 | 0.006 |
| Hospital location/teaching status |  |  |  |
| Rural | — | — |  |
| Urban, non-teaching | 0.83 | 0.71, 0.96 | 0.015 |
| Urban, teaching | 0.73 | 0.63, 0.83 | <0.001 |
| Charlson comorbidity index | 1.15 | 1.14, 1.17 | <0.001 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | | |

### Intestinal Obstruction:

| **Characteristic** | **OR***1* | **95% CI***1* | **p-value** |
| --- | --- | --- | --- |
| Race |  |  |  |
| White | — | — |  |
| Asian or Pacific Islander | 0.00 | 0.00, 0.00 | <0.001 |
| Black | 1.94 | 0.86, 4.40 | 0.11 |
| Hispanic | 0.91 | 0.30, 2.73 | 0.9 |
| Native American | 0.00 | 0.00, 0.00 | <0.001 |
| Other | 0.71 | 0.09, 5.49 | 0.7 |
| Age, y | 0.97 | 0.94, 1.00 | 0.053 |
| Sex |  |  |  |
| Female | — | — |  |
| Male | 1.67 | 0.91, 3.09 | 0.10 |
| Pancreatic cancer location |  |  |  |
| Body | — | — |  |
| Head | 2.72 | 0.37, 20.3 | 0.3 |
| Other | 2.19 | 0.28, 17.1 | 0.5 |
| Tail | 3.28 | 0.35, 30.8 | 0.3 |
| Type of surgery |  |  |  |
| Other | — | — |  |
| Pancreaticoduodenectomy | 5.34 | 1.29, 22.2 | 0.021 |
| Partial pancreatectomy | 2.67 | 1.32, 5.39 | 0.006 |
| Total pancreatectomy | 0.00 | 0.00, 0.00 | <0.001 |
| Income quartile |  |  |  |
| $1 - $51,999 | — | — |  |
| $52,000 - $65,999 | 0.50 | 0.19, 1.32 | 0.2 |
| $66,000 - $87,999 | 1.51 | 0.69, 3.27 | 0.3 |
| $88,000 or more | 0.78 | 0.32, 1.87 | 0.6 |
| Insurance payer |  |  |  |
| Medicaid | — | — |  |
| Medicare | 1.98 | 0.57, 6.85 | 0.3 |
| Other | 0.65 | 0.07, 5.72 | 0.7 |
| Private | 1.24 | 0.37, 4.11 | 0.7 |
| Hospital region |  |  |  |
| Midwest | — | — |  |
| Northeast | 1.32 | 0.55, 3.17 | 0.5 |
| South | 0.95 | 0.41, 2.21 | >0.9 |
| West | 1.86 | 0.79, 4.38 | 0.2 |
| Hospital bedsize |  |  |  |
| Large | — | — |  |
| Medium | 0.99 | 0.52, 1.90 | >0.9 |
| Small | 1.02 | 0.44, 2.34 | >0.9 |
| Hospital location/teaching status |  |  |  |
| Rural | — | — |  |
| Urban, non-teaching | 4,325,537 | 2,005,812, 9,328,025 | <0.001 |
| Urban, teaching | 3,186,831 | 1,976,969, 5,137,100 | <0.001 |
| Charlson comorbidity index | 0.86 | 0.77, 0.96 | 0.006 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | | |

### Post-operative Bleeding:

| **Characteristic** | **OR***1* | **95% CI***1* | **p-value** |
| --- | --- | --- | --- |
| Race |  |  |  |
| White | — | — |  |
| Asian or Pacific Islander | 1.65 | 1.03, 2.65 | 0.038 |
| Black | 1.25 | 0.86, 1.81 | 0.2 |
| Hispanic | 1.03 | 0.68, 1.56 | 0.9 |
| Native American | 0.00 | 0.00, 0.00 | <0.001 |
| Other | 1.52 | 0.85, 2.72 | 0.2 |
| Age, y | 1.00 | 0.99, 1.01 | >0.9 |
| Sex |  |  |  |
| Female | — | — |  |
| Male | 1.29 | 1.02, 1.63 | 0.031 |
| Pancreatic cancer location |  |  |  |
| Body | — | — |  |
| Head | 2.22 | 1.12, 4.41 | 0.023 |
| Other | 1.70 | 0.86, 3.37 | 0.13 |
| Tail | 1.91 | 0.87, 4.20 | 0.11 |
| Type of surgery |  |  |  |
| Other | — | — |  |
| Pancreaticoduodenectomy | 3.68 | 1.90, 7.13 | <0.001 |
| Partial pancreatectomy | 3.18 | 2.36, 4.29 | <0.001 |
| Total pancreatectomy | 1.82 | 0.25, 13.5 | 0.6 |
| Income quartile |  |  |  |
| $1 - $51,999 | — | — |  |
| $52,000 - $65,999 | 1.17 | 0.82, 1.68 | 0.4 |
| $66,000 - $87,999 | 1.27 | 0.89, 1.80 | 0.2 |
| $88,000 or more | 1.31 | 0.92, 1.87 | 0.14 |
| Insurance payer |  |  |  |
| Medicaid | — | — |  |
| Medicare | 1.0 | 0.62, 1.61 | >0.9 |
| Other | 1.06 | 0.53, 2.11 | 0.9 |
| Private | 1.03 | 0.65, 1.64 | 0.9 |
| Hospital region |  |  |  |
| Midwest | — | — |  |
| Northeast | 1.16 | 0.81, 1.66 | 0.4 |
| South | 1.06 | 0.76, 1.47 | 0.7 |
| West | 1.48 | 1.04, 2.12 | 0.030 |
| Hospital bedsize |  |  |  |
| Large | — | — |  |
| Medium | 0.72 | 0.53, 0.96 | 0.027 |
| Small | 0.67 | 0.46, 0.98 | 0.037 |
| Hospital location/teaching status |  |  |  |
| Rural | — | — |  |
| Urban, non-teaching | 1.07 | 0.43, 2.67 | 0.9 |
| Urban, teaching | 1.98 | 0.87, 4.50 | 0.11 |
| Charlson comorbidity index | 0.93 | 0.88, 0.98 | 0.008 |
| *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 | 0.65 | 0.28, 1.0 | <0.001 |
| Black | 1.1 | 0.94, 1.3 | <0.001 |
| Hispanic | 0.18 | -0.03, 0.39 | 0.093 |
| Native American | 0.72 | -0.29, 1.7 | 0.2 |
| Other | 0.81 | 0.40, 1.2 | <0.001 |
| Age, y | 0.00 | 0.00, 0.01 | 0.14 |
| Sex |  |  |  |
| Female | — | — |  |
| Male | -0.06 | -0.16, 0.03 | 0.2 |
| Pancreatic cancer location |  |  |  |
| Body | — | — |  |
| Head | 0.82 | 0.60, 1.0 | <0.001 |
| Other | 0.17 | -0.05, 0.39 | 0.12 |
| Tail | 0.10 | -0.19, 0.38 | 0.5 |
| Type of surgery |  |  |  |
| Other | — | — |  |
| Pancreaticoduodenectomy | 7.7 | 6.9, 8.6 | <0.001 |
| Partial pancreatectomy | 4.3 | 4.0, 4.6 | <0.001 |
| Total pancreatectomy | 6.1 | 3.9, 8.2 | <0.001 |
| Income quartile |  |  |  |
| $1 - $51,999 | — | — |  |
| $52,000 - $65,999 | -0.20 | -0.34, -0.05 | 0.008 |
| $66,000 - $87,999 | -0.29 | -0.44, -0.15 | <0.001 |
| $88,000 or more | -0.28 | -0.44, -0.11 | <0.001 |
| Insurance payer |  |  |  |
| Medicaid | — | — |  |
| Medicare | -0.46 | -0.71, -0.22 | <0.001 |
| Other | -0.28 | -0.68, 0.12 | 0.2 |
| Private | -0.70 | -0.93, -0.47 | <0.001 |
| Hospital region |  |  |  |
| Midwest | — | — |  |
| Northeast | 0.74 | 0.55, 0.93 | <0.001 |
| South | 0.34 | 0.21, 0.48 | <0.001 |
| West | 0.36 | 0.18, 0.54 | <0.001 |
| Hospital bedsize |  |  |  |
| Large | — | — |  |
| Medium | -0.44 | -0.56, -0.32 | <0.001 |
| Small | -0.66 | -0.84, -0.48 | <0.001 |
| Hospital location/teaching status |  |  |  |
| Rural | — | — |  |
| Urban, non-teaching | 0.61 | 0.37, 0.85 | <0.001 |
| Urban, teaching | 1.0 | 0.83, 1.2 | <0.001 |
| Charlson comorbidity index | 0.22 | 0.20, 0.24 | <0.001 |
| *1*CI = Confidence Interval | | | |

### Inflation-Adjusted Total Charge:

| **Characteristic** | **Beta** | **95% CI***1* | **p-value** |
| --- | --- | --- | --- |
| Race |  |  |  |
| White | — | — |  |
| Asian or Pacific Islander | 12,560 | 6,997, 18,123 | <0.001 |
| Black | 10,997 | 8,273, 13,720 | <0.001 |
| Hispanic | 14,059 | 10,311, 17,806 | <0.001 |
| Native American | -2,732 | -12,846, 7,382 | 0.6 |
| Other | 20,262 | 11,552, 28,973 | <0.001 |
| Age, y | -139 | -233, -45 | 0.004 |
| Sex |  |  |  |
| Female | — | — |  |
| Male | 3,014 | 1,461, 4,567 | <0.001 |
| Pancreatic cancer location |  |  |  |
| Body | — | — |  |
| Head | 14,432 | 10,439, 18,425 | <0.001 |
| Other | 4,938 | 1,171, 8,706 | 0.010 |
| Tail | -1,760 | -6,467, 2,947 | 0.5 |
| Type of surgery |  |  |  |
| Other | — | — |  |
| Pancreaticoduodenectomy | 101,598 | 88,192, 115,004 | <0.001 |
| Partial pancreatectomy | 111,876 | 104,419, 119,332 | <0.001 |
| Total pancreatectomy | 149,370 | 104,423, 194,317 | <0.001 |
| Income quartile |  |  |  |
| $1 - $51,999 | — | — |  |
| $52,000 - $65,999 | -2,823 | -5,161, -484 | 0.018 |
| $66,000 - $87,999 | -4,400 | -6,988, -1,811 | <0.001 |
| $88,000 or more | -424 | -3,806, 2,957 | 0.8 |
| Insurance payer |  |  |  |
| Medicaid | — | — |  |
| Medicare | 3,659 | 198, 7,120 | 0.038 |
| Other | -2,508 | -7,138, 2,121 | 0.3 |
| Private | -591 | -3,989, 2,806 | 0.7 |
| Hospital region |  |  |  |
| Midwest | — | — |  |
| Northeast | 21,289 | 17,190, 25,387 | <0.001 |
| South | 10,599 | 7,683, 13,515 | <0.001 |
| West | 41,614 | 35,938, 47,290 | <0.001 |
| Hospital bedsize |  |  |  |
| Large | — | — |  |
| Medium | -8,626 | -11,775, -5,477 | <0.001 |
| Small | -13,610 | -16,835, -10,386 | <0.001 |
| Hospital location/teaching status |  |  |  |
| Rural | — | — |  |
| Urban, non-teaching | 27,247 | 23,688, 30,806 | <0.001 |
| Urban, teaching | 30,457 | 28,174, 32,739 | <0.001 |
| Charlson comorbidity index | 2,841 | 2,505, 3,178 | <0.001 |
| *1*CI = Confidence Interval | | | |