Incidence and Impact of Acute Myocardial Infarction in Hospitalized Patients With Peripheral Artery Disease

Analysis for RCOP NIS Cardio3

Muhammad Saad

## Preamble:

* **Reference Papers:**
  + [Li et al. 2024](https://www.ahajournals.org/doi/10.1161/JAHA.122.028970)
* **Study Objective**: Assess the incidence and impact of acute myocardial infarction (AMI) on hospitalized patients with peripheral artery disease (PAD).
* **Data Source**: Cross-sectional analysis of the National Inpatient Sample (NIS) from 2018 to 2020.
* **Patient Selection**: Included all inpatient admissions with a primary diagnosis of peripheral artery disease, comparing those with and without a secondary diagnosis of acute myocardial infarction.
* **Peripheral Artery Disease Categories**:
  + PAD with AMI
  + PAD without AMI
* **Primary Outcomes**:
  + In-hospital all-cause mortality
  + Total hospital length of stay (days)
  + Total charge, inflation adjusted to 2020 ($)
* **Secondary Outcomes**:
  + Acute heart failure
  + Ischemic stroke
  + Transient ischemic attack
  + Acute kidney injury
  + Amputation
* **Statistical Analysis**: Multiple logistic and linear regression models to evaluate the independent association of AMI with in-hospital outcomes in patients with PAD, adjusting for:
  + Demographics: Age, sex, race, residential income, insurance, hospital region, hospital bedsize, hospital location, and teaching status.
  + Medical History: Diabetes mellitus, previous heart failure, hypertension, obesity, chronic pulmonary disease, chronic kidney disease, atrial fibrillation, liver disease, coronary artery disease, dementia, smoking status, previous myocardial infarction, previous percutaneous coronary intervention (PCI), previous coronary artery bypass grafting (CABG), previous implantable cardioverter-defibrillator (ICD) insertion, previous pacemaker or cardiac resynchronization therapy (CRT) insertion, and previous stroke or TIA.
  + Comorbidities: Charlson comorbidity index.
* **Software:** All analyses were performed using R Version 4.4.1 (R Foundation for Statistical Computing, Vienna, Austria)

## Baseline Table:

| **Characteristic** | **Peripheral Artery Disease without Acute Myocardial Infarction** N = 586,360*1* | **Peripheral Artery Disease with Acute Myocardial Infarction** N = 10,835*1* | **p-value***2* | **Overall** N = 597,195*1* |
| --- | --- | --- | --- | --- |
| Age, y | 67 (13) | 70 (11) | <0.001 | 67 (13) |
| Sex |  |  | 0.19 |  |
| Female | 225,795 (39) | 4,325 (40) |  | 230,120 (39) |
| Male | 360,550 (61) | 6,510 (60) |  | 367,060 (61) |
| Race |  |  | <0.001 |  |
| White | 372,895 (65) | 7,085 (67) |  | 379,980 (65) |
| Asian or Pacific Islander | 8,685 (1.5) | 275 (2.6) |  | 8,960 (1.5) |
| Black | 110,020 (19) | 1,660 (16) |  | 111,680 (19) |
| Hispanic | 64,400 (11) | 1,190 (11) |  | 65,590 (11) |
| Native American | 4,855 (0.8) | 80 (0.8) |  | 4,935 (0.8) |
| Other | 13,695 (2.4) | 310 (2.9) |  | 14,005 (2.4) |
| Residential income |  |  | 0.60 |  |
| $1 - $51,999 | 207,420 (36) | 3,850 (36) |  | 211,270 (36) |
| $52,000 - $65,999 | 158,630 (28) | 2,810 (26) |  | 161,440 (28) |
| $66,000 - $87,999 | 123,175 (21) | 2,295 (22) |  | 125,470 (21) |
| $88,000 or more | 86,640 (15) | 1,685 (16) |  | 88,325 (15) |
| Expected primary payer |  |  | <0.001 |  |
| Private | 113,330 (19) | 1,610 (15) |  | 114,940 (19) |
| Medicaid | 71,600 (12) | 1,005 (9.3) |  | 72,605 (12) |
| Medicare | 387,845 (66) | 7,975 (74) |  | 395,820 (66) |
| Other | 12,925 (2.2) | 235 (2.2) |  | 13,160 (2.2) |
| Hospital region |  |  | <0.001 |  |
| Midwest | 126,355 (22) | 2,370 (22) |  | 128,725 (22) |
| Northeast | 109,610 (19) | 2,480 (23) |  | 112,090 (19) |
| South | 256,220 (44) | 4,095 (38) |  | 260,315 (44) |
| West | 94,175 (16) | 1,890 (17) |  | 96,065 (16) |
| Hospital bedsize |  |  | 0.001 |  |
| Large | 305,555 (52) | 6,035 (56) |  | 311,590 (52) |
| Medium | 174,185 (30) | 3,120 (29) |  | 177,305 (30) |
| Small | 106,620 (18) | 1,680 (16) |  | 108,300 (18) |
| Hospital location and teaching status |  |  | <0.001 |  |
| Rural | 37,650 (6.4) | 560 (5.2) |  | 38,210 (6.4) |
| Urban, non-teaching | 101,175 (17) | 1,580 (15) |  | 102,755 (17) |
| Urban, teaching | 447,535 (76) | 8,695 (80) |  | 456,230 (76) |
| Charlson comorbidity index | 3.49 (1.99) | 5.33 (1.96) | <0.001 | 3.53 (2.01) |
| Diabetes Mellitus | 344,265 (59) | 6,970 (64) | <0.001 | 351,235 (59) |
| Previous congestive heart failure | 91,445 (16) | 3,040 (28) | <0.001 | 94,485 (16) |
| Hypertension | 302,985 (52) | 4,175 (39) | <0.001 | 307,160 (51) |
| Obesity | 91,880 (16) | 1,395 (13) | <0.001 | 93,275 (16) |
| Chronic pulmonary disease | 148,160 (25) | 2,935 (27) | 0.055 | 151,095 (25) |
| Chronic kidney disease | 193,595 (33) | 5,030 (46) | <0.001 | 198,625 (33) |
| Atrial fibrillation | 113,820 (19) | 3,380 (31) | <0.001 | 117,200 (20) |
| Liver disease | 20,250 (3.5) | 905 (8.4) | <0.001 | 21,155 (3.5) |
| Previous PCI | 68,635 (12) | 1,715 (16) | <0.001 | 70,350 (12) |
| Previous CABG | 73,370 (13) | 1,630 (15) | <0.001 | 75,000 (13) |
| Previous ICD insertion | 13,740 (2.3) | 270 (2.5) | 0.65 | 14,010 (2.3) |
| Previous PPM or CRT insertion | 19,850 (3.4) | 305 (2.8) | 0.15 | 20,155 (3.4) |
| Smoking status | 138,070 (24) | 1,980 (18) | <0.001 | 140,050 (23) |
| Coronary artery disease | 233,335 (40) | 7,130 (66) | <0.001 | 240,465 (40) |
| Dementia | 39,495 (6.7) | 805 (7.4) | 0.20 | 40,300 (6.7) |
| Previous stroke/TIA | 85,335 (15) | 1,565 (14) | 0.89 | 86,900 (15) |
| Previous myocardial infarction | 73,150 (12) | 1,680 (16) | <0.001 | 74,830 (13) |
| *1*Mean (SD); n (%) | | | | |
| *2*Design-based KruskalWallis test; Pearson's X^2: Rao & Scott adjustment | | | | |

## Outcomes Table:

| **Characteristic** | **Peripheral Artery Disease without Acute Myocardial Infarction** N = 586,360*1* | **Peripheral Artery Disease with Acute Myocardial Infarction** N = 10,835*1* | **p-value***2* | **Overall** N = 597,195*1* |
| --- | --- | --- | --- | --- |
| Died during hospitalization | 9,570 (1.6) | 1,605 (15) | <0.001 | 11,175 (1.9) |
| Length of stay (days) | 5.0 (3.0 – 9.0) | 10.0 (5.0 – 16.0) | <0.001 | 5.0 (3.0 – 9.0) |
| Inflation-adjusted total charge ($) | 74,459 (41,285 – 131,691) | 151,560 (83,295 – 273,753) | <0.001 | 75,272 (41,619 – 133,656) |
| Acute heart failure | 19,390 (3.3) | 2,950 (27) | <0.001 | 22,340 (3.7) |
| Ischemic stroke | 3,690 (0.6) | 370 (3.4) | <0.001 | 4,060 (0.7) |
| Transient ischemic attack | 1,585 (0.3) | 70 (0.6) | 0.001 | 1,655 (0.3) |
| Acute kidney injury | 96,590 (16) | 4,240 (39) | <0.001 | 100,830 (17) |
| Amputation | 71,675 (12) | 2,205 (20) | <0.001 | 73,880 (12) |
| *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** **(95% CI)***1* | **p-value** |
| --- | --- | --- |
| Peripheral Artery Disease Categories |  |  |
| Peripheral Artery Disease without Acute Myocardial Infarction | — |  |
| Peripheral Artery Disease with Acute Myocardial Infarction | 6.33 (5.44 to 7.37) | <0.001 |
| Age, y | 1.03 (1.02 to 1.04) | <0.001 |
| Sex |  |  |
| Female | — |  |
| Male | 0.77 (0.70 to 0.85) | <0.001 |
| Race |  |  |
| White | — |  |
| Asian or Pacific Islander | 1.27 (0.91 to 1.76) | 0.15 |
| Black | 0.88 (0.77 to 1.00) | 0.052 |
| Hispanic | 0.91 (0.77 to 1.06) | 0.23 |
| Native American | 0.90 (0.51 to 1.61) | 0.73 |
| Other | 1.45 (1.11 to 1.91) | 0.007 |
| Residential income |  |  |
| $1 - $51,999 | — |  |
| $52,000 - $65,999 | 1.10 (0.98 to 1.23) | 0.12 |
| $66,000 - $87,999 | 1.01 (0.89 to 1.14) | 0.89 |
| $88,000 or more | 0.90 (0.78 to 1.04) | 0.16 |
| Expected primary payer |  |  |
| Private | — |  |
| Medicaid | 0.84 (0.68 to 1.05) | 0.12 |
| Medicare | 0.99 (0.86 to 1.15) | 0.94 |
| Other | 1.49 (1.10 to 2.02) | 0.010 |
| Hospital region |  |  |
| Midwest | — |  |
| Northeast | 1.09 (0.94 to 1.27) | 0.26 |
| South | 1.19 (1.05 to 1.35) | 0.007 |
| West | 1.01 (0.87 to 1.18) | 0.88 |
| Hospital bedsize |  |  |
| Large | — |  |
| Medium | 0.95 (0.86 to 1.06) | 0.36 |
| Small | 0.81 (0.70 to 0.92) | 0.002 |
| Hospital location and teaching status |  |  |
| Rural | — |  |
| Urban, non-teaching | 1.00 (0.80 to 1.25) | >0.99 |
| Urban, teaching | 1.05 (0.86 to 1.29) | 0.62 |
| Charlson comorbidity index | 1.22 (1.18 to 1.26) | <0.001 |
| Diabetes Mellitus |  |  |
| No | — |  |
| Yes | 0.63 (0.56 to 0.70) | <0.001 |
| Previous heart failure |  |  |
| No | — |  |
| Yes | 1.19 (1.06 to 1.34) | 0.003 |
| Hypertension |  |  |
| No | — |  |
| Yes | 0.50 (0.43 to 0.57) | <0.001 |
| Obesity |  |  |
| No | — |  |
| Yes | 0.71 (0.61 to 0.82) | <0.001 |
| Chronic pulmonary disease |  |  |
| No | — |  |
| Yes | 0.95 (0.85 to 1.05) | 0.31 |
| Chronic kidney disease |  |  |
| No | — |  |
| Yes | 0.70 (0.60 to 0.81) | <0.001 |
| Atrial fibrillation |  |  |
| No | — |  |
| Yes | 1.61 (1.44 to 1.78) | <0.001 |
| Liver disease |  |  |
| No | — |  |
| Yes | 3.84 (3.29 to 4.48) | <0.001 |
| Previous PCI |  |  |
| No | — |  |
| Yes | 0.75 (0.64 to 0.88) | <0.001 |
| Previous CABG |  |  |
| No | — |  |
| Yes | 0.77 (0.66 to 0.90) | 0.001 |
| Previous ICD insertion |  |  |
| No | — |  |
| Yes | 1.27 (0.99 to 1.62) | 0.056 |
| Previous PPM or CRT insertion |  |  |
| No | — |  |
| Yes | 0.76 (0.61 to 0.96) | 0.022 |
| Smoking status |  |  |
| No | — |  |
| Yes | 0.78 (0.69 to 0.89) | <0.001 |
| Coronary artery disease |  |  |
| No | — |  |
| Yes | 0.93 (0.83 to 1.04) | 0.20 |
| Dementia |  |  |
| No | — |  |
| Yes | 1.16 (1.01 to 1.34) | 0.039 |
| Previous stroke/TIA |  |  |
| No | — |  |
| Yes | 0.90 (0.79 to 1.02) | 0.10 |
| Previous myocardial infarction |  |  |
| No | — |  |
| Yes | 0.83 (0.71 to 0.97) | 0.016 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | |

### Acute Heart Failure

| **Characteristic** | **OR** **(95% CI)***1* | **p-value** |
| --- | --- | --- |
| Peripheral Artery Disease Categories |  |  |
| Peripheral Artery Disease without Acute Myocardial Infarction | — |  |
| Peripheral Artery Disease with Acute Myocardial Infarction | 5.90 (5.25 to 6.63) | <0.001 |
| Age, y | 1.01 (1.01 to 1.02) | <0.001 |
| Sex |  |  |
| Female | — |  |
| Male | 0.91 (0.85 to 0.98) | 0.010 |
| Race |  |  |
| White | — |  |
| Asian or Pacific Islander | 0.84 (0.64 to 1.10) | 0.22 |
| Black | 0.94 (0.85 to 1.03) | 0.16 |
| Hispanic | 0.91 (0.81 to 1.03) | 0.13 |
| Native American | 1.25 (0.88 to 1.77) | 0.21 |
| Other | 1.32 (1.08 to 1.61) | 0.006 |
| Residential income |  |  |
| $1 - $51,999 | — |  |
| $52,000 - $65,999 | 1.01 (0.92 to 1.10) | 0.88 |
| $66,000 - $87,999 | 0.99 (0.90 to 1.08) | 0.79 |
| $88,000 or more | 0.99 (0.89 to 1.11) | 0.91 |
| Expected primary payer |  |  |
| Private | — |  |
| Medicaid | 1.40 (1.22 to 1.61) | <0.001 |
| Medicare | 0.98 (0.88 to 1.08) | 0.65 |
| Other | 1.08 (0.83 to 1.39) | 0.57 |
| Hospital region |  |  |
| Midwest | — |  |
| Northeast | 0.93 (0.83 to 1.04) | 0.19 |
| South | 1.05 (0.96 to 1.15) | 0.30 |
| West | 1.02 (0.91 to 1.15) | 0.69 |
| Hospital bedsize |  |  |
| Large | — |  |
| Medium | 1.02 (0.94 to 1.11) | 0.57 |
| Small | 1.02 (0.92 to 1.12) | 0.76 |
| Hospital location and teaching status |  |  |
| Rural | — |  |
| Urban, non-teaching | 1.28 (1.08 to 1.52) | 0.004 |
| Urban, teaching | 1.15 (0.98 to 1.34) | 0.084 |
| Charlson comorbidity index | 1.51 (1.48 to 1.54) | <0.001 |
| Diabetes Mellitus |  |  |
| No | — |  |
| Yes | 0.74 (0.68 to 0.80) | <0.001 |
| Previous heart failure |  |  |
| No | — |  |
| Yes | 0.43 (0.39 to 0.48) | <0.001 |
| Hypertension |  |  |
| No | — |  |
| Yes | 0.67 (0.61 to 0.75) | <0.001 |
| Obesity |  |  |
| No | — |  |
| Yes | 1.31 (1.20 to 1.43) | <0.001 |
| Chronic pulmonary disease |  |  |
| No | — |  |
| Yes | 0.97 (0.90 to 1.04) | 0.42 |
| Chronic kidney disease |  |  |
| No | — |  |
| Yes | 0.61 (0.55 to 0.69) | <0.001 |
| Atrial fibrillation |  |  |
| No | — |  |
| Yes | 2.61 (2.42 to 2.81) | <0.001 |
| Liver disease |  |  |
| No | — |  |
| Yes | 1.00 (0.86 to 1.16) | >0.99 |
| Previous PCI |  |  |
| No | — |  |
| Yes | 0.75 (0.68 to 0.83) | <0.001 |
| Previous CABG |  |  |
| No | — |  |
| Yes | 0.83 (0.75 to 0.91) | <0.001 |
| Previous ICD insertion |  |  |
| No | — |  |
| Yes | 1.84 (1.58 to 2.15) | <0.001 |
| Previous PPM or CRT insertion |  |  |
| No | — |  |
| Yes | 0.95 (0.81 to 1.12) | 0.56 |
| Smoking status |  |  |
| No | — |  |
| Yes | 0.87 (0.79 to 0.96) | 0.004 |
| Coronary artery disease |  |  |
| No | — |  |
| Yes | 1.69 (1.55 to 1.83) | <0.001 |
| Dementia |  |  |
| No | — |  |
| Yes | 0.64 (0.57 to 0.73) | <0.001 |
| Previous stroke/TIA |  |  |
| No | — |  |
| Yes | 0.70 (0.64 to 0.77) | <0.001 |
| Previous myocardial infarction |  |  |
| No | — |  |
| Yes | 0.75 (0.68 to 0.82) | <0.001 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | |

### Acute Ischemic Stroke

| **Characteristic** | **OR** **(95% CI)***1* | **p-value** |
| --- | --- | --- |
| Peripheral Artery Disease Categories |  |  |
| Peripheral Artery Disease without Acute Myocardial Infarction | — |  |
| Peripheral Artery Disease with Acute Myocardial Infarction | 2.39 (1.81 to 3.14) | <0.001 |
| Age, y | 1.00 (1.00 to 1.01) | 0.34 |
| Sex |  |  |
| Female | — |  |
| Male | 0.73 (0.63 to 0.85) | <0.001 |
| Race |  |  |
| White | — |  |
| Asian or Pacific Islander | 0.79 (0.40 to 1.56) | 0.49 |
| Black | 1.15 (0.94 to 1.41) | 0.16 |
| Hispanic | 1.16 (0.89 to 1.51) | 0.28 |
| Native American | 0.26 (0.04 to 1.85) | 0.18 |
| Other | 2.07 (1.43 to 2.98) | <0.001 |
| Residential income |  |  |
| $1 - $51,999 | — |  |
| $52,000 - $65,999 | 1.00 (0.82 to 1.22) | 0.98 |
| $66,000 - $87,999 | 1.11 (0.90 to 1.37) | 0.32 |
| $88,000 or more | 0.99 (0.77 to 1.27) | 0.94 |
| Expected primary payer |  |  |
| Private | — |  |
| Medicaid | 1.09 (0.81 to 1.46) | 0.56 |
| Medicare | 0.82 (0.66 to 1.03) | 0.089 |
| Other | 1.11 (0.63 to 1.96) | 0.71 |
| Hospital region |  |  |
| Midwest | — |  |
| Northeast | 0.84 (0.66 to 1.09) | 0.19 |
| South | 1.14 (0.93 to 1.39) | 0.22 |
| West | 0.91 (0.70 to 1.19) | 0.49 |
| Hospital bedsize |  |  |
| Large | — |  |
| Medium | 0.96 (0.81 to 1.14) | 0.67 |
| Small | 0.81 (0.65 to 1.02) | 0.067 |
| Hospital location and teaching status |  |  |
| Rural | — |  |
| Urban, non-teaching | 1.35 (0.89 to 2.06) | 0.16 |
| Urban, teaching | 1.40 (0.94 to 2.08) | 0.095 |
| Charlson comorbidity index | 1.76 (1.72 to 1.81) | <0.001 |
| Diabetes Mellitus |  |  |
| No | — |  |
| Yes | 0.39 (0.33 to 0.46) | <0.001 |
| Previous heart failure |  |  |
| No | — |  |
| Yes | 0.87 (0.72 to 1.06) | 0.17 |
| Hypertension |  |  |
| No | — |  |
| Yes | 0.71 (0.57 to 0.87) | 0.001 |
| Obesity |  |  |
| No | — |  |
| Yes | 0.98 (0.79 to 1.23) | 0.89 |
| Chronic pulmonary disease |  |  |
| No | — |  |
| Yes | 0.44 (0.37 to 0.53) | <0.001 |
| Chronic kidney disease |  |  |
| No | — |  |
| Yes | 0.23 (0.18 to 0.29) | <0.001 |
| Atrial fibrillation |  |  |
| No | — |  |
| Yes | 2.24 (1.87 to 2.67) | <0.001 |
| Liver disease |  |  |
| No | — |  |
| Yes | 0.63 (0.43 to 0.91) | 0.015 |
| Previous PCI |  |  |
| No | — |  |
| Yes | 0.69 (0.52 to 0.92) | 0.011 |
| Previous CABG |  |  |
| No | — |  |
| Yes | 0.78 (0.60 to 1.02) | 0.071 |
| Previous ICD insertion |  |  |
| No | — |  |
| Yes | 0.57 (0.33 to 0.97) | 0.040 |
| Previous PPM or CRT insertion |  |  |
| No | — |  |
| Yes | 0.77 (0.52 to 1.15) | 0.20 |
| Smoking status |  |  |
| No | — |  |
| Yes | 0.80 (0.65 to 0.98) | 0.033 |
| Coronary artery disease |  |  |
| No | — |  |
| Yes | 1.08 (0.89 to 1.29) | 0.44 |
| Dementia |  |  |
| No | — |  |
| Yes | 0.70 (0.54 to 0.92) | 0.010 |
| Previous stroke/TIA |  |  |
| No | — |  |
| Yes | 1.78 (1.49 to 2.13) | <0.001 |
| Previous myocardial infarction |  |  |
| No | — |  |
| Yes | 0.51 (0.40 to 0.67) | <0.001 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | |

### Transient Ischemic Attack

| **Characteristic** | **OR** **(95% CI)***1* | **p-value** |
| --- | --- | --- |
| Peripheral Artery Disease Categories |  |  |
| Peripheral Artery Disease without Acute Myocardial Infarction | — |  |
| Peripheral Artery Disease with Acute Myocardial Infarction | 1.27 (0.72 to 2.23) | 0.41 |
| Age, y | 1.01 (1.00 to 1.02) | 0.18 |
| Sex |  |  |
| Female | — |  |
| Male | 0.50 (0.40 to 0.63) | <0.001 |
| Race |  |  |
| White | — |  |
| Asian or Pacific Islander | 0.43 (0.11 to 1.76) | 0.24 |
| Black | 0.53 (0.36 to 0.78) | 0.001 |
| Hispanic | 0.77 (0.51 to 1.18) | 0.23 |
| Native American | 1.31 (0.41 to 4.18) | 0.64 |
| Other | 1.04 (0.51 to 2.11) | 0.92 |
| Residential income |  |  |
| $1 - $51,999 | — |  |
| $52,000 - $65,999 | 1.21 (0.91 to 1.60) | 0.19 |
| $66,000 - $87,999 | 0.91 (0.65 to 1.27) | 0.59 |
| $88,000 or more | 0.75 (0.51 to 1.11) | 0.15 |
| Expected primary payer |  |  |
| Private | — |  |
| Medicaid | 0.90 (0.54 to 1.49) | 0.67 |
| Medicare | 1.06 (0.76 to 1.48) | 0.74 |
| Other | 1.03 (0.44 to 2.42) | 0.94 |
| Hospital region |  |  |
| Midwest | — |  |
| Northeast | 1.00 (0.70 to 1.44) | >0.99 |
| South | 1.16 (0.87 to 1.56) | 0.31 |
| West | 0.96 (0.65 to 1.40) | 0.82 |
| Hospital bedsize |  |  |
| Large | — |  |
| Medium | 1.03 (0.80 to 1.32) | 0.81 |
| Small | 0.79 (0.57 to 1.11) | 0.18 |
| Hospital location and teaching status |  |  |
| Rural | — |  |
| Urban, non-teaching | 0.93 (0.53 to 1.63) | 0.79 |
| Urban, teaching | 1.04 (0.62 to 1.74) | 0.88 |
| Charlson comorbidity index | 1.52 (1.48 to 1.57) | <0.001 |
| Diabetes Mellitus |  |  |
| No | — |  |
| Yes | 0.33 (0.26 to 0.43) | <0.001 |
| Previous heart failure |  |  |
| No | — |  |
| Yes | 0.46 (0.32 to 0.65) | <0.001 |
| Hypertension |  |  |
| No | — |  |
| Yes | 0.86 (0.63 to 1.17) | 0.33 |
| Obesity |  |  |
| No | — |  |
| Yes | 0.60 (0.40 to 0.90) | 0.014 |
| Chronic pulmonary disease |  |  |
| No | — |  |
| Yes | 0.72 (0.56 to 0.92) | 0.009 |
| Chronic kidney disease |  |  |
| No | — |  |
| Yes | 0.45 (0.32 to 0.64) | <0.001 |
| Atrial fibrillation |  |  |
| No | — |  |
| Yes | 1.20 (0.91 to 1.57) | 0.19 |
| Liver disease |  |  |
| No | — |  |
| Yes | 0.33 (0.15 to 0.72) | 0.005 |
| Previous PCI |  |  |
| No | — |  |
| Yes | 1.23 (0.87 to 1.73) | 0.24 |
| Previous CABG |  |  |
| No | — |  |
| Yes | 1.05 (0.74 to 1.49) | 0.79 |
| Previous ICD insertion |  |  |
| No | — |  |
| Yes | 1.47 (0.78 to 2.75) | 0.23 |
| Previous PPM or CRT insertion |  |  |
| No | — |  |
| Yes | 1.21 (0.71 to 2.07) | 0.48 |
| Smoking status |  |  |
| No | — |  |
| Yes | 1.03 (0.77 to 1.37) | 0.83 |
| Coronary artery disease |  |  |
| No | — |  |
| Yes | 1.29 (0.98 to 1.72) | 0.074 |
| Dementia |  |  |
| No | — |  |
| Yes | 0.58 (0.38 to 0.88) | 0.010 |
| Previous stroke/TIA |  |  |
| No | — |  |
| Yes | 1.34 (1.01 to 1.78) | 0.045 |
| Previous myocardial infarction |  |  |
| No | — |  |
| Yes | 0.46 (0.32 to 0.66) | <0.001 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | |

### Acute Kidney Injury

| **Characteristic** | **OR** **(95% CI)***1* | **p-value** |
| --- | --- | --- |
| Peripheral Artery Disease Categories |  |  |
| Peripheral Artery Disease without Acute Myocardial Infarction | — |  |
| Peripheral Artery Disease with Acute Myocardial Infarction | 2.71 (2.45 to 2.98) | <0.001 |
| Age, y | 1.02 (1.02 to 1.02) | <0.001 |
| Sex |  |  |
| Female | — |  |
| Male | 1.12 (1.08 to 1.16) | <0.001 |
| Race |  |  |
| White | — |  |
| Asian or Pacific Islander | 0.87 (0.76 to 1.0) | 0.042 |
| Black | 0.97 (0.93 to 1.01) | 0.18 |
| Hispanic | 0.95 (0.90 to 1.01) | 0.13 |
| Native American | 0.79 (0.64 to 0.97) | 0.025 |
| Other | 1.09 (0.98 to 1.21) | 0.12 |
| Residential income |  |  |
| $1 - $51,999 | — |  |
| $52,000 - $65,999 | 0.94 (0.90 to 0.98) | 0.008 |
| $66,000 - $87,999 | 0.95 (0.91 to 1.00) | 0.045 |
| $88,000 or more | 0.92 (0.87 to 0.97) | 0.002 |
| Expected primary payer |  |  |
| Private | — |  |
| Medicaid | 1.23 (1.16 to 1.31) | <0.001 |
| Medicare | 0.76 (0.72 to 0.79) | <0.001 |
| Other | 1.02 (0.90 to 1.15) | 0.78 |
| Hospital region |  |  |
| Midwest | — |  |
| Northeast | 0.98 (0.93 to 1.05) | 0.62 |
| South | 1.10 (1.04 to 1.15) | <0.001 |
| West | 0.99 (0.93 to 1.05) | 0.71 |
| Hospital bedsize |  |  |
| Large | — |  |
| Medium | 1.06 (1.01 to 1.11) | 0.012 |
| Small | 1.04 (0.99 to 1.10) | 0.10 |
| Hospital location and teaching status |  |  |
| Rural | — |  |
| Urban, non-teaching | 1.21 (1.11 to 1.32) | <0.001 |
| Urban, teaching | 1.25 (1.15 to 1.35) | <0.001 |
| Charlson comorbidity index | 1.06 (1.04 to 1.08) | <0.001 |
| Diabetes Mellitus |  |  |
| No | — |  |
| Yes | 1.28 (1.22 to 1.34) | <0.001 |
| Previous heart failure |  |  |
| No | — |  |
| Yes | 1.19 (1.14 to 1.25) | <0.001 |
| Hypertension |  |  |
| No | — |  |
| Yes | 0.78 (0.73 to 0.82) | <0.001 |
| Obesity |  |  |
| No | — |  |
| Yes | 1.35 (1.30 to 1.41) | <0.001 |
| Chronic pulmonary disease |  |  |
| No | — |  |
| Yes | 0.93 (0.89 to 0.97) | 0.002 |
| Chronic kidney disease |  |  |
| No | — |  |
| Yes | 2.27 (2.12 to 2.44) | <0.001 |
| Atrial fibrillation |  |  |
| No | — |  |
| Yes | 1.16 (1.11 to 1.21) | <0.001 |
| Liver disease |  |  |
| No | — |  |
| Yes | 1.33 (1.22 to 1.45) | <0.001 |
| Previous PCI |  |  |
| No | — |  |
| Yes | 0.86 (0.81 to 0.91) | <0.001 |
| Previous CABG |  |  |
| No | — |  |
| Yes | 0.85 (0.80 to 0.90) | <0.001 |
| Previous ICD insertion |  |  |
| No | — |  |
| Yes | 0.91 (0.82 to 1.01) | 0.075 |
| Previous PPM or CRT insertion |  |  |
| No | — |  |
| Yes | 0.88 (0.80 to 0.96) | 0.003 |
| Smoking status |  |  |
| No | — |  |
| Yes | 0.93 (0.89 to 0.97) | <0.001 |
| Coronary artery disease |  |  |
| No | — |  |
| Yes | 0.97 (0.93 to 1.02) | 0.21 |
| Dementia |  |  |
| No | — |  |
| Yes | 1.12 (1.05 to 1.19) | <0.001 |
| Previous stroke/TIA |  |  |
| No | — |  |
| Yes | 0.90 (0.86 to 0.94) | <0.001 |
| Previous myocardial infarction |  |  |
| No | — |  |
| Yes | 0.85 (0.80 to 0.90) | <0.001 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | |

### Amputation

| **Characteristic** | **OR** **(95% CI)***1* | **p-value** |
| --- | --- | --- |
| Peripheral Artery Disease Categories |  |  |
| Peripheral Artery Disease without Acute Myocardial Infarction | — |  |
| Peripheral Artery Disease with Acute Myocardial Infarction | 1.59 (1.42 to 1.78) | <0.001 |
| Age, y | 1.00 (1.00 to 1.00) | 0.005 |
| Sex |  |  |
| Female | — |  |
| Male | 1.22 (1.17 to 1.26) | <0.001 |
| Race |  |  |
| White | — |  |
| Asian or Pacific Islander | 0.97 (0.84 to 1.13) | 0.71 |
| Black | 1.50 (1.43 to 1.57) | <0.001 |
| Hispanic | 1.03 (0.96 to 1.09) | 0.44 |
| Native American | 1.30 (1.07 to 1.58) | 0.008 |
| Other | 0.96 (0.84 to 1.09) | 0.51 |
| Residential income |  |  |
| $1 - $51,999 | — |  |
| $52,000 - $65,999 | 0.95 (0.91 to 1.00) | 0.044 |
| $66,000 - $87,999 | 0.89 (0.84 to 0.93) | <0.001 |
| $88,000 or more | 0.80 (0.75 to 0.85) | <0.001 |
| Expected primary payer |  |  |
| Private | — |  |
| Medicaid | 1.32 (1.23 to 1.42) | <0.001 |
| Medicare | 1.34 (1.27 to 1.42) | <0.001 |
| Other | 1.16 (1.02 to 1.32) | 0.027 |
| Hospital region |  |  |
| Midwest | — |  |
| Northeast | 0.86 (0.80 to 0.93) | <0.001 |
| South | 1.20 (1.13 to 1.26) | <0.001 |
| West | 1.03 (0.96 to 1.10) | 0.45 |
| Hospital bedsize |  |  |
| Large | — |  |
| Medium | 0.96 (0.91 to 1.00) | 0.068 |
| Small | 0.86 (0.81 to 0.91) | <0.001 |
| Hospital location and teaching status |  |  |
| Rural | — |  |
| Urban, non-teaching | 0.84 (0.77 to 0.92) | <0.001 |
| Urban, teaching | 0.98 (0.91 to 1.06) | 0.67 |
| Charlson comorbidity index | 1.05 (1.03 to 1.07) | <0.001 |
| Diabetes Mellitus |  |  |
| No | — |  |
| Yes | 1.75 (1.66 to 1.84) | <0.001 |
| Previous heart failure |  |  |
| No | — |  |
| Yes | 1.16 (1.10 to 1.22) | <0.001 |
| Hypertension |  |  |
| No | — |  |
| Yes | 0.83 (0.79 to 0.88) | <0.001 |
| Obesity |  |  |
| No | — |  |
| Yes | 0.78 (0.74 to 0.83) | <0.001 |
| Chronic pulmonary disease |  |  |
| No | — |  |
| Yes | 0.92 (0.88 to 0.97) | 0.002 |
| Chronic kidney disease |  |  |
| No | — |  |
| Yes | 1.03 (0.96 to 1.10) | 0.42 |
| Atrial fibrillation |  |  |
| No | — |  |
| Yes | 1.14 (1.09 to 1.20) | <0.001 |
| Liver disease |  |  |
| No | — |  |
| Yes | 0.99 (0.90 to 1.09) | 0.82 |
| Previous PCI |  |  |
| No | — |  |
| Yes | 0.81 (0.76 to 0.87) | <0.001 |
| Previous CABG |  |  |
| No | — |  |
| Yes | 0.96 (0.91 to 1.02) | 0.20 |
| Previous ICD insertion |  |  |
| No | — |  |
| Yes | 0.81 (0.72 to 0.92) | 0.001 |
| Previous PPM or CRT insertion |  |  |
| No | — |  |
| Yes | 0.90 (0.81 to 1.00) | 0.054 |
| Smoking status |  |  |
| No | — |  |
| Yes | 0.87 (0.83 to 0.91) | <0.001 |
| Coronary artery disease |  |  |
| No | — |  |
| Yes | 1.00 (0.96 to 1.05) | 0.85 |
| Dementia |  |  |
| No | — |  |
| Yes | 1.63 (1.53 to 1.75) | <0.001 |
| Previous stroke/TIA |  |  |
| No | — |  |
| Yes | 1.13 (1.08 to 1.19) | <0.001 |
| Previous myocardial infarction |  |  |
| No | — |  |
| Yes | 0.92 (0.86 to 0.98) | 0.009 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | |

## Multivariable Linear Regression:

### Length of Stay:

| **Characteristic** | **Beta** **(95% CI)***1* | **p-value** |
| --- | --- | --- |
| Peripheral Artery Disease Categories |  |  |
| Peripheral Artery Disease without Acute Myocardial Infarction | — |  |
| Peripheral Artery Disease with Acute Myocardial Infarction | 5.0 (4.4 to 5.6) | <0.001 |
| Age, y | -0.02 (-0.02 to -0.01) | <0.001 |
| Sex |  |  |
| Female | — |  |
| Male | 0.06 (-0.03 to 0.15) | 0.20 |
| Race |  |  |
| White | — |  |
| Asian or Pacific Islander | 0.88 (0.16 to 1.6) | 0.016 |
| Black | 1.1 (1.0 to 1.3) | <0.001 |
| Hispanic | 0.57 (0.39 to 0.76) | <0.001 |
| Native American | 0.62 (0.15 to 1.1) | 0.010 |
| Other | 0.80 (0.43 to 1.2) | <0.001 |
| Residential income |  |  |
| $1 - $51,999 | — |  |
| $52,000 - $65,999 | -0.13 (-0.25 to -0.02) | 0.020 |
| $66,000 - $87,999 | -0.17 (-0.30 to -0.05) | 0.007 |
| $88,000 or more | -0.12 (-0.28 to 0.04) | 0.15 |
| Expected primary payer |  |  |
| Private | — |  |
| Medicaid | 1.1 (0.89 to 1.3) | <0.001 |
| Medicare | 0.13 (0.02 to 0.25) | 0.025 |
| Other | 0.70 (0.36 to 1.0) | <0.001 |
| Hospital region |  |  |
| Midwest | — |  |
| Northeast | 0.90 (0.68 to 1.1) | <0.001 |
| South | 0.59 (0.46 to 0.72) | <0.001 |
| West | -0.07 (-0.24 to 0.10) | 0.43 |
| Hospital bedsize |  |  |
| Large | — |  |
| Medium | -0.42 (-0.56 to -0.28) | <0.001 |
| Small | -0.73 (-0.88 to -0.58) | <0.001 |
| Hospital location and teaching status |  |  |
| Rural | — |  |
| Urban, non-teaching | 0.59 (0.36 to 0.81) | <0.001 |
| Urban, teaching | 1.1 (0.87 to 1.3) | <0.001 |
| Charlson comorbidity index | 0.54 (0.49 to 0.59) | <0.001 |
| Diabetes Mellitus |  |  |
| No | — |  |
| Yes | 0.50 (0.38 to 0.62) | <0.001 |
| Previous heart failure |  |  |
| No | — |  |
| Yes | 0.81 (0.66 to 0.96) | <0.001 |
| Hypertension |  |  |
| No | — |  |
| Yes | -0.85 (-0.98 to -0.72) | <0.001 |
| Obesity |  |  |
| No | — |  |
| Yes | 0.27 (0.15 to 0.40) | <0.001 |
| Chronic pulmonary disease |  |  |
| No | — |  |
| Yes | -0.47 (-0.58 to -0.36) | <0.001 |
| Chronic kidney disease |  |  |
| No | — |  |
| Yes | -0.34 (-0.54 to -0.15) | <0.001 |
| Atrial fibrillation |  |  |
| No | — |  |
| Yes | 1.2 (1.1 to 1.4) | <0.001 |
| Liver disease |  |  |
| No | — |  |
| Yes | 0.84 (0.53 to 1.2) | <0.001 |
| Previous PCI |  |  |
| No | — |  |
| Yes | -0.89 (-1.0 to -0.76) | <0.001 |
| Previous CABG |  |  |
| No | — |  |
| Yes | -0.87 (-0.99 to -0.75) | <0.001 |
| Previous ICD insertion |  |  |
| No | — |  |
| Yes | -1.2 (-1.4 to -0.97) | <0.001 |
| Previous PPM or CRT insertion |  |  |
| No | — |  |
| Yes | -0.83 (-1.0 to -0.64) | <0.001 |
| Smoking status |  |  |
| No | — |  |
| Yes | -0.36 (-0.47 to -0.26) | <0.001 |
| Coronary artery disease |  |  |
| No | — |  |
| Yes | 0.11 (0.00 to 0.22) | 0.056 |
| Dementia |  |  |
| No | — |  |
| Yes | 0.66 (0.46 to 0.87) | <0.001 |
| Previous stroke/TIA |  |  |
| No | — |  |
| Yes | -0.31 (-0.43 to -0.19) | <0.001 |
| Previous myocardial infarction |  |  |
| No | — |  |
| Yes | -0.95 (-1.1 to -0.82) | <0.001 |
| *1*CI = Confidence Interval | | |

### Inflation Adjusted Total Charge:

| **Characteristic** | **Beta** **(95% CI)***1* | **p-value** |
| --- | --- | --- |
| Peripheral Artery Disease Categories |  |  |
| Peripheral Artery Disease without Acute Myocardial Infarction | — |  |
| Peripheral Artery Disease with Acute Myocardial Infarction | 91,079 (80,248 to 101,909) | <0.001 |
| Age, y | -276 (-350 to -201) | <0.001 |
| Sex |  |  |
| Female | — |  |
| Male | 129 (-1,253 to 1,511) | 0.86 |
| Race |  |  |
| White | — |  |
| Asian or Pacific Islander | 5,677 (-2,550 to 13,904) | 0.18 |
| Black | 5,765 (3,290 to 8,239) | <0.001 |
| Hispanic | 17,548 (13,508 to 21,588) | <0.001 |
| Native American | -16,167 (-22,759 to -9,575) | <0.001 |
| Other | 19,751 (12,925 to 26,577) | <0.001 |
| Residential income |  |  |
| $1 - $51,999 | — |  |
| $52,000 - $65,999 | -657 (-2,814 to 1,500) | 0.55 |
| $66,000 - $87,999 | -1,069 (-3,580 to 1,441) | 0.40 |
| $88,000 or more | 3,984 (415 to 7,553) | 0.029 |
| Expected primary payer |  |  |
| Private | — |  |
| Medicaid | 1,457 (-1,269 to 4,182) | 0.29 |
| Medicare | -760 (-2,835 to 1,315) | 0.47 |
| Other | 2,607 (-2,672 to 7,885) | 0.33 |
| Hospital region |  |  |
| Midwest | — |  |
| Northeast | 15,736 (11,030 to 20,443) | <0.001 |
| South | 19,637 (16,459 to 22,815) | <0.001 |
| West | 41,999 (37,006 to 46,993) | <0.001 |
| Hospital bedsize |  |  |
| Large | — |  |
| Medium | -4,304 (-7,920 to -688) | 0.020 |
| Small | -11,716 (-15,678 to -7,754) | <0.001 |
| Hospital location and teaching status |  |  |
| Rural | — |  |
| Urban, non-teaching | 38,361 (34,053 to 42,670) | <0.001 |
| Urban, teaching | 39,334 (35,655 to 43,012) | <0.001 |
| Charlson comorbidity index | 10,616 (9,796 to 11,435) | <0.001 |
| Diabetes Mellitus |  |  |
| No | — |  |
| Yes | -8,422 (-10,301 to -6,542) | <0.001 |
| Previous heart failure |  |  |
| No | — |  |
| Yes | -28 (-2,396 to 2,341) | 0.98 |
| Hypertension |  |  |
| No | — |  |
| Yes | -3,446 (-5,354 to -1,538) | <0.001 |
| Obesity |  |  |
| No | — |  |
| Yes | 92 (-1,882 to 2,067) | 0.93 |
| Chronic pulmonary disease |  |  |
| No | — |  |
| Yes | -5,642 (-7,374 to -3,911) | <0.001 |
| Chronic kidney disease |  |  |
| No | — |  |
| Yes | -13,571 (-16,522 to -10,621) | <0.001 |
| Atrial fibrillation |  |  |
| No | — |  |
| Yes | 10,219 (8,125 to 12,312) | <0.001 |
| Liver disease |  |  |
| No | — |  |
| Yes | 7,327 (2,429 to 12,226) | 0.003 |
| Previous PCI |  |  |
| No | — |  |
| Yes | -6,700 (-8,843 to -4,557) | <0.001 |
| Previous CABG |  |  |
| No | — |  |
| Yes | -9,237 (-11,321 to -7,152) | <0.001 |
| Previous ICD insertion |  |  |
| No | — |  |
| Yes | -14,543 (-18,150 to -10,937) | <0.001 |
| Previous PPM or CRT insertion |  |  |
| No | — |  |
| Yes | -13,075 (-16,115 to -10,034) | <0.001 |
| Smoking status |  |  |
| No | — |  |
| Yes | -2,733 (-4,384 to -1,081) | 0.001 |
| Coronary artery disease |  |  |
| No | — |  |
| Yes | 11,328 (9,429 to 13,227) | <0.001 |
| Dementia |  |  |
| No | — |  |
| Yes | -16,744 (-19,557 to -13,932) | <0.001 |
| Previous stroke/TIA |  |  |
| No | — |  |
| Yes | -8,059 (-9,826 to -6,292) | <0.001 |
| Previous myocardial infarction |  |  |
| No | — |  |
| Yes | -20,676 (-22,973 to -18,380) | <0.001 |
| *1*CI = Confidence Interval | | |