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Figure 1. Observed/expected ratios for rates of primary total knee arthroplasty among Medicare

beneficiaries age 65 to 89 in 2011-2015, by Health Referral Region. Expected rates were

based on models that adjusted for age, sex, and race-ethnicity.

Table 1. Race/ethnicity composition of the 10 Health Referral Regions (HRR) with the lowest

and highest observed/expected ratios for rates of primary total knee arthroplasty. Percentages

may not add to 100% due to rounding.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| HRR | Observed/  expected  ratio | % White | % Black | % Hispanic | % Asian | % Other |
|  |  |  |  |  |  |  |
| Bronx | 0.52 | 47.0 | 33.1 | 11.7 | 2.7 | 5.4 |
| Newark | 0.53 | 62.7 | 23.9 | 4.7 | 3.7 | 4.9 |
| New York | 0.54 | 66.8 | 16.6 | 4.1 | 5.8 | 6.5 |
| Miami | 0.65 | 62.6 | 9.9 | 22.9 | 0.8 | 3.5 |
| Hackensack | 0.67 | 79.0 | 5.3 | 5.4 | 4.8 | 5.4 |
| New Brunswick | 0.68 | 78.8 | 6.4 | 2.0 | 6.6 | 6.0 |
| San Bernardino | 0.69 | 70.3 | 8.1 | 9.6 | 6.1 | 5.7 |
| Honolulu | 0.70 | 33.3 | 0.8 | 0.3 | 25.9 | 39.4 |
| East Long Island | 0.70 | 77.8 | 9.3 | 2.3 | 4.8 | 5.5 |
| Chicago | 0.70 | 51.6 | 35.2 | 5.1 | 4.1 | 3.9 |
|  |  |  |  |  |  |  |
| Mason City | 1.41 | 98.5 | 0.1 | 0.1 | 0.1 | 1.0 |
| Wichita | 1.42 | 94.0 | 2.2 | 1.1 | 0.8 | 1.8 |
| Bismarck | 1.43 | 95.5 | 0.1 | 0.0 | 0.1 | 4.2 |
| Sioux Falls | 1.45 | 96.5 | 0.2 | 0.1 | 0.2 | 2.9 |
| Salt Lake City | 1.48 | 93.7 | 0.3 | 1.4 | 1.1 | 3.3 |
| Sioux City | 1.54 | 95.2 | 0.3 | 1.0 | 0.7 | 2.6 |
| Lincoln | 1.57 | 96.9 | 0.5 | 0.4 | 0.6 | 1.4 |
| Ogden | 1.60 | 94.3 | 0.9 | 1.6 | 0.9 | 2.2 |
| Provo | 1.64 | 95.5 | 0.1 | 2.0 | 0.5 | 1.7 |
| Idaho Falls | 1.72 | 95.4 | 0.1 | 1.5 | 0.3 | 2.5 |

Figure 2. Association between observed/expected ratios for rates of primary total knee

arthroplasty by Health Referral Region and the percent of white, black, Hispanic, and Asian

Medicare beneficiaries living in the Health Referral Region.

Table 2. Distribution of demographic and clinical characteristics of white Medicare beneficiaries

among Health Referral Regions. All values are percent.

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| --- | --- | --- | --- | --- | --- |
| Characteristic | Minimum | 25th percentile | Median | 75th percentile | Maximum |
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Figure 3. Distribution of observed/expected ratios for rates of primary total knee arthroplasty

among white Medicare beneficiaries with expected rates based on the age- and sex-adjusted

model, or based on the full model that adjusted for age, sex, presence of knee symptoms, area-

based measures of obesity, smoking, and physically demanding occupations, 20 comorbid

conditions, poverty, and area-based socioeconomic score. Observed/expected ratios based on

the full model were more concentrated around 1.0 (kurtosis 0.079) than the age- and sex-

adjusted model (kurtosis 1.21).

Table 3. Results of the Poisson regression model for expected rates of primary total knee

arthroplasty among white Medicare beneficiaries.

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| --- | --- | --- | --- |
| Variable | Beta | Standard error | P |
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Table 4. Observed/expected ratios for rates of primary total knee arthroplasty among white

Medicare beneficiaries by Health Referral Region. Expected rates were based on the full

model.

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| Health Referral Region | Observed/expected ratio |
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Figure 4. Mean annual number of primary total knee arthroplasties performed per surgeon

among white Medicare beneficiaries, by Health Referral Region. Regions are ordered from low

to high based on their observed/expected ratio.

Table 5. Observed/expected ratios for rates of primary total knee arthroplasty among black

Medicare beneficiaries by Health Referral Region. Expected rates were based on the full

model.

|  |  |
| --- | --- |
| Health Referral Region | Observed/expected ratio |
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