

► Performance on the elective primary total hip arthroplasty and/or total knee arthroplasty readmission measure: **Hospitals with the highest proportions of vulnerable populations based on sociodemographic characteristics.**

The Centers for Medicare & Medicaid Services (CMS) periodically investigates select hospital practices that may impact a hospital's performance on the following readmission measure: hospital-level 30-day risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA) [1]. The THA/TKA readmission measure includes Medicare fee-for-service (FFS) beneficiaries aged 65 or older [2]. The THA/TKA readmission measure assesses the occurrence of unplanned readmission for any cause within 30 days after discharge from hospitalization for elective primary THA/TKA [2]. The THA/TKA readmission measure has been publicly reported on [Hospital Compare](#) since 2013 and has been included in the Hospital Readmissions Reduction Program (HRRP) since Fiscal Year 2015 [3].

There has been much discussion about the potential impact of patient sociodemographic status (SDS) on hospital outcome measures, including measures of readmission [3, 4]. We examined THA/TKA RSRRs among hospitals identified as caring for a large proportion of vulnerable patients, as characterized by seven different SDS definitions, for hospitals with at least 25 eligible discharges. The hospitals included in this analysis are the 10% of hospitals with highest proportions of vulnerable patients as characterized by the different SDS definitions (Table 1). We compared the distribution of THA/TKA RSRRs among the hospitals identified by the various SDS definitions and also examined the number of hospitals identified as caring for high proportion of vulnerable populations by the various definitions. Variation in RSRRs reflects differences in performance among hospitals; lower RSRRs suggest better quality, and higher RSRRs suggest worse quality. To ensure accurate assessment of each hospital, the THA/TKA readmission measure uses a statistical model to adjust for key differences in patient risk factors that are clinically relevant and that have a strong relationship with the readmission outcome [2].

Among the subgroup of hospitals identified as serving vulnerable populations as characterized by the seven SDS definitions, only 45% of hospitals were identified by more than one definition of SDS.

Out of the 1,081 hospitals that met the criteria for serving a large proportion of vulnerable patients as characterized by at least one definition of SDS, less than half (485 hospitals; 45% of hospitals) met criteria characterized by multiple definitions of SDS. There were no hospitals that met criteria characterized by all seven definitions of SDS. However, five hospitals (< 1% of 2,819 total hospitals) met the criteria for six of the definitions, 36 hospitals (1% of total hospitals) were identified by five of the definitions, 60 hospitals (2% of total hospitals) were identified by four of the definitions, and 129 hospitals (5% of total hospitals) were identified by three of the definitions.

The median THA/TKA RSRR for all hospitals was 4.8% and median THA/TKA RSRRs for hospitals identified as serving high proportions of vulnerable populations were within 0.2 percentage points of the overall median. We observed overlapping ranges in performance for hospitals meeting criteria based on all seven SDS definitions (Figure 1). The interquartile range of THA/TKA RSRRs overall was 4.5% to 5.2% and for hospitals identified as serving high proportions of vulnerable populations the interquartile range was 4.5% to 5.6% (Table 2).

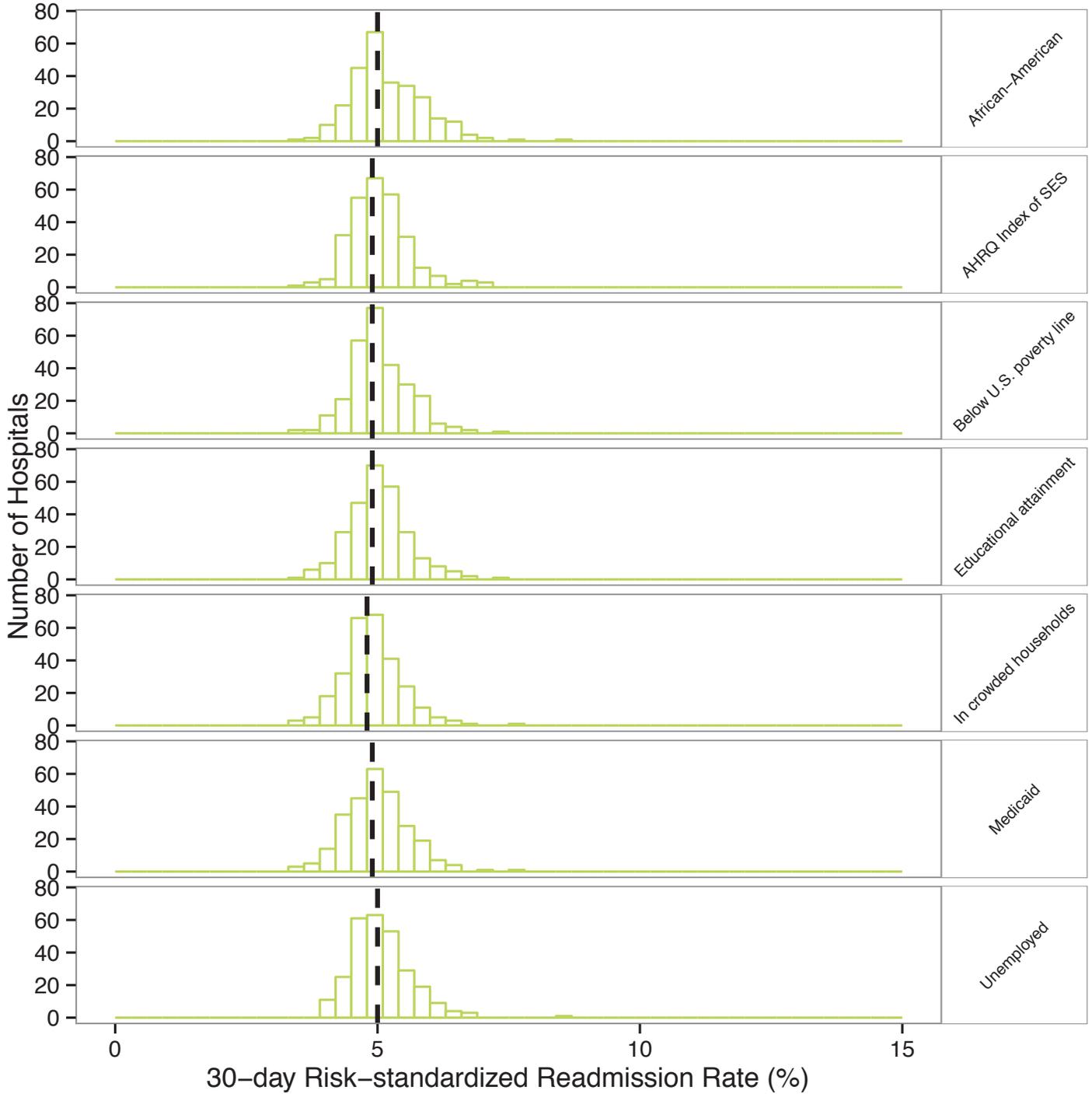
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TABLE I Definitions and data sources for the following sociodemographic characteristics: living below the U.S. poverty line; an educational attainment below high school; unemployed; living in crowded households; African-American; receiving Medicaid; and residing in a zip-code with a low AHRQ Index of SES score.

Sociodemographic characteristics	Definition of vulnerable patients based on sociodemographic characteristics	Identification of hospitals with the highest proportion of vulnerable patients	Source
Below U.S. poverty line	Patients from zip codes where more than 29.7% of the residents are below the United States (U.S.) poverty line	Hospitals with more than 56.1% of Medicare FFS patients that meet the vulnerable patient definition	American Community Survey (ACS) 2008 – 2012 5 year estimate Medicare Part A Inpatient Claims 2012
Educational attainment below high school	Patients from zip codes where more than 18.6% of the residents aged ≥ 25 years have less than a 12th-grade education	Hospitals with more than 62.6% of Medicare FFS patients that meet the vulnerable patient definition	ACS 2008 – 2012 5 year estimate Medicare Part A Inpatient Claims 2012
Unemployed	Patients from zip codes where more than 11.5% of the residents aged 16 years or older in labor force who are unemployed and actively seeking work	Hospitals with more than 60.2% of Medicare FFS patients that meet the vulnerable patient definition	ACS 2008 – 2012 5 year estimate Medicare Part A Inpatient Claims 2012
Crowded households	Patients from zip codes where more than 3.2% of the residents live in households containing one or more person per room	Hospitals with more than 64.9% of Medicare FFS patients that meet the vulnerable patient definition	ACS 2008 – 2012 5 year estimate Medicare Part A Inpatient Claims 2012
African-American	African-American patients	Hospitals with more than 19.0% of Medicare FFS patients identified as African-American	Medicare Part A Inpatient Claims 2013
Medicaid	Patients that have Medicaid coverage	Hospitals with more than 28.8% of patients with Medicaid coverage	American Hospital Association (AHA) Survey 2013 [5]
AHRQ Index of SES scores	Patients from zip codes with an Agency for Healthcare Research & Quality (AHRQ) socioeconomic status (SES) index score below 31.8	Hospitals with more than 70.2% of Medicare FFS patients that meet the vulnerable patient definition	AHRQ SES index [6] ACS 2008 – 2012 5 year estimate Medicare Part A Inpatient Claims 2012

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FIGURE I Distributions and medians of THA/TKA RSRRs (%) for hospitals with the highest proportion of patients with one of the following sociodemographic characteristics: living below the U.S. poverty line; an educational attainment below high school; unemployed; living in crowded households; African-American; receiving Medicaid; and residing in a zip-code with a low AHRQ Index of SES score, July 2011-June 2014.



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TABLE 2 Distributions of THA/TKA RSRRs (%) for hospitals with the highest proportion of patients with one of the following sociodemographic characteristics: living below the U.S. poverty line; an educational attainment below high school; unemployed; living in crowded households; African-American; receiving Medicaid; and residing in a zip-code with a low AHRQ Index of SES score, July 2011-June 2014.

THA/TKA RSRR (%) for hospitals with the highest proportions of patients:

	All hospitals; n=2,819	Below U.S. poverty line; n=278	Educational attainment below high school; n=278	Unemployed; n=278	In crowded households; n=278	African- American; n=278	Medicaid; n=274	Low AHRQ Index of SES score; n=279
Maximum	8.5	7.3	7.2	8.5	7.6	8.5	7.6	6.9
75%	5.2	5.3	5.3	5.3	5.2	5.6	5.3	5.3
Median (50%)	4.8	4.9	4.9	5.0	4.8	5.0	4.9	4.9
25%	4.5	4.6	4.6	4.7	4.5	4.7	4.6	4.6
Minimum	2.6	3.4	3.4	3.9	3.4	3.4	3.3	3.4

The median THA/TKA RSRR for all hospitals was 4.8% and median THA/TKA RSRRs for hospitals identified as serving high proportions of vulnerable populations were within 0.2 percentage points of the overall median. Similarly, the interquartile range of THA/TKA RSRRs overall was 4.5% to 5.2% and for hospitals identified as serving high proportions of vulnerable populations the interquartile range was 4.5% to 5.6%.

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