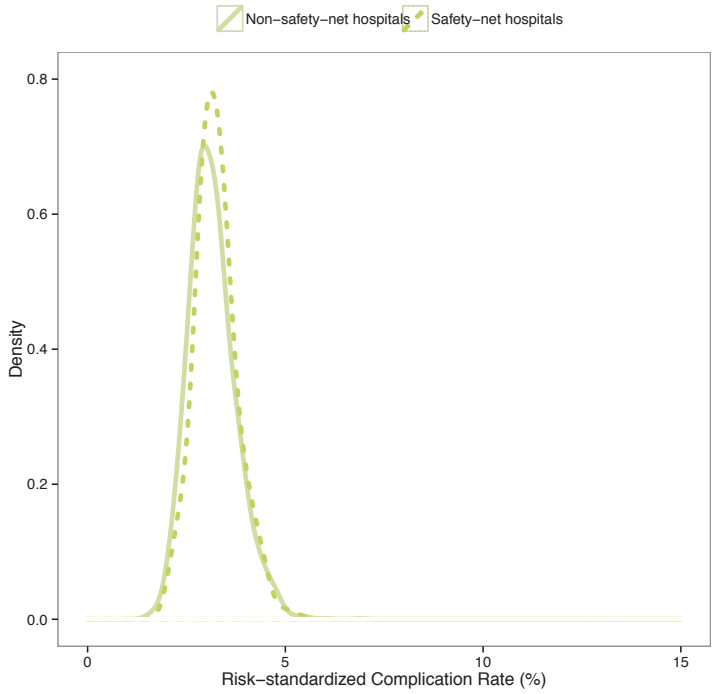
Performance on the elective primary total hip arthroplasty and/or total knee arthroplasty complication measure by hospital characteristics: **safety-net status, teaching status, and urban or rural location.**

The Centers for Medicare & Medicaid Services (CMS) periodically investigates select hospital characteristics that may impact a hospital's performance on the following complication measure: hospital-level risk-standardized complication rate (RSCR) following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA) [1]. The THA/TKA complication measure includes Medicare fee-for-service (FFS) beneficiaries aged 65 or older [2]. The THA/TKA complication measure assesses the occurrence of significant medical and/or surgical complications within 7 to 90 days, depending on the complication, following hospitalization for elective primary THA/TKA. Medical and surgical complications include: acute myocardial infarction (AMI), pneumonia, or sepsis/septicemia during hospitalization or within 7 days of admission; surgical site bleeding, pulmonary embolism or death during hospitalization or within 30 days of admission; or mechanical complications, periprosthetic joint infection, or wound infection during hospitalization or within 90 days of admission [2]. The THA/TKA complication measure has been publicly reported on Hospital Compare since 2013, and in Fiscal Year 2019, it will be included in the Hospital Value-Based Purchasing (HVBP) Program [3].

FIGURE I *Distributions of hospital RSCRs (%) for THA/TKA by safety-net status, April 2011-March 2014.*



Variation in RSCRs reflects differences in performance among hospitals; lower RSCRs suggest better quality, and higher RSCRs suggest worse quality. To understand the impact of hospital safety-net status, teaching status, and urban or rural location, we examined RSCRs among hospitals with these characteristics with 25 or more qualifying admissions. Therefore, we evaluated the THA/TKA RSCRs for a total of 2,768 hospitals by comparing 535 safety-net hospitals against 2,233 non-safety-net hospitals, 951 teaching hospitals against 1,817 non-teaching hospitals, and 2,539 urban hospitals against 229 rural hospitals for the April 2011-March 2014 reporting period.

Safety-net hospitals are defined as those committed to caring for populations without stable access to care, specifically public hospitals or private hospitals with a Medicaid caseload greater than one standard deviation above their respective state's mean private hospital Medicaid caseload [4]. Teaching Hospitals provide post-graduate education for physicians completing residency and fellowship [4]. Urban and rural hospitals are defined by hospital self-identification [4].

To ensure accurate assessment of each hospital, the THA/TKA complication 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 specified complications [2].

FIGURE 2 *Distributions of hospital RSCRs (%) for THA/TKA by teaching status, April 2011-March 2014.*

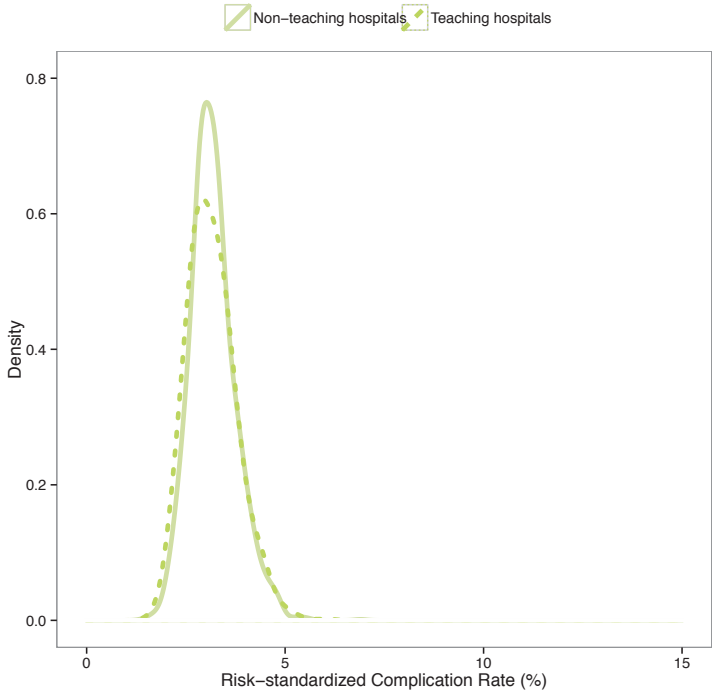
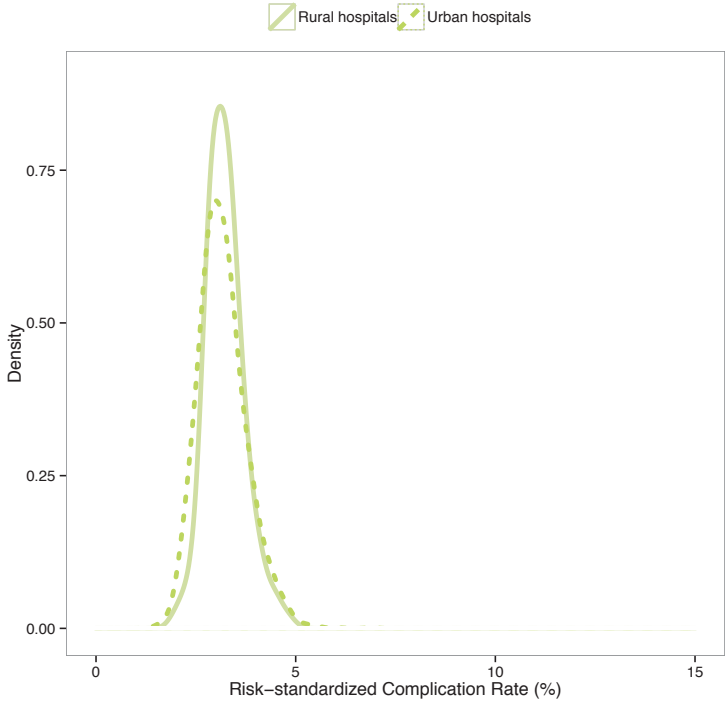


TABLE I *Distributions of hospital RSCRs (%) for THA/TKA overall, by safety-net status, teaching status, and urban or rural location, April 2011-March 2014.*

	THA/TKA RSCR (%)						
	Overall; n=2768	Safety-net hospitals; n=535	Non-safety-net hospitals; n=2233	Teaching hospitals; n=951	Non-teaching hospitals; n=1817	Urban hospitals; n=2539	Rural hospitals; n=229
Maximum	6.9	5.3	6.9	6.1	6.9	6.9	4.8
90%	3.9	4.0	3.9	4.0	3.9	4.0	3.8
75%	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Median (50%)	3.1	3.2	3.1	3.1	3.1	3.1	3.2
25%	2.8	2.9	2.8	2.7	2.8	2.8	2.9
10%	2.5	2.6	2.5	2.4	2.5	2.5	2.7
Minimum	1.4	2.0	1.4	1.6	1.4	1.4	2.0

The median THA/TKA RSCR for all hospitals was 3.1 % (interquartile range [IQR]: 2.8%-3.5%; Table 1). The median THA/TKA RSCR for safety-net hospitals was 3.2% (IQR: 2.9%-3.5%) and for non-safety-net hospitals was 3.1% (IQR: 2.8%-3.5%; Figure 1 and Table 1). The median THA/TKA RSCR for teaching hospitals was 3.1% (IQR: 2.7%-3.5%) and for non-teaching hospitals was 3.1% (IQR: 2.8%-3.5%; Figure 2 and Table 1). The median THA/TKA RSCR for urban hospitals was 3.1% (IQR: 2.8%-3.5%) and for rural hospitals was 3.2% (IQR: 2.9%-3.5%; Figure 3 and Table 1).

FIGURE 3 *Distributions of hospital RSCRs (%) for THA/TKA by urban or rural location, April 2011-March 2014.*



Safety-net hospitals had a median THA/TKA RSCR that was 0.1 percentage points higher than non-safety-net hospitals, teaching hospitals had a median THA/TKA RSCR that was equal to that of non-teaching hospitals, and urban hospitals had a median THA/TKA RSCR that was 0.1 percentage points lower than rural hospitals.

1. Medicare Hospital Quality Chartbook 2014: Performance Report on Outcome Measures. Prepared by Yale New Haven Health Services Corporation Center for Outcomes Research and Evaluation for the Centers for Medicare and Medicaid Services 2014; http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/Downloads/Medicare-Hospital-Quality-Chartbook-2014.pdf. Accessed 16 June 2015.

2. Suter L, Zhang W, Parzynski C, et al. 2015 Procedure-Specific Complication Measure Updates and Specifications Report: Elective Primary Total Hip Arthroplasty (THA) and/or Total Knee Arthroplasty (TKA) Measure – Version 4.0; https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228772782693. Accessed 16 June 2015.

3. "Hospital Inpatient Prospective Payment Systems for Acute Care Hospitals, Final Rule." Federal Register / 22 August 2014; http://federalregister.gov/a/2014-18545. Accessed 16 June 2015.

4. AHA Annual Survey Database Fiscal Year 2013; http://www.ahadataviewer.com/book-cd-products/aha-survey/. Accessed 26 June 2015.