

► Results from the acute myocardial infarction payment measure: **Hospitals with the highest proportions of vulnerable populations based on sociodemographic characteristics.**

The Centers for Medicare & Medicaid Services (CMS) periodically investigates issues of stakeholder interest in relation to their hospital 30-day episode-of-care payment measures. In 2014, CMS began publicly reporting the following payment measure on [Hospital Compare](#): hospital-level risk-standardized payment (RSP) associated with a 30-day episode of care for acute myocardial infarction (AMI) [1]. The AMI payment measure includes admissions for Medicare fee-for-service (FFS) beneficiaries aged 65 or older [2]. The AMI payment measure captures payments across multiple care settings, services, and supplies (this includes inpatient, outpatient, skilled nursing facility, home health, hospice, physician/clinical laboratory/ambulance services, and durable medical equipment, prosthetics/orthotics, and supplies) [2]. To isolate payment variation that reflects practice patterns rather than factors unrelated to clinical care, geographic differences and policy adjustments in payment rates for individual services are removed from the total payment for that service [2]. Standardizing the payment allows for comparison across hospitals based solely on payments for decisions related to clinical care. However, it's important to note that the AMI payment measure results alone are not an indication of quality.

There has been much discussion about the potential impact of patient sociodemographic status (SDS) on hospital outcome measures, including measures of payment [1, 3]. We examined AMI RSPs 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 admissions. 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 AMI RSP results 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 AMI RSPs reflects different patterns in care decisions and resource utilization (for example, treatment, supplies, or services) among hospitals for a hospital's patients both at the hospital and after they leave. Wider distributions suggest more variation in payments, and narrower distributions suggest less variation in payments. To ensure accurate assessment of each hospital, the AMI payment 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 payment outcome [2]. In addition, all payments were inflation-adjusted to 2013 dollars.

Among the subgroup of hospitals identified as serving vulnerable populations as characterized by the seven SDS definitions, only 47% of hospitals were identified by more than one definition of SDS.

Out of the 894 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 (418 hospitals; 47% 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, nine hospitals (< 1% of 2,397 total hospitals) met the criteria for six of the definitions, 29 hospitals (1% of total hospitals) were identified by five of the definitions, 71 hospitals (3% of total hospitals) were identified by four of the definitions, and 97 hospitals (4% of total hospitals) were identified by three of the definitions.

The median AMI RSP for all hospitals was \$21,996 and median AMI RSPs for hospitals identified as serving high proportions of vulnerable populations were within \$748 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 AMI RSPs overall ranged from \$20,959 to \$23,234 and for hospitals identified as serving high proportions of vulnerable populations ranged from \$20,265 to \$23,627 (Table 2).

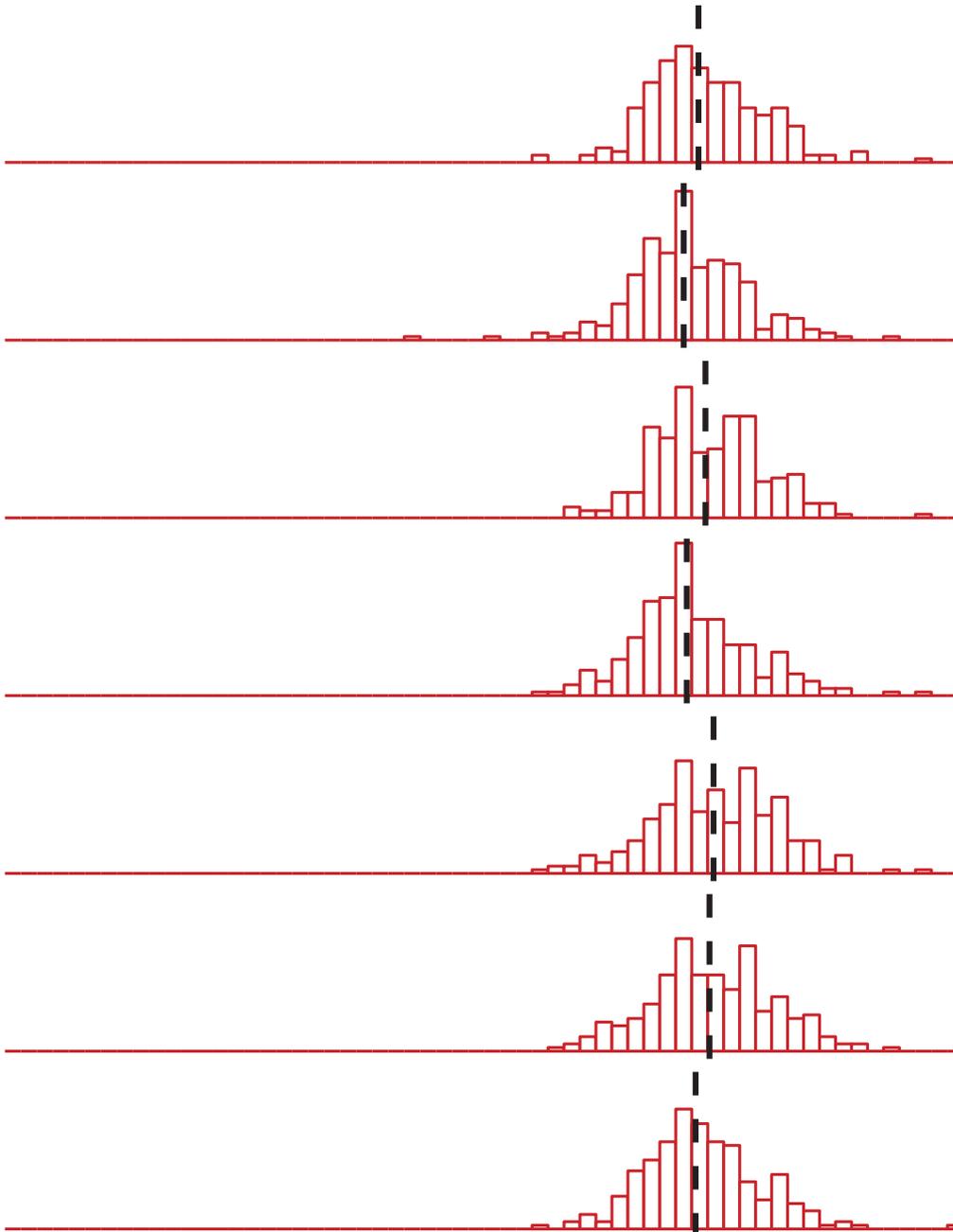
SOCIODEMOGRAPHIC STATUS

TABLE I Definitions and data sources for the following sociodemographic characteristics: living below the U.S. poverty line; living in crowded households; an educational attainment below high school; unemployed; African-American; receiving Medicaid; and residing in a zip-code with 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 56.4% 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 69.5% 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 64.3% 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 69.7% 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 23.7% of Medicare FFS patients identified as African-American	Medicare Part A Inpatient Claims 2013
Medicaid	Patients that have Medicaid coverage	Hospitals with more than 30.4% of patients with Medicaid coverage	American Hospital Association (AHA) Survey 2013 [4]
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 72.4% of Medicare FFS patients that meet the vulnerable patient definition.	AHRQ SES index [5] ACS 2008 – 2012 5 year estimate Medicare Part A Inpatient Claims 2012

SOCIODEMOGRAPHIC STATUS

FIGURE I Distributions and medians of AMI RSPs (\$2013) for hospitals with the highest proportions of patients with one of the following sociodemographic characteristics: living below the U.S. poverty line; living in crowded households; an educational attainment below high school; unemployed; African-American; receiving Medicaid; and residing in a zip-code with low AHRQ Index of SES score, July 2011-June 2014.



Prepared for CMS by Yale New Haven Health Services Corporation (YNHHSC) Center for Outcomes Research and Evaluation (CORE) September 2015

SOCIODEMOGRAPHIC STATUS

TABLE 2 Distributions of AMI RSPs (\$2013) for hospitals with the highest proportions of patients with one of the following sociodemographic characteristics: living below the U.S. poverty line; living in crowded households; an educational attainment below high school; unemployed; African-American; receiving Medicaid; and residing in a zip-code with low AHRQ Index of SES score, July 2011-June 2014.

AMI RSP (\$2013) for hospitals with the highest proportions of patients:

	All hospitals; n=2,397	Below U.S. poverty line; n=240	Educational attainment below high school; n=240	Unemployed; n=239	In crowded households; n=239	African- American; n=239	Medicaid; n=238	Low AHRQ Index of SES score; n=239
Maximum	29,802	28,706	28,706	29,802	28,706	28,706	27,942	27,942
75%	23,234	23,207	22,505	22,904	23,627	23,036	23,411	22,506
Median (50%)	21,996	21,928	21,344	21,619	22,181	21,709	22,054	21,248
25%	20,959	20,887	20,344	20,576	20,960	20,703	20,902	20,265
Minimum	12,862	17,540	16,638	16,910	16,638	16,739	17,343	12,862

The median AMI RSP for all hospitals was \$21,996 and median AMI RSPs for hospitals identified as serving high proportions of vulnerable populations were within \$748 of the overall median. Similarly, the interquartile range of AMI RSPs overall ranged from \$20,959 to \$23,234 and for hospitals identified as serving high proportions of vulnerable populations ranged from \$20,265 to \$23,627.

1. "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.

2. Kim N, Ott L, Hsieh A, et al. 2015 Condition-Specific Measure Updates and Specifications Report Hospital-Level 30-Day Risk-Standardized Payment Measures: Acute Myocardial Infarction – Version 4.0, Heart Failure – Version 2.0, Pneumonia – Version 2.0; <https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228774267858>. Accessed 26 June 2015.

3. National Quality Forum. Risk Adjustment for Socioeconomic Status or Other Sociodemographic Factors, Technical Report, August 15, 2014; http://www.qualityforum.org/Publications/2014/08/Risk_Adjustment_for_Socioeconomic_Status_or_Other_Sociodemographic_Factors.aspx. Accessed 9 July 2015.

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

5. U.S. Department of Health & Human Services, AHRQ Agency for Healthcare Research and Quality archive; Publication # 08-0029-EE, Chapter 3: Creation of New Race-Ethnicity Codes and SES Indicators for Medicare Beneficiaries - Chapter 3: Creating and Validating and Index of Socioeconomic Status; <http://archive.ahrq.gov/research/findings/final-reports/medicareindicators/medicareindicators3.html>. Accessed 30 June 2015.