SOCIODEMOGRAPHIC STATUS

▶ Results from the pneumonia 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 2015, 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 pneumonia [1]. The pneumonia payment measure includes admissions for Medicare fee-for-service (FFS) beneficiaries aged 65 or older [2]. The pneumonia 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 pneumonia 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 pneumonia 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 pneumonia 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 pneumonia 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 pneumonia 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 48% of hospitals were identified by more than one definition of SDS.

Out of the 1,596 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 (762 hospitals; 48% 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, four hospitals (< 1% of 4,206 total hospitals) met the criteria for six of the definitions, 34 hospitals (1% of total hospitals) were identified by five of the definitions, 119 hospitals (3% of total hospitals) were identified by four of the definitions, and 214 hospitals (5% of total hospitals) were identified by three of the definitions.

The median pneumonia RSP for all hospitals was $14,251 and median pneumonia RSPs for hospitals identified as serving high proportions of vulnerable populations were within $670 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 pneumonia RSPs overall ranged from $13,348 to $15,124 and for hospitals identified as serving high proportions of vulnerable populations ranged from $12,737 to $15,421 (Table 2).
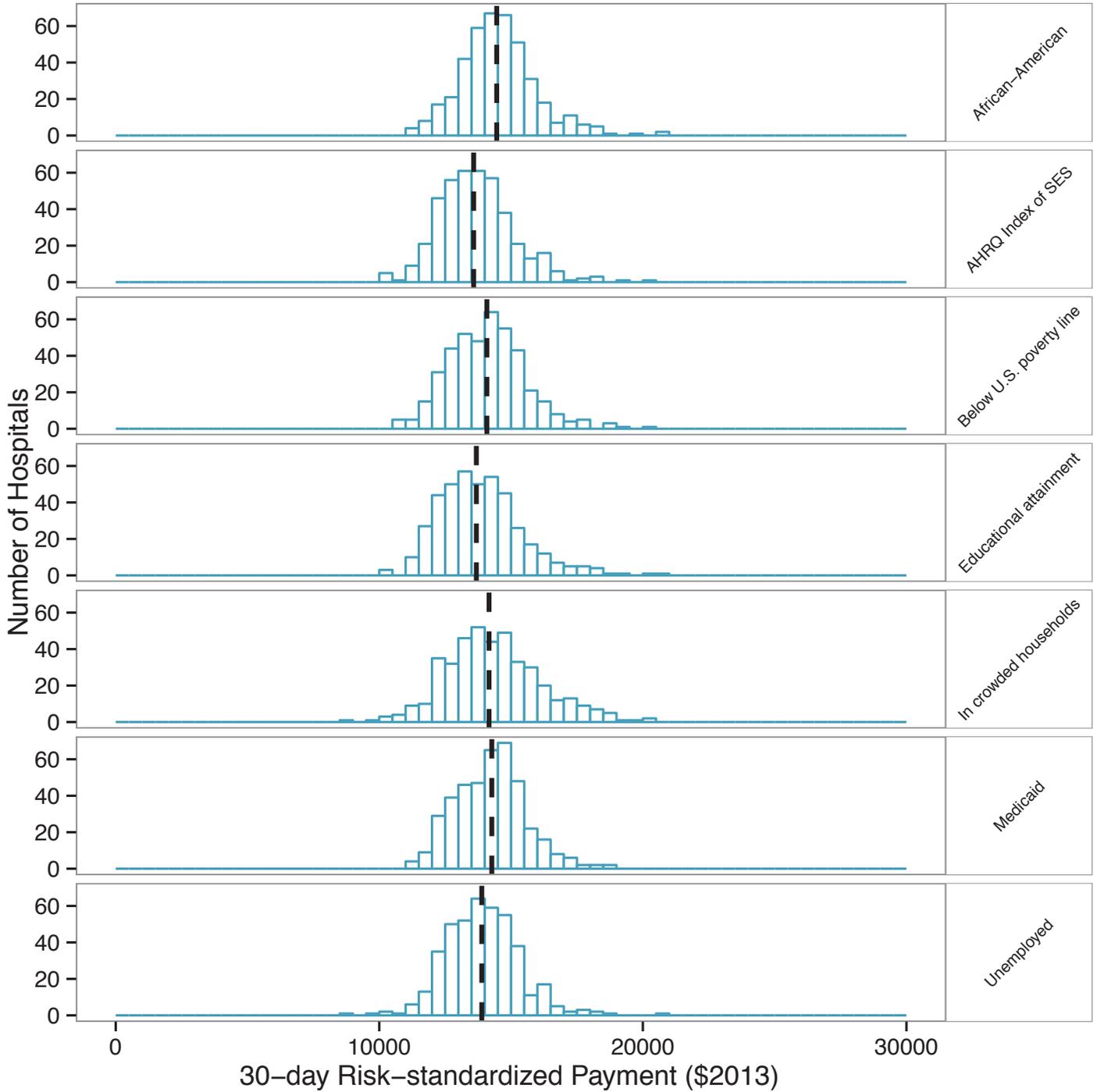
TABLE I *Definitions and data sources for the following sociodemographic characteristics: living below the U.S. poverty line; an educational attainment below high school; unemployed; living in crowded households; African-American; receiving Medicaid; and residing in a zip-code with a low AHRQ Index of 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 66.8% 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 86.1% 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 71.1% 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 73.9% 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 21.9% of Medicare FFS patients identified as African-American	Medicare Part A Inpatient Claims 2013
Medicaid	Patients that have Medicaid coverage	Hospitals with more than 29.0% of patients had 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 92.1% 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

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

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FIGURE I *Distributions and medians of pneumonia RSPs ($2013) 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.*

TABLE 2 *Distributions of pneumonia RSPs ($2013) 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.*

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

	All hospitals; n=4,206	Below U.S. poverty line; n=420	Educational attainment below high school; n=420	Unemployed; n=419	In crowded households; n=419	African-American; n=417	Medicaid; n=414	Low AHRQ Index of SES score; n=419
Maximum	22,999	20,050	20,633	20,633	20,333	20,633	18,908	20,050
75%	15,124	14,949	14,691	14,750	15,421	15,272	15,027	14,477
Median (50%)	14,251	14,083	13,682	13,888	14,164	14,455	14,269	13,581
25%	13,348	13,048	12,737	12,980	13,091	13,612	13,268	12,746
Minimum	8,977	10,507	10,213	8,977	8,977	11,218	11,298	10,100

The median pneumonia RSP for all hospitals was $14,251 and median pneumonia RSPs for hospitals identified as serving high proportions of vulnerable populations were within $670 of the overall median. Similarly, the interquartile range of pneumonia RSPs overall ranged from $13,348 to $15,124 and for hospitals identified as serving high proportions of vulnerable populations ranged from $12,737 to $15,421.

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.

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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-EF, 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.