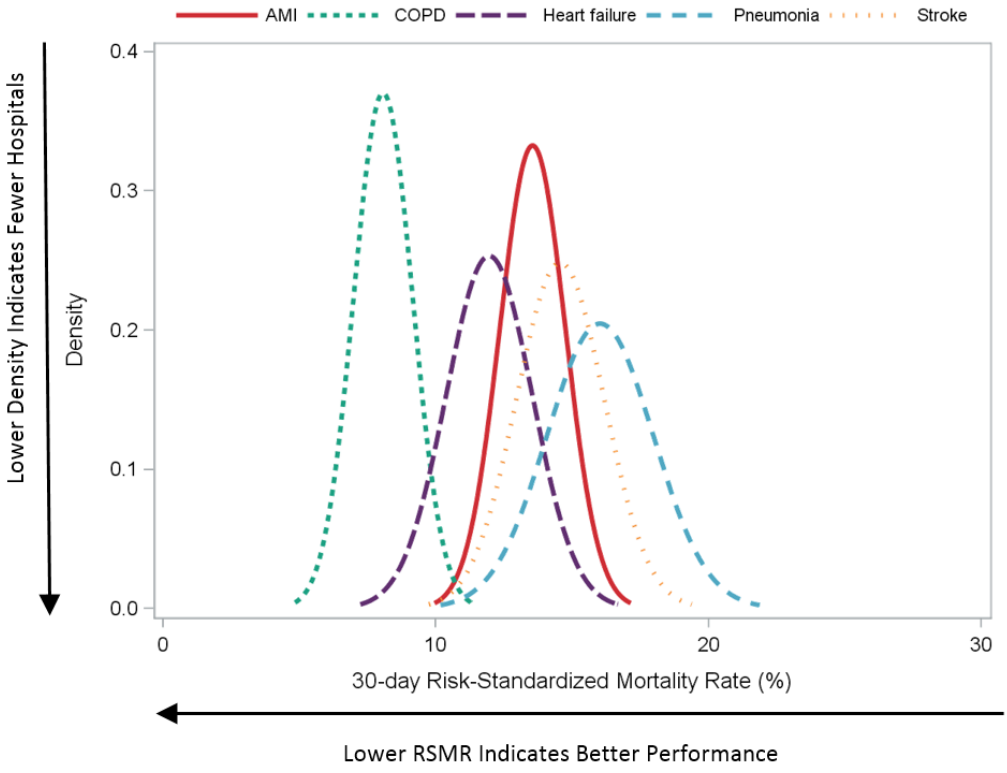
Variation in 30-day mortality rates across hospitals following hospital admission for acute myocardial infarction, chronic obstructive pulmonary disease, heart failure, pneumonia, and acute ischemic stroke.

The Centers for Medicare & Medicaid Services (CMS) evaluates the distribution of measure results in order to monitor patterns, changes, and potential unintended consequences in the measure results. This information allows CMS to better understand the current state of care within U.S. hospitals.

The condition-specific mortality measures assess death from any cause within 30 days of the date of hospital admissions for acute myocardial infarction (AMI), chronic obstructive pulmonary disease (COPD), heart failure, pneumonia, or acute ischemic stroke, regardless of whether the patient dies while still in the hospital or after being discharged from the hospital [1]. The measures include Medicare fee-for-service (FFS) beneficiaries aged 65 or older.

CMS began publicly reporting 30-day risk-standardized mortality rates (RSMRs) following admissions for AMI and heart failure in 2007; for pneumonia in 2008; and for COPD and stroke in 2014 [2]. Publicly reported measure results are updated annually on the *Hospital Compare* website. Beginning in October 2013, CMS implemented the AMI, heart failure, and pneumonia mortality measures in the Hospital Value-Based Purchasing (HVBP) program [3]. In Fiscal Year 2021, the COPD mortality measure will be included in the HVBP program [3, 4].

FIGURE I. *Distributions of hospital RSMRs (%) for AMI, COPD, heart failure, pneumonia, and stroke, July 2013-June 2016.*



Variation in RSMRs reflects differences in performance among hospitals; wider distributions suggest more variation in quality and narrower distributions suggest less variation in quality. To determine the extent of variation present in these measures, we examined hospital RSMRs for AMI, COPD, heart failure, pneumonia, and stroke in the July 2013-June 2016 reporting period. We included hospitals with 25 or more qualifying cases. To ensure accurate assessment of each hospital, the measures use a statistical model to adjust for key differences in patient risk factors that are clinically relevant and that have strong relationships with the mortality outcome [1].

TABLE I. *Distribution of hospital RSMRs (%) for AMI, COPD, heart failure, pneumonia, and stroke, July 2013-June 2016.*

	Distribution of RSMRs (%)				
	AMI	COPD	Heart Failure	Pneumonia	Stroke
Number of hospitals	2,384	3,653	3,677	4,231	2,699
Maximum	18.0	13.9	18.5	26.1	21.5
90%	15.1	9.5	14.0	18.5	16.6
75%	14.2	8.7	13.0	17.2	15.5
Median (50%)	13.5	8.0	11.9	15.9	14.5
25%	12.8	7.4	10.9	14.7	13.5
10%	12.1	6.8	10.1	13.7	12.6
Minimum	9.7	4.7	6.2	9.3	9.3

Hospital RSMRs for AMI, COPD, heart failure, pneumonia, and stroke were normally distributed and centered at 13.5%, 8.0%, 11.9%, 15.9%, and 14.5%, respectively (Figure 1 and Table 1). Additionally, hospitals were distributed over an interquartile range of 1.4, 1.3, 2.1, 2.5, and 2.0 percentage points, respectively (Table 1).

For the AMI, COPD, heart failure, pneumonia, and stroke mortality measures, half of the hospitals have RSMRs within 1.4, 1.3, 2.1, 2.5, and 2.0 percentage points of the median hospital RSMR for each measure. Additionally, the range in RSMRs for the AMI, COPD, heart failure, pneumonia, and stroke mortality measures was 8.3, 9.2, 12.3, 16.8, and 12.2 percentage points, respectively. This demonstrates that there are continued opportunities for improvement.

1. Jaymie Simoes, Jacqueline N. Grady, Jo DeBuhr, et al. 2017 Condition-Specific Measures Updates and Specifications Report Hospital-Level 30-Day Risk-Standardized Mortality Measures: Acute Myocardial Infarction – Version 11.0 Chronic Obstructive Pulmonary Disease – Version 6.0 Heart Failure – Version 11.0 Pneumonia – Version 11.0 Stroke – Version 6.0. https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1163010421830. Available as of April 4, 2017.

2. Hospital Inpatient Quality Reporting (IQR) Program Overview. QualityNet website. https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138115987129. Accessed March 1, 2017.

3. Hospital Value-Based Purchasing Overview. QualityNet website. https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1228772039937. Accessed March 1, 2017.

4. Centers for Medicare and Medicaid Services. Hospital Inpatient Prospective Payment Systems for Acute Care Hospitals, Final Rule Fiscal Year 2016. 80 FR 49325. Federal Register website. https://federalregister.gov/a/2015-19049. Published August 17, 2015. Effective October 1, 2015. Accessed March 1, 2017.