RESEARCH BRIEF

TOP CARDIOVASCULAR CARE MEANS GREATER CLINICAL AND FINANCIAL VALUE

2009 100 TOP HOSPITALS®: CARDIOVASCULAR BENCHMARKS STUDY SHOWS LOWER 30-DAY MORTALITY, READMISSIONS FOR AMI, AND HEART FAILURE

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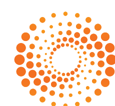

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WINNERS SHOW BETTER PERFORMANCE IN KEY PAY-FOR-PERFORMANCE MEASURES

With each 100 Top Hospitals® Cardiovascular Benchmarks study release, we renew our commitment to more completely measure and describe the performance of hospitals treating cardiovascular disease. To that end, we study ways to show how the 100 Top Hospitals differ from their peers and how they are providing value to their communities. This year, new analysis revealed the cardiovascular 100 Top Hospitals have lower 30-day mortality rates for heart attack patients, and that heart attack and heart failure patients discharged from these hospitals are less likely to be readmitted within 30 days of discharge. This finding is important for two reasons: it suggests that the study's winning hospitals are providing better overall care for heart attack and heart failure patients, and, because these measures are part of CMS' value-based purchasing program, it hints that the winning hospitals are more prepared to fare well in the pay-for-performance environment.

Our analysis of longer-term outcomes shows a clear difference in how heart patients at 100 Top Hospitals Cardiovascular study winners — compared with peer hospitals — fare after they are discharged:

- Heart attack (AMI) patients treated at our award-winning hospitals have lower 30-day mortality rates than patients treated at non-winning hospitals.
- AMI patients discharged from winning hospitals were less likely to be readmitted within 30 days than patients discharged from non-winning hospitals.
- Heart failure patients discharged from winning hospitals were less likely to be readmitted within 30 days than patients discharged from non-winning hospitals.

FIGURE 1: Heart Attack and Heart Failure Outcomes, 100 Top Hospitals: Cardiovascular Benchmarks Winners Versus Non-Winners

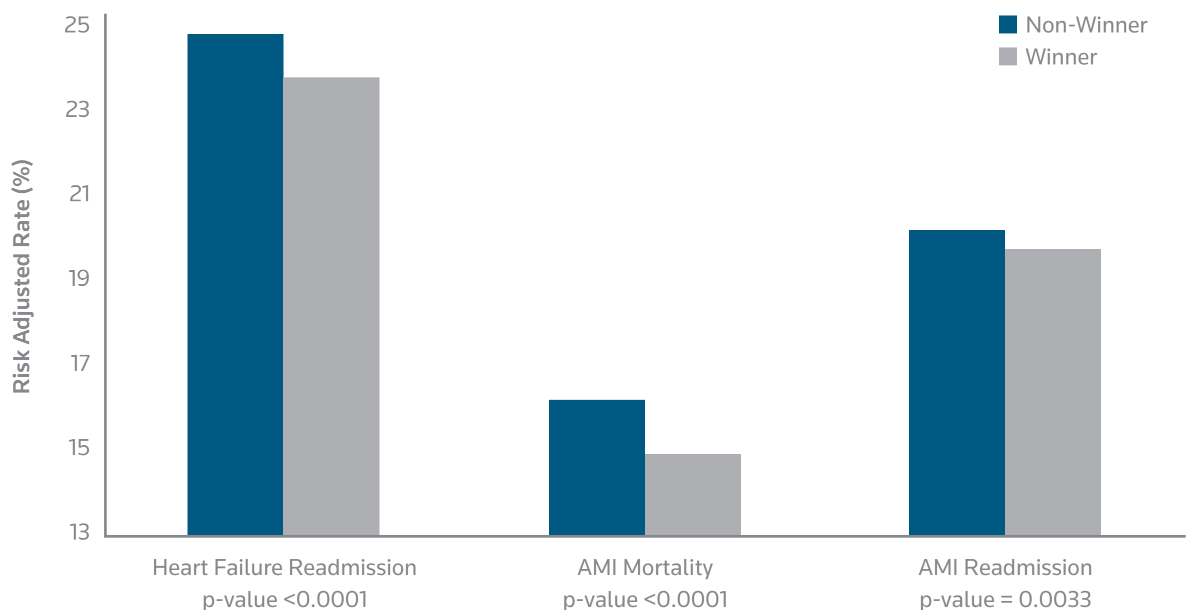

TABLE 1: Heart Attack and Heart Failure Outcomes, 100 Top Hospitals®: Cardiovascular Benchmark Winners Versus Non-Winners

MEASURE	WINNER	NON-WINNER	WINNER VERSUS NON-WINNER	
			Difference	p-value
HEART FAILURE READMISSION (%)	23.73	24.72	-4.04%	<0.0001
AMI MORTALITY (%)	14.92	16.23	-8.04%	<0.0001
AMI READMISSION (%)	19.73	20.13	-2.01%	0.0033

The 30-day mortality and readmission rates are part of the Centers for Medicare and Medicaid Services' (CMS) value-based purchasing (VBP) program. The VBP initiative ties Medicare payments to performance on quality and efficiency and is part of CMS' effort to transform Medicare from a passive payer to an active purchaser of higher quality, more efficient healthcare.[2]

This pay-for-performance program gives hospitals a chance to earn financial incentives on Medicare reimbursement by performing well on quality of care measures. Conversely, organizations that do not meet specified performance standards could lose reimbursement. Measures that are part of this program are watched closely in the industry and are endorsed by the National Quality Forum, a nonprofit organization whose mission is to improve the quality of healthcare for Americans, in part by setting national priorities and goals for performance improvement. The measures used in this analysis, in particular, are important because they can reveal when deaths or complications are related to the care patients received at the hospital.

Lower mortality and readmission rates generally reflect better patient care. Although a certain number of deaths and readmissions cannot be prevented — some cases are just too severe — a number of deaths and readmissions are certainly preventable. Following published care protocols; assembling highly qualified, well-managed critical care teams; and providing appropriate patient education, easy-to-understand discharge instructions, and follow-up care are all ways hospitals can improve outcomes for heart patients. This analysis reinforces our belief that the 100 Top Hospitals Cardiovascular study winners are providing a higher quality of care. Using the Hospital Compare data suggests these hospitals will fare well in public reporting comparisons and in the VBP program.

PERFORMANCE MEASURE NOTES

Cardiovascular hospitals are providing real value to their communities. Over the last several years, U.S. hospitals have improved outcomes for cardiovascular patients. Survival rates are increasing and serious complications are less frequent. In fact, this study shows that 97 percent of cardiovascular patients who receive inpatient care are surviving, and more than 99 percent are complication-free. In addition to providing superior care, the winning hospitals are also more efficient. Compared with their peers, this year's typical cardiovascular study winner released patients two-thirds of a day earlier, on average, than their peers. What's more, the typical winner's average cost per case was 12 percent lower than their typical peer's.

METHODOLOGY

We performed this analysis using general linear models in which the rate of interest was the model outcome and hospital comparison group was an adjustment variable. We used the status of the hospital — whether it was a winner of the 2009 100 Top Hospitals: Cardiovascular Benchmarks study — as the predictive variable of interest.

Our statistics are from CMS Hospital Compare data, which includes data from July 1, 2005 through June 30, 2008. CMS adjusts all data for patient severity. To allow for fair comparisons between the Cardiovascular 100 Top Hospitals winners and non-winners, we added a hospital class adjustment variable, using our study comparison groups. To compile these groups, we assign hospitals to one of three groups based on teaching status, level of involvement in cardiovascular residency/fellowship programs, and bed size. The three groups are:

- Teaching Hospitals With Cardiovascular Residency Programs
- Teaching Hospitals Without Cardiovascular Residency Programs
- Community Hospitals

We conducted our analysis two ways: with the data weighted and unweighted by the number of cases reported in the Hospital Compare data. Comparing the results, we found no difference between the weighted and unweighted analyses in terms of the direction of the differences or their statistical significance. Because the analyses were already adjusted for bed size category via the comparison group variable, and the correlation between the group variable and the number of cases was fairly high (Spearman correlation = 0.436, $p<0.0001$), we elected not to use the weighting variable.

The 30-day mortality rates include all deaths within 30 days of original admission, whether a patient dies in the hospital or after leaving, and whether a patient dies from heart attack, heart failure, or another condition. The 30-day post-discharge readmission rate measures how many patients were readmitted back into any hospital, for any reason, within 30 days of discharge.

For more information on the 100 Top Hospitals program and the cardiovascular study, please visit www.100tophospitals.com.

NOTES

1 A p-value indicates the probability that the result obtained in a statistical test is due to chance rather than a true relationship between measures. Small p-values, like the ones produced in this study, indicate that it is very unlikely that the results were due to chance.

2 Centers for Medicare & Medicaid Services. Roadmap for Implementing Value Driven Healthcare in the Traditional Medicare Fee-for-Service Program. August 19, 2009. Downloaded from www.cms.hhs.gov/QualityInitiativesGenInfo/downloads/VBPRoadmap_OEA_1-16_508.pdf on October 29, 2009.

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