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PROVIDING HIGH-VALUE CARE AT THE RIGHT PRICE

To the Editor:

We read with great interest the article by McCarthy colleagues¹ in which they reported that Medicare reimbursement for a patient undergoing transcatheter aortic valve replacement (TAVR) was not aligned with the actual cost of care to the hospital. This resulted in a negative contribution margin and a negative effect on the hospital's budget.

There has been rapid uptake of TAVR since its introduction in 2007.² Implementation of novel interventions requires the demonstration of both value and affordability. The latter addresses the health care system's ability to pay for a new intervention. McCarthy and colleagues¹ tackled this pertinent question in a patient population from 2012, a time when TAVR was indicated for high-risk or inoperable patient populations.³ Guidelines have changed such that TAVR is a class IIa recommendation for the intermediate-risk population, greatly increasing the number of patients eligible for TAVR. We pose 3 questions for McCarthy and colleagues related to affordability and providing high-value care.

The first relates to whether contribution margins were different according to predicted risk of mortality. Although Society of Thoracic Surgeons Predicted Risk of Mortality scores were apparently not available, could McCarthy and colleagues have used other surrogate measures to risk stratify patients? The overall median intensive care unit stays for TAVR and surgery were 2 and 4 days, respectively, and these numbers may potentially have been lower when examining only the intermediate-risk population. Our group has shown that TAVR may be a cost-effective option relative to surgery in the intermediate risk population and that days in the intensive care unit affected cost-effectiveness.⁴ Although overall value may improve with shortened intensive care unit stays; contribution margins may widen negatively as reimbursement

decreases but TAVR prosthesis costs are fixed. This highlights 2 potential important health policy implications: (1) that there is a need for lower prosthesis cost and (2) that reduction in length of stay should not be penalized by the Centers for Medicare and Medicaid Services at the reimbursement level.

Our second question pertains to whether McCarthy colleagues compared patients who were rehospitalized with those not rehospitalized at 30 days and evaluated the impact on contribution margins. This question becomes relevant as bundled payment schemes for an entire cycle (rather than index admission) become standard in hospital funding.⁵

Finally, as TAVRs begin to outnumber surgical aortic valve replacements, there will be an eventual shift in physical facilities and human resource. Although we recognize that the study of McCarthy colleagues¹ was not designed to examine these changes in both fixed (ie, sunk) capital costs and variable costs, these factors will invariably affect contribution margins. Interestingly, the study found a positive association between volume and cost contributions. Performing TAVR only at centers of excellence should improve both outcomes and cost containment to achieve both high value and affordable care.

Although new technologies often come at a cost, they also allow us to provide better care and outcomes for our patients. High-value care and affordability are not mutually exclusive; rather, both depend on innovative ways to improve the care of our patients. We must work toward understanding both costs and outcomes, and this study by McCarthy and colleagues¹ is a step in that direction.

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THE BEST TREATMENTS FOR AORTIC STENOSIS AT THE HIGHEST PATIENT VALUE—

COST, CONTRIBUTION MARGIN, AND READMISSION

Reply to the Editor:

We thank Tam and coauthors for their thoughtful response to our study and read their letter and study with great interest. They inquire about predictors of mortality in patients undergoing transcatheter aortic valve replacement (TAVR) and surgical aortic valve replacement (SAVR). Our study used Medicare data, which unfortunately do not have sufficient granular clinical detail to enable calculation of preoperative risk of mortality that matches the robust Society of Thoracic Surgeons predicted risk of mortality for SAVR. Other comorbidity indexes exist for administrative claims data, but we did not use them because they have not been validated for cardiac surgical patients, particularly to the level of specific percentage mortality that is part of the US Food and Drug Administration–approved indications for these interventions.

The second important point raised by Tam and coauthors is the relationship between contribution margin, intensive care unit (ICU) and hospital lengths of stay, device cost, and Medicare payments and penalties. As health care continues to push toward value-based care, payers and providers seek to provide improved quality and outcomes at lower costs with greater patient satisfaction. For TAVR and SAVR, this has meant decreasing ICU and hospital lengths of stay and rates of readmission. In our study, both TAVR and SAVR groups had a relatively high 30-day readmission rate of 43%. Among only patients undergoing TAVR, readmission resulted in a significantly more negative contribution margin,

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from a median of −\$3347 with no readmission to −\$4884 with readmission ($P = .02$). The frequency and financial consequences of readmissions suggest that providers, payers, and policy makers might further work to prioritize readmission reduction as well as consider payment structures that recognize the high rates of health care use in this patient population with fewer financial penalties to providers.

In our study there was a relative cutoff for achieving positive contribution margins at institutions performing more than 50 TAVR procedures during the study period, and Tam and colleagues raise the proposition of whether higher-volume centers might achieve similar results when it comes to lower rates of readmission. We evaluated readmission rates by institutional volume stratified into low-, medium-, and high-volume centers (Figure 1). Although there was a general trend toward higher readmission at low-volume centers relative to medium- and high-volume centers, the difference was not statistically significant ($P = .06$). These results show that the value and results in terms of readmissions are preserved across institutions performing TAVR with different institutional TAVR volumes.

We agree with Tam and coauthors that new technologies, cost, quality, and value will always present some competing priorities, particularly for the financial solvency of device companies, providing institutions, and large payers, but these priorities are not necessarily mutually exclusive. New technology can provide novel clinical interventions as well as possible cost savings. Reduced ICU and hospital lengths of stay for patients undergoing TAVR relative to those undergoing SAVR is one compelling example. Policy and payment changes that evolve with technology to allow providers to deliver high-quality care can also align interests in the most important way, meaning that providers are able to deliver the best treatments at the highest value for patients. Even with these changes, it is reasonable to work toward reductions in device costs to reduce costs to payers such as Medicare and to providing institutions.

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FIGURE 1. Readmission at 30 days by institutional transcatheter aortic valve replacement volume.

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