Buy or sell: Pediatric cardiac transplantation is still a societal bull market...for now

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With the costs and complexity of providing pediatric cardiac care rising globally, research on resource utilization grows in relevance and urgency. There is often, however, limited societal appetite for making medical decisions on the basis of cost-effectiveness analyses, wherein a clinical choice is evaluated in terms of both anticipated cost incurred and quality-adjusted life years resulting. Nonetheless, this remains a common and methodologically defensible approach for comparing the composite considerations of both cost and effectiveness in complex health care decisions.

In this issue of the *Journal*, Ye and colleagues¹ report a comprehensive cost-effectiveness analysis in which they performed a single-center retrospective financial review of 70 pediatric patients undergoing transplant from 2003 to 2015, inclusive of their perioperative, operative, and postdischarge clinical courses. These values were extrapolated to the model horizon to estimate the anticipated lifetime expenses, which were divided by a quality-adjusted life expectancy forecast to yield a cost-effectiveness conclusion.

This methodologically sound study adds many insights to the field. In the period surrounding transplant, Ye and colleagues¹ found that costs were biphasically distributed across age, with the highest costs in children 5 years of age or younger and teenagers 13 years of age or older, with longer lengths of stay, higher ventricular assist device use, and more complications in these age groups. Although these cost-drivers may be minimally modifiable—engendered as they are by the nature of the disease in these age groups—one of the more important elements that this analysis revealed was the often modifiable cost of graft surveillance. Specifically, endomyocardial biopsies accounted for a majority of the posttransplant costs. With a growing body of evidence questioning the utility of frequent surveillance endomyocardial biopsies in patients without symptoms,

The cost-effectiveness frontier.

Central Message

In an era of tension between technologically advanced care and a mandate to practice cost-effective care, Ye and colleagues outline an economic validation of pediatric transplantation in Australia.

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this is a clear avenue for focus in future cost-containment efforts.

Admittedly, cost-effectiveness analyses are best applied to conditions in which a new—and often expensive but more effective—therapy is compared to the standard of care. The conclusions can then be used to guide physicians to or away from use of these novel therapies and to guide payers to or away from funding them. At first glance, then, the application of this methodology to justify a practice—pediatric cardiac transplantation—that in most cases has no feasible or societally palatable alternative seems to be merely a thought exercise. As ventricular assist technology increases its pediatric footprint and improves in its technology and execution, however, the availability of effective transplant alternatives grows yearly. Ventricular assist device use for long-term care in children is already occurring and growing steadily. The clarification of the cost-effectiveness of the practice of transplant and the key variables on which those costs hinge by Ye and colleagues¹ therefore bears great importance today, and likely all the more so in the years to come.

Reference

1. Ye XT, Parker A, Brink J, Weintraub RG, Konstantinov IE. Cost-effectiveness of the national pediatric heart transplant program in Australia. *J Thorac Cardiovasc Surg*. 2019;157:1158-66.