Improving the Value of Transcather Aortic Valve Replacement (TAVR)

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Background

• Transcatheter aortic valve replacement (TAVR) represents a transformational technology for patients with severe symptomatic aortic stenosis.
• The cost of performing this procedure, however, can be prohibitive, which can impact an organization’s ability to meet growing clinical need.

Methods

• In an attempt to lower the direct hospital costs of TAVR, and increase capacity for growing clinical need, a multidisciplinary team from our health system was convened in 2016 to review the absolute and relative contributions to the procedure’s direct costs.
• Team members from interventional cardiology, cardiothoracic surgery, anesthesia, the operating room, and recovery room sought to standardize multiple aspects of the procedure’s workflow.
• Each step in the care delivery process was mapped, with elimination of steps that provided little to no value.

Results

• Partly from workflow standardization and partly from modifying existing protocols to match the increased treatment of intermediate risk patients,
  • mean case time was reduced by 30 minutes (18%),
  • length of stay was reduced by 2.18 days (44%),
  • direct hospital costs were reduced by $7,800 (16%).
• Operating room capacity increased from 2 cases/day to 4 cases/day, as total case volume grew by 70%.
• Unadjusted, in-hospital mortality over 12 months decreased from 3.4% in 2015 to 0.6%.
• Average net income per case improved from a loss of $2,000 in 2015 to a gain of $12,000 in 2017.
• Case mix index decreased from 8.12 to 7.33 during this same time frame.
• The most notable operational improvements included greater use of moderate conscious sedation (versus general anesthesia), reduced use of intensive care unit services, and increased percutaneous access.

Conclusions

• Application of lean methodology and process mapping in TAVR resulted in reduced cost and improved quality for patients undergoing this procedure.

Disclosures for Brad Batkoff, MD: None.