BACKGROUND: While the use of multi-detector cardiac computed tomography angiography (MDCTA) prior to repeat cardiac surgery (RCS) to identify high risk retrosternal anatomy has been associated with improved in clinical outcomes, its impact on hospital charges and length of stay remains unclear.

METHODS: We studied 364 patients undergoing RCS at Washington Hospital Center between 2004 and 2008, including 137 clinically referred for MDCTA. Baseline demographics, procedural data, and perioperative outcomes were recorded at the time of the procedure. Length of stay was determined using the hospital's electronic medical record. Cost data were extracted from the hospital's billing summary. Median charges were evaluated for both categories of care, and in total. Charges and length of stay were compared between subjects with and without MDCTA, including adjustment for the STS score.

RESULTS: The use of MDCTA was associated with shorter perfusion and cross clamp times, shorter intensive care unit stays, fewer blood transfusions, and less frequent perioperative MI. Use of MDCTA was associated with significantly lower median recovery room ($1,325 [interquartile range; 1,250-3,302] vs. $3,217 [1,325-5,353] p<0.001) and nursing care charges ($6,335 [3,623-10,478] vs. $6,916 [3,915-14,499] p=0.03), although operating room charges were higher ($24,100 [22,300-29,700] vs. $23,500 [19,900-27,700] p <0.05). Median values for total charges ($127,000 [95,000-188,000] vs. $123,000 [86,800-226,000] p=0.77) and length of stay (9 days [6 - 19] vs. 11 days [7 - 19], p = 0.21) were similar among the groups, and remained comparable after adjustment for STS score. However, median charges in the MDCTA group were significantly higher for individuals with high risk retrosternal findings ($137,000 [99,100-214,000] vs. $97,900 [86,700-122,000]; P < 0.001).

CONCLUSIONS: The use of preoperative MDCTA in reoperative cardiac surgery is associated with improved perioperative outcomes yet has no net effect on either total hospital charges or length of stay. Operations with high risk retrosternal findings on MDCTA however are highly associated with increased hospital charges.