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## Young Investigator Awards Competition

**TRANSCATHETER VERSUS SURGICAL CLOSURE OF ATRIAL SEPTAL DEFECTS IN CHILDREN: A VALUE COMPARISON**

Oral Contributions

Room 4

Monday, March 16, 2015, 11:45 a.m.-Noon

Session Title: Young Investigator Awards Competition: Cardiovascular Health Outcomes and Population Genetics

Abstract Category: Cardiovascular Health Outcomes and Population Genetics

Presentation Number: 915-08

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**Background:** Secundum atrial septal defects (ASDs) are common congenital heart defects with both transcatheter and surgical treatment options. While both options have been shown to have excellent results in children, the relative value of the two procedures is unknown. The purpose of this study was to determine whether a transcatheter procedure vs. surgery offered a better value proposition for the closure of ASDs.

**Methods:** Using data from the Pediatric Hospital Information System for 2004-2012, we compared the value of transcatheter vs. surgical ASD closure in children aged 0-17 years, with value being defined as outcomes relative to costs. Our outcomes of interest were in-hospital mortality, length of stay, and rates of infection. Total charges for procedure-related encounters were converted to costs using hospital cost-to-charge ratios, and all costs were adjusted for inflation to reflect 2014 dollars. Continuous variables were analyzed using Student's T-test or non-parametric equivalent for non-normal data and Chi Square or Fisher's Exact test for categorical variables. To account for non-normal distribution and variance inequality of cost across procedures we used the Kolmogorov-Smirnov test for equality.

**Results:** There were 5236 transcatheter procedures and 4164 surgeries at 39 children's hospitals. Those undergoing transcatheter closure were more likely to be older (6.7 years vs. 4.6 years,  $p<0.0001$ ) and white (55% vs. 45%,  $p=0.01$ ). There was no difference with regards to mortality (0 deaths for transcatheter procedure vs. 2 for surgery,  $p=0.20$ ). Children with a transcatheter procedure had a shorter length of stay (1.2 days vs. 4.6 days,  $p<0.0001$ ) and were less likely to have an infection (1.1% vs. 5.9%,  $p<0.0001$ ). Costs for transcatheter procedure encounters (mean \$17,488; median \$15,125) were lower than costs for surgical encounters (mean \$32,879; median \$26,012;  $p<0.0001$ ).

**Conclusion:** Both transcatheter procedures and surgeries had excellent mortality, but transcatheter procedures had lower lengths of stay and rates of infection, resulting in lower overall costs. For children who are eligible, transcatheter closure of an ASD may provide better value, at least in the short term.