

The Effect of COVID19 on Adult Cardiac Surgery in the United States:
Analysis of the Society of Thoracic Surgeons Adult Cardiac Surgery Database

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BACKGROUND: COVID-19 has changed the world as we know it, and the United States continues to accumulate the largest number of cases of COVID-related deaths worldwide. There exists a paucity of data regarding the effect of COVID-19 on adult cardiac surgery trends and outcomes on a national level.

METHODS: The STS Adult Cardiac Surgery database was queried and analyzed from January 1, 2018 to June 30, 2020. The Johns Hopkins COVID-19 database was also queried from February 1, 2020 to January 1, 2021. Surgical and COVID-19 volumes, trends, and outcomes were analyzed on a national and regional level.

RESULTS: There were a total of 717,103 adult cardiac surgery patients and over 20 million COVID19 patients included for analysis. The South Atlantic (21.1%) and Great Lakes (21.1%) contributed the most patients during the study period. There was a nationwide 53% reduction in all adult cardiac surgery volume, and a 65% reduction in elective cases. The Mid-Atlantic and New England regions were most affected by COVID-19 and consequently had a 71% reduction in overall case volume and 75% reduction in elective cases. In the Mid-Atlantic and New England regions, the observed-to-expected mortality for isolated coronary bypass increased to as much as 1.48 times (148.2% increase) the pre-COVID baseline.

CONCLUSION: This study represents the largest description of COVID-19 related impact on adult cardiac surgery volume, trends, and outcomes. During the COVID-19 pandemic, cardiac surgery volume suffered dramatically, particularly in the New England and Mid-Atlantic regions with a significant increase in observed-to-expected mortality.