

Specialized approach to open heart surgery saves lives

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Patients who undergo coronary artery bypass grafting (CABG)—the most common heart surgery performed—may live longer and experience fewer complications when under the care of a highly focused surgical team that uses simplified and standardized approaches, according to research published today in the *Annals of Thoracic Surgery*.

"Our research presents a focused, multidisciplinary effort at improving CABG outcomes through specialization," said Bradley S. Taylor, MD, MPH, from the University of Maryland Medical Center (UMMC) in Baltimore. "We found many operative factors and clinical outcomes to be significantly improved, demonstrating the effects of team and program specialization."

Key points:

- A specialized heart bypass program with a dedicated team may result in faster operations and improved patient survival.
- CABG operations completed in the specialized era had increased use of bilateral internal mammary arteries.
- The specialized era also saw lower rates of blood transfusions and complications such as stroke.

Dr. Taylor, along with A. Claire Watkins, MD, and colleagues reviewed data from The Society of Thoracic Surgeons Adult Cardiac Surgery Database for all patients who underwent CABG between 2002 and 2016 at UMMC. Because UMMC launched a specialized CABG surgery

program in 2013, the data were separated into two groups: "general era" (2002-2012) and "specialized era" (2013-2016). During the general era, 3,256 patients underwent CABG; 1,283 patients had CABG surgery during the specialized era. Patients in the two groups were of similar age, sex, and ethnicity.

The research showed that mortality decreased from 2.67 percent to 1.48 percent after just three years of the more specialized coronary surgery program. As a result, it is estimated that specialization in CABG surgery prevented five deaths during that time period.

"Both increased volume and specialization led to improved mortality rates and reduced complications in the specialized era," said Dr. Watkins. "While all cardiac surgeons can perform a bypass operation, a surgeon dedicated to coronary bypass and working with a specialized team may have better outcomes."

Dr. Watkins explained that when UMMC initiated the specialized CABG program, practices were "restructured and clarified" in an attempt to streamline surgical care. A senior surgeon who specializes in coronary surgery was recruited and appointed as clinical director. That surgeon completed 70 percent of the CABG operations during the specialized era; the highest percentage performed by one surgeon in the general era was 33 percent.

Surgical approach and operative techniques also were standardized in the remodeled coronary surgery program. This resulted in a decrease of overall operation time by 48 minutes from incision to closure. Researchers also found an increased use of the bilateral internal mammary artery (BIMA) during the specialized era; BIMA is the optimal vessel for [coronary bypass](#) operations, according to Dr. Taylor. In addition, significant decreases were noted in the specialized era for blood transfusions (from 49 percent to 36 percent) and complications

such as stroke (from 1.6 percent to 0.7 percent).

Other important features of the specialized program were the standardization of clinical protocols and strengthened mentoring of junior surgeons, as well as an improved and intensified quality review process.

"Our experience suggests that it is not simply case volume that can improve isolated CABG outcomes, but rather a more focused surgeon, team, and program," said Dr. Taylor. "Through designated leadership of a coronary surgery program, standardization of all aspects of coronary care, and rigorous quality review, more patients will survive. We hope that cardiac [surgery](#) programs will consider investing in specialized coronary teams to improve all aspects of care for their CABG [patients](#)."

More information: A. Claire Watkins et al. Programmatic and Surgeon Specialization Improves Mortality in Isolated Coronary Bypass Grafting, *The Annals of Thoracic Surgery* (2018). [DOI: 10.1016/j.athoracsur.2018.05.032](#)

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