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## OVERVIEW

This medical policy documents the coverage determination for minimally invasive coronary artery bypass graft surgery. There are currently variations on techniques that are classified as “minimally invasive” coronary artery bypass graft (CABG) surgery. The surgery can be done under direct vision, with a mini-sternotomy or a mini-thoracotomy approach. The surgery can also be performed endoscopically, whereby the internal structures are visualized on video monitor, and the entire procedure is performed without direct visualization of the operative field.

## MEDICAL CRITERIA

Not applicable

## PRIOR AUTHORIZATION

Not applicable

## POLICY STATEMENT

### Medicare Advantage Plans and Commercial Products

Minimally invasive direct coronary artery bypass graft surgery (MIDCAB) may be considered medically necessary.

Other techniques for minimally invasive coronary artery bypass graft surgery, including but not limited to port access coronary artery bypass (PACAB), hybrid coronary artery bypass graft (hybrid CABG), or total endoscopic coronary artery bypass (TECAB) techniques, are considered not covered for Medicare Advantage Plans and not medically necessary for Commercial products, as there is insufficient evidence to determine whether outcomes have improved compared to conventional procedures.

## COVERAGE

Benefits may vary between groups/contracts. Please refer to the appropriate Benefit Booklet, Evidence of Coverage, or Subscriber Agreement for limitations of benefits/coverage when services are not medically necessary.

## BACKGROUND

There are currently variations on techniques that are classified as minimally invasive coronary artery bypass graft surgery. The surgery can be done under direct vision, with a mini-sternotomy or a mini-thoracotomy approach. These types of direct procedures have been termed minimally invasive direct coronary artery bypass. MIDCAB is performed without cardiopulmonary bypass by slowing the heart rate to 40 beats per minute to minimize motion in the surgical field. The performance of a coronary bypass on a beating heart increases the technical difficulty of the procedure, particularly in terms of the quality of the vessel anastomosis. In MIDCAB, the predominant re-anastomosis performed uses the native internal mammary artery to bypass the left anterior descending (LAD) coronary artery. Bypass of the right coronary artery may also be possible in patients with suitable anatomy.

The surgery can also be performed endoscopically, whereby the internal structures are visualized on a video monitor, and the entire procedure is performed without direct visualization of the operative field.

Cardiopulmonary bypass may or may not be used with this technique. This variation of minimally invasive CABG is called port access coronary artery bypass or total endoscopic coronary artery bypass. Using this

approach, theoretically all sides of the heart can be approached. In many instances, only a single bypass of the LAD artery is performed, although multivessel bypass of the left and right coronary artery has been performed.

Minimally invasive CABG is a surgical procedure and, as such, is not subject to regulation by the U.S. Food & Drug Administration (FDA). The procedure can be performed with conventional instruments or instruments specifically designed for this purpose. Special instruments designed for these procedures are subject to FDA marketing clearance and several manufacturers have received 510(k) clearance to market devices intended for use in minimally invasive CABG. One such device for computer-assisted surgery or robotic technology is the da Vinci® system (Intuitive Surgical, Inc., Mountain View, CA). The da Vinci system received 510(k) marketing clearance from the FDA in 2004 for assisting in coronary artery bypass surgery.

Evidence is insufficient to determine whether PACAB, TECAB, and/or hybrid CABG improve outcomes compared to conventional procedures. Additional randomized comparative studies are needed that compare the relevant short and long-term outcomes from these new techniques with outcomes obtained using the current approaches.

## **CODING**

### **Medicare Advantage Plans and Commercial Products**

The following HCPCS codes are covered for minimally invasive direct coronary artery bypass graft surgery (MIDCAB):

- S2205** Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using arterial graft(s), single coronary arterial graft
- S2206** Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using arterial graft(s), two coronary arterial grafts
- S2207** Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using venous graft only, single coronary venous graft
- S2208** Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using single arterial and venous graft(s), single venous graft
- S2209** Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using two arterial grafts and single venous graft

There are no specific CPT codes for other techniques for minimally invasive coronary artery bypass graft surgery. Therefore, use the code for the unlisted procedure, CPT code 33999.

## **RELATED POLICIES**

Not applicable

## **PUBLISHED**

Provider Update, April 2023

Provider Update, June 2022

Provider Update, August 2021

Provider Update, May 2020

Provider Update, May 2019

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