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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 a video monitor, and the entire procedure is performed without direct visualization of the operative field.

PRIOR AUTHORIZATION

Not applicable

POLICY STATEMENT

BlueCHiP for Medicare and Commercial

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 (CABG), or total endoscopic coronary artery bypass (TECAB) techniques, are considered not medically necessary as there is insufficient evidence to determine whether outcomes have improved compared to conventional procedures.

MEDICAL CRITERIA

Not Applicable

BACKGROUND

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. These types of direct procedures have been termed minimally invasive direct coronary artery bypass (MIDCAB). 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 (PACAB) or total endoscopic coronary artery bypass (TECAB). 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 and 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.

COVERAGE

Benefits vary between groups/contracts. Please refer to the appropriate Evidence of Coverage or Subscriber Agreement for applicable Services Not Medically Necessary benefits/coverage.

CODING

Blue CHiP for Medicare and Commercial

There are no specific CPT codes for this procedure. Therefore, use the code for the unlisted procedure, CPT code 33999.

Commercial Products

The following HCPCS Codes are covered for minimally invasive direct coronary artery bypass graft surgery (MIDCAB) and are invalid for use for Blue CHiP for Medicare:

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| S2205 | S2206 | S2207 | S2208 | S2209 |
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RELATED POLICIES

None

PUBLISHED

Provider Update July 2014

Provider Update Mar 2012

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REFERENCES

1. Diegeler A, Thiele H, Falk V et al. Comparison of stenting with minimally invasive bypass surgery for stenosis of the left anterior descending coronary artery. N Engl J Med 2002; 347(8): 561-6.
2. Thiele H, Oettel S, Jacobs S et al. Comparison of bare-metal stenting with minimally invasive bypass surgery for stenosis of the left anterior descending artery; a five-year follow-up. Circulation 2005; 112(22):3445-50
3. Drenth DJ, Winter JB, Veeger NJ et al. Minimally invasive coronary artery bypass grafting versus percutaneous transluminal coronary angioplasty with stenting in isolated high-grade stenosis of the proximal left anterior descending artery: six months' angiographic and clinical follow-up of a prospective randomized study. J Thorac Cardiovasc Surg 2002; 124(1):130-5.

4. Reeves BC, Angelini GD, Bryan AJ et al. A multi-centre randomised controlled trial of minimally invasive direct coronary bypass grafting versus percutaneous transluminal coronary angioplasty with stenting for proximal stenosis of the left anterior descending coronary artery. *Health Technol Assess* 2004; 8(16):1-43.
5. Kim JW, Lim DS, Sun K et al. Stenting or MIDCAB using ministernotomy for revascularization of proximal left anterior descending artery? *Int J Cardiol* 2005; 99(3):437-41.
6. Hong SJ, Lim D-S, Seo HS et al. Percutaneous coronary intervention with drug-eluting stent implantation vs. minimally invasive direct coronary artery bypass (MIDCAB) in patients with left anterior descending coronary artery stenosis. *Catheter Cardiovasc Interv* 2005; 64(1):75-81.
7. Cisowski M, Drzewiecki J, Drzewiecka-Gerber A et al. Primary stenting versus MIDCAB: preliminary report - comparison of two methods of revascularization in single left anterior descending coronary artery stenosis. *Ann Thorac Surg* 2002; 74(4):S1334-9.
8. Aziz O, Rao C, Panesar SS et al. Meta-analysis of minimally invasive internal thoracic artery bypass versus percutaneous revascularization for isolated lesions of the left anterior descending artery. *BMJ* 2007; 334(7594):617-24
9. Bainbridge D, Cheng D, Martin J et al. Does off-pump or minimally invasive coronary artery bypass reduce mortality, morbidity, and resource utilization when compared with percutaneous coronary intervention? A meta-analysis of randomized trials. *J Thorac Cardiovasc Surg* 2007; 133(3):623-31.
10. Jaffery Z, Kowalski M, Weaver WD et al. A meta-analysis of randomized control trials comparing minimally invasive direct coronary bypass grafting versus percutaneous coronary intervention for stenosis of the proximal left anterior descending artery. *Eur J Cardiothorac Surg*, 2007; 31(4):691-7.

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