COVERAGE:

Minimally Invasive Coronary Artery Bypass Graft Surgery, including but not limited to minimally invasive direct coronary artery bypass (MIDCAB), port access coronary artery bypass (PACAB) techniques, and robotically assisted endoscopic coronary artery bypass grafting are considered experimental or investigational.

DESCRIPTION:

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 minithoracotomy approach. These types of direct procedures have been termed MIDCAB. MIDCAB is performed without cardiopulmonary bypass by slowing the heart rate to 40 beats per minute in order 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.

- The surgery can also be performed endoscopically, where the internal structures are visualized on a video monitor and performed without direct visualization of the operative field. Cardiopulmonary bypass techniques are performed via femoral vessels, with the aid of an inflatable balloon advanced into the proximal aorta. This variation of minimally invasive CABG is called PACAB.

- Robotically assisted endoscopic CABG surgery, provides substantial assistance in performing extensive endoscopic procedures.

In all minimally invasive procedures, the predominant re-anastomosis performed uses the native internal mammary artery to bypass the left anterior descending coronary artery. Bypass of the right coronary artery may also be possible in patients with suitable anatomy. In most instances, only a single bypass of the left anterior descending (LAD) artery is performed, although double vessel bypass of the left and right coronary artery have also been performed.

RATIONALE:

This policy is based on TEC Assessments completed first in 1997 and then again in 1998. The 1998 TEC Assessment concluded that the evidence did not permit conclusions on the health outcome effects of minimally invasive CABG, particularly whether these effects compared

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favorably to conventional CABG or percutaneous transluminal coronary angioplasty (PTCA). Data from the available trials indicated that MIDCAB could be performed successfully on most patients, and that recovery time and length of hospital stay was reduced compared to open CABG. However, the 1998 TEC Assessment noted that it was not clear whether the quality of the bypass done with minimally invasive techniques equaled that achieved with either CABG or PTCA. Numerous reports of acute or subacute vessel stenosis of the bypassed vessel occurs with higher frequency than with other approaches. There were no data on long term patency rates for these procedures. In addition, the 1998 TEC Assessment concluded that the total number of patients reported on in peer reviewed literature was too few to accurately estimate outcomes.

2002 Update

Since the 1998 TEC Assessment there has been one randomized, controlled trial and a number of non-randomized comparative trials comparing MIDCAB of the LAD with PTCA or open CABG. No randomized trials were identified that compared PACAB with alternatives. Diegeler et al randomized patients to MIDCAB or PTCA plus stenting and reported outcomes to 6 months following treatment to the MIDCAB group, 2 deaths occurred within 30 days of surgery compared with none for PTCA (p=0.99). At 6 months the combined rate of death and myocardial infarction (MI) was 6% for MIDCAB and 3% for PTCA (RR 2.33 for MIDCAB). This difference had a wide confidence interval and was not statistically significantly different from PTCA (95% CI:0.34-43.73,p=0.50). A greater percentage of MIDCAB patients were angina-free after surgery (79% vs 62%, p=0.03), and the MIDCAB patients required fewer re-interventions at 6 months (5% vs. 27%, p=0.02). Data from non-randomized trials support these outcomes although the comparisons in these trials are susceptible to selection bias. None of the trials reviewed were designed or powered to test equivalence between groups, therefore studies reporting equivalence are prone to type II error.

PRICING:

Minimally invasive CABG may be coded using existing CPT codes for open CABG using arterial grafts. However, the most common minimally invasive CABG procedure involves grafting of a single vessel. In contrast, this is an uncommon open procedure, since the majority of patients with a single vessel stenosis will undergo angioplasty. Therefore, implementation of this policy may be facilitated by focusing review, pre approval, or precertification protocols on CPT code 33533 (coronary artery bypass, using arterial graft: single arterial graft.)
REFERENCES:

DISCLAIMER:

State and federal law, as well as contract language, including definitions and specific inclusions/exclusions, takes precedence over Medical Policy and must be considered first in determining coverage. The member’s contract benefits in effect on the date that services are rendered must be used. Any benefits are subject to the payment of premiums for the date on which services are rendered. Medical technology is constantly evolving, and we reserve the right to review and update Medical Policy periodically. HMO Blue Texas physicians who are contracted/affiliated with a capitated IPA/medical group must contact the IPA/medical group for information regarding HMO claims/reimbursement information and other general polices and procedures.