Cohere Medicare Advantage Policy - Descending Thoracic and Abdominal Aortic Repair

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Other Notices:

Guideline Information:

Specialty Area: Cardiovascular Disease
Guideline Name: Cohere Medicare Advantage Policy - Descending Thoracic and Abdominal Aortic Repair

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Medical Necessity Criteria

Service: Descending Thoracic and Abdominal Aortic Repair

Benefit Category

Not applicable.

Recommended Clinical Approach

The surgeon is best positioned to choose the most appropriate treatment (OSR, EVAR/TEVAR, or hybrid repair) for the patient based on anatomic and clinical factors. EVAR/TEVAR is increasingly performed percutaneously, but there are clinical circumstances where surgical intervention is necessary to facilitate EVAR/TEVAR (e.g., a hybrid approach).

Evaluation of Clinical Benefits and Potential Harms

Cohere Health uses the criteria below to ensure consistency in reviewing the conditions to be met for coverage of descending thoracic and abdominal aortic repair procedures. This process helps to prevent both incorrect denials and inappropriate approvals of medically necessary services. Specifically, limiting incorrect approvals reduces the risks associated with unnecessary procedures, such as complications from surgery, adverse reactions, and infection.

The potential clinical harms of using these criteria may include:

- Adverse effects from delayed or denied treatment: Delays or denials in aortic repair can lead to increased symptoms and complications, especially in patients with significant aortic aneurysms or dissections. The 2022 ACC/AHA guideline for the diagnosis and management of aortic disease highlights the importance of timely intervention to prevent adverse outcomes in patients with significant aortic conditions.[3]
- Risks with inappropriate surgical procedures: This includes infection, bleeding, injury to neurovascular structures, anesthetic risk, and the need for repeat or additional procedures due to complications.

Swerdlow et al. highlight the importance of appropriate use criteria in managing aortic aneurysms to minimize surgical risks.[2]

- Increased healthcare costs and complications: This includes inappropriate use of emergency services and additional treatments. Proper use of aortic repair criteria helps to avoid unnecessary interventions and their associated risks, thus safeguarding patient health. The Society for Vascular Surgery practice guidelines underscore the importance of appropriate diagnostic and treatment procedures to prevent unnecessary healthcare utilization.[4]

The clinical benefits of using these criteria include:

- Improved patient outcomes: Ensuring timely and appropriate access to descending thoracic and abdominal aortic repair procedures for the patients selected for best outcomes. The goal is to provide accurate diagnostics and effective treatment planning, reducing the risk of complications and improving overall patient health. Isselbacher et al. noted the diagnostic accuracy of imaging and repair procedures in managing patients with aortic disease.[3]
- Enhanced diagnostic accuracy: This is crucial for complex vascular conditions where traditional diagnostic methods may pose additional risks. Advanced imaging and repair techniques offer the advantage of detailed vascular assessment, aiding in decision-making regarding interventions.[1]
- Reduction in complications and adverse effects: Proper use of aortic repair criteria helps to avoid unnecessary interventions and their associated risks, thus safeguarding patient health. The ACCF/ACR/AIUM/ASE/ASN/ICAVL/SCAI/SCCT/SIR/SVM/SVS/SVU 2012 Appropriate Use Criteria for Peripheral Vascular Ultrasound emphasize the importance of accurate diagnostics in preventing complications.[1]
- Enhanced overall patient satisfaction: Ensuring that aortic repair procedures are used appropriately leads to better patient outcomes and higher satisfaction rates due to effective treatment and reduced complications. A 2007 Journal of Vascular Surgery article assessed the utility of comorbidity-based objective scoring systems for defining subgroups of patients who might most benefit from open or endovascular aneurysm repair.[5]

This policy includes provisions for expedited reviews and flexibility in urgent cases to mitigate risks of delayed access. Evidence-based criteria are employed to prevent inappropriate denials, ensuring that patients receive medically necessary care. The criteria aim to balance the need for effective treatment with the minimization of potential harms, providing numerous clinical benefits in helping avoid unnecessary complications from inappropriate care.

In addition, the use of these criteria is likely to decrease inappropriate denials by creating a consistent set of review criteria, thereby supporting optimal patient outcomes and efficient healthcare utilization.

Medical Necessity Criteria

Indications

- ➔ **Descending thoracic and abdominal aortic repair (OSR, EVAR/TEVAR, and hybrid repair)** is considered appropriate if **ANY** of the following is **TRUE**[1-3]:
  - ◆ All symptomatic or ruptured aortic aneurysms deemed by the treating clinician to be appropriate candidates for repair; **OR**
  - ◆ Abdominal aortic aneurysm including ANY of the following:
    - Asymptomatic fusiform abdominal aortic aneurysms greater than 5.5 cm in males (or greater than 5 cm in females) and all saccular aneurysms in patients with a reasonable life expectancy[4]; **OR**
    - Aneurysm that expands by more than 1.0 cm in diameter within 12 months or by more than 0.5 cm over 6 months; **OR**
  - ◆ Asymptomatic fusiform descending thoracic or thoracoabdominal aneurysms with **ANY** of the following:
    - A fusiform aortic diameter greater than 5.5 cm; **OR**
    - A saccular aneurysm; **OR**
    - Any surgical risk at a diameter of 5.5 or a saccular aneurysm[5]; **OR**
    - Patients who require chemotherapy, radiation therapy, or solid organ transplant and who are deemed to be at low to moderate perioperative risk with a reasonable life expectancy with **ANY** of the following:
      - ○ A fusiform aortic aneurysm measuring between 4 and 5.4 cm; **OR**
      - ○ A saccular aneurysm); **OR**
    - Documented rapid thoracic or thoraco-abdominal expansion defined as **ANY** of the following[6-7]:

        - Greater than or equal to 0.5 cm in one year; **OR**
        - Greater than or equal to 0.3 cm in 1 year for those with heritable thoracic aortic disease or bicuspid aortic valve (the specific growth criteria depends on the underlying medical condition); **OR**
    - Patients with genetically mediated aortic diseases or bicuspid aortic valves may be appropriate for repair at an aortic diameter of less than 5.5 cm (the specific threshold diameter depends on the underlying medical condition)[1-2]; **OR**
- All pseudoaneurysms deemed by the treating clinician to be appropriate candidates for repair; **OR**
- All penetrating ulcers or intramural hematomas deemed by the treating clinician to be appropriate candidates for repair; **OR**
- Traumatic aortic disruptions, including **ANY** of the following:
    - Grade I: small intimal defect; observation v repair; **OR**
    - Grade II: intramural hematoma; TEVAR within 24 hours; **OR**
    - Grade III: pseudoaneurysms; immediate TEVAR; **OR**
    - Grade IV: evidence of contained or frank aortic rupture; immediate TEVAR; **OR**
- Complications from a previous repair; **OR**
- Infected aneurysm (mycotic) or aneurysm associated with infectious aortitis; **OR**
- Descending thoracic aortic dissection as indicated by **ANY** of the following:
    - Rupture; **OR**
    - Branch artery occlusion; **OR**
    - Reduced perfusion causing impending organ failure; **OR**
    - Extension of dissection; **OR**
    - Progressive aortic enlargement; **OR**
    - Intractable hypertension; **OR**
    - Persistent pain despite conservative, nonoperative treatment; **OR**
    - Subacute (14 to 90 days) dissection with an aortic diameter greater than 40 mm; **OR**
    - Chronic dissection (greater than 90 days) including **ANY** of the following:
        - Aortic diameter greater than 55 mm; **OR**
        - Increase in diameter of more than 10 mm per year; **OR**
    - Open repair following TEVAR of acute type B aortic dissection with connective tissue disease.

Non-Indications

- ➔ **Descending thoracic and abdominal aortic repair (OSR, EVAR/TEVAR, and hybrid repair)** is **NOT** considered appropriate if **ANY** of the following is **TRUE**:
  - ◆ There are no published non-indications.

Level of Care Criteria

Inpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
33875	Descending thoracic aorta graft, with or without bypass
33877	Repair of thoracoabdominal aortic aneurysm with graft, with or without cardiopulmonary bypass
33880	Endovascular repair of descending thoracic aorta (e.g., aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption); involving coverage of left subclavian artery origin, initial endoprosthesis plus descending thoracic aortic extension(s), if required, to level of celiac artery origin
33881	Endovascular repair of descending thoracic aorta (e.g., aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption); not involving coverage of left subclavian artery origin, initial endoprosthesis plus descending thoracic aortic extension(s), if required, to level of celiac artery origin
33883	Placement of proximal extension prosthesis for endovascular repair of descending thoracic aorta (e.g., aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption); initial extension

33884	Placement of proximal extension prosthesis for endovascular repair of descending thoracic aorta (eg, aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption); each additional proximal extension (List separately in addition to code for primary procedure)
33886	Placement of distal extension prosthesis(s) delayed after endovascular repair of descending thoracic aorta
34701	Endovascular repair of infrarenal aorta by deployment of an aorto-aortic tube endograft including pre-procedure sizing and device selection, all non selective catheterization(s), all associated radiological supervision and interpretation, all endograft extension(s) placed in the aorta from the level of the renal arteries to the aortic bifurcation, and all angioplasty/stenting performed from the level of the renal arteries to the aortic bifurcation; for other than rupture (e.g., for aneurysm, pseudoaneurysm, dissection, penetrating ulcer)
34702	Endovascular repair of infrarenal aorta by deployment of an aorto-aortic tube endograft including pre-procedure sizing and device selection, all non selective catheterization(s), all associated radiological supervision and interpretation, all endograft extension(s) placed in the aorta from the level of the renal arteries to the aortic bifurcation, and all angioplasty/stenting performed from the level of the renal arteries to the aortic bifurcation; for rupture, including temporary aortic and/or iliac balloon occlusion, when performed (e.g., for aneurysm, pseudoaneurysm, dissection, penetrating ulcer, traumatic disruption)
34703	Endovascular repair of infrarenal aorta and/or iliac artery(ies) by deployment of an aorto-uni-iliac endograft, including pre-procedure sizing and device

	selection, all non selective catheterization(s), all associated radiological supervision and interpretation, all endograft extension(s) placed in the aorta from the level of the renal arteries to the iliac bifurcation, and all angioplasty/stenting performed from the level of the renal arteries to the iliac bifurcation; for other than rupture (e.g., for aneurysm, pseudoaneurysm, dissection, penetrating ulcer)
34704	Endovascular repair of infrarenal aorta and/or iliac artery(ies) by deployment of an aorto-uni-iliac endograft, including pre-procedure sizing and device selection, all non selective catheterization(s), all associated radiological supervision and interpretation, all endograft extension(s) placed in the aorta from the level of the renal arteries to the iliac bifurcation, and all angioplasty/stenting performed from the level of the renal arteries to the iliac bifurcation; for rupture including temporary aortic and/or iliac balloon occlusion, when performed (e.g., for aneurysm, pseudoaneurysm, dissection, penetrating ulcer, traumatic disruption)
34705	Endovascular repair of infrarenal aorta and/or iliac artery(ies) by deployment of an aorto-bi-iliac endograft, including pre-procedure sizing and device selection, all non selective catheterization(s), all associated radiological supervision and interpretation, all endograft extension(s) placed in the aorta from the level of the renal arteries to the iliac bifurcation, and all angioplasty/stenting performed from the level of the renal arteries to the iliac bifurcation; for other than rupture (e.g., for aneurysm, pseudoaneurysm, dissection, penetrating ulcer)
34706	Endovascular repair of infrarenal aorta and/or iliac artery(ies) by deployment of an aorto-bi-iliac endograft, including pre-procedure sizing and device

	selection, all non selective catheterization(s), all associated radiological supervision and interpretation, all endograft extension(s) placed in the aorta from the level of the renal arteries to the iliac bifurcation, and all angioplasty/stenting performed from the level of the renal arteries to the iliac bifurcation; for rupture including temporary aortic and/or iliac balloon occlusion, when performed (e.g., for aneurysm, pseudoaneurysm, dissection, penetrating ulcer, traumatic disruption)
34830	Open repair of infrarenal aortic aneurysm or dissection, plus repair of associated arterial trauma, following unsuccessful endovascular repair; tube prosthesis
34831	Open repair of infrarenal aortic aneurysm or dissection, plus repair of associated arterial trauma, following unsuccessful endovascular repair; aorto-bi-iliac prosthesis
34832	Open repair of infrarenal aortic aneurysm or dissection, plus repair of associated arterial trauma, following unsuccessful endovascular repair; aorto-bifemoral prosthesis
34841	Endovascular repair of visceral aorta (e.g., aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) by deployment of a fenestrated visceral aortic endograft and all associated radiological supervision and interpretation, including target zone angioplasty, when performed; including one visceral artery endoprosthesis (superior mesenteric, celiac, or renal artery)
34842	Endovascular repair of visceral aorta (e.g., aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) by deployment of a fenestrated visceral aortic endograft and all associated radiological supervision

	and interpretation, including target zone angioplasty, when performed; including two visceral artery endoprostheses (superior mesenteric, celiac and/or renal artery[s])
34843	Endovascular repair of visceral aorta (e.g., aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) by deployment of a fenestrated visceral aortic endograft and all associated radiological supervision and interpretation, including target zone angioplasty, when performed; including three visceral artery endoprostheses (superior mesenteric, celiac and/or renal artery[s])
34844	Endovascular repair of visceral aorta (e.g., aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) by deployment of a fenestrated visceral aortic endograft and all associated radiological supervision and interpretation, including target zone angioplasty, when performed; including four or more visceral artery endoprostheses (superior mesenteric, celiac and/or renal artery[s])
34845	Endovascular repair of visceral aorta and infrarenal abdominal aorta (e.g., aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) with a fenestrated visceral aortic endograft and concomitant unibody or modular infrarenal aortic endograft and all associated radiological supervision and interpretation, including target zone angioplasty, when performed; including one visceral artery endoprosthesis (superior mesenteric, celiac, or renal artery)
34846	Endovascular repair of visceral aorta and infrarenal abdominal aorta (e.g., aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) with a fenestrated visceral

	aortic endograft and concomitant unibody or modular infrarenal aortic endograft and all associated radiological supervision and interpretation, including target zone angioplasty, when performed; including two visceral artery endoprostheses (superior mesenteric, celiac and/or renal artery[s])
34847	Endovascular repair of visceral aorta and infrarenal abdominal aorta (e.g., aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) with a fenestrated visceral aortic endograft and concomitant unibody or modular infrarenal aortic endograft and all associated radiological supervision and interpretation, including target zone angioplasty, when performed; including three visceral artery endoprostheses (superior mesenteric, celiac and/or renal artery[s])
34848	Endovascular repair of visceral aorta and infrarenal abdominal aorta (e.g., aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) with a fenestrated visceral aortic endograft and concomitant unibody or modular infrarenal aortic endograft and all associated radiological supervision and interpretation, including target zone angioplasty, when performed; including four or more visceral artery endoprostheses (superior mesenteric, celiac and/or renal artery[s])

Medical Evidence

Sharples et al. (2022) conducted a prospective study to evaluate the management and timing of intervention concerning patients afflicted with untreated thoracic aortic aneurysms. From 2014 to 2018, a prospective study was carried out on patients aged greater than or equal to 18 years who had either new or existing arch or descending thoracic aortic aneurysms with a diameter of greater than or equal to 4 cm. A total of 886 patients were enrolled and monitored until death, intervention, or withdrawal from the study. Various outcomes were evaluated, including aneurysm growth, survival, quality of life assessed using the EQ-5D-5L utility index, and hospital admissions. Findings indicated that the maximum aneurysm diameter was predominantly in the descending aorta among 82% of patients, with an annual growth rate of 0.2 cm. Aneurysms greater than or equal to 4 cm in the arch increased by 0.07 cm annually. Baseline diameter correlated with age and comorbidities, and no clinical growth correlates were identified. Throughout the follow-up period, 129 patients passed away, with 64 deaths attributed to aneurysm-related events. After adjusting for age, sex, and New York Heart Association dyspnea index, the risk of death escalated with aneurysm size at baseline and with growth. Additionally, hospital admissions rose with aneurysm size. While quality of life decreased annually with age and current smoking, there was no association between aneurysm size and changes in quality of life. The study proposes that international guidelines contemplate extending monitoring intervals to 12 months for small aneurysms and raising intervention thresholds. Decisions regarding surveillance and intervention should be tailored, considering factors such as age, sex, size, growth, patient characteristics, and surgical risk.[7]

McCarthy et al. (2021) performed a systematic meta-analysis to assess and compare the efficacy of endovascular stent grafting (ESG) vs open surgical repair (OSR) in managing chronic arch or descending thoracic aortic aneurysms (TAA). A comprehensive search was conducted of relevant studies comparing ESG and OSR, encompassing various study designs such as randomized controlled trials (RCTs), quasi-randomized trials, and non-RCTs. Comparative cohort studies and case-control studies that were matched based on key outcomes were also included. A total of five comparative cohort studies were included with a total of 3955 ESG and 21,197 OSR patients. A comprehensive review of unadjusted short-term (30-day) all-cause mortality indicates a preference for ESG. However, there is notable heterogeneity observed between larger and smaller studies. Upon conducting sensitivity analysis on four studies focusing solely on descending TAA, no statistical significance was found, although moderate heterogeneity persisted. When adjusted for, the meta-analysis of short-term all-cause

mortality favored ESG, with no observed heterogeneity. In longer-term follow-ups (beyond 30 days), survival from all-cause mortality favored OSR in larger studies while favoring ESG in smaller ones. Additionally, freedom from reintervention in the longer term favored OSR. Studies reporting on short-term non-fatal complications suggest a lower incidence following ESG. The authors stress the need for high-quality evidence as available research is limited and increasingly outdated that compares ESG and OSR in managing elective arch and/or aneurysms of the descending TAA.[9]

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