# Cohere Medical Policy - Descending and Abdominal Aortic Aneurysm Repair

***Clinical Guidelines for Medical Necessity Review***

**Version:** 2
**Cohere Health UMC Approval Date: July 31, 2025**
Last Annual Review: July 31, 2025
Revision: Not Applicable
Next Annual Review: July 31, 2026

# Important Notices

## Notices & Disclaimers:

**GUIDELINES ARE SOLELY FOR COHERE'S USE IN PERFORMING MEDICAL NECESSITY REVIEWS AND ARE NOT INTENDED TO INFORM OR ALTER CLINICAL DECISION-MAKING OF END USERS.**

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## Other Notices:



Fee schedules, relative value units, conversion factors and/or related components are not assigned by the AMA, are not part of CPT, and the AMA is not recommending their use. The AMA does not directly or indirectly practice medicine or dispense medical services. The AMA assumes no liability for data contained or not contained herein.



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## Guideline Information:

**Specialty Area:** Cardiovascular Disease
**Policy Name:** Cohere Medical Policy - Descending and Abdominal Aortic Aneurysm Repair
**Type:** [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17 yo)

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# Medical Necessity Criteria

***Service: Descending and Abdominal Aortic Aneurysm Repair***

Cohere Health takes an evidence-based approach to reviewing imaging and procedure requests, meaning that sufficient clinical information must be provided at the time of submission to determine medical necessity. Documentation must include a recent and detailed history, physical examination related to the onset or change in symptoms, relevant lab results, prior imaging, and details of previous treatments. Advanced imaging or procedures should be requested after a recent clinical evaluation by the treating provider, which may include referral to a specialist.

- When a specific clinical indication is not explicitly addressed in the Cohere Health medical policy, medical necessity will be determined based on established clinical best practices, as supported by evidence-based literature, peer-reviewed sources, professional society guidelines, and state or national recommendations, unless otherwise directed by the health plan.
- Requests submitted without clinical documentation, or those that do not align with the provided clinical information—such as mismatched procedure, laterality, body part, or CPT code—may be denied for lack of medical necessity due to insufficient or inconsistent clinical information.
- When there are multiple diagnostic or therapeutic procedures requested simultaneously or within the past three months, each will be reviewed independently. Clinical documentation must clearly justify all of the following:
  - The medical necessity of each individual request
  - Why prior imaging or procedures were inconclusive or why additional/follow-up studies are needed
  - How the results will impact patient management or treatment decisions
- Requests involving adjacent or contiguous body parts may be considered not medically necessary if the documentation demonstrates that the

patient's primary symptoms can be adequately assessed with a single study or procedure.

## Description

The descending and abdominal aorta are the part of the aorta that travels downward from the aortic arch, passing through the belly and bifurcating into the iliac arteries in the pelvis. An aortic aneurysm occurs when the wall of the aorta becomes weakened and expands outward. Because the aorta is the largest artery in the body and is highly pressurized, the aneurysmal portion may rupture - or dissect - and cause serious, life-threatening sequelae, such as rapid blood loss or poor perfusion of extremities and vital organs that may result in death. To mitigate this risk, aortic aneurysms are often prophylactically repaired. Depending on the type of repair, the patient may or may not be placed on mechanical cardiopulmonary bypass during the operation in order to survive an extended interruption of blood flow to the vital organs while the surgeon is working on the aorta. In an open surgical repair (OSR), the surgeon directly visualizes and repairs/excises the aneurysm. Endovascular aortic repair (EVAR) is a minimally invasive method of repairing the aorta and is known as TEVAR (thoracic EVAR) when it occurs in the thoracic region. The surgeon accesses the aorta by placing a catheter in the groin and deploying a stent graft to the affected portion of the aorta. The stent graft self-expands to support the diseased aorta, prevent dissection, and restore blood flow. Hybrid repair may also be performed, involving a combination of both open and endovascular techniques. The surgeon is best positioned to choose the most appropriate treatment (OSR, EVAR/TEVAR, or hybrid repair) for the patient based on their individual anatomic and clinical factors. Importantly, aortopathy may be syndromic or familial in nature. Marfan syndrome, Vascular Ehlers-Danlos syndrome (VEDS), Loeys-Dietz syndrome, and Turner syndrome are among the genetic conditions associated with aortic disease. The most common pathogenic mutation occurs on the ACTA2 gene. Other affected genes include the FBN1 and SMAD3 genes.[1-4]

## Medical Necessity Criteria

### Indications

**Descending thoracic and abdominal aortic repair (open surgical repair [OSR], EVAR/TEVAR, or hybrid repair) or endovascular arterial repair** is considered appropriate if **ALL** of the following are **TRUE**:

- An FDA-approved device will be used; **AND**
- **ANY** of the following:
  - **ANY** of the following pathologies, provided that the treating clinician deems the patient to be an appropriate candidate for repair:
    - Symptomatic or ruptured aneurysms[2-4]; **OR**
    - Pseudoaneurysms[2-4]; **OR**
    - Intramural hematomas[2-4]; **OR**
    - Penetrating ulcers[2-4]; **OR**
  - Abdominal aortic aneurysm (AAA), including **ANY** of the following[2-4]:
    - Asymptomatic fusiform abdominal aortic aneurysms (greater than 5.5 cm in males or greater than 5 cm in females); **OR**
    - All saccular aneurysms in patients with a reasonable life expectancy; **OR**
    - Aneurysm that expands by more than 1.0 cm within 12 months or by more than 0.5 cm in 6 months; **OR**
    - The patient has a concomitant AAA and iliac artery aneurysm with **ALL** of the following:
      - AAA at appropriate size for repair (i.e., at least 4.5 cm in men; at least 4.0 cm in women); **AND**
      - Iliac artery aneurysm (IAA) with **ANY** of the following[2-4]:
        - Rapidly expanding IAA (at least 7 mm in six months or at least 1 cm in 12 months); **OR**
        - Asymptomatic IAA of at least 3.5 cm[5-7]; **OR**
  - Asymptomatic fusiform descending thoracic or thoracoabdominal aneurysm with **ANY** of the following[2-4]:
    - A fusiform aortic diameter greater than 5.5 cm; **OR**
    - A saccular aneurysm; **OR**
    - Any surgical risk at a diameter of 5.5 cm; **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[2-4]:
    - A fusiform aortic aneurysm measuring between 4 and 5.4 cm; **OR**
    - A saccular aneurysm; **OR**
  - Documented rapid thoracic or thoracoabdominal expansion defined as **ANY** of the following[2-4]:
    - Greater than or equal to 0.5 cm in 12 months; **OR**
    - Greater than or equal to 0.3 cm in 12 months for those with heritable thoracic aortic disease (including but not limited to Marfan syndrome, Vascular Ehlers-Danlos syndrome [VEDS], Loeys-Dietz syndrome, or Turner syndrome) or bicuspid aortic valve (BAV); **OR**
  - Patients with genetically mediated aortic diseases or bicuspid aortic valves with an aortic diameter of less than 5.5 cm (the specific threshold diameter depends on the underlying medical condition)[2-4]; **OR**
- Traumatic aortic disruptions, including **ANY** of the following:
  - Grade I: Small intimal defect; observation versus 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 aortic repair (CPT 33886) (e.g., endoleak, graft failure, need for graft extension, etc.)[2-4]; **OR**
- Infected/mycotic aneurysm[2-4]; **OR**
- Aneurysm associated with aortitis[2-4]; **OR**
- Open repair following EVAR of acute type B aortic dissection with genetically mediated aortic diseases[2-4]; **OR**
- **ALL** of the following:
  - The patient meets above criteria for fenestrated EVAR; **AND**
  - The patient has concomitant visceral artery aneurysm in need of repair[8].

### 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**:[2-4]

- Aortic aneurysm size less than 3 cm (excluding saccular and symptomatic aneurysms), unless otherwise stated; **OR**
- Limited life expectancy; **OR**
- Prohibitive surgical risk for open surgical repair; **OR**
- The request is for a non FDA-approved indication (e.g., distal aortic stenosis without significant aneurysm).

## Level of Care Criteria

Inpatient

## Procedure Codes (CPT/HCPCS)

| CPT/HCPCS Code | Code Description |
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| 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 |

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| | 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 |

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| | 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 |

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| | 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, |

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| | 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, |

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| | 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 |

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| | 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 for patients with untreated thoracic aortic aneurysms. From 2014 to 2018, a prospective study was carried out on adult patients with new or existing arch or descending thoracic aortic aneurysms with a diameter of at least 4 centimeters. 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, 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. Throughout the follow-up period, 129 patients died, 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 aneurysmal 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 proposed 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, taking into consideration individual 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) versus open surgical repair (OSR) in managing arch or descending thoracic aortic aneurysms (TAA). A comprehensive search of relevant studies compared ESG and OSR, encompassing randomized controlled trials (RCTs), quasi-randomized trials, and non-RCTs. Five comparative cohort studies were included, with a total of 3,955 ESG and 21,197 OSR patients. A comprehensive review of unadjusted short-term (30-day) all-cause mortality indicated a preference for ESG. Upon conducting sensitivity analysis on four studies focused solely on descending TAA, no statistical significance was found, although moderate heterogeneity persisted. When adjusted, 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 suggested a lower incidence following ESG. The authors stressed the need for high-quality evidence alongside society guidelines, as available research is limited and increasingly outdated. They also noted the importance of individualized patient counseling, particularly for aortic disease of hereditary etiology, as these patients are recommended for OSR on current society guidelines.[9]

# References


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# Policy Revision History/Information

| Original Date: May 28, 2024 | | |
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| **Review History** | | |
| Version 2 | 07/31/2025 | Annual policy review & restructuring.<br><br>Clarification for FDA-approved device usage/non usage.<br><br>Indications and non-indications clarified and streamlined.<br><br>Indication created for approval of AAA with concomitant iliac artery aneurysm.<br><br>Description, medical evidence, and references reviewed and updated. |