Evolent Clinical Guideline 7269 for Catheter Based Carotid and Brachiocephalic Arteriography, Venography, and Intervention

Guideline Number: Evolent_CG_7269	**Applicable Codes**	
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STATEMENT

General Information

- *It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.*
- *Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. These criteria are supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.*
- *The guideline criteria in the following sections were developed utilizing evidence-based and peer-reviewed resources from medical publications and societal organization guidelines as well as from widely accepted standard of care, best practice recommendations.*

Purpose

Indications for determining medical necessity for Catheter Based Carotid and Brachiocephalic Arteriography, Venography, and Intervention.

NOTE: Indications related to evaluation of the brain, cerebral perfusion and anatomy are not included in this guideline

Clinical Reasoning

All criteria are substantiated by the latest evidence-based medical literature. To enhance transparency and reference, Appropriate Use (AUC) scores, when available, are diligently listed alongside the criteria.

This guideline first defaults to AUC scores established by published, evidence-based guidance endorsed by professional medical organizations. In the absence of those scores, we adhere to a standardized practice of assigning an AUC score of 6. This score is determined by considering variables that ensure the delivery of patient-centered care in line with current guidelines, with a focus on achieving benefits that outweigh associated risks. This approach aims to maintain a robust foundation for decision-making and underscores our commitment to upholding the highest standards of care. [1–5]

Documentation

Patients must be involved in a shared decision-making process, which must include options for less invasive tests as well as possible complications from the planned procedure. If a duplex scan was performed as a preliminary study (preferred), the actual report must be submitted.

INDICATIONS FOR CATHETER BASED CAROTID OR BRACHIOCEPHALIC ARTERY DIGITAL ANGIOGRAPHY [6]

Any of the following:

- When there are conflicting or inconclusive results from a prior duplex scan, computed tomography angiography (CTA) and/or magnetic resonance angiography (MRA) and carotid revascularization is being contemplated
- When there is/are contraindications to CTA/MRA and revascularization is being contemplated
- In patients with renal dysfunction to limit exposure to contrast material during evaluation of a single vascular territory
- For the diagnosis of cervical artery dissection
- For the evaluation of carotid fibromuscular dysplasia
- For the evaluation of vertebral artery dissection and obstructive lesions
- For the evaluation or management of cervical or intracranial aneurysms, mass, malignancies, bleeding, fistula, or malformations

INDICATIONS FOR HEMODIALYSIS-RELATED ISSUES

Hemodialysis related complications can occur outside the dialysis circuit, necessitating further visualization and treatment.

- Catheter directed arteriography and/or angioplasty/stent may be performed when **all** the following conditions are met:
    - The catheter is inserted in one of the following manners [7,8]:
        - Through a puncture at a different site than the dialysis circuit
        - Via the dialysis circuit and positioned in the aorta or subclavian artery
    - Arteriography is employed to examine/treat possible pathologies when at least one of the following applies [7,8]:
        - Steal syndrome or distal limb ischemia is suspected
        - A fistulogram has been performed for hemodialysis issues, and no pathology or reason for decreased flow was visualized
- Venography may be performed when the catheter is inserted from a vein outside the dialysis circuit for a tunneled catheter replacement

- Venous angioplasty/stents can be performed on veins that are not part of the dialysis circuit but have caused complications due to stenosis or occlusion when at least ONE of the following applies:
    - The stenosis involves a vein distal to, and not involving, the cephalic arch (which is the junction of the cephalic vein and axillary vein)
    - A fibrous sheath has caused occlusion or loss of function of a tunneled dialysis catheter, and the endovascular device is inserted from a site distant from the dialysis catheter insertion site.

INDICATIONS FOR SUBCLAVIAN ARTERY PROCEDURES

Revascularization of the subclavian artery by endovascular or open surgical techniques is medically necessary when all are present [9,10]:

- There is a hemodynamically significant stenosis as documented by any of the following:
    - Disparity between arm pressures
    - Abnormal waveforms by doppler or plethysmography
    - 70% stenosis on duplex imaging (systolic >230cm/s)
    - Bidirectional or retrograde flow in the vertebral artery,
- Confirmation of > 70% stenosis by CTA, MRA or catheter angiography
- Any one of the following:
    - Symptomatic upper extremity ischemia
        - Arm discomfort with exercise
        - Distal hand or finger pain attributable to ischemia, embolization, non-healing skin breakdown, or gangrene (documented preferably by finger pressures or waveforms),
    - Vertebrobasilar Insufficiency (Subclavian Steal Syndrome) as evidence by:
        - Recurrent dizziness, syncope. visual disturbance, or ataxia especially if brought on by arm exercise
    - Prior ipsilateral left internal mammary artery (LIMA) - coronary bypass with angina or myocardial ischemia attributable to reduced LIMA flow irrespective of degree of stenosis
    - Planned LIMA - coronary bypass in the presence of high-grade subclavian stenosis.
    - Asymptomatic patients with a LIMA - Coronary Bypass
    - Recurrent symptoms and evidence of recurrent stenosis following prior subclavian treatment

- Prior to axillo-femoral bypass in the presence of > 50% stenosis
- To correct developing subclavian stenosis after axillo-femoral bypass

LIMITATIONS FOR CATHETER BASED CAROTID ARTERY DIGITAL ANGIOGRAPHY

- Catheter-based angiography is unnecessary for diagnostic evaluation of most patients with Extracranial Carotid and Vertebral Artery Disease (ECVD), especially preoperatively before carotid endarterectomy (CEA) [11] and is used increasingly as a therapeutic revascularization maneuver in conjunction with stent deployment [6]

CODING AND STANDARDS

Codes

36215, 36216, 36217, 36218, 36221, 36222, 36223, 36224, 36225, 36226, 36227, 36228, 37236, 37237, 37238, 37239, 37246, 37247, 37248, 37249, 75710

Applicable Lines of Business

☒	CHIP (Children's Health Insurance Program)
☒	Commercial
☒	Exchange/Marketplace
☒	Medicaid
☒	Medicare Advantage

BACKGROUND

Definitions

Carotid angiography is a procedure performed to visualize the arterial supply to the brain and to ascertain presence of blockage in the extra-cranial carotid arteries.

AUC Score

A reasonable diagnostic or therapeutic procedure can be defined as that for which the expected clinical benefits outweigh the associated risks, enhancing patient care and health outcomes in a cost-effective manner. [2]

- Appropriate Care- Median Score 7-9
- May be Appropriate Care- Median Score 4-6
- Rarely Appropriate Care- Median Score 1-3

Acronyms/Abbreviations

CEA: Carotid endarterectomy

CTA: Computed tomography angiography

ECVD: Extracranial Carotid and Vertebral Artery Disease

LIMA: Left internal mammary artery

MRA: Magnetic resonance angiography

SUMMARY OF EVIDENCE

2011 ASA/ACCF/AHA/AANN/AANS/ACR/ASNR/CNS/SAIP/SCAI/SIR/SNIS/SVM/SVS Guideline on the Management of Patients With Extracranial Carotid and Vertebral Artery Disease [6]

Study Design: The guideline is based on a thorough review of the literature relevant to carotid and vertebral artery interventions up to May 2010. The recommendations are evidence-based, derived from studies, reviews, and other evidence conducted in human subjects and published in English. The writing committee performed a formal literature review, weighed the strength of evidence for or against particular tests, treatments, or procedures, and included estimates of expected health outcomes where data exist.

Target Population: The target population includes patients with extracranial carotid and vertebral artery disease, both symptomatic and asymptomatic. The guideline addresses patient populations residing in North America and includes recommendations for primary care clinicians, medical and surgical cardiovascular specialists, trainees in primary care and vascular specialties, nurses, and other healthcare personnel.

Key Factors:

Anatomy and Definitions: The guideline provides detailed descriptions of the normal anatomy of the aortic arch and cervical arteries, variations in anatomy, and definitions related to extracranial cerebrovascular disease.

Epidemiology: It discusses the prevalence of stroke and extracranial cerebrovascular disease, including data from population studies and the impact of geographic variations.

Clinical Presentation: The guideline covers the natural history of atherosclerotic carotid artery disease, characterization of atherosclerotic lesions, symptoms and signs of transient ischemic attack (TIA) and ischemic stroke, and public awareness of stroke risk factors and warning indicators.

Diagnosis and Testing: Recommendations for diagnostic testing in patients with symptoms or signs of extracranial carotid artery disease, including the use of duplex ultrasonography, magnetic resonance angiography (MRA), computed tomographic angiography (CTA), and catheter-based contrast angiography.

Medical Therapy: Recommendations for the treatment of hypertension, cessation of tobacco smoking, control of hyperlipidemia, management of diabetes mellitus, and antithrombotic therapy in patients with extracranial carotid atherosclerotic disease.

Revascularization: Detailed recommendations for carotid endarterectomy (CEA) and carotid artery stenting (CAS), including factors affecting the outcome, risks associated with the procedures, and comparative assessments.

Special Populations: Recommendations for neurological risk reduction in patients with carotid artery disease undergoing cardiac or noncardiac surgery.

Nonatherosclerotic Carotid and Vertebral Artery Diseases: Management of fibromuscular dysplasia (FMD) and cervical artery dissection.

Upper Extremity Catheter Angiography: Indications, Techniques, Anatomy, and Classic Cases [7]

Study Design: The study design is a pictorial essay that discusses the indications, techniques, anatomy, and classic cases of upper extremity catheter angiography. The target population includes patients with various pathophysiologic conditions such as trauma, limb ischemia, hemodialysis access, vasculitis, and vascular anomalies. The study reviews modern indications of upper extremity catheter angiography, patient preparation, angiographic techniques, normal and variant anatomy, and classic angiographic diagnoses.

Key factors:

Indications: Trauma, acute limb ischemia, bypass graft planning, dialysis access steal syndrome, vasculitis, and vascular anomalies.

Techniques: Preparation and patient positioning, equipment and access, vasodilators.

Diagnosis: Anatomy and variants, classic angiographic cases such as Takayasu's arteritis, arterial thoracic outlet syndrome, thromboangiitis obliterans (Buerger's disease), hypothenar hammer syndrome, and Raynaud's phenomenon.

The study emphasizes the importance of catheter angiography in specific clinical scenarios despite advancements in computed tomography/magnetic resonance angiography (CT/MRA).

New bundled CPT codes for dialysis circuit interventions [8]

Study Design: The study was conducted by a joint workgroup of the American Medical Association Current Procedural Terminology (CPT) and Specialty Society Relative Value Scale

Update Committee (RUC). The workgroup identified a number of CPT codes that were billed together 75% or more of the time and proposed a code change to bundle these codes. The proposal was reviewed at the October 2015 CPT Editorial Panel meeting, and the new codes and coding guidelines became effective on January 1, 2017.

Target Population: The target population for this study includes patients undergoing dialysis circuit interventions. The study focuses on the percutaneous management of dialysis access circuits, including angioplasty, thrombectomy, and stent placement procedures.

Key Factors

New Codes: The study introduced nine new bundled codes to describe dialysis circuit intervention services. These codes are hierarchical and describe increasing intensity of intervention.

Peripheral and Central Segments: The hemodialysis circuit is divided into peripheral and central segments. The peripheral segment includes the arterial anastomosis and extends to the central segment, while the central segment includes the subclavian and innominate veins through the superior vena cava.

Diagnostic and Therapeutic Procedures: The new codes cover various diagnostic and therapeutic procedures, including needle and catheter placement, angioplasty, stent placement, thrombectomy, and embolization.

Coding Guidelines: The study provides detailed coding guidelines for reporting these procedures, including the bundling of certain services and the appropriate use of add-on codes.

ANALYSIS OF EVIDENCE

Shared Conclusions [6–8]

- **Importance of Imaging Techniques**: All three articles emphasize the critical role of imaging techniques in diagnosing and managing vascular conditions. Roddy and Lerner discuss the use of imaging for dialysis circuit interventions, Brott et al highlight noninvasive imaging for carotid and vertebral artery disease, and Shin et al focus on catheter angiography for upper extremity conditions.
- **Need for Comprehensive Guidelines**: Both Roddy and Lerner and Brott et al stress the importance of having detailed guidelines to standardize procedures and improve patient outcomes. Roddy and Lerner provide coding guidelines for dialysis interventions, while Brott et al offer recommendations for managing carotid and vertebral artery disease.

POLICY HISTORY

Date	Summary
March 2026	• Added indications for subclavian artery procedures

Date	Summary
July 2025	• Guideline name was changed from ECG 7269 for Catheter Based Carotid and Brachiocephalic Artery Digital Angiography to ECG 7269 for Catheter Based Carotid and Brachiocephalic Arteriography, Venography, and Intervention • Added section on venous angioplasty • Added CPT codes 37236, 37237, 37238, 37239, 37246, 37247, 37248, 37249, and 75710
June 2025	• Added a Summary of Evidence and Analysis of Evidence
May 2025	• Added new bullet-point to the General Statement section • No clinical changes
January 2025	• This guideline replaces UM CARDIO_1169 Catheter Based Carotid Artery Digital Angio • Updated according to societal guidelines • Added missing CPT code 36228 • Added hemodialysis-related indication section

LEGAL AND COMPLIANCE

Guideline Approval

Committee

Reviewed / Approved by Evolent Specialty Services Clinical Guideline Review Committee

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laws or regulations. Members should contact their Plan customer service representative for specific coverage information.

Evolent Clinical Guidelines are comprehensive and inclusive of various procedural applications for each service type. Our guidelines may be used to supplement Medicare criteria when such criteria is not fully established. When Medicare criteria is determined to not be fully established, we only reference the relevant portion of the corresponding Evolent Clinical Guideline that is applicable to the specific service or item requested in order to determine medical necessity.

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