Evolent Clinical Guideline 7339 for Ultrasound-Guided Vascular Access

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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 ultrasound-guided vascular access.

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]

INDICATIONS FOR ULTRASOUND-GUIDED VASCULAR ACCESS

The use of ultrasound-guided vascular access is recommended for procedures necessitating cannulation of any central or peripheral artery or vein as part of a diagnostic or interventional procedure where anatomical location may be obscured, or where direct visualization or palpation may not be sufficient. [6,7]

CODING AND STANDARDS

Codes

76937

Applicable Lines of Business

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

BACKGROUND

Attaining precise access to the intravascular space connotes the commencement of all invasive procedures involving the circulation, and failure to do so adeptly may have adverse consequences for the entire procedure. Assistance may be achieved by using an ultrasound-tipped needle that can locate the target blood vessel and allow it to be precisely cannulated to mitigate risks for the remainder of the procedure. At present, the use of ultrasound guidance is recommended for all intravascular procedures to increase safety, improve first-time success, reduce total procedure time, and reduce the overall risk of complications.

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. [3]

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

SUMMARY OF EVIDENCE

European Society of Anaesthesiology guidelines on peri-operative use of ultrasound-guided for vascular access (PERSEUS vascular access) [6]

Study Design: The study focuses on the European Society of Anaesthesiology guidelines on perioperative use of ultrasound-guided vascular access (PERSEUS vascular access). The guidelines were developed by the ESA Task Force, which conducted a literature search and used the Grading of Recommendation Assessment (GRADE) system to assess levels of evidence and grade recommendations.

Target Population: The guidelines cover three main domains of application in ultrasound-guided vascular cannulation: adults, children, and training. The study includes recommendations for ultrasound-guided cannulation of various veins and arteries in both adults and children.

Key Factors: Ultrasound-Guided Cannulation in Adults: Recommendations for internal jugular vein, subclavian vein, axillary vein, femoral vein, and peripheral veins during emergency or elective situations. Ultrasound-Guided Cannulation in Children: Recommendations for internal jugular vein, brachiocephalic vein, femoral vein, radial artery, and peripheral veins. Training: Emphasis on proper training for achieving competency and proficiency before performing any ultrasound-guided vascular procedure.

Vascular Access: 2018 Clinical Practice Guidelines of the European Society for Vascular Surgery (ESVS) [7]

Study Design

The study presents the 2018 Clinical Practice Guidelines of the European Society for Vascular Surgery (ESVS) for vascular access in patients undergoing hemodialysis. The guidelines were developed by the ESVS Guidelines Committee, which performed a systematic literature search and used a grading system based on the European Society of Cardiology (ESC) guidelines methodology.

Target Population

The guidelines are intended for surgeons and physicians involved in the care of patients with hemodialysis and vascular access. The target population includes patients with chronic kidney disease (CKD) stage 5, end-stage renal disease (ESRD), and those requiring renal replacement therapy.

Key Factors: Epidemiology of CKD and ESRD: Incidence, prevalence, and demographics of CKD stage 5 and ESRD. Clinical Decision Making: Choice of type of vascular access, timing of referral for vascular access surgery, and selection of vascular access modality.

Pre-operative Imaging: Methods for pre-operative assessment and imaging for vascular access surveillance. Creation of Vascular Access: Technical aspects, peri-operative assessment, and complications. Surveillance of Vascular Access: Access maturation, care, monitoring, and surveillance. Late Vascular Access Complications: True and false access aneurysms, infection, stenosis, thrombosis, and central venous occlusive disease.

ANALYSIS OF EVIDENCE

Analysis [6,7]:

Both articles provide strong evidence supporting the use of ultrasound-guided vascular access. In conclusion, both articles reiterate the findings that ultrasound-guided vascular access improves success rates, reduces complications, and is cost-effective. However, they differ in their scope, target population, and specific recommendations.

Shared Conclusions

Both articles emphasize the importance of ultrasound-guided vascular access in improving success rates and reducing complications. They highlight the benefits of ultrasound guidance in terms of safety, efficacy, and cost-effectiveness.

POLICY HISTORY

Date	Summary
July 2025	• Added a Summary of Evidence and Analysis of Evidence
May 2025	• No substantial clinical content changes • Added in general information statement regarding guideline criteria development by reputable sources, standard of care, and best practices
January 2025	• This guideline replaces UM CARDIO_1453 for Ultrasound-Guided Vascular Access • Clinical indications were updated per societal guidance

LEGAL AND COMPLIANCE

Guideline Approval

Committee

Reviewed / Approved by Evolent Specialty Services Clinical Guideline Review Committee

Disclaimer

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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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