

Approval and implementation dates for specific health plans may vary. Please consult the applicable health plan for more details.

Clinical Appropriateness Guidelines

Cardiovascular

Appropriate Use Criteria: Vascular Embolization and Occlusion Procedures

Proprietary

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Description and Application of the Guidelines

The Carelon Clinical Appropriateness Guidelines (hereinafter “the Carelon Clinical Appropriateness Guidelines” or the “Guidelines”) are designed to assist providers in making the most appropriate treatment decision for a specific clinical condition for an individual. The Guidelines establish objective and evidence-based criteria for medical necessity determinations, where possible, that can be used in support of the following:

- To establish criteria for when services are medically necessary
- To assist the practitioner as an educational tool
- To encourage standardization of medical practice patterns
- To curtail the performance of inappropriate and/or duplicate services
- To address patient safety concerns
- To enhance the quality of health care
- To promote the most efficient and cost-effective use of services

The Carelon guideline development process complies with applicable accreditation and legal standards, including the requirement that the Guidelines be developed with involvement from appropriate providers with current clinical expertise relevant to the Guidelines under review and be based on the most up-to-date clinical principles and best practices. Resources reviewed include widely used treatment guidelines, randomized controlled trials or prospective cohort studies, and large systematic reviews or meta-analyses. Carelon reviews all of its Guidelines at least annually.

Carelon makes its Guidelines publicly available on its website. Copies of the Guidelines are also available upon oral or written request. Additional details, such as summaries of evidence, a list of the sources of evidence, and an explanation of the rationale that supports the adoption of the Guidelines, are included in each guideline document.

Although the Guidelines are publicly available, Carelon considers the Guidelines to be important, proprietary information of Carelon, which cannot be sold, assigned, leased, licensed, reproduced or distributed without the written consent of Carelon. Use of the Guidelines by any external AI entity without the express written permission of Carelon is prohibited.

Carelon applies objective and evidence-based criteria, and takes individual circumstances and the local delivery system into account when determining the medical appropriateness of health care services. The Carelon Guidelines are just guidelines for the provision of specialty health services. These criteria are designed to guide both providers and reviewers to the most appropriate services based on a patient’s unique circumstances. In all cases, clinical judgment consistent with the standards of good medical practice should be used when applying the Guidelines. Guideline determinations are made based on the information provided at the time of the request. It is expected that medical necessity decisions may change as new information is provided or based on unique aspects of the patient’s condition. The treating clinician has final authority and responsibility for treatment decisions regarding the care of the patient and for justifying and demonstrating the existence of medical necessity for the requested service. The Guidelines are not a substitute for the experience and judgment of a physician or other health care professionals. Any clinician seeking to apply or consult the Guidelines is expected to use independent medical judgment in the context of individual clinical circumstances to determine any patient’s care or treatment.

The Guidelines do not address coverage, benefit or other plan specific issues. Applicable federal and state coverage mandates take precedence over these clinical guidelines, and in the case of reviews for Medicare Advantage Plans, the Guidelines are only applied where there are not fully established CMS criteria. If requested by a health plan, Carelon will review requests based on health plan medical policy/guidelines in lieu of the Carelon Guidelines. Pharmaceuticals, radiotracers, or medical devices used in any of the diagnostic or therapeutic interventions listed in the Guidelines must be FDA approved or conditionally approved for the

intended use. However, use of an FDA approved or conditionally approved product does not constitute medical necessity or guarantee reimbursement by the respective health plan.

The Guidelines may also be used by the health plan or by Carelon for purposes of provider education, or to review the medical necessity of services by any provider who has been notified of the need for medical necessity review, due to billing practices or claims that are not consistent with other providers in terms of frequency or some other manner.

General Clinical Guideline

Clinical Appropriateness Framework

Critical to any finding of clinical appropriateness under the guidelines for a specific diagnostic or therapeutic intervention are the following elements:

- Prior to any intervention, it is essential that the clinician confirm the diagnosis or establish its pretest likelihood based on a complete evaluation of the patient. This includes a history and physical examination and, where applicable, a review of relevant laboratory studies, diagnostic testing, and response to prior therapeutic intervention.
- The anticipated benefit of the recommended intervention is likely to outweigh any potential harms, including from delay or decreased access to services that may result (net benefit).
- Widely used treatment guidelines and/or current clinical literature and/or standards of medical practice should support that the recommended intervention offers the greatest net benefit among competing alternatives.
- There exists a reasonable likelihood that the intervention will change management and/or lead to an improved outcome for the patient.

Providers may be required to submit clinical documentation in support of a request for services. Such documentation must a) accurately reflect the clinical situation at the time of the requested service, and b) sufficiently document the ordering provider's clinical intent.

If these elements are not established with respect to a given request, the determination of appropriateness will most likely require a peer-to-peer conversation to understand the individual and unique facts that would justify a finding of clinical appropriateness. During the peer-to-peer conversation, factors such as patient acuity and setting of service may also be taken into account to the extent permitted by law.

Simultaneous Ordering of Multiple Diagnostic or Therapeutic Interventions

Requests for multiple diagnostic or therapeutic interventions at the same time will often require a peer-to-peer conversation to understand the individual circumstances that support the medical necessity of performing all interventions simultaneously. This is based on the fact that appropriateness of additional intervention is often dependent on the outcome of the initial intervention.

Additionally, either of the following may apply:

- Current literature and/or standards of medical practice support that one of the requested diagnostic or therapeutic interventions is more appropriate in the clinical situation presented; or
- One of the diagnostic or therapeutic interventions requested is more likely to improve patient outcomes based on current literature and/or standards of medical practice.

Repeat Diagnostic Intervention

In general, repeated testing of the same anatomic location for the same indication should be limited to evaluation following an intervention, or when there is a change in clinical status such that additional testing is required to determine next steps in management. At times, it may be necessary to repeat a test using different techniques or protocols to clarify a finding or result of the original study.

Repeated testing for the same indication using the same or similar technology may be subject to additional review or require peer-to-peer conversation in the following scenarios:

- Repeated diagnostic testing at the same facility due to technical issues

- Repeated diagnostic testing requested at a different facility due to provider preference or quality concerns
- Repeated diagnostic testing of the same anatomic area based on persistent symptoms with no clinical change, treatment, or intervention since the previous study
- Repeated diagnostic testing of the same anatomic area by different providers for the same member over a short period of time

Repeat Therapeutic Intervention

In general, repeated therapeutic intervention in the same anatomic area is considered appropriate when the prior intervention proved effective or beneficial and the expected duration of relief has lapsed. A repeat intervention requested prior to the expected duration of relief is not appropriate unless it can be confirmed that the prior intervention was never administered. Requests for on-going services may depend on completion of previously authorized services in situations where a patient's response to authorized services is relevant to a determination of clinical appropriateness.

Vascular Embolization and Occlusion Procedures

Clinical Indications

The following section includes indications for which the specified vascular interventions are considered medically necessary, along with prerequisite information and supporting evidence where available. Indications, diagnoses, or procedures not specifically addressed are considered not medically necessary.

Aneurysm

Vascular embolization is considered medically necessary for treatment of arterial aneurysms (*including pseudoaneurysms and endoleaks after endovascular aneurysm repair*).

Embolization of collaterals in patients with congenital heart disease

Embolization is considered medically necessary for treatment of aortopulmonary or venovenous collaterals in patients with complex congenital heart disease.

Rationale

Embolization of aortopulmonary and/or venovenous collaterals is performed in select patients with complex congenital heart disease before or after surgical repair. Embolization of collaterals is recommended on a consensus basis in a clinical practice guideline¹ on the management of adults with congenital heart disease.

Pelvic Venous Disorder

Venous embolization is considered medically necessary as a treatment for symptomatic venous origin chronic pelvic pain (pelvic congestion syndrome) affecting activities of daily living when imaging* supports the presence of pelvic vein reflux.

**Imaging modalities include duplex ultrasound of the pelvis, CTV, MRV, laparoscopy, or conventional venography with intravascular ultrasound*

Please see Exclusions for venous embolization for treatment of lower extremity varicose veins and for treatment of isolated vulvar veins in the absence of chronic pelvic pain.

Rationale

Pelvic venous disorder (PeVD) is associated with a variety of presentations, including venous origin chronic pelvic pain (VO-CPP), previously known as pelvic congestion syndrome (PCS).

Embolization of ovarian veins, internal iliac veins and/or the pelvic reservoir is frequently offered as treatment for patients with unexplained chronic pelvic pain and pelvic venous dilation on imaging, since there are limited alternative treatments.

Venous embolization has been shown to offer pain relief in a majority of cases with low rates of complications. There is limited data regarding post-treatment impact on menstruation and fertility.

A 2026 consensus-based practice guideline from the Society of Interventional Radiology states: "Embolization for VO-CPP may include one or both ovarian veins and/or internal iliac veins as well as liquid/foam embolization/sclerotherapy of the pelvic venous reservoir." No treatment protocol (including which veins are treated first or type of embolic material) has been found to be superior.²

Primary or metastatic liver malignancy

Includes transarterial embolization (TAE), transarterial chemoembolization (TACE), TACE with drug-eluting bead therapy (DEB-TACE), and selective internal radioembolization (SIRT)/transarterial radioembolization (TARE) procedures

Transarterial embolization* is considered medically necessary as treatment in **EITHER** of the following scenarios:

- Primary hepatocellular carcinoma or cholangiocarcinoma in **ANY** of the following scenarios:
 - Unresectable disease when **ALL** of the following are met:
 - Nodule(s) that are unresectable due to size (> 4 cm), location (adjacent to blood vessels), or multiplicity
 - Minimal or no extrahepatic disease
 - Preserved liver function (Childs-Pugh Class A or B (generally ≤ B7, and without uncontrolled ascites or encephalopathy))
 - Performance status ECOG 0–2 and anticipated survival ≥ 3 months
 - Hepatic tumor burden not extensive (e.g., generally < 50% liver replacement) and preserved portal venous inflow to the treated territory
 - As a bridge to liver transplant or when such treatment may allow a patient to be downstaged to become transplant eligible
 - Treatment of liver-related symptoms for palliation due to tumor bulk
- Liver metastases in **ANY** of the following scenarios:
 - Liver-only or liver-predominant metastases from neuroendocrine tumor or uveal melanoma
 - As secondary treatment of chemotherapy resistant or refractory colorectal cancer with liver-only or liver dominant metastases (extrahepatic disease absent or controlled) in patients with preserved liver function and ECOG 0–2
 - Limited progressive hepatic metastatic disease unresponsive to systemic therapy
 - Treatment of liver-related symptoms for palliation due to tumor bulk

Immuno-embolization therapy, defined as the planned combination of intra-arterial embolization therapy (TACE/TAE, DEB-TACE, TARE/SIRT) with immune checkpoint inhibition with or without anti-VEGF or TKI therapy, is considered **not medically necessary.*

Rationale

Evidence-based guidelines and contemporary reviews support the use of transarterial embolization procedures for selected primary and metastatic liver malignancies that are not resectable, as a bridge to liver transplantation, and for palliation. Appropriate modalities include bland embolization (TAE), conventional TACE, drug-eluting bead TACE (DEB-TACE), and transarterial radioembolization (TARE/SIRT), with modality selection individualized to tumor biology, vascular anatomy, and hepatic reserve.³⁻⁵

Guidelines from the National Comprehensive Cancer Network (NCCN) support the use of hepatic arterial embolization, including bland transarterial embolization (TAE), chemoembolization (TACE), and radioembolization (TARE) in metastatic neuroendocrine tumor, in patients with well-differentiated neuroendocrine tumors with liver-dominant, unresectable metastases.⁶

Though the evidence is more sparse, NCCN also recommends liver-directed therapies including embolization for hepatic-dominant disease in uveal melanoma, though treatment within a clinical trial is preferred to these liver-directed therapies. As it relates to colon cancer, NCCN states that “arterially directed catheter therapy, and in particular yttrium-90 microsphere radioembolization, is an option in selected patients with chemotherapy-resistant/refractory disease and with predominant hepatic metastases.”⁷

Quality improvement guidelines from the Society of Interventional Radiology describe several widely recognized relative contraindications to embolization procedures. Among these include decompensated liver disease or liver insufficiency as well as life expectancy less than 3 months (often related to significant extrahepatic disease burden).⁸ Guidelines from the American College of Radiology cite the importance of these therapies for downstaging or to bridge patients to liver transplantation, in addition to their role in treatment of patients with acceptable liver function and unresectable disease.^{9, 10}

For hepatocellular carcinoma (HCC), transarterial therapies remain foundational options for intermediate-stage disease and are also used to bridge or downstage patients for transplantation when liver function is preserved; treatment selection should account for tumor burden, performance status, and portal hypertension risk.^{3, 5}

Recent systematic reviews, meta-analyses, and guidelines support hepatic artery interventional therapies including bland transarterial embolization (TAE), transarterial chemoembolization (TACE), TACE with drug-eluting beads (DEB-TACE), and transarterial radioembolization (TARE) such as radioembolization with yttrium-90 (Y-90) microspheres all as components of conversion/downstaging strategies in unresectable HCC, often within multidisciplinary care pathways that integrate systemic therapy and locoregional therapy.^{3, 11, 12} The choice between conventional TACE and DEB-TACE is typically individualized based on tumor morphology (nodular favors DEB-TACE; infiltrative favors cTACE), liver function (DEB-TACE may reduce systemic toxicity but increase local hepatobiliary injury in compromised patients), institutional expertise, and patient preference.

All arterially directed therapies are relatively contraindicated with bilirubin >3 mg/dl unless segmental treatment can be performed, and the threshold for radioembolization with Y-90 microspheres is a bilirubin >2 mg/dl.¹²

For intrahepatic cholangiocarcinoma, the evidence base for transarterial therapies is less mature than for HCC; nevertheless, modern reviews describe feasibility and potential benefit of TACE or TARE in selected liver-limited unresectable cases, typically in coordination with systemic therapy.¹³

Immuno-embolization—defined here as planned combination of intra-arterial embolotherapy (TACE/TAE or TARE/SIRT) with immune checkpoint inhibition (often alongside anti-VEGF or TKI therapy)—has a strong biologic rationale (e.g., locoregional tumor necrosis/antigen release potentially augmenting systemic immune response) but is not yet established as standard of care in hepatocellular carcinoma (HCC). In embolization-eligible unresectable HCC, phase III randomized trials demonstrate that adding systemic immunotherapy-based regimens to TACE can improve progression-based endpoints, with overall survival results immature.¹⁴ Despite these encouraging signals, contemporary professional guidance concludes there remains insufficient evidence to recommend routine combination of intra-arterial therapy with checkpoint inhibitor immunotherapy, supporting use primarily in clinical trials or highly protocolized multidisciplinary settings; similarly, early-phase experiences combining TARE with PD-1/PD-L1 blockade appear feasible but have not yet established comparative survival benefit, optimal sequencing, or long-term hepatic safety across broader liver-reserve subgroups.^{3, 5, 15}

Portal vein embolization for treatment of liver tumors

Portal vein embolization is considered medically necessary when hepatic tumors cannot be optimally resected due to insufficient remnant liver volume.

Rationale

Portal vein embolization (PVE) is considered when a patient is otherwise a surgical candidate, but would be left with an insufficient functional future liver remnant (FLR) after resection. PVE occludes portal venous inflow to diseased hepatic segments, inducing hypertrophy in the future liver remnant. An evidence-based practice guideline¹⁶ states “If there are concerns regarding the adequacy of the FLR, preoperative portal vein embolization can increase the size of the contralateral hepatic lobe to allow for safer resection.”

Prostate artery embolization

Prostate artery embolization is considered medically necessary in **EITHER** of the following scenarios:

- Benign prostatic hypertrophy in patients who are not surgical candidates and who have moderate to severe lower urinary tract symptoms
- Hematuria of prostatic origin

Rationale

An evidence-based multispecialty consensus position statement¹⁷ addresses prostatic artery embolization for lower urinary tract symptoms attributable to benign prostatic hyperplasia. The authors state that in patients with this condition, medical therapies are the mainstay of treatment, and that transurethral resection of the prostate (TURP) has been the gold standard among more invasive treatment options for patients who cannot tolerate medical therapy or in whom medical therapy has failed. The authors state that prostate artery embolization “is an acceptable minimally invasive treatment option for appropriately selected men with BPH and moderate to severe LUTS.” However, they also note that “there is a need for continued prospective outcomes studies and clinical trials of PAE for BPH...”

The American Urological Association has a guideline¹⁸ on the surgical management of BPH with LUTS, in which they do not recommend PAE outside of a clinical trial, citing “heterogeneity in the sparsely available literature in addition to safety concerns...” In a 2023 update¹⁹, the AUA made a conditional recommendation that PAE may be offered for the treatment of LUTS/BPH; however, they further state that they were “unable to find substantial evidence to recommend PAE over more widely available minimally invasive surgical therapies for the routine treatment of LUTS, but there is evidence showing a short-term benefit of PAE compared to observation in a very select patient population.”

Additionally, the AUA guideline developers recommend “continued investigation of PAE through trials [involving] multi-disciplinary teams of urologists and radiologists focused on further defining specific indications, including but not limited to gross hematuria recalcitrant to other therapies.”

Renal tumors

Arterial embolization is considered medically necessary in **EITHER** of the following scenarios:

- Palliative treatment of renal cell carcinoma in patients with local symptoms (such as intractable hematuria) when unable to undergo nephrectomy.
- Treatment of renal angiomyolipoma (AML) as an alternative to resection or for acute hemorrhage

Rationale

Evidence based clinical practice guidelines support the use of arterial embolization for palliative treatment of renal tumors in patients with massive or intractable hematuria or flank pain when nephrectomy is not an option.^{20, 21}

Evidence based clinical practice guidelines support the use of arterial embolization for treatment of renal angiomyolipomas. Arterial embolization has been found to have fewer complications than surgical resection of AMLs but has slightly higher recurrence rates.²²

Splenic artery embolization for treatment of gastric varices

Partial splenic artery embolization is considered medically necessary in patients with gastric variceal bleeding and evidence of chronic splenic vein occlusion on imaging.

Testicular vein embolization for treatment of varicocele

Testicular (spermatic) vein embolization is considered medically necessary for treatment of varicocele with associated pain, testicular atrophy or infertility.

Rationale

Embolization of testicular varicocele has been used as an alternative to surgical management. There are a variety of treatment modalities for the treatment of varicocele, including microsurgery, laparoscopic surgery, and embolization with coils or sclerotherapy. Various outcome measures are reported in the literature (fertility, sperm counts, pain relief, testicular atrophy). A practice standard from the Cardiovascular and Interventional Radiological Society of Europe (CIRSE) recommends treatment of varicoceles in specific scenarios: palpable varicocele, pain associated with varicocele, prevention or reversal of testicular atrophy in adolescent patients, documented infertility, abnormal semen parameters or sperm function test results, elevated sperm DNA fragmentation, or hypogonadism.²³ These recommendations are not specific to embolization, however, and also include open, laparoscopic, and microscopic surgical approaches as well as sclerotherapy.

Regarding outcomes, treatment of varicocele leads to reduction in orchalgia and improved semen parameters (such as sperm concentration, motility, and morphology) in the majority of cases, with variable technical success depending on factors such as anatomy, vascular approach, and laterality (greater success with left-sided than with right-sided varicocele). There are few prospective studies evaluating the effectiveness of embolization, and those prospective studies are generally not randomized or blinded.

Transhepatic variceal embolization

Percutaneous transhepatic embolization is considered medically necessary in **ANY** of the following scenarios:

- Acute variceal bleeding

- Cirrhosis with hepatocellular carcinoma
- Child-Pugh class C liver disease
- Branch portal vein thrombus

Uterine artery embolization for treatment of fibroids

Transcatheter uterine artery embolization (UAE) is considered medically necessary for treatment of uterine fibroids for excessive bleeding or symptoms of pelvic discomfort*

**Symptoms may include severe pain, chronic lower abdominal pain, low back pressure, or bladder pressure with urinary frequency not due to urinary tract infection*

Rationale

Multiple evidence-based guidelines support the use of uterine artery embolization for the treatment of uterine fibroids, with evidence showing reduction in bleeding, significant symptom relief and improved quality of life. Patient satisfaction rates 2–5 years after treatment are reported to be similar when comparing UAE, myomectomy, and hysterectomy, though the reintervention rate is higher with UAE compared to myomectomy and hysterectomy. The data comparing reproductive outcomes between UAE and myomectomy is limited, and results from the available studies have been conflicting. A 2021 ACOG Practice Bulletin states, “Uterine artery embolization (UAE) is recommended as an interventional procedure for the treatment of uterine leiomyomas in patients who desire uterine preservation and are counseled about the limited available data on reproductive outcomes.”²⁴

Vascular malformations

Vascular embolization is considered medically necessary for treatment of vascular malformations (including, but not limited to, congenital or acquired arterial or venous malformations, arteriovenous malformations, arteriovenous fistulas, and venous and capillary hemangiomas).

Exclusions

Genicular artery embolization is considered **not medically necessary**.

Rationale

Genicular artery embolization (GAE) has been proposed as treatment of mild to moderate osteoarthritis of the knee as well as for treatment of postoperative hemarthrosis. However, there is limited evidence addressing the relative efficacy of GAE compared to standard of care treatment for either of these indications. Three randomized controlled trials have compared GAE to sham procedures for the treatment of knee osteoarthritis, and two of those studies showed no benefit compared to sham.²⁶ There are no RCTs comparing GAE to standard of care treatment options, and limited data regarding long-term results; further, it is unclear whether GAE impacts the need for future knee arthroplasty. A 2021 National Institute for Health and Care Excellence (NICE) report states, “Evidence on the safety and efficacy of genicular artery embolisation for pain from knee osteoarthritis shows no major safety concerns in the short term. Evidence on its efficacy and long-term safety is inadequate in quality and quantity. Therefore, this procedure should only be used in the context of research.”²⁷ Society of Interventional Radiology has published a position statement endorsing the use of GAE in patients with symptomatic knee OA who have failed conservative treatment and are unwilling or unable to undergo knee arthroplasty.²⁸ However, the authors acknowledge that much of the existing evidence consists of single-center retrospective data and observational studies and emphasize the need for high quality trials demonstrating superiority over placebo. They also note the need for trials showing the durability and repeatability of the procedure.

In patients with hemarthrosis following total knee arthroplasty, GAE has been proposed for treatment. However, there are no RCTs comparing GAE to conservative treatment or to synovectomy. Case series have shown procedural success, but with a high rate of recurrence and need for further procedures.²⁷

Embolization as treatment of lower extremity varicose veins is considered **not medically necessary**.

Embolization as treatment of isolated vulvar veins without chronic pelvic pain is considered **not medically necessary**.

Rationale

There is limited evidence supporting the use of venous embolization as treatment of lower extremity varicose veins or isolated vulvar varicose veins without pelvic pain. An evidence-based guideline from the American College of Radiology states that, for treatment of pelvic-origin lower extremity varicose veins, ovarian vein embolization is “usually not appropriate,” and iliac vein embolization “may be appropriate.” However, the authors state that “there is no high-quality data demonstrating the value of pelvic embolization or iliac or renal vein stenting to improve pelvic origin varicose veins and their related symptoms,”²³ 2026 SIR Practice Guidance Document states: “For isolated vulvar varicose veins without abdominal or pelvic pain (S3a,V3a), it is most appropriate to treat just the vulvar varicosity percutaneously without pelvic venous embolization”.²²

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Codes

The following code list is not meant to be all-inclusive. Authorization requirements will vary by health plan. Please consult the applicable health plan for guidance on specific procedure codes.

Specific CPT codes for services should be used when available. Nonspecific or not otherwise classified codes may be subject to additional documentation requirements and review.

CPT/HCPCS

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37241	Vascular embolization or occlusion, inclusive of all radiological supervision and interpretation, intraprocedural roadmapping, and imaging guidance necessary to complete the intervention; venous , other than hemorrhage (eg, congenital or acquired venous malformations, venous and capillary hemangiomas, varices, varicoceles)
37242	Vascular embolization or occlusion, inclusive of all radiological supervision and interpretation, intraprocedural roadmapping, and imaging guidance necessary to complete the intervention; arterial , other than hemorrhage or tumor (eg, congenital or acquired arterial malformations, arteriovenous malformations, arteriovenous fistulas, aneurysms, pseudoaneurysms)
37243	Vascular embolization or occlusion, inclusive of all radiological supervision and interpretation, intraprocedural roadmapping, and imaging guidance necessary to complete the intervention; for tumors, organ ischemia, or infarction
37244	Vascular embolization or occlusion, inclusive of all radiological supervision and interpretation, intraprocedural roadmapping, and imaging guidance necessary to complete the intervention; for arterial or venous hemorrhage or lymphatic extravasation

ICD-10 Diagnosis

Refer to the ICD-10 CM manual

History

Status	Review Date	Effective Date	Action
Revised	04/15/2026	11/15/2026	Independent Multispecialty Physician Panel (IMPP) review. Revised indications: Primary or metastatic liver malignancy, Aneurysm, Pelvic venous disorder, Portal vein embolization for treatment of liver tumors, Testicular vein embolization for treatment of varicocele, Vascular malformations, and Exclusions. Added indication for Embolization of collaterals in patients with congenital heart disease.
Reaffirmed	04/21/2025	Unchanged	IMPP review. Guideline reaffirmed. Rationales updated.
Created	04/15/2024	11/01/2024	Original effective date. Independent Multispecialty Physician Panel (IMPP) review.