

Varicose Veins

MEDICAL POLICY NUMBER: 182

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INSTRUCTIONS FOR USE: Company Medical Policies serve as guidance for the administration of plan benefits. Medical policies do not constitute medical advice nor a guarantee of coverage. Company Medical Policies are reviewed annually and are based upon published, peer-reviewed scientific evidence and evidence-based clinical practice guidelines that are available as of the last policy update. The Company reserves the right to determine the application of medical policies and make revisions to medical policies at any time. The scope and availability of all plan benefits are determined in accordance with the applicable coverage agreement. Any conflict or variance between the terms of the coverage agreement and Company Medical Policy will be resolved in favor of the coverage agreement. Coverage decisions are made on the basis of individualized determinations of medical necessity and the experimental or investigational character of the treatment in the individual case. In cases where medical necessity is not established by policy for specific treatment modalities, evidence not previously considered regarding the efficacy of the modality that is presented shall be given consideration to determine if the policy represents current standards of care.

SCOPE: Providence Health Plan, Providence Health Assurance and Providence Plan Partners as applicable (referred to individually as “Company” and collectively as “Companies”).

PLAN PRODUCT AND BENEFIT APPLICATION

☒ Commercial

☐ Medicaid/OHP*

☐ Medicare**

*Medicaid/OHP Members

Oregon: Services requested for Oregon Health Plan (OHP) members follow the OHP Prioritized List and Oregon Administrative Rules (OARs) as the primary resource for coverage determinations. Medical policy criteria below may be applied when there are no criteria available in the OARs and the OHP Prioritized List.

Varicose Vein Treatment

OARs: 410-141-3820 to 3830, 410-120-1200

Guideline Note: 68

**Medicare Members

This Company policy may be applied to Medicare Plan members only when directed by a separate Medicare policy. Note that investigational services are considered “**not medically necessary**” for Medicare members.

COVERAGE CRITERIA

Notes:

- Member benefits, which address coverage or non-coverage of specific services, may vary.
- Member benefit contract language takes precedent over medical policy.
- Drugs/Devices must be FDA-approved specifically for the procedure recommended to treat the condition.
- Duplex scanning must be performed by:
 - An accredited facility (e.g., Intersocietal Accreditation Commission [IAC]), the American College of Radiology (ACR); or
 - A licensed vascular sonographer and read by a board-certified physician who is accredited by theAPCA (Alliance for Physician Certification & Advancement) for RPVI (Registered Physician in Vascular Interpretation).
- See policy description section for the clinical, etiologic, anatomic, and pathophysiologic (CEAP) clinical findings classification ([Table. 1](#)), venous nomenclature ([Table. 2](#)), and associated terminology ([Table. 3](#)).

Criteria Contents:

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Symptomatic Varicose Veins

I. The following procedures performed on the great saphenous vein (GSV), small saphenous veins (SSV), posterior accessory saphenous vein (PASV) or anterior accessory saphenous vein (AASV), or saphenous tributaries may be considered **medically necessary** for the treatment of symptomatic varicose veins:

- Foam sclerotherapy (i.e., Varithena™); **or**
- Endovenous ablation (EVLA) (laser or radiofrequency); **or**
- Ligation/excision/stripping when endovenous ablation is not feasible; **or**
- Ambulatory phlebectomy; **or**
- Transilluminated powered phlebectomy (TIPP) (i.e. TriVex System)

when **at least one** of the following (A.-D.) criteria are met:

- A. The patient is experiencing itching, discomfort, or heaviness in legs due to a varicosity confirmed by physical examination, and meets **all** of the following (1.-3) criteria:
 1. The patient's symptoms interfere with instrumental activities of daily living (e.g., bathing, feeding, household duties, and/or job activities); **and**
 2. The patient's symptoms persist after conservative therapy for **at least 6 weeks** (e.g., exercise, leg elevation, and/or compressive therapy); **and**
 3. Superficial venous reflux ≥ 500 milliseconds as measured by duplex ultrasound (US); **or**
- B. The patient has experienced a significant hemorrhage or recurrent bleeding from a superficial varicosity; **or**
- C. For procedures listed above other than foam sclerotherapy, the patient has been diagnosed with a superficial thrombophlebitis that is refractory to **at least one** of the following (1.-3.) treatments:
 1. NSAIDs or acetaminophen for **at least 3 weeks**; **or**
 2. Low molecular weight heparin (LMWH) for **at least 6 weeks**; **or**
 3. Fondaparinux for **at least 6 weeks**; **or**
- D. For ambulatory phlebectomy only, there is associated superficial venous incompetence of the GSV, SSV, PASV or AASV and the procedure is performed with saphenous vein ablation, either concurrently or at a later stage.

II. Surgical treatment of symptomatic varicose veins is considered **not medically necessary** for when criterion I. above is not met.

Chronic Venous Insufficiency

III. The following procedures performed on the great saphenous vein (GSV), small saphenous veins (SSV), posterior accessory saphenous vein (PASV) or anterior accessory saphenous vein (AASV) or saphenous tributaries may be considered **medically necessary** for the treatment of chronic venous insufficiency:

- Foam Sclerotherapy (i.e., Varithena™); **or**
- Endovenous ablation (EVLA) (laser or radiofrequency)

when **at least one** of the following (A.-E.) criteria are met:

- A. The patient has an active venous ulcer and **both** of the following (1. and 2.) criteria are met:
 1. Venous reflux is ≥ 500 milliseconds as measured by duplex ultrasound (US); **and**
 2. The venous ulcer is refractory to **at least 6 weeks** of wound care with dressing and **at least 6 weeks** of compression hose (20 to 30 mmHg); **or**
- B. The patient has a healed venous ulcer and venous reflux is ≥ 500 milliseconds as measured by duplex ultrasound (US); **or**
- C. The patient has been diagnosed with lipodermatosclerosis that is refractory to compression hose for **at least 6 weeks** and saphenous vein reflux is ≥ 500 milliseconds as measured by duplex ultrasound (US); **or**
- D. The patient has lower limb edema or pigmentation or eczema and **both** of the following (1. **and** 2.) criteria are met:
 1. Superficial vein reflux ≥ 500 milliseconds as measured by duplex ultrasound (US); **and**
 2. The symptoms are refractory to **all** of the following (a.-c.) treatments:
 - a. Compression hose (20 to 30 mmHg) for **at least six weeks**; **and**
 - b. Physical therapy or home exercise for **at least 6 weeks**; **and**
 - c. Leg elevation for **at least 6 weeks**; **or**
- E. For EVLA only, the patient has been diagnosed with lipodermatosclerosis and perforator vein reflux is ≥ 500 milliseconds as measured by duplex ultrasound and a saphenous reflux procedure is planned.

IV. Surgical treatment of chronic venous insufficiency is considered **not medically necessary** criterion III. above is not met.

Session Limits

V. No more than 3 total sessions of treatment per leg (with sclerotherapy or phlebectomy, or a combination thereof) during a 12-month period may be considered **medically necessary** when criteria I. or III. above are met. Additional treatments beyond three sessions will require Medical Director review.

Miscellaneous Indications

VI. Foam sclerotherapy (i.e., Varithena™), endovenous ablation (laser or radiofrequency) or subfascial Endoscopic Perforating Vein Surgery (SEPS) may be considered **medically necessary**

for the treatment of **perforator vein incompetence** when **all** of the following (A.-C.) criteria are met:

- A. Venous reflux $\geq$ 500 milliseconds as measured by duplex ultrasound (US); **and**
- B. Vein size $\geq$ 3.5 millimeters; **and**
- C. Located underneath an active or healed venous ulcer.

VII. Foam sclerotherapy (i.e., Varithena™) for the treatment of recurrent or residual **symptomatic chronic venous disease** may be considered **medically necessary** when **both** of the following (A. and B.) criteria are met:

- A. The patient has had a prior saphenous vein procedure; **and**
- B. Criterion I. or III. above are met.

VIII. Endovenous ablation (laser or radiofrequency) for the treatment of **recurrent or residual superficial venous reflux** of the great saphenous vein (GSV), small saphenous vein (SSV), posterior accessory saphenous vein (PASV), anterior accessory saphenous vein (AASV) or saphenous tributaries may be considered **medically necessary** when criteria I. or III. above is met.

IX. Endovenous ablation (laser or radiofrequency) for the treatment of a known **anatomical duplicate of the greater saphenous vein** may be considered **medically necessary** when criterion I. or III. above is met.

X. **Repeat venous studies** using duplex ultrasound following endovenous ablation may be considered **medically necessary** when performed **within three weeks** of the ablation procedure.

XI. Varicose vein procedures for the treatment of miscellaneous indications are considered **not medically necessary** when criteria VII.-X. above are not met.

Not Medically Necessary/Cosmetic Treatments

XII. The following treatments are considered **not medically necessary**:

- A. Endovascular embolization with a cyanoacrylate adhesive (e.g., VenaSeal™) has similar efficacy to but is more costly than standard treatments; therefore, it does not meet the definition of medical necessity and is considered **not medically necessary** for any indication (see [Definition of Medical Necessity](#), criterion I.D.);
- B. Cryoablation (i.e., cryostripping or cryofreezing);
- C. Mechanochemical Endovenous Ablation (MOCA) (e.g., Clarivein) ;
- D. Catheter-assisted vein sclerotherapy (KAVS);
- E. Repeat venous studies using duplex ultrasound (*with the exception of criterion X.*) within 6 months of the most recent treatment in the absence of new symptoms.

XIII. The following treatments are considered **cosmetic**:

- A. Treatment of telangiectasias or reticular veins

- B. Treatment of asymptomatic varicose veins
- C. Liquid sclerotherapy (i.e., Asclera)
- D. Photothermal sclerosis (i.e., intense pulsed light source)(e.g., PhotoDerm Vasculight).

Link to [Evidence Summary](#)

POLICY CROSS REFERENCES

None

The full Company portfolio of current Medical Policies is available online and can be [accessed here](#).

POLICY GUIDELINES

DOCUMENTATION REQUIREMENTS

In order to determine the medical necessity of the request, the following documentation must be provided at the time of the request. Medical records to include documentation of all of the following:

- Color photos (clear and interpretable quality) that demonstrate varicose vein(s)
- Complete duplex studies including vein names with measurements of seconds of reflux and average vein diameters. According to the Intersocietal Accreditation Commission, a complete venous study includes the following:
 - Deep veins: common femoral, mid-femoral, and popliteal
 - Long saphenous vein: SFJ, mid-thigh, knee, and mid-calf
 - Short saphenous vein: SPJ, and mid-calf
 - Perforators: site with seconds of reflux and diameters
 - Branch tributaries: site with seconds of reflux and diameters
 - Varicose veins (varices): diameters
- Complete medical history and physical examination, including the specific activities of daily living impaired, and how this affects daily and/or occupational function
- If required per medical necessity criteria, the conservative therapy treatment plan and the results of this therapy.
- The procedure requested, including:
 - Specific veins to be treated
 - Number of treatment sessions being requested

BACKGROUND

Chronic Venous Disease

According to UpToDate, “chronic venous disease is a common disorder that affects the veins of the legs...normal veins have a series of valves that open and close to direct blood flow from the surface of

the legs to the deep leg veins, from which calf muscles pump blood back to the heart. If the valves within the veins fail to work properly, there is a blockage to normal flow, or the calf muscles cannot pump properly, blood can flow backwards in the veins and pool in the legs.”¹ This pooling of blood can cause mild symptoms, such as itchiness, aching, heaviness in the legs, or dilated veins (e.g., varicose veins), to more severe symptoms, such as swelling of the legs, ankles, or feet, skin color changes, eczema, and chronic ulcers. Patients who develop these more severe symptoms are said to have chronic venous insufficiency.

Chronic venous disease is commonly caused by a blood clot that blocks blood flow, a leg injury or surgery, excess weight or weight gain, and/or standing or sitting for too long. A physical exam and duplex ultrasound is used to diagnose chronic venous disease. Disease management involves “reducing symptoms, such as swelling, treating skin problems, preventing and treating ulcers, and improving blood flow from the legs.” Conservative therapies for chronic venous disease include, leg elevation, exercise, compression therapy, medications, and/or dressings to treat venous ulcers. Surgical therapy or ablation is reserved for patients who do not respond to conservative therapies. The treatment of chronic venous disease is aimed at the prevention of venous ulceration and chronic wound problems.

Table 1. Clinical, Etiologic, Anatomic, and Pathophysiologic (CEAP) Clinical Findings Classification of Chronic Venous Disease of the Lower Extremities:

Clinical Classification	
C0	No visible or palpable signs of venous disease.
C1	• Telangiectasies (confluence of dilated intradermal venules <1 mm in diameter); or • Reticular veins (dilated bluish subdermal veins 1 to 3 mm in diameter).
C2	Varicose veins (subcutaneous dilated veins 3 mm or greater in diameter).
C3	Edema.
C4	Skin changes ascribed to venous disease (e.g., pigmentation, venous eczema, lipodermatosclerosis)
C _{4a}	Pigmentation and eczema.
C _{4b}	Lipodermatosclerosis and atrophie blanche.
C5	Healed venous ulcer.
C6	Active venous ulcer.
Etiologic Classification	
Ec	Congenital
Ep	Primary
Es	Secondary (post-thrombotic)
En	No venous cause identified
Anatomic Classification	
As	Superficial veins
Ap	Perforator veins
Ad	Deep veins
An	No venous location identified
Pathophysiologic Classification	
Pr	Reflux
Po	Obstruction
Pr,o	Reflux and obstruction

Pn	No venous pathophysiology identifiable
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Table 2. Venous Nomenclatures

The following nomenclature was obtained from the Society for Vascular Surgery/American Venous Forum clinical practice guideline on the care of patients with varicose veins and associated chronic venous disease.²

Vein	Description
Greater saphenous vein (GSV)	Originates from the medial superficial veins of the dorsum of the foot and ascends in front of the medial malleolus along the medial border of the tibia, net to the saphenous nerve.
Small saphenous vein (SSV)	Originates from the lateral side of the foot and drains blood into the popliteal vein, joining it usually just proximal to the knee crease.
Anterior accessory saphenous veins (AASV)	Originates at the anterior distal to mid-thigh and courses toward the saphenofemoral junction over the anterior proximal thigh.
Perforator veins	Connect the superficial to the deep venous system. They pass through the deep fascia that separates the superficial compartment from the deep.

Table 3. Terminology

The following terminology was obtained from the American Venous Forum and the transatlantic interdisciplinary consensus document on the terminology of chronic venous disorders.³

Term	Definition
Chronic venous disease (CVD)	(Any) morphological and functional abnormalities of the venous system of long duration manifested either by symptoms and/or signs indicating the need for investigation and/or care.
Chronic venous insufficiency	CEAP C3-C6; A term reserved for advanced CVD, which is applied to functional abnormalities of the venous system producing edema, skin changes, or venous ulcers.
Venous symptoms	Complaints related to venous disease, which may include tingling, aching, burning, pain, muscle cramps, swelling, sensations of throbbing or heaviness, itching skin, restless legs, leg-tiredness and/or fatigue. Although not pathognomonic, these may be suggestive of chronic venous disease, particularly if they are exacerbated by heat or dependency in the day's course, and relieved with leg rest and/or elevation. Existing venous signs and/or (non-invasive) laboratory evidence are crucial in associating these symptoms with CVD.
Venous signs	Visible manifestations of venous disorders, which include dilated veins (telangiectasia, reticular veins, varicose veins), leg edema, skin changes, ulcers, as included in the CEAP classification.

Recurrent varices	Reappearance of varicose veins in an area previously treated successfully.
Residual varices	Varicose veins remaining after treatment.
Venous valvular incompetence	Venous valve dysfunction resulting in retrograde venous flow of abnormal duration.
Venous reflux	Retrograde venous flow of abnormal duration in any venous segment.
<i>Primary</i>	Caused by idiopathic venous valve dysfunction.
<i>Secondary</i>	Caused by thrombosis, trauma, or mechanical, thermal, or chemical etiologies.
<i>Congenital</i>	Caused by the absence or abnormal development of venous valves.

Ligation/Excision/Stripping

According to the Society of Vascular Surgery and the American Venous Forum, “open surgical treatment of varicose veins with ligation and stripping of the great saphenous vein (GSV) or small saphenous vein (SSV), combined with excision of large varicose veins, has been the standard of care of varicose vein treatment for more than a century.”² Ligation involves the surgical tying off of the GSV. Ligation is also sometimes performed with stripping (also known as phlebectomy), which is the removal of this vein through incisions in the leg. If some of the valves in the GSV are still healthy just the weak portion of the vein can be ligated. If all the valves are weak, the vein is closed off by ligation and removed through stripping. This procedure is aimed at reducing the pressure of backward flow through the GSV; therefore, reducing the symptoms associated with chronic venous disease.

Subfascial Endoscopic Perforator Vein Surgery (SEPS)

SEPS is a minimally invasive alternative to open subfascial perforator vein surgery. “The procedure is used for patients with either healed or active ulcers (CEAP classifications 5 or 6), caused by chronic venous insufficiency, in whom incompetent calf perforating veins are thought to be an important contributing factor, particularly where conservative management (such as leg elevation, compression therapy and medication) has failed.”⁴ During the operation, the limb is elevated and two ports are placed in the subfascial space in the calf. A balloon is then introduced and inflated to improve access to the vein. The incompetent perforator veins are then clipped and removed.

Ambulatory Phlebectomy

Ambulatory phlebectomy involves the removal or avulsion of varicose veins through small stab wounds or puncture wounds.² A solution is injected under the skin to transilluminate the subcutaneous tissues under the varicose veins. Once the varicose veins are removed, compression bandage or compression stockings are applied to promote healing.

Endovenous Ablation (Laser, Thermal, or Radiofrequency)

According to the Society for Vascular Surgery and the American Venous Forum, “during the past decade, endovenous thermal ablation has largely replaced the classic ligation and stripping operation, and open surgery for saphenous incompetence is performed much less frequently in the United States.”² Ablation of the saphenous veins is minimally invasive and has several advantages over standard open surgery. The procedure is done under local anesthesia and ultrasound guidance. Endovenous ablation includes

laser and radiofrequency modalities. “Ablation is achieved by heat delivered into the vein through the percutaneously placed laser fiber or a radiofrequency catheter. Endovenous thermal ablation causes a direct thermal injury to the vein wall, resulting in destruction of the endothelium, collagen denaturation of the media, and fibrotic and thrombotic occlusions of the vein.”

Sclerotherapy (Liquid, Foam, or Microfoam)

The Society for Vascular Surgery and the American Venous Forum define sclerotherapy as a “minimally invasive percutaneous technique using chemical irritants to close unwanted veins.”² Ultrasound guided foam sclerotherapy has rapidly spread for the treatment of varicose veins, including the GSV, SSV, and perforator veins. “The mechanism of action of sclerosing solutions is the destruction of venous endothelial cells, exposure of subendothelial collagen fibers, and ultimately, the formation of a fibrotic obstruction.” Sclerosing agents can be injected as a liquid or foam; however, the foam solution prolongs the time of contact and amplifies the effect of the chemicals. Sclerotherapy can be performed in one outpatient session, and compression therapy is recommended for one week following treatment. Sclerotherapy is commonly performed with endovenous ablation using a staged treatment approach.

REGULATORY STATUS

U.S. FOOD AND DRUG ADMINISTRATION (FDA)

Approval or clearance by the Food and Drug Administration (FDA) does not in itself establish medical necessity or serve as a basis for coverage. Therefore, this section is provided for informational purposes only.

Several devices and drugs have been approved for the treatment of varicose veins by the U.S. FDA under the premarket approval (PMA) or 510(k) premarket notification process. This list is not all inclusive. See the FDA PMA or 510(k) databases for further information.

Table 4: Devices

Device & Manufacturer	Indications for Use
ClariVein® Infusion Catheter by Vascular Insights ⁵	The ClariVein® IC is indicated for infusion of physician specified agents in peripheral vasculature.
ERBECRYO 2 Cryosurgical Unit by ERBE USA, Inc. ⁶	The ERBECRYO 2 Cryosurgical Unit and Accessories are intended for devitalization (destruction) of tissue during surgical procedures by the application of extreme cold and for removal of foreign bodies, mucous plugs, necrotic tissue, and tissue biopsy by cryoadhesion. Including, but not limited to, varicose veins of the lower limbs (cryo stripping).
Diomed Surgical Laser and Endovenous Laser Therapy (EVLT) Procedure Kit by Diomed, Ltd. ⁷	The Diomed Delta 15 and Diomed Delta 30 Lasers are intended for use in delivering up to 15 or up to 30 Watts, respectively, of continuous wave or pulsed radiation to a flexible optical fiber or spot handpiece for use in ablation, incision, excision, coagulation and vaporisation of soft tissues in open and endoscopic surgical procedures, including EndoVenous Laser Treatment (EVLT).

VNUS Radiofrequency Generator by VNUS Medical Technologies, Inc. ⁸	The VNUS Radiofrequency Generator is intended for use with VNUS radiofrequency devices intended for vessel and tissue coagulation. The specified predicate devices are indicated for "coagulation of blood vessels in patients with superficial vein reflux" (VNUS Closure System), and "vessel and tissue coagulation" (VNUS Vessel and Tissue Coagulation System).
TriVex System™ by LeMaitre Vascular (formerly Smith & Nephew) ⁹	The TriVex System™ is indicated for use in ambulatory phlebectomy procedures for the resection and ablation of varicose veins.

Table 5: Drugs

Product & Manufacturer	Indications for Use	Contraindications for Use
Varithena™ by Biocompatibilities Inc. (formerly Varisolve™) ¹⁰	Varithena™ (polidocanol injectable foam) is a sclerosing agent indicated for the treatment of incompetent great saphenous veins, accessory saphenous veins and visible varicosities of the great saphenous vein system above and below the knee. Varithena™ improves the symptoms of superficial venous incompetence and the appearance of visible varicosities.	• Known allergy to polidocanol • Acute thromboembolic disease
Asclera™ by Merz North America, Inc. ¹¹	Asclera™ (polidocanol) is a sclerosing agent indicated to treat uncomplicated spider veins (varicose veins ≤1 mm in diameter) and uncomplicated reticular veins (varicose veins 1 to 3 mm in diameter) in the lower extremity. It has not been studied in larger varicose veins > 3 mm in diameter.	• Known allergy to polidocanol • Acute thromboembolic disease
VenaSeal Closure System by Covidien LLC. ¹²	The VenaSeal Closure System (VenaSeal system) is indicated for use in the permanent closure of lower extremity superficial truncal veins, such as the great saphenous vein (GSV), through endovascular embolization with coaptation. The VenaSeal system is intended for use in adults with clinically symptomatic venous reflux as diagnosed by duplex ultrasound (DUS).	• Separate use of the individual components of the VenaSeal Closure System is contraindicated. These components must be used as a system. • The use of the VenaSeal system is contraindicated when any of the following conditions exist: ○ Previous hypersensitivity reactions to the VenaSeal adhesive or cyanoacrylates; ○ Acute superficial thrombophlebitis; ○ Thrombophlebitis migrans;

		○ Acute sepsis exists.
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CLINICAL EVIDENCE AND LITERATURE REVIEW

EVIDENCE REVIEW

A review of the ECRI, Hayes, Cochrane, and PubMed databases was conducted regarding the use of ligation, subfascial endoscopic perforator vein surgery, ambulatory phlebectomy, endovenous ablation, and sclerotherapy as a treatment for varicose veins and chronic venous insufficiency due to chronic venous disease. Below is a summary of the available evidence identified through December 2025.

Medically Necessary Treatments

- In 2021, Hayes conducted a review of reviews comparing the effectiveness of endovenous radiofrequency ablation (EVRFA) compared to conventional surgery for the treatment of symptomatic varicose veins.¹³ Systematically searching the literature through October 2017, investigators assessed 4 systematic reviews and 4 primary studies (2 RCTs and 2 observational studies). Sample sizes in the RCTs ranged from 8 to 250; the 2 observational studies had sample sizes of 4366 and 131,887 patients. Outcomes of interest included failure of the procedure, technical recurrence, symptomatic recurrence, reintervention, changes in symptom scores measured by validated scales, quality of life and adverse events. Follow-up varied up to 5 years. Results from a “low-quality body of evidence” suggested that EVRFA is at least as effective for many outcomes compared to surgery, and is associated with less postoperative pain and faster recovery than conventional surgery. Evidence was mixed for patient-centered outcomes and quality of life. Limitations of the evidence included the small number of studies reporting some outcomes, lack of reporting of statistical test results, and methodological limitations of individual studies. Hayes ultimately assigned a “C” rating (potential but unproven benefit) for use of EVRFA as an alternative to conventional surgery for treating symptomatic varicose veins in adults without contraindications. Hayes concluded that questions remained regarding EVRFA’s long-term safety and durability.
- In 2017, the Washington State Health Care Authority published a review of reviews evaluating the safety and efficacy of various treatments for varicose veins.¹⁴ Searching the literature through March 2017, 23 publications were included for review (8 systematic reviews and 15 publications of primary data not already included in 1 or more of the systematic reviews.) Interventions of interest included EVLA, endovascular RFA, sclerotherapy (i.e., liquid or foam chemical ablation), ambulatory phlebectomy (i.e. stab phlebectomy or microphlebectomy.) Outcomes of interest included failure of the procedure, second or additional procedures after failure of initial procedure, technical recurrence, symptomatic recurrence, quality of life and adverse events. Each systematic review was assessed to be of “good quality.” Overall, evidence suggested that EVLA was at least as effective as conventional surgery in the treatment of varicose veins for many clinical and patient-centered outcomes. Evidence also suggested that EVLA, EVRFA and sclerotherapy were relatively safe compared with surgery. No studies comparing ambulatory phlebectomy to surgery met inclusion criteria, although phlebectomy may have been an adjunctive treatment in studies of the other interventions. Limitations included not providing a list of excluded studies and missing details about the quality of individual and/or the body of evidence. Individual studies were limited in quality and quantity and the limited availability of appropriate data to pool for analyses. In its “final findings and decisions” document,¹⁵ investigators stated that EVLA, EVRFA and ambulatory phlebectomy should

be conditionally covered benefits. Indications (required to be present) demonstrated reflux in the affected vein, with a minimum of 3 months of symptoms of pain and/or swelling, and for tributary varicose veins and a diameter of more than 3 mm.

- In 2017, He and colleagues conducted a systematic review and meta-analysis to investigate and compare the relative efficacy, recurrence, and complications of endovenous laser ablation (EVLA) and radiofrequency ablation (RFA) for the treatment of varicose veins.¹⁶ Independent reviewers systematically identified eligible studies, assessed quality, and extracted data. Study authors were also contacted, if necessary, for additional information or data. The primary outcome of interest was pain and quality of life (QOL). The secondary outcome of interest was complications, including vein occlusion, thrombophlebitis, hematoma, and recanalization.

Following systematic review, the authors identified 12 studies (10 randomized controlled trials and 2 cohort studies) as eligible for inclusion; thus producing a total sample size of 1,577 patients. Meta-analysis indicated no statistically significant differences between EVLA and RFA for 3 day pain scores, 10 day pain scores, 1 month QOL, and 1 year QOL. "RFA was associated with the lower overall complication (OR: 3.49, 95%CI:1.36 to 8.96) in patients with varicose veins compared to the EVLA treatment."¹⁶

Strengths of this systematic review include the gathering of evidence, assessment of quality, and extraction of data by several independent reviewers, large sample size, and assessment of heterogeneity. Limitations were identified in the poor quality of included studies, potential for biases, and significant heterogeneity between studies. "EVLA and RFA seem to be the same safe and effective on clinical efficacy (vein ablated length, 3 days and 10 days pain scores, 1 month and 1 year quality of life, occlusion, thrombophlebitis, haematoma and recanalization)."¹⁶

- In 2021, Hayes published an evidence review of systematic reviews to evaluate the effectiveness of endovenous laser therapy versus conventional surgery for symptomatic varicose veins.¹⁷ The primary outcome measures were failure of the procedure, technical recurrence, symptomatic recurrence, reintervention, changes in symptom scores measured by validated scales (e.g., Venous Clinical Severity Score [VCSS]); patient satisfaction; quality of life; time to return to work or normal activity; postoperative pain; adverse events. A total of 21 unique studies from the systematic reviews were identified, representing a sample of 136,930 patients (patients and/or limbs enrolled, not necessarily number of patients analyzed). Studies included adults aged 37.6 to 54 years with symptomatic, unilateral or bilateral, superficial, primary great saphenous vein (GSV) and/or small saphenous vein (SSV) insufficiency with saphenofemoral incompetence assessed as CEAP clinical class C₂ or higher.

The authors reported the following conclusions:

- There is moderate-quality evidence that technical failure is similar or reduced with EVLA compared with conventional surgical techniques.
- There is moderate-quality evidence that EVLA is similar to conventional surgical techniques with respect to technical recurrence.
- There is moderate-quality evidence of no difference in symptomatic recurrence between EVLA and conventional surgery.

- The evidence suggests no difference in disease severity measures between EVLA and conventional surgery.
- There is very low quality and inconsistent evidence on the outcomes of postoperative pain and time to return to work or normal activity.
- Evidence of moderate quality suggests no difference between EVLA and conventional surgical techniques for treating varicose veins with respect to QOL scores.
- There is low-quality evidence of no difference between EVLA and conventional surgery with respect to proportion of patients requiring reintervention either because of technical failure or because of recurrence after successful initial treatment.
- Complication rates were generally low and few statistically significant differences were reported for EVLA compared with surgery.

Hayes gave a B rating for EVLA as an alternative to conventional surgery for treating symptomatic varicose veins in adult patients. This rating is based on “moderate-quality evidence suggests that EVLA is at least comparable with conventional surgery in the treatment of varicose veins for some clinical, patient-centered, and safety outcomes.”

- In 2024, ECRI published a clinical evidence assessment on Varithena injectable foam (Boston Scientific Corp.) for treating varicose veins.¹⁸ The review included 4 randomized controlled studies and one retrospective single-centered case series. Three of the RCTs compared Varithena with placebo and one compared Varithena with surgery or other sclerotherapy. RCTs found better symptom improvement compared to placebo or other sclerotherapy, but symptom relief was better improved by high-ligation surgery at 3-month and 12-month follow up. Limitations of these studies included open-label RCT in one study, single-arm studies, small sample sizes, short-term follow up in 4 studies, retrospective design of one study, and an unclear reporting in one RCT. ECRI concluded that evidence is somewhat favorable for Varithena Injectable Foam for treating varicose veins.
- In 2022, Hayes updated a health technology assessment (originally published in 2015) evaluating the safety and efficacy of polidocanol endovenous Microfoam (PEM) (i.e. Varithena) 1% for treatment of varicose veins.¹⁹ Six unique clinical studies that evaluated the efficacy or safety of PEM 1% in treating varicose veins were considered (n = 7 to 399). Two fair-quality randomized controlled trials, 3 poor-quality RCTs, and 1 very-poor-quality retrospective case series comprised the evidence base. The authors concluded that PEM 1% is a minimally invasive, nonsurgical treatment alternative for varicose veins that may provide relief of symptoms, though well-designed, non-manufacturer funded RCTs are needed to better understand durability and benefits, as well as optimal patient selection criteria. The updated Hayes report concluded use of polidocanol endovenous microfoam (PEM) 1% for treating incompetent great saphenous veins, accessory saphenous veins, and visible varicosities above and below the knee in adults to have a C-rating.
- In 2017, Yin and colleagues conducted an RCT comparing the efficacy of ultrasound-guided foam sclerotherapy plus great saphenous vein (GSV) high ligation (n =73) to stripping plus multi-stab avulsion or transilluminated powered phlebectomy (TIPP) of the great saphenous vein (n=90).²⁰ Follow-up was 12 months. Primary outcomes of interest included venous filling index, Venous Clinical Severity Score, and Aberdeen Varicose Vein Questionnaire Score, reflux recurrence rates and complication rates. Patients improved across all outcomes compared to baseline, and did not significantly differ between groups. Patient satisfaction, operating times and hospital costs were more favorable among patients receiving ultrasound guided foam sclerotherapy. Limitations

included small sample size, lack of long-term follow-up, and loss to follow-up in the phlebectomy group (18%, n=74/90). While investigators concluded that ultrasound-guided foam sclerotherapy with GSV high ligation was a safe and effective treatment for severe lower extremity varicosis, authors also stated that larger RCTs with long-term follow-up were needed to validate results.

- Two recent retrospective studies evaluating the safety and efficacy of TIPP.²¹ One study assessed 979 limbs and conducted multivariable logistic regression to evaluate the relationship between procedure type and complications, controlling for patient characteristics, severity of disease, pre-operative anticoagulation and post-operative compression.²¹ Investigators found that Venous Clinical Severity Scores improved more with radiofrequency ablation (RFA) plus TIPP when compared to RFA alone (3.8 ± 3.4 vs. 3.2 ± 3.1 , $p = 0.018$). No significant difference was reported between RFA plus TIPP versus RFA alone for deep venous thrombosis, asymptomatic endovenous heat-induced thrombosis or infection. Another study, assessing 1,034 patients at 12-year follow-up reported that all TIPP procedures were technically successful, with zero patients requiring conversion to hook stab phlebectomy, and few adverse events.²² Limitations included the studies' retrospective design, the lack of data from more than one center, the lack of randomization, heterogeneous patient populations, and the lack of a control group, all of which preclude a full determination of TIPP's true efficacy. Investigators from both studies concluded that TIPP appears to be a safe and effective procedure, either when used as an adjunct to RFA or alone.

Non-Medically Necessary Treatments

Endovenous Mechanochemical Ablation (MOCA)

- In 2025, Hayes conducted a health technology assessment to evaluate endovenous mechanochemical ablation (MOCA) (ClariVein® Infusion Catheter) for the treatment of varicose veins.²³ The literature search identified 7 studies (n=118-395 patients/limbs) published in 9 articles that evaluated MOCA using the ClariVein catheter for the treatment of varicose veins. Studies included 4 randomized controlled studies (RCTs) reported in 6 articles, 2 retrospective comparative studies, and 1 single-arm pretest-posttest study. The studies presented an overall low-quality body of evidence, but suggested that MOCA for the treatment of symptomatic varicose veins appears safe and effective. The outcomes of interest included pain, clinical severity, quality of life (QOL), safety, and rate of venous occlusion. Hayes gave a "C" rating (potential but unproven benefit) for use of mechanochemical endovenous ablation (MOCA) (ClariVein Infusion Catheter) for treatment of symptomatic varicose veins. This Rating reflects a low-quality body of consistent evidence suggesting that MOCA for treatment of symptomatic varicose veins appears to be safe and efficacious in the short term. However, substantial uncertainty remains regarding the appropriate patient population, treatment parameters, and long-term durability of the procedure. Hayes urged for additional well-designed trials with larger sample sizes that directly compare MOCA using ClariVein catheter with clinical alternatives over an extended period are needed.
- In 2021, Alosai and colleagues published a systematic review and meta-analysis of mechanochemical endovenous ablation using Flebograft for varicose veins.²⁴ Five articles were included in the analysis, totalling 348 procedures in 392 patients. One study was an RCT, one study was a prospective comparative study, and 3 were prospective case-series. Four studies reported the 3-month anatomic success, and 3 studies reported the 12-month anatomic success. The pooled 3-month anatomic success rate was 95.6% (95% CI, 93.2%-98.0%). The 12-month anatomic success rate was 93.2%

(95% CI, 90.3%-96.1%). The only major complication reported within 3 months was deep vein thrombosis, which developed in 0.3% of the patients. The minor complications of thrombophlebitis and hyperpigmentation had occurred in 13.3% to 14.5% and 3.3% to 10.0% of patients, respectively, within 3 months.

Limitations of this review include the following:

- Clinical success, pain reduction, and QOL were not assessed
- Four of 5 studies were not randomized or blinded, high risk of bias
- Three studies had no comparator groups
- Small sample sizes
- Short term follow up

The authors concluded that MOCA using the Flebogrif device is safe and well-tolerated for saphenous vein insufficiency, but well-designed studies of sufficient sample size and follow-up are needed to compare effectiveness against other standard treatments.

Cryoablation

Randomized Controlled Trials (RCTs)

In 2008 through 2011, Disselhoff et al. conducted an RCT to compare endovenous laser ablation with cryostripping for great saphenous varicose veins.^{25,26} A total of 120 patients with great saphenous varicose veins were randomized 1:1 to endovenous laser ablation or cryostripping. "Principal outcomes measures were: freedom from recurrent varicose veins on duplex imaging, and improvement in Venous Clinical Severity Score (VCSS) and Aberdeen Varicose Vein Severity Score (AVVSS) 6, 12 and 24 months after treatment."²⁵

At 5-year follow-up, the results indicated no statistically significant difference between EVLA and cryostripping for freedom from recurrent varicose veins. Neovascularization was more common after cryostripping; however, incompetent tributaries were more common after EVLA. Both treatment groups showed significant improvement in VCSS and AVVSS throughout 5 years; however, the improvements were not statistically significant.

Methodological strengths of this study include the randomized, controlled design using a comparator group with an extended follow-up period. However, significant limitations are present in the small sample size, high attrition (31% of patients lost to follow-up at 5-years), and lack of intention to treat analysis. Although the authors concluded there is no significant differences between EVLA and cryostripping, further studies of good methodological quality are required to support the efficacy, safety, and medical necessity of this treatment for varicose veins.

Nonrandomized Studies

The evidence review identified three nonrandomized studies evaluating cryoablation for the treatment of varicose veins.²⁷⁻²⁹ Although these studies suggest cryoablation may be efficacious for the treatment of varicose veins, the validity of these conclusions is significantly limited due to the poor study quality. All studies have very small sample sizes short follow-up periods. Further studies of good methodological

quality are required to support the efficacy, safety, or medical necessity of cryoablation to treat varicose veins.

Cyanoacrylate Adhesive

Systematic Reviews

- In 2025, Hayes published a new health technology assessment regarding the use of cyanoacrylate embolization with the VenaSeal Closure System for the treatment of varicose veins in patients with symptomatic venous reflux disease.³⁰ In a comprehensive review of the literature, the authors included 9 studies (across 13 publications) in their review. They rated the overall body of evidence as low-quality, comprised of 1 good and 2 fair-quality RCTs, and 6 retrospective comparative studies that rated very poor quality. Patients included adults with clinically symptomatic venous reflux as diagnosed by duplex ultrasound. Collectively, the studies suggested that the VenaSeal Closure System may result in reduced symptom severity, improved QOL, and high venous occlusion rates. Given the current paucity of data, well-designed trials comparing the VenaSeal System with other endovenous techniques are needed. Hayes gave this technology a “C” rating (potential but unproven benefit).
- In 2021, ECRI published a clinical evidence assessment on VenaSeal Closure System (Medtronic) for embolizing varicose veins.³¹ The review included one systematic review of 20 randomized controlled trials (n=4570) comparing VenaSeal with EVLA, RFA, MOCA, sclerotherapy, and surgery. The review also included one RCT (n=222) comparing VenaSeal to RFA, and 3 retrospective observational studies. The systematic review and 2 retrospective studies reported successful embolization compared to other treatments or before-procedure results. The RCT found no difference between VenaSeal and RFA at 36-month follow up. Both the systematic review and one retrospective study reported less intraoperative pain with VenaSeal than RFA or other procedures. The systematic review found lower adverse events with VenaSeal than any other treatment, and the RCT found fewer events than RFA. Among the retrospective studies, one found fewer events than RFA, while the other found no significant differences in adverse events. Limitations of this review include:
 - The systematic review had short follow up of 6 months
 - Only 108 participants in the systematic review were treated with VenaSeal
 - The RCT did not blind, high risk of bias
 - Retrospective, single-center observational study design for 3 studies
 - One retrospective study had no comparator groupECRI concluded that the evidence is somewhat favorable for the VenaSure closure system for embolizing varicose veins.
- In 2017, Vos and colleagues conducted a systematic review and meta-analysis evaluating the safety and efficacy of mechanochemical endovenous ablation (MOCA) and cyanoacrylate vein ablation (CAVA) for treatment of great saphenous vein (GSV) incompetence.³² Independent investigators systematically searched the literature for prospective studies through December 2016, identified eligible studies, assessed study quality, extracted data and pooled results. The primary outcome of interest was anatomic success. Secondary outcomes of interest were initial technical success, Venous Clinical Severity Score (VCSS), Aberdeen Varicose Vein Questionnaire Score (AVVQS), and complications. In total, 15 studies were included for review. Pooled anatomic success for MOCA and CAVA were calculated at 94.1% and 89.0% respectively, at 1-year follow-up. VCSS and AVVQS scores

improved significantly for both groups' patients compared to baseline, with no significant difference between groups. Limitations included the limited quantity and quality of studies included for review, manufacturer-funding, lack of long-term follow-up, and heterogeneity of patient populations, and outcome measures. Investigators concluded that both MOCA and CAVA appeared effective, but that additional high-quality RCTs were needed to better determine their potential role in clinical practice.

Randomized Controlled Trials

- In 2018, Gibson and colleagues published results at 2-year follow-up from an RCT comparing the safety and efficacy of cyanoacrylate embolization (CAE) to radiofrequency ablation (RFA) for the treatment of incompetent great saphenous veins.³³ In total, 222 patients were randomly assigned to receive either CAE (n=108) or RFA (n=114). Outcomes of interest included treatment success, VCSS, AVVQS and patient-reported quality of life. At 24-month follow-up, the complete closure rate was 95.3% in the CAE group and 94% in the RFA group. Symptoms and quality of life improved similarly in both groups. No clinically significant device- or procedure-related late adverse events were reported. Investigators conclude that both treatments produced statistically and clinically significant improvements in VCSS and quality of life measurements. Limitations include the study's small sample size, lack of long-term follow up, substantial loss to follow-up among both groups (26% in the RFA group and 19% in the CAE group), potential for confounding from patients' adjunctive treatment regimens, and author's conflicts of interest with VenaSeal's manufacturer.
- In 2015, Morrison et al. conducted a RCT to compare cyanoacrylate embolization (CAE) and radiofrequency ablation (RFA) for incompetent great saphenous veins (GSV).³⁴ A total of 222 subjects with symptomatic GSV incompetence were randomly assigned to receive CAE (n=108) or RFA (n=114). The primary outcome of interest was closure of the target vein at 3 months' follow-up. Secondary outcomes of interest included pain during vein treatment, extent of ecchymosis (bruising) at 3 days' follow-up, general and disease specific quality of life (QOL), and adverse events.

At 3 months' follow-up, the reported vein closure rates were 99% for CAE and 96% for RFA (no statistically significant difference). No statistically significant differences between groups were identified for the outcome of pain during vein treatment. Patients who underwent treatment with CAE had statistically significantly less ecchymosis in the treated region compared with RFA. Both groups reported similar rates for all other adverse events.

Strengths of this study included the randomized, controlled design using a comparator group. However, significant methodological limitations are present in the small sample size and short follow-up period. The authors concluded that CAE is non-inferior to RFA for the treatment of incompetent GSVs at 3 months follow-up; therefore, further studies of good methodological quality are required in order to establish the safety, effectiveness, and medical necessity of this treatment for varicose veins.

Catheter-Assisted Vein Sclerotherapy (KAWS)

In 2020, Lim and colleagues conducted a systematic review and meta-analysis assessing the safety and efficacy of catheter-directed foam sclerotherapy as an alternative to ultrasound-guided foam sclerotherapy for varicose vein treatment.³⁵ Authors systematically searched the literature extracting

outcomes of catheter-directed foam sclerotherapy and ultrasound-guided foam sclerotherapy to determine the pooled proportion of complete ablation rates, using a random effect meta-analysis model. In total, 62 studies (n=3689), were included for review. Higher rates of complete ablation were reported in catheter-directed foam sclerotherapy compared to ultrasound-guided foam sclerotherapy during the short- and medium-term follow-ups. Additionally, fewer major and minor complications were also reported in patients who underwent catheter-directed foam sclerotherapy. Authors nonetheless called for additional, high-quality studies to validate these findings.

CLINICAL PRACTICE GUIDELINES

American Venous Forum, Society for Vascular Surgery, American College of Phlebology, Society for Vascular Medicine, and International Union of Phlebology

The Guidelines Committee of the American Venous Forum (AVF) tasked a multi-organizational group with a joint review of the available evidence and requested guidelines recommendations regarding compression therapy after invasive treatment of superficial veins. In 2019, guidelines were published after a review and evaluation of the evidence base using GRADE methodology.³⁶

Summary

Guideline 1.1: Compression after thermal ablation or stripping of the saphenous veins.

When possible, we suggest compression (elastic stockings or wraps) should be used after surgical or thermal procedures to eliminate varicose veins. [GRADE - 2; LEVEL OF EVIDENCE - C]

Guideline 1.2: Dose of compression after thermal ablation or stripping of the varicose veins.

If compression dressings are to be used postprocedurally in patients undergoing ablation or surgical procedures on the saphenous veins, those providing pressures >20 mm Hg together with eccentric pads placed directly over the vein ablated or operated on provide the greatest reduction in postoperative pain. [GRADE - 2; LEVEL OF EVIDENCE - B]

Guideline 2.1: Duration of compression therapy after thermal ablation or stripping of the saphenous veins.

In the absence of convincing evidence, we recommend best clinical judgment to determine the duration of compression therapy after treatment. [BEST PRACTICE]

Guideline 3.1: Compression therapy after sclerotherapy.

We suggest compression therapy immediately after treatment of superficial veins with sclerotherapy to improve outcomes of sclerotherapy. [GRADE - 2; LEVEL OF EVIDENCE - C]

Guideline 3.2: Duration of compression therapy after sclerotherapy.

In the absence of convincing evidence, we recommend best clinical judgment to determine the duration of compression therapy after sclerotherapy. [BEST PRACTICE]

Guideline 4.1: Compression after superficial vein treatment in patients with a venous leg ulcer.

In a patient with a venous leg ulcer, we recommend compression therapy over no compression therapy to increase venous leg ulcer healing rate and to decrease the risk of ulcer recurrence. [GRADE - 1; LEVEL OF EVIDENCE - B]

Guideline 4.2: Compression after superficial vein treatment in patients with a mixed arterial and venous leg ulcer.

In a patient with a venous leg ulcer and underlying arterial disease, we suggest limiting the use of compression to patients with ankle-brachial index exceeding 0.5 or if absolute ankle pressure is >60 mm Hg. [GRADE - 2; LEVEL OF EVIDENCE - C]

Intersocietal Accreditation Commission (IAC)

In 2025, the Intersocietal Accreditation Commission (IAC) published the following standards and guidelines on vascular testing for accreditation.³⁷

4.7.2B Lower Extremity Venous Duplex for Reflux

4.7.2.1B Transverse grayscale images without and with transducer compressions (when anatomically possible or not contraindicated) must be documented as required by the protocol and must include at a minimum:

- i. common femoral vein;
- ii. saphenofemoral junction;
- iii. proximal femoral vein
- iv. mid femoral vein;
- v. distal femoral vein
- vi. great saphenous vein;
- vii. popliteal vein;
- viii. small saphenous vein;
- ix. additional images to document areas of suspected reflux and as required by the protocol.

4.7.2.2B Spectral Doppler waveforms with the extremity(s) in a dependent position, demonstrating baseline flow and response to distal augmentation. If present, reflux duration of retrograde flow must be measured with calipers and documented as required by the protocol and must include at a minimum:

- i. common femoral vein;
- ii. saphenofemoral junction;
- iii. great saphenous vein at proximal thigh;
- iv. great saphenous vein at knee
- v. great saphenous vein below the knee
- vi. femoral vein mid-thigh
- vii. popliteal vein;

- viii. anterior accessory saphenous vein (when identified);
- ix. small saphenous vein at saphenopopliteal junction of the deep system (when visualized);
- x. small saphenous vein at mid calf;
- xi. Perforator vein waveforms in the setting of active or healed venous ulcers, as required by the protocol;
- xii. Additional waveforms as required by the protocol.

4.7.2.3B Transverse grayscale images of diameter measurement must be documented as with the extremity(s) in a dependent position and must include at a minimum:

- i. saphenofemoral junction;
- ii. great saphenous vein at proximal thigh;
- iii. great saphenous vein at knee;
- iv. anterior accessory saphenous vein (when identified);
- v. small saphenous vein at the saphenopopliteal junction (when visualized). If not visualized there, the small saphenous vein at mid calf must be documented.

National Institute for Health and Care Excellence (NICE)

- In 2020, NICE published guidelines on cyanoacrylate glue occlusion for varicose veins. They gave the following recommendations:³⁸
 - “Evidence on the safety and efficacy of cyanoacrylate glue occlusion for varicose veins is adequate to support the use of this procedure provided that standard arrangements are in place for clinical governance, consent and audit.
 - The procedure should only be done by clinicians with appropriate training in this procedure and experience in the use of venous ultrasound.”

American College of Radiology (ACR)

The 2023 ACR evidence-based appropriateness criteria for the radiologic management of lower-extremity chronic venous insufficiency disease gave the following recommendations:³⁹

- Endovenous laser or radiofrequency ablation for left small saphenous venous insufficiency causing intermittent pain and swelling without skin discoloration or ulceration.
- Endovenous laser or radiofrequency ablation for left great saphenous venous insufficiency with associated lower leg skin ulceration; compression stockings alone are inadequate.
- Compression stocking therapy only for symptomatic bilateral great saphenous venous insufficiency and large visible varicose veins during pregnancy; reassess after delivery.
- Compression stocking therapy only for chronic left femoral venous thrombosis with left great saphenous venous insufficiency and lower-extremity swelling; endovenous or surgical options are not appropriate.
- Compression stockings, endovenous laser, or radiofrequency therapy for symptomatic bilateral great saphenous venous insufficiency with remote history of deep venous thrombosis and no residual thrombus present; increased risk for recurrence noted.

- Endovenous laser or radiofrequency therapy for right great saphenous venous insufficiency status post vein stripping 1 year ago with persistent swelling and reflux in below-knee segment (≈ 5 mm diameter).

EVIDENCE SUMMARY

There is sufficient evidence to support the treatment of certain symptomatic varicose veins and chronic venous insufficiency using ligation, ambulatory phlebectomy, transilluminated powered phlebectomy, ablation (laser or radiofrequency), and sclerotherapy. The evidence also supports that these treatments improve a patient's function and instrumental activities of daily living. Endovascular embolization with a cyanoacrylate adhesive has similar efficacy to but is more costly than standard treatment and therefore is considered not medically necessary for treating chronic venous insufficiency or varicose veins.

There is insufficient evidence to support the use of catheter-assisted vein sclerotherapy, mechanochemical endovenous ablation or cryoablation to treat varicose veins. Further studies of good methodological quality are required to establish the safety, efficacy, and superiority of these treatments over standard therapies such as ligation, ablation, and sclerotherapy. Therefore, mechanochemical endovenous ablation, cryoablation, or endovascular embolization with a cyanoacrylate adhesive to treat varicose veins is considered not medically necessary.

HEALTH EQUITY CONSIDERATIONS

The Centers for Disease Control and Prevention (CDC) defines health equity as the state in which everyone has a fair and just opportunity to attain their highest level of health. Achieving health equity requires addressing health disparities and social determinants of health. A health disparity is the occurrence of diseases at greater levels among certain population groups more than among others. Health disparities are linked to social determinants of health which are non-medical factors that influence health outcomes such as the conditions in which people are born, grow, work, live, age, and the wider set of forces and systems shaping the conditions of daily life. Social determinants of health include unequal access to health care, lack of education, poverty, stigma, and racism.

The U.S. Department of Health and Human Services Office of Minority Health calls out unique areas where health disparities are noted based on race and ethnicity. Providence Health Plan (PHP) regularly reviews these areas of opportunity to see if any changes can be made to our medical or pharmacy policies to support our members obtaining their highest level of health. Upon review, PHP creates a Coverage Recommendation (CORE) form detailing which groups are impacted by the disparity, the research surrounding the disparity, and recommendations from professional organizations. PHP Health Equity COREs are updated regularly and can be found online [here](#).

BILLING GUIDELINES AND CODING

There is no specific CPT code to report foam sclerotherapy; therefore, this procedure might be billed with codes for sclerotherapy (36470, 36471) or the unlisted vascular procedure code (37799).

There is no specific CPT code to report stab phlebectomy of varicose veins, one extremity; less than 10 incisions. Therefore, this procedure might be billed with the unlisted vascular procedure code (37799).

HCPCS code S2202 is not recognized as a valid code for claim submission as indicated in the relevant Company Coding Policy (*HCPCS S-Codes and H-Codes*, 22.0). Providers need to use alternate available CPT or HCPCS codes to report for this service. If no specific CPT or HCPCS code is available, then an unlisted code may be used. Note that unlisted codes are reviewed for medical necessity, correct coding, and pricing at the claim level. Thus, if an unlisted code is billed related to a non-covered service addressed in this policy, it will be denied as not covered.

Duplex Scanning

- The CPT codes for duplex scanning (93970 or 93971) may be billed in conjunction with varicose vein treatment codes.
- Duplex scanning must be performed by an accredited vascular lab (e.g., Intersocietal Accreditation Commission [IAC] or American College of Radiology [ACR]).

Table 6: Coding Guidelines for Varicose Vein Procedures

IMPORTANT NOTE: “Health Insurance Portability and Accountability Act (HIPAA) requires that providers use the most current code sets for billing services.” (See the Company Coding Policy, [Service Code Policy, 19.0](#)) “The burden of proof is placed on the provider to substantiate services and/or supplies billed to Company.” (See the Company Coding Policy, [Documentation Guidelines for Medical Services, 58.0](#)).

Procedure	Coding Guideline
Ligation/excision/stripping	CPT codes 37700, 37718, 37722, 37735, 37780, 37785 Additional Notes: • 37700: Do not report 37722 in conjunction with 37700, 37735. Do not report 37735 in conjunction with 37700, 37718, 37722, 37780. Do not report 37700 in conjunction with 37718, 37722. • 37760 is used for an open procedure. For an endoscopic procedure, see SEPS below. • Code selection depends on specific details of the procedure. • For bilateral procedures, if no CPT code exists for multiple legs, then the preferred billing method is one unit using modifier 50; however, bilateral billing may also be seen as two units with RT/LT, or two units (one with -50 and one without).
Endovenous catheter directed chemical ablation with balloon isolation (aka, KAVS)	Category III code 0524T

Foam sclerotherapy (i.e., Varithena™)	There is no specific CPT code to report foam sclerotherapy; therefore, this procedure might be billed with one of the following: - Codes for sclerotherapy (EITHER 36470 or 36471 – NOT both as these codes cannot be reported together) or - Unlisted vascular procedure code (37799).
Liquid sclerotherapy (i.e., Asclera®)	EITHER 36470 or 36471 – NOT both as these codes cannot be reported together
Ambulatory phlebectomy (stab or hook phlebectomy)	37765 <i>Stab phlebectomy of varicose veins, one extremity; 10-20 stab incisions</i> 37766 <i>Stab phlebectomy of varicose veins, one extremity; more than 20 incisions</i> - There is no specific CPT code to report <u>less than 10 incisions</u> using stab phlebectomy of varicose veins. Therefore, this might be billed with the unlisted CPT 37799.
Subfascial Endoscopic Perforating Vein Surgery (SEPS)	CPT code 37760, 37761
Endovenous laser ablation (EVLA; includes EndoVenous laser treatment or EVLT)	36478, 36479
Endovenous radiofrequency ablation/occlusion (EVRT or EVRFA)	36475, 36476
Mechanochemical Endovenous Ablation (MOCA) (e.g., Clarivein)	36473, 36474
Cryoablation (i.e., cryostripping or cryofreezing) (e.g., ERBECRYO 2 Cryosurgical Unit by ERBE USA, Inc)	37799
Treatment of telangiectasias (spider veins)	36468
Photothermal sclerosis (i.e., intense pulsed light source)(e.g., PhotoDerm® Vasculight)	37799
Endovenous Chemical Adhesive (e.g., cyanoacrylate)	36482, 36483
Transilluminated Powered Phlebectomy (TIPP; e.g., TRIVEX™)	37799

CODES*		
CPT	0524T	Endovenous catheter directed chemical ablation with balloon isolation of incompetent extremity vein, open or percutaneous, including all vascular access, catheter manipulation, diagnostic imaging, imaging guidance and monitoring
	1099T	Ablation of incompetent vein(s), extremity, transcutaneous, high intensity–focused ultrasound (HIFU), inclusive of all imaging guidance and monitoring

	36299	Unlisted procedure, vascular injection
	36465	Injection of non-compounded foam sclerosant with ultrasound compression maneuvers to guide dispersion of the injectate, inclusive of all imaging guidance and monitoring; single incompetent extremity truncal vein (eg, great saphenous vein, accessory saphenous vein)
	36466	Injection of non-compounded foam sclerosant with ultrasound compression maneuvers to guide dispersion of the injectate, inclusive of all imaging guidance and monitoring; multiple incompetent truncal veins (eg, great saphenous vein, accessory saphenous vein), same leg
	36468	Single or multiple injections of sclerosing solutions, spider veins (telangiectasia), limb or trunk
	36470	Injection of sclerosing solution; single vein
	36471	Injection of sclerosing solution; multiple veins, same leg
	36473	Endovenous ablation therapy of incompetent vein, extremity, inclusive of all imaging guidance and monitoring, percutaneous, mechanochemical; first vein treated
	36474	Endovenous ablation therapy of incompetent vein, extremity, inclusive of all imaging guidance and monitoring, percutaneous, mechanochemical; subsequent vein(s) treated in a single extremity, each through separate access sites (List separately in addition to code for primary procedure)
	36475	Endovenous ablation therapy of incompetent vein, extremity, inclusive of all imaging guidance and monitoring, percutaneous, radiofrequency; first vein treated
	36476	Endovenous ablation therapy of incompetent vein, extremity, inclusive of all imaging guidance and monitoring, percutaneous, radiofrequency; subsequent vein(s) treated in a single extremity, each through separate access sites (List separately in addition to code for primary procedure)
	36478	Endovenous ablation therapy of incompetent vein, extremity, inclusive of all imaging guidance and monitoring, percutaneous, laser; first vein treated
	36479	Endovenous ablation therapy of incompetent vein, extremity, inclusive of all imaging guidance and monitoring, percutaneous, laser; subsequent vein(s) treated in a single extremity, each through separate access sites (List separately in addition to code for primary procedure)
	36482	Endovenous ablation therapy of incompetent vein, extremity, by transcatheter delivery of a chemical adhesive (eg, cyanoacrylate) remote from the access site, inclusive of all imaging guidance and monitoring, percutaneous; first vein treated
	36483	Endovenous ablation therapy of incompetent vein, extremity, by transcatheter delivery of a chemical adhesive (eg, cyanoacrylate) remote from the access site, inclusive of all imaging guidance and monitoring, percutaneous; subsequent vein(s) treated in a single extremity, each through separate access sites (List separately in addition to code for primary procedure)
	37500	TERMED 12/31/2025 Vascular endoscopy, surgical, with ligation of perforator veins, subfascial (SEPS)
	37700	Ligation and division of long saphenous vein at saphenofemoral junction, or distal interruptions

	37718	Ligation, division, and stripping, short saphenous vein
	37722	Ligation, division, and stripping, long (greater) saphenous veins from saphenofemoral junction to knee or below
	37735	Ligation and division and complete stripping of long or short saphenous veins with radical excision of ulcer and skin graft and/or interruption of communicating veins of lower leg, with excision of deep fascia
	37760	Ligation of perforator veins, subfascial, radical (Linton type), including skin graft, when performed, open, 1 leg
	37761	Ligation of perforator vein(s), subfascial, open, including ultrasound guidance, when performed, 1 leg
	37765	Stab phlebectomy of varicose veins, 1 extremity; 10-20 stab incisions
	37766	Stab phlebectomy of varicose veins, 1 extremity; more than 20 incisions
	37780	Ligation and division of short saphenous vein at saphenopopliteal junction (separate procedure)
	37785	Ligation, division, and/or excision of varicose vein cluster(s), 1 leg
	37799	Unlisted procedure, vascular surgery (<i>Note:</i> May be used to bill for foam sclerotherapy or stab phlebectomy; <10 incisions. See Billing Guidelines for more information.
HCPCS	J3490	Unclassified drugs
	S2202	Echosclerotherapy

***Coding Notes:**

- The above code list is provided as a courtesy and may not be all-inclusive. Inclusion or omission of a code from this policy neither implies nor guarantees reimbursement or coverage. Some codes may not require routine review for medical necessity, but they are subject to provider contracts, as well as member benefits, eligibility and potential utilization audit.
- All unlisted codes are reviewed for medical necessity, correct coding, and pricing at the claim level. If an unlisted code is submitted for non-covered services addressed in this policy then it will be **denied as not covered**. If an unlisted code is submitted for potentially covered services addressed in this policy, to avoid post-service denial, **prior authorization is recommended**.
- See the non-covered and prior authorization lists on the Company [Medical Policy](#), [Reimbursement Policy](#), [Pharmacy Policy](#) and [Provider Information website](#) for additional information.
- HCPCS/CPT code(s) may be subject to National Correct Coding Initiative (NCCI) procedure-to-procedure (PTP) bundling edits and daily maximum edits known as “medically unlikely edits” (MUEs) published by the Centers for Medicare and Medicaid Services (CMS). This policy does not take precedence over NCCI edits or MUEs. Please refer to the CMS website for coding guidelines and applicable code combinations.

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POLICY REVISION HISTORY

DATE	REVISION SUMMARY
2/2023	Converted to new policy template.
8/2023	Criteria added for KAVS procedure (0524T). Investigational position updated to not medically necessary. PA removed for S2202.
3/2024	Annual update. New criteria regarding frequency limits. Updates to criteria VII.-IX. Updates to note for duplex scanning.
1/2025	Annual update. Criteria formatting changes. Additional medically necessary indications added.
1/2026	Annual update. Added transilluminated powered phlebectomy (TIPP) to criterion I. Q1 2026 code set update. 1 code termed.
10/2026	Q4 2026 code set update.

