JOHNS HOPKINS HEALTH PLANS	Johns Hopkins Health Plans **Medical Policy Manual** **Medical Policy**	*Policy Number*	CMS22.01
		Effective Date	04/01/2024
		Approval Date	01/16/2024
	Subject **Minimally Invasive Treatments of Varicosities**	*Supersesedes Date*	05/01/2023
		Page	1 of 16

This document applies to the following Participating Organizations:

Advantage MD	EHP	Johns Hopkins Health Plan of Virginia Inc. (JHHPVA)	Priority Partners
US Family Health Plan			

Keywords: ablation, endovenous, sclerotherapy, veins

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I. ACTION

	New Policy	
X	Revising Policy Number	CMS22.01
	Superseding Policy Number	
	Retiring Policy Number	

II. POLICY DISCLAIMER

Johns Hopkins Health Plans (JHHP) provides a full spectrum of health care products and services for Advantage MD, Employer Health Programs, Johns Hopkins Health Plan of Virginia Inc., Priority Partners, and US Family Health Plan. Each line of business possesses its own unique contract, benefits, regulations, and regulators' clinical guidelines that supersede the information outlined in this policy.

III. POLICY

For Advantage MD refer to: Medicare Coverage Database

- No National Coverage Determination (NCD) for Treatment of Varicose Veins identified (Accessed 12/18/2023)
- Local Coverage Determination (LCD) L34924 Treatment of Chronic Venous Insufficiency of the Lower Extremities

For Employer Health Programs (EHP) refer to:

- Plan specific Summary Plan Descriptions (SPDs)

For Johns Hopkins Health Plan of Virginia Inc. refer to Medicare Coverage Database

- No National Coverage Determination (NCD) for Treatment of Varicose Veins identified (Accessed 12/18/2023)
- Local Coverage Determination (LCD) L39121 Treatment of Varicose Veins of the Lower Extremities

For Priority Partners (PPMCO) refer to: Code of Maryland Regulations

- No specific information located in COMAR 10.67.01-10.67.13 (Accessed 12/28/2023)

For US Family Health Plan (USFHP) refer to: Tricare Policy Manuals

- TRICARE Policy Manual 6010.63-M. April 1, 2021. Chapter 4, Section 9.1 Cardiovascular System

IV. POLICY CRITERIA

A. When benefits are provided under the member's contract, JHHP considers treatment of symptomatic refluxing greater saphenous, small saphenous and accessory saphenous veins medically necessary when ALL of the following are met:
   1. Submission of medical records which document all of the following:
      a. Duplex ultrasound of the involved extremity(s) mapping the course of the greater and lesser saphenous vein and prominent tributaries with evidence of reflux ≥ 500 milliseconds (0.5 seconds) in veins to be treated, AND;
      b. Documentation of the size of the veins showing vein size of 4.5 mm or larger in veins to be treated, AND;
      c. Pretreatment photographs or diagrams and documentation of the treatment plan, AND;
      d. Documentation of at least a three-month trial of non-surgical management to include periodic elevation of legs during the day, avoidance of prolonged sitting, and use of graduated compression stockings, AND;
   2. One or more of the following:
      a. Severe and persistent pain, aching, cramping, burning or swelling interfering with activities of daily living, OR;
      b. Recurrent superficial thrombophlebitis, OR;
      c. Severe venous stasis with skin changes, OR;
      d. Intractable ulceration secondary to venous stasis, OR;
      e. More than one episode of minor hemorrhage from a ruptured superficial varicosity, OR;
      f. A single significant hemorrhage from a ruptured superficial varicosity.

B. When benefits are provided under the member's contract, JHHP may consider the following treatment modalities of the saphenous veins (e.g., greater, small, accessory) medically necessary when ALL of the criteria in A 1 and 2 are met. If all saphenous veins in the same leg meeting criteria for treatment are not being treated in the same session, documentation indicating why that is not clinically indicated is required.
   1. Endovenous radiofrequency ablation (e.g., Venefit, formerly VNUS procedure);
   2. Endovenous laser ablation (EVLA) (e.g., VenaCure);
   3. Cyanoacrylate adhesive (e.g., VenaSeal);
   4. Mechanochemical ablation (MOCA) (e.g., ClariVein);
   5. Ultrasound-guided non-compounded foam sclerotherapy with compression maneuvers inclusive of imaging guidance (e.g., Varithena, CPT codes 36465-36466) when requirements in paragraph C have been met.

C. When benefits are provided under the member's contract, JHHP considers sclerotherapy (liquid, foam, microfoam) using a sclerosant approved by the U.S. Food and Drug Administration for the intended use medically necessary in the treatment of symptomatic varicosities size 3 mm or larger in diameter when endothermal ablation is not an option, previous procedures to treat incompetent saphenous vein(s) have not resulted in relief of symptoms, and InterQual® criteria have been met.

D. When benefits are provided under the member's contract, JHHP considers stab phlebectomy (also called micro phlebectomy or ambulatory phlebectomy) medically necessary when the previously listed treatments are not an option, previous procedures to treat incompetent saphenous vein(s) have not resulted in relief of symptoms and when criteria in section A 1 and 2 are met.
Note: On a case by case basis, for severe extensive CEAP Class C2 or greater disease involving multiple varicosities in the calf/thigh as documented in the clinical notes and photographs, consideration may be given to concurrent endovenous ablation/occlusion and stab phlebectomy.

E. Unless specific benefits are provided under the member's contract, JHHP considers the following treatments of varicosities investigational and experimental as they do not meet the Technology Evaluation Criteria (TEC) as defined by CMS01.00 Medical Policy Introduction:
1. Endovenous cryoablation;
2. Endovenous catheter directed chemical ablation with balloon isolation (KAVS).

F. Unless specific benefits are provided under the member's contract, JHHP considers the following treatments of varicosities cosmetic in nature:
1. Treatment of spider veins/telangiectasia in the absence of associated recurrent hemorrhage;
2. Transdermal laser treatments;
3. Treatment of asymptomatic varicose veins.

V. DEFINITIONS

Accessory Saphenous Veins: For the purposes of this policy, include the Anterior Accessory of the Great Saphenous Vein (AAGSV), and the Posterior Accessory of the Great Saphenous Vein (PAGSV).

CEAP Clinical Classification Score: The CEAP (clinical, etiologic, anatomic, pathophysiologic) classification system for venous disease describes disease severity and is used to determine indications for referral or treatment. It is comprised of two parts: classification and severity scoring (Gloviczki, 2011; Lurie, 2020).

Table 1. Clinical Classification of CEAP

Score	Clinical Symptoms
C_0	No visible or palpable signs of venous disease
C_1	Telangiectasias or reticular veins
C_2	Varicose veins
C_{2r}	Recurrent varicose veins
C_3	Edema
C_{4a}	Pigmentation and/or eczema

C_{4b}	Lipodermatosclerosis and/or atrophie blanche
C_{4c}	Corona phlebectatica
C_5	Healed venous ulcer
C_6	Active venous ulcer
C_{6r}	Recurrent active venous ulcer
C_S	Symptoms, including ache, pain, tightness, skin irritation, heaviness, muscle cramps, as well as other complaints attributable to venous disease
C_A	Asymptomatic

Chemical Adhesive (e.g., VenaSeal): An endovenous embolization with coaptation by transcatheter delivery of a chemical adhesive (n-butyl-2-cyanoacrylate-based formulation) injected into a vein causing it to become occluded. It is a minimally invasive, non-thermal and non-sclerosant procedure that does not require tumescent anesthesia (Hayes, 2023; Medtronic, 2023).

Duplex Ultrasound: A non-invasive evaluation of blood flow through the arteries and veins. The duplex ultrasound combines two types of ultrasound technologies: traditional ultrasound that creates images of blood vessels and Doppler ultrasound that determines the speed and direction of blood flow.

Endovenous Thermal Ablation: Techniques of vein ablation where occlusion (ablation) of the treated vein is achieved by heat delivered into the vein through the percutaneously placed laser fiber or 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 (Gloviczki, 2011).

Endovenous Laser Ablation (EVLA): A type of endothermal vein ablation using a laser to heat up and collapse the vein. It involves the delivery of laser light through a glass fiber placed into the lumen of the vein. The optical fiber is then connected to a surgical laser, allowing high-intensity laser light to induce photocoagulation of blood and occlusion of the vein. It is performed with ultrasound guidance and local tumescent anesthetic (Hayes, 2021).

Endovenous Radiofrequency Ablation (EVRFA): A type of endothermal vein ablation that uses a catheter electrode to deliver a high-frequency alternating radiofrequency current that leads to venous spasm, collagen shrinkage and physical contraction. Using ultrasound guidance, the vein is cannulated, and local tumescent anesthetic is injected around the target venous segment. The catheter is then introduced through a sheath and the radiofrequency current is delivered (Kayssi, 2015).

Mechanochemical Ablation (MOCA, e.g., ClariVein): A technique used to ablate superficial veins using a rotating wire that causes minimal mechanical damage that disrupts the endothelial lining of target veins while a steerable infusion catheter delivers a sclerosant causing vein sclerosis. Tumescent anesthesia is not required. Also known as mechanochemical endovenous ablation (MOCA) (Hayes, 2023).

Sclerotherapy: This procedure involves the injection of a chemical irritant (sclerosant) into a vein or varicosity, causing inflammation and subsequent fibrosis of the vessel wall while transforming the vein into a fibrous cord that cannot be recanalized. Sclerosants commonly used include polidocanol and sodium tetradecyl sulfate (STS), which can be administered as a liquid or foam (Hayes, 2016).

Technology Assessment: The systematic evaluation of the properties, effects and/or impacts of health technologies and interventions. It covers both the direct, intended, consequences of technologies and interventions, and their indirect, unintended, consequences (NIH, 2017).

Tumescent Anesthesia: A method of administering local anesthetic into the subcutaneous tissue that involves the infiltration of a large volume of a dilute local anesthetic solution (e.g., lidocaine combined with epinephrine, sodium bicarbonate, and isotonic saline) (Holt, 2017).

Ultrasound-Guided Foam Sclerotherapy (UGFS): Vein occlusion procedure that uses ultrasound to guide intravenous injection of a sclerosing foam (e.g., polidocanol) to induce inflammation in the endothelial and subendothelial layers of the vein wall causing fibrosis and closure of the vein lumen. Foam displaces blood, allowing the use of a reduced volume of sclerosant and permitting greater contact with the vein walls. Ultrasound is used to monitor and limit the dispersion of foam (Nesbitt, 2014).

VI. BACKGROUND

Varicose veins are part of the spectrum of chronic venous disease and are a sign of underlying venous insufficiency. Reverse blood flow (reflux) and increased blood pressure in the veins can be a cause of varicosities. Clinical presentation of chronic venous disease can vary from dilated veins (telangiectasia, reticular veins, varicose veins) to advanced chronic venous stasis skin changes and venous ulceration. Symptoms can include pain, leg heaviness or aching, swelling, dry skin, tightness, skin irritation, heaviness, muscle cramps, and itching. Initial treatment for most patients with chronic venous disease is conservative and includes leg elevation, exercise, and compression therapy. Venous ablation may be considered for patients with persistent symptoms. The goal of the ablation is to address the source of superficial reflux as well as treatment of the visible symptomatic veins and other manifestations. When planning interventions, many factors are taken into consideration, including clinical severity, anatomic location of reflux, effect on the patient's quality of life, and providing durable benefits (Passman, 2023).

Endovenous ablation is a minimally invasive, highly effective treatment for varicose veins that can be performed in an office-based setting. This intervention is appropriate for patients with persistent symptoms in the great, small, or anterior saphenous veins and with demonstrated venous reflux on duplex ultrasound examination. Endovenous ablation is recommended as the preferred method of treating symptomatic saphenous vein reflux primarily because it is associated with less perioperative morbidity and may be more cost effective compared with surgical ligation and stripping, which was the primary treatment method prior to the development of endovenous closure techniques. Long-term outcomes for open/surgical and endovenous techniques are similar. Each method of endovenous ablation (thermal, nonthermal) has unique characteristics that must be taken into consideration to meet patient and provider needs. Contraindications to venous ablation therapy include deep vein thrombosis, thrombophlebitis, pregnancy, peripheral artery disease, Klippel-Trenaunay syndrome or other congenital venous abnormalities, and other conditions that limit expected quality of life improvements (Dillavu & Kiguchi, 2023).

Thermal endovenous ablation involves generation of heat at a temperature high enough to denature the proteins that constitute the vein wall. This can be accomplished with radiofrequency energy, or with laser light introduced into the lumen of an incompetent vein (great saphenous, small saphenous) using specialized catheters to effect closure. Because of the need for heat generation to effectively ablate the vein, additional infiltration of tumescent anesthesia (local anesthetic saline mixture) is required to reduce pain along the saphenous vein and provide a cold buffer from the heat generated by the laser or radiofrequency energy. For treatment of great saphenous veins, radiofrequency ablation (RFA) or endogenous laser ablation (EVLA) have the most established supporting evidence of efficiency and are considered the standard to which other endovenous techniques are compared (Passman, 2023).

In 2017, the Agency for Healthcare Research and Quality (AHRQ) published the technology assessment, Treatment Strategies for Patients with Lower Extremity Chronic Venous Disease (LECVD). This systematic review assessed the comparative

effectiveness of endovascular procedures and concluded there was no long-term difference in effectiveness between RFA and high ligation plus stripping, but RFA was associated with less periprocedural pain, faster improvement in symptom scores and quality of life, and fewer adverse events. A meta-analysis was performed on three randomized control studies comparing venous ligation and stripping with EVLA, which demonstrated a significant benefit of EVLA compared with surgery regarding the risk of bleeding (hematoma/ecchymosis) (Jones, 2017). Jones (2017) also reports that when comparing surgical ligation and stripping with the minimally invasive procedures RFA and EVLA, no significant differences between treatment modalities were observed for the following outcomes: quality of life, venous clinical severity score (VCSS), and rates of recurrence and re-intervention. These findings reportedly were similar to findings published in the National Institute for Health and Care Excellence (NICE) 2016 Guidelines.

The NICE Guideline, Varicose veins: diagnosis and management, last reviewed in 2016, has ranked interventional treatments for varicosities based on strength of evidence. For confirmed varicose veins and truncal reflux, endothermal ablation (RFA or EVLA) is the recommendation of choice. If endothermal ablation is deemed unsuitable, ultrasound-guided foam sclerotherapy may be offered. Surgical intervention for the treatment of varicose veins is recommended only if the above three interventions are not possible. These guidelines also recommend considering concurrent treatment if incompetent varicose tributaries are to be treated. Similarly, the American College of Phlebology (ACP) 2015 Practice Guideline, Treatment of Superficial Venous Disease of the Lower Leg, strongly recommends endothermal ablation (RFA or EVLA) as the preferred treatment for incompetent veins with a documented reflux of > 500 msec. of the greater saphenous vein (GSV), small saphenous vein (SSV), and accessory saphenous (AAGSV, PAGSV) veins. Open surgery is recommended when veins are not amenable to endovenous procedures, but otherwise not recommended because of increased pain, recovery time and morbidity. Additionally, the ACP provided guidance for the treatment of symptomatic tributary varicose veins with documented reflux. Stab phlebectomy and liquid or foam chemical ablation are recommended for visible symptomatic tributary veins and ultrasound-guided sclerotherapy is recommended when symptomatic tributary veins are non-visible (ACP, 2015).

Alternate, non-thermal interventions for the treatment of symptomatic, incompetent saphenous veins include mechanochemical ablation (MOCA, e.g., ClariVein), cyanoacrylate adhesive (e.g., VenaSeal), ultrasound-guided non-compounded foam sclerotherapy (e.g., Varithena), catheter-assisted vein sclerotherapy (KAVS), and endovenous cryoablation. Non-thermal techniques provide endovenous options for veins that are not amenable to thermal ablation. Non-thermal ablation eliminates the risk of thermal nerve or skin injury and requires no tumescent anesthesia, also eliminating the need for additional needle sticks. Procedure times may also be reduced (Dillavou & Kiguchi, 2023). The contraindications for sclerosants used during non-thermal procedures may include known allergy to the agent, pregnancy or lactation, immobility, coagulation disorders or increased risk of thromboembolic complications, use of anticoagulants, and severe renal insufficiency (Passman, 2023).

Mechanochemical ablation (MOCA) technology is an endovascular procedure involving a flexible catheter with a 360º rotating wire that causes minimal mechanical damage to the endothelium and induces vasospasm. The rotating tip dispenses a sclerosant which is intended to seal the vein. MOCA is applicable to virtually all veins that are straight enough to allow catheter placement, but is especially useful for very superficial veins and those below the knee since there is no chance of nerve injury and no residual foreign body (i.e., as with glue) (Dillavu & Kiguchi, 2023). The National Institute for Health and Care Excellence (NICE) Guideline (published May 2016) on endovenous mechanochemical ablation for varicose veins (IPG557) concluded that the safety and efficacy of endovenous mechanochemical ablation for varicose veins appear adequate to support the use of this procedure. Hayes (2023) conducted a review of ClariVein Infusion Catheter, one of the ablation systems used in the US, and indicated that MOCA with ClariVein appears to be safe and efficacious in the short term, but due to the low-quality body of evidence, no conclusions can be drawn regarding its long-term durability. Substantial uncertainty remains regarding appropriate patient population, treatment parameters and the long-term durability of the procedure. A recently published meta-analysis of randomized control trials (RCTs) to assess the efficacy and safety of MOCA for saphenous vein

insufficiency compared radiofrequency ablation (RFA) to MOCA. Four studies (n=615) were included. The thermal ablation group had 95.8% and 94.8% and the MOCA group had 93.4% and 84.5% anatomical success rate at 1 month (short-term) and a period of more than 6 months but less than 1-year follow-up (mid-term), respectively. The authors conclude MOCA offered fewer major complications but lesser anatomical success at the period of more than 6 months but less than 1-year follow-up than thermal ablation (Nugroho, 2020). Another recent publication by Mohamed et al. summarized results of an RCT that was conducted to compare MOCA with ClariVein to endovenous laser ablation (EVLA). One hundred fifty patients were randomized equally between these two interventions. Authors concluded that both EVLA and MOCA were highly efficacious in treating saphenous vein incompetence; patients improved significantly in terms of disease severity, symptoms, and QoL. Both interventions resulted in low procedural pain with a short recovery time. Axial occlusion rates were higher after EVLA. Authors suggested that long-term follow-up is warranted to assess the effect of recanalization on the rate of clinical recurrence (Mohamed et al., 2021). The American Vein and Lymphatic Society's 2019 Position Statement highlighted a key advantage of this technology: MOCA can be used in a retrograde approach to treat below venous ulcer beds, where tumescent anesthesia, heat, and compression are not possible.

Use of cyanoacrylate glue (e.g., VenaSeal) is a method of occlusion of varicose veins that does not require the use of tumescent anesthesia. Using a local anesthetic, an introducer sheath is inserted distally into the vein to be treated. A delivery catheter is advanced and while the proximal vein is compressed, the adhesive is dispensed from the tip of the catheter to seal the vein. This tumescent-free technique is well tolerated and has been demonstrated to be safe and effective. However, the sealant remains within the vein permanently, which constitutes a foreign body. A small proportion of patients will have an allergic reaction or intolerance to the glue (Dillavou & Kiguchi, 2023). Hayes (2023) reported on the VenaSeal Closure System indicating that limited evidence suggests cyanoacrylate embolization with VenaSeal resulted in similar occlusion rates when compared with radiofrequency ablation (RFA). In addition, evidence also suggests that cyanoacrylate embolization resulted in similar improvements in symptom severity and quality of life (QOL) compared with RFA. Hayes 2023 Annual Review of the initial report indicated the technique continued to be safe and effective, but there is still limited published evidence regarding the comparative effectiveness of the VenaSeal System with other endovenous techniques. Kolluri et al, (2019) published a meta-analysis comparing VenaSeal with other superficial venous therapies for chronic insufficiency with a primary outcome measure of complete closure of treated vein within 6 months after intervention. The VenaSeal system had the highest probability of being ranked first (P = .980); RFA was ranked second (P = .365), EVLA third (P = .397), surgery fourth (P = .290), mechanochemical ablation fifth (P = .695), and sclerotherapy sixth (P = .982). VenaSeal ranked highest in the secondary outcome of reduction of postoperative pain score from baseline and had the lowest occurrence of adverse events. The updated NICE Guideline (published March 2020), Cyanoacrylate glue occlusion for varicose veins (IPG670), has concluded adequate evidence on the safety and efficacy of cyanoacrylate glue occlusion for the treatment of varicose veins. The conclusions are supported by the release of five-year results of the VeClose study that showed cyanoacrylate closure was associated with sustained clinical and patient reported outcomes.

Polidocanol endovenous microfoam (PEM) sclerotherapy is typically administered through a micropuncture sheath or intravenous catheter placed near the knee, above the proximal calf perforating veins. PEM is especially useful for tortuous veins since it is the only method of endovenous saphenous closure that does not require catheter placement along the length of the vein. PEM is commercially available as a standardized (uniform microbubbles) propriety foam sclerosant (i.e., Varithena; 1% polidocanol foam). Hayes (2022) reviewed published peer-reviewed studies of polidocanol endovenous microfoam sclerotherapy in the treatment of saphenofemoral junction, great saphenous vein, or small saphenous vein incompetence and overall reports low-quality evidence suggesting that polidocanol may provide relief of symptoms and result in occlusion and elimination of reflux. Study limitations include short-term follow-up, potential conflicts of interest, and lack of controls. Hayes' initial report concluded that substantial uncertainty remains regarding the comparative effectiveness with more established alternatives. The Hayes 2021-2022 Annual Review update to this report includes three abstracts of newly published studies and

two professional organizations' guidelines updates, American Venous Forum (2020) and French Society for Vascular Medicine (2020), supporting the efficacy of this intervention. Hayes indicated the technique continued to be safe and effective, but there is still limited published evidence regarding the long-term effect and comparative effectiveness of microfoam sclerotherapy with other endovenous interventions, as evidenced by the lack of well-designed comparative trials.

Endovenous cryoablation, also called cryofreezing or cryostripping, has been proposed as a treatment for varicose veins. This procedure is not recommended in published society guidelines and is considered investigational due to insufficient evidence of effectiveness. The KAVS procedure (catheter-assisted vein sclerotherapy) involves a double-lumen intravascular catheter with a balloon at the distal end that will temporarily block the blood flow to that segment of the vein being targeted for sclerotherapy (Brodersen, 2007). Evidence evaluating the safety and efficacy of KAVS sclerotherapy is lacking in peer-reviewed published scientific literature.

Historically, compression hosiery has been a component of conservative management for varicose veins along with periodic leg elevation, weight control, and exercise. According to the NICE guidelines (2013), compression therapy has a role in the treatment of varicose veins during pregnancy and after interventions, but it is not recommended as a first-line intervention unless interventional treatment is unsuitable. The American College of Phlebology (ACP) 2015 Practice Guideline, Treatment of Superficial Venous Disease of the Lower Leg also recommends use of compression in the post-procedure period and after, however, advises against compression therapy as a prerequisite for symptomatic venous reflux disease when other definitive treatments such as endovenous ablation are appropriate. For patients presenting with a clinical classification score of CEAP C2, the ACP guideline suggests medical compression hose alone may be an acceptable form of treatment. A short trial of compression hosiery may also be appropriate per this guideline "where an alternate etiology of symptoms is considered, e.g., musculoskeletal pain or neuropathy." The clinical practice guidelines of the Society for Vascular Surgery and the American Venous Forum also address compression therapy and recommends it for healing venous ulcers. Compression therapy is not recommended as an initial treatment for candidates appropriate for endovenous ablation. The SVS guideline supports the use of 20-30 mmHg graduated compression therapy as a suggested treatment for symptomatic varicose veins (Gloviczki, 2011).

VII. CODING DISCLAIMER

Note: The following CPT/HCPCS codes are included below for informational purposes and may not be all inclusive. Inclusion or exclusion of a CPT/HCPCS code (s) below does not signify or imply that the service described by the code is a covered or non-covered health service. Benefit coverage for health services is determined by the member's specific benefit plan document and applicable laws that may require coverage for a specific service. The inclusion of a code does not imply any right to reimbursement or guarantee of payment. Other policies and coverage determination guidelines may apply.

Note: All inpatient admissions require preauthorization.

Adherence to the provision in this policy may be monitored and addressed through post payment data analysis and/or medical review audits
Advantage MD: Regulatory guidance supersedes JHHP Medical Policies. If there are no statutes, regulations, NCDs, LCDs, or LCAs, or other CMS guidelines, apply the Medical Policy criteria.
Employer Health Programs (EHP):Specific Summary Plan Descriptions (SPDs) supersedes JHHP Medical Policy. If there are no criteria in the SPD, apply the Medical Policy criteria.
Johns Hopkins Health Plan of Virginia Inc. (JHHPVA): Regulatory guidance supersedes JHHP Medical Policies. If there are no statutes, regulations, NCDs, LCDs, or LCAs, or other CMS guidelines, apply the Medical Policy criteria.
Priority Partners (PPMCO): Regulatory guidance supersedes JHHP Medical Policy. If there are no criteria in COMAR regulations, or other State guidelines, apply the Medical Policy criteria.
US Family Health Plan (USFHP): Regulatory guidance supersedes JHHP Medical Policy. If there are no TRICARE policies, or other regulatory guidelines, apply the Medical Policy criteria.

VIII. CODING INFORMATION

CPT® CODES ARE FOR INFORMATIONAL PURPOSES	
CPT® CODES	**DESCRIPTION**
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
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	Injection(s) of sclerosant for 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; second and subsequent veins 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; second and subsequent veins 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)
37765	Stab phlebectomy of varicose veins, 1 extremity; 10-20 stab incisions
37766	Stab phlebectomy of varicose veins, 1 extremity; more than 20 incisions

HCPCS CODES ARE FOR INFORMATIONAL PURPOSES	
HCPCS CODES	**DESCRIPTION**
S2202	Echosclerotherapy

IX. REFERENCE STATEMENT

Analyses of the scientific and clinical references cited below were conducted and utilized by the Johns Hopkins Health Plans (JHHP) Medical Policy Team during the development and implementation of this medical policy. The Medical Policy Team will continue to monitor and review any newly published clinical evidence and revise the policy and adjust the references below accordingly if deemed necessary.

X. REFERENCES

Aetna. (2023, July 28). *Varicose Veins*. Clinical Policy Bulletin Number 0050. https://www.aetna.com

American College of Phlebology (ACP). (2015). *Treatment of Superficial Venous Disease of the Lower Leg*. Practice Guidelines Superficial Venous Disease. https://www.myavls.org/

American Vein and Lymphatic Society, Healthcare Policy Committee (2019). *Position Statement Cyanoacrylate Venous Closure*. https://www.myavls.org/

American Vein and Lymphatic Society, Healthcare Policy Committee (2019). *Position Statement Mechanochemical Venous Ablation.* https://www.myavls.org/

American Vein and Lymphatic Society, Healthcare Policy Committee (2019). *Position Statement Non-Compounded Foam Sclerotherapy*. https://www.myavls.org/

Amshar, M., Nugraha, R. A., Batubara, E. A. D., Siddiq, T., Indriani, S., & Adiarto, S. (2022). Cyanoacrylate Embolization versus Endovenous Laser Ablation in Treating Saphenous Vein Insufficiency: A Systematic Review and Meta-Analysis. *Annals of Vascular Surgery*, 80, 313–324. https://doi.org/10.1016/j.avsg.2021.09.041/

Ay, Y., Gunes, E., Turkkolu, S. T., Selcuk, E., Calim, M., Akal, R., Aydin, C., Inan, B., Koksal, C., & Kahraman Ay, N. (2021). Comparative efficacy and life quality effects of surgical stripping, radiofrequency ablation, and cyanoacrylate embolization in patients undergoing treatment for great saphenous vein insufficiency. *Phlebology*, 36(1), 54–62. https://doi.org/10.1177/0268355520947292/

Belramman, A., Bootun, R., Tang, T. Y., Lane, T. R. A., & Davies, A. H. (2022). Pain Outcomes Following Mechanochemical Ablation vs Cyanoacrylate Adhesive for the Treatment of Primary Truncal Saphenous Vein Incompetence: The MOCCA Randomized Clinical Trial. *JAMA Surgery*, 157(5), 395–404. https://doi.org/10.1001/jamasurg.2022.0298/

Bishawi, M., Bernstein, R., Boter, M., Draughn, D., Gould, C. F., Hamilton, C., & Koziarski, J. (2014). Mechanochemical ablation in patients with chronic venous disease: a prospective multicenter report. *Phlebology*, 29(6), 397–400. https://doi.org/10.1177/

Brodersen J. P., & Geismar U. (2007) Catheter-assisted vein sclerotherapy: a new approach for sclerotherapy of the greater saphenous vein with a double-lumen balloon catheter. *Dermatologic Surgery: official publication for American Society for Dermatologic Surgery [et al.]*, 33(4), 469–475. https://doi.org/10.1111/

Chen, M., Mou, S., Dai, G., & Hu, J. (2021). Comparison between Cyanoacrylate Embolization and Radiofrequency Ablation for Superficial Venous Incompetence: A Systematic Review and Meta-analysis. *Dermatologic Surgery: official publication for American Society for Dermatologic Surgery [et al.]*, 47(8), e214–e219. https://doi.org/10.1097/

Cigna. (2023, November 15). *Varicose Vein Treatments.* Medical Coverage Policy Number 0234. https://static.cigna.com

Cutler, B., Kiguchi, M.M., Kochubey, M., et al. (2023). Opportunity cost comparison of radiofrequency ablation and cyanoacrylate adhesive venous closures. *Journal of Vascular Surgery. Venous and Lymphatic Disorders*, 11(1):39-45. https://doi.org/10.1016/j.jvsv.2022.07.013/

de Ávila Oliveira, R., Riera, R., Vasconcelos, V., & Baptista-Silva, J. C. (2021). Injection sclerotherapy for varicose veins. *The Cochrane Database of Systematic Reviews*, 12(12), CD001732. https://doi.org/10.1002/

de Aguiar E.T., Dos Santos J.B., & Carvalho D.D. (2021). Venous thromboembolism after ultrasound-guided foam sclerotherapy. *Phlebology*, 36(3):233-239. https://doi.org/10.1177/0268355520957202

De Maeseneer MG, Kakkos SK, Aherne T, et al. (2022). Editor's Choice - European Society for Vascular Surgery (ESVS) 2022 Clinical Practice Guidelines on the Management of Chronic Venous Disease of the Lower Limbs. *European Journal of Vascular and Endovascular Surgery*, 63(2):184-267. https://doi.org/10.1016/j.ejvs.2021.12.024/

Dillavou, E. D., & Kiguchi, M. (2023). Comparison of methods for endovenous ablation for chronic venous disease. *UpToDate.* Retrieved December 20, 2023 from: https://www.uptodate.com/

Dimech, A. P., & Cassar, K. (2020). Efficacy of Cyanoacrylate Glue Ablation of Primary Truncal Varicose Veins Compared to Existing Endovenous Techniques: A Systematic Review of the Literature. *Surgery Journal* (New York, N.Y.), 6(2), e77–e86. https://doi.org/10.1055/s-0040-1708866/

Farah, M. H., Nayfeh, T., Urtecho, M., Hasan, B., Amin, M., Sen, I., Wang, Z., Prokop, L. J., Lawrence, P. F., Gloviczki, P., & Murad, M. H. (2022). A systematic review supporting the Society for Vascular Surgery, the American Venous Forum, and the American Vein and Lymphatic Society guidelines on the management of varicose veins. *Journal of Vascular Surgery. Venous and Lymphatic Disorders,* S2213-333X(21)00421-2. Advance online publication. https://doi.org/10.1016/

Food and Drug Administration (FDA). (2003). *Laser Surgical Instrument for use in General and Plastic Surgery and in Dermatology*. 510 (K) Summary-Vari-Lase Endovenous Laser Procedure Kit. https://www.accessdata.fda.gov/

Gibson K, & Ferris B. (2017). Cyanoacrylate closure of incompetent great, small and accessory saphenous veins without the use of post-procedure compression: Initial outcomes of a post-market evaluation of the VenaSeal System (the WAVES Study). *Vascular,* 25(2), 149-156. https://doi.org/10.1177/

Gloviczki, P., Comerota, A., Dalsing, M. C. Eklof, B. G., Gillespie, D. L., Gloviczki, M. L., Lohr, J. M., McLafferty, R. B., Meissner, M. H., Murad, M. H., Padberg, F. T., Pappas, P. J., Passman, M. A., Raffetto, J. D., Vasquez, M. A., Wakefield, T. W., Society for Vascular Surgery, & American Venous Forum (2011). The care of patients with varicose veins and associated chronic venous diseases: Clinical practice guidelines of the Society for Vascular Surgery and the American Venous Forum. *Journal of Vascular Surgery, 53*(5 Suppl) 2S-48S. https://doi.org/10.1016/

Guo, J., Zhang, F., Guo, J., Guo, L., Gu, Y., & Huang, Y. (2021). A systematic review and meta-analysis comparing the efficacy of cyanoacrylate ablation over endovenous thermal ablation for treating incompetent saphenous veins. *Phlebology*, 36(8), 597–608. https://doi.org/10.1177/02683555211008762/

Hayes, Inc. (2021) Comparative Effectiveness of Endovenous Laser Therapy Versus Conventional Surgery for Symptomatic Varicose Veins: A Review of Reviews. Health Technology Assessment. https://www.hayesinc.com/

Hayes, Inc. (2021). Comparative Effectiveness of Endovenous Radiofrequency Ablation Versus Conventional Surgery for Symptomatic Varicose Veins: A Review of Reviews. Health Technology Assessment. https://evidence.hayesinc.com/

Hayes, Inc. (2023). Cyanoacrylate Embolization with the VenaSeal Closure System (Medtronic Inc.) for the Treatment of Varicose Veins. Health Technology Assessment. https://evidence.hayesinc.com/

Hayes, Inc. (2023). Mechanochemical Endovenous Ablation (MOCA) with the ClariVein Infusion Catheter Nonthermal Vein Ablation System (Merit Medical Systems Inc.) for Treatment of Varicose Veins. Health Technology Assessment. https://evidence.hayesinc.com/

Hayes, Inc. (2022) Polidocanol Endovenous Microfoam (Varithena) 1% for Treatment of Varicose Veins. Health Technology Assessment. https://evidence.hayesinc.com/

Hayes, Inc. (2013). Ultrasound-Guided Foam Sclerotherapy (UGFS) for Varicose Veins. Health Technology Assessment. https://evidence.hayesinc.com/

Holt, N. F. (2017). Tumescent Anaesthesia, its applications and well tolerated use in the out-of-operating room setting. *Current Opinion in Anaesthesiology.* 30(4), 518-524. https://doi.org/10.1097/

Jones, W. S., Vemulapalli, S., Parikh, K. S., Coeytaux, R. R., Crowley, M. J., Raitz, G., Johnston, A. L., Hasselblad, V., McBroom, A. J., Lallinger, K. R., & Sanders-Schmidler, G. D. (2017). Treatment Strategies for Patients with Lower Extremity Chronic Venous Disease (LECVD). Agency for Healthcare Research and Quality (US). https://www.ncbi.nlm.nih.gov/

Kabnick, L.S. & Scovell, S. (2023). Overview of lower extremity chronic venous disease. *UpToDate*. Retrieved December 20, 2023 from https://www.uptodate.com/

Kayssi, A., Pope, M., Vucemilo, I., & Werneck, C. (2015). Endovenous radiofrequency ablation for the treatment of varicose veins. *Canadian Journal of Surgery*, 58(2), 85-86. https://doi.org/10.1503/

King, J. T., O'Byrne, M., Vasquez, M., Wright, D., & VANISH-1 Investigator Group (2015). Treatment of Truncal Incompetence and Varicose Veins with a Single Administration of a New Polidocanol Endovenous Microfoam Preparation Improves Symptoms and Appearance. *European Journal of Vascular & Endovascular Surgery: the official journal of the European Society for Vascular Surgery*, 50(6),784-793. https://doi.org/10.1016/

Kolluri, R., Chung, J., Kim, S., Nath, N., Bhalla, B.B., Jain, T., Zygmunt, J., & Davies, A. (2020). Network meta-analysis to compare VenaSeal with other superficial venous therapies for chronic venous insufficiency. *Journal of Vascular Surgery: Venous and Lymphatic Disorders*, 8(3) 472-481. https://doi.org/10.1016/

Kubat, E., Ünal, C. S., Geldi, O., Çetin, E., Keskin, A., & Karapinar, K. (2020). Comparison of different approaches to small saphenous vein reflux treatment: a retrospective study in two centers. *Sao Paulo Medical Journal = Revista Paulista de Medicina*, 138(2), 98–105. https://doi.org/10.1590/1516-3180.2019.0230.r1.06112019/

Lam, Y. L., De Maeseneer, M., Lawson, J., De Borst, G. J., & Boersma, D. (2017). Expert review on the VenaSeal system for endovenous cyano-acrylate adhesive ablation of incompetent saphenous trunks in patients with varicose veins. *Expert Review of Medical Devices*, 14(10), 755-762. https://doi.org/10.1080/

Lurie, F., Creton, D., Eklof, B. Kabnick, L. S., Kistner, R. L., Pichot, O., Sessa, C., & Schuller-Petrovic, S. (2005). Prospective Randomised Study of Endovenous Radiofrequency Obliteration (closure) Versus Ligation and Vein Stripping (EVOLVeS): Two-year follow-up. *European Journal of Vascular and Endovascular Surgery*, 29(1),67–73. https://doi.org/10.1016/

Lurie, F., Passman, M., Meisner, M., Dalsing, M., Masuda, E., Welch, H., Bush, R. L., Blebea, J., Carpentier, P. H., De Maeseneer, M., Gasparis, A., Labropoulos, N., Marston, W. A., Rafetto, J., Santiago, F., Shortell, C., Uhl, J. F., Urbanek, T., van Rij, A., Eklof, B., … Wakefield, T. (2020). The 2020 update of the CEAP classification system and reporting standards. *Journal of Vascular Surgery. Venous and Lymphatic Disorders*, 8(3), 342–352. https://doi.org/10.1016/j.jvsv.2019.12.075/

Masuda, E., Ozsvath, K., Vossler, J., Woo, K., Kistner, R., Lurie, F., Monahan, D., Brown, W., Labropoulos, N., Dalsing, M., Khilnani, N., Wakefield, T., & Gloviczki, P. (2020). Appropriate Use Criteria, American Venous Forum, The 2020 appropriate use criteria for chronic lower extremity venous disease of the American Venous Forum, the Society for Vascular Surgery, the American Vein and Lymphatic Society, and the Society of Interventional Radiology. *Journal of Vascular Surgery. Venous and Lymphatic Disorders*, 8(4), 505-525.e4. https://doi.org/10.1016/

Medtronic (2023). *VenaSeal closure system*. https://www.medtronic.com/

Mohamed, A. H., Leung, C., Wallace, T., Smith, G., Carradice, D., & Chetter, I. (2021). A Randomized Controlled Trial of Endovenous Laser Ablation Versus Mechanochemical Ablation With ClariVein in the Management of Superficial Venous Incompetence (LAMA Trial). *Annals of Surgery*, 273(6), e188–e195. https://doi.org/10.1097/

Morrison N, Gibson K, Vasquez M, Weiss R, & Jones A. (2020). Five-year extension study of patients from a randomized clinical trial (VeClose) comparing cyanoacrylate closure versus radiofrequency ablation for the treatment of incompetent great saphenous veins. Journal of vascular surgery. *Venous and Lymphatic Disorders*, 8(6), 978–989. https://doi.org/10.1016/

Mudavath, S., Chitimalla, R., Ankathai, V.K. (2022). Clinical Study and Management of Varicose Veins of Lower Limbs. *European Journal of Molecular and Clinical Medicine*, 9(3), 6023-6030. https://www.embase.com/

Munavalli, G.S., & Weiss, R.A. (2006). Advanced in Techniques for Endovenous Ablation of Truncal Veins. *Skin Therapy Letter*, 11(3), 4-7. https://pubmed.ncbi.nlm.nih.gov/

Murad, M., Coto-Yglesias, F., Zumaeta-Garcia, M, Elamin, M. B., Duggirala, M. K., Erwin, P. J., Montori, V. M., & Gloviczki, P. (2011). A systematic review and meta-analysis of the treatments of varicose veins. *Journal of Vasular Surgery*, 53(5 Suppl), 49S-65S. https://doi.org/10.1016/

Nakano, L.C., Cacione, D.G., Baptista-Silva, J.C., & Flumignan, R.L.(2021). Treatment for telangiectasis and reticular veins. *The Cochrane Database of Systematic Reviews*, 10(10), CD012723. https://doi.org/10.1002/

National Institute for Health and Care Excellence (NICE). (2020). *Cyanoacrylate glue occlusion for varicose veins. Interventional procedures guidance [IPG670]*. https://www.nice.org.uk

National Institute for Health and Care Excellence (NICE). (2016). *Endovenous mechanochemical ablation for varicose veins. Interventional procedures guidance [IPG557]*. https://www.nice.org.uk

National Institute for Health and Care Excellence (NICE). (2013). *Varicose veins: diagnosis and management. Clinical Guideline [CG168]*. https://www.nice.org.uk/

National Institutes of Health, National Library of Medicine (2017). HTA 101: Glossary. https://www.nlm.nih.gov/

Nesbitt, C. Bedenis, R., Bhattacharya, V., & Stansby, G. (2014). Endovenous ablation (radiofrequency and laser) and foam sclerotherapy versus open surgery for great saphenous vein varices. *The Cochrane Database of Systematic Reviews*, (7), CD005624. https://doi.org/10.1002/

Nugroho, J., Wardhana, A., & Ghea, C. (2020). Mechanical Occlusion Chemically Assisted Ablation (MOCA) for Saphenous Vein Insufficiency: A Meta-Analysis of a Randomized Trial. International Journal of Vascular Medicine. *International Journal of Vascular Medicine*, 2020, 8758905. https://doi.org/10.1155/

O'Banion, L. A., Reynolds, K. B., Kochubey, M., Cutler, B., Tefera, E. A., Dirks, R., & Kiguchi, M. M. (2021). A comparison of cyanoacrylate glue and radiofrequency ablation techniques in the treatment of superficial venous reflux in CEAP 6 patients. *Journal of Vascular Surgery. Venous and Lymphatic Disorders*, 9(5), 1215–1221. https://doi.org/10.1016/j.jvsv.2020.12.082/

Ontario Health (Quality) (2021). *Nonthermal Endovenous Procedures for Varicose Veins: A Health Technology Assessment.* Ontario Health Technology Assessment Series, 21(8), 1–188. https://www.ncbi.nlm.nih.gov/

Paravastu, S., Horne, M., & Dodd, P. D. (2016). Endovenous ablation therapy (laser or radiofrequency) or foam sclerotherapy versus conventional surgical repair for short saphenous varicose veins. *The Cochrane Database of Systematic Reviews*, 11(11), CD010878. https://doi.org/10.1002/

Parsi, K., Hill, A., Bradbury, A., Meissner, M., Gasparis, A., Rogan, C., & van Rij, A. (2020). Coil embolization for the treatment of peripheral veins: A position statement of the International Union of Phlebology (UIP), the Australasian College of Phlebology (ACP), the Australia and New Zealand Society for Vascular Surgery (ANZSVS), the American Venous Forum (AVF), the American Vein and Lymphatic Society (AVLS), and the Interventional Radiology Society of Australia (IRSA). *Journal of Vascular Surgery. Venous and Lymphatic Disorders*, 8(4), 535–536. https://doi.org/10.1016/

Passman, M. A. (2023). Approach to treating symptomatic superficial venous insufficiency. *UpToDate*. Retrieved December 21, 2023 from https://www.uptodate.com/

Proebstle, T., Alm, J., Dimitri, S., Rasmussen, L., Whiteley, M., Lawson, J., & Davies, A. H. (2021). Three-year follow-up results of the prospective European Multicenter Cohort Study on Cyanoacrylate Embolization for treatment of refluxing great saphenous veins. *Journal of Vascular Surgery. Venous and Lymphatic Disorders*, 9(2), 329–334. https://doi.org/10.1016/j.jvsv.2020.05.019/

Raffeto, J.D., Ligi, D., Maniscalco, R., Khali, R.A., & Mannello, F. (2020). Why Venous Leg Ulcers Have Difficulty Healing: Overview on Pathophysiology, Clinical Consequences, and Treatment. *Journal of Clinical Medicine*, 10(1), 29. https://doi.org/10.3390/

Rathbun, S., Norris, A., Morrison, N., Gibson, K., Raymond-Martimbeau, P., Worthington-Kirsch, R., Hohenwalter, E., Lohr, J., McLafferty, R., & Stoner, J. (2014). Performance of endovenous foam sclerotherapy in the USA for the treatment of venous disorders: ACP/SVM/AVF/SIR quality improvement guidelines. *Phlebology*, 29(2), 76-82. https://doi.org/10.1177/

Roth, S. M. (2007). Endovenous Radiofrequency Ablation of Superficial and Perforator Veins. *The Surgical Clinics of North America*, 87(5) 1267-1284. https://doi.org/10.1016/

Shapiro, F. E. & Osman, B.M. (2023). Office-based anesthesia. *UpToDate*. Retrieved December 28, 2023 from https://www.uptodate.com/

Tang, T. Y., Yap, C. J. Q., Chan, S. L., Soon, S. X. Y., Yap, H. Y., Lee, S. Q. W., Choke, E. T. C., & Chong, T. T. (2021). Early results of an Asian prospective multicenter VenaSeal real-world postmarket evaluation to investigate the efficacy and safety of cyanoacrylate endovenous ablation for varicose veins. *Journal of Vascular Surgery*. *Venous and Lymphatic Disorders*, 9(2), 335–345.e2. https://doi.org/10.1016/j.jvsv.2020.03.020/

The Cochrane Library (2010). Surgery versus Sclerotherapy for the Treatment of Varicose Veins. *Cochrane Reviews*. Issue 3, (ISSN 1464-780X)

van Eekeren, R. R., Boersma, D., Holewijn, S., Werson, D. A., de Vries, J. P., & Reijnen, M. M. (2014). Mechanochemical endovenous ablation for the treatment of great saphenous vein insufficiency. *Journal of Vascular Surgery*. *Venous and Lymphatic Disorders*, 2(3), 282–288. https://doi.org/10.1016/j.jvsv.2014.01.001/

Witte, M. E., Zeebregts, C. J., de Borst, G. J., Reijnen, MMPJ, & Boersma, D. (2017). Mechanochemical endovenous ablation of saphenous veins using the ClariVein: A systematic review. *Phlebology*, 32(10), 649-657. https://doi.org/10.1177/

Whing, J., Nandhra, S., Nesbitt, C., & Stansby, G. (2021). Interventions for great saphenous vein incompetence. *The Cochrane Database of Systematic Reviews*, 8(8), CD005624. https://doi.org/10.1002/

Wilczko, J., Szary, C., Plucinska, D., & Grzela, T. (2021). Two-Year Follow-Up after Endovenous Closure with Short-Chain Cyanoacrylate versus Laser Ablation in Venous Insufficiency. *Journal of Clinical Medicine*, 10(4), 628. https://doi.org/10.3390/jcm10040628/

Zhang, S., & Melander, S. (2014). Varicose Veins: Diagnosis, Management, and Treatment. *Journal for Nurse Practitioners*, 10(6), 417-424. https://www.sciencedirect.com/

XI. APPROVALS

Historical Effective Dates: 06/01/2000, 10/22/2003, 03/25/2004, 10/21/2005, 10/18/2006, 03/03/2008, 03/02/2009, 06/04/2010, 08/23/2011, 09/07/2012, 12/05/2014, 03/03/2017, 02/19/2019, 11/02/2020, 05/05/2022, 05/01/2023, 04/01/2024