



PHILIPS

Arterial and Venous

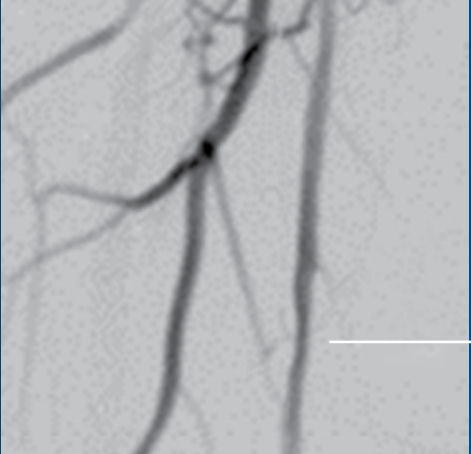
Peripheral Vascular

See clearly. Treat optimally.

Only Philips offers the powerful combination of advanced imaging and specialized treatment options to accurately assess inside the vessel, successfully select the right treatment algorithm and optimize outcomes for your patients.

See clearly | Visualize the best path forward with IVUS

To determine the right treatment path for your patient, it is critical that you first accurately assess the disease state within the vessel. That's where the powerful combination of angiography and IVUS comes into play. Angiography provides a roadmap and flow characteristics of the vessel. IVUS brings you inside the vessel for deeper insights into vessel sizing and plaque morphology. Together, IVUS and angiography give you the advanced visualization you need to deliver exceptional patient care.



Angiogram alone is not enough

"Angiography provides information on luminal characteristics of peripheral arteries, but severely underestimates the extent of atherosclerosis in patients with PAD, even in 'normal appearing' vessels."

Is this a dissection, calcium, thrombus or stenosis?

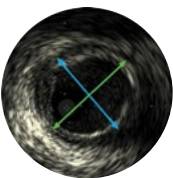
Arterial

Accurately assess critical lesion characteristics with the four pillars of arterial IVUS

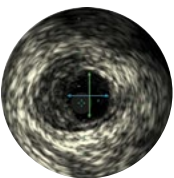
Only Philips provides a complete and simple plug-and-play digital array IVUS portfolio that includes both an 0.014" and 0.018" (RX and OTW) platform.

Vessel size

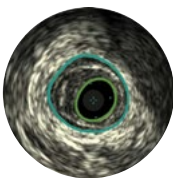
Guides device sizing to ensure precise wall apposition, drug delivery and placement



Vessel diameter



Lumen diameter



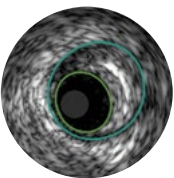
Plaque burden

Plaque morphology

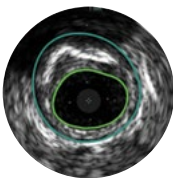
Understand plaque type and severity to help guide proper device selection



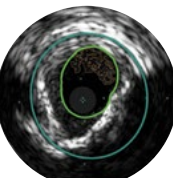
Soft



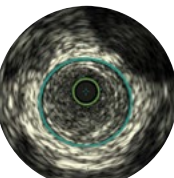
Fibrous



Calcific



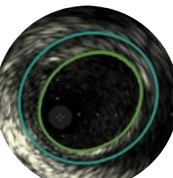
Thrombus



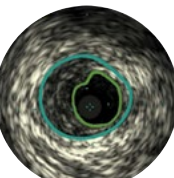
CTO

Plaque geometry

Visualize plaque burden location for precise treatment



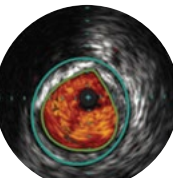
Concentric



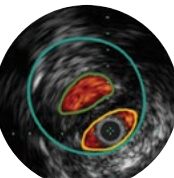
Eccentric

Guidewire position

Confirm true lumen or sub-intimal guidewire location



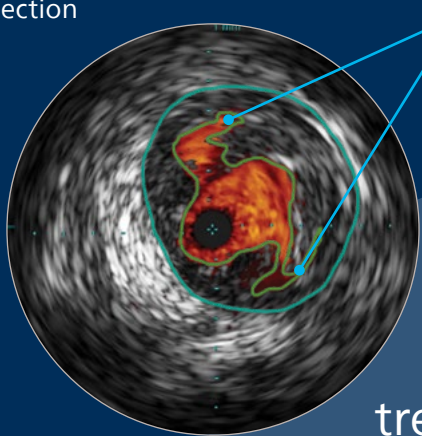
True lumen



Sub-intimal

Dissection

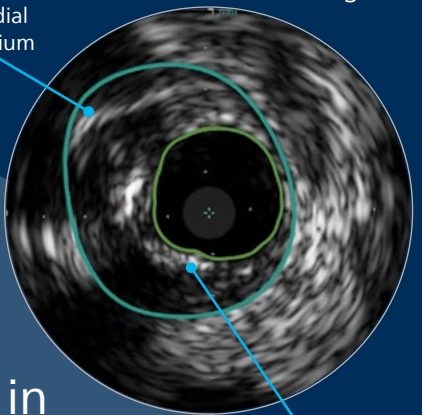
Flow-limiting vs. minor dissection



Dissection

Calcium

Location and degree of severity



Medial calcium

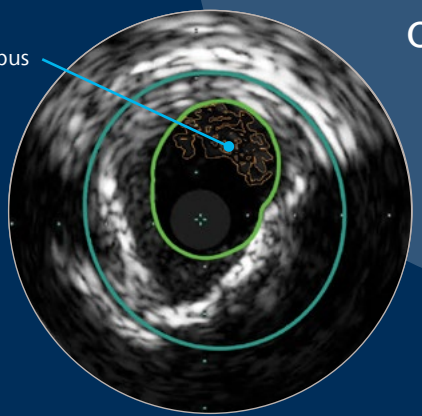
Intimal calcium

IVUS changed treatment plans in

79%

of arterial cases studied²

Fresh thrombus



Thrombus

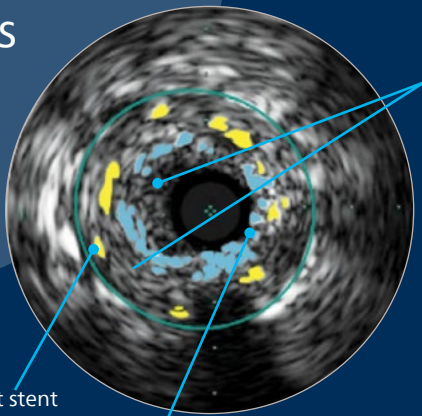
Pinpoint location



Scan here to watch a video that shows how IVUS can help you see clearly and treat optimally.

First stent

Second stent



In-stent restenosis

In-stent restenosis (ISR)

Location of plaque inside, between or outside the stent

IVUS borders and colorations are for demonstration purposes only.

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Demonstrated real-world results to improve patient outcomes

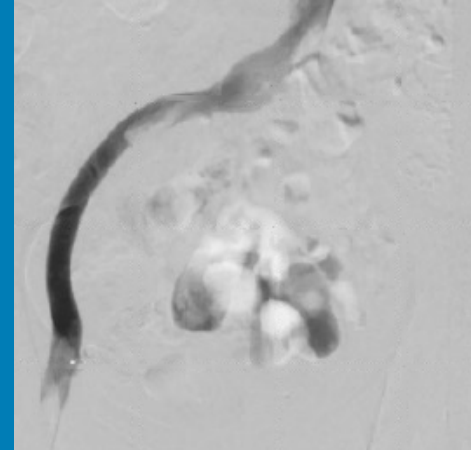
First ever
global consensus
guidance on IVUS³



27%
Reduction in risk
for major arterial
adverse limb events⁴



28%
Risk reduction for repeat
venous intervention,
hospitalization or death⁵



Venography alone is not enough

"IVUS applications in central venous pathologies are related to assessment and management of venous stenotic disease, thrombo-occlusive disease, IVC filter placement and retrieval."⁷

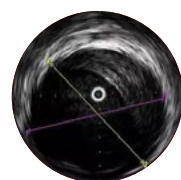
Venous

Accurately assess critical lesion characteristics with the four pillars of venous IVUS

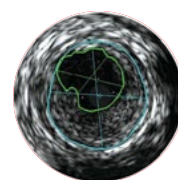
Only Philips provides a simple plug-and-play digital array IVUS with the market leading 0.035" IVUS platform.

Vessel size

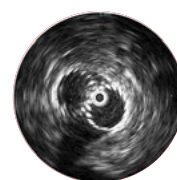
Guides device sizing to ensure precise wall apposition and stent placement



Vessel diameter



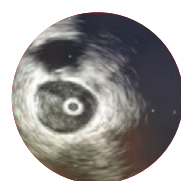
Vessel and lumen diameter



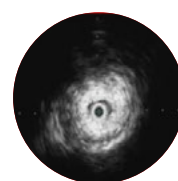
Stent wall apposition

Thrombus type

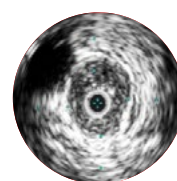
Determine chronicity and burden of clot⁶



Acute thrombus



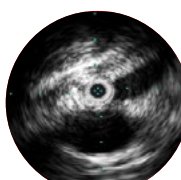
Subacute thrombus



Chronic thrombus with fibrosis

Compression or stenosis

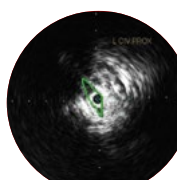
Determine degree of compression or stenosis



Compression



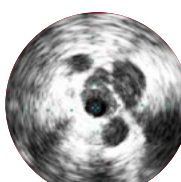
Stenosis



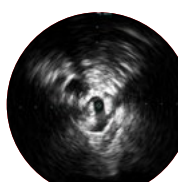
Severe stenosis with wall thickening

Post-thrombotic lesion detection

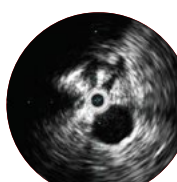
Determine presence of occlusions, webbing or scar tissue



Webbing



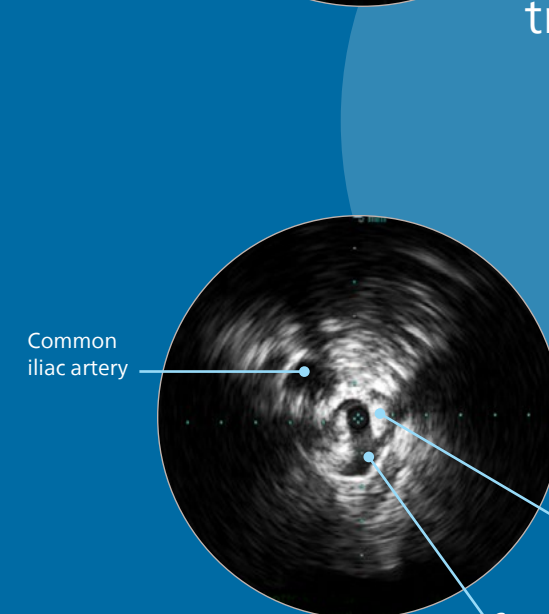
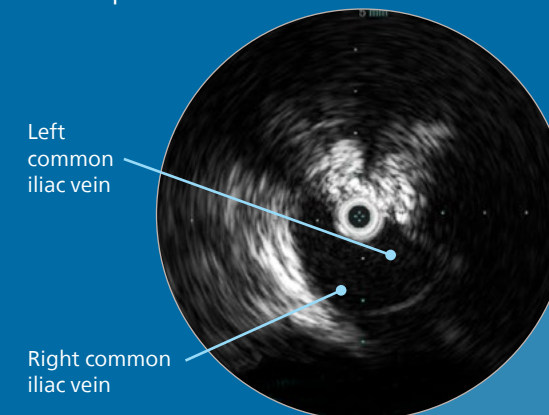
Post thrombotic fibrosis occlusion



Hyperchoic scarring

May-Thurner syndrome

Assess the degree of compression

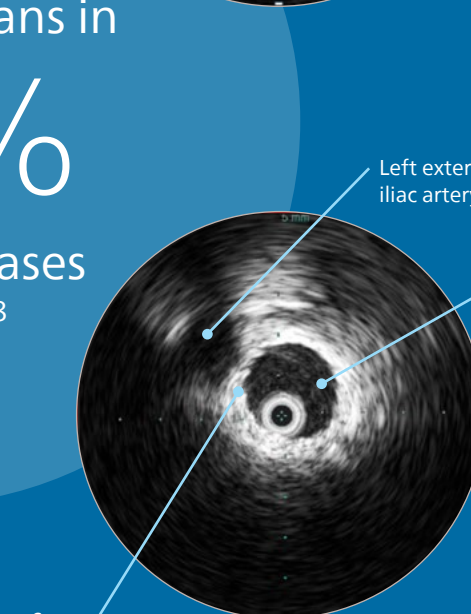
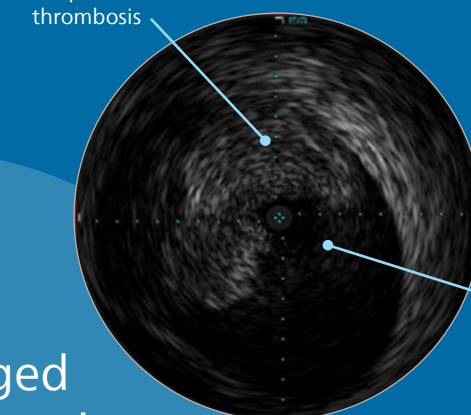


Post thrombotic lesion detection

Assess and grade lesion severity

Thrombus

Delineate between acute or chronic clot



Landing zones


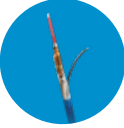







Stent healthy-to-healthy

IVUS changed treatment plans in
57%
of venous cases studied⁸

*Venous use may not be available in select international markets

Treat optimally | Successfully select the right treatment algorithm

The Philips portfolio of therapeutic devices offers specialized treatment options for your arterial or venous interventions.

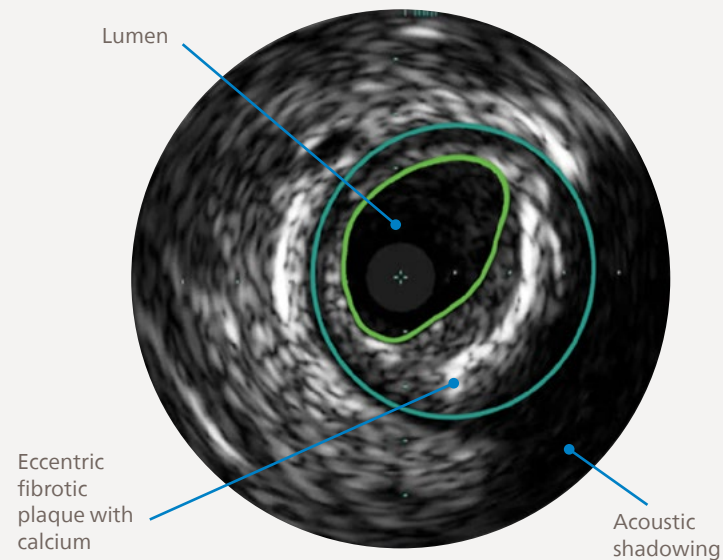
Successfully select		
Cross your toughest lesions	<div></div> <div>Support Catheters Quick-Cross, Quick-Cross Extreme and Quick-Cross Select #1 selling support catheter</div>	Arterial
	<div></div> <div>IVUS-guided Re-entry Catheter Pioneer Plus The only IVUS-guided re-entry catheter</div>	Arterial
Prepare and treat multiple lesions including CTOs, ISR, calcium, neo-intimal hyperplasia, mixed morphologies and thrombus	<div></div> <div>Laser Atherectomy Catheters Turbo-Elite and Turbo-Power Strong performance in a variety of challenging lesion types above and below the knee⁹, and indicated for ISR*</div>	Arterial
	<div></div> <div>Mechanical Atherectomy System Phoenix Front-cutting mechanical atherectomy for treating mixed morphologies with low risk of embolization¹⁰</div>	Arterial
	<div></div> <div>Thrombectomy System QuickClear Intuitive and powerful fresh thrombus aspiration supports faster procedure times</div>	Arterial + Venous
	<div></div> <div>PTA Scoring Balloon Catheter AngioSculpt Reduces risk of flow-limiting dissections, including calcified lesions¹¹</div>	Arterial
Definitive treatment for arterial lesions	<div></div> <div>Drug-Coated Angioplasty Balloon Catheter Stellarex Durable treatment effect with a low-drug dose in common to complex patients¹²</div>	Arterial
Optimize outcomes		
Take patient care a step further	<div></div> <div>Dissection Repair Solution Tack Endovascular System Minimal metal dissection repair device for optimized PTA above- and below-the-knee</div>	Arterial
	<div></div> <div>IVC Filter Removal Laser Sheath CavaClear The first and only FDA-cleared device designed for advanced IVC filter removal</div>	Venous

* Only Turbo-Power is indicated for ISR

Full view treatment planning

The integration of visualization and interventional technologies allows physicians to see the complete picture and create a more informed and individualized procedural approach.

Arterial treatment plan example



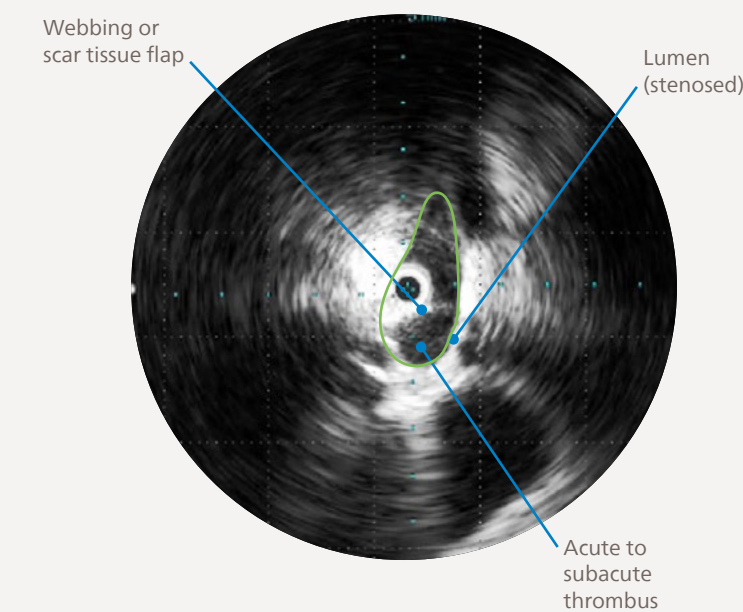
See clearly.

Vessel size: 5.5 mm diameter
Plaque morphology: Fibrotic plaque with intimal and medial calcium
Plaque geometry: Eccentric lesion
Guidewire position: True lumen

Treat optimally.

Quick-Cross Catheter:
Confidently cross challenging morphologies
Phoenix Deflecting Atherectomy System:
Front facing to cut, capture and clear mixed morphologies, including calcium
Deflecting capabilities for larger luminal gain
Stellarex DCB:
Proven performance in calcium¹³
Tack Endovascular System:
Optimizing PTA with precision dissection repair

Venous treatment plan example



See clearly.

Vessel size: 10-13 mm
Thrombus type: Acute to subacute thrombus
Percentage compression or stenosis: 50-80%
Other considerations: Occlusion webbing and collaterals

Treat optimally.

QuickClear Thrombectomy System:
All-in-one, simple, single use aspiration pump and catheter
Appropriate balloon venoplasty:
Treat narrowed vessel by stretching it with air pressure
Appropriate venous stent:
Use stent to keep vein open

Optimize outcomes for your patients with IVUS

No dissections | Reduce residual stenosis | Stent fully deployed | Treated entire lesion

With vast IVUS experience and a consultative approach, Philips offers clinical support at every critical step—from integrating visualization and interventional technologies to focusing on solutions to help you provide individualized patient treatment plans.



Important safety information

Stellarex .035 Drug-Coated Balloon

The Stellarex 0.035" OTW Drug-coated Angioplasty Balloon is indicated for percutaneous transluminal angioplasty (PTA), after appropriate vessel preparation, of de novo, restenotic, or in-stent restenotic lesions up to 180 mm in length in native superficial femoral or popliteal arteries with reference vessel diameters of 4-6 mm.

The Stellarex™ 0.035" OTW Drug-coated Angioplasty Balloon is contraindicated for use in:

- Patients with known hypersensitivity to paclitaxel or structurally re-lated compounds.
- Patients who cannot receive recommended antiplatelet and/or anticoagulation therapy.
- Women who are breastfeeding, pregnant or are intending to become pregnant or men intending to father children.
- Coronary arteries, renal arteries, and supra-aortic/cerebrovascular arteries
- Patients judged to have a lesion that prevents complete inflation of an angioplasty balloon or proper placement of the delivery system

Possible adverse effects associated with the balloon dilation procedure include, but are not limited to: Abrupt vessel closure; Allergic reaction to contrast medium, antiplatelet therapy, or catheter system components (drug, excipients, and materials); Amputation/ Loss of limb; Arrhythmias; Arterial aneurysm; Thrombosis; Arterio-venous fistula (AVF); Bleeding; Death; Embolism/Device embolism; Fever; Hematoma; Hemorrhage; Hypertension/Hypotension; Infection or pain at insertion site; Inflammation; Ischemia or infarction of tissue/organ; Occlusion; Pain or tenderness; Peripheral edema; Pseudoaneurysm; Renal insufficiency or failure; Restenosis; Sepsis or systemic infection; Shock; Stroke/Cerebrovascular accident; Vessel dissection, perforation, rupture, spasm, or recoil; Vessel trauma which requires surgical repair; Balloon rupture; Detachment of a component of the balloon and/or catheter system; Failure of the balloon to perform as intended; Failure to cross the lesion.

Additional complications which may be associated with the addition of paclitaxel to the balloon include, but may not be limited to the following: Allergic/immunologic reaction to paclitaxel; Alopecia; Anemia; Gastrointestinal symptoms (diarrhea,

nausea, pain, vomiting); Hematologic dyscrasia (including neutropenia, leucopenia, thrombocytopenia); Hepatic enzyme changes; Histologic changes in vessel wall including inflammation, cellular damage, or necrosis; Myalgia/Arthralgia; Myelosuppression; Peripheral neuropathy.

Caution: Federal law restricts this device to sale by or on the order of a physician.

Tack Endovascular System

The Tack Endovascular System (6F, 3.5-6.0 mm US/ 2.5-6.0 mm EU and 4.0-8.0 mm) is intended for use in the superficial femoral and proximal popliteal arteries ranging in diameter from 3.5 mm to 6.0 mm US/ 2.5 to 6.0 mm EU and 4.0 mm to 8.0 mm for the repair of post percutaneous transluminal balloon angioplasty (PTA) dissection(s).

The Tack Endovascular System (4F, 1.5-4.5 mm) is intended for use in mid/distal popliteal, tibial, and peroneal arteries, ranging in diameter from 1.5 mm to 4.5 mm, for the treatment of post percutaneous transluminal balloon angioplasty (PTA) dissection(s).

The Tack Endovascular System is contraindicated for the following:

1. Patients with residual stenosis in the treated segment equal to or greater than 30% after PTA.
2. Tortuous vascular anatomy significant enough to prevent safe introduction and passage of the device.
3. Patients with a known hypersensitivity to nickel titanium alloy (Nitinol).
4. Patients unable to receive standard medication used for interventional procedures such as anticoagulants, contrast agents and antiplatelet therapy.

Prior to using the Tack Endovascular System, please review the instructions for use for a complete listing of indications, contraindications, warnings, precautions, potential adverse events, and directions for use.

Tack Endovascular System is CE Mark authorized under EC Directive 93/42/EEC.

Caution: Federal law restricts this device to sale by or on the order of a physician.

1. Kashyap VS, Pavkov ML, Bishop PD, et al. Angiography underestimates peripheral atherosclerosis: lumenography revisited. *J Endovasc Ther.* 2008;15(1):117-125.
2. Allan R, Puckridge P, Spark J, et al. The Impact of Intravascular Ultrasound on Femoropopliteal Artery Endovascular Interventions. *J Am Coll Cardiol Interv.* 2022 Mar, 15 (5) 536-546. <https://doi.org/10.1016/j.jcin.2022.01.001>
3. Secemsky EA, Mosar LA, Rosenfield K, Kohi M, Lichtenberg M, Meissner M, Varcoe R, Holden A, Jaff MR, Chalyan D, Clair D, Hawkins BM, Parikh SA. Appropriate Use of Intravascular Ultrasound During Arterial and Venous Lower Extremity Interventions. *JACC Cardiovasc Interv.* 2022 Aug 8;15(15):1558-1568. doi: 10.1016/j.jcin.2022.04.034. PMID: 35926922
4. Divakaran S, Parikh SA, Hawkins BM, et al. Temporal Trends, Practice Variation, and Associated Outcomes With IVUS Use During Peripheral Arterial Intervention. *JACC Cardiovasc Interv.* 2022;15(20):2080-2090. doi:10.1016/j.jcin.2022.07.050
5. Divakaran S, Meissner MH, Kohi MP, et al. Utilization of and Outcomes Associated with Intravascular Ultrasound during Deep Venous Stent Placement among Medicare Beneficiaries. *J Vasc Interv Radiol.* 2022;33(12):1476-1484.e2. doi:10.1016/j.jvir.2022.08.018
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8. Gagne PJ, Tahara RW, Fastabend CP, et al. Venography versus intravascular ultrasound for diagnosing and treating iliofemoral vein obstruction. *J Vasc Surg Venous Lymphat Disord.* 2017;5(5):678-687. doi:10.1016/j.jvsv.2017.04.007
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10. Davis T, Ramaiah V, Niazi K, Martin Gissler H, Crabtree T. Safety and effectiveness of the Phoenix Atherectomy System in lower extremity arteries: Early and midterm outcomes from the prospective multicenter EASE study. *Vascular.* 2017 Dec;25(6):563-575
11. Bosiers et al, Use of the AngioSculpt Scoring Balloon for Infrapopliteal Lesions in Patients with Critical Limb Ischemia: 1-year Outcome Vascular, Vol. 17. No. 1, pp. 29-35. 2009.
12. Lyden SP, Brodmann M, Schroeder H, Holden A, Ouriel K, Tarra TR, Gray WA, et al. Five-Year Independent Patient-Level Mortality Analysis of the Pooled ILLUMINATE Pivotal and EU Randomized Controlled Trials. *J Society for Cardiovascular Angiography & Interventions (JSAI).* 2017; 2(4), 100634. DOI:<https://doi.org/10.1016/j.jscv.2017.04.007>
13. Venkatasubbu GD, et al. Surface modification and paclitaxel drug delivery of folic acid modified polyethylene glycol functionalized hydroxyapatite nanoparticles. *Powder Technology.* 2013;235:437-442.

