SUMMARY OF SAFETY AND EFFECTIVENESS DATA (SSED)

I. GENERAL INFORMATION

Device Generic Name: Vascular Hemostasis Device

Device Trade Name: MYNX CONTROL™ VENOUS Vascular Closure Device (VCD) 6F-12F

Device Procode: MGB

Applicant's Name and Address: Cordis US Corp.
5452 Betsy Ross Drive
Santa Clara, California 95054

Date(s) of Panel Recommendation: None

Premarket Approval Application (PMA) Number: P040044/S097

Date of FDA Notice of Approval: June 27, 2024

The original PMA (P040044) was approved on August 17, 2005 and is indicated for use to seal femoral arterial access sites while reducing times to hemostasis and ambulation in patients who have undergone diagnostic or interventional endovascular procedures using a 5F, 6F, or 7F procedural sheath. The SSED to support the indication is available on the CDRH website and is incorporated by reference here (https://www.accessdata.fda.gov/cdrh_docs/pdf4/P040044B.pdf). The current supplement was submitted to add MYNX CONTROLTM VENOUS Vascular Closure Device (VCD) 6F-12F (MX61260) to the Mynx Product Family of devices approved under P040044. The changes for the MYNX CONTROL VENOUS VCD 6F-12F compared to the existing MYNX CONTROL VCD are an expansion to the indications for use to add venous and multiple access sites, and a design change in the sheath catch to accommodate larger introducer sheaths (up to 12F).

II. INDICATIONS FOR USE

The MYNX CONTROL™ VENOUS Vascular Closure Device (VCD) 6F-12F is indicated for use to seal femoral venous access sites while reducing times to hemostasis, ambulation, and discharge eligibility in patients who have undergone catheter-based procedures utilizing 6F to 12F inner diameter procedural sheaths, with single or multiple access sites in one or both limbs.

III. CONTRAINDICATIONS

There are no known contraindications for the MYNX CONTROL VENOUS VCD 6F-12F.

IV. WARNINGS AND PRECAUTIONS

The warnings and precautions can be found in the MYNX CONTROL VENOUS VCD 6F-12F labeling.

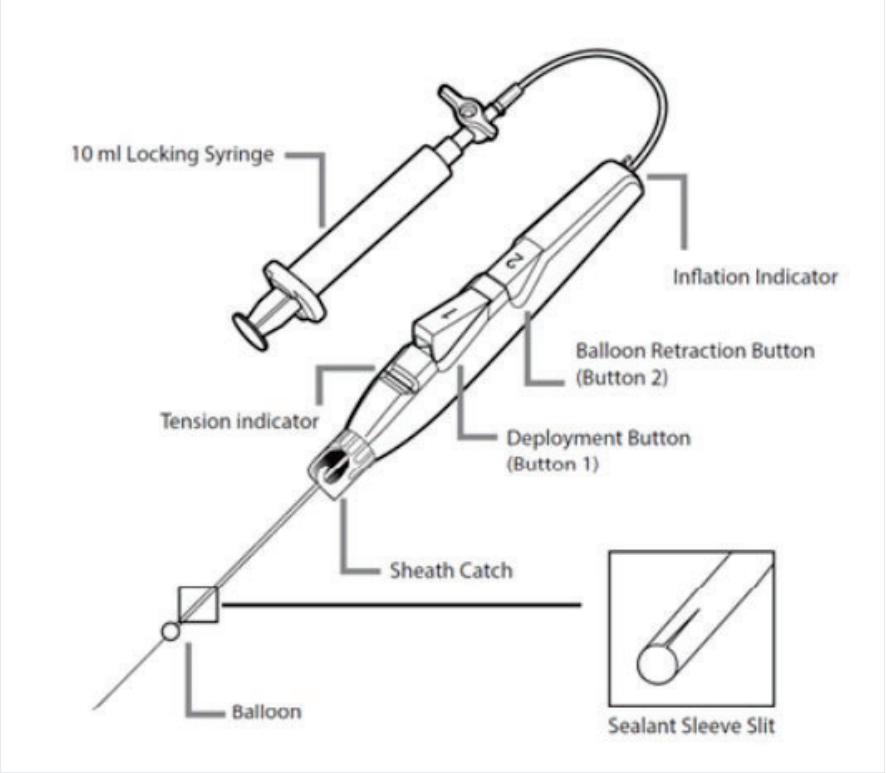
V. DEVICE DESCRIPTION

The MYNX CONTROL VENOUS VCD 6F-12F is a vascular closure device designed to achieve femoral vein hemostasis via delivery of the GRIP TECHNOLOGY™ sealant, an extravascular, water-soluble synthetic hydrogel, using a balloon catheter in conjunction with a standard procedural sheath. The GRIP TECHNOLOGY™ sealant is made of a polyethylene glycol (PEG) material which expands upon contact with subcutaneous fluids to seal the venotomy. The sealant is resorbed by the body within 30 days. The MYNX CONTROL VENOUS VCD 6F-12F sheath catch component is designed to accommodate large Catheter Sheath Introducers (up to 12F inner diameter).

The MYNX CONTROL VENOUS VCD 6F-12F is supplied with a 10 ml locking syringe used for balloon inflation and deflation.

The device contains no components manufactured from latex rubber. The catheter shaft has a silicone lubricant to facilitate insertion and withdrawal into compatible sheaths. Refer to Figure 1 for the MYNX CONTROL VENOUS VCD 6F-12F components.

Figure 1: MYNX CONTROL VENOUS VCD 6F-12F



Principles of Operation

At the end of the catheter-based procedure, the MYNX CONTROL VENOUS VCD 6F-12F is inserted through the existing introducer sheath in the femoral vein. The balloon is inflated, and the device is retracted back to the venotomy to provide temporary hemostasis. The GRIP TECHNOLOGY™ sealant is positioned and then deployed by depressing Button 1, which retracts the sealant sleeve to expose the sealant. The sealant is then compressed by continuing to depress Button 1 which advances the advancer tube to compress the sealant against the venotomy. The balloon is deflated while stabilizing the device at the access site. Button 2 is depressed which retracts the balloon into the advancer tube. The device is then removed from the patient.

VI. ALTERNATIVE PRACTICES AND PROCEDURES

There are several other alternatives for attaining hemostasis at a venous puncture site post-catheterization, including manual or mechanical compression, percutaneous suture delivery, and collagen patch-based hemostatic devices. Pressure dressings and sandbags are routinely used in combination with compression methods to control oozing. Each alternative has its own advantages and disadvantages. A patient should fully discuss these alternatives with his/her physician to select the method that best meets expectations and lifestyle.

VII. MARKETING HISTORY

The MYNX CONTROL VENOUS VCD 6F-12F has not been marketed in the United States or any foreign country for the venous and multiple access site indications requested in this supplement.

VIII. POTENTIAL ADVERSE EFFECTS OF THE DEVICE ON HEALTH

Below is a list of the potential adverse effects (e.g., complications) associated with the use of the device:

- Allergic reaction
- Arterio-venous fistula
- Bleeding from the access site
- Bruising at the access site
- Death
- Deep vein thrombosis
- Device failure/malfunction
- Ecchymosis
- Edema
- Embolization (tissue, thrombus, air, calcific debris, device)
- Hematoma
- Infection
- Inflammatory reaction
- Intimal tear / dissection
- Laceration of the vessel wall
- Loss of lower extremity pulse
- Lower extremity ischemia
- Nerve injury
- Oozing from the access site
- Perforation of the vessel wall
- Pseudoaneurysm
  Pulmonary embolism
- Puncture site pain
- Retroperitoneal bleeding
- Superficial vein thrombosis
- Vascular injury
- Vascular occlusion
- Vasovagal response
- Venous thrombus
- Wound dehiscence

For the specific adverse events that occurred in the clinical study, please see Section X below.

IX. SUMMARY OF NON-CLINICAL STUDIES

The following studies were completed to evaluate MYNX CONTROL VENOUS VCD 6F-12F: bench testing, biocompatibility, sterilization/packaging/shelf-life, and animal studies. Testing was referenced from the MYNX CONTROL VCD PMA submission P040044/S079 for those evaluations that could be leveraged from previous testing.

A. Laboratory Studies

The design of the MYNX CONTROL VENOUS VCD 6F-12F (MX61260) is based on the MYNX CONTROL VCD (MX6760). The only design change between the MYNX CONTROL VCD (MX6760) and the MYNX CONTROL VENOUS VCD 6F-12F (MX61260) is the sheath catch component to accommodate larger catheter introducer sheaths (up to 12F). New testing, performed on MYNX CONTROL VENOUS VCD 6F-12F for design requirements impacted by the change in sheath catch and venous indication, are provided in **Table 1**. All other design requirements not impacted by the changes were leveraged from testing performed on the MYNX CONTROL VCD (MX6760) approved in P040044/S079.

Table 1: Summary of Bench Testing Performed on MYNX CONTROL VENOUS VCD 6F-12F

Test	Purpose	Acceptance Criteria	Results
Deployment Tension	Provide proper tension on the balloon during deployment.	1.5 N Min to 3.8 N Max	Pass
Handle to Sheath Connection Strength	Device must securely connect to the procedural sheath.	12N Minimum	Pass
Kink Resistance	Device must maintain structural integrity during normal use.	The device shaft must tolerate a 45º bend at a 0.625-inch radius	Pass
Packaging Integrity (Tray)	Requirement for patient safety.	Tray is intact, closed, and free of visible damage. Device and components remain in	Pass

Test	Purpose	Acceptance Criteria	Results
		their designated positions.	

B. Animal Studies

A 30-day GLP study was performed to evaluate the safety and effectiveness of the MYNX CONTROL VENOUS VCD 6F-12F to close 12F vascular access sites in a porcine femoral vein model. In 4 animals, percutaneous access of the femoroiliac vasculature was performed using a12F introducer sheath at 4 – 6 access sites in each animal. At each access site, the 12F introducer was removed, and the vascular access site was closed either using the MYNX CONTROL VENOUS VCD 6F-12F (test article) or manual compression (control treatment), with half the sites in each animal receiving the test article and half receiving control treatment. The MYNX CONTROL VENOUS VCD 6F-12F performed comparably to manual compressions without clinically significant abnormalities with regards to local tissue response and overall animal health in this chronic in vivo porcine model.

Additionally, the GLP animal study data was evaluated for performance of the Hydrogel Sealant in achieving hemostasis and met the following acceptance criteria:

- Successful hemostasis following device deployment and termination
- Absence of hematoma ≥ 10 cm
- Vessel patency at the access site and downstream vasculature immediately post-procedure and termination

C. Biocompatibility

The MYNX CONTROL VENOUS VCD 6F-12F is a two-part system with different classifications as defined by ISO 10993-1, Biological Evaluation of Medical Devices. The delivery system is an external communicating device, circulating blood path with limited contact (less than 24 hours exposure) following the procedure. The Hydrogel Sealant is classified as an implant, circulating blood path with prolonged exposure (>24 hours not to exceed 30 days).

The MYNX CONTROL VENOUS VCD 6F-12F (MX61260) design is based on the MYNX CONTROL VCD (MX6760). All of the device components (including the Hydrogel Sealant, catheter, handle, deployment mechanism, and inflation system) with the exception of the sheath catch component are identical between the MYNX CONTROL VCD (MX6760) and the subject device. The sheath catch is a non-patient contacting component. Biocompatibility and chemical characterization testing have previously been performed on the MYNX CONTROL VCD (MX6760). All the results met the predetermined acceptance criteria and are leveraged for the MYNX CONTROL VENOUS VCD 6F-12F.

D. Sterilization and Shelf Life

The MYNX CONTROL VENOUS VCD 6F-12F is sterilized using e-beam irradiation. Sterilization validation of the MYNX CONTROL VENOUS VCD 6F-12F has been successfully qualified to achieve a minimum SAL of 10-6 per ISO 11137-1.

Shelf-life testing provided evidence that the MYNX CONTROL VENOUS VCD 6F-12F is safe and effective for its intended use for the duration of its labeled shelf life (2-years).

X. SUMMARY OF PRIMARY CLINICAL STUDY

The applicant performed a clinical study (ReliaSeal) to establish a reasonable assurance of safety and effectiveness of percutaneous closure of femoral venous access sites with the MYNC CONTROL VENOUS VCD 6F-12F in patients who have undergone catheter-based procedures utilizing 6F to 12F procedural sheaths, with single or multiple access sites in one or both limbs, in the US under IDE #G220147. Data from this clinical study were the basis for the PMA approval decision. A summary of the clinical study is presented below.

A. Study Design

Patients were treated between August 30, 2022 and May 22, 2023. The last patient 30-day follow-up visit was on July 11, 2023. The database for this Panel Track Supplement reflected data collected through September 8, 2023 and included 314 patients (270 randomized and 44 roll-in subjects). Among the 270 randomized subjects, 177 subjects (65.6%) were Mynx CONTROL Venous VCD device subjects and 93 subjects (34.4%) were manual compression control subjects. There were 13 US investigational sites.

The study was a prospective, multi-center, randomized, controlled, open label clinical study. The patients were randomized to either a device arm (MYNX CONTROL VENOUS VCD 6F-12F) or a control arm (Manual Compression) using a 2:1 randomization scheme. Each participating investigator in this study was required to perform two roll-in subjects before they could randomize a subject. A total of 72 subjects, of which 47 subjects (65.3%) were device subjects and 25 subjects (34.7%) were manual compression subjects, were enrolled in a Duplex Ultrasound (DUS) sub-study which was evaluated by a Core Lab.

1. Clinical Inclusion and Exclusion Criteria

   Enrollment in the ReliaSeal study was limited to patients who met the following inclusion criteria:

   - Age ≥18

- Able and willing to provide informed consent and to complete a follow-up visit at 30 ± 7 days.
- Planned catheter-based procedures via the common femoral vein(s) using 6F to 12F introducer sheaths which meet indications for elective, nonemergent interventions of disease state, without contraindications for emergent vascular surgery or Manual Compression of the venous access sites.

Patients were not permitted to enroll in the ReliaSeal study if they met any of the following exclusion criteria:

- Any use of systemic steroids (IV or oral) within 30 days of procedure
- History of deep vein thrombosis, pulmonary embolism, or thrombophlebitis within 6 months of procedure
- Presence of thrombocytopenia (platelet count < 100,000 cells/mm3) or anemia (hemoglobin < 10 g/dL, hematocrit < 30%)
- History of bleeding disorders such as hemophilia or von Willebrand's disease
- Currently involved in any other investigational clinical trial
- Documented history of uncontrolled hypertension (i.e., systolic blood pressure > 180 mm Hg), or critical illness requiring intravenous vasopressors for blood pressure stabilization
- Femoral arteriotomy or venotomy in either limb within 10 days pre procedure
- Use of VCD in either limb within 30 days of procedure
- Any planned procedure involving femoral arterial or venous access in either limb within 30 days of procedure or prior to study exit
- Renal insufficiency (i.e., serum creatinine > 2.5 mg/dL)
- Patients who are pregnant, planning to become pregnant during the study period, or lactating
- Body-mass index (BMI) > 45 kg/m2 or <20 kg/m2
- Unable to routinely walk at least 20 feet without assistance
- Known allergy/adverse reaction to polyethylene glycol or contrast medium
- Planned procedures (including staged) or concomitant conditions/comorbidities that per investigator's judgment may extend ambulation attempts beyond 2-3 hours, and/or require extended hospitalization or re-hospitalization
- Previous vascular surgery or repair in the vicinity of the target access site within the previous 90 days of the procedure
- Active systemic infection, or cutaneous infection or inflammation in the vicinity of the target access site
- Current COVID-19 infection (with or without symptoms), positive test for COVID- 19 within 14 days, or recent exposure to a person with COVID-19 infection
- Patients who refuse blood transfusion if it were to be needed

- Patients with expected life of less than 30 days

Patients were also excluded if they met ANY of the following criteria during the index procedure:

- Any attempt at femoral arterial access or inadvertent arterial puncture with hematoma during the procedure
- Any procedural complications that may interfere with routine recovery, ambulation, or discharge eligibility times
- Physician deems that a different hemostasis approach for venous access sites is necessary
- Physician deems that the subject should not attempt protocol-required ambulation
- Venous access site location is noted to be above the inguinal ligament (cephalad to lower half of the femoral head or the inferior epigastric vein origin from the external iliac vein)
- Intra-procedural bleeding around sheath, or suspected intraluminal thrombus, hematoma, pseudoaneurysm, or AV fistula
- Difficult insertion of procedural sheath or needle stick problems at the onset of the procedure (e.g., multiple stick attempts, accidental arterial stick with hematoma, "back wall stick," etc.)
- A < 6F or > 12F procedural sheath is present at any time during the procedure or at closure

2. Follow-up Schedule

All patients were scheduled to return for follow-up examinations at 30 ± 7 days post-procedure.

Preoperatively, the time of first index procedure sheath insertion, time of removal of final index procedure device, and sheath sizes used were measured. Postoperatively, the objective parameters measured during the study included access site location, time of removal, time venous hemostasis is achieved, confirmation venous hemostasis is maintained at 5 minutes after recorded hemostasis time, duplex ultrasound for those patients enrolled in the DUS subset, and use of adjunctive compression, date and time subject was able to ambulate 20 feet without venous rebleeding from access site, date and time the subject is eligible for discharge, and date and time the subject was discharged. Adverse events and complications were recorded at all visits.

The key timepoints are shown below in the tables summarizing safety and effectiveness.

3. Clinical Endpoints

With regards to safety, the primary endpoint was the rate of combined major venous access site closure-related complications through 30 days post procedure, attributed directly to MYNX CONTROL VENOUS VCD 6F-12F or Manual Compression without other likely cause. The secondary safety endpoint was the rate of combined

minor venous access site closure related complications within 30 days post procedure, attributed directly to MYNX CONTROL VENOUS VCD 6F-12F or Manual Compression without other likely cause. The hypothesis for the primary safety endpoint was that the rate of CEC-adjudicated combined major venous access site closure-related complications through 30 days post-procedure for subjects treated with the Mynx CONTROL Venous VCD is non-inferior to the rate for subjects using manual compression.

With regards to effectiveness, the primary endpoints were time to ambulation (TTA), defined as time (in hours) between removal of the MYNX CONTROL VENOUS VCD 6F-12F device (device group) or of the final sheath (MC group) and when subject stands and walks 20 feet without evidence of rebleeding from any femoral venous access sites, and time to hemostasis (TTH), defined as time (in minutes) between removal of each MYNX CONTROL VENOUS VCD 6F-12F device (device group) or of each sheath (MC group) and first observed and confirmed venous hemostasis (per access site analysis). The secondary effectiveness endpoint was time to discharge eligibility (TTDE), defined as elapsed time (in hours) between removal of the final MYNX CONTROL VENOUS VCD 6F-12F device (device group) or removal of the final sheath (MC group) and when subject is eligible for discharge from the institution based on the assessment of the attending physician.

With regard to success/failure criteria, procedure success and device success were evaluated as additional secondary effectiveness measures. Procedural Success was defined as attainment of final hemostasis at all venous access sites without major venous access site closure-related complications through 30 days. Device Success (for device group) was defined as ability to successfully deploy the MYNX CONTROL VENOUS VCD 6F-12F delivery system, deliver the polyethylene glycol hydrogel sealant, and achieve hemostasis.

B. Accountability of PMA Cohort

At the time of database lock, of 314 patients enrolled in the PMA study, 83.8% (263/314) patients were available for analysis at the completion of the study, the 30-day post-operative visit. Of these 314 subjects, 270 randomized subjects were included in the intent to treat (ITT) cohort and 44 were included in the roll in cohort. Of the 270 ITT subjects, 177 were randomized to the MYNX CONTROL VENOUS VCD 6F-12F group and 93 were randomized to the Manual Compression control group. In Mynx Control subjects, 170/173 (98.3%) completed 30-day follow up and in Manual Compression subjects, 89/90 (98.9%) completed 30-day follow up.

In the MYNX CONTROL VENOUS VCD 6F-12F group, there were a total of two patients who were lost to follow-up and two patients were withdrawn by the investigator. In the Manual Compression group, one patient was lost to follow-up, one patient was withdrawn by the investigator and one patient died. Additionally, there were three patients in the MYNX CONTROL VENOUS VCD 6F-12F group and one patient

in the Manual Compression group who exited the study 30 days post procedure and did not complete 30-day follow-up visit.

C. Study Population Demographics and Baseline Parameters

The demographics of the study population are typical for a vascular closure device study performed in the US. The baseline demographic and clinical characteristics of the two treatment groups were very similar. The mean ages in the MYNX CONTROL VENOUS VCD 6F-12F and Manual Compression groups were 66.7 years, and 66.8 years, respectively. The percentage of male and female subjects was 66.1% and 33.9% respectively in the MYNX CONTROL VENOUS VCD 6F-12F group and 65.6% and 34.4% respectively in the Manual Compression group. The mean BMI was 30.6 in the MYNX CONTROL VENOUS VCD 6F-12F group and 29.6 in the Manual Compression group. **Table 2** provides these demographic results.

Table 2: Patient Demographics and Baseline Characteristics – Randomized Patients

	MYNX CONTROL (N=177)		Manual Compression (N=93)	
Age				
Mean ± SD	66.7 ± 11.62	-	66.8 ± 10.63	-
Median (IQR)	69 (61 - 75)	-	69 (63 - 73)	-
Min, Max	(19 - 86)	-	(31 - 86)	-
Gender				
Female	60	33.9%	32	34.4%
Male	117	66.1%	61	65.6%
BMI				
Mean ± SD	30.6 ± 6.13	-	29.6 ± 5.18	-
Median (IQR)	29.8 (25.4 - 35.2)	-	28.7 (25.5 - 33.1)	-
Min, Max	(20.1 - 43.2)	-	(21.5 - 43.8)	-
Ethnicity*				
Hispanic or Latino	96	5.1%	2	2.2%
Non-Hispanic or Latino	158	89.8%	87	93.5%
Unknown	9	5.1%	4	4.3%
Race				
American Indian or Alaska Native	1	0.6%	0	0.0%
Asian	2	1.1%	1	1.1%
Black or African American	4	2.3%	2	2.2%
White	167	94.4%	89	95.7%
Unknown	3	1.7%	1	1.1%
*Ethnicity results are based off of N=176 subjects.				

The medical history and risk factors are presented in **Table 3** below.

Table 3: Medical History and Risk Factors

	MYNX CONTROL (N=177)		Manual Compression (N=93)	
Hypertension	85	48.0%	50	53.8%
Atrial Fibrillation	98	55.4%	49	52.7%
Diabetes	32	18.1%	15	16.1%
Dyslipidemia	59	33.3%	35	37.6%
DVT/Thrombosis	3	1.7%	1	1.1%
Atrial Flutter	18	10.2%	8	8.6%
Morbid Obesity	4	2.3%	0	0.0%
Peripheral Vascular Disease	5	2.8%	3	3.2%

Anticoagulant/Antiplatelet Medications taken by subjects pre- and peri-procedurally are shown in **Table 4** below. Pre- and peri-procedural anticoagulant and antiplatelet medications were reported in 81.9% of MYNX CONTROL VENOUS VCD 6F-12F and 81.7% of Manual Compression groups.

Activated clotting time (ACT) was collected at the conclusion of the procedure with mean ACT for subjects reported as 315.4 ± 89.13 seconds and 326.9 ± 72.19 seconds in the MYNX CONTROL VENOUS VCD 6F-12F group and MC group, respectively.

Table 4: Anticoagulant/Antiplatelet Medications

Medication	MYNX CONTROL (N=177)		Manual Compression (N=93)	
Warfarin	2	1.1%	2	2.2%
Prasugrel	1	0.6%	0	0.0%
Pradaxa	2	1.1%	0	0.0%
Brilinta	1	0.6%	0	0.0%
Rivaroxaban/Xarelto	18	10.2%	11	11.8%
Heparin	68	38.4%	38	40.9%
Clopidogrel/Plavix	14	7.9%	10	10.8%
Aspirin/ASA	42	23.7%	25	26.9%
Apixaban/Eliquis	89	50.3%	42	45.2%
Any of the Above	145	81.9%	76	81.7%

D. Safety and Effectiveness Results

1. Safety Results

The analysis of safety was based on the Intent to Treat (ITT) cohort of 270 randomized patients available for the 30-day evaluation. The key safety outcomes for this study are summarized below. Adverse effects are reported in **Tables 5 to 7**.

The primary safety endpoint, the rate of CEC adjudicated combined major venous access site closure-related complications through 30 days post procedure, attributed directly to VCD or Manual Compression without other likely cause was met, and included the following:

- Access site-related bleeding requiring transfusion, surgical intervention, or rehospitalization
- Vascular injury requiring surgical repair
- Access site-related infection confirmed by culture and sensitivity, requiring intravenous antibiotics and/or extended hospitalization
- New onset, permanent (i.e., persisting at 30-day follow-up) access site-related nerve injury
- New onset access site-related nerve injury requiring surgical repair
- Pulmonary embolism requiring surgical or endovascular intervention and/or resulting in death, to be confirmed by CT pulmonary angiography, lung ventilation/perfusion scan (VQ scan), or autopsy
- Pulmonary embolism not requiring surgical or endovascular intervention and/or not resulting in death, to be confirmed by CT pulmonary angiography or lung ventilation/perfusion scan (VQ scan)

The MYNX CONTROL VENOUS VCD 6F-12F group had no reported CEC adjudicated major complications (0/229) directly attributed to the device, while the Manual Compression group had one reported CEC adjudicated major complication (0.8% (1/119)) directly attributed to Manual Compression.

The secondary safety endpoint, the rate of CEC adjudicated combined minor venous access site closure related complications within 30 days post-procedure, attributed directly to VCD or Manual Compression without other likely cause was met. The MYNX CONTROL VENOUS VCD 6F-12F group had no reported CEC adjudicated minor complications (0/229) [95% confidence interval: 0.0%, 1.6%] directly attributed to the VCD. The Manual Compression group reported 6 CEC adjudicated minor complications for a rate of 5.0% (6/119) [95% confidence interval: 1.9%, 10.7%] directly attributed to Manual Compression.

Table 5: CEC Adjudicated Major Complications Directly Attributed to the VCD/Manual Compression within 30 Days – Intent to Treat (ITT) Subjects

Major Venous Access Site Closure-Related Complications at 30 Days by Event	MYNX CONTROL (N=177 subjects, 236 limbs)		Manual Compression (N=93 subjects, 122 limbs)	
Major Complications of the Target Limb Access Site within 30 Days	0	0.0%*	1	0.8%*
Access site-related bleeding requiring transfusion, surgical intervention, or rehospitalization	0	0.0%	1	0.8%
Vascular injury requiring surgical repair	0	0.0%	0	0.0%
Access site-related infection confirmed by culture and sensitivity, requiring intravenous antibiotics and/or extended hospitalization	0	0.0%	0	0.0%
New onset, permanent (i.e., persisting at 30-day follow-up) access site-related nerve injury	0	0.0%	0	0.0%
New onset access site-related nerve injury requiring surgical repair	0	0.0%	0	0.0%
Pulmonary embolism requiring surgical or endovascular intervention and/or resulting in death, to be confirmed by CT pulmonary angiography, lung ventilation/perfusion scan (VQ scan), or autopsy	0	0.0%	0	0.0%
Pulmonary embolism not requiring surgical or endovascular intervention and/or not resulting in death, to be confirmed by CT pulmonary angiography or lung ventilation/perfusion scan (VQ scan)	0	0.0%	0	0.0%
*Results calculated on a per limb basis				

Table 6: CEC Adjudicated Minor Complications Directly Attributed to the VCD/Manual Compression within 30 Days –Intent to Treat (ITT) Subjects

Minor Venous Access Site Closure-Related Complications at 30 Days by Event	MYNX CONTROL (N=177 subjects, 236 limbs)		Manual Compression (N=93 subjects, 122 limbs)	
Minor Complications of the Target Limb Access Site within 30 Days	0	0.0%*	6	5.0%*
Pseudoaneurysm - Treated with thrombin injection, fibrin adhesive injection, or ultrasound guided compression and documented by ultrasound	0	0.0%	0	0.0%
Pseudoaneurysm - Not requiring treatment	0	0.0%	1	0.8%
AV Fistula	0	0.0%	0	0.0%
Access site related Hematoma > 6 cm documented by ultrasound	0	0.0%	1	0.8%
Access site-related bleeding requiring > 30 min to achieve hemostasis	0	0.0%	1	0.8%
Late access site-related bleeding (following hospital discharge eligibility)	0	0.0%	2	1.7%

Minor Venous Access Site Closure-Related Complications at 30 Days by Event	MYNX CONTROL (N=177 subjects, 236 limbs)		Manual Compression (N=93 subjects, 122 limbs)	
Transient loss of ipsilateral lower extremity pulse	0	0.0%	0	0.0%
Ipsilateral deep vein thrombosis documented by ultrasound	0	0.0%	0	0.0%
Transient access site-related nerve injury	0	0.0%	0	0.0%
Access site-related vessel laceration	0	0.0%	0	0.0%
Access site wound dehiscence	0	0.0%	0	0.0%
Local access site infection - Minor	0	0.0%	0	0.0%
Local access site inflammatory reaction - Minor	0	0.0%	0	0.0%
Allergic reaction	0	0.0%	0	0.0%
Ecchymosis	0	0.0%	1	0.8%
*Results calculated on a per limb basis				

Table 7: All CEC Adjudicated Site Reported Serious and Non-Serious Adverse Events

Randomization Group	Adverse Events Term	Serious/Non-Serious
MYNX CONTROL VENOUS	Oozing/purulent discharge from groin site/groin abscess	Non-Serious
	Lump/Swelling/hematoma<6cm at the groin site	
	Nerve pain/Pain at groin site	
	Bruising at groin site	
	Groin site bleeding/rebleeding	
	Infection at access site	
	Local access site inflammatory reaction	
	Non-occlusive/Mural thrombus in Common Femoral Vein	
	Systemic Inflammatory Response Syndrome	Serious
	Pulmonary Artery Filling Defects	
Manual Compression	Oozing from groin site	Non-Serious
	Bruising at groin site	
	Hematoma <6cm	
	Pain at groin site	
	Pseudoaneurysm	
	Intermittent bleeding of groin site.	
	Arterial bleed	Serious
	Hematoma >6 cm	
	Respiratory Failure	

There were total of 34 CEC adjudicated adverse events in the MYNX CONTROL VENOUS VCD group and of those, 32 were non-serious adverse events and 2 were serious adverse events. In the MYNX CONTROL VENOUS VCD group, none of the serious adverse events were adjudicated as being related to the device.

One event was possibly related to the procedure. There were total of 13 CEC adjudicated adverse events in the Manual Compression group and of those, 10 were non-serious and 3 were serious events. In the Manual Compression group, the serious adverse events were adjudicated as being related to the procedure.

2. Effectiveness Results

The analysis of effectiveness was based on the Intent to Treat (ITT) cohort of 270 randomized evaluable patients during the index procedure. Key effectiveness outcomes are presented in **Tables 8 to 9.**

Time to Ambulation (TTA) in the MYNX CONTROL VENOUS VCD 6F-12F group was less than in the Manual Compression group, with a mean of 2.6±1.03 hours vs. 5.1±4.35 hours, respectively. In addition, Time to Hemostasis (TTH) (analyzed per access site: 470 MYNX CONTROL VENOUS VCD/249 MC) was reduced in the MYNX CONTROL VENOUS VCD 6F-12F subjects compared to the Control group (2.1±1.79 minutes vs. 11.4±7.19 minutes, respectively); $p < 0.001$ demonstrating superiority of the MYNX CONTROL VENOUS VCD 6F-12F over MC for TTA and TTH statistically.

Subjects treated with the MYNX CONTROL VENOUS VCD 6F-12F showed a statistically significant shorter Time to Discharge Eligibility (TTDE) compared to subjects treated with Manual Compression (3.1 ± 1.24 vs. 5.5 ± 4.58 hours, respectively); $p < 0.001$. The results of the primary and secondary effectiveness endpoints are presented in Tables 9 and 10.

Table 8: Primary Effectiveness Results (TTA and TTH) – Intent to Treat (ITT) Subjects

	MYNX CONTROL (177 Subjects)	**Manual Compression (93 Subjects)**	**P-Value**
Time to Ambulation (hr)			
N (number of subjects)	172	91	
Mean ± SD	2.6 ± 1.03	5.1 ± 4.35	p<0.001
Median (IQR)	2.28 (2.08 - 3.08)	3.90 (2.97 - 5.15)	
Min, Max	(0.83 – 6.42)	(1.15 – 31.17)	
Time to Hemostasis (min)			
N (number of access sites)	470	249	
Mean ± SD	2.1 ± 1.79	11.4 ± 7.19	p<0.001
Median (IQR)	2 (1 - 3)	10 (6 - 15)	
Min, Max	(0 - 19)	(0 - 37)	

Table 9a: Secondary Effectiveness Results (TTDE) – Intent to Treat (ITT) Subjects

	MYNX CONTROL (177 Subjects)	Manual Compression (93 Subjects)	P-Value
Time to Discharge Eligibility (hr)			
N (number of subjects)	173	91	
Mean ± SD	3.1 ± 1.24	5.5 ± 4.58	p<0.001
Median (IQR)	2.67 (2.35 - 3.52)	4.25 (3.12 - 5.67)	
Min, Max	(0.83 - 8.05)	(1.15 - 31.17)	

Table 9b: Secondary Effectiveness Results (Procedural and Device Success) – Intent to Treat (ITT) Subjects

	MYNX CONTROL (177 Subjects)	Manual Compression (93 Subjects)
Procedural Success		
N (number of subjects)	100% (171/171)	98.9% (89/90)
Device Success		
N (number of access sites)	100% (470/470)	N/A

3. Duplex Ultrasound (DUS) Sub Study

   A subgroup analysis was performed on 72 subjects (47 MYNX CONTROL VENOUS VCD and 25 MC) who were enrolled in the duplex ultrasound (DUS) substudy. The subjects in both groups were required to undergo a DUS prior to discharge and, if any complications were noted at discharge, those subjects were required to undergo a DUS at their 30-day follow-up visit. Of the DUS sub-study subjects, 10.6% (5/47) of MYNX CONTROL VENOUS VCD subjects and 4.0% (1/25) of Manual Compression subjects had ultrasound findings at discharge, as assessed by Core Lab. In the MYNX CONTROL VENOUS VCD group, 6.4% (3/5) of subjects had a finding of intraluminal thrombus and 6.4% (3/5) of subjects had a finding of hematoma <6cm at discharge, respectively. One subject experienced both intraluminal thrombus and hematoma<6cm; therefore, the total subject count in the MYNX CONTROL VENOUS VCD group is n=5. Of these five subjects, two subjects were lost to follow-up for their 30-day follow-up visits, and the remaining three subjects underwent 30-day DUS with no abnormalities identified.

   In addition, two MYNX CONTROL VENOUS VCD subjects were noted to have an abnormal site reported finding at discharge, i.e., hematoma <6cm. Although these

findings were not confirmed by the Core Lab, these subjects underwent DUS at 30 days, which demonstrated resolution of the hematomas.

In the Manual Compression group, one subject was observed to have two findings at discharge, a hematoma that was <6cm and a pseudoaneurysm. This subject did not have any abnormality identified on the 30-day DUS. In addition, one MC subject was noted to have an abnormal site reported finding at discharge, i.e., hematoma <6cm. Although this finding was not confirmed by the Core Lab, the subject underwent DUS at 30 days, which demonstrated resolution of the hematoma. See **Table 10** for the results of the ultrasound sub-study.

Table 10: Duplex Ultrasound (DUS) Sub-Study

	Index Procedure/Discharge			30-Day Follow-Up		
	MYNX CONTROL (N=47 Subjects)	**Manual Compression (N=25 Subjects)**	**All (N=72 Subjects)**	**MYNX CONTROL (N=47 Subjects)**	**Manual Compression (N=25 Subjects)**	**All (N=72 Subjects)**
Abnormal DUS Finding[a]	10.6% (5/47) [3.5%, 23.1%]	4.0% (1/25) [0.1%, 20.4%]	8.3% (6/72) [3.1%, 17.3%]	0.0% (0/5) [0.0%, 52.2%]	0.0% (0/2) [0.0%, 84.2%]	0.0% (0/7) [0.0%, 41.0%]
Stenosis	0.0% (0/47)	0.0% (0/25)	0.0% (0/72)	0.0% (0/5)	0.0% (0/2)	0.0% (0/7)
Occlusion	0.0% (0/47)	0.0% (0/25)	0.0% (0/72)	0.0% (0/5)	0.0% (0/2)	0.0% (0/7)
Visible Intraluminal Thrombus	6.4% (3/47)	0.0% (0/25)	4.2% (3/72)	0.0% (0/5)	0.0% (0/2)	0.0% (0/7)
Hematoma	6.4% (3/47)	4.0% (1[d]/25)	5.6% (4/72)	0.0% (0/5)	0.0% (0/2)	0.0% (0/7)
Hematoma (>10 cm)	*0.0% (0/47)*	*0.0% (0/25)*	*0.0% (0/72)*	*0.0% (0/5)*	*0.0% (0/2)*	*0.0% (0/7)*
Hematoma (6-10 cm)	*0.0% (0/47)*	*0.0% (0/25)*	*0.0% (0/72)*	*0.0% (0/5)*	*0.0% (0/2)*	*0.0% (0/7)*
Hematoma (<6 cm)	*6.4% (3/47)*	*4.0% (1/25)*	*5.6% (4/72)*	*0.0% (0/5)*	*0.0% (0/2)*	*0.0% (0/7)*
Pseudoaneurysm	0.0% (0/47)	4.0% (1[d]/25)	1.4% (1/72)	0.0% (0/5)	0.0% (0/2)	0.0% (0/7)
AV Fistula	0.0% (0/47)	0.0% (0/25)	0.0% (0/72)	0.0% (0/5)	0.0% (0/2)	0.0% (0/7)
Embolism	0.0% (0/47)	0.0% (0/25)	0.0% (0/72)	0.0% (0/5)	0.0% (0/2)	0.0% (0/7)
Other	0.0% (0/47)	0.0% (0/25)	0.0% (0/72)	0.0% (0/5)	0.0% (0/2)	0.0% (0/7)

Core Lab reported data. Duplex Ultrasound is for those subjects enrolled in DUS substudy.

4. Subgroup Analyses

Sub-group analyses were conducted for the endpoints of major and minor adverse events, TTA, TTH, and TTDE using a generalized linear model. The sub-groups used to form strata were sex (male/female). There was insufficient race/ethnic diversity in the trial to conduct a meaningful subgroup analysis based on race/ethnicity. For all endpoints except TTH using sex as the strata, the interaction term was non-significant. The significant interaction stemmed from the difference in TTH, for males and females, between MYNX CONTROL VENOUS VCD and Manual Compression, both effects favored MYNX CONTROL VENOUS VCD.

The following procedural characteristics were evaluated for potential association with outcomes: use of MYNX CONTROL VENOUS VCD for closing > 9 French sized access sites, number of access sites per limb, and number of limbs treated (1 versus 2). See **Tables 11-13** for the results of the subgroup analyses.

Table 11: Subgroup Analysis: > 9 French Sized Access Sites Closed with MYNX CONTROL VENOUS VCD

	Sheath Size<9			**Sheath Size>=9**		
	MYNX CONTROL (N=70 Subjects, 142 Access Sites, 83 Limbs)	**Manual Compression (N=43 Subjects, 92 Access Sites, 50 Limbs)**	**Difference [95% CI]/ P-value**	**MYNX CONTROL (N=105 Subjects, 328 Access Sites, 153 Limbs)**	**Manual Compression (N=49 Subjects, 157 Access Sites, 72 Limbs)**	**Difference [95% CI]/ P-value**
Primary Safety Endpoint						
Major Complications of the Target Limb Access Site within 30 Days	0.0% (0/83) [0.0%, 4.3%]	0.0% (0/47) [0.0%, 7.5%]	0.0% [-7.6%, 4.4%]	0.0% (0/146) [0.0%, 2.5%]	1.4% (1/72) [0.0%, 7.5%]	-1.4% [-7.5%, 1.4%]
Primary Effectiveness Endpoint						
Time to Ambulation (hr)			<0.001			<0.001
N	67	43		105	48	
Mean ± SD	2.1 ± 0.56	3.3 ± 0.77		3.0 ± 1.10	6.7 ± 5.48	
Median (IQR)	2.10 (2.00 - 2.22)	3.20 (2.75 - 3.82)		2.62 (2.23 - 3.55)	4.78 (3.95 - 7.17)	
Min, Max	(0.85 - 4.40)	(2.00 - 5.15)		(0.83 - 6.42)	(1.15 - 31.17)	
Time to Hemostasis (min)			<0.001			<0.001
N	142	92		328	157	

	Sheath Size<9			Sheath Size>=9		
	MYNX CONTROL (N=70 Subjects, 142 Access Sites, 83 Limbs)	Manual Compression (N=43 Subjects, 92 Access Sites, 50 Limbs)	Difference [95% CI]/ P-value	MYNX CONTROL (N=105 Subjects, 328 Access Sites, 153 Limbs)	Manual Compression (N=49 Subjects, 157 Access Sites, 72 Limbs)	Difference [95% CI]/ P-value
Mean ± SD	1.8 ± 1.77	13.6 ± 8.96		2.2 ± 1.78	10.1 ± 5.56	
Median (IQR)	1 (1 - 2)	12 (6 - 20)		2 (1 - 3)	10 (6 - 15)	
Min, Max	(0 - 13)	(0 - 37)		(0 - 19)	(1 - 28)	
Secondary Safety Endpoint						
Minor Complications of the Target Limb Access Site within 30 Days	0.0% (0/83) [0.0%, 4.3%]	4.3% (2/47) [0.5%, 14.5%]	-4.3% [-14.2%, 1.1%]	0.0% (0/146) [0.0%, 2.5%]	5.6% (4/72) [1.5%, 13.6%]	-5.6% [-13.4%, -1.3%]

Table 12: Subgroup Analysis: Number of Access Sites Per Limb

	Number of Access Sites per Limb<=2			Number of Access Sites per Limb>2		
	MYNX CONTROL (N=124 Subjects, 315 Access Sites, 184 Limbs)	Manual Compression (N=58 Subjects, 141 Access Sites, 85 Limbs)	Difference [95% CI]/ P-value	MYNX CONTROL (N=51 Subjects, 155 Access Sites, 52 Limbs)	Manual Compression (N=34 Subjects, 108 Access Sites, 37 Limbs)	Difference [95% CI]/ P-value
Primary Safety Endpoint						
Major Complications of the Target Limb Access Site within 30 Days	0.0% (0/178) [0.0%, 2.1%]	0.0% (0/82) [0.0%, 4.4%]	0.0% [-4.5%, 2.1%]	0.0% (0/51) [0.0%, 7.0%]	2.7% (1/37) [0.1%, 14.2%]	-2.7% [-13.8%, 4.6%]
Primary Effectiveness Endpoint						
Time to Ambulation (hr)			<0.001			<0.001
N	122	57		50	34	
Mean ± SD	2.4 ± 0.91	3.6 ± 1.42		3.1 ± 1.15	7.7 ± 6.09	
Median (IQR)	2.20 (2.03 - 2.57)	3.17 (2.60 - 4.02)		2.99 (2.33 - 3.65)	5.88 (4.25 - 7.50)	
Min, Max	(0.85 - 6.10)	(2.00 - 9.78)		(0.83 - 6.42)	(1.15 - 31.17)	
Time to Hemostasis (min)			<0.001			0.021
N	315	141		155	108	

	Number of Access Sites per Limb<=2			Number of Access Sites per Limb>2		
	MYNX CONTROL (N=124 Subjects, 315 Access Sites, 184 Limbs)	**Manual Compression (N=58 Subjects, 141 Access Sites, 85 Limbs)**	**Difference [95% CI]/ P-value**	**MYNX CONTROL (N=51 Subjects, 155 Access Sites, 52 Limbs)**	**Manual Compression (N=34 Subjects, 108 Access Sites, 37 Limbs)**	**Difference [95% CI]/ P-value**
Mean ± SD	1.9 ± 1.99	12.9 ± 7.50		2.3 ± 1.23	9.4 ± 6.28	
Median (IQR)	1 (1 - 2)	12 (7 - 15)		2 (2 - 3)	9 (5 - 10)	
Min, Max	(0 - 19)	(1 - 37)		(0 - 8)	(0 - 28)	
Secondary Safety Endpoint						
Minor Complications of the Target Limb Access Site within 30 Days	0.0% (0/178) [0.0%, 2.1%]	2.4% (2/82) [0.3%, 8.5%]	-2.4% [-8.5%, 0.3%]	0.0% (0/51) [0.0%, 7.0%]	10.8% (4/37) [3.0%, 25.4%]	-10.8% [-24.7%, -1.2%]

Table 13: Subgroup Analysis: Number of Limbs Treated

	Number of Limbs=1			Number of Limbs=2		
	MYNX CONTROL (N=114 Subjects, 258 Access Sites, 114 Limbs)	**Manual Compression (N=62 Subjects, 144 Access Sites, 62 Limbs)**	**Difference [95% CI]/ P-value**	**MYNX CONTROL (N=61 Subjects, 212 Access Sites, 122 Limbs)**	**Manual Compression (N=30 Subjects, 105 Access Sites, 60 Limbs)**	**Difference [95% CI]/ P-value**
Primary Safety Endpoint						
Major Complications of the Target Limb Access Site within 30 Days	0.0% (0/113) [0.0%, 3.2%]	1.6% (1/61) [0.0%, 8.8%]	-1.6% [-8.7%, 1.9%]	0.0% (0/116) [0.0%, 3.1%]	0.0% (0/58) [0.0%, 6.2%]	0.0% [-6.2%, 3.2%]
Primary Effectiveness Endpoint						
Time to Ambulation (hr)			<0.001			<0.001
N	111	62		61	29	
Mean ± SD	2.6 ± 1.03	5.6 ± 5.07		2.7 ± 1.03	4.1 ± 1.81	
Median (IQR)	2.20 (2.00 - 3.07)	3.82 (3.08 - 6.02)		2.40 (2.20 - 3.20)	4.00 (2.58 - 4.75)	
Min, Max	(0.83 - 6.42)	(1.15 - 31.17)		(0.85 - 6.10)	(2.15 - 9.78)	
Time to Hemostasis (min)			<0.001			<0.001
N	258	144		212	105	

	Number of Limbs=1			Number of Limbs=2		
	MYNX CONTROL (N=114 Subjects, 258 Access Sites, 114 Limbs)	**Manual Compression (N=62 Subjects, 144 Access Sites, 62 Limbs)**	**Difference [95% CI]/ P-value**	**MYNX CONTROL (N=61 Subjects, 212 Access Sites, 122 Limbs)**	**Manual Compression (N=30 Subjects, 105 Access Sites, 60 Limbs)**	**Difference [95% CI]/ P-value**
Mean ± SD	2.1 ± 1.44	11.9 ± 8.27		2.0 ± 2.14	10.7 ± 5.34	
Median (IQR)	2 (1 - 3)	10 (6 - 16)		2 (1 - 2.5)	10 (6 - 15)	
Min, Max	(0 - 13)	(0 - 37)		(0 - 19)	(2 - 20)	
Secondary Safety Endpoint						
Minor Complications of the Target Limb Access Site within 30 Days	0.0% (0/113) [0.0%, 3.2%]	9.8% (6/61) [3.7%, 20.2%]	-9.8% [-19.8%, -3.6%]	0.0% (0/116) [0.0%, 3.1%]	0.0% (0/58) [0.0%, 6.2%]	0.0% [-6.2%, 3.2%]

5. Pediatric Extrapolation
   In this premarket application, existing clinical data was not leveraged to support approval of a pediatric patient population.

XI. FINANCIAL DISCLOSURE

The Financial Disclosure by Clinical Investigators regulation (21 CFR 54) requires applicants who submit a marketing application to include certain information concerning the compensation to, and financial interests and arrangement of, any clinical investigator conducting clinical studies covered by the regulation. The pivotal clinical study included 32 investigators. None of the clinical investigators had disclosable financial interests/arrangements as defined in sections 54.2(a), (b), (c), and (f). The information provided does not raise any questions about the reliability of the data.

XII. PANEL MEETING RECOMMENDATION AND FDA'S POST-PANEL ACTION

In accordance with the provisions of section 515(c)(3) of the act as amended by the Safe Medical Devices Act of 1990, this PMA was not referred to the Circulatory System Device Panel, an FDA advisory committee, for review and recommendation because the information in the PMA substantially duplicates information previously reviewed by this panel.

XIII. CONCLUSIONS DRAWN FROM PRECLINICAL AND CLINICAL STUDIES

A. Effectiveness Conclusions

The clinical data from the ReliaSeal study demonstrate that patients treated with the MYNX CONTROL VENOUS VCD 6F-12F had a lower mean time to ambulation, time to hemostasis, and time to discharge eligibility compared to patients treated with Manual Compression, and that the differences in these times are statistically and clinically significant. Procedural and device success was achieved in 100.0% of MYNX CONTROL VENOUS VCD 6F-12F subjects.

B. Safety Conclusions

The risks of the device are based on data collected in a clinical study conducted to support PMA approval as described above. There were no CEC adjudicated major or minor complications of the target limb access site through 30 days post-procedure, in the MYNX CONTROL VENOUS VCD 6F-12F group.

C. Benefit-Risk Determination

The probable benefits of the device are also based on data collected in a clinical study conducted to support PMA approval as described above. These benefits include reduced mean TTA (48.4% reduction), mean TTH (81.7% reduction) and mean TTDE (43.8% reduction), as compared with manual compression.

The probable risks of the device are also based on data collected in a clinical study conducted to support PMA approval as described above. These risks include hematoma, swelling, bleeding, pseudoaneurysm, pain, bruising, infection, and thrombus.

Additional factors to be considered in determining probable risks and benefits for the MYNX CONTROL VENOUS VCD 6F-12F device included: the design of the study, the conduct of the study, the robustness of the analysis of the study results, and the generalizability of the study results. The availability of alternative treatments, and risk mitigation also factored into the overall risk assessment. There were no meaningful differences in outcomes by sex or race that would impact the benefit-risk profile of the device.

1. Patient Perspective
   This submission either did not include specific information on patient perspectives or the information did not serve as part of the basis of the decision to approve or deny the PMA for this device.

In conclusion, given the available information above, the data support that for femoral venous access site closure in patients who have undergone catheter-based procedures

utilizing 6F to 12F procedural sheaths, with single or multiple access sites in one or both limbs, the probable benefits outweigh the probable risks.

D. Overall Conclusions

The data in this application support the reasonable assurance of safety and effectiveness of this device when used in accordance with the indications for use.

The data support the claims of improved time to ambulation, time to hemostasis, and time to discharge eligibility in interventional patients when compared to manual compression.

XIV. CDRH DECISION

CDRH issued an approval order on June 27, 2024.

The applicant's manufacturing facilities have been inspected and found to be in compliance with the device Quality System (QS) regulation (21 CFR 820).

XV. APPROVAL SPECIFICATIONS

Directions for use: See device labeling.

Hazards to Health from Use of the Device: See Indications, Contraindications, Warnings, Precautions, and Adverse Events in the device labeling.

Post-approval Requirements and Restrictions: See approval order.