EMBOLIZATION COILS & PARTICLES

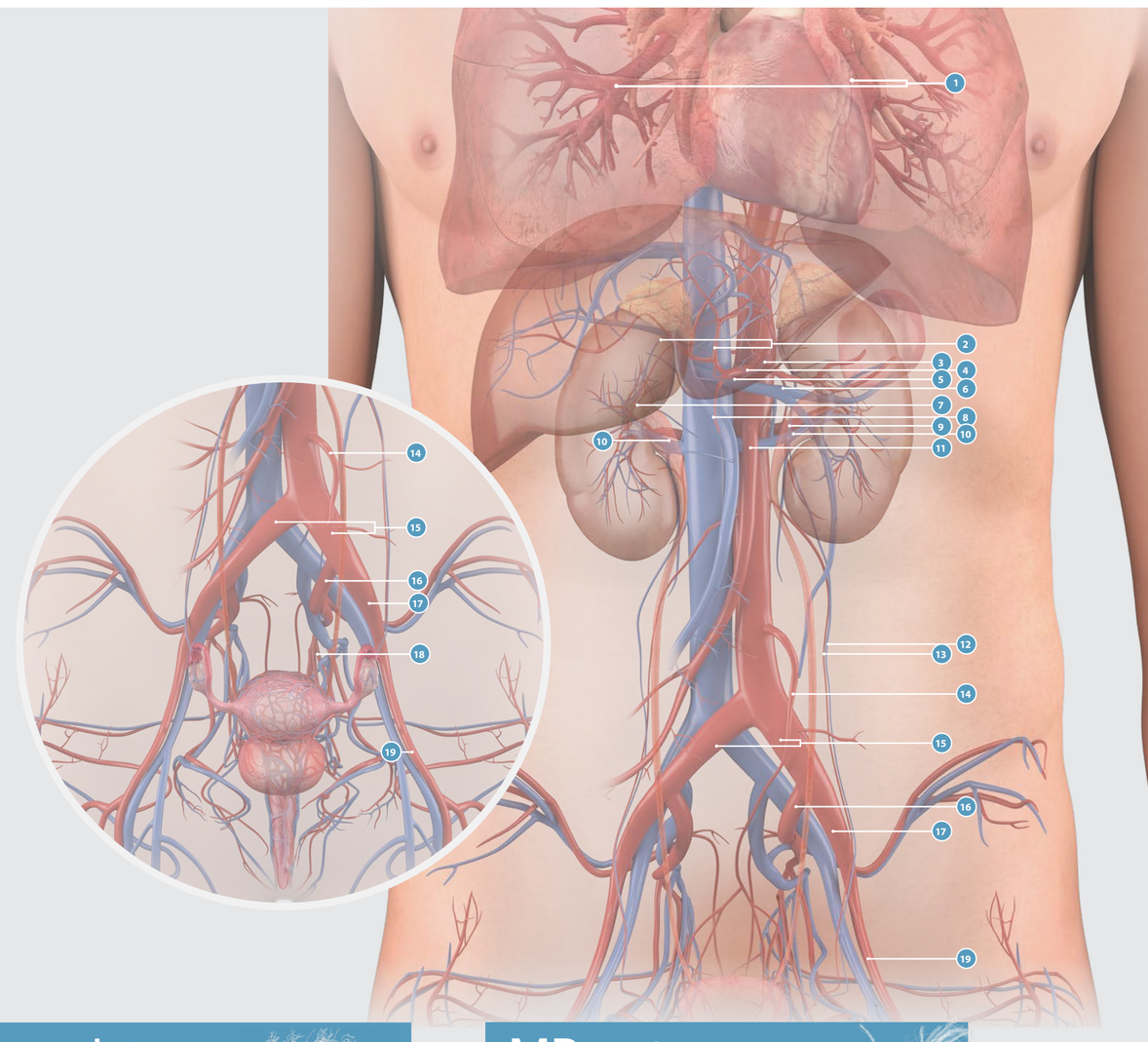
Devices and coil delivery techniques

Common Peripheral Vessel Sizes

	Common Peripheral Vessels	Diameter Range	Diameter in Millimeters (1–20)
1	Left and Right Pulmonary Arteries	2 mm → 20 mm	
2	Left and Right Hepatic Artery	3 mm → 5 mm	
3	Left Gastric Artery	2 mm → 4 mm	
4	Celiac Trunk	6 mm → 8 mm	
5	Common Hepatic Artery	5 mm → 8 mm	
6	Splenic Artery	4 mm → 6 mm	
7	Celiac Artery	2 mm → 4 mm	
8	Gastroduodenal Artery	3 mm → 5 mm	
9	Left Suprarenal Vein	3 mm → 5 mm	
10	Left and Right Renal Artery	5 mm → 7 mm	
11	Superior Mesenteric Artery	4 mm → 6 mm	
12	Gonadal or Ovarian Vein	2 mm → 6 mm	
13	Gonadal or Ovarian Artery	2 mm → 6 mm	
14	Inferior Mesenteric Artery	2 mm → 4 mm	
15	Common Iliac Artery	7 mm → 10 mm	
16	Internal Iliac Artery	5 mm → 6 mm	
17	External Iliac Artery	6 mm → 8 mm	
18	Uterine Artery	1 mm → 3 mm	
19	Common Femoral Artery	6 mm → 8 mm	

Coil Inventory Diameter Ranges (For coil lengths, see each product below.)

	Coil Brand Name	Diameter Range	Diameter in Millimeters (1–20)
.018"	Hilal	0.5 mm	0.5 mm
.018"	Nester	2 mm → 10 mm	
.035"	Nester	3 mm → 20 mm	
.018"	Tornado	2 mm → 10 mm	
.035"	Tornado	3 mm → 10 mm	
.035"	MReye	2 mm → 20 mm	
.038"	MReye	3 mm → 45 mm	Up to 45 mm
.035"	Retracta	4 mm → 20 mm	
	PVA	100 µm → 1000 µm	



Hilal
EMBOLIZATION MICROCOIL™

Hilal Embolization MicroCoils™ are intended for arterial and venous embolization in the peripheral vasculature.

- Smallest microcoils in the Cook embolization portfolio.
- Designed to form a tight occluding mass.
- Straight options for small vessels.
- Fibered for clot formation.
- Platinum more rigid than other Cook coils.
- Easily visible under fluoroscopy.
- MR conditional up to 3 T.

	Diameters	Lengths	Platform
	Straight	0.5-1 cm	0.018"

Nester®
EMBOLIZATION COIL

Nester Embolization Coils and Microcoils are intended for arterial and venous embolization in the peripheral vasculature.

- Widest range of diameters and lengths in the Cook embolization portfolio
- Designed to form a tight occluding mass.
- Fully fibered for clot formation.
- Soft platinum for tight packing.
- Easily visible under fluoroscopy.
- Can be used alone or in combination with other pushable or detachable coils.
- MR conditional up to 3 T.

	Diameters	Lengths	Platform
	2-20 mm	2-20 cm	.018", .035"

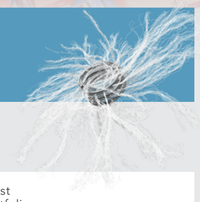
Tornado®
EMBOLIZATION COIL

Tornado Embolization Coils and Microcoils are intended for arterial and venous embolization in the peripheral vasculature.

- Designed to form a tight occluding mass.
- Coil shape has a range of diameters.
- Suitable for tapering or short vessels.
- Highly fibered for clot formation.
- Soft platinum for tight packing.
- Can be used alone or in combination with other pushable or detachable coils.
- MR conditional up to 3 T.

	Diameters	Lengths	Platform
	3/2 - 10/5 mm	2 to 14.2 cm	.018", .035"

MReye®
EMBOLIZATION COIL



Inconel®[1] coil with synthetic fibers, intended for use in peripheral arterial and venous vessel embolization procedures.

- Largest diameters, longest lengths and highest radial force coil in the Cook embolization portfolio.
- Extra-long synthetic fibers promote clot formation.
- Inconel coils maintain greater radial force than platinum coils.
- Enhanced radiopacity of Inconel results in greater visibility under fluoroscopy.
- Can be used alone or in combination with other pushable or detachable coils.
- MR conditional up to 3 T.

	Diameters	Lengths	Platform
	2-45 mm	2-16 cm	.035", .038"

Retracta®
DETACHABLE EMBOLIZATION COIL

Platinum coil with synthetic fibers, intended for arterial and venous embolization in the peripheral vasculature.

- Fully retractable for repositioning before deployment.
- Fibered for clot formation.
- Soft platinum for tight packing.
- Enhanced radiopaque junction for accurate placement.
- Optional contrast test injection for confirming placement prior to detachment.
- Provides safe delivery of the coil when correct positioning is critical.
- Easy preparation from package to patient.
- Can be used alone or in combination with pushable coils.
- MR conditional up to 3 T.

Detachable	Diameters	Lengths	Platform
	4-20 mm	7,14 cm	.035"

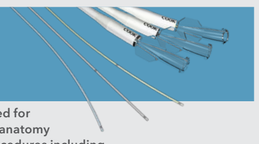
PVA
FOAM EMBOLIZATION PARTICLES

Cook nonspherical polyvinyl alcohol (PVA) particles are intended for embolization of the blood supply to hypervascular tumors, arteriovenous malformations, as well as intracranial embolization.

- Occludes a wide range of vessel sizes.
- Available in a range of sizes.
- Packaged five vials per box with 1 mL in each vial.
- PVA particles can be mixed with contrast media inside the sterile shipping bottle.

			Sizes
			90-1,400 µm

Cantata®
MICROCATHETER



The Cantata Microcatheter is intended for use in small vessel or superselective anatomy for diagnostic and interventional procedures including peripheral and coronary use.

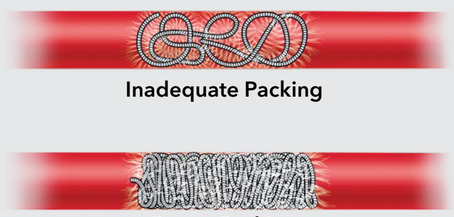
- Designed to deliver a wide range of embolic agents.
- Have hand shapeable tips for creating anatomy-specific curves.
- Have full-length braids for optimal torqueability.
- Have distal hydrophilic coating for smooth introduction and maneuverability.
- The high-flow .027" ID microcatheter delivers larger embolic agents.
- The .021" ID and .025" ID microcatheters deliver .018 inch diameter microcoils and appropriate sizes of other embolic agents.

Inner diameters	Lengths
.021", .025", and .027"	100, 110, 135, or 150 cm

To read the study online, visit the Journal of Vascular and Interventional Radiology at jvir.org.

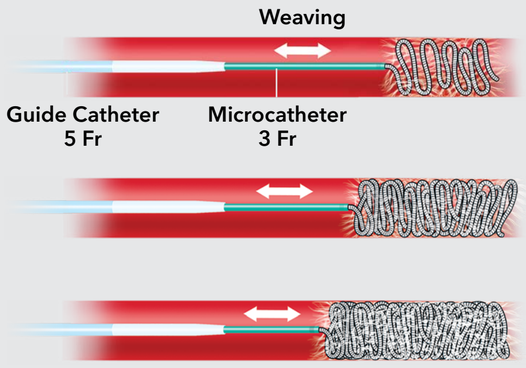
APPROPRIATE COILING TECHNIQUES CAN HELP YOU ACHIEVE DENSE CROSS-SECTIONAL OCCLUSION

Cross-Sectional Occlusion



Long-term occlusion depends on achieving cross-sectional occlusion of the blood vessel, and coaxial catheters provide the ability to control placement of coils and permanent occlusion. The combination of the coaxial technique and either the anchor or scaffold technique significantly enhances stability of coil deployment.

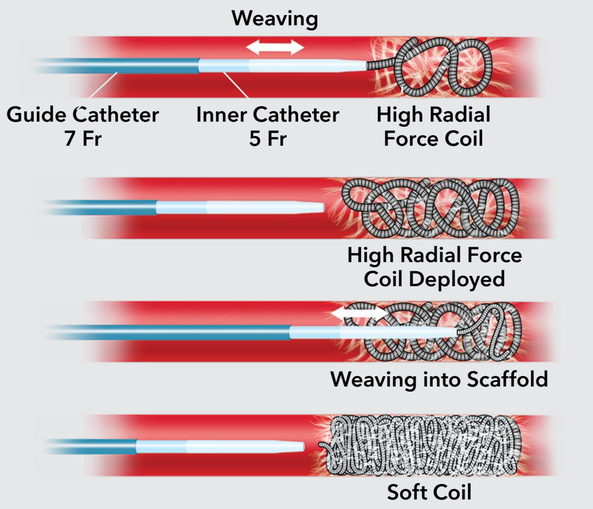
Coaxial Technique to Prevent Coil Elongation



Guide catheter provides support or purchase for delivery of the coil into a densely packed coil mass.

The use of outer guiding sheath/catheter is the most important step in preventing coil elongation and uncertain long-term occlusion. The outer guiding sheath/catheter provides support, and the inner catheter provides finer selective maneuvers.

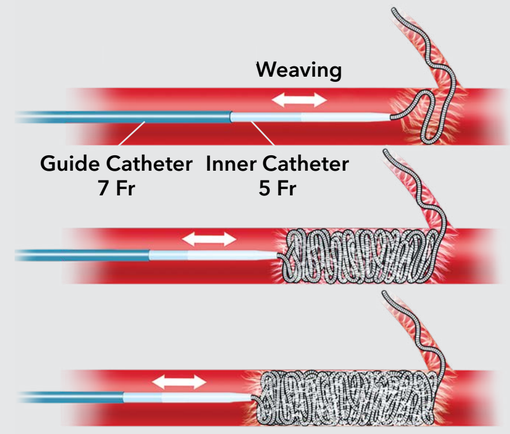
Scaffold Technique



Soft Coil Deployed; Cross-Section Occlusion Complete

The scaffold technique is used for high-flow vessels when there is concern about migration of a softer coil. A high radial force coil is placed initially. Then, several high radial force coils or soft coils may be packed within the scaffold.

Anchor Technique



The anchor technique provides safe and distal occlusion when there is a question about instability of coils. At least 2 cm of a coil is advanced into the side branch, which is normally sacrificed. The rest of the coil is then deployed just proximal to that side branch, and additional coils are packed.

1. Inconel is a registered trademark of Inco Alloys.
2. Trerotola SO, Pressler GA, Premanandan C. Nylon fibered versus non-fibered embolization coils: comparison in a swine model. *J Vasc Interv Radiol.* 2019;30(6):949-955.

Some products or part numbers may not be available in all markets. Contact your local Cook representative or Customer Service for details.

Refer to instructions for Use (IFU) for complete prescribing information including indications for use, warnings, precautions, and adverse events.

Hilal Embolization Microcoils

CAUTION: U.S. federal law restricts this device to sale by or on the order of a physician (or a properly licensed practitioner).

INTENDED USE: Hilal Embolization Microcoils are intended for arterial and venous embolization in the peripheral vasculature.

CONTRAINDICATIONS: None known

WARNINGS: Positioning of embolization coils should be done with particular care. Coils should not be left too close to the inlets of arteries and should be intermeshed with previously placed coils if possible. A minimal but sufficient arterial blood flow should remain to hold the coils against the previously placed coils until a solid clot ensures permanent fixation. The purpose of these suggestions is to minimize the possibility of loose coils becoming dislodged and obstructing a normal and essential arterial channel. • Hilal Embolization Microcoils are not recommended for use with polyurethane catheters or catheters with sideports. If a catheter with sideports is used, the embolization coil may lodge in the sideport or pass inadvertently through it. Use of a polyurethane catheter may also result in lodging of the embolization coil within the catheter. • If difficulties occur when deploying the embolization coil, withdraw the wire guide, coil and angiographic catheter simultaneously as a unit.

PRECAUTIONS: The product is intended for use by physicians trained and experienced in embolization techniques. Standard techniques for placement of vascular access sheaths, angiographic catheters and wire guides should be employed. • Perform an angiogram prior to embolization to determine correct catheter position. • Prior to introduction of the embolization coil, flush the angiographic catheter with saline. **• If using a Hilal Embolization Microcoil, ensure that the delivery catheter has an internal diameter (ID) of .018 to .025 inch.**

See instructions for use for full product information.

AB_T_HILAL2_REV0

Nester® Embolization Coils and Microcoils

CAUTION: U.S. federal law restricts this device to sale by or on the order of a physician (or a properly licensed practitioner).

INTENDED USE: Nester Embolization Coils and Microcoils are intended for arterial and venous embolization in the peripheral vasculature.

CONTRAINDICATIONS: None known.

WARNINGS: Positioning of Embolization Coils and Microcoils should be done with particular care. Coils should not be left too close to the inlets of arteries and should be intermeshed with previously placed coils if possible. A minimal but sufficient arterial blood flow should remain to hold the coils against the previously placed coils until a solid clot ensures permanent fixation. The purpose of these suggestions is to minimize the possibility of loose coils becoming dislodged and obstructing a normal and essential arterial channel. • Nester Embolization Coils and Microcoils are not recommended for use with polyurethane catheters or catheters with sideports. If a catheter with sideports is used, the embolus may lodge in the sideport or pass inadvertently through it. Use of a polyurethane catheter may also result in lodging of the embolus within the catheter. • If difficulties occur when deploying the embolization coil, withdraw the wire guide, coil and angiographic catheter simultaneously as a unit.

PRECAUTIONS: The product is intended for use by physicians trained and experienced in embolization techniques. Standard techniques for placement of vascular access sheaths, angiographic catheters and wire guides should be employed. • Perform an angiogram prior to embolization to determine correct catheter position. • Prior to introduction of the embolization coil, flush the angiographic catheter with saline. **• If using a .018 inch Nester Embolization Microcoil, ensure that the delivery catheter has an internal diameter (ID) of .018 to .025 inch.**

See instructions for use for full product information.

Tornado® Embolization Coils and Microcoils

CAUTION: U.S. federal law restricts this device to sale by or on the order of a physician (or a properly licensed practitioner).

INTENDED USE: Tornado Embolization Coils and Microcoils are intended for arterial and venous embolization in the peripheral vasculature.

CONTRAINDICATIONS: None known.

WARNINGS: Positioning of Embolization Coils and Microcoils should be done with particular care. Coils should not be left too close to the inlets of arteries and should be intermeshed with previously placed coils if possible. A minimal but sufficient arterial blood flow should remain to hold the coils against the previously placed coils until a solid clot ensures permanent fixation. The purpose of these suggestions is to minimize the possibility of loose coils becoming dislodged and obstructing a normal and essential arterial channel. • Tornado Embolization Coils and Microcoils are not recommended for use with polyurethane catheters or catheters with sideports. If a catheter with sideports is used, the embolus may lodge in the sideport or pass inadvertently through it. Use of a polyurethane catheter may also result in lodging of the embolus within the catheter. • If difficulties occur when deploying the embolization coil, withdraw the wire guide, coil and angiographic catheter simultaneously as a unit.

PRECAUTIONS: The product is intended for use by physicians trained and experienced in diagnostic and interventional techniques. Standard techniques for placement of vascular access sheaths, angiographic catheters and wire guides should be employed. • Perform an angiogram prior to embolization to determine correct catheter position. • Prior to introduction of the embolization coil, flush the angiographic catheter with saline. **• If using a .018 inch Tornado Embolization Microcoil, ensure that the delivery catheter has an internal diameter (ID) of .018 to .025 inch.**

See instructions for use for full product information.

AB_T_TEM2_REV0

MReye® Embolization Coil

CAUTION: U.S. federal law restricts this device to sale by or on the order of a physician (or properly licensed practitioner).

INTENDED USE/INDICATIONS FOR USE: MReye Embolization Coils are intended for use in peripheral arterial and venous vessel embolization procedures.

CONTRAINDICATIONS: None known

WARNINGS: Positioning of embolization coils should be done with particular care. Coils should not be left too close to the inlets of arteries and should be intermeshed with previously placed coils if possible. A minimal but sufficient arterial blood flow should remain to hold the coils against the previously placed coils until a solid clot ensures permanent fixation. The purpose of these suggestions is to minimize the possibility of loose coils becoming dislodged and obstructing a normal and essential arterial channel. • MReye Embolization Coils are not intended for neurovascular use. • MReye Embolization Coils are not recommended for use with polyurethane catheters or catheters with sideports. If a catheter with sideports is used, the embolization coil may lodge in the sideport or pass inadvertently through it. Use of a polyurethane catheter may also result in lodging of the embolization coil within the catheter. • If difficulties occur when deploying the embolization coil, withdraw the wire guide, coil and angiographic catheter simultaneously as a unit.

PRECAUTIONS: This product is intended for use by physicians trained and experienced in embolization techniques. Standard techniques for placement of vascular access sheaths, angiographic catheters and wire guides should be employed. • Perform an angiogram prior to embolization to determine correct catheter position. • Prior to introduction of the embolization coil, flush the angiographic catheter with saline.

See instructions for use for full product information.

AB_T_CE_IMWCE_REV2

Retracta™ Detachable Embolization Coil

CAUTION: U.S. federal law restricts this device to sale by or on the order of a physician (or properly licensed practitioner).

INTENDED USE: The Retracta Detachable Embolization Coil is intended for arterial and venous embolization in the peripheral vasculature.

CONTRAINDICATIONS: None known

WARNINGS: Positioning of embolization coils should be done with particular care. Coils should not be left too close to the inlets of arteries and should be intermeshed with previously placed coils if possible. A minimal but sufficient arterial blood flow should remain to hold the coils against the previously placed coils until a solid clot ensures permanent fixation. The purpose of these suggestions is to minimize the possibility of loose coils becoming dislodged and obstructing a normal and essential arterial channel. • The Retracta Detachable Embolization Coil is not recommended for use with polyurethane catheters or catheters with sideports. If a catheter with sideports is used, the embolus may lodge in the sideport or pass inadvertently through it. Use of a polyurethane catheter may also result in lodging of the embolus within the catheter.

PRECAUTIONS: Perform an angiogram prior to embolization to determine correct catheter position. • Prior to introduction of the embolization coil, flush the angiographic catheter with saline. • This product is intended for use by physicians trained and experienced in arterial and venous vessel embolization techniques. Standard techniques for placement of vascular access sheaths, angiographic catheters, and wire guides should be employed.

See instructions for use for full product information.

Polyvinyl Alcohol Foam Embolization Particles

CAUTION: U.S. federal law restricts this device to sale by or on the order of a physician (or properly licensed practitioner).

INTENDED USE: Polyvinyl Alcohol Foam Embolization Particles are intended for embolization of the blood supply to hypervascular tumors and arteriovenous malformations, including use in intracranial embolization. The product is intended for use by physicians trained and experienced in embolization procedures in the targeted area. Standard techniques for embolization procedures should be employed.

CONTRAINDICATIONS: Presence or suspected presence of severe atheromatous disease • Presence or suspected presence of unfavorable patient anatomy, such as vascular configurations that do not allow superselective catheter placement • Inadequate vessel diameter to accept emboli • Vascular resistance peripheral to the feeding vessels that will not allow emboli to be carried into the lesion • Inappropriate vascular anatomy such as feeding vessels smaller than the distal branches from which they emerge • Inappropriate vascular anatomy such as extra-to-intracranial anastomoses or shunts • Inappropriate vascular anatomy such as the presence of collateral vessel pathways that, if embolized, could endanger normal tissues • Presence or likely onset of hemorrhage • Presence or likely onset of vasospasm • Patient intolerance to temporary occlusion of targeted vessels • Presence of target vessels leading directly to cranial nerves

WARNINGS: Neurological deficit, ischemic stroke or ischemic infarct can occur from occlusion of normal vessels by emboli. • Artificial embolization may not occlude all arteries feeding a large arteriovenous malformation. If treatment is incomplete, the possibility of subsequent hemorrhage and/or development of alternative feeding routes may persist. • The packaging of this product contains natural rubber latex, which may cause allergic reactions.

PRECAUTIONS: Small contaminating particles found on the angiography table may cause foreign body reactions or actual infection. The physician should use the utmost caution to avoid contaminants during preparation of the device for use. • Use of angiography for preoperative evaluation, operative control and postoperative follow-up is recommended. • Use of artificial embolization devices requires careful evaluation of the vascular network associated with the lesion. • Smaller particles are reported to be more likely to cause cranial nerve palsies and ischemic infarction because of their ability to block vessels at the precapillary level. The physician's experience must be the final judge as to the amount of the device to use, the size of the particles to use, and even whether a treatment should be undertaken. • The highest degree of caution is recommended in the presence of visible extra-to-intracranial shunts, and in the area of the cranial nerves. • Performing therapeutic embolizations deliberately to occlude blood vessels is a high-risk procedure. Appropriate facilities should be available for coping with the potential complications of the procedure. • As with any surgical procedure, strict attention to sterile technique is required. • Emboli of appropriate size must be selected by the physician, based upon the lesion to be treated and the measurements from angiography. • As treatment progresses, the vessel will typically accept less emboli. Slowing or termination of emboli acceptance may occur when the vessel or lesion is occluded by prior emboli, or in the presence of vasospasm or severe atheromatous disease. Care must be taken to prevent continued infusion, as continued infusion may result in emboli reflux into normal vasculature, creating the potential of normal tissue ischemic infarction. • Termination of emboli infusion is recommended prior to complete vessel occlusion. • The use of tapered tip delivery catheters is not recommended, as emboli may obstruct the catheter tip. • Catheter obstruction by emboli may result if particles are inadequately suspended in non-ionic contrast. Care should be taken to ensure that emboli are free-floating in a sufficient volume of contrast. • In the event of catheter obstruction, remove the catheter from the patient. Do not attempt to clear the catheter by forceful injection, passage of wire guides, or passage of other instruments. Discard the obstructed catheter, as damage to the device may have occurred. • Only non-ionic contrast agents indicated for use in the anatomy to be embolized are recommended.

POTENTIAL ADVERSE EVENTS: Catheter tip thrombosis and subsequent dislodgment • Spasm of the artery adjacent to the catheter tip • Rupture of a nearby saccular aneurysm • Passage of emboli into normal vessels adjacent to the treatment/delivery site • Passage of emboli through the lesion and into normal vasculature, resulting in normal tissue damage • Reflux of emboli into normal vasculature, including arterial beds such as the internal carotid artery, pulmonary or coronary circulations, resulting in normal tissue damage • Subarachnoid hemorrhage from recurrent bleeding of a vascular malformation or from rupture of an associated aneurysm. The relationship between embolization and the appearance of aneurysms or other vascular lesions is unclear. • Foreign body reactions necessitating medical intervention • Infection necessitating medical intervention • Capillary bed saturation and tissue damage • Ischemic stroke or ischemic infarction • Vessel or lesion rupture resulting in hemorrhage • Recurrent hemorrhage or vasospasm • Vessel recanalization requiring re-treatment • As with any embolization device, patient injury including permanent disability or death may occur as a result of its use.

See instructions for use for full product information.

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