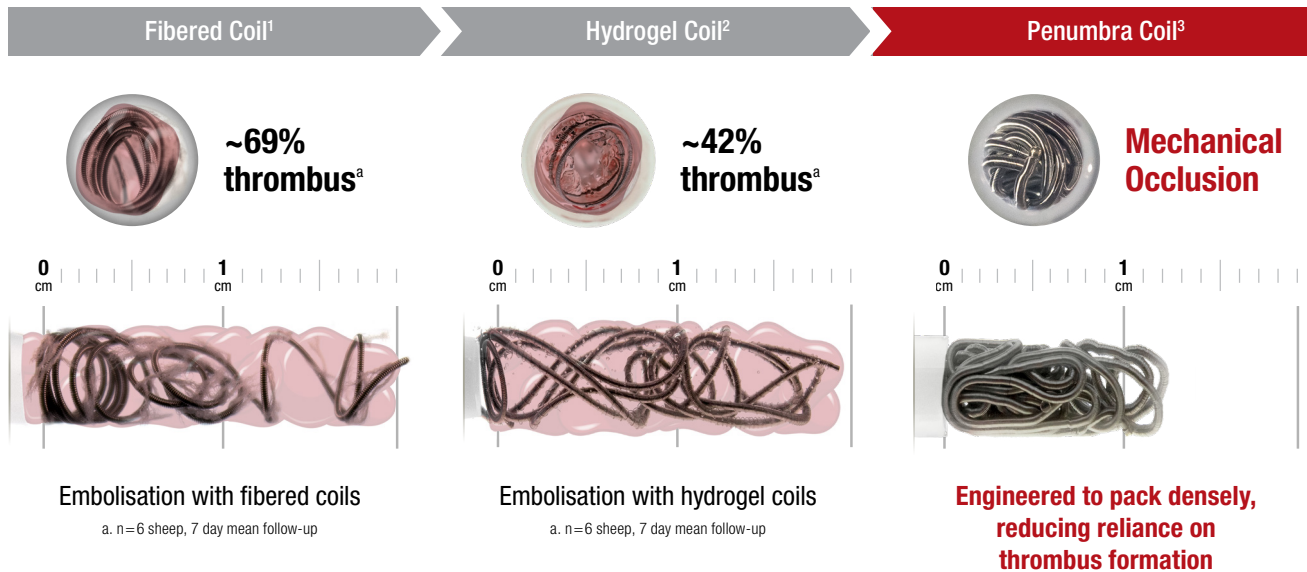


# Thrombus-Dependent Occlusion vs. Mechanical Occlusion

## THROMBUS-DEPENDENT COILS

## PENUMBRA COILS

### Mechanism of Action Overview

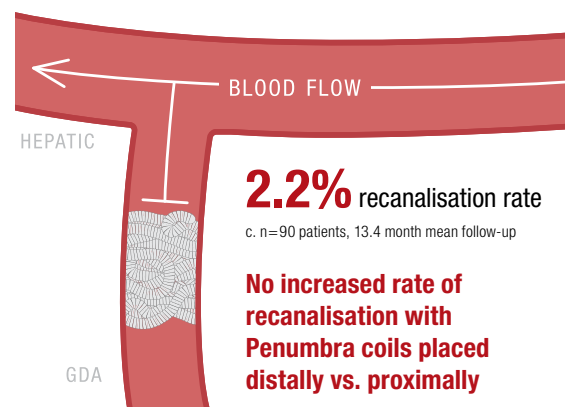
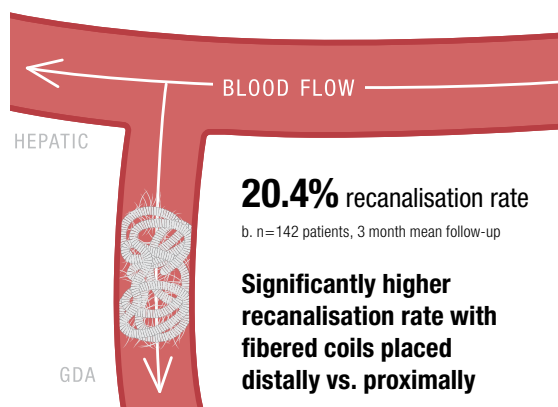


Data not derived from glass model. Photographs taken by and on file at Penumbra, Inc. Bench test results may not be indicative of clinical performance.

### Data Review

Enriquez, et al.<sup>b</sup>

Vogler, et al.<sup>c</sup>



Penumbra

1. Boston Scientific® Interlock® 2D Helical Coil 4 mm x 15 cm delivered through Terumo® Progreat® Microcatheter into 4 mm glass tube. Renderings of thrombus formation added for illustrative purposes only. Individual results may vary depending on a variety of patient-specific attributes.

2. Terumo Azur® 18-System Hydrocoil 4 mm x 20 cm delivered through Terumo Progreat Microcatheter into 4 mm glass tube. Renderings of thrombus formation added for illustrative purposes only. Individual results may vary depending on a variety of patient-specific attributes.

3. 30 cm Packing Coil delivered through Penumbra LANTERN High-Flow Microcatheter into 4 mm glass tube.

a. Fohlen A, Namur J, Ghegediban H, et al. Midterm recanalization after arterial embolization using hydrogel-coated coils versus fibred coils in an animal model. *J Vasc Interv Radiol.* 2019 Jun;30(6):940-948. doi:10.1016/j.jvir.2018.05.005. Epub 2018 Aug 31.

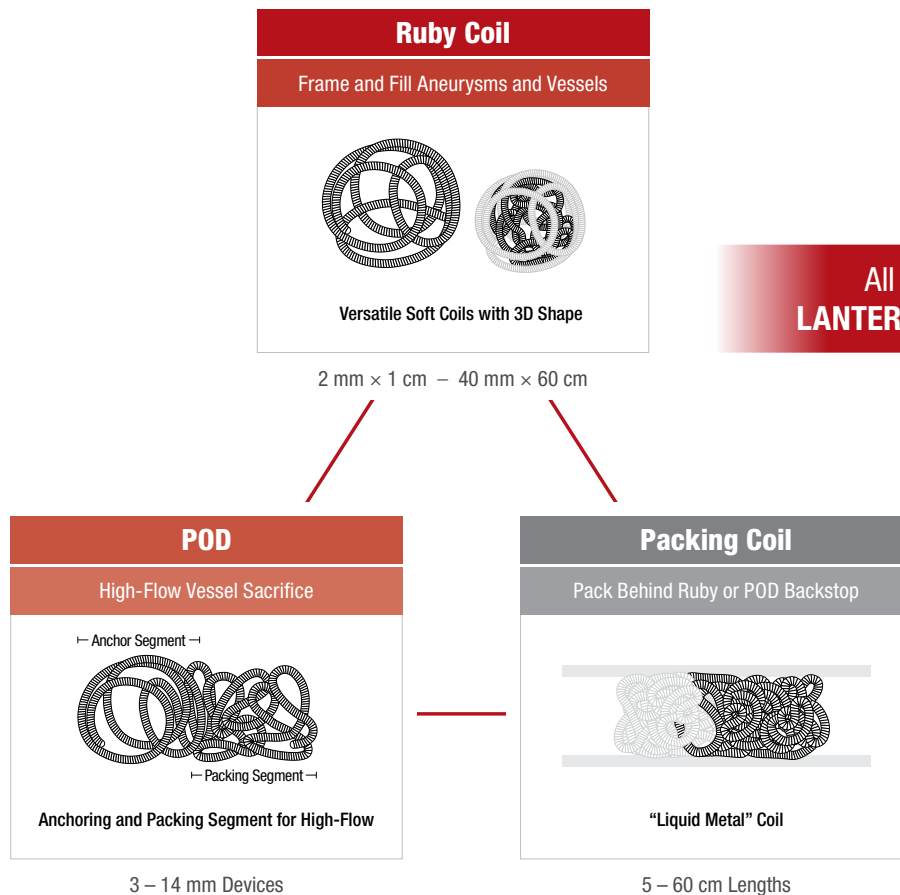
b. Enriquez J, Javadi S, Murthy R, et al. Gastroduodenal artery recanalization after transcatheter fibred coil embolization for prevention of hepaticocentric flow: incidence and predisposing technical factors in 142 patients. *Acta Radiol.* 2013;54(7):790-794.

c. Vogler J, Gemender M, Samolov D. Packing density and long-term occlusion after transcatheter vessel embolization with soft, bare-platinum detachable coils. *Am J Interv Radiol.* 2020;4(2). doi:10.25259/AJIR\_31\_2019.

Renderings for illustrative purposes only. Individual results may vary depending on a variety of patient-specific attributes.

# Designed to Achieve Immediate and Long-Term Occlusion

## Penumbra Embolisation Platform



All delivered through  
**LANTERN Microcatheter**

Prior to use, please refer to the Instructions for Use for complete product indications, contraindications, warnings, precautions, potential adverse events, and detailed instructions for use.

### RUBY Coil System — Intended Use

The RUBY Coil System is intended for arterial and venous embolizations in the peripheral vasculature.

### Potential Adverse Events

Possible complications include, but are not limited to, the following: acute occlusion; air embolism; allergic reaction and anaphylaxis from contrast media; aneurysm rupture; arteriovenous fistula; coagulopathy; coil herniation into parent vessel; death; device malfunction; distal embolization; emboli; embolic stroke and other cerebral ischemic events; false aneurysm formation; hematoma or hemorrhage at access site of entry; incomplete aneurysm occlusion; infection; intima dissection; intracranial hemorrhage; ischemia; myocardial infarction; neurological deficits including stroke; parent artery occlusion; peripheral thromboembolic events; post-embolization syndrome; premature device detachment; recanalization; renal failure; respiratory failure; revascularization; thromboembolic episodes; vessel spasm, thrombosis, dissection, or perforation.

### For POD Coils with nominal sizes ≤ 6 mm — Intended Use

The POD System is intended for the embolization of:

- Intracranial aneurysms
- Other neurovascular abnormalities such as arteriovenous malformations and arteriovenous fistulae

### For POD Coils with nominal sizes > 6 mm — Intended Use

The POD System is intended for arterial and venous embolizations in the peripheral vasculature.

### Potential Adverse Events

Possible complications include, but are not limited to, the following: acute occlusion; air embolism; allergic reaction and anaphylaxis from contrast media; aneurysm rupture; arteriovenous fistula; coagulopathy; coil herniation into parent vessel; death; device malfunction; distal embolization; emboli; embolic stroke and other cerebral ischemic events; false aneurysm formation; hematoma or hemorrhage at access site of entry; incomplete aneurysm occlusion; infection; intima dissection; intracranial hemorrhage; ischemia; myocardial infarction; neurological deficits including stroke; parent artery occlusion; peripheral thromboembolic events; post-embolization syndrome; premature device detachment; recanalization; renal failure; respiratory failure; revascularization; thromboembolic episodes; vessel spasm, thrombosis, dissection, or perforation.

### Penumbra Delivery Microcatheters — Intended Use

The Penumbra Delivery Microcatheters are intended to assist in the delivery of diagnostic agents, such as contrast media, and therapeutic devices, such as occlusion coils to the peripheral and neuro vasculature.

### Potential Adverse Events

Possible complications include, but are not limited to, the following: acute occlusion; hematoma or hemorrhage at access site; death; intracranial hemorrhage; hemorrhage; infection (at access site); distal embolization; ischemia (cardiac and/or cerebral); embolus (air, foreign body, thrombus, plaque); aneurysm perforation; false aneurysm formation; neurological deficits including stroke; vessel spasm, thrombosis, dissection, perforation or rupture; air embolism; emboli.

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Product availability varies by country. Photographs taken by and on file at Penumbra, Inc. Renderings for illustrative purposes only. Individual results may vary depending on a variety of patient-specific attributes. Please contact your local Penumbra representative for more information.

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