ENROUTE®

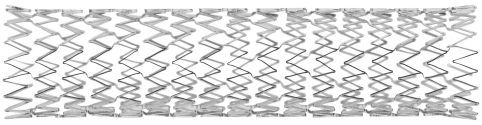
TRANSCAROTID STENT SYSTEM

Stroke prevention through plaque stabilization

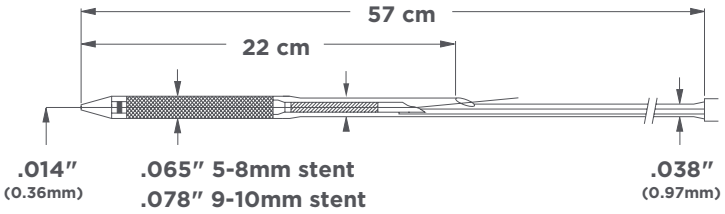
The ideal carotid stent should provide long-term plaque stabilization. The ENROUTE® stent system was selected to preserve the great clinical outcomes of the TCAR procedure. A shorter delivery system means easier, more precise stent delivery due to a straight delivery path and a shorter distance that the stent must travel.

Transfemoral Carotid Stent Delivery Systems **135cm**

ENROUTE® Transcarotid Stent System **57cm**

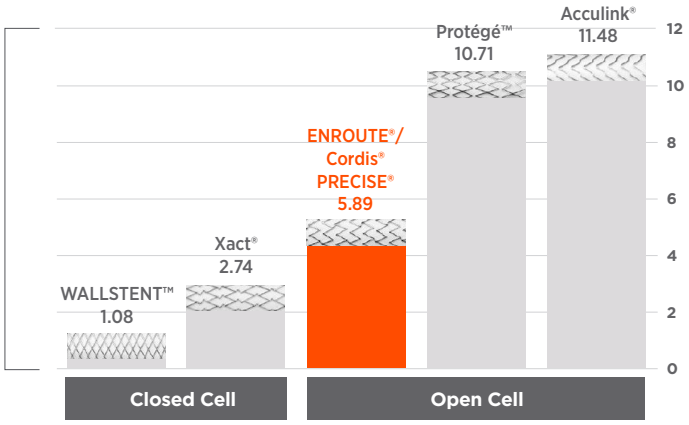


A Cordis PRECISE® stent on a transcarotid delivery system



Optimized Cell Design

Despite the lack of any conclusive evidence,[1] there's a vigorous debate about the merits of closed cell vs. open cell, or lesion coverage vs. vessel conformability. Similar to the TCAR procedure, the ENROUTE® stent takes a best of both worlds approach, using a stent that is the most "closed" of open cell designs.



[1] S. Morr. Carotid artery stenting: current & emerging options. *Med Devices (Auckl)*. 2014;7:343–355.

Auto-Tapering Conformability

Nitinol is the optimal carotid stent material because of its low outward expansion forces that “scaffolds” the plaque without putting unnecessary stress on the native vessel.

- Stents are always recommended to be sized at least 1-2mm larger than the native vessel
- Bifurcation is typically the widest in diameter, so stents often need to go Small – Large – Medium
- The ENROUTE® hybrid-cell design allows for each 2mm segment to "taper" independently (Figures 1 and 2)
- Studies evaluating tapered and cylindrical stents have failed to demonstrate clinical benefit from the use of tapered stents[1]

Figure 1

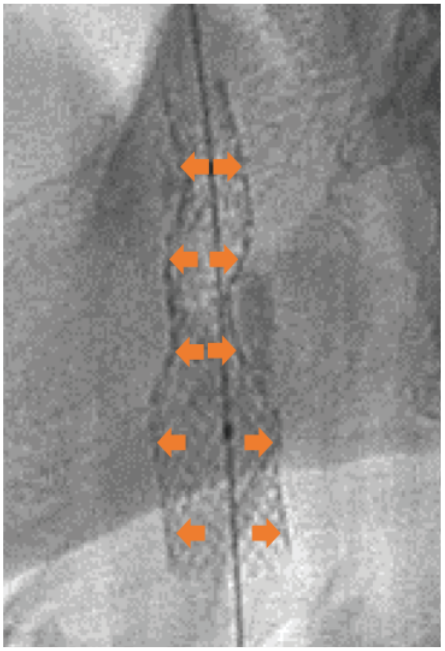


Figure 2

Lesion Coverage

Free cell area determines coverage, with the smaller the area, the less chance there is for plaque to break loose. But that also assumes ideal stent apposition and consistent hemodynamics, which isn’t always the case.

- The ENROUTE® stent has a smaller free cell area than any other open cell stent[2]
- Closed cell stents are more rigid (Figure 3), which can cause malapposition
- Free cell area is variable, dependent on the degree of stent expansion – oversized stents will have more metal coverage

> “The stroke rate of **0.6%** after TCAR in the Per Protocol population may be the lowest reported rate after **any carotid intervention.**”
>
> – *Stroke*. 2020;51:2620-2629.

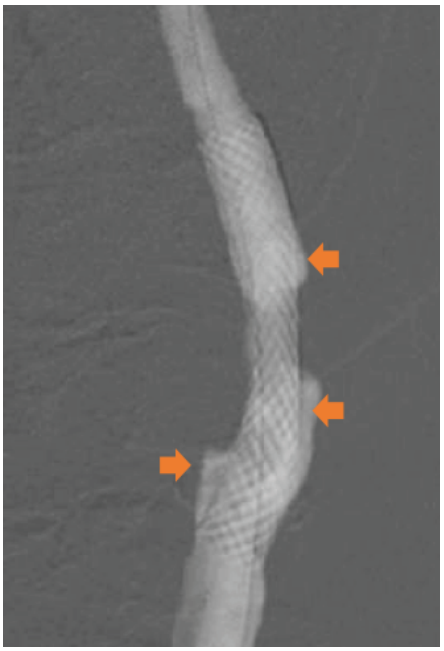


Figure 3

[1] S. Morr. Carotid artery stenting: current & emerging options. *Med Devices (Auckl)*. 2014;7:343-355.

[2] M. Bosiers. Does free cell area influence the outcome in carotid artery stenting? *Eur J Vasc Endovasc Surg*. 2007 Feb;33(2):135-41.

Stent Safety and Durability: When delivered safely, long-term outcomes are equivalent to CEA

Randomized controlled trials with multi-year follow-up show the rate of stroke beyond 30 days is no different between CEA and transfemoral carotid stenting. In the long term, stenting has been clinically proven to be a durable solution to carotid disease. Most of the stroke risk in stenting is during the periprocedural period. By combining CEA-like neuroprotection, TCAR presents the opportunity to combine low stroke rates with the benefits of a less invasive procedure.

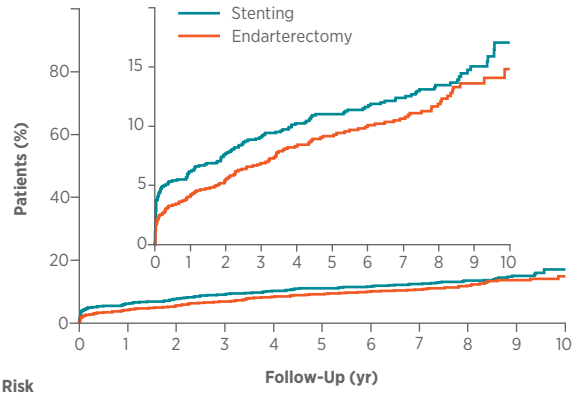
CREST: 10 Year Results

Any Stroke

30-day Stroke Rate: 4.1% CAS vs. 2.3% CEA (P=0.01)

Symptomatic/Asymptomatic Standard Surgical Risk

Brott TG, et al. Long-Term Results of Stenting versus Endarterectomy for Carotid-Artery Stenosis. *N Engl J Med.* 2016 Mar 17;374(11):1021-31.



Number at Risk											
Endarterectomy	1240	1118	1037	945	825	721	676	603	420	234	63
Stenting	1262	1103	1030	957	861	750	714	654	461	257	65

Inset shows data on extended Y –Axis (any stroke)

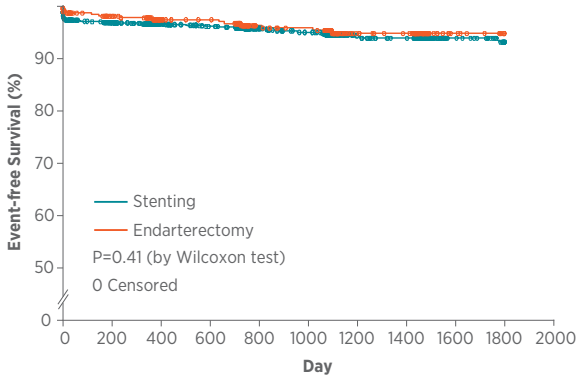
ACT1: 5 Year Results

Freedom from All Stroke Through 5 Years

30-day Stroke Rate: 2.8% CAS vs. 1.4% CEA (P=0.23)

Asymptomatic/Standard Surgical Risk

Rosenfield K, et al. Randomized Trial of Stent versus Surgery for Asymptomatic Carotid Stenosis. *N Engl J Med.* 2016 Mar 17;374(11):1011-20.



Days	0	1–365	366–730	731–1095	1096–1460	1461–1825
Number at Risk						
Stenting	1089	1068	865	730	541	363
Endarterectomy	364	355	287	244	180	112

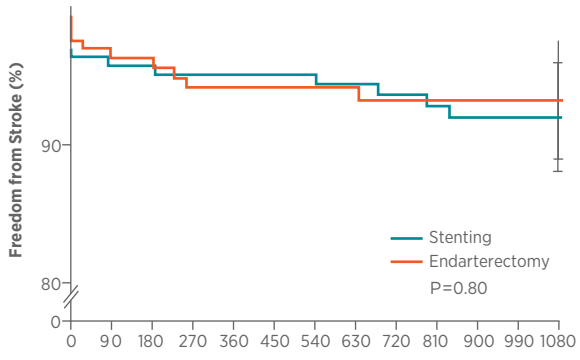
SAPPHIRE: 3 Year Results

Any Stroke

30-day Stroke Rate: 3.6% CAS vs. 3.1% CEA (P=0.77)[3]

Asymptomatic/Symptomatic High Surgical Risk

Gurm HS, et al. Long-term results of carotid stenting versus endarterectomy in high-risk patients. *N Engl J Med.* 2008 Apr 10;358(15):1572-9.



Number at Risk							
Stenting	167	154	145	135	128	111	103
Endarterectomy	166	146	128	113	102	87	77

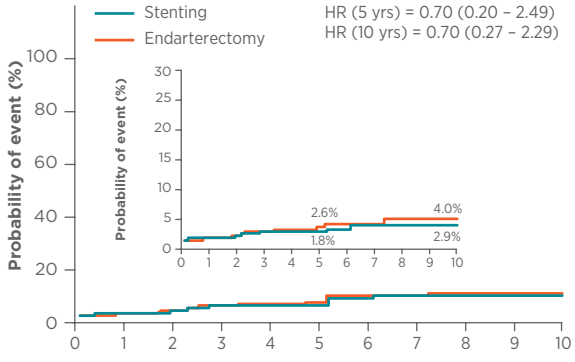
EVA-3S: 10 Year Results

Any Ipsilateral Stroke beyond 31 Days

30-day Stroke Rate: 9.1% CAS vs. 3.4% CEA

Symptomatic/Standard Surgical Risk

Mas JL, et al. Long-term follow-up study of endarterectomy versus angioplasty in patients with symptomatic severe carotid stenosis trial. *Stroke.* 2014 Sep;45(9):2750-6.



Number at Risk											
Stenting	245	233	224	212	199	185	172	123	83	52	22
Endarterectomy	254	245	236	223	211	194	176	134	85	51	21

[3] Yadav JS, et al. Protected carotid-artery stenting versus endarterectomy in high-risk patients. *N Engl J Med.* 2004 Oct 7;351(15):1493-501.

ENROUTE® Transcarotid Stent System
PRESCRIBING INFORMATION

Indications for Use

The ENROUTE® Transcarotid Stent System used in conjunction with the ENROUTE® Transcarotid Neuroprotection System (NPS) is indicated for the treatment of patients at high risk for adverse events from carotid endarterectomy, who require carotid revascularization and meet the criteria outlined below.

1. Patients with neurological symptoms and > 50% stenosis of the common or internal carotid artery by ultrasound or angiogram OR patients without neurological symptoms and > 80% stenosis of the common or internal carotid artery by ultrasound or angiogram, **AND**
2. Patients must have a vessel diameter of 4-9mm at the target lesion, **AND**
3. Carotid bifurcation is located at minimum 5cm above the clavicle to allow for placement of the ENROUTE® Transcarotid NPS.

Contraindications

Use of the ENROUTE® Transcarotid Stent System is contraindicated in the following patients:

1. Patients in whom antiplatelet and/or anticoagulation therapy is contraindicated.
2. Patients in whom the ENROUTE® Transcarotid NPS is unable to be placed.
3. Patients with uncorrected bleeding disorders.
4. Patients with known allergies to nitinol.
5. Lesions in the ostium of the common carotid artery.

Warnings

General Warnings

1. Only physicians who have received appropriate training for transcarotid stenting and who are familiar with the principles, clinical applications, complications, side effects, and hazards commonly associated with carotid interventional procedures should use this device.
2. The safety and efficacy of the ENROUTE® Transcarotid Stent System have not been demonstrated with embolic protection systems other than the ENROUTE® Transcarotid NPS. Use the ENROUTE® Transcarotid Stent System only with the ENROUTE® Transcarotid NPS.
3. The long-term performance (> 3 years) of carotid stents has not yet been established.
4. As with any type of vascular implant, infection secondary to contamination of the stent may lead to thrombosis, pseudoaneurysm, or rupture.
5. The stent may cause a thrombus, distal embolization, or may migrate from the site of implant through the arterial lumen. Appropriate sizing of the stent to the vessel is required to reduce the possibility of stent migration (see Section 9.3 of these instructions). In the event of thrombosis of the expanded stent, thrombolysis and PTA should be attempted.
6. Overstretching of the artery may result in rupture and life-threatening bleeding.
7. In patients requiring the use of antacids and/or H2-antagonists before or immediately after stent placement, oral absorption of antiplatelet agents (e.g. aspirin) may be adversely affected.
8. The appropriate antiplatelet and anticoagulation therapy should be administered pre- and post-procedure as suggested in Section 9.1 of these instructions.
9. In the event of complications such as infection, pseudoaneurysm, or fistulization, surgical removal of the stent may be required. Non-clinical testing has demonstrated that the ENROUTE® Transcarotid Stent is MR Conditional. A patient with this device can be scanned safely in an MR system meeting the following conditions:
   - Static magnetic field of 1.5-Tesla or 3-Tesla, only
   - Maximum spatial gradient magnetic field of 4,000 Gauss/cm (40 Tesla/m) or less
   - Maximum MR system reported, whole body averaged specific absorption rate (SAR) of 2-W/kg (Normal Operating Mode).

Under the scan conditions defined above, the ENROUTE® Transcarotid Stent is expected to produce a maximum temperature rise of 2.4°C after 15 minutes of continuous scanning.

In non-clinical testing, the image artifact caused by the device extends approximately 5mm from the ENROUTE® Transcarotid Stent when imaged with a gradient echo pulse sequence and a 3-Tesla MRI system. The artifact does obscure the device lumen.

Potential Adverse Events

Adverse Events (in alphabetical order) that may be associated with the use of the ENROUTE® Transcarotid Stent System when used in conjunction with the ENROUTE® Transcarotid NPS include, but may not be limited to (based upon clinical trial data for the PRECISE® Stent System and the ANGIOGUARD® XP Emboli Capture Guidewire and clinical trial data from the ROADSTER and PROOF studies): Air embolism, Allergic/anaphylactoid reaction, Anemia, Aneurysm, Angina/coronary ischemia, Arrhythmia (including bradycardia, possibly requiring need for a temporary or permanent pacemaker), Arterial dissection, Arterial occlusion/restenosis of the treated vessel, Arterial occlusion/thrombus, at puncture site, Arterial occlusion/thrombus, remote from puncture site, Arteriovenous fistula, Atelectasis, Atrial Fibrillation, Bacteremia or septicemia, Cerebral edema, Congestive heart failure, Death, Embolization, arterial, Embolization, stent, Emergent repeat hospital intervention, Fever, Gastrointestinal disorders, GI bleeding from anticoagulation/antiplatelet medication, Hallucination, Hematoma bleed, access site, Hematoma bleed, remote site, Hemorrhage, Hyperperfusion syndrome, Hypotension/hypertension, Hypomagnesaemia, Hypophosphatemia, Infection, Intimal injury/dissection, Ischemia/infarction of tissue/organ, Local infection and pain at insertion site, Malposition (failure to deliver the stent to the intended site), Myocardial infarction, Nausea, Oxygen saturation decrease, Pain, Pseudoaneurysm, Rales, Renal failure, Respiratory Infection, Restenosis of the vessel (> 50% obstruction), Rhinorrhea, Seizure, Severe unilateral headache, Stent migration, Stent thrombosis, Stroke, Transient ischemic attack, Transient intolerance to reverse flow, Urinary tract infection, Vasospasm, Venous occlusion/thrombosis, at puncture site, Venous occlusion/thrombosis, remote from puncture site, Vessel rupture, dissection, perforation, Vomiting, Wheezing

Caution: Federal (U.S.) Law restricts this device to sale by or on the order of a physician.

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