

# Clinical Applications and Reimbursement

## Unmatched Performance and Versatility

Address the full range of clinical applications with VIASYS TCD Products.

- **Standard Diagnostic Evaluations** – Protocol driven examination combined with superior sensitivity allows clinicians to focus on the patient and not the procedure. Add our DICOM connectivity solution to further increase productivity and decrease reporting errors.
- **Emboli Detection Monitoring** – Combine our state of the art emboli detection algorithm with tools like Continuous SoundTrak, M-mode with Multigate Spectral displays and SoundTrak Display for superior emboli evaluation.
- **Patent Foramen Ovale (PFO)** – TCD has been shown to be as accurate as TEE for screening for the presence of PFO, when using agitated saline or contrast agent. Expanded use for migraine with aura patients may be appropriate based on recent research related to PFO with stroke.
- **tPA Treatment for Stroke** – Microembolic signals detected by TCD at the site of arterial obstruction, can indicate clot dissolution.<sup>1</sup> Recent studies have shown that in patients with acute ischemic stroke, continuous TCD augments tPA induced arterial recanalization.
- **Vasospasm monitoring with Subarachnoid Hemorrhage** – Establish a diagnosis of vasospasm before it becomes clinically symptomatic and follow its course and response to treatment.
- **Sickle Cell Disease** – Detect and follow intracranial stenosis and time transfusion therapy to decrease incidence of stroke in children diagnosed with Sickle Cell Disease.
- **Monitoring during Surgery** – Reduce the risk of perioperative stroke by expanding your monitoring during vascular surgeries where significant flow changes and emboli can result in poor patient outcomes.
- **Interventional Procedures** – Use TCD monitoring for vascular interventional procedures such as Carotid Stent Placement or Test Balloon Occlusion where emboli or flow changes may impact patient outcomes.
- **Pre-operative Assessment of High-risk Cardiovascular patients** - Vasomotor reactivity evaluation in addition to a complete diagnostic TCD exam will help identify patients with an increased risk of stroke.
- **Cerebral Circulatory Arrest** – TCD detection of persistent cerebral circulatory arrest can be used as a confirmatory test for brain death.

All TCD exams need to be medically necessary to receive reimbursement. Contact your local carrier to determine the appropriate ICD-9 examination codes that support the TCD CPT codes listed below.

## TCD CPT Codes

- 93886 Transcranial Doppler study of Intracranial arteries; complete
- 93888 Transcranial Doppler study of Intracranial arteries; limited

## New TCD CPT Codes

- 93890 Transcranial Doppler study of Intracranial arteries; Vasoreactivity Study
- 93892 Transcranial Doppler study of Intracranial arteries; Emboli Detection without intravenous microbubble injection
- 93893 Transcranial Doppler study of Intracranial arteries; Emboli Detection with intravenous microbubble injection

New codes cannot be co-reported with Limited 93888

New codes can be co-reported with Complete 93886

**VIASYS**  
HEALTHCARE  
*Excellence For Life*

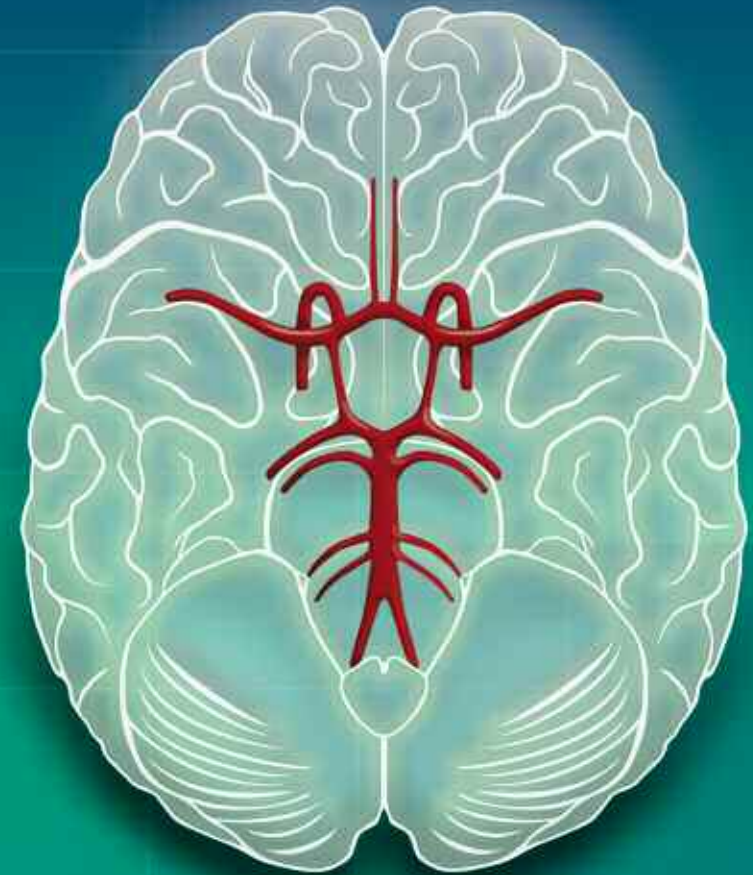
<sup>1</sup> Alexandrov, Andrei V. et al  
Intracranial Clot Dissolution Is Associated With  
Embolitic Signals on Transcranial Doppler  
*Journal of Neuroimaging* 2000; 10:27-32

Alexandrov, Andrei V. et al  
Ultrasound-Enhanced Systemic Thrombolysis for  
Acute Ischemic Stroke  
*The New England Journal of Medicine*  
Volume 351:2170-2178,  
November 18, 2004, Number 21

# Transcranial Doppler Evaluation

**Typical Adult Intracranial Artery Values**

Vessel	Flow Direction	Depth	Mean Velocity
MCA	Towards	30 - 60 mm	55 +/- 12 cm/sec
ACA	Away	60 - 80 mm	50 +/- 11 cm/sec
tICA	Towards	55 - 65 mm	39 +/- 9 cm/sec
PCA	Towards/Away	60 - 80 mm	39 +/- 10 cm/sec
Ophthalmic	Towards	40 - 60 mm	21 +/- 5 cm/sec
Siphon	Away/Towards Bi-directional	60 - 80 mm	41 +/- 11 cm/sec
Vertebral	Away	60 - 90 mm	38 +/- 10 cm/sec
Basilar	Away	80 - 120 mm	41 +/- 10 cm/sec



**VIASYS NEUROCARE**

Grason-Stadler • Medelec • Nicolet • TECA

P.O. Box 44994 • Madison WI 53744-4994 • Phone: 608.273.5000 • Toll Free: 800.356.0007 • [www.viasyshealthcare.com](http://www.viasyshealthcare.com)

© VIASYS NeuroCare, Inc. Specifications, design options and terms quoted are subject to change without notice.