FLOW800 is an intraoperative imaging tool developed by Carl Zeiss Meditec that works in combination with indocyanine green videoangiography (ICG-VA). It provides semi-quantitative hemodynamic analysis by converting ICG fluorescence video sequences into color-coded perfusion maps.

 How It Works ICG dye is injected intravenously.

The surgical microscope captures fluorescence signals as the dye circulates through cerebral vessels.

FLOW800 analyzes the fluorescence intensity over time and generates:

Time-to-peak maps (how fast the dye arrives)

Flow directionality

Intensity curves for user-defined regions

Color overlays on live images

⚙ Clinical Utility in Neurosurgery Visualizes arterial vs. venous phases in AVMs

Maps feeding arteries, nidus, and draining veins

Assists in real-time decision-making during vascular lesion resection

Potentially identifies residual nidus post-resection

Applied in bypass surgery, aneurysm clipping, AVMs, and tumor surgery

 Limitations Not truly quantitative — flow values are relative, not absolute

Line-of-sight dependent — cannot image deep structures

Operator bias in region-of-interest (ROI) selection

No standard thresholds for defining “adequate” perfusion

Cannot replace DSA for diagnostic vascular imaging

 In Summary: FLOW800 is to ICG-VA what color Doppler is to grayscale ultrasound — a helpful overlay, but not a replacement for diagnostic angiography or sound surgical judgment. It enhances interpretability, not accuracy.