Background and Purpose Multiple randomized controlled trials demonstrated the significant clinical benefit of endovascular stroke thrombectomy in anterior circulation large vessel occlusions (LVO) within 6 hours. More recent trials have shown the benefit to extend up to 24 hours with advanced imaging selection. We aim to present real-world evidence for endovascular thrombectomy (EVT) practiced in the United States using the Neurovascular Quality Initiative (NVQI) registry.

Methods Data from the NVQI registry was analyzed for anterior circulation acute ischemic strokes treated with EVT in 23 US centers (17 states) from Feb 2015 to Oct 2019.

Results Anterior circulation EVT was performed in 90.5% (2808/3103 patients). LVO sites were most common in the MCA (74%) vs. the ICA (25% cervical and/or terminus) with few isolated ACA occlusions (1%). Mean age at intervention was 68.8 ± 15.4 (48.6% male) presenting with a mean NIHSS of 15.8 ± 6.8. ASPECTS was reported in 69.2% of cases with only 47.9% presenting with an ASPECTS ≤ 7. CT/CTA was performed in 94% of cases whereas MRI/MRA was limited to 14%. The median arrival to groin puncture time was 87 min, onset to groin time was 291 min, and procedure time was 33 min. 43.1% of patients received IV rtPA. 84% of cases were successfully treated (TICI 2b/3 reperfusion), 45% reported single pass successful recanalization, with 3.9% technical failure, intraprocedural complications, and 90-day mRS amounting to 13.5%, 15.3% and 32.5% of cases, respectively.

Conclusion Stroke thrombectomy practices, procedural metrics, and outcomes from the NVQI registry mirrors the findings from the HERMES meta-analysis confirming the real-world practice and evidence for EVT in the US. Stricter quality reporting guidelines, improving clinical follow up, and the potential for automated imaging data adjudication will transition quality reporting infrastructures to be utilized for regulatory device monitoring, expanding indications, clinical trials, and value-based reimbursements.