Objective(s): Different imaging modalities are available for carotid endarterectomy (CEA) planning, and the choice of imaging is in evolution. The aim of this study was to assess the association between imaging modality, patient presentation and hospital CEA volume.

Methods: The 2012-2017 Southern Vascular Outcomes Network (SoVONet) dataset was utilized. The type of operation (elective, urgent or emergent), center volume (high [≥100 CEA/year] or low [<100 CEA/year]) and type of presentation (asymptomatic, TIA or stroke) were independent variables. Primary outcome was type of imaging, including duplex ultrasound (DUS), computed tomography angiography (CTA), magnetic resonance angiography (MRA), carotid angiography or a combination of these modalities. Univariable and multivariable logistic
regression analyses were used to study the association between each primary outcome and independent variables.

**Results:** There were 6141 CEA cases performed in SoVONet; after excluding those with prior CEA or carotid stent, 5106 patients were included in the analysis. Of these patients, 56% were >70 years, 87% white, 57% asymptomatic, 88% underwent elective CEA, and 66% underwent CEA in high volume centers. Additionally, 3437 (68%) patients had DUS, 2569 (50%) had CTA, 595 (12%) had MRA, 871 (17%) had angiography, 1368 (27%) had DUS and CTA, 398 (7.8%) had DUS and MRA, and 647 (12.7%) had DUS and angiography. Dual imaging use is significantly higher in urgent or emergent CEA compared to elective cases (DUS+CTA: OR=1.40[95%CI:1.16-1.69,p=0.0004]; DUS+MRA: OR=2.49[95%CI:1.95-3.19,p<0.0001]). Urgent or emergent CEA patients had 38% less chance of getting angiography in addition to DUS compared to elective cases (OR=0.62[95%CI:0.44-0.86, p=0.0047]). Low volume centers utilized DUS and CTA 23% more frequently (OR=1.23[95%CI:1.08-1.39, p=0.0017]) and four fold more DUS and MRA (OR=4.24[95%CI:3.39-5.29, p<0.0001]) than high volume centers. However, using DUS and angiography was 72% less frequent in low volume centers than in high volume centers (OR=0.28[95%CI:0.22-0.35, P<0.0001]). Except for angiography, CTA and MRA in addition to DUS was performed more frequently in patients with stroke as presenting symptom (OR=1.22[95%CI:1.04-1.43, p=0.01] and OR=2.58[95%CI:2.03-3.29, p<0.0001], respectively).

**Conclusions:** High volume centers less frequently use dual imaging prior to CEA. Angiography is an exception and is used more frequently in high volume centers. Symptomatic patients and non-elective cases undergo more dual non-invasive imaging, but fewer angiograms. Future studies may define the role and need of imaging modalities prior to CEA.

**Author Disclosure Block:**

**F. Malekpour:** None.  **J. Yan:** None.  **H. Zhu:** None.  **C.H. Timaran:** None.  **M.B. Malas:** None.  **T.A. Smith:** None.  **J. Modrall:** None.  **M.M. Ali:** None.