

**Supplemental Figure 1. Procedural Staging System for Diagnostic Cerebral Angiography**

Stage 1: sheath is successfully advanced into access site artery of interest

Stage 2: diagnostic catheter is successfully advanced to the aortic arch

Stage 3a: goals of cerebral angiogram are achieved with standard techniques, specifically use of traditional 5F catheters, 0.035" or 0.038" guidewires, and exchange-length J-wires

Stage 3b: goals of cerebral angiogram are achieved with adjunctive techniques, specifically additional non-diagnostic catheters or wires such as long sheaths, intermediate catheters, microcatheters, and microwires