Introduction
The utilization of cerebral angiography in the diagnosis and management of patients with subarachnoid hemorrhage varies across the United States. Given advances in noninvasive imaging, such as CT and MR angiography, patients with aneurysmal and nonaneurysmal subarachnoid hemorrhage may never undergo cerebral angiography. This study explores shifting trends in angiography utilization for subarachnoid hemorrhage across the U.S. from 1999-2009.

Methods
The National Inpatient Sample was used to identify patients carrying a primary ICD-9 diagnosis code of subarachnoid hemorrhage (437.3) between 1999-2009. The primary outcomes were compared across subgroups undergoing cerebral angiography versus those who did not. The data were analyzed using univariate and multivariate regression (SAS).

Results
There were 280,656 total admissions for subarachnoid hemorrhage between 1999-2009 per NIS estimates. 148,994 of those underwent cerebral angiography, while 131,662 went without. Of the total number of patients undergoing angiography following hemorrhage, 48,943 underwent clipping while 87,301 underwent coiling (p<0.001). In contrast, those not undergoing angiography were more prone to undergo clipping for management. Patients presenting with subarachnoid hemorrhage at academic institutions were more likely to undergo cerebral angiography than their counterparts at nonacademic institutions (p<0.001). Among patients undergoing cerebral angiography, patients were at a substantially higher likelihood of undergoing coiling if the underlying pathology was confirmed to be aneurysmal (p<0.001). For those not undergoing cerebral angiography, there was a higher likelihood of undergoing microsurgical clipping, most pronounced in 1999 (92% vs. 8%, p<0.001).

Conclusions
Discrepancies between coiling and clipping amongst those undergoing cerebral angiography have increased over the years, progressively in favor of endovascular coiling. Utilization of cerebral angiography for the management of subarachnoid hemorrhage has remained stable over the years. Undergoing cerebral angiography increases the chance of patients undergoing endovascular treatment for subarachnoid hemorrhage. The difference has become increasingly pronounced over the years, particularly notable at academic institutions.

Learning Objectives
By the conclusion of this session, participants should be able to 1) identify trends in the utilization of cerebral angiography for the management of subarachnoid hemorrhage and its variation across differing geographic regions and hospital types; 2) recognize how cerebral angiography as a diagnostic tool can dictate treatment patterns for aneurysmal subarachnoid hemorrhage (coiling vs. clipping); 3) comprehend how increasing use of endovascular techniques for aneurysmal management has impacted the utilization of cerebral angiography.