Objective(s):
Hemodialysis (HD) access surgery can be performed in either an inpatient or outpatient setting. Surgery in the inpatient setting may be preferable in that it avoids patients being lost to follow-up and facilitates access maturation. However, inpatients have higher rates of comorbidities and acute medical conditions compared with outpatients, thus representing a theoretically higher risk surgical population. We hypothesize that those who receive HD access surgery while inpatient have higher rates of post-operative mortality compared with outpatients.

Methods:
Patients in the Society for Vascular Surgery Patient Safety Organization (SVS PSO) Vascular Quality Initiative (VQI) national database who received any HD access surgery between October 2011 and August 2015 and had adequate 2-year follow-up were evaluated. If patients had more than one procedure recorded, the most recent procedure was considered. Patients were separated by inpatient and outpatient setting, with a Kaplan-Meier curve created for survival probabilities in each group. Results were compared by log-rank and Wilcoxon tests, with significance at p<0.05. Demographics between the survival and mortality groups were compared, and those with p<0.1 were placed into a Cox proportional hazards model, with significance at p<0.05.

Results:
A total of 15,915 patients with known 2-year mortality status were included in the study (2,674 inpatients and 13,241 outpatients). Inpatients had higher rates of comorbidities. Inpatients also had higher rates of 30-day and 2-year post-operative mortality compared to outpatients (4.8% vs 1.2%, p<0.001, and 29.3% vs 18.7%, p<0.001). Figure demonstrates the Kaplan-Meier curves for inpatient and outpatient groups, with lower 2-year survival probability in inpatients (p<0.001). The Cox proportional hazards model demonstrated that an inpatient status has a hazard ratio of 1.83 (95% CI 1.69-1.99, p<0.001).

Conclusions:
Patients who receive HD access surgery as inpatients have higher rates of 30-day and 2-year mortality. Inpatient status was an independent risk factor for increased mortality. Additional study into improved methods of patient selection prior to HD access surgery in the inpatient setting could minimize unnecessary and high risk surgery.