Introduction:
Septic shock is among the most common critical care illnesses and incidence is rising, with mortality in excess of 35%. Septic shock predisposes patients to multiple organ failure. While albumin is effective in management of circulatory dysfunction in septic shock, its utilization in this population is understudied in the US. We evaluated the impact of albumin utilization on hospital length of stay (LOS) among septic shock patients.

Methods:
We used a nationwide Electronic Health Record data set (Cerner Health Facts®) to extract real-world data on adult patients (≥18 years old) with severe sepsis or septic shock, admitted between January 1, 2013, and April 30, 2018, identified by International Classification of Disease (ICD-9/10) codes, and receipt of antibiotics and vasopressors. We calculated the Charlson Comorbidity Index (CCI) and the Acute Physiology Score (APS) at baseline. A generalized linear model was used to examine the association between albumin and hospital LOS, especially accounting for the timing of albumin infusion.

Results:
We identified 3,156 unique visits for septic shock patients that survived to discharge. Albumin was infused within 24 hours of admission ('early albumin') in 15%, after 24 hours ('late albumin') in 20%, and not administered in 65%. Both CCI and APS were higher, at presentation, in early albumin cases than late- or no-albumin cases (mean: 7.49 and 7.17, and 51.50 and 43.23, respectively). Unadjusted LOS was slightly lower in patients receiving early albumin (11.81 days versus 11.84 days). A risk-adjusted analysis demonstrated that early albumin was associated with 4.92% shorter LOS (95% CI 0.43%-9.22%, p = 0.0322).

Conclusion:
Albumin infusion within 24 hours of admission was associated with a shorter length of hospital stay. Early albumin infusion may lead to better outcomes and reduced costs in patients with septic shock. Further research is being conducted to assess other potential benefits of early albumin administration in this patient population.