# National Trends in Healthcare Burden, Outcomes of Severe Sepsis and Septic Shock 2016-2022

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## Abstract Content


### INTRODUCTION

Sepsis management is associated with morbidity, mortality, and healthcare resource utilization. Severe sepsis and septic shock represent the most consequential manifestations, with higher risks of organ dysfunction, prolonged hospitalization, mortality, and long-term sequelae among survivors. We aim to evaluate the burden of severe sepsis and septic shock utilizing a national database.

### METHODS

We conducted a retrospective study using the National Emergency Department (ED) Sample (NEDS) database from 2016 to 2022. Adult patients aged ≥18 years with severe sepsis or septic shock were identified using relevant ICD-10 diagnosis codes. The study evaluated temporal trends in patient demographics, socioeconomic characteristics, insurance status, geographic and hospital characteristics, emergency department disposition, mortality, and healthcare utilization. Statistical significance was assessed using appropriate tests for differences, with $p< 0.05$ considered statistically significant.

### RESULTS

A total of 3,837,984 weighted patients were identified from 2016 to 2022. The number of ED visits for severe sepsis and septic shock increased 54%, from 423,446 in 2016 to 651,599 in 2022. The mean patient age was 67 ± 15.3 years, and 47% were female. Mean ED charges increased 44%, from $3,631 in 2016 to $6,426 in 2022 ($p< 0.001$), after adjustment for inflation. Mean inpatient charges also increased, from $160,075 to $229,910 ($p=0.018$). ED deaths increased from 2,360 in 2016 to 5,061 in 2022, representing a 114% increase ($p< 0.001$), while in-hospital deaths increased from 126,011 to 209,050, representing a 66% increase ($p< 0.001$). Inpatient admissions increasing from 412,479 in 2016 to 626,871 in 2022 ($p< 0.001$). Significant differences were also observed in race, gender, income quartile, insurance status, hospital characteristics, geographic region, and hospital teaching status ($p< 0.001$).

## CONCLUSIONS

The burden of sepsis in the emergency department increased from 2016 to 2022. It was accompanied by significant increases in ED and inpatient healthcare charges, mortality. These findings highlight the growing healthcare and resource utilization but the need for continued efforts to optimize early recognition, management, and resource utilization in patients with sepsis.