

*Gram-Negative Bacteremia: The Comparison of Duration of Antibiotic Treatment at an Academic Medical Center vs Non-Academic Medical Center*

**Purpose:** For the treatment of uncomplicated gram-negative bacteremia, multiple retrospective studies have shown that a shorter duration of antibiotic therapy was just as effective as a longer duration in terms of mortality, clinical cure, and readmission rates. However, despite this evidence, many institutions continue to use longer treatment regimens. The purpose of this study was to compare the duration of antibiotic therapy used for the treatment of gram-negative bacteremia between an academic medical center and a community hospital.

**Methods:** This retrospective cohort study collected data from HSHS St. John's Hospital in Springfield, IL (community hospital) and from University of Arkansas for Medical Sciences in Little Rock, AR (academic medical center) from January 1<sup>st</sup>, 2023 to May 1<sup>st</sup>, 2024 via chart review. Patients aged 18-99 years old with a diagnosis of monomicrobial gram-negative bacteremia with either *Escherichia coli*, *Klebsiella spp.*, or *Pseudomonas aeruginosa* were analyzed for inclusion for this study. Patients were included if the source was from the urinary tract, abdominal cavity, skin and soft tissue, or the respiratory tract and if source control was obtained. Patients were excluded if there was an alternative source of infection not listed above, infection that required prolonged duration of treatment, polymicrobial, or unable to obtain source control. The two treatment arms were receiving medical care from St. John's Hospital or from University of Arkansas for Medical Sciences. The primary outcome was to determine if there was a difference in duration of antibiotic therapy between the two treatment arms. The secondary outcome of patients that were switched from intravenous therapy to oral therapy was compared between the two treatment arms.

**Results:** A total of 263 patients were included, with 97 from St. John's Hospital (SJH) and 166 from University of Arkansas for Medical Sciences (UAMS). The most common source of bacteremia was from the urinary tract and the most common pathogen was *Escherichia coli*. The median duration of antibiotic therapy was significantly shorter at UAMS (10.0 days) compared to SJH (14.0 days) ( $p = 0.001$ ). Additionally, a higher percentage of UAMS patients (64.5%) were transitioned from intravenous to oral antibiotics compared to SJH (42.3%) ( $p = 0.001$ ).

**Conclusions:** This study demonstrates that the academic medical center studied here (UAMS) adheres more closely to recent evidence supporting shorter antibiotic treatment durations for gram-negative bacteremia compared to a community hospital (St. John's). These findings demonstrate the importance of institutional differences in antibiotic stewardship practices and highlight the need for broader adoption of shorter treatment regimens for gram-negative bacteremia to improve patient outcomes and reduce healthcare costs.