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**Emergency Department Visits and Costs for Treatment of Osteomyelitis: Data from the Healthcare Cost and Utilization Project**

**BACKGROUND:** Osteomyelitis is a bone infection which occurs after an injury or traumatic event, including surgery. The pathogenesis of osteomyelitis primarily relies on the ability of certain bacteria to form biofilm and evade host immune defenses. In some instances, bacteria are able to colonize surgical hardware through biofilm formation and, thus, cause post-operative osteomyelitis. This pathogenesis results in a difficult to treat condition, often requiring prolonged and repeated care settings. This study intends to assess trends in the presentation of osteomyelitis to national and regional emergency departments as one setting of care for this complicated diagnoses.

**OBJECTIVES:** The primary purpose of this study is to identify trends in emergency department visits and discharges for the treatment of osteomyelitis as the primary visit diagnosis between 2018 and 2022 considering regional and demographic variations.

**METHODS:** This study is a cross-sectional analysis of data from the Nationwide Emergency Department Sample from the Healthcare Cost and Utilization Project (HCUP), Agency for Healthcare Research and Quality (AHRQ) using data from 2018-2022. Emergency department (ED) visits were characterized by number of visits, percentage resulting in treatment and release, and treatment costs and were stratified by census region, age range, sex, patient community-level income, and hospital type.

**RESULTS:** ED visits in the included time period for the treatment of osteomyelitis increased from over 15,600 to over 19,200 visits. The percentage of visits that resulted in treat and discharge, as opposed to admit from the ED, remained between 29 and 31% of visits nationwide and between 26 and 28% of visits in the Southern region. Rate of ED visits per 100,000 population and cost per visit was similar nationwide and in Southern region while the Midwest region resulted in the highest rate of osteomyelitis ED visits. Patients in age range 45-64 had the highest rate of ED visits per 100,000 persons (8.4-10.6) except in year 2022 when patients aged 85+ exhibited a large increase in rate (11.1). Male patients were twice as likely as females to have an ED visit. Patients in high income range had the lowest rate of visits (2.3-2.5) while patients in the low income range had the highest (7.7-9.2). Teaching hospitals incurred the majority of visits exceeding those counted in rural and non-teaching hospitals combined.

**CONCLUSION:** This study describes a low rate of ED access for treatment of osteomyelitis but increasing number of visits over the studied time period. There are differences between sexes and patient community-level incomes that influence ED visit rates. There are also regional variations where the Southern region which represents Louisiana is generally comparable to nationwide statistics.