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### **Chronic Osteomyelitis Predictors with Pattern of Care and Health Services**

**Background:** Chronic osteomyelitis is an infection of the bone presenting at a point in time after an acute injury or trauma. The infection may occur due to a multitude of reasons, but a couple would be open wounds or biofilms created by pathogens on implanted hardware. Commensal staphylococci are the most common cause of osteomyelitis<sup>1</sup>. Management of chronic osteomyelitis can either be surgical with irrigation and debridement, a course of antibiotics ranging from four to six weeks, or a combination of both<sup>2</sup>. Chronic osteomyelitis can complicate the healing process, but also place a burden on the patient if there is a need for multiple operations and daily antibiotic treatments. The study aims to look at varying comorbidities, treatment plans, and social determinants of health for associations with chronic infection. Doing so will help improve the care and management of bone infection cases.

**Methods:** This is a retrospective cohort study of patients that have been diagnosed with chronic osteomyelitis. The study covers 27 electronic medical records, from Epic, of patients at University Medical Center in New Orleans. The study includes patients that are aged 18 or over, have a chronic osteomyelitis of the extremity long bone, hind foot, or bony pelvis diagnosis, and diagnoses between 2016 and 2022. Data being abstracted from the charts include, but not limited to, social determinants of health and outcomes of medical and surgical treatments.

**Results:** The average age of abstracted from the charts is 44.5 years old with charts being 2/3 male and 1/3 female. 55.56% of the charts indicated were African American and the other 44.44% were White. Most of the charts, 85%, had antibiotics and surgery treatment, while the rest were only treated with antibiotics. 3 of the 4 charts receiving only antibiotic treatment, the orthopedic team did not see a need for surgical treatment and noted that antibiotic treatment yielded good progress. Only 6 of 27 charts were not prescribed long term IV antibiotics. There were 4 charts indicating IV drug use with 1 not prescribed long term IV treatment. The other 5 not on IV responded well to initial oral antibiotics and infectious disease consult not recommending IV treatment. There were 6 charts with a recurrence of chronic osteomyelitis. However, 83.33% of the patients who had a recurrence of chronic osteomyelitis were prescribed long term IV antibiotics. Additionally, the patients with recurrence, 33% only had antibiotics and no surgery as treatment.

**Conclusion:** From the charts abstracted, the most common method in treating chronic osteomyelitis was to have a combination of antibiotic and surgical treatment. Additionally, observed was the common practice of a prolonged course of antibiotic treatment through IV. However, it was interesting to note that most of the recurrence had been prescribed with 6 weeks of antibiotics. When increasing the number of charts abstracted, it may be of merit to see the percentage of patients not prescribed a course of IV antibiotics developing a recurrence of chronic osteomyelitis. The data collection is still ongoing until 350 charts have been abstracted. A definitive conclusion cannot be made at this time.

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<sup>1</sup> Kavanagh N, Ryan EJ, Widaa A, Sexton G, Fennell J, O'Rourke S, Cahill KC, Kearney CJ, O'Brien FJ, Kerrigan SW. Staphylococcal Osteomyelitis: Disease Progression, Treatment Challenges, and Future Directions. *Clin Microbiol Rev.* 2018 Feb 14;31(2):e00084-17. doi: 10.1128/CMR.00084-17. PMID: 29444953; PMCID: PMC5967688.

<sup>2</sup> Panteli M, Giannoudis PV. Chronic osteomyelitis: what the surgeon needs to know. *EFORT Open Rev.* 2017 Mar 13;1(5):128-135. doi: 10.1302/2058-5241.1.000017. PMID: 28461939; PMCID: PMC5367612.

