

Factors Influencing Orthopedic Procedure Wait Times in Minnesota Rural vs. Urban Patients

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Healthcare procedure wait times (date of consult to date of surgery) can vary for many different reasons. Orthopedic surgery procedures are increasing annually driven mainly by an increasing aging population, resulting in longer wait times. Longer wait times are detrimental to disease progression, debility, and overall patient morbidity and quality of life. Additionally, rural and urban health disparities exist, and therefore differences in wait times may exist for patients who reside in rural versus urban areas. This study conducted a retrospective EMR chart review of patients (n=478) who underwent hip, knee, and shoulder replacement surgery at an urban hospital (Aspirus St. Lukes Hospital, Duluth, MN) over a 5-year period (2019-2024). Patients were classified as urban or rural based on their home residential zip code (202 rural, 276 urban). Other factors analyzed against wait time were type of medical insurance (commercial, Medicaid, Medicare, veteran plans, and workers' comp), age, sex (male or female), and type of joint surgery (hip, knee, shoulder). Additionally, the influence of the COVID-19 epidemic on surgery wait times was investigated. The results showed no statistical difference between urban and rural patient wait times ($p=0.484$), and no correlation between patient wait times and distance from hospital ($r = 0.00001$). The average wait time for rural patients was 203 days and 189 days for urban patients. The average distance to the surgery hospital for rural patients was 67 miles, and 14 miles for urban patients. Patients with Medicare health insurance had the shortest average wait time (185 days), and workers' comp patients had the longest (302 days). The patient's ages ranged from 27 to 92 years old with an average age of 68. Age showed no correlation to wait time ($r = 0.001$). There was also no statistical difference between the sex of patient and wait time ($p=0.877$, females 196 days vs. males 193 days). Patients who underwent knee replacement surgery had the longest wait time (228 days), and hip replacement patients had the shortest wait time (144 days). The average wait time for patients within the Covid-impacted period (January 2020 to December 2021) was 243 days compared to a pre-Covid and post-Covid period wait time of 201 days and 150 days, respectively. The study's racial make-up was 95% white, 2.1% Native American, 0.8% black (African American), 0.2% Asian, 0.2% Pacific Islander, and 1.7% were unreported. Race versus wait time was not investigated because the population sample was predominantly white patients, and therefore non-white races were disproportionately underrepresented.