

Benefits of a Dedicated Orthopaedic Trauma Room 7 Days per Week

Amanda Mener PhD; Christopher A Staley BA; Danielle Erica Mustin BS; Beau McGinley BA; Carson R Ward BS; Apoorva Gangavelli BS; Omar Almetwali MBBS; Mara Lynne Schenker MD; William Michael Reisman MD
Emory University, Atlanta, GA, United States

Purpose: Given that orthopaedic trauma cases comprise a large portion of overall trauma cases at Level-I academic centers, the addition of a dedicated orthopaedic trauma operating room each day of the week can impact the hospital length of stay (LOS) and caseload distribution, thereby affecting patient care costs. Previous studies demonstrated the benefit of dedicated Saturday orthopaedic trauma block time in terms of decreased LOS, shorter waiting time to surgery, and estimated cost savings for the hospital. Therefore, we sought to determine whether the addition of Sunday block time, with dedicated orthopaedic trauma operating room (OR) time 7 days a week, impacted the caseload and LOS.

Methods: Orthopaedic trauma patients at an academic Level-I trauma center were identified using billing data and a hospital-wide trauma database from 2009-2010 and 2016-2018, corresponding to 3 time periods: weekday block time only, block time 6 days per week (Saturday), and block time 7 days per week (Saturday and Sunday). LOS and procedures were categorized by extremity: forearm, hand, arm, hip, ankle, femur, and foot. Procedure volume and caseload distribution were analyzed by χ^2 analysis. LOS and time to surgery were analyzed by the unpaired t test. $P < 0.05$ was the cutoff for significance.

Results: In the final year of block time 5 days per week only, 517 cases were identified. In the final year of block time 6 days per week only, 1051 patients were identified. In the first year of block time 7 days per week, 1111 patients were identified, a 5.7% increase in patient volume compared to block time 6 days only and a 115% increase compared to weekday block time only. Average LOS remained at 10.4 days for block time 6 and 7 days per week ($P = 0.96$) and 13.4 days for block time 5 days per week ($P = 0.0005$). The addition of a Sunday OR yielded an increase in the number of arm cases ($P < 0.0002$), compared to the addition of a Saturday OR. There was no difference in the times to initial ($P = 0.23$) or definitive surgery ($P = 0.06$) after the addition of weekend OR block time. Compared to weekday block time only, the addition of a Sunday orthopaedic OR yielded a significant increase in the number of arm, leg, hand, hip, ankle, and femur cases ($P < 0.0001$). More cases were performed on Sunday after the addition of both a Saturday and Sunday orthopaedic trauma OR with less cases performed on Monday ($P < 0.0001$).

Conclusion: These results indicate that addition of an orthopaedic trauma OR on Sunday resulted in a significant increase in overall procedure volume across multiple extremity types compared to weekday block time only. Despite the increased volume with the sequential addition of more block time, there was not a significant decrease in LOS between block time access 6 and 7 days per week. This suggests that the addition of ancillary services (physical therapy, social work) may be necessary to accelerate hospital discharge throughout the week and OR efficiency throughout the weekend.