

Improved Perioperative Efficiency in Orthopaedic Trauma Decreases Staffing Costs

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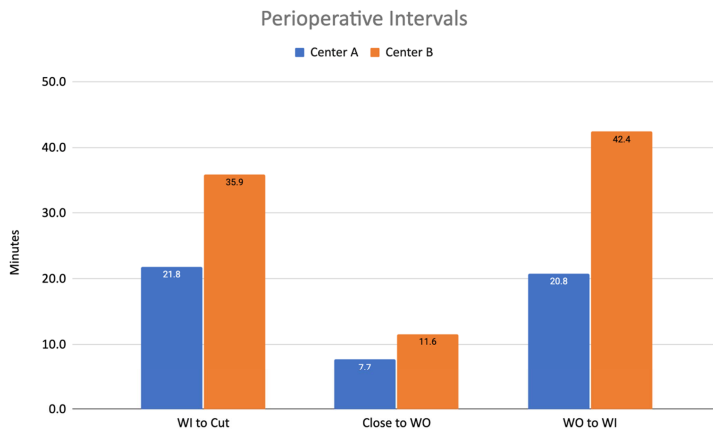
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INTRODUCTION: Operating room efficiency affects quality and timeliness of care, staffing demands, and physician satisfaction and wellness. Variability in turnover time persists, particularly in academic trauma systems, without discernible reasons beyond long standing inertia. We hypothesized that a more efficient orthopaedic trauma system would decrease staff overtime costs by decreasing the length of the surgical day.

METHODS: A retrospective review of perioperative times at two metropolitan academic trauma centers over the 2021 calendar year was performed. Differences in first case on-time starts, wheels in to cut, close to wheels out, and wheels out to wheels in between cases for all orthopaedic trauma cases were analyzed using a two-sample T-test with an alpha of 0.05. Operative time was excluded as it is in the direct control of the surgeon. The slower center's perioperative times were applied to a random sample of five representative operating room days at the faster center. The costs per hour for staff including anesthesia providers, circulating nurse, surgical tech, and radiology tech were applied.

RESULTS: The centers had nearly equivalent case volumes across the time period (average of 127.7 cases per month for Center A versus 122.2 for Center B). Center A had significantly lower average times across most perioperative intervals. Center A had wheels in to cut of 20.5 vs. 34.5 minutes, close to wheels out of 7.4 vs. 11.5 minutes, and wheels out to wheels in of 21.4 vs. 43.5 minutes ($p < 0.001$ for all metrics). There was no difference in percentage of first case on-time starts, although Center A's first start time was 30 minutes earlier than Center B. The daily time impact was an additional 3 hours and 44 minutes per day resulting in overtime staff expenses of \$840.38 per day and \$219,337.88 per operating room per year.

DISCUSSION AND CONCLUSION: A more efficient orthopaedic trauma system significantly decreased perioperative intervals leading to a shorter operative day and decreased staff costs. This study provides a financial tool to bolster surgeon initiatives to improve operating room efficiency.



$p < 0.001$ for all metrics