What is the Ideal Orthopaedic Call Plan for a Level I Trauma Center?

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Purpose: Level I trauma centers employ various orthopaedic call strategies based on their resources. There has not been a study that compares patient outcomes based on the surgeon subspecialty taking call. We hypothesize that when only surgeons fellowship trained in trauma are on call, patient outcomes will be improved compared to a hybrid plan.

Methods: We performed a retrospective cohort study from two 24-month time periods at our academic Level I trauma center. The first cohort consisted of only trauma surgeons taking call. The second cohort consisted of a combination of trauma and other subspecialties taking call. The primary outcome analyzed was time from admission to the operating room for hip, femoral shaft, distal femur, tibial shaft, pelvic ring, and acetabulum fractures. Secondary outcomes analyzed included length of stay, 90-day incidence of reoperation, mortality, venous thromboembolism (VTE), and readmission.

Results: A total of 857 patients in the trauma cohort and 992 patients in the combined cohort met the inclusion criteria. The trauma cohort was younger (47.2 years vs 53.8 years, $p<0.001$) with lower Charlson Comorbidity Index scores (0.9 vs 1.6, $p<0.001$), but there was no significant difference in cohorts in terms of sex, body mass index (BMI), or Injury Severity Score (15.5 vs 14.7). The time from admission to the index surgical procedure was shorter in the trauma cohort (1.7 vs 2.4, $p<0.001$). Length of stay (8.95 vs 11 days, $p<0.001$) and 90-day mortality (1.8% vs 3.8%, $p = 0.013$) were improved in the trauma cohort. There was no difference in the 90-day rate of VTE (3.6% vs 3.9%), readmission (24.1% vs 22.3%), or reoperation (6.3% vs 7.6%). When stratifying based on fracture pattern, length of stay and time to the operating room in pelvic ring injuries and acetabulum fractures were doubled compared to the hybrid group ($p<0.001$).

Conclusion: Our findings suggest that when trauma fellowship-trained surgeons are the only ones taking call, patients have a shorter time from admission to the index surgical procedure and length of stay, and a lower mortality rate. These findings should be considered when managing call resources within a Level I trauma center.