Evaluating the Educational Impact of a Virtual Mock Fracture Conference for Orthopaedic Surgery Applicants to Learn Trauma Principles

Introduction: As orthopaedic surgery match rates decline, sub-internships have become increasingly critical in residency selection. Radiograph interpretation during fracture conference is a key evaluative component of sub-intern performance, yet many students have limited prior exposure. This study evaluates the impact of a resident-led mock fracture conference on medical students' confidence, skills, and perceived readiness for orthopaedic away rotations.

Methods: A free, one-hour, resident-led virtual mock fracture conference was conducted in March 2026. Medical students practiced radiograph interpretation and clinical reasoning aloud with real-time resident feedback. Cases and learning objectives were developed by orthopaedic attendings. Participants completed pre- and post-event self-assessments evaluating readiness for sub-internships and orthopaedic knowledge.

Results: 50 students completed the pre-event survey and 40 (80%) completed the post-event survey. Prior to attendance, 60% disagreed with the statement: "I can recall the key steps involved in evaluating and presenting a fracture case." Only 18% of students somewhat agreed with "I can verbally explain the purpose and principles of fracture assessment and management." Following the event, 93% reported satisfaction with the mock fracture conference. Furthermore, 95% of respondents endorsed: "I can recall the key steps involved in evaluating and presenting a fracture case," and 83% strongly agreed they were motivated to pursue additional orthopaedic learning opportunities. While 66% of participants did not feel prepared for orthopaedic sub-internships prior to the conference, 98% reported being very or extremely likely to apply the knowledge and skills gained during future sub-internships.

Conclusion: Structured educational initiatives that provide supervised radiograph interpretation in a supportive environment may address persistent gaps in musculoskeletal education, improve preparedness for orthopaedic sub-internships, and teach key orthopaedic trauma principles.

Figures/Tables:

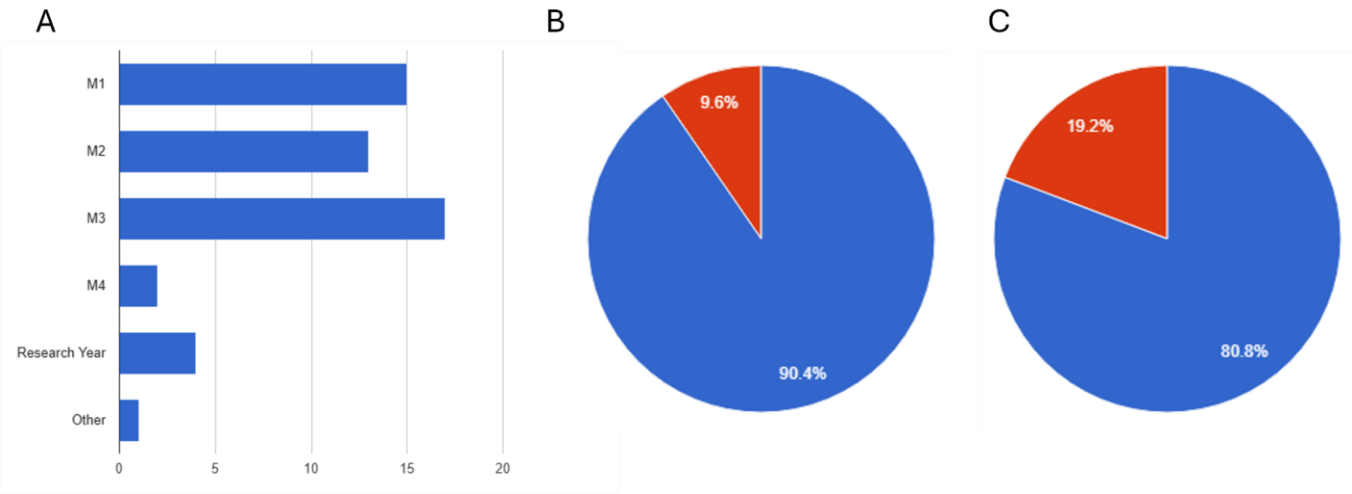

Figure 1. Pre-Survey Cohort Characteristics. Distribution of medical student year (A), allopathic vs. osteopathic training (B), and presence of a home orthopaedic surgery program (C).

Figure 2. Example Case Demonstrating Learning Objective of Simple Fracture Pattern. Participants were provided with a one-sentence clinical vignette alongside standard radiographic views and asked to interpret imaging in real time, simulating a fracture conference. To promote consistency across small groups, resident moderators were provided with standardized response frameworks (e.g., "AP and lateral of the left ankle and knee demonstrating a spiral distal diaphyseal tibia fracture"). Recognition of simple fracture patterns was reinforced with a schematic (not shown).