

# The Role of Expert Witness Characteristics in Amputation Malpractice Outcomes

Mikayla Romana Mefford, Arianna Dionysia Konstantopoulos, Ryan P Rossow, Mathangi Sridharan, Jonathan S Yu, Alexander Christ, Nicholas M Bernthal, Lauren Elisabeth Wessel

## INTRODUCTION:

Limb amputations are life-altering interventions associated with high malpractice risk. Expert witness testimonies play a key role in such litigation. While ethical testimony is crucial to maintaining professional integrity in orthopaedic surgery, the recruitment and compensation of expert witnesses remains largely unregulated. This study analyzes how characteristics of plaintiff and defense expert witnesses influence outcomes in malpractice litigation related to limb amputation.

## METHODS:

The national medicolegal Westlaw database was queried to identify malpractice cases involving limb amputations between 2009 and 2024; cases that resulted in a verdict or settlement were included. Cases were excluded if no amputation was performed, if the case did not list a surgical expert witness or if the defendant was not a surgeon. Repeat expert witnesses were included in the total testimony count. Case-level data included patient demographics, geographic region, type and cause of amputation, defendant specialty, and reason for litigation. For each expert witness, data was collected on surgical subspecialty, associated fellowship training, years of experience, and academic affiliation. Scholarly impact was also assessed using the Hirsch index (h-index) from professional profiles, Scopus, and PubMed. The primary outcome assessed whether specific expert witness characteristics were associated with favorable verdicts for the party they represented. Descriptive statistics and two-sample *t*-tests were conducted for each parameter (R version 4.3.3, Vienna, Austria).

## RESULTS:

A total of 122 cases with 299 expert medical witness testimonies were included. At the case-level, below-knee amputations were the most common intervention (42%), delayed diagnosis was the leading cause for litigation (23%), and orthopaedic surgeons were the most frequently named defendants (40%). Verdicts in favor of the defense significantly exceeded those in favor of the plaintiff (75 vs 47,  $p=0.014$ ). Of the expert witnesses, 143 (48%) testified for the defense and 156 (52%) testified for the plaintiff. No significant differences were found between groups in terms of experience, academic affiliation, fellowship training, or advertisement of witness services. However, defense witnesses had a significantly higher mean h-index than plaintiff witnesses (17.9 vs. 13.1,  $p=0.019$ ). A higher h-index was associated with favorable outcomes across both groups ( $p=0.019$ ), particularly above a threshold of 11 ( $p=0.030$ ). Surgical experience of 30-39 years was also significantly associated with outcomes favoring the side of the expert witness ( $p<0.001$ ).

## DISCUSSION AND CONCLUSION:

Defense expert witnesses had significantly greater scholarly impact than plaintiff witnesses. In general, increased scholarly impact and mid-to-late career experience were more likely to have favorable outcomes in malpractice litigation related to limb amputation. A deeper understanding of the expert testimony's role may inform strategies to reduce the financial and societal burden of malpractice claims related to high-stakes surgical interventions.

Figure 1. Flowchart of malpractice claims screened for inclusion.

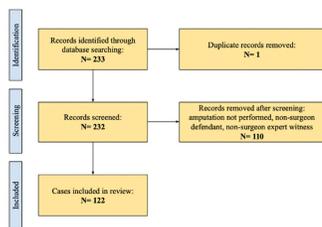


Figure 2. Favorable Verdicts by Expert Years of Experience.

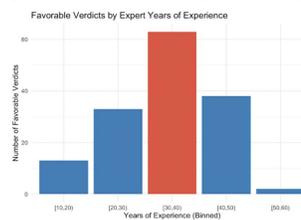


Figure 3. Mean H-index by Expert Witness Type.

