

Research Output of Adult Cardiothoracic Anesthesiology Fellowship Matriculants: A National Cross-Sectional Analysis

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Background

Adult Cardiothoracic Anesthesiology (ACTA) is a highly specialized and increasingly competitive subspecialty within anesthesiology. As research engagement becomes a more prominent component of both residency and fellowship training, scholarly productivity is commonly considered as one of several factors in fellowship selection. However, no prior national study has evaluated the research output and bibliometric impact of applicants who successfully matched into ACTA fellowships in the United States.

Methods

We conducted a cross-sectional study of ACTA fellows matriculating in the 2024-2025 academic year across ACGME-accredited programs. Data were obtained from program websites, Doximity, and PubMed/Scopus. Demographic variables included gender, medical degree, and regions of residency and fellowship training. The primary outcome was the total number of peer-reviewed publications per fellow prior to fellowship matriculation. Secondary outcomes included first-author publication count, Scopus h-index, mean JCR Impact Factor (IF) of journals published in, and weighted JCR Impact Factor. Statistical comparisons were made using t-tests and ANOVA with post-hoc testing.

Region	Residency	Fellowship
Northeast	71 (33.8%)	65 (30.8%)
Midwest	62 (29.5%)	51 (24.2%)
South	55 (26.2%)	72 (34.1%)
West	16 (7.6%)	23 (10.9%)
International	6 (2.9%)	-

- Results**
- Data were available for 211 fellows (66.8% male, 79.6% MD) Publication data was found for 201 fellows; 62.2% had at least one peer-reviewed publication
 - Gender:** No significant gender-based differences were observed in publication counts, h-index, or impact factor metrics (all p>0.05)
 - Degree Type:** M.D. graduates demonstrated significantly higher scholarly productivity than D.O. graduates (total publications: 2.8 vs 1.0; h-index: 1.7 vs 0.7; all p <0.01)
 - Residency Region:** Fellows with international residency training exhibited the highest overall research productivity, with more total publications (mean = 8.4) than those in the South (mean = 1.5), and more first-author publications (mean = 3.6) than the Northeast, Midwest, and South (all p < 0.05)
 - Fellowship Region:** Fellows training in the West had a significantly higher h-index than those in the South (p=0.02). Western fellows also had a significantly higher mean JCR Impact Factor and weighted JCR Impact Factor compared with the Northeast, Midwest, and South regions (all p ≤ 0.03).

Metric	Mean (SD)	Median (IQR)
Total Publications	2.45 (4.8)	1 (3)
First-Author Publications	0.69 (2.1)	0 (0)
h-index	1.53 (2.3)	1 (2)
Mean JCR Impact Factor	3.20 (7.5)	1.95 (3.7)
Weighted JCR IF	14.32 (38.8)	2.15 (10.2)

Fellowship Region	h-index	Mean JCR IF	Weighted JCR IF
West	2.8 (3.8)	8.3 (18.7)	41.3 (77.0)
Northeast	1.5 (2.2)	2.6 (3.5)	14.2 (35.4)
Midwest	1.5 (2.1)	3.1 (6.3)	12.2 (36.5)
South	1.2 (1.7)	2.2 (2.5)	6.9 (14.4)

Discussion

ACTA fellows show wide variability in pre-fellowship research productivity, with modest overall median output. Degree type strongly correlated with publication quantity and impact; M.D. graduates had significantly more scholarly activity than D.O. graduates. Regional disparities suggest structural differences in research culture and mentorship, particularly stronger in Western programs. No gender-based differences were found in any research metric. Findings highlight that research is beneficial but not universally required for ACTA fellowship selection.

References

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