

Women Authors in Medicine: A Gender Based Study on Authorship Opportunities and its Implications in Promotions in Medicine

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Abstract

Obtaining first authorship in research and published papers is widely held as grounds for promotions and advancements in the medical field. However, the opportunities to be involved in research and to have the primary authorship position are not equally divided amongst specialties, including primary care. Women physicians are becoming a greater percentage of the workforce in primary care, including Internal Medicine and the potential lack of opportunity for authorship may disproportionately affect their promotion. This poster presents the preliminary research on an investigation into the Indiana University School of Medicine's Department of Medicine gender authorship profiles in the last five years. By utilizing the search engine scopus, a database of the papers written by physicians was created, and gender identifications of the first, second, and last author was made to find correlations between gender and authorship positions. These results will be used to make a case for reexamining the qualifications for promotions, and ensuring that genders have equal opportunity for job advancement and leadership in the medical field.

TABLE 1 Basis for Authorship Order

	% of Respondents				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Amount of work done	38	52	0	10	0
Alphabetical order	0	0	0	29	71
Seniority of authors	0	20	0	45	35
Random order	0	0	0	24	76
Writing manuscript	29	57	0	14	0
Obtaining financial support	0	14	10	42	34
Other suggestions*	19	—	—	—	—

* Study conception and design was provided as an additional basis for authorship order by four respondents.

Responses from a survey of the editorial board for The Journal of Bone and Joint Surgery on how authorship should be assigned (Bhandari, M. et al., 2003)

Introduction and Background

- Publishing is a key factor in obtaining higher positions of rank in the medical field, the position of authorship in a paper's line up holds significance for the authors and the boards considering promotions
- The International Committee of Medical Journal Editors (ICMJE) sets standards on who should be included in authorship
 - Standards include substantial contributions to design, drafting and revising, final approval of the version published, and agreement to be accountable for the work published
 - In an author study of the Dutch Journal of Medicine, 60% of respondents did not know the ICMJE criteria when assigning positions in authorship

That leaves the question as to whether those assigning authorship consider the weight of the authorship position - **and what that means for female authors, minority authors, and authors in lower rank positions in the medical field.** This study aims to identify the gender profiles of authorship for Indiana University School of Medicine's Medicine Department over 2013-2018. In identifying gender profiles, we aim to start a discussion on the role of authorship in promotions and shine light on disparities of opportunities that may be limiting female advancement in the medical field.

Methods

1. Faculty profiles retrieved for the IUSoM, Medicine Department
2. Gender identification made with associated pronouns
 - 435 MDs and MD/PhDs were identified
 - 11 departments separated into - Rheumatology, Pulmonary, Nephrology, Infectious Diseases, Hematology Oncology, General Internal, Geriatrics, Gastroenterology, Hepatology, Endocrinology, Clinical Pharmacology, Cardiology
3. Author Search in Scopus
 - Publications were obtained for each author from the years 2013-2018
 - Publications were selected regardless of position of authorship of the targeted author
 - If author origin was disputed, paper was found online and confirmed to be affiliated with IUSoM or author's previous associations
4. Publication lists of authors were separated and isolated into first, second, and last positions
5. Gender identification of first, second, and last author was obtained from known list of authors and genders from the IUSoM
6. Cardiology, General Internal, and Infectious Diseases first analyzed
 - Infectious Disease was the only speciality found to be close to a 50/50 split of male to female faculty
7. Male to female ratios were obtained for each specialties authorship gender profiles

Results

	Male 1st	Female 1st	M:F	Male 2nd	Female 2nd	M:F	Male Last	Female Last	M:F	Male Employees	Female Employees
Cardiology	45	5	9	45	6	7.5	94	1	94	47	10
Infectious Disease	49	10	4.9	33	10	3.3	26	13	2	15	14
General Internal	36	12	3	52	4	13	82	10	8.2	61	21

Even when controlled for a speciality with an even split of male to female employees, authorship in significant positions was dominated by male authors

Some of the authors were not identified from the current faculty list, as they have other affiliation, but our trends suggest that gender profiles could remain the same

4.9 Male First Authors to 1 Female



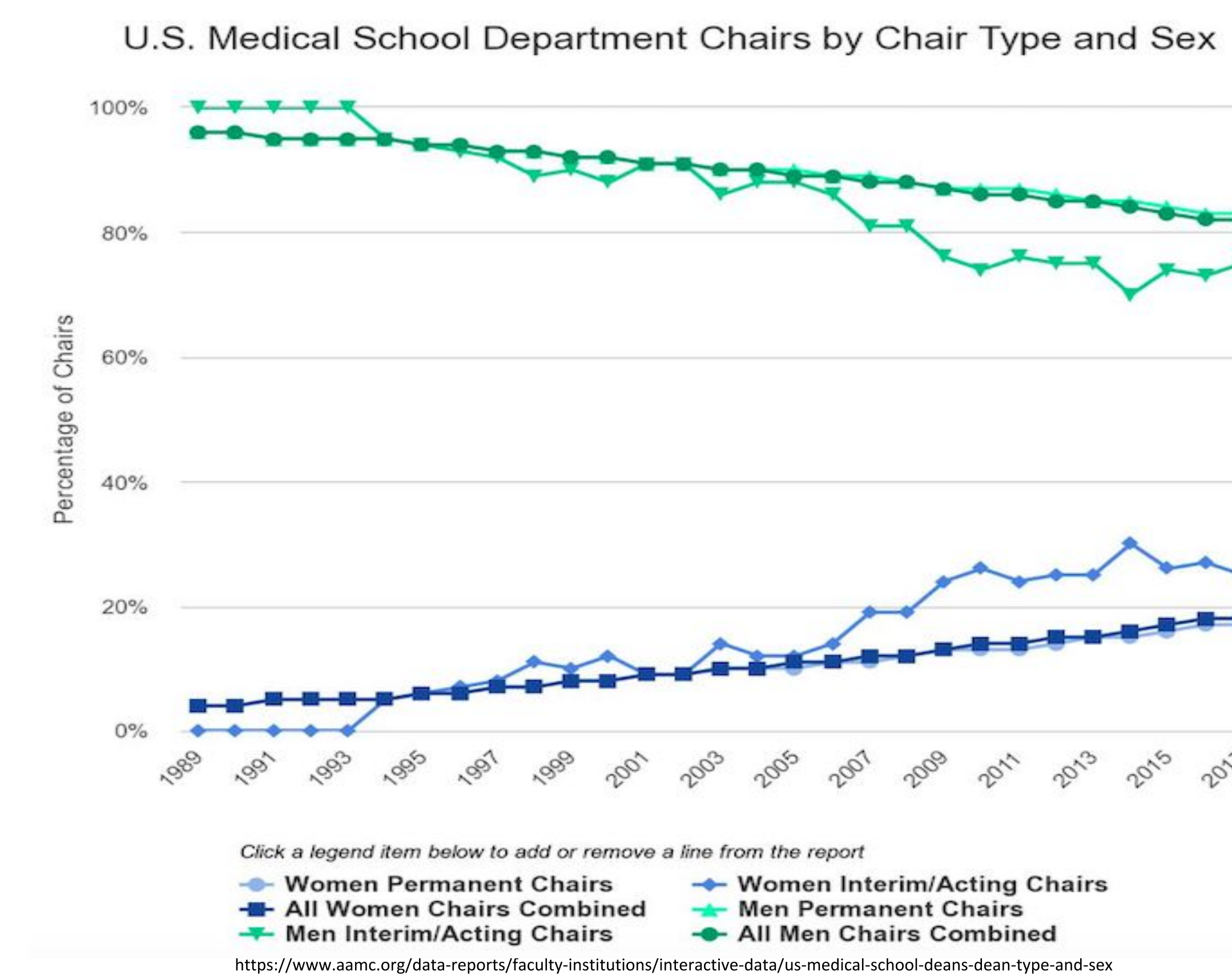
3.3 Male Second Authors to 1 Female



2 Male Last Authors to 1 Female



Infectious Disease Ratios



Discussion

Why does equal representation of gender in authorship matter?

Equal Representation ➔ More Opportunities for Advancement ➔ More Leadership Opportunities

- Women outnumber men in medical school classrooms, but only a fraction hold leadership positions in medical schools
 - 2007 - 12% of Deans and 12% of Chairs were Women
 - 2019 - 16% of Deans and 18% of Chairs are Women
- Not due to a lack of women feeding into programs...
 - Long female dominated fields including primary care (pediatrics, OBGYN, etc.) have women holding less than half of the leadership positions in professional specialty societies
 - Women and minorities are more likely to be recruited to committees and representation studies at the expense of scholarly activities
- Publications are regarded as essential steps to pathways for advancement
 - This analysis of authorship profiles show that in the last 5 years males dominate holding essential authorship positions
 - 20% of correspondents believed that seniority plays a role in authorship order - Does not follow ICMJE Guidelines

Next Steps

- Identify authors from other institutions in publications
- Chi Squared data analysis across all specialties to determine significance of author profiles
- Ranking authors based on position at medical school
- Discussion with some of the authors on authorship assignment
 - Thoughts on the data, how they got the writing done, and any hindrances to authorship positions

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References

1. Bhandari, M., Einhorn, T. A., Swiontkowski, M. F., & Heckman, J. D. (2003). (Mis)perceptions about authors' contributions to scientific articles based on order of authorship. *Journal of Bone and Joint Surgery - Series A*, 85(8), 1605-1609. <https://doi.org/10.2106/00004623-200308000-00024>
2. Hoen, W. P., Walvoort, H. C., & Overbeke, A. J. P. M. (1998). What Are the Factors Determining Authorship and the Order of the Authors Names? *JAMA*, 280(3), 217. doi: 10.1001/jama.280.3.217
3. International Committee of Medical Journal Editors. (n.d.). Defining the Role of Authors and Contributors. Retrieved from <http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>.
4. Jaggi, R., Means, O., Lautenberger, D., Jones, R. D., Griffith, K. A., Flotte, T. R., ... Chatterjee, A. (2019). Women's Representation Among Members and Leaders of National Medical Specialty Societies. *Academic Medicine*, 1. doi: 10.1097/acm.0000000000003038
5. Paturel, A. (2019, June 11). Where are all the women deans? Retrieved from <https://www.aamc.org/news-insights/where-are-all-women-deans>.