

## Introduction

Clinical practice guidelines (CPGs) are among the most authoritative reports and have a far reaching impact on clinical care. Recent studies have documented the underrepresentation of women authors of CPGs.<sup>1-3,7,10</sup> This inequity is likely multifactorial. Notably, gender was absent from the discussion surrounding CPG task force composition in “Clinical Practice Guidelines We Can Trust,” a report published by The National Academies of Science, Engineering and Medicine (NASEM) to aid CPG development.<sup>6</sup> This report highlighted the importance that “the chair have leadership experience,” and given that women are known to have disproportionately fewer healthcare leadership positions than their male counterparts, this instruction may have furthered the reported inequity.<sup>4,5,9</sup>

We hypothesized that women, and women physicians specifically, would be underrepresented compared to men overall and men physicians as authors in CPGs produced by Paralyzed Veterans of America (PVA).

## Abstract

**Objectives:** Clinical practice guidelines (CPGs) are among the most authoritative reports and have a far reaching impact on clinical care. Recent studies have documented the underrepresentation of women authors of CPGs. We hypothesized that women, and women physicians specifically, would be underrepresented compared to men overall and men physicians as authors in CPGs produced by Paralyzed Veterans of America (PVA).

**Design:** In this observational study of CPGs available on the PVA website as of April 2020, CPGs authors were categorized by gender, role, leadership position, organizational affiliation, and terminal degree. Data was analyzed by X<sup>2</sup> analysis. **Results:** Twelve CPGs with 785 total authors were included. Women accounted for 45% of authors with a higher proportion of men serving as panel members compared to women (p = 0.051). There was also a significantly greater number of men authors that were physicians compared to women authors that were physicians (p < 0.001). Women accounted for 25% of chairs. The guideline committees chaired by men included significantly fewer women authors than those chaired by women (p = 0.029). **Conclusions:** Women physicians are particularly underrepresented as authors of PVA CPGs. CPG committees chaired by men included lower proportions of women authors. Further research is needed regarding equitable representation of women experts, including physicians, in producing CPGs.

## Materials and Methods

This was an observational study of CPGs available on the PVA website as of April 2020. Gender of authors was determined via online searches (pronouns and/or appearance). When online searches were unsuccessful, Gender API (an online gender name tool) was utilized. CPGs were reviewed and authors were categorized by role (panel member or contributor), leadership position (chair of CPG or not), organizational affiliation, and terminal degree. Data was analyzed by X<sup>2</sup> analysis.

### Overall characteristics of guideline authors by gender.

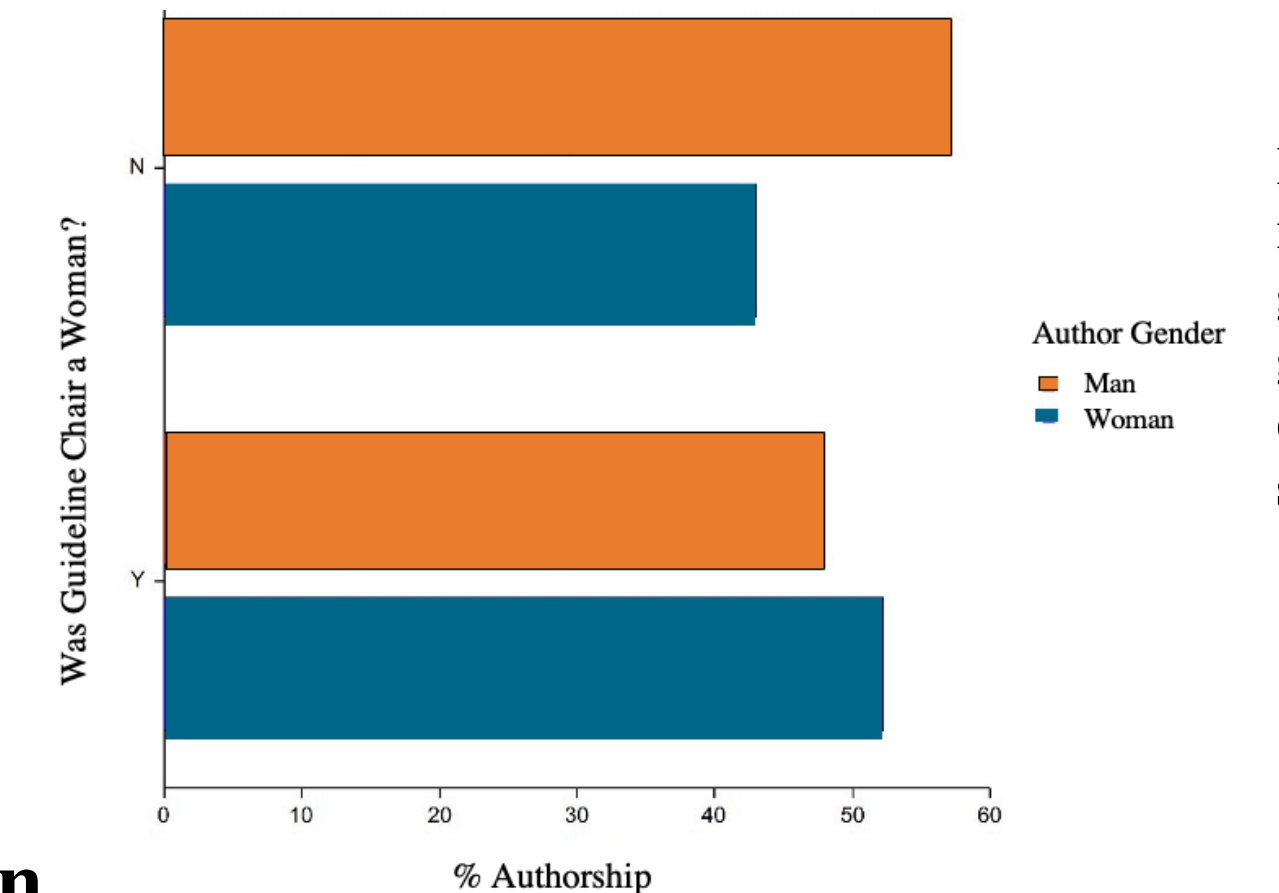
	Women (%)	Men (%)	p-value
<i>Degree</i>			
MD/DO	20	70	<0.001
PhD	7	8	0.971
<i>Authorship Role</i>			
Panel Member	19	25	0.051
Contributor	81	75	
<i>Organizational Affiliation</i>			
Academic Institution	86	91	0.089
Industry	6	5	
Non-Profit	8	5	

## Results

Twelve CPGs with 785 total authors (panel members and contributors) were included. Overall:

1. Women accounted for 45% of authors and 25% of chairs
2. More men (25%) than women (19%) served as panel members (2-tailed X<sup>2</sup> = 3.80, p = 0.051)
3. A significantly greater number of men authors were physicians (70%) compared to women authors who were physicians (20%; 2-tailed X<sup>2</sup> = 200.0, p < 0.001)
4. Guideline committees chaired by men had fewer women authors (43%) than those chaired by women (52%; X<sup>2</sup> = 4.79, p = 0.029)
5. There was no significant difference in the proportion of women who served as panel members (versus contributors) based on the gender of the committee chair (2-tailed X<sup>2</sup> = 0.15, p = 0.698)
6. More men authors (91%) than women authors (86%) were affiliated with academic institutions (X<sup>2</sup> = 4.84, p = 0.089)

### Relationship between chair gender and CPG author composition.



For individual guideline gender distribution specifics:



## Conclusion

These findings highlight that women and women physicians, specifically, are underrepresented as authors of PVA CPGs. Moreover, CPG committees chaired by men included lower proportions of women authors, and women accounted for only 25% of chairs. Given that diversity or a lack thereof in CPG committees may influence the guidelines themselves, this inequity may impact clinical care.<sup>8</sup> Further research is needed regarding equitable representation of women experts, including physicians, in developing CPGs.

## References

1. Adami G, Benini C, Vantaggiato E, et al. Gender disparity in authorship of guidelines and recommendations in rheumatology. *Ann Rheum Dis.* 2020;79(8):1122-1123.
2. Bohren MA, Javadi D, Vogel JP. Gender balance in who panels for guidelines published from 2008 to 2018. *Bull World Health Organ.* 2019;97(7):477-485.
3. Bushyhead D, Strate LL. Sex differences in authorship of major gastroenterology society guidelines and technical reviews. *Dig Dis Sci.* 2020;65(8):1-4.
4. Carr PL, Raj A, Kaplan SE, et al. Gender differences in academic medicine: Retention, rank, and leadership comparisons from the national faculty survey. *Acad Med.* 2018;93(11):1694-1699.
5. Institute of Medicine Committee on Standards for Developing Trustworthy Clinical Practice G. In: Graham R, Mancher M, Miller Wolman D, Greenfield S, Steinberg E, eds. *Clinical practice guidelines we can trust.* Washington (DC): National Academies Press (US); 2011:84.
6. Institute of Medicine Committee on Standards for Developing Trustworthy Clinical Practice G. In: Graham R, Mancher M, Miller Wolman D, Greenfield S, Steinberg E, eds. *Clinical practice guidelines we can trust.* Washington (DC): National Academies Press (US); 2011.
7. Merman E, Pincus D, Bell C, et al. Differences in clinical practice guideline authorship by gender. *Lancet.* 2018;392(10158):1626-1628.
8. Murphy MK, Black NA, Lamping DL, et al. Consensus development methods, and their use in clinical guideline development. *Health Technol Assess.* 1998;2(3):i-iv, 1-88.
9. Reed DA, Enders F, Lindor R, McClees M, Lindor KD. Gender differences in academic productivity and leadership appointments of physicians throughout academic careers. *Acad Med.* 2011;86(1):43-47.
10. Reza N, Tahhan AS, Mahmud N, et al. Representation of women authors in international heart failure guidelines and contemporary clinical trials. *Circ Heart Fail.* 2020;13(8):e006605.