



A qualitative content analysis of general surgery grand rounds speaker demographics and topics of presentation

Sonali Biswas¹ · Taylor Stauffer¹ · Caitlin Grant¹ · Holly Lewis² · Elisabeth Tracy²

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Abstract

Purpose Grand rounds are an opportunity for invited or internal speakers to disseminate clinical knowledge and research. Prior research has shown that the percentage of female grand rounds speakers across departments has traditionally been lower than the female proportion of faculty and trainees. This study aims to characterize trends and relationships between grand rounds presentation topics and speaker demographics.

Methods General surgery grand rounds presentations between 2016 and 2021 at our institution were reviewed. For each presentation, speaker gender and institution were coded. Three reviewers performed a content analysis of topics by developing subcategories and collapsing these into larger categories upon final review.

Results Of the 177 speakers reviewed from 2016 to 2020, 21.47% were females ($n=44$), which was not significantly different from the percentage of female faculty (p value = 0.373). The most common topics were “Basic, Translational, and Clinical Research” ($n=44$, 24.8%), and “Care of Specific Conditions” ($n=42$, 23.7%). The categories with the largest percentage of female speakers were “Diversity, Equity and Inclusion (DEI)” (57%) and “Global and Population Health” (60%). When dichotomizing presentation topics into DEI vs. non-DEI, chi-squared analysis demonstrated a significant association between gender and whether the presentation was on DEI (Chi squared = 1.236, $df=1$, p value = 0.266).

Conclusions In this single-institution analysis, there is a statistically significant difference between the number of female speakers and male speakers who discuss diversity, equity, and inclusion. This study demonstrates the need for improved representation of female speakers on non-DEI topics.

Keywords Grand rounds · Diversity · Equity and inclusion · Speaker demographics

Background

Surgery grand rounds are a centerpiece of continuing education at academic institutions. They provide a space for learners and faculty to discuss topics such as clinical, basic science and education developments with experts in the field. For invited speakers, presenting at surgical grand rounds offers the opportunity to share their work, strengthen their resume and expand their professional network within their specialty. Especially for trainees and early career faculty, learning from speakers who are demographically similar

to them is an opportunity to find strong mentors and role models [1].

As the demographics of trainees and practicing physicians change within medicine, it is important to consider whether the speakers invited to lecture at grand rounds reflects the diversity of future surgeons. The number of female general surgeons in practice has increased from 13.6% in 2007 to 22% in 2019, and women now represent 43.1% of entering general surgery residents and fellows [2, 3]. Despite this increase, studies have shown that female surgeon representation in society membership, leadership and literature peer review groups continues to be disproportionately low [4, 5].

Associations between gender and grand rounds speakers have been previously examined. Across multiple specialties, the percentage of female grand rounds speakers is lower than the percentage of female medical students, residents and is often lower than female faculty [6]. Beyond representation, studies have analyzed the interaction between gender and

✉ Sonali Biswas
sonali.biswas@duke.edu

¹ Duke University School of Medicine, Durham, NC, USA

² Duke Department of Surgery, Durham, NC, USA

formality of speaker introduction at grand rounds. One study found that on an institutional level, female speakers from external institutions were less likely to be introduced professionally than their male counterparts, meaning there were more often introduced by their first name compared to with the title of “Dr.” The same study found that female speakers from the home institution were more likely to be introduced professionally than their male counterparts [7].

Although previous studies have investigated Grand Round speaker gender demographics and introductions, we are unaware of studies in the present literature that have examined speaker gender and presentation topic. The aim of our study is to characterize the trends in grand rounds presentation topics and speaker demographics in general surgery, as well as assess for potential interactions between the two. We aim to determine how women are represented with regards to speaking on particular topics and how this may reflect underlying gender disparities within areas of scholarly work.

Methods

This is a retrospective correlational study. Presentation titles and speakers at one institution’s general surgery grand rounds between September 2016 and June 2021 were provided by the department and reviewed. The Standards for Reporting Qualitative Research (SRQR) Guidelines were used for the following methods and results [8].

Speaker demographics

Pronouns and institution (internal vs. external) were collected for speakers from publicly available profiles. Pronouns were included when either listed independently on a faculty profile or were within a biography. Pronouns were used as a proxy for gender, where “she/hers” was used for “female,” “he/him” was used for “male,” and “they/them” was used for “nonbinary.”

Qualitative approach and analysis

Presentation topics were coded for frequency via conceptual content analysis. Coders were trainees who were familiar with the breadth of topics in general surgery that could be addressed in Grand rounds. Two coders independently reviewed 20 presentation titles to develop subcategories. The coding team met to refine subcategories at this point, then proceeded with coding the remainder of the presentations. Any discrepancies between both coders was settled by a third party. Once initial coding was complete, the coding team grouped similar subcategories into categories until there was minimal overlap between categories. To assess whether there was an association between gender and presenting on

diversity, equity, and inclusion (DEI), Chi-squared analyses were performed by dichotomizing presentations into DEI vs. non-DEI and by gender.

Results

Of the 177 speakers reviewed from September 2016 to June 2021, 21.47% were female-identifying, ($n = 44$) which was not significantly different from the percentage of Duke Surgery female faculty ($p = 0.373$). No speakers utilized non-binary pronouns on their faculty profiles. The majority of speakers ($n = 104$, 58.76%) were from the same institution at which they were speaking and 41% were from an outside institution. Speakers were invited to present on specific topics, and were selected through professional connections. The percentage of women speakers increased from 13.3% in 2017 to 23% in 2018, remained relatively constant at 20% in 2019, and increased to 50% in 2020. Of note, there were notably fewer speakers in 2020 due to the onset of the COVID pandemic. Totals for 2016 and 2021 were not included as the full year of speakers were not accessible at the time of data collection.

Eleven categories for presentation topics were developed (Table 1). Of these, the most common were “Basic,

Table 1 Categories and subcategories of presentation topics

Categories	Subcategories
Global and population health	Global health Population health
Basic, translational and clinical research	Basic science Translational science Clinical science
Diversity, equity, and inclusion	Diversity, equity, and inclusion
Professional development	Education Wellness Leadership
Health humanities	Narrative medicine Ethics History
Care of specific conditions	Case presentation Condition management Procedure
Outcomes research	Outcomes research
Quality improvement	Quality improvement
Interdisciplinary	Interdisciplinary
Data, technology, and innovations	Data, privacy, and technology Innovations
Patient communication	Patient communication
Departmental updates	Departmental updates
Uncertain	Uncertain

Translational, and Clinical Research” ($n=44, 24.8\%$), and “Care of Specific Conditions” ($n=42, 23.7\%$). The least common categories were patient communication ($n=2, 0.01\%$), data, technology, and innovations ($n=4, 0.02\%$), and outcomes research ($n=5, 0.03\%$) (Fig. 1). After review by three coders, 0.02% ($n=3$) of presentation titles could not be categorized.

The categories with the largest percentage of female speakers were “Diversity, Equity and Inclusion (DEI)” (57%) and “Global and Population Health” (60%). Figure 2 demonstrates the relative breakdown of male versus female presenters for each category. The number of presentations regarding DEI remained fairly constant in 2017 and 2018 with $n=1$ (0.02%) and $n=2$ (0.05%), respectively. The percentage of DEI presentations increased to $n=4$ (11.4%) in 2019 and $n=2$ (11.1%) in 2020. While all data was not

available in 2021 at the time of data collection, it is notable that the year had the highest number of DEI presentations at $n=5$. When dichotomizing presentation topics into DEI v. non-DEI, chi-squared analysis demonstrated a significant association between gender and whether the presentation was on DEI ($\chi^2= 1.236, df= 1, p \text{ value}=0.266$) (Table 2). This indicates that there is a significant difference between the number of DEI presentations performed by females versus males.

Discussion

With the intensifying need to restructure the existing gender inequality demonstrated in surgical subspecialties, it is important to first quantify and characterize this

Fig. 1 Frequency of presentation topics in grand rounds

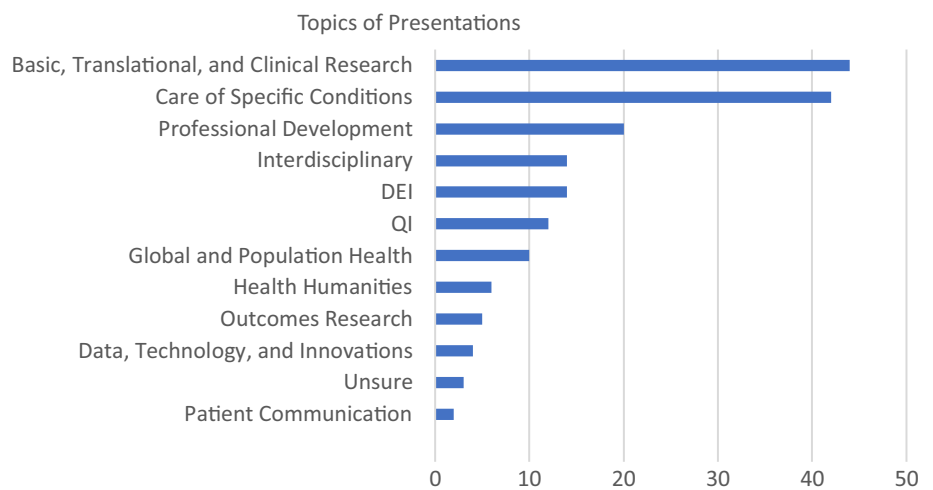


Fig. 2 Relative gender breakdown of presentation topic for grand rounds presentations

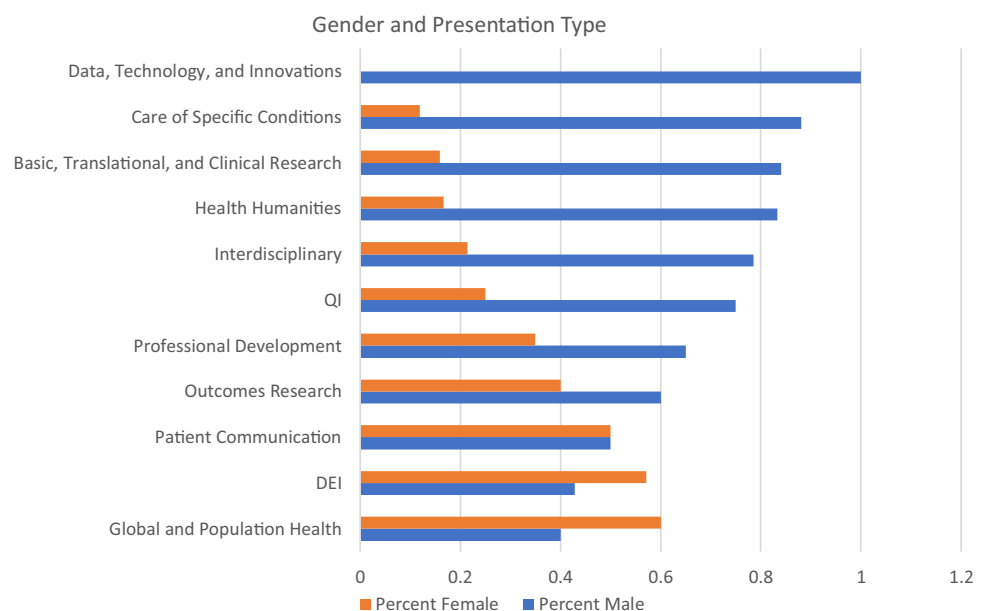


Table 2 Chi-squared analysis of gender and DEI v. non-DEI presentation

	Male	Female	Total
DEI	6	8	14
Non-DEI	124	35	159
total	130	43	173

There is a significant association between gender and whether the presentation topic was DEI

$$\chi^2 = 6.7252, p \text{ value} = 0.0095$$

disproportionate representation. This will not only bolster efforts evaluating persisting gender inequity, but also aid in developing further agendas to better address this issue at large. The present study evaluates the demographic representation of professionals chosen to present at grand rounds at our institution, and subcategorizes these discrepancies based on topic of presentation. We demonstrate that, overall, women presented at grand rounds less often than men, albeit matching the proportion of female faculty in our department of surgery. These findings are similar to findings the existing literature evaluating gender differences in grand rounds across specialties. In a study evaluating speakers at internal medicine grand rounds at major academic hospitals in Canada, Buell et al. found that there were 17% more men speakers than women speakers [9]. However, our findings differ from a study by Boiko et al. which, despite finding significant underrepresentation of women in grand rounds among seven different specialties from multiple institutions, did not find significant gender disproportions in General Surgery as demonstrated here [6].

While it is known that women speak less often at grand rounds as compared to men, this is the first study in surgical literature to elucidate the disparity in presentation topics. One study which classified speakers according to type of rounds, including city-wide rounds, medical rounds, clinical research rounds, popular science lectures, and basic science rounds. In their cross-sectional study, Buell et al. included data from five major university-affiliated hospitals in Toronto and Calgary, and found that there were more male speakers at four of these five types of grand rounds, with the lowest proportion of females included in basic science and popular science events [9]. In this way, our paper provides further evidence of the practical experience of gender inequality in academic medicine. That is, not only do women represent a lower proportion of grand rounds speakers, but they presented significantly more on DEI topics vs non-DEI topics, while men largely discussed research or condition management.

While we demonstrate a disproportionately lower female representation at grand rounds at a single institution, a key unanswered question remains: why does this disparity exist? Considering how speakers are invited to present is

particularly relevant to this discussion. At our institution like many others, speakers are invited to present on specific topics; this study therefore raises the question of why women are disproportionately invited to speak on DEI compared to men. Possible explanations include that women and under-represented groups may perform most of the research in DEI. A notable consequence of inviting women to speak in proportion to their representation in DEI research is trainees are exposed to fewer female surgeon-scientists in scientific settings and fewer male surgeon-scientists in DEI settings where they may often identify potential mentors and role models. Further work assessing the impact of speaker invitation patterns would potentially reveal additional sources of bias.

This gender disparity may reflect the societal bias against women in academic medicine, a concern which has attracted a wealth of investigation. Examples of this bias include data exhibiting that women physician are paid less, have fewer publications, are less likely to be promoted to full professor, less likely to receive recognition awards and NIH funding [10–13]. Data from 2018 also demonstrate that there are less women in a position of leadership or high rank (27.8% of males were full professors vs 13% of females), which would likely lead to increased invitations to speak at grand rounds [14]. Another possibility is that women are not included in the decision-making process for these events [15, 16]. Together, these factors may create a cycle in which women—continuously in a disadvantaged position—accept offers to speak on DEI topics because any such public speaking carries the chance for career advancement and inclusion in future prestigious events. This is supported by a 2018 study assessing disparities in colloquium speakers at top universities, which found that the presence of women as colloquium chairs increased their likelihood of being colloquium speakers [17].

Limitations of our study include that our data is limited to a single institution. Nonetheless, gender disparity is a universal concept in academic surgery [18]. In addition, our institution has a high frequency of events with weekly grand rounds, and our proportion of women surgeons is on par with national averages [19]. While our own institution provides adequate data, the inclusion of broader, multi-institutional data would most likely further support our findings. Additionally, our study was limited to the general surgery specialty, which may not be representative of other subspecialties such as gynecologic surgery or orthopedic surgery, in which female physicians represent a largely different proportion (57 and 5.3%, respectively) [20]. As a result, different trends may be apparent when including other subspecialties in this investigation. A 2020 study by Sharpe et al. which included 18 departments not limited to surgical subspecialties found that among 783 invited speakers to 25 lecture series, women only accounted for 22.7% [21]. Additionally,

when assigning overarching subjects to speaker topics, there is an element of subjectivity in the evaluation process. We mitigated this by having four individuals review the title of the talk and assign it to one of the predetermined topics. If any discrepancies were noted, an additional external reviewer was asked to mitigate the difference. Lastly, our definition of gender identity was based on pronoun usage in professional online biographies. While the use of this method may exclude the individual's true internal identity that may not be comfortably shared on a public forum, we argue that the use of the individual's externally presenting identity is an accurate representation for the purpose of this study because it is based on this identity that they were invited to be a speaker for grand rounds. However, a more accurate identification of gender might include personalized surveys sent to each speaker.

We are also limited by the fact that we did not address other features of diversity, such as race, ethnicity, or individuals with disabilities. Additional race and ethnicity data would help characterize how the tasks of presenting DEI topics are distributed among underrepresented groups. We did not categorize faculty as people of color or assume race and ethnicity because there were no website content that indicated this demographic feature. This differs from gender identity, which could be more appropriately approximated from online pronouns. Assuming race and ethnicity by name or skin tone would introduce bias, as assessment of photographs would be complicated by overall quality, differing lighting, and a history of a changed last names due to marriage. Future directions to reduce potential bias include prospectively collecting this data from speakers to understand this issue from an intersectional perspective.

Further work is needed to demonstrate a significant pattern in discrepancies in speaker topics with respect to gender. Such work might include broadening data collection to include additional institutions or including more subspecialties in the data pool. It is also of interest to further explore the multitude of reasons for the decreased proportion of women presenting at these events, and when they do, why they are more likely to discuss DEI topics rather than basic and translational sciences. Lastly, including more variables such as speaker position or rank, speaking time, titles used when addressing speakers (Dr. or first name), and advertisement of female speakers would be a novel approach to gender disparity. Recent studies have exhibited a discrepancy between speaking time of women and men at both grand rounds and international conferences, in addition to gender bias in formality when addressing or introducing female vs male speakers [6, 22, 23].

Our study provides compelling evidence on the underrepresentation of females at grand rounds, in addition to a difference in topics presented by females vs. males. This disparity may present a tangible target for improvement in

gender equity among surgical fields. Suggestions to mitigate this discrepancy could include improved female career advancement, early exposure to role modeling, and intentional, merited invitations for women to academic forums at all levels and for all topics. As invitation patterns contribute significantly to speakers and topics, it would be valuable for those selecting speakers to undergo anti-bias training and implement a review process to ensure there is equitable representation. Additionally, it would be valuable to include more women on selection committees for these types of events, as the presence of women on planning committees for scientific symposia has been shown to increase the proportion of women speakers at the event [16]. Taken together, these efforts would augment visibility, reputation, and academic merit for accomplished women in a field with historical underpinnings of male dominance. Given the importance of the exposure that speaking at grand rounds provides, it is imperative we continue to seek further opportunities to increase female representation not just at grand rounds, but in prestigious settings at large conferences, forums, and academic institutions.

Data availability Data are available on request due to privacy or other restrictions.

Declarations

Conflict of interest The authors did not receive support from any organization for the submitted work.

References

1. Wright SM, Carrese JA. Serving as a physician role model for a diverse population of medical learners. *Acad Med.* 2003;78(6):623–8.
2. Colleges, A.A.o.M. ACGME residents and fellows by sex and specialty. 2019.
3. Colleges, A.A.o.M. Active Physicians by Sex and Specialty. 2019. Available from: <https://www.aamc.org/data-reports/workforce/interactive-data/active-physicians-sex-and-specialty-2019>. Accessed Mar 2022
4. Lyons NB, et al. Gender disparity in surgery: an evaluation of surgical societies. *Surg Infect.* 2019;20(5):406–10.
5. Bernardi K, et al. Gender disparity among surgical peer-reviewed literature. *J Surg Res.* 2020;248:117–22.
6. Boiko JR, Anderson AJ, Gordon RA. Representation of women among academic grand rounds speakers. *JAMA Intern Med.* 2017;177(5):722–4.
7. Gharzai LA, et al. Speaker introductions at grand rounds: differences in formality of address by gender and specialty. *J Womens Health.* 2022;31(2):202–9.
8. O'Brien BC, et al. Standards for reporting qualitative research: a synthesis of recommendations. *Acad Med.* 2014;89(9):1245–51.
9. Buell D, Hemmelgarn BR, Straus SE. Proportion of women presenters at medical grand rounds at major academic centres in Canada: a retrospective observational study. *BMJ Open.* 2018;8(1):e019796.

10. Carr PL, et al. Gender differences in academic medicine: retention, rank, and leadership comparisons from the national faculty survey. *Acad Med*. 2018;93(11):1694–9.
11. Silver JK, et al. Where are the women? The underrepresentation of women physicians among recognition award recipients from medical specialty societies. *Pm r*. 2017;9(8):804–15.
12. Jagsi R, et al. Gender differences in the salaries of physician researchers. *JAMA*. 2012;307(22):2410–7.
13. Jagsi R, et al. The “gender gap” in authorship of academic medical literature—a 35-year perspective. *N Engl J Med*. 2006;355(3):281–7.
14. AAMC. U.S. Medical School Faculty by Sex and Rank, 2018. 2018 [cited 2022 May 5].
15. Modra LJ, et al. Female representation at Australasian specialty conferences. *Med J Aust*. 2016;204(10):385.
16. Casadevall A, Handelsman J, Miller JF. The presence of female conveners correlates with a higher proportion of female speakers at scientific symposia. *MBio*. 2014;5(1):e00846-e913.
17. Nittrouer CL, et al. Gender disparities in colloquium speakers at top universities. *Proc Natl Acad Sci USA*. 2018;115(1):104–8.
18. Lyons NB, et al. Gender disparity in surgery: an evaluation of surgical societies. *Surg Infect (Larchmt)*. 2019;20(5):406–10.
19. How Duke Compares: General Surgery Residency Program. 2022 [cited 2022 May 5].
20. AAMC. Active Physicians by Sex and Specialty, 2017. 2017 [May 5, 2022].
21. Sharpe EE, et al. Representation of women among invited speakers for grand rounds. *J Womens Health (Larchmt)*. 2020;29(10):1268–72.
22. Metaxa V. Is this (still) a man’s world? *Crit Care*. 2013;17(1):112.
23. Files JA, et al. Speaker introductions at internal medicine grand rounds: forms of address reveal gender bias. *J Womens Health (Larchmt)*. 2017;26(5):413–9.

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