Elevating the human condition during times of emergency

Influence of Gender on the Profession of Emergency Medicine
Guest Editors: Esther K. Choo, MD, MPH and Stephanie Abbuhl, MD

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NOW is the critical time to consider the pipeline of women in medicine: for the past two years, 51% matriculants into medical school were women—a milestone—and an increasing volume of data demonstrate the value of women in terms of providing high-quality health care, innovative leadership, bottom-line financial results, and groundbreaking research. Nonetheless gender disparities in compensation, promotion, and leadership in medicine persist even after accounting for a wide variety of potential explanatory factors, and these data parallel common narratives of discouraging and demoralizing gender-based experiences among women physicians. Medicine has a compelling impetus to understand and improve the health care workplace for all women.

This concept inspired the AEM Senior Editorial Board to dedicate this issue of AEM to the careers of women in academic emergency medicine. This issue is about women, but it is for the entire readership. Women in medicine are not alone in caring about this issue, as reflected in the mixed-gender authorship of the manuscripts. Many men in academic medicine understand that gender inequities exist and seek to be part of the solution. Not only do their personal connections to women—as sons, husbands, fathers, and colleagues—mean that they share empathetically in the downstream effects of inequities, but in this age of team science, team-based clinical care, and team problem solving, inequity for one group often sabotages opportunity and productivity for all. In addition, as prior research has shown, when initiatives are put into place that benefit women, men often benefit too.

Everyone has a need to better understand gender-based career disparities and to commit to being part of the solution.

The papers in this issue highlight how much more progress is needed to solve the fundamental and indisputable issue of equal pay and advancement for equal work. Research by Wiler et al. and Bennett et al. demonstrates the persistence of unexplained gender-based salary and rank disparities despite the fact that this gap has been an established problem for many years. Further, some of our workplaces continue to signal “mothers not welcome,” a message that is actually better seen as “parents not welcome,” as men increasingly share child care responsibilities.

And yet there are positive signals: we are moving from simply documenting the problem to exploring change. One study in this issue presents a family leave policy that normalizes parenting as a common, expected experience of both male and female resident physicians. Another describes a departmental promotion process aimed at advancing faculty in an objective fashion, leading to increased promotion of women, and Lin et al. describe the value and power of existing and growing women’s professional networks (also see commentary by Sethuraman et al.)—such groups are using the available literature on what holds women back from promotion and advancement and pay equity and are working to provide multiple approaches to fill in the gaps.

In the near future, we hope to see our specialty move from descriptions of gender gaps to innovative interventions—experiments that can move us along to best practices based on good evidence—to dissemination of interventions that achieve gender equity. We need to make change, not just measure causal factors. We also need to work with our funding sources—federal funders, foundations, other—to help them recognize the need for allocating grant dollars to support and stimulate this important research.

The authors have no relevant financial information or potential conflicts of interest to disclose.
In the meantime, the themes in this issue call men and women in academic emergency medicine to commit to being part of the change. Within a team, department, institution, or organization, all of us can take actions—such as elucidating unconscious bias or leading an institutional change in the approach to parental leave, in the recruitment process for leadership positions, or in the oversight of salaries—to begin to address the inequities, rather than merely being a witness to them. Whether with small bystander interventions or bold systemic changes, we don’t need to wait for FDA approval or an IRB protocol to change culture. We can begin, today.

The baby boomers brought in the first wave of significant numbers of women in medicine, who entered the profession and survived despite marked, overt sexism. Some even thrived, but the costs for these women to disrupt the traditional culture were, at times, significant. This generation of “millennials” and “Gen Xers,” the future leaders of health care, are taking the evolution of the changing face of medicine to the next logical step: they are rightfully expecting to use their talent, training, and ambition to make meaningful contributions at the highest level and to receive equal compensation and opportunities at every step of the way.

If we do not assure a culture conducive to women’s academic success, all of health care will suffer—patient care, education, and research. Only with the determination of women and men who understand this fundamental principle and are willing to make explicit individual, local, and institutional changes can we forge the path to a future in which equitable workplaces are the norm.

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References

Gender Differences in Faculty Rank Among Academic Emergency Physicians in the United States

Christopher L. Bennett, MD, MA, Ali S. Raja, MD, MPH, Neena Kapoor, MD, Dara Kass, MD, Daniel M. Blumenthal, MD, MBA, Nate Gross, MD, and Angela M. Mills, MD

ABSTRACT

Background: The purpose of this study was to complete a comprehensive analysis of gender differences in faculty rank among U.S. emergency physicians that reflected all academic emergency physicians.

Methods: We assembled a comprehensive list of academic emergency medicine (EM) physicians with U.S. medical school faculty appointments from Doximity.com linked to detailed information on physician gender, age, years since residency completion, scientific authorship, National Institutes of Health (NIH) research funding, and participation in clinical trials. To estimate gender differences in faculty rank, multivariable logistic regression models were used that adjusted for these factors.

Results: Our study included 3,600 academic physicians (28%, or 1,016, female). Female emergency physicians were younger than their male colleagues (mean [±SD] age was 43.8 [±8.7] years for females and 47.4 [±9.9] years for males [p < 0.001]), had fewer years since residency completion (12.4 years vs. 15.6 years, p < 0.001), had fewer total and first/last author publications (4.7 vs. 8.6 total publications, p < 0.001; 4.3 vs. 7.1 first or last author publications, p < 0.001), and were less likely to be principal investigators on NIH grants (1.2% vs. 2.9%, p = 0.002) or clinical trials (1.8% vs. 4.4%, p < 0.001). In unadjusted analysis, male physicians were more likely than female physicians to hold the rank of associate or full professor versus assistant professor (13.7 percentage point difference, p < 0.001), a relationship that persisted after multivariable adjustment (5.5 percentage point difference, p = 0.001).

Conclusions: Female academic EM physicians are less likely to hold the rank of associate or full professor compared to male physicians even after detailed adjustment for other factors that may influence faculty rank.

While gender parity in academic medicine has improved since women were first admitted to medical school in 1849, there has been minimal progress over the past decade.1–4 As few as one-third of medical school faculty are female and female faculty comprise a lower proportion of those who are full professors, have senior authorship, or have National Institutes of Health (NIH) funding.4 This is an issue in multiple medical specialties and, despite attempts at promoting workforce diversity, includes academic emergency medicine (EM).5–8 Recent work has demonstrated that as little as one-third of academic EM physicians are female and these...
physicians face significant disparities in representation and academic rank by gender. However, this important analysis was survey based and of limited size (1,371 full-time faculty, 33% of whom were women) and response rate (47%), raising potential concerns about sample bias and generalizability. To our knowledge, with the exception of previous work using our same data set that identified gender differences in EM full professorship (absolute adjusted gender differences in full professorship were $-2.5\%$ (95% confidence interval $[-4.6\%$ to $-0.4\%]$) no other published evidence exists on the association between physician gender and faculty rank among a comprehensive set of academic EM physicians with specific adjustment for detailed factors that may be correlated with physician gender and faculty rank. Therefore, we completed a comprehensive analysis of gender differences among U.S. academic emergency physicians, using a previously published approach.

**METHODS**

**Data Sources**

We obtained physician characteristic data from a comprehensive database of all licensed U.S. physicians maintained by Doximity (www.doximity.com), an online networking service for U.S. physicians. As of November 2014, when we were provided the data, the Doximity database included 1,005,419 physicians across all specialties. Doximity identifies physicians for inclusion in the database using the National Provider Identifier (NPI) Registry. Physicians without active NPI numbers can self-register with Doximity. All physicians with active NPI numbers have accounts with Doximity, which they can register to use for free. Once registered, physicians can update their personal and professional information that Doximity has obtained (described below). As of November 2014, a total of 239,136 of 1,000,419 physicians in the database (23.8%) were registered with Doximity. However, the database is inclusive of nearly all licensed U.S. physicians (see below).

The Doximity database includes data elements on all physicians, independent of registration status, including age; gender; year of medical school and residency completion; clinical specialty; board certification status; publication number (first, last, and total); number of NIH grants for which the physician was principal investigator (PI); number of clinical trials for which the physician was a PI or subinvestigator; faculty appointment at a U.S. medical school, based on prior linkage with the Association of American Medical Colleges (AAMC) faculty roster database; and faculty rank. Importantly, Doximity’s database is not restricted to physician members. Doximity has obtained physician information from several sources, including state licensing boards, the American Board of Medical Specialties, PubMed, ClinicalTrials.gov, NIH RePORT database, and the AAMC faculty roster database and through data sharing partnerships with hospitals and medical schools. Detailed descriptions of the Doximity database and methods used to merge it with these other data sources have been previously published. In addition to these data, we added to this database publicly available information about each physician’s 2013 Medicare Claims revenue (publicly available at www.cms.gov) as a proxy for clinical productivity and whether the physician held an academic appointment at a medical school ranked in the top 20 for research by U.S. News & World Report in 2013.

**Study Population**

The study population of interest included all EM physician faculty (assistant, associate, or full professors) in the 2014 AAMC faculty roster, a comprehensive list of faculty affiliated with U.S medical schools in 2014. Thus, we believe that this study was inclusive of all U.S. EM physician faculty in 2014. The human subjects review committee at Harvard Medical School approved this study, waiving participant consent.

**Data Validity**

In previous research studies, investigators performed manual audits of the profiles of 200 randomly chosen physicians in the Doximity database to confirm faculty rank, publications in PubMed, clinical trial participation, and NIH funding.

**Data Analysis**

We first evaluated the characteristics of males and females in the study sample using two-sided t-tests and chi-square tests. We then estimated a hierarchical multivariable logistic model of the probability of full professorship as a function of gender, years since residency completion ("tenure"), age, number of publications (first or last author and total), NIH grants (a dichotomous variable of whether a physician was ever a PI on an NIH grant), clinical trial participation (dichotomous), appointment at a top 20 U.S. medical school (dichotomous), and 2013 Medicare claims volume (continuous). This model contained random-effect
parameters for the school in which a physician worked because outcomes could be correlated among physicians within each school. Our primary outcome was the absolute adjusted difference between males and females in the proportion that were full professors. We also reported this outcome as an adjusted percentage of full professorship for males and females.

We also estimated additional multivariable logistic regression models to assess two secondary outcomes: gender differences in associate or full professorship (combined outcome) compared with assistant professorship, and gender differences in full professorship compared with associate professorship (excluding assistant professors). These models included the same covariates as the primary outcome model. Finally, we estimated separate multivariable logistic regression models of grants and clinical trials as a function of physician age, years since residency, employment at top 30 medical school, and total Medicare payments, to analyze whether gender differences were present in grants and clinical trials. Similarly, we estimated multivariable linear regression models of total publications as a function of these covariates, to determine whether there were differences in publications between male and female faculty after adjustment for other covariates. p-values ≤ 0.05 were considered statistically significant. Data analysis was performed using Stata, version 14 (StataCorp).

RESULTS

Among 3,600 academic EM physicians in our analysis, 28% were female (Table 1). Female emergency physicians were younger than their male colleagues (mean ± SD age 43.8 ± 8.7 years vs. 47.4 ± 9.9 years ± SD, p < 0.001). Female emergency physicians were

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Characteristics of the Study Population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All (N = 3,600)</td>
</tr>
<tr>
<td>Faculty rank</td>
<td></td>
</tr>
<tr>
<td>Assistant professor</td>
<td>2,511 (69.8)</td>
</tr>
<tr>
<td>Associate professor</td>
<td>685 (19.0)</td>
</tr>
<tr>
<td>Full professor</td>
<td>404 (11.2)</td>
</tr>
<tr>
<td>Top 20 medical school†</td>
<td>818 (23.6)</td>
</tr>
<tr>
<td>Age (years)‡</td>
<td>46.4 ± 9.7</td>
</tr>
<tr>
<td>Age group (years)</td>
<td></td>
</tr>
<tr>
<td>&lt;40</td>
<td>1,009 (29.3)</td>
</tr>
<tr>
<td>40–44</td>
<td>710 (20.6)</td>
</tr>
<tr>
<td>45–49</td>
<td>554 (16.1)</td>
</tr>
<tr>
<td>50–54</td>
<td>401 (11.6)</td>
</tr>
<tr>
<td>55–59</td>
<td>350 (10.2)</td>
</tr>
<tr>
<td>60–64</td>
<td>258 (7.5)</td>
</tr>
<tr>
<td>≥65</td>
<td>163 (4.7)</td>
</tr>
<tr>
<td>Years since residency‡</td>
<td>14.7 ± 9.6</td>
</tr>
<tr>
<td>No. of publications‡</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7.4 ± 17.2</td>
</tr>
<tr>
<td>First or last author</td>
<td>6.3 ± 19.6</td>
</tr>
<tr>
<td>NIH grants</td>
<td></td>
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<tr>
<td>≥1</td>
<td>87 (2.4)</td>
</tr>
<tr>
<td>Mean No. of grants (25th–75th percentile)</td>
<td>3.4 (1–4)</td>
</tr>
<tr>
<td>Clinical trials</td>
<td></td>
</tr>
<tr>
<td>≥1</td>
<td>131 (3.6)</td>
</tr>
<tr>
<td>Mean no. of trials (25th–75th percentile)</td>
<td>1.5 (1–2)</td>
</tr>
<tr>
<td>Mean total Medicare payments in 2013‡</td>
<td>$43,590 ± $35,470</td>
</tr>
</tbody>
</table>

Unless otherwise indicated, data are reported as number (%) of emergency physicians.
*p-values reflect two-sided t tests and chi-square comparisons where appropriate
†Top 20 school signifies whether an emergency physician was on faculty at a medical school ranked in the top 20 for research by U.S. News & World Report in 2013.
‡Data are reported as mean ± SD.
more likely to be assistant professors (79.6% vs. 65.9% \( p < 0.001 \)), had fewer years since residency completion (mean = 12.4 years vs. 15.6 years, \( p < 0.001 \)), had fewer total publications (mean = 4.7 vs. 8.6, \( p < 0.001 \)) or first or last author publications (mean = 4.3 vs. 7.1, \( p < 0.001 \)), and were less likely to have NIH grants (1.2% vs. 2.9%, \( p = 0.002 \)) or clinical trials (1.8% vs. 4.4%, \( p < 0.001 \)) compared to their male colleagues. However, female and male emergency physicians had similar probabilities of being on faculty at a top 20 medical school (Table 1).

Adjusting for age, years since residency, top 20 medical school ranking, and total Medicare payments, there were no significant gender differences regarding number of clinical trials, NIH grants, total number of publications, or first or last author publications (data not shown). However, after adjustment for age, years since residency, publications, grants, clinical trials, medical school ranking, and total Medicare payments, males had a higher probability of being an associate or full professor versus an assistant professor compared to females (adjusted percentage for males 30.1% vs females 24.6%, adjusted difference 5.5% [95% CI = 2.4% to 8.7%], \( p = 0.001 \) for difference); with the same adjustment, the comparison of females to males with regard to full professor versus assistant or associate professor approached significance (adjusted percentage for males 12.2% vs females 10.0%, adjusted difference 2.2% [95% CI = –0.3% to 4.7%], \( p = 0.11 \) for difference; Figure 1).

**DISCUSSION**

In a comprehensive physician database, we found that female physicians comprise only 28% of the academic EM workforce. This is slightly lower than previously reported values of 31% to 33%.\(^8\) Prior data were from a 2010 survey of a limited subset of 1,372 full-time academic emergency physician faculty.

Our analyses demonstrated many gender discrepancies among academic EM physicians in both unadjusted and adjusted analyses. Females were younger and had fewer years since residency completion. Most significantly, female emergency physicians were less likely to be associate or full professors when compared to their male colleagues even after adjustment for detailed factors that are vary across male and female physicians and that may be associated with academic advancement. Our findings are similar to prior publications for EM as well as across other medical specialties.\(^4,8\)

Prior data across physician specialties demonstrate that only 22% of full professors are female and this percentage is lower in EM, where only 17% of full professors are female.\(^9\) The disparities in academic advancement observed in our study may also contribute to numerous other gender disparities in EM including differences in compensation, grant funding, administrative roles, and leadership positions. It is unclear what proportion the lack of retention versus the lack of advancement contribute to the lack of female faculty at higher ranks.
Our findings also relate to other important facts on gender differences in academic EM. There is a lower percentage of female EM residents compared to many other specialties as well as U.S. resident physicians overall. Moreover, while many surgical subspecialties have seen increases in female residents over the past decade, EM has not (36% in 2005 vs. 37% in 2015). The lack of recruitment and retention of female EM trainees may significantly affect numbers of female academic faculty. Future efforts to increase female faculty should include targeted strategies for the recruitment and retention of female residents.

**LIMITATIONS**

This study has several limitations. First, although Doximity is one of the most extensive physician databases available, inaccuracies are possible. However, these data have been validated in multiple previous large-scale studies. Moreover, it is not clear why inaccuracies should be systematically associated with physician gender. Second, this was a cross-sectional study and cannot assess rates of academic promotion over time. Third, it was also beyond the scope of this analysis to identify the relative impact of some modifiable factors (e.g., the impact of maternity leave or type of faculty track) or nonmodifiable factors (age, given that female emergency physicians were younger than their male counterparts) in the differences identified. Fourth, information on where a physician trained and other factors that may affect academic advancement (such as committee participation, leadership roles within an institution, other awards, etc.) were not available. Fifth, our analysis focused on adjusted differences in professorship between male and female physicians. It is possible that gender differences may exist in access to mentorship; resource support; and research opportunities that may lead to fewer clinical trials, grants, and publications among female faculty. Adjustment for these factors may therefore bias downward any gender differences in academic advancement since these factors may not only be affected by gender disparities in academic treatment but also affect rates of academic advancement.

**CONCLUSIONS**

In both unadjusted and adjusted analysis, gender differences in academic advancement exist among U.S. academic emergency physicians. As such, there remains an obvious unmet need for the field of emergency medicine to encourage and promote equal advancement across gender. To promote diversity, inclusion and equality in academic emergency medicine, further research and intensified efforts are needed and may benefit from examining the successes of other specialties with fewer academic inequalities between female and male physicians.

**References**

Continuation of Gender Disparities in Pay Among Academic Emergency Medicine Physicians

Jennifer L. Wiler, MD, MBA, Kirsten Rounds, Becky McGowan, and Janette Baird, PhD

ABSTRACT

Objectives: The objective was to identify the effects of gender and other predictors of change in the salary of academic emergency physicians over a four sequential time period of survey administration, across a sample of physicians within different emergency departments (EDs) and within states representing the four main geographical regions of the United States.

Methods: This was a successive cross-sectional observational study of EDs in the United States using an annual salary survey distributed to all Association of Academic Chairs in Emergency Medicine (AACEM) and Academy of Administrators in Academic Emergency Medicine (AAAEM) members in 2013, 2015, 2016, and 2017 with a sample size of 7,102 respondents over all time periods. The primary variable of interest was the adjusted base salary, calculated to be the full-time effort of the physician without any enhancements (e.g., without stipend, release time, extra hours). Institutional predictive variables included U.S. region that ED was in and if the site was an academic or community academic hybrid (“community”) ED. Individual level variables included gender, academic rank, years at academic rank, years at rank within the ED, and primary duty (clinical or other). A series of Wilcoxon tests were conducted to determine if the unadjusted difference in salaries by gender for each year of the survey were significantly different. The effects of relative change in adjusted base salary over time were assessed using a mixed-effects regression model, with institutional- and individual-level predictors included in the model.

Results: Data were provided by 81 departments across the four geographic regions of the United States (Northeast, South, West, and Midwest). Most of the survey respondents across the four time periods of administration were male (65%) and reported primary clinical appointments at an academic ED (94%). Overall salaries increased across the four time points of the data with an overall relative 10.8% (95% confidence interval [CI] = 9.6%–12%) change in median salary between 2013 and 2017; the relative percentage change for female respondents was 10.6% (95% CI = 9.4%–11.8%) and 11.1% (95% CI = 10.2%–12%) for males. Within survey years, not adjusting for academic rank, the median salary increase for males was higher ($226,746 in 2013 to $252,000 in 2017) than females ($217,000 in 2013 to $240,000 in 2017), with significance at all four time points (Z = 6.33, p < 0.001), with a median average salary gap of $12,000 in 2017. In the predictive model that adjusted for covariates, gender significantly predicted median adjusted salary, with males earning significantly more than females (F(1) = 22.5, p < 0.001).

Conclusions: Despite previously published data showing an inappropriate gender salary gap in emergency medicine, this gap has remained essentially unchanged over the past 4 years.
Salary parity has long been an unrealized goal of gender equality. Although the Equal Pay Act of 1963 prohibited unequal pay for “substantially equal” work, women working full time in the United States typically are paid just 80% of what men are paid—a gap of 20%. This gap in pay by gender has been demonstrated in a number of professional industries including law, marketing, and administrative services. For physicians, the earnings gap between men and women has been documented since the mid-1970s with unexplained difference in earnings for women ranging from 52% to 57%. Although women now comprise half of medical school graduates and represent 38% of faculty members in U.S. medical schools, significant differences exist between male and female physicians in both compensation and job advancement. This disparity is one of the highest for any professional industry, trailing behind only dentists, according to one 2010 analysis.

Unexplained gender salary disparities have been noted in internal medicine and surgery. After specialty, age, faculty rank, and metrics of clinical and research productivity had been taken into consideration, male physicians earned nearly $20,000 more annually than female physicians according to two analyses. Previous studies of emergency medicine have shown on average, female faculty are paid 10% to 13% less than their male counterparts.

In this study we review compensation trends over a 5-year period in academic emergency medicine departments for both clinical and academic faculty by gender to determine if there have been any changes in the compensation gender disparity trends. This is the first study we are aware of that evaluates this trend over such a long time period and that considers both traditional academic and academic-community salaries by gender.

METHODS

This was a cross-sectional observational study of academic departments in the United States. An annual salary survey was distributed by email to a listserv of all Association of Academic Chairs in Emergency Medicine (AACEM) and Academy of Administrators in Academic Emergency Medicine (AAAEM) members in 2013, 2015, 2016, and 2017. In 2009, AACEM and AAAEM became responsible for periodically conducting this salary survey, which is an iteration of a survey that has been periodically conducted by SAEM since 1991. The survey instrument has been revised multiple times since its development. Each iteration since 2009 have been approved by AACEM and AAAEM leadership. Gender items were added to the administrator’s survey in 2013. Potential survey participants were identified by their membership in the AAAEM or the AACEM and were invited to participate in completion of the AAAEM salary survey via the AAAEM online community e-mail system and the AACEM online community e-mail system. Survey participants included academic emergency departments (EDs) or divisions (adult and pediatric) throughout the United States. Surveys are typically completed by department administrators. For participating centers, the department administrators were asked to log onto the Novi Survey portal to provide deidentified information regarding individual faculty members for the most previous academic year. A group of designated leads, consisting of selected administrators and/or chairs, followed up with all potential respondents during the collection period to answer questions and enhance the response rate. Survey data were collected and maintained by a central site. Each data point was reviewed. If it was a minimum or maximum value the accuracy of these potential outliers was confirmed with department administrator. This study was submitted to the institutional review board (IRB) of the institution that maintains the data set and was determined to be exempt from IRB approval.

Data Analysis

The data were imported into SAS, Version 9.4, for analyses. For descriptive analyses median salaries are reported with interquartile range, across all years of the survey, and by respondents’ characteristics. The focus of the analyses was on changes in reported adjusted salary across the 4 years of survey administration. Predictors of these changes included institutional variables: U.S. region that ED was in, and if the ED was an academic or community academic hybrid (“community”) institution. Individual-level variables included gender, academic rank, years at academic rank, years at rank within the ED, and primary clinical duty (clinical or other). The primary variable of interest was the adjusted base salary, calculated to be the full-time effort of the physician without any enhancements (e.g., without stipend, release time, extra hours). A series of Wilcoxon tests were conducted to determine of the unadjusted difference in salaries by gender for each year of the survey were significantly different. The effects of relative change in adjusted base salary over time was assessed using a mixed-effects regression model, with institutional and
individual level predictors included in the model. Respondents were excluded from the analyses if the ED was only pediatric or primary role was indicated to be department chair, vice chair, or chief. Respondents were nested within the ED site, considered the random effect, with the interaction between gender and time also modeled as a random effect and the included predictor variables as fixed effects. The years of survey administration were not equally spaced (2013, 2015, 2016, 2017), and the year of survey variable included in the model was coded to reflect this unequal time distribution. As has previously been stated, the respondents across all the time points were not necessarily the same individuals.

**Missing Data Approach**

The data were examined for missingness in the outcome and predictor variables. The primary variable of interest was the adjusted base salary. In total, 7,570 eligible respondents provided data across the four survey administration time points; prior to analyses and data univariate descriptive analyses were conducted on all included variables. For the adjusted salaries, 192 respondents provided values that were below the bottom 1% of salaries reported ($\leq$79,000 for full-time clinical appointment) and these respondents were dropped from the analyses. Also, 276 respondents reported their primary responsibility as either chief, chair or vice chair (less than 1% of all study respondents), and given the focus of this study, these responses were also dropped from the analyses. In total, 7,102 responses were included for all analyses.

There were 2% missing data for adjusted salary and less than 1% missing data across the predictor variables (gender, region, and community versus academic ED) used to estimate the missing salary data. A multiple imputation approach using a SAS procedure was used to estimate the missing variables. This approach produces five regression estimates of the missing data from complete cases; the five models are combined to provide an estimate of the missing data with appropriate standard error of these estimates.

**RESULTS**

**Sample Characteristics**

The sample size was 7,102 respondents over all time periods (2013, 2015, 2016, and 2017). Table 1 indicates the characteristics of the respondents across all time points. The data were provided by 81 EDs across the four geographic regions of the United States (Northeast, South, West, and Midwest). Most came from the Northeast (38%), were male (65%), and reported primary clinical appointments at a pure academic ED (94%). Across females 80% identified as white, 5.8% as black/African American, and 5.7% as Asian. For males, 86.5% identified as white, 3.2% as Asian, and 3.1% as black/African American.

**Salary Changes**

Table 2 shows that overall salaries increased across the four time points of the data with an overall relative 10.8% (95% confidence interval [CI] = 9.6%–12%) change in median salary between 2013 and 2017; the relative percentage change for female respondents was 10.6% (95% CI = 9.4%–11.8%) and 11.1% (95% CI = 10.2%–12%) for males. During this time period by academic rank, the overall relative salary change (Table 3) was instructor (n = 532) increased by 11.1% (95% CI = 8.45%–13.8%), assistant professors (n = 4,087) by 10.1% (95% CI = 9.0%–11.2%), associate professors (n = 1,507) by 13.1% (95% CI = 11.4%–14.8%), and professors (n = 897) by 13.9% (95% CI = 11.5%–16.4%).

### Table 1

**Respondent Characteristics by Year of Survey Administration**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>2013 (n = 1,432)</th>
<th>2015 (n = 1,417)</th>
<th>2016 (n = 1,961)</th>
<th>2017 (n = 2,292)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Region</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>605 (42.3)</td>
<td>509 (35.9)</td>
<td>691 (35.2)</td>
<td>900 (39.3)</td>
</tr>
<tr>
<td>South</td>
<td>241 (16.8)</td>
<td>280 (19.7)</td>
<td>416 (21.2)</td>
<td>559 (24.4)</td>
</tr>
<tr>
<td>Midwest</td>
<td>356 (24.9)</td>
<td>372 (26.3)</td>
<td>440 (22.4)</td>
<td>499 (21.8)</td>
</tr>
<tr>
<td>West</td>
<td>230 (16.1)</td>
<td>256 (18.1)</td>
<td>414 (21.1)</td>
<td>334 (14.6)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>457 (32)</td>
<td>480 (33.9)</td>
<td>678 (35)</td>
<td>797 (35.8)</td>
</tr>
<tr>
<td>Males</td>
<td>975 (68)</td>
<td>937 (66.1)</td>
<td>1,261 (65)</td>
<td>1,430 (64.2)</td>
</tr>
<tr>
<td>ED setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community</td>
<td>55 (3.8)</td>
<td>63 (4.5)</td>
<td>107 (5.5)</td>
<td>210 (9.2)</td>
</tr>
<tr>
<td>Academic</td>
<td>1,377 (96.2)</td>
<td>1,354 (95.5)</td>
<td>1,854 (94.5)</td>
<td>2,082 (90.8)</td>
</tr>
</tbody>
</table>

Data are reported as n (%).
Table 2
Salary by Year of Survey Administration

<table>
<thead>
<tr>
<th></th>
<th>2013 (n = 1,432)</th>
<th>2015 (n = 1,417)</th>
<th>2016 (n = 1,961)</th>
<th>2017 (n = 2,292)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All respondents</td>
<td>$223,000 ($204,556–$247,000)</td>
<td>$234,584 ($207,182–$260,452)</td>
<td>$236,000 ($209,570–$267,169.72)</td>
<td>$247,000 ($222,803–$277,026)</td>
</tr>
<tr>
<td>Female</td>
<td>$217,000 ($193,000–$233,172)</td>
<td>$224,000 ($197,358–$248,981)</td>
<td>$225,220 ($200,889–$255,000)</td>
<td>$240,000 ($217,241–$286,012)</td>
</tr>
<tr>
<td>Male</td>
<td>$226,746 ($204,538–$247,000)</td>
<td>$240,000 ($210,143–$260,700)</td>
<td>$242,727 ($213,945–$273,276)</td>
<td>$252,000 ($228,286–$281,429)</td>
</tr>
</tbody>
</table>

Data are reported as median (IQR). IQR = interquartile range.

Table 3
Salary by Year of Survey Administration Across Academic Rank, Clinical Responsibility, and ED Setting

<table>
<thead>
<tr>
<th></th>
<th>2013 (n = 1,432)</th>
<th>2015 (n = 1,417)</th>
<th>2016 (n = 1,961)</th>
<th>2017 (n = 2,292)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic rank</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructor</td>
<td>$197,532 ($180,444–$225,572)</td>
<td>$225,000 ($190,000–$258,200)</td>
<td>$211,088 ($190,632–$247,531)</td>
<td>$219,710 ($190,000–$262,032)</td>
</tr>
<tr>
<td>Assistant Prof.</td>
<td>$218,000 ($200,000–$238,231)</td>
<td>$226,420 ($225,230–$273,900)</td>
<td>$229,750 ($205,500–$252,300)</td>
<td>$240,000 ($200,000–$262,900)</td>
</tr>
<tr>
<td>Associate Prof.</td>
<td>$235,954 ($216,500–$260,000)</td>
<td>$249,400 ($224,000–$273,600)</td>
<td>$253,895 ($228,932–$295,300)</td>
<td>$267,000 ($245,650–$287,290)</td>
</tr>
<tr>
<td>Professor</td>
<td>$240,000 ($228,660–$315,526)</td>
<td>$263,000 ($226,000–$303,347)</td>
<td>$282,000 ($241,000–$331,740)</td>
<td>$301,400 ($272,000–$367,576)</td>
</tr>
<tr>
<td>Primary clinical responsibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical</td>
<td>$220,000 ($202,000–$242,515)</td>
<td>$230,020 ($203,000–$256,416)</td>
<td>$230,000 ($205,000–$260,858)</td>
<td>$242,000 ($217,427–$288,450)</td>
</tr>
<tr>
<td>Director</td>
<td>$224,746 ($205,800–$247,000)</td>
<td>$236,150 ($210,000–$260,700)</td>
<td>$240,000 ($212,175–$269,711)</td>
<td>$252,400 ($229,360–$277,027)</td>
</tr>
<tr>
<td>ED setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic</td>
<td>$232,275 ($204,528–$247,000)</td>
<td>$234,720 ($205,000–$260,242)</td>
<td>$235,100 ($205,000–$265,600)</td>
<td>$245,000 ($221,030–$274,000)</td>
</tr>
<tr>
<td>Community</td>
<td>$219,300 ($205,000–$228,400)</td>
<td>$229,525 ($215,550–$265,093)</td>
<td>$255,000 ($215,250–$268,077)</td>
<td>$262,955 ($239,000–$283,710)</td>
</tr>
<tr>
<td>U.S. region</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>$222,222 ($207,500–$250,000)</td>
<td>$234,337 ($204,100–$265,000)</td>
<td>$230,338 ($199,699–$267,903)</td>
<td>$248,444 ($225,250–$277,960)</td>
</tr>
<tr>
<td>South</td>
<td>$230,057 ($216,300–$255,000)</td>
<td>$237,038 ($217,391–$258,100)</td>
<td>$247,822 ($221,800–$271,139)</td>
<td>$250,040 ($227,000–$277,800)</td>
</tr>
<tr>
<td>West</td>
<td>$211,740 ($190,000–$230,000)</td>
<td>$220,970 ($164,500–$241,000)</td>
<td>$225,000 ($193,125–$260,000)</td>
<td>$239,100 ($216,000–$273,500)</td>
</tr>
</tbody>
</table>

Data are reported as median (IQR). IQR = interquartile range.

Within survey years, not adjusting for academic rank, the median salary of both men and women increased (Figure 1). However, the overall difference in salary for males was higher, and this difference was significant at all four time points ($Z = 6.33, p < 0.001$). Between 2016 and 2017, women’s salaries increased at a rate of 6.56% compared to male salaries, which increased at a rate of 3.82% at academic departments. Across these time points the proportion of respondents at higher academic ranks (associate and full professor) at higher salaries (see Table 3) was always greater for males than females (2013 males = 39%, females = 22%, $\Delta = 17\%$ [95% CI = 15.1%–18.9%]; 2015 males = 40%, females = 23.5%, $\Delta = 16.5\%$ [95% CI = 14.5%–18.5%]; 2016 males = 40.5%, females = 22.5%, $\Delta = 17.5\%$ [95% CI = 15.8%–19.2%]; 2017 males = 36.6%, females = 22.6%, $\Delta = 14\%$ [95% CI = 12.6%–15.4%]). Males also reported longer median time as ED faculty than females (males median = 10 years, females = 7 years, $Z = 14.1, p < 0.001$).

There were also regional differences (Table 3) in reported salaries across survey years with EDs in the South consistently reporting significantly higher salaries than the other regions and EDs in the West reporting significantly lower median salaries than any...
other geographic region \( (\chi^2(3) = 180, p < 0.001) \). Across regions and survey years EDs that were identified as community consistently had significantly greater median salaries than those described as pure academic \( (Z = 5, p < 0.001) \).

**Predictive Model**

Table 4 shows the results of the mixed-effects regression model. Main effects and interaction effects were entered in the model. As can be seen, and consistent with the univariate analyses, after covariates in the model were adjusted for there were significant differences in salary by gender, and the nonsignificant interaction effect of gender with time shows that this effect was consistent across all 4 years that the survey was administered, with males’ salaries being significantly higher than females. Time as a nonlinear effect was also modeled independently but this nonsignificant result suggests that there was no change in the linear effect of gender on salary across time.

Contrast effects were estimated between gender at each time point the survey was administered. These analyses supported the modeled effect of lack of significant interaction between gender and time, as at each time point the salary was significantly higher for males than females. It was of interest to see the nonsignificant interaction of gender and academic rank, which suggested that after other covariates were adjusted for (region, academic or community ED, years at academic rank), the gender difference in salary was not modified at any particular academic rank. As is shown, gender, adjusting for the other variables in the model, significantly predicted median adjusted salary, with males earning significantly more than females at all time points of survey administration.

**DISCUSSION**

In this study, we found that despite previously published data showing an inappropriate gender salary gap in emergency medicine, this gap has remained essentially unchanged over the past 4 years. Gender disparities in academic medicine are pervasive. A 17-year longitudinal random sample of faculty from 24 U.S. medical schools found that women earned a mean of $20,520 less than men \( (p = 0.03) \) and made 90 cents for every dollar earned by their male counterparts. This difference was still $16,982 \( (p = 0.04) \) after adjusting for covariates.\(^{11}\) Overall salaries for emergency physicians have increased over the past 4 years, but despite a call to end gender disparities in salary, men still make 18% more than women.\(^{13}\) And a $12,000 gender salary gap remains essentially unchanged. Compensation inequities have been demonstrated in other acute care provider settings including EMS\(^{16}\) and physician assistants.\(^{16}\) The reasons for salary disparities by gender are unclear and unexplained by covariates, but may include the presence of conscious and unconscious biases or initial recruitment negotiation skills despite the medical specialization.\(^{17}\)

It is known that the gender pay gap has lifelong financial effects. In most academic institutions there are salary bands based on academic rank. Therefore, a theoretical opportunity to adjust salary disparities at each level of promotion exists. However, our data show that this is not occurring and that the salary

### Table 4

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Unstandardized Estimate</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>$299,354</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (female vs. male)</td>
<td>–11,623</td>
<td>4.61</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Academic rank</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professor vs. associate</td>
<td>$45,654</td>
<td>19.3</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Professor vs. assistant</td>
<td>$70,151</td>
<td>29.6</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Professor vs. instructor</td>
<td>$83,081</td>
<td>25.1</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>U.S. region</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midwest vs. West</td>
<td>$28,086</td>
<td>13.7</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Northeast vs. West</td>
<td>$28,025</td>
<td>14.8</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>South vs. West</td>
<td>$30,592</td>
<td>14.7</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Community vs. academic ED</td>
<td>$10,925</td>
<td>3.95</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Years at faculty appointment</td>
<td>$338</td>
<td>3.22</td>
<td>0.001</td>
</tr>
<tr>
<td>Year of survey</td>
<td>$18,311</td>
<td>8.4</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Gender x year of survey</td>
<td>$3,364</td>
<td>1.12</td>
<td>0.52</td>
</tr>
<tr>
<td>Academic rank x gender</td>
<td>$10,680</td>
<td>1.54</td>
<td>0.09</td>
</tr>
</tbody>
</table>

**Figure 1.** Change in median salary by gender over time.
disparity is greatest among more senior faculty, that is, associate and full professors. As more women enter the field and are promoted, conscientious chairs will need to prioritize pay parity to change this persistent trend.

As academic health centers start to consolidate and grow, more are developing community practice positions within the faculty practice. Consistent with other published reports, faculty in the community practice areas have high salaries overall compared to traditional academic faculty. This is not surprising as these faculty typically have limited to no academic responsibilities and have salaries that must compete with nonacademic clinical positions. Also, not surprising is the fact that clinical directors earn more than physicians with primary clinical responsibilities. These leadership roles in academic programs are becoming a more valued position as academic practices grow in scope and size.

Regional variation in pay has long been a noted trend in medicine and emergency medicine specifically. The West continues to have the lowest salaries. We are unaware of any published research that describes a justification for this variance including payment policy trends, affordability, or demand for resources.

LIMITATIONS

There are a several limitations of our study. Chairs and vice chairs were excluded from the analysis. This was because the salaries of these individuals are in many cases are substantially higher than those of the general faculty and therefore have a potential to skew the data. Additionally, the overall number of chairs, vice chairs, and chiefs are relatively small and this has the potential to make some of the information identifiable. Another limitation of the study is that the data have been blinded so that individual faculty members are not specifically identifiable to see how they are progressing in terms of rank or salary from year to year. We are able to examine the impact of the cohort as a whole, but faculty may have been included one year and not the next because of no-response bias. This is also true for faculty who may have changed institutions during a year and been excluded from being counted in any institution survey, as the survey asked only for responses for people employed for the entire year. Additionally, the tool used to collect the data was refined over the years to add more individual specific data for each reported faculty member, so the earlier years have less data to analyze. The relatively low numbers of respondents from community ED versus academic ED settings also lends us to consider the possibility of bias in the sample and be cautious about interpreting differences between these ED settings.

CONCLUSION

Despite previously published data showing an inappropriate gender salary gap in emergency medicine, this gap has remained essentially unchanged over the past 4 years. Deliberate strategies should be developed to train academic emergency medicine employers how to prevent gender bias with regards to salary. There is a small positive trend in the larger percentage increase of salaries for women over the period than men, but this is a very small difference and has not made substantial progress in eliminating the overall gap. It may be that not enough time has passed for some departments to work on eliminating this gap. However, this is a longstanding issue in emergency medicine, and in medicine in general, and without continued review and analysis the potential continues to exist that unconscious or implicit bias will continue.

References


Inclusion of Sex and Gender in Emergency Medicine Research—A 2018 Update

Basmah Safdar, MD, MSc, Kimberly E. Ona Ayala, Syed Shayan Ali, MD, Benjamin J. Seifer, Michelle Hong, Marna Rayl Greenberg, DO, MPH, Esther K. Choo, MD, MPH, and Alyson J. McGregor, MD, MA

ABSTRACT

Objectives: The objectives were to 1) evaluate the inclusion of sex and gender in publications by emergency medicine (EM) researchers following the 2014 federal mandate and an Academic Emergency Medicine consensus conference on sex- and gender-based research and 2) assess trends compared with 2011 status report that showed 29% studies used sex and gender in the study design and 2% reported it as a primary outcome.

Methods: Using MEDLINE, the term "emergency" was used to identify all English-language studies of adult humans published between 2014 and 2017 as EM afiliated (i.e., the first, second, or last author belonged to an EM section, division, center, or institution functioning as emergency department). Four trained abstractors reviewed the data using a standardized data abstraction form.

Results: The search revealed 6,442 articles using the selected "emergency" terms, and 2,628 original studies coded as EM-affiliated publications were reviewed, 2,340 met inclusion criteria, and 2,336 were analyzed. This compared to 750 articles reviewed in 2011 using similar search strategy. The adjusted inter-rater reliability for data abstraction was 97% (95% confidence interval [CI] = 95.4%–98.6%). The leading study areas contributing the most articles were cardiovascular (17.5%), administration/crowding (15.8%), infectious diseases (9.2%), trauma/injury (9.2%), emergency medical services (6.1%), and pulmonary (6.1%). Eighty-six percent (n = 1,921) reported the sex/gender composition of the sample and 0.4% (n = 8) reported transgender identity. Thirty-four percent used sex/gender in the study design, with 27% (n = 609) reporting it as a control variable, 24% (n = 543) as an independent variable, and 2% using sex/gender as primary outcome. Studies funded by federal sources were significantly more likely to include sex/gender in the study design than other sources of funding (odds ratio = 1.77; 95% CI = 1.4–2.2).

Conclusions: Compared to 2011, we noted an increase in the number of EM scholarship and use of sex and gender in study design, yet the proportion evaluating it as a primary outcome remained unchanged.

In 1991, legislation required researchers funded by the National Institutes of Health (NIH) to include women and minorities in clinical research and to perform valid analysis of the role of biologic sex in clinical trials.1 This resulted in the emergence of a growing body of research on how patient sex and gender influences clinical care and outcomes for almost every disease process.2 The findings are relevant for emergency physicians who serve as front-line clinical specialists and need to stay abreast of the state-of-the-art evidence that influences the evaluation and management of diseases in the acute setting.3 The emergency department (ED) also serves as the primary access point for health care for much of the U.S. population...
with more than 136 million annual visits. Therefore, incorporation of sex- and gender-based medicine (SGBM) in emergency medicine (EM) has important implications for personalizing the care of a large proportion of the population.

A 2011 specialty-specific review of published literature showed that EM, unlike the fields of cardiology, psychiatry, and oncology, failed to apply sex and gender considerations routinely to research. At that time, only 2% of all EM research studies reported sex- or gender-specific outcomes and just 29% incorporated sex or gender in their analysis. Additionally, it reported that 21% of EM studies did not report the gender of participants at all. The authors recommended that EM researchers 1) include both men and women in their study designs for appropriate gender comparison; 2) report gender composition of study subjects and gender-specific comparisons study findings; and 3) report prognoses, outcomes, and interventions using gender as an independent variable in the study model.

Since the publication of this review, two events happened on a national level that had a potential to change this landscape. One, the 2014 Academic Emergency Medicine (AEM) Consensus Conference on Gender-Specific Research in Emergency Care—Investigate, Understand, and Translate How Sex/Gender Affects Patient Outcomes was convened. The multispecialty conference gathered researchers, clinicians, health care providers, patients, and representatives of federal agencies and policy makers to put forth a map for future research in EM. Second, in May 2014 the NIH passed a new resolution mandating inclusion of sex and gender in any preclinical and clinical research funded by the agency, irrespective of researcher’s prediction that sex or gender was a variable of concern for findings. This further propagated the EM SGBM agenda.

In this review, we aimed to evaluate the scope of inclusion of sex or gender in publications generated by EM researchers in response to these initiatives and assess if federal funding or other secular influences over time had influenced the scholarship trends in support of SGBM. We then compared the status of SGBM reporting with our previous 2011 report.

**METHODS**

We performed a retrospective literature review of EM scholarship as published on MEDLINE between January 2014 and February 2017. We used the search methodology reported previously to allow an effective comparison with the prior review. We used the term “emergency” on MEDLINE to identify all EM-related titles and abstracts as we did in the 2008 to 2011 review. Selected subheadings included emergency service, hospital; emergency department. Inclusion criteria for selection of manuscripts were English language, original research, authors with an EM affiliation (defined below), inclusion of adult human subjects, and publication between January 2014 and February 2017. We defined EM affiliation if the study included the first, second, or last author who belonged to an ED, section, division, center, or any institution that functioned as an ED (for example, accident and emergency). We excluded studies based on the following criteria: E0—not adult human subjects; E1—not English language original manuscripts; E2—not EM-affiliated authors, defined as the first, second, or last author belonging to an ED, section, division, center, or any institution that performed the function of an ED; and E3—manuscript was not the type being studied such as case reports, editorials, letters to the editor, concept papers, and guidelines (without original data).

**Search Terms and Eligibility Criteria**

We used the term “emergency” on MEDLINE to identify all EM-related titles and abstracts as we did in the 2008 to 2011 review. Selected subheadings included emergency service, hospital; emergency department. Inclusion criteria for selection of manuscripts were English language, original research, authors with an EM affiliation (defined below), inclusion of adult human subjects, and publication between January 2014 and February 2017. We defined EM affiliation if the study included the first, second, or last author who belonged to an ED, section, division, center, or any institution that functioned as an ED (for example, accident and emergency). We excluded studies based on the following criteria: E0—not adult human subjects; E1—not English language original manuscripts; E2—not EM-affiliated authors, defined as the first, second, or last author belonging to an ED, section, division, center, or any institution that performed the function of an ED; and E3—manuscript was not the type being studied such as case reports, editorials, letters to the editor, concept papers, and guidelines (without original data).

**Training and Adjudication Process**

Before starting the review, the research team completed the NIH Rigor and Reproducibility training modules, which are four video modules with accompanying discussion materials that focus on integral components of reproducibility and rigor in the research endeavor, such as bias, blinding, and exclusion criteria. In addition, faculty members of the team provided eight didactic sessions reviewing principles of research epidemiology and sample manuscripts to review targeted examples of reporting of sex and gender use in the study design. Weekly phone conferences with a senior author and reviewers were used to adjudicate any questions of the reviewers and address any concerns or discrepancies. The four senior investigators (BS, MG, EC, and AJ)
independently reviewed articles that were flagged as unclear. Any discrepancies were resolved by consensus during the weekly review sessions.

**Study Selection**

Four trained reviewers screened all abstracts in Covidence using inclusion and exclusion criteria to identify articles for full review. Covidence is a Web-based software platform that streamlines the production of systematic reviews. It provides a series of functionalities to facilitate the review process including: importing citations from a variety of reference management systems; removing duplicate entries; programming the number of reviewers; recording reviewer decisions; decision choices of yes, no, or maybe; assigning conflict resolution when reviewers disagree; and title and abstract inclusion/exclusion criteria and key words. Covidence also facilitates the abstract review process by providing a screening platform accessible to multiple institutions; the program allows multiple reviewers to approve abstracts for full text analysis by selecting “yes/no/maybe.” The adjudication team reviewed all abstracts flagged as “maybe” for inclusion or exclusion. Scopus and PubMed were used to check for author affiliation. Full manuscripts were obtained for most selected abstracts. Those not available online were requested through institutional library loans. Attempts were made through at least two author institutional libraries before a full manuscript was considered inaccessible.

**Data Abstraction and Case Definitions**

We created a standardized data abstraction form using Qualtrics based on our prior work. Qualtrics is a software for collecting and analyzing data; it provides with a variety of research needs including building surveys, distributing surveys, and analyzing responses from any device connected to the internet. We piloted the data abstraction tool on 15 manuscripts to fine tune abstraction variables and data entry and to identify areas of needed research training for the data abstractors.

The final data abstraction form contained the following variables (see Data Supplement S1, available as supporting information in the online version of this paper, which is available at http://onlinelibrary.wiley.com/doi/10.1111/acem.13688/full): first author, journal name, publication date, source of full article, sample size, study sponsor, type of paper, main topic of the paper, and answers to the following questions: 1) Was the paper focused on comparing sex and/or gender outcomes? 2) Was sex and/or gender composition of the participants mentioned in the text or demographics table? If so what was the gender composition? 3) Was transgender reported? 4) Was sex and/or gender used as a control variable in the analyses? 5) Was sex and/or gender included as an independent variable in the analyses?

Use of sex/gender in the analysis was defined as including mention of sex or gender in the abstract, hypothesis, analysis plan, or discussion beyond the gender composition. The use of sex or gender as an independent variable was defined as describing a sex- or gender-specific outcome or listed the use of sex or gender as an independent variable in the abstract, hypothesis, analysis plan, or discussion. The following rules were applied: 1) if sex/and or gender was an independent variable and there was a logistic regression, then it was also considered a control variable; and 2) if sex/gender was included as a covariate (independent variable) in a multivariate model, it was also considered a control variable.

**Inter-rater Reliability**

Inter-rater reliability was assessed for the eight raters across three sets of articles reviewed for multiple items, across three time points. To assess multirater observation agreement, adjusting for an increase in chance agreement among multiple raters, we calculated the adjusted kappa statistic using SAS (Version 9.4) Multi-Observers Kappa macro. The adjusted kappa-statistic, with 95% confidence intervals (CIs), were reported for each time point of assessed pilot articles.

**Statistical Analysis**

Descriptive data were summarized using means for continuous data and proportions for categorical data. Odds ratios (ORs) were calculated with 95% CIs when comparing proportions. Articles were coded for sex/gender composition, use of sex/gender as a control variable, independent variable, or part of the primary topic. SPSS v. 22.0 was used for all analysis. A p-value of <0.05 was considered statistically significant.

**RESULTS**

The selection process of the articles reviewed can be found in Figure 1. Using the prespecified search terms, 6,442 abstracts were identified as possible EM related scholarship. Of these, 3,814 studies were
excluded for the following reasons: non-EM-affiliated authors (n = 3,463), not original research (n = 62), not adult human subjects (n = 52), not English language original manuscript (n = 7), and other (n = 264). This left 2,628 original studies coded as EM-affiliated publications and 2,340 met inclusion criteria. Of these, 2,286 (97.9%) articles were accessed online, 50 (2.1%) articles were obtained through interlibrary loan, and four articles were not available through any of the institutional loans.

### Current Status of EM-generated Scholarship

The total number of EM-generated original scholarship reported during the study period was 2,336 (Table 1). Of these, 90% were descriptive in design and 10% included an intervention. The median (interquartile range) number of subjects enrolled was 406 (127–1,563) with 53% males, 46% females, and 0.4% reporting on transgender patients. Twenty-one studies enrolled only male or female patients in contrast to 10 studies in our previous review.

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**Figure 1. Flow chart for study inclusion.**
Table 1 describes the status of EM-generated scholarship at present compared to our last review conducted in 2011. Overall, the amount of EM scholarship increased almost fourfold from 750 in 2011 to 2,336 in 2018. The mean distribution of male and females enrolled has remained similar although we noted eight studies in this review that reported on transgender patients. The leading areas of scholarship in EM were cardiovascular (17.5%), administration/crowding (15.8%), infectious diseases/sepsis (9.2%), trauma/injury (9.2%), emergency medical services (EMS; 6.1%), and pulmonary (6.1%). The prevalence of specific areas of scholarship was similar to those reported in 2011 except for papers related to pulmonary topics are now equivalent to those of EMS in the current review. Compared to 2011 our present review found changes in the leading two journals reporting EM scholarship.

Studies Using Sex and Gender in Study Design
Of the 2,336 studies, 86.5% reported using sex and gender in their study design. Figure 2 shows the distribution of use of sex and gender in the study design. Forty-eight studies (2%) reported sex or gender as the primary outcome; 24% used it as an independent variable, 27% used it as a control variable, and 34% used it in the study design. Fourteen percent of the studies did not report sex or gender in the study demographics compared to 21% in the 2011 review.

Table 2 describes the studies that used sex and gender in their study design (n = 782) compared to those that did not (n = 1,554). Studies that reported sex and/or gender in their study design were more often descriptive (94% compared to 89%) and more likely to be funded (46% vs. 34%) compared to the studies that were not inclusive of sex/gender. The most common areas of EM scholarship were similar except for pharmacology/toxicology, which outnummbered pulmonary-related studies to be included in the top five topics in EM producing sex- and gender-specific scholarship. The journals leading this initiative were also similar to those reporting bulk of EM scholarship.

Funding Trends for EM-generated Scholarship
Most of EM reported research among included studies remains unfunded (61%); however, this has declined from 2011 when 66% of the reported studies were...
unfunded. In contrast, the proportion of federally supported studies increased from 16% to 20%. A total of 145 studies were supported by more than one source of funding. Studies supported by federal funding were significantly more likely to include sex and gender in the study design compared to other sources of funding (OR = 1.77; 95% CI = 1.4–2.2).

**Inter-rater Reliability**

The adjusted inter-rater reliability for data abstraction in our review was 97% (95% CI = 95.4%–98.6%). Agreement values were interpreted as follows: above 0.80 = very good agreement, 0.60–0.80 = reasonable agreement, 0.40–0.60 = moderate agreement, and <0.40 = fair to poor agreement.\(^{11,12}\)

**DISCUSSION**

We report the current status of sex and gender inclusion in EM literature, using a uniquely comprehensive and inclusive approach to all journals relevant to our specialty across an international literature.\(^{13}\) Compared to our last review published in 2011, we found a four-fold increase in EM-generated scholarship with a corresponding increase in the number of studies published that incorporate sex and gender in their study design.\(^{3}\) We also noted a slight increase in those that included these factors in reporting of population demographics. Additionally, a few studies expanded their nomenclature to extend gender beyond a binary variable and reported transgender patients in trial participation. While these trends were encouraging, nearly one in seven articles did not at all mention the sex distribution of the subjects studied; only one in three studies used sex or gender in the study analysis, and there was no change over the years in the number of studies assessing the effect of sex or gender as a primary outcome.

Our review follows the 2014 NIH mandate on inclusion of male and females in all cell lines.\(^{6}\) Notably we found a statistically significant increase in inclusion of sex and gender in the study design in studies that were federally funded compared to those that were not. This was in contrast to our 2011 review, when we found no difference in reporting based on type of funding and may reflect how federal mandates influence the direction of clinical scholarship.

These trends should be interpreted in light of recent data that show the importance of including sex and gender in EM research for both practicing emergency physicians and for growth of our specialty in general.\(^{14}\) Time and again, emergency physicians have observed examples where sex and gender influences diagnosis, management, prognosis, and safety for almost every disease process ranging from acute cardiac conditions to public health crises such as the opioid epidemic.\(^{15}\) For instance, sex-specific differences in the threshold for troponin in the diagnosis of acute ischemia have been observed, influencing the care and prognosis of women patients. However, ED evaluation protocols have not universally adapted these findings. This might become particularly relevant in the new era of high sensitivity troponin assays that were
approved for clinical use in the United States in 2017.16

Similarly, gender plays an important role in emergency care as well. Treatment for substance use disorders is influenced by patient gender with women having more barriers to access, more severe problems at treatment entry, and lower rates of completion of substance use treatment.17,18 The rate of opioid abuse is also greater in women than in men.19–21 Women are more likely to use opioids consistent with their prescription instructions, are more likely to use via the intended route of administration, and are more likely than men to use opioids to cope with psychiatric symptoms and negative affect.21 Thus, an effective approach to the opioid abuse crisis should take gender factors into account.

Last but not the least, sex differences in pharmacokinetics, efficacy, and adverse effects of medications has been shown for a range of acute medical conditions such as infections, headaches, conscious sedation, and cerebrovascular events22–24—all pertinent to EM.

Our results are, in general, encouraging. Compared to the 2011 review, we saw a 4.5% increase in publications that included sex or gender in their study design, with a rise of 9% in studies analyzing gender as a control variable and a rise of 5% in being used as an independent variable. Interestingly we noted a significant increase in reporting of SGBM in our specialty after the 2014 federal mandate. This is in contrast to prior studies from general medicine. While the upward trajectory of inclusion of sex- and gender-based analysis could in part be explained by the momentum of the 2014 NIH inclusion requirement of sex as a biological variable, and the AEM consensus conference in creating a generalized awareness of the impact of sex- and gender-based analysis in research outcomes, it does not indicate necessarily a causal relationship. We did not record the dates when the published research was actually conducted, and hence not all trends may be attributed solely to the 2014 events.

Our results follow a similar trend observed when the Canadian Institute of Health Research (CIHR) implemented a policy in 2010 mandating sex and gender reporting in federally funded studies.26 Interestingly, after one funding cycle the mandate was met with an affirmative response, and an upward trend was found in incorporation of sex and gender in research designs over all three funding cycles studied. These trends, however, varied by disciplines with biomedical researchers least likely to account for SGBM, clinical researchers most likely to account for sex, and population health researchers most likely to account for gender in their applications. Whether the upward trends we noted in our study are attributable to the 2014 federal mandate, in combination with our specialty-specific consensus conference, or other factors, requires further validation.

Our results also highlight opportunities for improvement. Only one in three studies reported inclusion of sex or gender in their study design. These results reflect parallel trends that have been observed in other clinical specialties such as surgery, radiology, and neurosciences and include prestigious journals27 and Cochrane reviews.26–32 While federal mandates have an important influence in ascertaining the direction of

<table>
<thead>
<tr>
<th>Table 2</th>
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<tr>
<td>For Studies That Included Sex/Gender in Their Study Design</td>
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<table>
<thead>
<tr>
<th>Overall</th>
<th>Studies Using Sex/Gender in Design</th>
</tr>
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<tbody>
<tr>
<td>Study Type</td>
<td></td>
</tr>
<tr>
<td>Total No. of EM publications</td>
<td>1,554</td>
</tr>
<tr>
<td>Type of studies</td>
<td></td>
</tr>
<tr>
<td>Descriptive</td>
<td>1,378 (88.6)</td>
</tr>
<tr>
<td>Experimental</td>
<td>183 (11.8)</td>
</tr>
<tr>
<td>Type of funding</td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>265 (17.1)</td>
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<tr>
<td>Institutional</td>
<td>175 (11.3)</td>
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<tr>
<td>Foundation</td>
<td>135 (19.9)</td>
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<tr>
<td>Industry</td>
<td>80 (0.05)</td>
</tr>
<tr>
<td>Other</td>
<td>5 (0.003)</td>
</tr>
<tr>
<td>No funding</td>
<td>1,017 (65.4)</td>
</tr>
<tr>
<td>Top six areas of EM scholarship</td>
<td></td>
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<tr>
<td>Cardiovascular</td>
<td>256 (16.5)</td>
</tr>
<tr>
<td>Administration/crowding</td>
<td>234 (15.1)</td>
</tr>
<tr>
<td>Trauma/injury</td>
<td>141 (9.1)</td>
</tr>
<tr>
<td>Infectious disease/sepsis</td>
<td>144 (9.3)</td>
</tr>
<tr>
<td>Toxicology/pharmacology</td>
<td>—</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>99 (6.4)</td>
</tr>
<tr>
<td>Top journals reporting for EM scholarship</td>
<td></td>
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<tr>
<td>American Journal of Emergency Medicine</td>
<td>206 (13.3)</td>
</tr>
<tr>
<td>Academic Emergency Medicine</td>
<td>101 (6.5)</td>
</tr>
<tr>
<td>Resuscitation</td>
<td>—</td>
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<tr>
<td>Journal of Emergency Medicine</td>
<td>95 (6.1)</td>
</tr>
<tr>
<td>Emergency Medicine Journal</td>
<td>92 (5.9)</td>
</tr>
<tr>
<td>BMC</td>
<td>—</td>
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<tr>
<td>Annals of Emergency Medicine</td>
<td>—</td>
</tr>
<tr>
<td>Western Journal of Emergency Medicine</td>
<td>68 (4.4)</td>
</tr>
</tbody>
</table>

Data are reported as n (%) unless otherwise reported.
future research by inspiring researchers to reflect on the role of SGBM in their individual research, it does not necessarily translate into research practice. It is therefore necessary to initiate parallel efforts to train peer reviewers and researchers on the integration of SGBM in their analysis to meet the SGBM reporting requirements for journals. Journals and editors play an important role in directing researchers in extending the scientific edge forward. It is therefore incumbent upon them to ensure adequate standards of reporting in the accepted manuscripts. Clayton and Tannenbaum in a recent JAMA editorial emphasized the need to ensure inclusion, analysis, and reporting of sex and gender in partnership with health research agencies such as the NIH, CIHR, and journal editors as well as researchers.

The lack of set guidelines to standardize the reporting of sex and gender in scientific publications across disciplines is seen as a major factor in the persistent underreporting of sex and gender effects in research. In an effort to address this issue, the European Association of Science Editors established a Gender Policy Committee in 2012 for the purpose of creating international guidelines for reporting Sex and Gender Equity in Research (SAGER). The SAGER guidelines not only provide researchers and authors with tools to standardize sex and gender reporting, but also provide a guide for peer reviewers and journal editors, thus making it clear that integration of sex and gender in scientific publications makes for more rigorous and ethical science. Accordingly, many influential scientific journals are revising their editorial policies requiring clear reporting of sex and gender in research design, such as the Lancet and Journal of the American College of Cardiology.

Medical societies, such as the American Medical Association, are beginning to pass resolutions supporting the integration of evidence where men and women differ from risk assessment, presentations of disease, and responses to treatment. If EM is to stay on the forefront of acute health care delivery, we need to ensure that our growing research and scholarly activity asks the right questions and is designed to be generalizable to the correct population in a comprehensive and rigorous manner. More work is needed to standardize the way sex and gender are analyzed and reported, to understand how these variables influence each other, and their impact on the delivery of emergency care. With increasing evidence on the effect of gender on drug adherence and prognostic outcomes in acute coronary syndrome, authors should be advised to use the words sex and gender appropriately.

A two-step approach has been proposed by the Office of Research on Women’s Health, NIH, and Institute of Gender and Health, CIHR for reporting demographic characteristics of study participants and outcomes by sex and gender whereby both sex assigned at birth and current gender identity are presented in the demographic table in manuscripts. Using these terms precisely allows clarity, facilitates future meta-analysis and systematic reviews, and provides an opportunity to collect data on the growing population of transgender individuals.

**LIMITATIONS**

Our results should be interpreted within the scope of the search performed. Importantly, we did not conduct a systematic review, which would have been more comprehensive than our present search. However, we wanted to use an approach that allowed us to draw a fair comparison with our previous review that was limited to OVID database. It is therefore possible that we missed some non-peer reviewed original research in EM. Second, our adjudication process erred toward the categorization of sex or gender as a control variable in the analysis when this was not clarified in the analysis description in the manuscript. We did not reach out to the authors to clarify. This might have led to an overestimation of the use of SGBM in our review. However, we used a similar adjudication process in our 2011 review so we believe it still offered a fair comparison. Third, the reporting of transgender in manuscripts assumed that study authors specified the definition to the study participants and we did not differentiate between other categories such as intersex. Given the limited number of studies looking beyond a binary description of gender, we do not believe that this influenced our results. Fourth, we did not assess the potential confounder of category of manuscript for reporting gender. We, however, only included peer-reviewed original research for the purpose of this review and systematically excluded guidelines or commentaries without original data. It is unclear how the type of research, whether was descriptive or experimental and its change over the time periods would influence the outcomes reported. Finally, our analysis is limited to 3 years after implementation of the 2014 federal mandate. As such, the findings reported here are from a relatively short period. Our results of the influence of funding agencies on SGBM reporting
should therefore be limited to a possible association as opposed to a causal relationship.

CONCLUSION

Since 2011, emergency medicine scholarship has increased with a corresponding increase in sex- and gender-based medicine reporting. However, even after a federal mandate and a specialty-specific consensus conference on the importance of including sex/gender into research design, analysis, and generalizability, reporting of sex and gender as a control or independent variable in emergency medicine research remains low.

The study team acknowledges Janette Baird, PhD, for her work in calculating inter-rater reliability agreements.

References

proposed at the University of Pennsylvania. Biol Sex Differ 2017;8:22.
35. Heidari S. Read the recommendations for the conduct, reporting, editing, and publication of scholarly work in medical journals. ICMJE 2017;388.

Supporting Information

The following supporting information is available in the online version of this paper available at http://onlinelibrary.wiley.com/doi/10.1111/acem.13688/full

Data Supplement S1. Data abstraction form.
Impact of a Women-focused Professional Organization on Academic Retention and Advancement: Perceptions From a Qualitative Study

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ABSTRACT

Objectives: Organizations to promote career networking and mentorship among women are recommended as a best practice to support the recruitment and retention of women physicians; however, the impact of such organizations is unknown. Our primary objective is to describe the impact of a national woman-focused organization for academic emergency physicians on retention and advancement.

Methods: We conducted semistructured interviews of past and present organization leaders, as well as members at varying stages in their careers. Physicians with experience in qualitative methods conducted interviews and coded all transcripts using inductive content analysis techniques. Themes were reviewed and discussed to ensure consensus.

Results: We performed 17 interviews lasting 20 to 30 minutes each, resulting in 476 total minutes of transcript. Participants represented varying stages of career experience, ranging from 2 to 35 years since residency completion (median = 9.5 years). Median years of participation in the woman-focused organization was 10 years. Over half (53%) of participants were past presidents of the organization. The dominant themes encompassed facilitating academic advancement through scholarly productivity, leadership experiences, awards, and promotions; mentorship and sponsorship; peer support and collaborations; reduced professional isolation; and initiatives to address systemic gender inequities and challenges, including strategies to navigate bias, promote pay equity, and advocate for family-friendly workplace policies.

Discussion: Active participation in a woman-focused professional organization enhances members’ career retention and advancement by creating opportunities and relationships that facilitate leadership, enabling scholarly work to advance equity and inclusion, and cultivating a sense of belonging. While challenges and barriers persist, the myriad benefits of a women-focused professional organization reported by members and leaders represent important steps toward greater equity for women and other underrepresented groups in academic medicine.

A related article appears on page 354.
In 2017, women accounted for 50.7% of all medical school matriculants, exceeding the number of men enrolled for the first time in history. However, gender inequity remains pervasive: women physicians make up only 38% of all academic faculty and 21% of full professors across specialties. In emergency medicine, women account for only 31% of all emergency medicine physicians and hold 33% of faculty positions. Women emergency physicians are paid, on average, $19,000 per year less than their male colleagues, after adjusting for hours worked, rank, and years of experience. Prior studies have cited gender discrimination, implicit bias, lack of adequate mentorship, work–family conflict, and gender differences in negotiation as barriers to retention and advancement.

Participation in organizations to promote career networking and mentorship among women has been recommended as a best practice to overcome these barriers and support the recruitment, retention, and advancement of women emergency physicians. Little to no peer-reviewed literature exists on the impact of voluntary membership in women-focused professional organizations on career advancement outside of limited settings such as single institution studies and selectively accepted participants in leadership development programs with a finite duration. Thus, the impact of longitudinal membership in women-focused professional networking organizations on career development and advancement remains unexplored. Our primary objective is to describe participants’ perceptions of the impact a national woman-focused organization for academic emergency physicians on retention and advancement.

METHODS

We performed a qualitative study through semistructured interviews embedded in a multimedia campaign to promote recruitment and engagement in a woman-focused professional organization. The organization was established in 2009 to support the recruitment, retention, advancement, and leadership of women in academic emergency medicine and currently has more than 350 members at varying stages of their careers. Members are required to belong to a larger, non–women-focused professional organization for academic emergency physicians and pay a $100 annual membership fee (which was waived starting in 2018).

We developed the interview guide based on our literature review and team members’ experience in women-focused professional organizations (Data Supplement S1, available as supporting information in the online version of this paper, which is available at http://onlinelibrary.wiley.com/doi/10.1111/acem.13699/full). The guide includes open-ended questions about each participants’ experiences with the organization, specific career advancement initiatives fostered by the organization, and how these initiatives may have impacted participants’ own careers. The questions included probes to elicit more detail regarding specific a priori themes such as impact on academic promotion and workforce equity. We made minor revisions to improve flow and clarity of the interview guide based on responses to initial rounds of interviews.

All interviewees provided verbal consent for audio recording and transcription and for their deidentified responses to be included in research. This study was determined to be exempt from institutional review board review.

Study Participants

Participants include past leaders of the woman-focused academic emergency medicine organization as well as members in varying stages of their careers. We used a combination of snowball sampling and purposive sampling to capture a broad range of career backgrounds and ensure a representative sample.

Data Collection and Analysis

A physician-investigator trained in qualitative research methods conducted phone and in-person semistructured interviews. All interviews were transcribed verbatim and deidentified by a trained investigator. Transcripts were independently coded using inductive content analysis techniques by physician coinvestigators with experience in qualitative methods. Utilizing a rigorous and systematic process, two primary coders with expertise in qualitative methods (MPL, MSK) subsequently reviewed all coded data to identify themes. Themes were reviewed by authors and discussed to ensure consensus.

RESULTS

We performed 17 interviews lasting 20 to 30 minutes each, yielding 476 total minutes of transcript. Participants represented varying stages of career experience, ranging from 2 to 35 years since residency completion (median = 9.5 years, Table 1). Median years of participation in the woman-focused organization was
10 years. Over half (53%) of the participants were past presidents of the organization. A majority (71%) of participants were Caucasian.

Key themes and quotes are listed in Tables 2 to 4. Dominant themes centered around facilitating academic advancement, mentorship and sponsorship, peer support and collaborations, reduced professional isolation, and initiatives to address systemic gender inequities and challenges.

**Mentorship and Sponsorship**

**Mentorship.** Studies have shown that one of the reasons women reject a career in academic medicine is a lack of adequate mentors and role models. A woman-focused organization for academic emergency physicians addresses this barrier by enabling the identification of mentors and mentees and creating a space for cultivating mentoring relationships. More junior respondents found that engaging with and being able to closely observe more seasoned women gave them a sense of confidence that encouraged them to advance. One respondent said,

... here were women who I knew well, who had risen to those roles, who seemed mere mortals, and were telling me that I had that potential. That was very influential for me ... So the senior women were there to do what I needed which is to provide mentoring and sponsorship ... And I think it’s very difficult to get those experiences from any one person or within your institution, especially as a woman ... So [the organization] gave me the kind of national networks that allowed me to filter through and find the people who were really good fit mentors for my career. (Participant D)

Additionally, as women evolved from being junior to senior faculty, they noted that being a part of the organization not only helped them rise but also gave them an opportunity to transition from mentor to mentee.

... as I moved forward, got to start to take other folks under my wing, some of whom were only a couple years behind me, but then obviously as the years have passed, there has been a larger gap between me and the junior members of [this woman-focused professional organization]. (Participant E)

**Sponsorship.** Participants reported benefiting from sponsorship—distinct from mentorship—primarily in the form of senior members nominating junior members for leadership positions. One participant commented:

I think too, probably the biggest impact has been in not only mentorship of one another, but sponsorship. To have somebody who is far senior to you that you look up to say, “You are ready for this. I want you to apply for this” and almost tell you that you’re going to do it. (Participant F)

Senior participants also reported that sponsoring junior members was an important part of their job.

Now that I’ve moved up and made the connections of making sure that I hold those doors open for the people behind me ... I believe very strongly that we need to be looking out for each other, amplifying and promoting each other. Then, as you mature like I am, of giving those opportunities to the folks that are around me. (Participant B)

**Facilitating Peer Support and Collaborations**

**Facilitating Scholarly Collaborations.** Respondents discussed opportunities to collaborate on research projects and publish peer-reviewed...
Table 2
Themes and Key Quotes related to Mentorship, Sponsorship, Networking, Peer Support, and Collaboration

Mentorship

“[It’s a] network that can help you in terms of changing jobs or seeking your first job if you’re a resident or fellow, getting mentorship because you are able to find other women colleagues who are interested in the same area of research that you’re interested in, or just again sharing strategies and sharing experiences and learning and gaining insight just from those rich discussions and relationships that form.”—Informant P

“I’ve learned to negotiate different things for myself, of course, as far as career advancement, but I think the most beneficial is being able to pass those on to our residents as they are female residents, specifically, and students as they go advance in their career.”—Informant L

“And then as I moved forward, got to start to take other folks under my wing, some of whom were only a couple years behind me, but then obviously as the years have passed, there has been a larger gap between me and the junior members… So it’s been a nice experience in transmitting learned wisdom through the generations, and just sharing the joint experience of being a woman in emergency medicine.”—Informant E

“So the senior women were there to do what I needed which is to provide mentoring and sponsorship. Really to guide junior women into the kind of experience that allows you to move forward a little bit, and then more, and then more, and attain graduated responsibility until you were in a position to lead in major way. And so I think it’s very difficult to get those experiences from any one person or within your institution, especially as a woman.”—Informant D

Sponsorship

“She said ‘I have a… lecture I need someone to give. I’d like you to do it.’ It changed the trajectory of my career. I found that the subject became a passion for me. The idea of speaking became a possibility for me. It was one woman saying to another one, ‘You can do it.’… My job now is to find somebody else behind me and bring them up and usher them into it, encourage them into it, browbeat them into it. Whatever it is.”—Informant B

“It’s women who are taking up other women, and just making things so good for each other, and celebrating each other’s accomplishments, and finding opportunities for mentorship and sponsorship when something comes your way, and you can’t do it or you have something that comes your way, and you think a junior person would really benefit from it.”—Informant J

“Probably the biggest impact has been in not only mentorship of one another, but sponsorship. To have somebody who is far senior to you that you look up to say, ‘You are ready for this. I want you to apply for this’ and almost tell you that you’re going to do it. It’s not really an option and realizing how to value yourself and your contribution, I think is one of the biggest things we can provide to our members.”—Informant F

Facilitating scholarly collaborations

“I admittedly am not the best writer, and I think because of [the group] I’ve gained confidence in my writing skills. A lot of my publications have come out of collaborations with different members… and different members of our research committees and learning from them and realizing that you know what I’m actually not a bad writer. You see how other people organize their work how they organize their writing you see that they fail and they figure it out. So then you can fail and you can figure it out and it validates everything that you’re good at and it validates that you can rise above any setback or failure.”—Informant A

“Certainly it actually advanced my research itself. The whole, not just through identifying people that I can work with but also actual scholarship. And then it also allowed me… one is the research path. It actually just made the trajectory much more steep in the material that came out of it. And informing the collaborations of people that I wanted to work with. For example through this [national conference] I got connected with other people in the cardiovascular area who are working in this. And including some leaders in the field that I was able to work very intimately with. And became part of that group. But also I think it allowed me to, certainly as I transitioned into the leadership roles in that, it allowed me to really formulate a second interest and a second career goal for myself. Which was really realizing that systems-based interventions have a much bigger impact. And so I became very interested how just restructuring and creating systems to allow people to grow, for example, for a professional development, can actually have huge impact.”—Informant R

Facilitating nonacademic collaborations and opportunities

“[The organization] gave me the opportunities… I was able to kind of share these are my interests with people. Then I got tagged for those things. So, in the last two months, I think I’ve been tagged for three to five… didactics for next year’s [national conference], just because people knew what my interests were and wanted to pull me in on them.”—Informant C

“The fight to continue to advance my career in academia is one that has made me look outside academia. That’s why I started a business. That’s why I’m involved in a couple of nonprofit organizations for women in medicine. And I think [the organization] gave me a lot of confidence that I could be creative around this issue… I’m stepping outside and finding other ways to accelerate my career that are a little bit nontraditional. I think that’s kind of the scrappy-ness that women have to have, and some of those things I’ve learned through [this group] and others like it.”—Informant D

Increased confidence and peer sponsorship

“It’s women who are talking up other women, and just making things so good for each other, and celebrating each other’s accomplishments, and finding opportunities for mentorship and sponsorship when something comes your way, and you can’t do it or you have something that comes your way, and you think a junior person would really benefit from it.”—Informant J

“Am I worthy and will I belong. I think that’s what [the organization] does. There’s somebody standing next to me saying yes, you belong. You belong here, you belong in medicine, you belong in academics. And yes you’re worthy. You keep moving forward instead of holding yourself back. Those risks, those opportunities we don’t take are usually because of those two questions. Am I worthy and will I belong.”—Informant B

“I think organizations like [this] and being able, being part of a committee of this women who have either acknowledged that challenge and passed it, or even gone over it which is amazing as well, I think being a part of that community and having other women kind of, you know, kick you in the behind and say, ‘You have done great things and this is amazing what you’re doing.’ And kind of help promoting each other is a way that women can advance themselves and advance each other, and maybe in not ways that men do or even have to.”—Informant H

(Continued)
manuscripts as a result of relationships developed in this woman-focused organization. Some found that these collaborations helped them learn new skills and gain confidence in their writing, while also allowing for productive research and publication efforts. One participant cited that the group

... actually advanced my research itself ... not just through identifying people that I can work with but also scholarship. (Participant R)

Another participant commented on the benefits of collaboration:

I admittedly am not the best writer and I think because of [this group] I’ve gained confidence in my writing skills. A lot of my publications have come out of collaborations with different members of [the organization] and different members of our research committees and learning from them. (Participant A)

Participants highlighted that their participation enabled them to explore new aspects of medicine:

We ended up with ... the first generation textbook ... that truly came out of [this] collaboration. (Participant L)

**Facilitating Nonacademic Opportunities and Collaboration.** Participants commented on other benefits of networking including employment opportunities, as a result of either mass group communication or one-on-one outreach among organization members, to foster the academic pipeline. Several women commented on the limitations of traditional academic structures and organizations in driving change, which inspired them to lead business ventures focused on equity, in addition to their primary academic appointments. One participant who founded a women-focused digital company reported her membership in the organization

... specifically was integral to [her company’s] existence entirely ... it was actually an extension, ironically of the [organization's] newsletter. (Participant Q)

Another participant identified gaps in the audience the organization was targeting:

I didn’t see as much geared towards the younger generations, towards our med students and towards our residents and really outreach there, to actually one of our other members, and I created [my company], which is a group that is specifically trying to reach out to med students. (Participant I)

**Improving Confidence/Peer Sponsorship and Encouragement.** Many participants described the affirmative relationships and encouragement from peers and mentors identified through the organization. One participant articulated,

... before [my involvement with this organization], it never occurred to me that I would ever go past assistant professor. I didn’t think that I
would have that level of attainment in my academic career, and so I think it gave me a lot of confidence. I was meeting women who were full professors and seeing that that was a model that was possible for me ... [this organization] brought a lot of goals into sight for me that weren’t even there for me before. (Participant D)

Encouragement from fellow members helped give some participants the confidence to apply for new opportunities, which they paid forward to other members:

I can’t tell you how many times someone said [to me] and I now say it to them, “You can do it. Are you crazy? You can do this. And, if you...
Facilitating data and research to drive change

“Organizations like this] bring people together in the same room so that they see that these experiences are in fact shared, they’re not isolated. And when they’re shared you can start seeing the patterns and then you can go after the things that are maintaining that pattern of behaviors and inequity.”—Informant D

“I think that we’ve kind of already done a pretty good job of saying we have a problem and identifying, ‘Hey, there’s something different for us’ and starting kind of the conversation. I think now the big push and hopefully the big push in the next ten years will be how do we get more data so that we can create better policies? We’ve started doing that and it’s been super refreshing to see but I think continuing to really try to get data numbers research that will help us advance our career but will also help us to be able to say this isn’t just something worth talking about but this is something we can really prove and show what we do from here to create a change.”—Informant I

“But then the second piece was professional development and faculty development. How creating opportunities and creating systems to and resources for people can allow them to advance through the career. Not just mentorship but also through [the organization] we created these online modules. We created these didactics. Scholarship. We collected data to identify where women in emergency medicine are. And we used that data to actually inform some of the processes that were put in place including the preconference workshop. And the focus of each workshop. A lot of resources that you create that affects not just one person, one institution, but the whole academic female emergency physicians as a group.”—Informant R

Enhancing negotiating skills

“Now whenever I go in to meet with my boss. Because of the didactics that [the organization] has done at [national conferences] and negotiation didactics and talking to woman that are chairs that are willing to share their secrets. Whenever I go into to talk to my chair or any boss. Really any situation where I know I’m going to have to negotiate something so I go in with data. I learned that because of [my involvement in the organization].”—Participant A

“As a very junior faculty member, when I received job offers approximately a year ago when I was looking for faculty positions, I really reflected back on some negotiation workshops that I had been to, to really help me negotiate for the best career jobs for myself. That’s not just from a pay standpoint, but also from a protected time standpoint, and it really helped me evaluate the things that I value in my job, and in my work life, and ask for those things, and ask for those things from my future employers. That workshop specifically really empowered me in that moment, where I don’t feel like I would have felt as empowered to ask those questions and ask for those things.”—Participant K

“I learned just so much on how to negotiate, how to stand for myself, how to carry myself, how to move forward.”—Participant L

Navigating bias and harassment

“Hearing stories of other woman that had the same exact experiences but they didn’t take it. They were like ‘Oh yeah, that happened to me and I just stood up for myself. I spoke up and I talked back, I wasn’t the nice girl. I broke those barriers because I was willing to take risks.’ Taking those risks takes a lot of guts and really facing those fears of someone saying she’s difficult. Being surrounded by woman that were just like me made it okay to be me. If that makes sense.”—Participant A

“Many of my evaluations were based on the fact that I was agentic and not communal, and therefore I was being judged as being bossy and pushy and loud and obnoxious and yet men who were just like me were being judged as being smart and assertive and, you know, leaders and god know what somebody—what happened to me if I was noticed to be a leader early.”—Participant Q

“Because our culture decides that maybe women have more responsibilities than men in the traditional family for taking care of the house and other things that maybe some people around you think that you’re not as serious about your career. When in fact, you are just as serious, and many times more serious about your career than anyone around you.”—Participant J

“I work in a residency program where 75% of my residents are male, and very often my patients don’t believe that I’m the attending physician. You know, obviously, the resident or the male, whoever they are, that’s standing next to me, whether they be a nurse, or a researcher, or a tech, like, they’re obviously the physician. That kind of reminds me of one of the talks at [a national conference] where a physician who had transitioned from female to male discussed how practicing medicine as a female was like playing a video game on expert. Then after his transition practicing as a male was like playing the video game on easy. I think there are a lot of subtle things that happen on a daily basis, but those subtle things can really build up and affect you personally and professionally.”—Participant D

“I think I had on blinders. I thought to myself, ‘Okay, like there is no . . . There’s no gender issue. I’m being sought after and recruited. This is what it’s supposed to look like.’ Then, I kind of had a rude awakening in my first practice group, where there just were some things that were truly antiquated. Rather than being a leader and pushing things forward to make things more equitable for women, the group was really opposed. I think that was the first time in my life, where I really felt like me gender was affecting my ability to do my work and be compensated fairly for it. That was when my [organization] family took me under their wings and really opened my eyes to some of the other things that I have sort of brushed off as not being a big deal and really emphasize that they were a big deal and sort of the precursor to a much larger issues that surfaced.”—Participant F

Navigating competing work-life competing demands

“The biggest challenge is making this leap to leadership, is going from creating a specialty and creating environments in each one of our emergency departments across the country where women can thrive, where women are welcome, where women can thrive, where women have equal opportunity, where women and men, by the way, have a chance to have sustainable careers where they can meet their goals in their careers and their goals in their personal lives, in their family lives, and family defined as just the people that you love, whatever family looks like to you.”—Participant P

“People’s lives are incredibly complicated in 2018 and dual-career couples and single-parent households are more common than ever before in our society. These are societies different and our institutions and our concepts about our expectations of careers like medicine haven’t really changed with the times. I do think that it’s a dual-career couple issue is a very big piece of burnout and a very big piece of the stress and the nonsustainability that happens for many people after their five or ten years in to their careers, and they’re thinking, ‘Wow, how am I going to do this for the next 30 years?’”—Participant P

“I think you clearly realize, or at least I did as I’ve matured through emergency medicine, is that it’s all about life. Initially we used to worry about maternity leave. Now I worry about do I have enough time to make it to my mom’s chemotherapy treatments, things like that. There are life events all the way across, and through those we need to navigate as both being humans and emergency physicians and academic emergency physicians and And a lot of that
education is missed in our upbringing in medical school and residency.”—Participant B

“I cannot quantify the impact of knowing that there’s a community of women who have my back, and who I can go to with honesty, about whatever challenges I’m facing, and get honest feedback. I remember having a lunch with a [senior member], and talking about raising kids, and her warning me about what was coming as my kids entered school, and her telling me very explicitly, sign up to be a room mother, but never bake the cupcakes yourself … She’s like, that way, your kids get to see you being present, you don’t have to slave around in the kitchen, you can still go into your awesome career work, and be a terrific mom, and kind of giving me tips on how to do that. And that, I don’t know if it would’ve been possible without [the organization].”—Participant E

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<th>Advocating for family-friendly workplace policies</th>
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<td>“We can’t pretend like we have a good working environment for parents of any kind unless first me make sure that women can come back from maternity leave and have a decent physical workplace. And so, some of these things were just so obviously and such a gaping need and it felt bad to have to start there but you have to start somewhere. We’re so aware of how we’re laying down the roughest floor. I want a beautiful house with gorgeous wood paneling, but actually somebody has to lay down the cement. So I think we’re really aware that we’re doing a lot of cement pouring. Right now, I just wrote a statement for one of my non-profit organizations that was like, there shouldn’t be sexual harassment in the health care workplace. That was a fundamental principle and it was almost laughably basic. And yet, huge organizations have not committed to that basic principle. I think I’m well aware we are just pouring the cement.”—Participant D</td>
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<td>“The door is starting to creep open. What I’ve also seen is a willingness to take on those tough topics. It used to be when I first started talking about what I call Beyond the Medicine, they were quote ‘the soft skills.’ And they’re not. The tough decisions on the lactation rooms. A lactation room that is four floors up and over in OB is not possible as an emergency physician. The being in a little cubby hole where you don’t control the door is untenable for us. I think it took women, and enough women advanced in their careers to say yes, I went through that. I’m going to make sure somebody else doesn’t.”—Participant B</td>
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<td>“It was really when I was a new mom and couldn’t figure out how to make it all work together that I first felt the unfairness. That my guy friends who had new babies were able to go back to working 50 and 60 hour weeks, and I physically couldn’t.”—Participant E</td>
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<td>“We know that we have problems with pay equity, we know we have problems with promotion equity, we know we have problems with you know, kind of scheduling viability for parents of both genders, but you know, like everything else you know, what rolls downhill fastest hits women first. And so I’ve learned a lot about those across the entire house of medicine from all the women that we work with and I’m able to take a lot of those lessons to my department specifically and also support other people in their growth of their women’s groups, in their growth of their mentorship programs, in their growth of their other support programs that allow them to solve their problems in their departments.”—Participant Q</td>
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<td>“Making sure that the salaries are on an equal scale to the male salaries and the maternity policies, we’ve had a couple of female residents who have had babies during residency. So, making sure that the maternity policies are in place and fair. Opened my eyes and given me a little more resolve to make those things happen in our program.”—Participant M</td>
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<td>“Having so many women who are faculty involved with [women-focused organization] has really, really made [our chair] be forward thinking about how to embrace women in the workplace. We’ve recently created a salary equity task force, and really started to ask some tough questions surrounding how are department is run, and questions about physician’s salaries.”—Participant C</td>
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<td>“Almost every time, we find when we’ve taken something on, let’s say women just talk about lactation rooms or maternity leave. You start talking about lactation rooms, you invariably make it better for the nurses. You invariably make it for somebody else who had an accessibility problem, whatever that was.”—Participant B</td>
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<td>“I would say I’m very proud of being very staunchly pro-everybody, clearly the marginalized, and unfortunately as women, I’ve felt that marginalization. I’m going to be pretty damn sure that the people behind me have it a little easier.”—Participant B</td>
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<td>“I’ve spoken on women’s leadership panel for [a national conference] a few years ago and brought in the narrative of women of color to say, ‘Well please don’t ignore and/or forget that women within our women population, we are diverse as well. It’s not just race. It’s also sexuality, it’s also children and child rearing. It’s also aging. It’s all of the pieces of the puzzle. The gender piece is just a small piece, I think a little bit of space, when we look at how women in fill in the blank, all of the pieces that women bring can strengthen our individual as well as collective narrative.”—Participant N</td>
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<td>“And it’s the same thing for people of color in medicine and those with other differences of any kind whether it’s sexual orientation or gender identity or disability. It’s all the same issue which is that these systems systematically devalue you and then they tell you that it’s you and that you are not worthy of being here.”—Participant D</td>
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<td>“We are still putting up a lot of barriers for women of color, and poor, white women, and people of different backgrounds; transgender, people … we not fully embraced everyone yet. There, finally, is this movement to make this positive change, and so I’m actually really optimistic about what the future will bring. Not just for women in academics, but women who go into the community, and other female doctors.”—Participant C</td>
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Reduced Professional Isolation/Sense of Belonging

Nearly all participants described the sense of belonging and reduced professional isolation as both an emotional and a professional benefit associated with membership in the organization. One respondent stated, “I found my people” (Participant A). Through participation in the organization respondents described a supportive environment where they could seek peer validation over fears of “not belonging.” Most notably, many women described a paucity of support at their own institutions that had likely hindered their trajectory. Therefore, participating in the women-focused professional organization provided as sense of community that they might not have had otherwise.
I think being a woman slowed me down because there weren’t other women that I could relate to or have relationships with and there wasn’t any mentoring, there wasn’t any role model on our campus for me to kind of try and follow in the footsteps ... coming back to [the women-focused professional organization], finding women who could serve as role models and mentors was a really big help to me. (Participant L)

While engagement in specialty based professional organizations has been long regarded as necessary for career advancement and success, the impact of this organization is even more salient in its role in advancing the trajectory of women’s careers.

When I started out, I felt a bit alone in that regard in terms of how to navigate through being a woman, having children and just progressing in general even just where to go as a faculty member let alone a woman in medicine. They really became my lifeline. I learned just so much on how to negotiate, how to stand for myself, how to carry myself, how to move forward in the career ... in my career. (Participant L)

Facilitating Institutional Advancement
Members discussed formal initiatives promoted by the organization that helped career advancement and promotion: national awards, sponsorship for promotions through a letter-writing bureau, and national leadership experience.

Enhanced Opportunities for Awards and Recognition. Receiving an award or getting recognition for innovative or notable work in academic emergency medicine can not only bolster confidence and encourage a faculty member to continue in the field, but is also important for advancement and promotion within their institution. However, there continue to be gender disparities in national award winners. Women-focused professional organizations serve the role of creating opportunities for awards, and cultivating networks to facilitate nominations.

We wanted to have a space where we recognized impactful women...this way we can recognize people that would otherwise be overshadowed by or might be overlooked because of unconscious bias in the selection process of other national awards. (Participant A)

Many women are reticent to apply for such awards citing a variety of reasons, including imposter syndrome or a sense of inadequacy. As one respondent noted,

Women need to be recognized for all this wonderful work they’re doing, and they’re not always their own greatest cheerleaders. They might not step up to the plate and nominate themselves. (Participant C)

Another participant stated:

Through this ... award process, there’s a lot of means for others to nominate you. I think it’s really important when it comes to promotion, and to the others knowing your worth, that you receive these types of awards from a national organization. (Participant C)

Leadership Opportunities and Experience, Including Speaking. Women faculty have not achieved leadership roles within their institutions at the same level as men, often because of a relative lack of opportunities to acquire leadership experience (the “pipeline” problem), and not necessarily because of lack of ambition. Woman-focused organizations provide the opportunity to hold national leadership roles that they otherwise may not have had. One past president stated:

Managing all those people ... from a point of view of running a company or running an organization that is a pretty big deal. That skill set of leadership is something that you don’t have necessarily have the opportunity to get if you were not part of an organization like [this]. (Participant A)

These roles allow for enhanced networking and leadership practice.

Past leaders of the organization reported acquiring leadership positions and experiences in the women-focused national organization at an earlier stage of their career than they would have expected in a non–woman-focused national organization. Many women reported that they felt unready, unprepared, or too junior to pursue such leadership opportunities but
were encouraged, mentored, and supported by other leaders in the women-focused professional organization to pursue these opportunities.

I felt very not ready for the role initially and then, with their mentorship and guidance and encouragement, I stepped up to the presidency really not having had a national leadership role before. (Participant D)

All past presidents reported the benefit of a national leadership role specifically in the context of promotion:

I don’t know of an institution that doesn’t look at leadership for one of the criteria for promotion, particularly as you advance to a full professor leader . . . This is an opportunity for national involvement that is now available to women in academic emergency medicine that did not exist before. It’s structured. It provides the opportunities for us to tap into those speakers because we know each other. We know who has expertise. We also promote each other, so that the opportunities come to us instead of us having to seek them. (Participant G)

Another past president stated:

I was able to go up for promotion at the earliest time frame that they allowed. There was really no problem with my promotion at all. It wasn’t questioned a whole lot and I think a large part of that was because of my substantial leaderships through [the organization] demonstrated national leadership roles in various ways. (Participant L)

**Sponsorship for Promotions.** Another barrier to women’s academic promotion and leadership attainment is a lack of sponsorship, including reference letters from full and associate professor faculty, which are often required for academic promotions. Participants highlighted how the organization facilitated sponsorship and a network of more senior women to write letters of support for academic promotion:

I think the fact that we promote each other, we provide awards that people can rightfully post into their CVs really helps women to advance . . . the fact that we are able to provide letters for promotion because we know each other. We network within the group, so when you need a letter for promotion, and it’s outside your institution, where do you go? Now there’s a place to go. (Participant G)

**Organizational Initiatives Improve Systemic Inequities and Persistent Challenges**

Participants identified several ways in which women-focused professional organizations were able to develop formal and informal initiatives to target systemic gender-based inequities, by promoting awareness of inequities and advocating for policies supporting organizational change. While the organization has enabled progress in some domains, participants noted persistent challenges for the organization to target in future efforts.

**Facilitating Data and Research to Drive Change.** The first step in problem-solving is often defining the problem; thus, with respect to gender equity, women-focused professional organizations can serve as a platform for creating and disseminating research and data to reduce disparities and improve equity:

We’ve started [getting more data so that we can create better policies] . . . I think continuing to really try to get data . . . that will help us advance. (Participant I)

Another participant described the results of scholarship driven by the women-focused professional organization to advance evidence-based research in clinically relevant topics.

[It] has led to some significant scholarship [in unconscious bias] that . . . has helped move the needle in our specialty.” (Participant P)

The organization

. . . used the . . . forum to recruit, to [create] awareness, we put a series of didactics, a series of lectures, manuscripts, both to inform and then to study. (Participant R)

**Enhancing Negotiating Skills.** Gender differences in negotiation have been cited as one explanation for pay and promotion inequity. Women have been described as “poor negotiators” who don’t
achieve parity because they “don’t ask for it.”16,17 Interview participants described formal and informal initiatives designed to improve members’ negotiation skills. Participant A stated,

Because of the didactics that this [women-focused professional organization] has done at [national conferences] and negotiation didactics and talking to women that are chairs that are willing to share their secrets—whenever I go in to talk to my chair or any boss ... I go in with data. I learned that because of [this organization].

Navigating Bias and Harassment. Participants described how the organization allowed them to recognize situations when their gender bias may have adversely impacted their careers and provided formal and informal guidance on how to navigate these situations. One participant stated:

It was sitting on a committee when my values weren’t recognized, and somebody else stole them, and claimed them as their own. Many of us have had that experience. All of a sudden I realized, this is real, and who do I reach out to? (Participant G)

Participants described feeling empowered and able to self-advocate through circumstances of bias because of their interactions with other women in the group.

My gender was affecting my ability to do my work and be compensated fairly for it. That was when [this group] took me under their wings and really opened my eyes to some of the other things that I have sort of brushed off as not being a big deal. (Participant F)

Navigating Competing Work–Life Competing Demands. Balancing professional and nonprofessional duties can be more challenging for women practicing emergency medicine, particularly those aspiring to advance in academia. Women-focused professional organizations provide a supportive network of women and mentors facing similar challenges at different stages of their career. Several participants emphasized the positive

... impact of knowing that there’s a community of women who have my back, and who I can go to with honesty, about whatever challenges I’m facing and get honest feedback ... [I] started to learn from the women ahead of me how they’ve managed their career, some of them took me under their wing, which was wonderful. (Participant E)

One participant also spoke to how the organization acted as a constant in her career path. This allowed her to move fluidly in and out of varying roles, depending on her particular work–life demands at different times:

That constant ability to step out and step back in as life ebbs and flows with you has been important for moving my career forward. (Participant B)

Advocating for Family-friendly Workplace Policies. More attention to culture and the working environment are needed to achieve full parity for women in academic medicine, but the presence of these policies alone is likely insufficient to provide the desired family-friendly workplace since they do not address stereotype threat and implicit bias.18,19 Multiple women discussed the organization as a platform to advocate for basic changes to accommodate life phases, including parenthood:

We can’t pretend like we have a good working environment for parents of any kind unless first we make sure that women can come back from maternity leave and have a decent physical workplace. (Participant D)

The organization is committed to taking on issues that impact the recruitment and retention of women in EM and developing innovative solutions and best practices to address these issues.5

The door is starting to creep open ... I think it took women, and enough women advanced in their careers to say yes, I went through that. I’m going to make sure somebody else doesn’t. (Participant B)

As the number of women in EM and this organization continues to grow, there will be greater power in that collective voice.

Advocating for Institutional Policies Supporting Equity. Participants described how
concepts from the organization were translated into initiatives supporting gender equity within their own departments. One participant stated she felt more empowered to help

... make sure that the salaries are on an equal scale to the male salaries and the maternity policies, we’ve had a couple of female residents who have had babies during residency ... [My involvement] opened my eyes and given me a little more resolve to make those things happen in our program. (Participant M)

Another woman stated:

Having so many women who are faculty involved with [this women-focused professional organization] has really made [our chair] be forward thinking about how to embrace women in the workplace. We’ve recently created a salary equity task force, and started to ask some tough questions surrounding how our department is run, and questions about physicians’ salaries. (Participant C)

Promoting Equity and Inclusion of Other Underrepresented Groups. The women-focused professional organization has provided a framework for other groups to promote diversity and inclusion in emergency medicine. Initiatives designed to support women can be translated or replicated to support other underrepresented minorities or members of the LGBT community:

In looking at [the women-focused organization’s] foundation and the people who started it, I was very enamored by the intent, the excellence the focus and the ability for [it] to serve as a foundational place for other academies to come. (Participant N)

As the organization has effectively fostered a community of support and empowerment for women, study participants noted that the organization could expand their role to promote better inclusion of women from differing backgrounds.

In the next 10 years, [this organization] will have to continue to expand its focus on diversity and inclusion, and intersectionality in every way, and I think that’s a really important thing for the organization to do going forward. We’ve been good, but we can be better, we all can be better in recognizing all the ways in which we have implicit biases. (Participant E)

DISCUSSION

Our qualitative study of members of a woman-focused professional organization demonstrates several impactful and tangible benefits across multiple domains, including facilitating academic advancement, mentorship and sponsorship, peer support and collaborations, reduced professional isolation, and initiatives to address systemic gender inequities and challenges. To our knowledge, this is one of the first scientific studies to describe the impact of women-focused professional organizations in medicine and underscores both the achievements to date—and future potential—for such organizations to improve gender equity in medicine.

A recurring theme was the organization’s direct impact on members’ career advancement and promotion, by creating opportunities (for leadership, awards, collaborations, etc.) and cultivating networks of peers, mentors, and sponsors to ensure that women would feel empowered to succeed when undertaking those opportunities.

In particular, multiple participants described leadership experiences, awards, and promotions they either would not have achieved or would have achieved later in their career, if not for the opportunities and relationships cultivated in the women-focused professional organization. In many instances, participants were nominated by more senior members, consistent with traditional descriptions of “sponsorship”; however, in multiple other instances, participants described the critical role of peer encouragement, both in identifying opportunities suited to a participant’s expertise and in affirming the participants’ self-confidence. The importance of nomination from peers, mentors, and sponsors is consistent with prior literature documenting the lower likelihood of women to nominate themselves for leadership and promotions. Self-nomination has previously been described as a predictor of rapid career advancement and award achievement; thus, women’s lower propensity to self-nominate can be one barrier to gender equity in leadership attainment. Nomination stemming from networks cultivated in women-focused professional organizations helps overcome the limitations of self-nomination, through sponsors and
peer nominators, in addition laying the foundation for women to acquire confidence to self-nominate in the future.

Our findings extend upon prior literature demonstrating enhanced academic productivity as a result of peer mentorship groups in academic medicine. The organization studied differs from these programs because it includes women of varying stages in their careers, who can serve as peers, mentors, mentees, and sponsors. The wide range in career attainment facilitates informal and formal scholarly collaborations and programs to identify reference letter writers for promotion. Formal programs for references are not only critical to increase the proportion of women who are promoted, but also acknowledge and attempt to alleviate (or at least evenly distribute) the work requested from the handful of available senior women sponsors.

Participants also described the role of women-focused professional organizations in advancing the science of gender equity: by facilitating collaborations for scholarly work; aggregating and prioritizing persistent inequities and best practices; and providing an organizational structure for the development, data collection, analysis, and dissemination of scholarly work products highlighting gender equity and best practices. These work products serve the dual purpose of advocating for improved equity and augmenting scholarly productivity for participants’ advancement and promotion.

Every participant reinforced that the organization was critical in developing peer and mentor networks that provided a sense of belonging. Reducing professional isolation has been previously identified as a key facilitator of faculty retention among women in academia. Emergency medicine, especially the upper ranks of academic emergency medicine, continues to be majority male; thus, women-focused professional organizations can provide a support network for women with few institutional peers—particularly at a similar rank or within a specific area of academic expertise. Participants repeatedly emphasized the importance of general affirmations (“you’re not alone”) in addition to specific examples, such as informally shared time management tips for working mothers, and an outlet to share frustrations about inadequate lactation facilities or ways to navigate gender bias and harassment. Professional organizations provide recognition, education, a place for advocacy but more so a “professional home” with support systems that mitigated professional isolation and a reaffirmation of their sense of belonging and worth that provided the confidence to succeed and an outlet for peer guidance.

Finally, the informal and formal benefits of membership in a women-focused professional organization can serve as a model to promote equity and inclusion of other underrepresented groups in medicine. The need to promote a sense of belonging and provide networks for mentorship, collaboration, and promotion are not unique to women and can be translated to best practices to create a broadly inclusive workforce in medicine and academia. Participants’ comments on the need for women-focused professional organizations to align their efforts with other professional organizations for underrepresented groups in medicine, in addition to providing more support for women of diverse backgrounds and family structures, with a particular focus on women from underrepresented groups in medicine.

Our study was limited by the potential for selection bias—for example, past leaders of the organization may be positive deviants and more likely to report benefits to membership; however, we also sampled members of diverse backgrounds and career experiences. Our study is limited to members of a woman-focused professional networking organization intended for academic emergency physicians; thus, our findings may be less generalizable to other professions, specialties, or nonacademic settings. While we employed a rigorous qualitative approach, further quantitative study is needed to examine the impact of women-focused professional organizations on leadership attainment and salary equity.

CONCLUSIONS

Engagement in women-focused professional networking organizations produces tangible benefits across multiple domains critical to the retention and advancement of women physicians—most notably through opportunities and sponsorship to pursue leadership experiences that facilitate promotion, advocating for gender equity through scholarly productivity, and developing a “professional home” to cultivate a sense of belonging. These positive impacts of women-focused professional organizations are an important foundation for sustained efforts to improve equity in compensation and leadership attainment for women and other underrepresented groups in academia and medicine.
References


Supporting Information

The following supporting information is available in the online version of this paper available at http://onlinelibrary.wiley.com/doi/10.1111/acem.13699/full

Data Supplement S1. Interview Guide.
The Birth of a Return to Work Policy for New Resident Parents in Emergency Medicine

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ABSTRACT

Objective: With the rising number of female physicians, there will be more children than ever born in residency, and the current system is inadequate to handle this increase in new resident parents. Residency is stressful and rigorous in isolation, let alone when pregnant or with a new child. Policies that ease these stressful transitions are generally either insufficient or do not exist. Therefore, we created a comprehensive return-to-work policy for resident parents and piloted its implementation. Our policy aims to: 1) establish a clear, shared understanding of the regulatory and training requirements as they pertain to parental leave; 2) facilitate a smooth transition for new parents returning to work; and 3) summarize the local and institutional resources available for both males and females during residency training.

Method: In Fall 2017, a task force was convened to draft a return-to-work policy for new resident parents. The task force included nine key stakeholders (i.e., residents, faculty, and administration) at our institution and was made up of three graduate medical education (GME) program directors, a vice chair of education, a designated institutional official (DIO), a chief resident, and three members of our academic department’s faculty affairs committee. The task force was selected because of individual expertise in gender equity issues, mentorship of resident parents, GME, and departmental administration.

Results: After development, the policy was piloted from November 2017 to June 2018. Our pilot implementation period included seven new resident parents. All of these residents received schedules that met the return-to-work scheduling terms of our return-to-work policy including no overnight shifts, no sick call, and no more than three shifts in a row. Of equal importance, throughout our pilot, the emergency department schedules at all of our clinical sites remained fully staffed and our sick call pool was unaffected.

Conclusion: Our return-to-work policy for new resident parents provides a comprehensive guide to training requirements and family leave policies, an overview of available resources, and a scheduling framework that makes for a smooth transition back to clinical duties.

Medical training is long and rigorous and usually occurs during expected childbearing and childrearing years. In the United States, the average medical school graduate is 28 years old and the average age at which a female has her first child is 26.6 years old, suggesting an increased likelihood that trainees will become pregnant and/or give birth during medical school or residency.1,2 In a recent survey across three training sites, 40% of respondents planned to have children during their medical training.3 With the rising number of females choosing medicine for their profession, combined with recent data showing more females than
With these barriers, it is not surprising physically, emotionally, but importantly, parental status has been to complicate the issue of "mandate has forced many female Length for newborn care as they ease recovery, advocated although acknowledg-

"Lewin THE BIRTH OF A RETURN-TO-WORK POLICY FOR NEW RESIDENT PARENTS IN EM Gordon et al. • The return-to-work policy was developed within our current medical education system needs to adjust to remain successful with these changing demographics. Without substantive reform of existing new parent return-to-work policies, or in some cases the development of such work policies, we lack the ability to accommodate the increase in resident parents and, thus, run the risk of forcing our trainees to choose between having a family and starting a career in medicine.

Barriers to childbearing and early childrearing during residency are multifactorial and include a variety of administrative, logistical, regulatory, and political challenges. Reported barriers include inadequate parental leave policies, lack of perceived institutional support for new parents, inflexibility of scheduling upon return to work, limited access to scheduled and emergency childcare, and lack of adequate lactation support for working mothers. With these barriers, it is not surprising that resident physicians report decreased career satisfaction after childbirth, especially in procedural specialties, which are more likely to have shortened maternity leaves. But importantly, parental status has been shown to have no effect on board pass rates, procedural numbers, manuscripts published, or likelihood to pursue an academic career; this suggests that parents in medical training have bright academic futures ahead, despite the increased complexities of childrearing.

Parental leaves are essential—physically, emotionally, and logistically—for newborn care as they ease recovery, promote bonding, and result in greater parental well-being. Research has demonstrated that when mothers are provided 12 weeks of maternity leave, as outlined in the Family and Medical Leave Act (FMLA), there is a decrease in infant mortality, there are fewer premature births, and there are increases in infant weight. Length of maternity leave has also been shown to correlate with increased duration of breastfeeding. In 2003, Lewin called for a reform of parental and family leave policies for house staff; however, his thoughtful recommendations for a resident-specific family leave policy have not been widely adopted. More recently, Sklar advocated for support of residents with new children who may find a return to full-time clinical schedules untenable. Given the awareness and data supporting the benefits of family leave time, we have a responsibility to improve the parental leave policies for our trainees.

In 2018, the Accreditation Council for Graduate Medical Education (ACGME) edited the Common Program Requirements for Residency to include parental leave, as follows: "There are circumstances in which residents may be unable to attend work, including but not limited to fatigue, illness, family emergencies, and parental leave. Each program must allow an appropriate length of absence for residents unable to perform their patient care responsibilities." Although acknowledging the need for parental leave, this requirement lacks details and recommendations regarding the length, context, or any guidelines to operationalize parental leave during residency given its regulatory and scheduling complexities. Similarly, the American College of Emergency Physicians endorses written family leave policies for all emergency medicine residency programs, but does not offer specific guidelines to define the scope or adequacy of such leaves. To complicate the issue of parental leave further, the American Board of Emergency Medicine (ABEM) mandates that residents complete at least 46 weeks of full-time training per year of residency, inclusive of vacation, sick time, leaves of absence, etc. This mandate has forced many female physicians to shorten their maternity leaves to finish training according to schedule.

Given the significant barriers to changing parental leave policies and challenging working conditions for new parents, we developed and piloted a comprehensive antepartum and return-to-work policy for the clinical scheduling of residents in the Stanford/Kaiser Emergency Medicine residency program. In anticipation of both programmatic and resident needs, our policy, which will be described further throughout this paper, aims to: 1) establish a clear, shared understanding of the regulatory and training requirements that pertain to parental leave; 2) facilitate a smooth transition for new parents returning back to work; and 3) summarize the local and institutional resources available for both males and females during residency training.

**APPROACH**

**Development of Return-to-work Policy for New Resident Parents**

**Context.** The return-to-work policy was developed at the Stanford/Kaiser Emergency Medicine Residency Program, which is cosponsored by Stanford Health Care and Kaiser Permanente. Our major teaching sites are Stanford Hospital (Palo Alto, CA), a tertiary academic referral center and Level I trauma center; Kaiser Permanente Medical Center (Santa Clara, CA), a major suburban teaching hospital; and Santa Clara Valley Medical Center, our county hospital and Level I trauma center in San Jose. Our combined annual
emergency department (ED) census is over 250,000 patients.

Resident Stakeholders. Our residency program, established in 1991, was a 3-year residency program that accepted 15 residents each year. In 2017, our program transitioned from a 3-year residency to a 4-year residency. Thus, our policy was developed and piloted with a group of 45 residents at three hospital sites. These residency attributes during the time of our pilot are common for ACGME-accredited emergency medicine residency programs. We will not have a full complement of 60 residents until July 2019.

Policy Development. Historically, parental leaves were crafted on a case-by-case basis, which left uncertainty, guilt, and vulnerability on the part of the resident parent, combined with inconsistent messaging about available institutional resources and supports. Therefore, in Fall 2017, a task force was convened to draft a return-to-work policy for new resident parents. We sought input from key stakeholders (i.e., residents, faculty, and administration) at our institution and teaching sites. These individuals had special interest or experience with gender equity issues, mentorship of resident parents, graduate medical education (GME), or department administration. There were nine task force members, which consisted of three GME program directors, a vice chair of education, a designated institutional official (DIO), a chief resident, and three members of our academic department’s faculty affairs committee. The gender breakdown was 86% females and 14% males. All members of the task force are parents and all but one are physicians; the DIO is a nonphysician with extensive medical education experience.

An existing parental leave policy for faculty in the Stanford University Department of Emergency Medicine was used as a guide for the development of a resident-specific policy. The task force agreed that a resident-specific policy would be most impactful if it focused on the following areas: 1) return-to-work scheduling, 2) identification of resources to support new resident parents, and 3) a checklist of key steps to guide expectant parents. The task force also believed the policy should apply to both male and female residents any time a new child is added to the family, inclusive of child birth, surrogacy, adoption, and foster parenting.

The initial policy was drafted through an iterative writing process with this study’s authorship team. The draft was then reviewed by the DIO for compliance with local GME policies and state laws regarding family leave. The DIO offered additional edits and content that made the policy more relevant and inclusive, addressing common challenges such as insurance coverage, regulations for family leaves, and procedures to extend training if needed. A final draft was circulated once more to task force members for review and copy-editing. The policy was then reviewed and approved by our residency program director, the vice chair of education, and the emergency medicine interim department chair.

Description of Return-to-work Policy for New Resident Parents

Our policy consists of eight sections: 1) philosophy, 2) scope, 3) parental leave policy, 4) return-to-work clinical scheduling guidelines, 5) breastfeeding, 6) child care, 7) expectant parent checklist, and 8) resources. Each section was designed to address important considerations when becoming a new resident parent in emergency medicine. The following is a brief summary of the eight sections of our policy; the complete return-to-work policy for new resident parents is included as Data Supplement S1 (available as supporting information in the online version of this paper, which is available at http://onlinelibrary.wiley.com/doi/10.1111/acem.13684/full).

In philosophy and scope, the purpose of the policy is stated—to “respect residents who are parents in a deeply personal manner, thereby promoting well-being, engagement, learning, and retention.” Some of the limitations and boundaries of the policy, such as scheduling requirements, are outlined in this section. The parental leave section incorporates key information from Stanford GME’s leave policy, California’s Family Rights Act, and ABEM’s minimum annual training length requirements. Website links are also provided for full policies, as well as related forms that residents must complete to apply for family leave.

The return-to-work clinical scheduling guidelines is a resource-intensive section. Given that our goal is to provide a family-centered clinical schedule during the transition back to work, we recommend that residents notify the program director, GME office, and chief residents of their pregnancy by 3 months, or as early as circumstances allow, to ensure our ability to make necessary schedule changes in advance of the requested leave. As part of the policy, expectant birth mothers are exempt from our sick call coverage pool for 4
weeks antepartum and all parents are exempt 6 weeks from their scheduled return-to-work date. We strive to provide a predictable clinical schedule that makes childcare planning easier and suggest that residents avoid any last-minute schedule changes. The policy limits new resident parents to blocks of 3 consecutive days of clinical work for 4 weeks antepartum for expectant birth mothers and upon return to work for 6 weeks for all parents. New parents are not required to work any overnight shifts, in an attempt to limit time away from a newborn and to protect against fatigue and sleep deprivation. This timeline is again, 4 weeks antepartum for expectant birth mothers and for 6 weeks upon return to work for all parents. Residents may opt out of any of these schedule guidelines, if for example, working nights or longer stretches of shifts is better for his/her personal circumstances. Antepartum scheduling also protects expectant mothers from the physical demands of working in the ED late in their pregnancies. A summary of our schedule guidelines are excerpted as Table 1.

The breastfeeding section outlines the designated spaces in the hospital for lactation and storage. Federal policy mandates time and space for lactation and ACGME Common Program Requirements state that a program must provide, “clean and private facilities for lactation that have refrigeration capabilities, with proximity appropriate for safe patient care.” In our policy, it is stated that residents may take a 30-minute break every 4 hours for lactation.

The childcare section provides suggestions for finding regular childcare and referrals for services that have been used successfully by our staff. It also explains the existing Stanford family benefits available to residents. For example, our institution has an emergency/back-up childcare program, a temporary service that will find care for children either in the resident’s home or at a local daycare. The policy also links to an existing asynchronous didactic conference credit policy that provides 12 hours of conference attendance credit to allow for activities such as pediatrician visits, lactation consultants, and interviewing potential childcare providers. Finally, our policy explicitly states that our department allows children at all events, including didactic conferences, but we kindly request that children not be disruptive to other attendees and that parents consider the content of the presentations to ensure it is appropriate for young children.

The final two sections of the policy include an expectant parent checklist (see Figure 1) and additional resources. The checklist outlines the steps necessary to utilize our policy and successfully navigate the administrative challenges associated with being a new resident parent. Some checklist items reflect the necessary communication that must happen with our GME office and program leadership; others are more general reminders, such as finding a pediatrician and adding the new child to an existing health insurance policy. The final portion of the policy contains a repository of pertinent local resources that will be edited and updated annually by our incoming chief residents.

Our return-to-work policy for new resident parents was developed based on the policies of Stanford and California State Law. We encourage others interested in developing their own local policies to become familiar with local institutional policies, as well as any state or federal laws that might apply.

**Table 1**

<table>
<thead>
<tr>
<th>Return-to-work Clinical Scheduling Guidelines</th>
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<tbody>
<tr>
<td><strong>ED Clinical Shift Scheduling:</strong> The following accommodations will be dependent on availability of staff and scheduling feasibility. We may not be able to honor this policy if several residents are on leave at once. When able, new parents will be scheduled as follows:</td>
</tr>
<tr>
<td>• No jeopardy (sick call)</td>
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<tr>
<td>o Antepartum (expectant birth mothers): 4 weeks before due date</td>
</tr>
<tr>
<td>o Postpartum: 6 weeks for all parents from their return-to-work date</td>
</tr>
<tr>
<td>• No overnight shifts (unless requested by the resident):</td>
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<tr>
<td>o Antepartum (expectant birth mothers): 4 weeks before due date</td>
</tr>
<tr>
<td>o Postpartum: 6 weeks for all parents from their return-to-work date</td>
</tr>
<tr>
<td>• No more than three scheduled shifts in a row (unless requested by the resident):</td>
</tr>
<tr>
<td>o Antepartum (expectant birth mothers): 4 weeks</td>
</tr>
<tr>
<td>o Postpartum: 6 weeks for all parents from their return-to-work date</td>
</tr>
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**FINDINGS FROM PILOT IMPLEMENTATION**

**Pilot Implementation of Return-to-work Policy for New Resident Parents**

We piloted the newly developed return-to-work policy for new resident parents from November 2017 to June 2018. During this time, we had 46 active residents in our program; of these residents, 16 (35%) were female. Throughout our pilot implementation, we had seven expectant resident parents utilize the policy. According to postgraduate year (PGY) the seven new resident parents included two male PGY1s, one male PGY2, one female PGY2, one male PGY3, and two female PGY3s. No eligible residents chose to opt out of the pilot implementation.
Unexpected preterm labors and births were experienced by our resident parents during the pilot testing of this policy. Despite our best efforts to plan for complicated pregnancies, early labors and extended medical leaves led to more clinical schedule challenges than we expected. For example, a female resident and the wife of a male resident were both admitted in preterm labor for significant and differing amounts of time before delivering. This latency between labor and delivery, especially for the expectant resident father, greatly impacted return-to-work scheduling; in his case, a 1-week paternity leave (the usual institutional standard) started with the onset of premature labor, but the child was not born until after the leave had ended. In the case of the expectant resident mother, we had rearranged clinical rotation schedules and sick call assignments with her anticipated leave in mind; then she was admitted for preterm labor and ultimately delivered ahead of her optimized schedule. Both of these cases required adjustments to the planned postpartum clinical schedules, and each serves to remind residency leaders to be as flexible as possible when creating similar return-to-work policies. In the case of the male resident, scheduling creativity with use of vacations and elective time allowed him to take leave when his baby was born and to graduate “on cycle.” However, the female resident who went into preterm labor ultimately took an extended leave and will graduate “off cycle.” It is important to note that in both of these cases the residents still received the scheduling accommodations of this policy upon return to work.

Particularly in medically or socially complex cases, residents are encouraged to take longer leaves that necessitate graduating off cycle. It is worth noting that

**Figure 1. Expectant parent checklist.**

- Ensure that your choice for obstetric care is covered under your health insurance policy.
- Meet with the program director preferably at 12 weeks gestation, but no later than 20 weeks, to review our parental leave policy and plan for your return to work clinical schedule.
- Meet with the chief residents preferably at 12 weeks gestation, but no later than 20 weeks, to review our parental leave policy and plan for your return to work clinical schedule.
- Inform the GME office of pregnancy by email. It is imperative that the GME office is updated with all changes in work status. (insert GME contact person’s email)
- Ensure that you are eligible for paid parental leave by reviewing your GME policy. Family Medical Leave Act (FMLA) requires that one “must have been employed with the company for 12 months. The employee must have worked at least 1,250 hours during the 12 months prior to the start of FMLA leave.” (https://www.dol.gov/whd/fmla/) Please note all residents will be eligible for our department-specific policies.
  - (insert GME specific eligibility requirements and link to policy)
  - Meet with the GME office to complete Leave of Absence forms.
  - Add your new child to your benefits policy through the human resources office within 1 month of birth or adoption, considered a Major Life Event for insurance purposes (Insert link to HR benefits)
  - Speak with your faculty mentors.
  - Plan for childcare. (If emergency backup care is a benefit, suggest enrollment and link to registration)
  - Register for daycare, as needed. (Insert site specific childcare options)
  - Select a pediatrician.
  - (Insert here if GME requires a doctor's note if one wishes to return before a certain date, “x weeks” for vaginal delivery, “x weeks” for c-section)
this option is often unpopular among residents for a myriad of reasons. Those planning to enter fellowships may not have the ability to extend residency and still matriculate directly into an advanced training program, but are encouraged to speak with their program directors to discuss a modified start date. Board eligibility is generally not affected, as these extensions are typically only a few weeks in length. Furthermore, associated with these preterm labors is a preterm newborn often requiring a prolonged neonatal intensive care unit stay. These stays are often fraught with even more parental stress and can affect duration of leaves, necessitate more frequent milk expression, and require parental visitation during specific hours of the day.

During our pilot implementation phase, all seven residents ultimately received schedules that met the clinical scheduling terms of our return-to-work policy. Of equal importance, throughout our pilot, the ED schedules at all of our clinical sites remained fully staffed and our sick call pool was unaffected. Our sick call schedule is created annually for the entire academic year. The residents in this pilot each notified residency leadership with ample time to adjust the call schedule such that no resident had to accept extra sick call to cover for the new parents. New parents covered sick call at other times in the year. The return-to-work guidelines in our policy remove a new parent from overnight coverage for 6 weeks. We have enough residents in our program that the burden of these extra night shifts can be broadly distributed and minimally disruptive. This might be challenging for smaller residency programs. Periodic faculty or resident moonlighters may be a creative solution to implementing this aspect of the policy. According to these criteria, we considered this to be a successful pilot. As we are transitioning from a 3-year residency program to a 4-year residency program, we anticipate an increase in the number of potential new resident parents who will be guided by our policy in future years.

**DISCUSSION**

Our policy supports resident physicians as they develop two transformative and lifelong identities: physician and parent. We believe that physicians-in-training must receive guidance, access to institutional resources, and thoughtful return-to-work schedules to best manage the competing demands of medical training, healthy work–life integration, and parenthood. The comprehensive policy that resulted from our yearlong task force and pilot testing may serve as a template for other institutions that seek to create feasible and high-impact family leave policies for residents.

**Benefits of a New Resident Parent Policy**

The development of this policy brought together a diverse group of individuals to discuss a resolution to an increasing challenge in our medical system. Through this process, we developed a deep, shared understanding of what was needed and how new resident parents can be supported. Focus, energy, and good health are required to become a competent emergency physician while managing the demands of a new child, irrespective of gender. Worth noting, our pilot of this policy initially treated male and female new resident parents differently by distinguishing between birthing parents and nonbirthing parents because of the physical and emotional burden of childbirth. However, given the aim of being inclusive in our policy development, combined with lessons learned from piloting this policy, we realized that becoming a new parent is emotionally and physically stressful for both mothers and fathers; thus, each new resident parent deserves equal protected time, which our final policy has since been modified to reflect. Finally, our policy ensures that resident parents are informed about potentially helpful employee benefits such as emergency childcare services for last-minute coverage of unexpected illness in children and caregivers when the resident is scheduled for work.

**Challenges of a New Resident Parent Policy**

The challenge of adapting a faculty policy for residents lay largely with scheduling and training requirements. Implementation of the return-to-work clinical scheduling portion of this policy can be challenging in certain circumstances. PGY1 residents often have rigid clinical schedules with numerous rotations outside the ED, thus making it more difficult to mandate schedule accommodations for these residents on other services. Our clinical scheduling policies apply only to ED clinical schedules, although we attempt to rearrange the order of clinical rotations to limit time on other services immediately after birth. For this reason, we request that expectant parents notify our residency leadership and chief residents as early in pregnancy as possible. Expectant parents are often hesitant to inform employers until the latter half of pregnancy, but this is often too late to make substantive changes to the order of clinical rotations in...
residency. We expect that residents will feel more comfortable notifying our leadership early in their pregnancies because of the anticipated positive benefits of this policy.

Specific Application and Relevance to Emergency Medicine
There exist factors unique to training in the ED that both necessitate a policy like ours and allow for its flexibility. For example, unique to emergency medicine is 24/7 attending supervision that mitigates the concern that patients will not be cared for when a trainee is on a designated lactation break. Shift work also allows for scheduling flexibility; residents can still obtain the appropriate number of procedures and shifts necessary for their training, while working only at certain times of day. However, it is also this type of shift work that necessitates such a policy. Emergency medicine is consistently listed as having the highest rate of burnout. Changing shifts every few days may impact circadian rhythm, causing emotional and physical fatigue. There is no margin for medical error due to fatigue, which makes the stakes and consequences of clinical decisions very high; new parents will experience fatigue from newborn care a priori, so efforts must be made not to exacerbate physical stressors. Furthermore, the characterization of work in the ED is unpredictable with the inability to anticipate patient flow and acuity. These factors alone make it difficult to take breaks to eat or step out for a personal phone call, let alone scheduling time for a new parent to pump. Finally, arranging last-minute childcare solutions can be daunting for anyone, but for emergency physicians, where every work absence needs to be covered by a colleague, the culture is such that one does not typically call in sick.

Breastfeeding
We included support for lactation while at work for several important reasons. The benefits of breastfeeding for mother and child are well established, such as a reduction in serious upper respiratory infections by 63% in infants who breastfed for 6 months, a 36% reduction in SIDS (sudden infant death syndrome), reductions in childhood lymphoma and leukemia correlated with duration of breastfeeding, and even improved neurodevelopmental outcomes. Our policy is also intended to protect against dwindling milk supply in breastfeeding mothers by creating adequate opportunities for lactation. However, in a 2018 JAMA research letter, less than one-third of physicians report adequacy of breastfeeding according to their personal goal. Physicians experience several common barriers to breastfeeding, including lack of break time, lack of appropriate places to express breast milk, unpredictable clinical schedules, short maternity leaves, and long working hours. Trainees and faculty members have similar barriers, although being a trainee was associated with a larger number of reported barriers. Our policy seeks to break down the barriers to breastfeeding, by acknowledging the time required, changing the culture, and providing adequate support and resources.

Legal Implications
In creating this policy, we developed a better understanding the complex legal requirements surrounding parental leaves. For example, under the umbrella of employment law, there might be potential for gender discrimination claims. For this reason, among others, we tackled return to work in our policy as opposed to parental leave and will continue to revise and revisit the details of our policy throughout implementation. It is also important to note that our policy does not negate or replace any benefit(s) that exist and are mandated by law; rather, our return-to-work policy is intended to acknowledge the unique circumstances of emergency medicine and supplement the law around existing parental benefits. Furthermore, taking advantage of this policy does not exempt residents from any ACGME, program, or graduation requirements. Finally, implementing a policy such as ours speaks to the positive culture that exists at our institution and may encourage residents with other issues, not specifically related to childbirth, to approach and seek help from leadership for personal situations that warrant an accommodation.

What If Multiple Residents Become New Parents at the Same Time?
Each individual resident schedule during our pilot had unique features that allowed all expectant residents to benefit from our policy, even when several were on
leave at the same time. However, we must plan for times when our policy is stretched beyond the capacity of our resident complement. During those circumstances, we plan to implement a modified version of the return-to-work scheduling guidelines based on resident staff availability. Programs that are smaller in size might consider this modified version as well. An example of our policy modifications is summarized in Table 2.

### Lessons Learned From Our Pilot Implementation

Two preterm labors in our pilot implementation highlighted our limited antepartum work restrictions, currently scheduled only for weeks 36 to 40. Our antepartum restriction is calculated as 4 weeks before the scheduled due date and therefore misses preterm births that are medically complicated. It has been speculated for some time that there is an association between the rigorous and stressful working conditions of medical training and preterm birth. In 1990, Klebanoff et al.\(^34\) suggested that residents had no worse outcomes than patients of equivalent socioeconomic status. However, in the same study residents were twice as likely to develop preeclampsia and preterm labor and had higher rates of miscarriage and elective termination than the control group. Later studies went on to confirm that residents have higher rates of preterm labor, hypertensive disorders, intrauterine growth restriction, placental abruption, and miscarriages than the general population.\(^35\,36\) Given these findings, it has been suggested that expectant residents be treated as their own high-risk maternal cohort.\(^37\) We will give special consideration to the antepartum period upon future iterations of our policy. Potential additions include extending antepartum protection to 30 weeks if staffing allows or tailoring antepartum accommodations on an ad hoc basis with special consideration of those pregnancies at high risk of complications.

The cultural impact of this policy is of great interest to our team. Anecdotally, our program has viewed this new policy as a source of great pride. Further research will be needed to understand the long-term impact on our staff.

### CONCLUSION

Our return-to-work policy for new resident parents provides a comprehensive guide to training requirements and family leave policies, an overview of available resources, and a scheduling framework that makes for a smooth transition back to clinical duties. The clinical scheduling portion of the policy proved to be feasible during pilot testing, despite unanticipated preterm labors and births among the residents during the pilot period. We expect that more babies will be born to resident physicians than in previous decades, and thus, systems-level solutions are necessary to facilitate a smooth return to work for these trainees. We have a responsibility to ensure that medical trainees receive guidance, access to institutional resources, and thoughtful return-to-work schedules to best manage the competing demands of medical training and parenthood. The comprehensive policy that resulted from our yearlong task force can serve as starting point for other institutions to create feasible and high-impact family leave policies for residents based on local conditions and circumstances.

The authors thank Christopher Stave, MLS, Graduate/Clinical Education Librarian, Lane Medical Library, Stanford Medicine, Stanford, CA.

## References


Supporting Information

The following supporting information is available in the online version of this paper available at http://onlinelibrary.wiley.com/doi/10.1111/acem.13684/full

Data Supplement S1: Stanford Emergency Medicine Return to Work Policy
In academic emergency medicine, female gender has been associated with fewer scholarly opportunities, fewer awards, and lower salaries. First authorship of original research helps to determine rank and salary in academic medicine. Current data suggest a general underrepresentation of female first authors in medical literature from multiple specialties. Women are less likely to be listed as first author in the case of co-first authorship in high-impact medical journals. Men outnumber women at all tiers of peer review, ranging from reviewers to editors. With this background in mind, we sought to compare responses of male and female first authors regarding their perceptions of the factors that helped or hindered their first author status in emergency medicine.

The distribution of authorship by gender in emergency care–specific peer-reviewed publications has not been examined recently. In a 2005 assessment of major emergency medical journals the percentage of female authorship (25%) mirrored the percent of academic female faculty (26%). However, no study has examined the characteristics of female first authors or their perceptions of important factors in achieving first author status. Accordingly, we undertook a survey of all first authors in Academic Emergency Medicine over the past 5 years.

This was an exploratory survey designed primarily to be hypothesis-generating and to identify potential gender-based differences in responses to questions pertaining to mentoring, institutional or departmental policies, personal characteristics, and domestic responsibilities. This protocol was reviewed and deemed exempted by the institutional review board of Indiana University School of Medicine on June 13, 2018 (protocol number 1803567471).

A 38-item Web link survey was designed to identify factors believed to be important to the achievement of first author status. Survey items were constructed by a panel of three women and one man, representing trainee to full professor rank. We anticipated that all respondents spoke English and had college-level reading comprehension. We used published guidelines to design questions for comprehension, content validity, and directness. Questions were designed to provide both multiple-choice and Likert-scale responses. We piloted all items in full survey format to 12 academic emergency physicians equally divided by gender for feedback. The survey was administered using REDcap (Research Electronic Data Capture) and was sent by e-mail in two rounds to all subjects who met inclusion criteria.

The subject group was composed of all first authors who published an original investigation in Academic Emergency Medicine between June 2013 and June 2018. One author (SNR) recorded names and e-mail addresses for all subjects listed on each article. We determined a priori that all undeliverable and missing e-mails would follow a search and recovery procedure.
to attempt contact prior to exclusion. Subjects received up to three e-mails requesting their voluntary participation. Aside from demographics and priority ranking, the majority of the data were captured as a 5-point Likert scale ranging from “not at all” = 1 to “very much” = 5. Because we have no basis to determine the relative importance of an item based on an individual’s gender, we presented results as descriptive. Because this work was designed to be hypothesis-generating we do not provide p values but included 95% confidence intervals of selected independent proportions; however, authors are willing to share statistical data and the study instrument.

We identified 551 papers of which 421 had unique, contactable first authors who received the survey. Analyzing names of potential authors, 154 (37%) of the potential sample were female. We obtained 276 responses or 63% of the reachable sample. Of these unique respondents, 180 included gender data of whom 64 (36%) were female.

Table S1 (available as supporting information in the online version of this paper, which is available at http://onlinelibrary.wiley.com/doi/10.1111/acem.13705/full) presents the ranked answers for all 276 responses. This table shows that >90% of respondents (both males and females) indicated that personal drive as the highest importance to obtaining first authorship.

Female respondents were younger than male respondents with 35 of 64 (55%) females under age 40 compared with 33 of 116 (28%) of males. Females tended to be less likely to be married (80%) compared with males (91%). A lower proportion of females indicated faculty status (assistant, associate, or full professor) than males (79% vs. 90%), fewer indicated more than 5 years in faculty positions (56% vs. 81%), and 18% of females had achieved full professorship compared with 27% of males. Females more than males had no children/dependents living in their home (36% vs. 15%). The median number publications were higher for men than women (11 [1st–3rd quartiles = 4.75 to 25] vs. 7 [1st–3rd quartiles = 2 to 14.25]).

Table 1 shows responses stratified by gender. The last column to the right presents the difference in percentage ranked “very much” by females minus the percentage ranked “very much” by males. This column suggests that the two largest differences observed by women that influenced their ability to become first authors were departmental policies (+23% difference, 95% CI = 10%–38% [Miettinen formula]) and seeking a mentor on their own (+30% difference, 95% CI 14%–45%). Additionally, 17% (95% CI = 4%–31%) more females indicated high importance to the need for equality during negotiations. In summary, data in Table 1 suggest that females felt more strongly that their authorship success was affected by self-identifying a mentor or their own determination and drive, feeling that they could negotiate on even terms, and having institutional/departmental policies that required scholarship for promotion. Females had higher female mentorship than males (38% vs. 15%). Similar to males, females did not rank gender-specific networking as important on their authorship success.

Both females (38%) and males (40%) ranked competing administrative responsibilities as the most significant impediment. Regardless of gender, respondents rated their top obstacles to authorship as follows: competing administrative tasks, lack of departmental support, lack of departmental commitment, and competing domestic responsibilities, in descending order of importance. Conflict over determination of first author order was not ranked as a significant barrier to first authorship in either group. The survey also asked for free text to elaborate on obstacles; 15 of 64 (23%) females provided a response compared with 15/116 (13%) males. In general, females commented more about time and mentoring, whereas men commented on money and departmental support.

This survey helps elucidate factors that female versus male first authors associated with helping and hindering their ability to attain first author status in a peer-reviewed academic emergency medicine journal. We found several differences. In terms of helpful influences, females tended to rate mentoring (+30%, 95% CI = 14%–45%), departmental policies (+23%, 95% CI = 10%–38%), and empowerment in discussions (+17%, 95% CI = 4%–31%) as very important compared with males. Females generally had lower academic rank. However, women were younger than men. We also found many areas of alignment between females and males. For example >90% of both genders strongly identified with the statement, “My own determination and drive” (Table S1) as highly important. Out of 14 potential hindrances in Table 1, females and males were within 5% of each other in the proportion of respondents who ranked the question of highest importance (“very much”) for seven of 14 (50%) of the potential hindrances.

We thus present a current snapshot of the factors that influenced a sample of emergency care authors
over the past 5 years. The younger age of female researchers may suggest an arrival of more young women into their careers as medical school admissions have recently reached gender parity. Conversely, it may show the exit or failure to thrive of senior females’ career trajectories. To our knowledge, this is the first survey to examine author perceptions of forces that influenced authorship. We add to prior literature and show an increasing trend toward female authorship in emergency medicine and greater proportion of authorship and academic faculty.

Consistent with prior literature, female respondents ranked highly their ability to identify mentors as a key to success. Our survey is not open-ended enough to reveal the how the respondents identified their mentors. Females identified a higher proportion of female mentors for research despite fewer promoted female faculty above them. Gender-specific mentor groups expected to help promote and retain female faculty were not ranked as helpful to specifically publishing research. Our study corroborates that clinical duties had no strong gender-specific influence.

Responding females in this sample had fewer dependents and children than males, and 11% fewer females indicated that a partner who contributed to domestic responsibilities was very important. Prior research in gender impact on all physician careers bears out a higher proportion of males with dependents than

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Ranking of Factors Associated With First Authorship by Gender</th>
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<tbody>
<tr>
<td></td>
<td><strong>Female</strong></td>
</tr>
<tr>
<td></td>
<td>Very Much</td>
</tr>
<tr>
<td>Formal research training (e.g., research fellowship, research training grant).</td>
<td>32</td>
</tr>
<tr>
<td>Formal fellowship training other than research (e.g., ultrasound).</td>
<td>14</td>
</tr>
<tr>
<td>Published research is a requirement for fellowship completion.</td>
<td>7</td>
</tr>
<tr>
<td>Mentoring from a person or persons sought out by you.</td>
<td>39</td>
</tr>
<tr>
<td>Mentoring from a scholarly mentoring panel, assembled by someone other than yourself.</td>
<td>9</td>
</tr>
<tr>
<td>Gender-specific networking (e.g., women’s peer support).</td>
<td>0</td>
</tr>
<tr>
<td>Protection from clinical duties provided by grant funding.</td>
<td>16</td>
</tr>
<tr>
<td>Protection from clinical duties provided by department/division, independent of grant funding.</td>
<td>18</td>
</tr>
<tr>
<td>Departmental or institutional resources such as technical, intellectual and staff support that facilitate scholarship. Examples are help with statistics or regulatory processes.</td>
<td>25</td>
</tr>
<tr>
<td>Direct departmental or institutional fiscal reward for scholarship (e.g., payment per manuscript)</td>
<td>3</td>
</tr>
<tr>
<td>Departmental or institutional policies that require scholarship for rank advancement, salary increase or promotion and tenure.</td>
<td>17</td>
</tr>
<tr>
<td>My own determination and drive.</td>
<td>58</td>
</tr>
<tr>
<td>Having a stay at home significant other, spouse or partner to help with domestic responsibilities</td>
<td>7</td>
</tr>
<tr>
<td>Feeling I could negotiate or be seen as an equal in discussions with other decision makers of my department/division.</td>
<td>11</td>
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</table>

*Female–male, percentage with “very much” response.
females with less deleterious effects to their careers, publications, and promotions. Of relevance, published recommendations for best practices for the advancement of women in emergency medicine have centered on development of overall support now for “family” rather than childcare-specific practices or gender-specific wellness practices geared toward women.

This work is largely hypothesis-generating. For example, while females tended to rank departmental policies as more important than men, we have no insight into the content or topic of the polices, including if they are deemed “family-friendly.” Other limitations include the single journal sample and no comparison of non–first authors.

In conclusion, compared with males, female first authors were younger, more junior in rank and experience, and had fewer publications and fewer dependents. Female first authors are less inclined to agree that traditionally gendered domestic responsibilities impair their research and were more likely to attribute their success to equal negotiation, self-identifying mentors, and institutional policies for scholarly promotion. Clear policies, relevant research mentorship, and support that encourage research and promotion may matter as much as, or even more than, deconstructing traditionally gendered obstacles and should serve as a standard for academic institutions interested in retaining and elevating their female workforce.

References


Supporting Information

The following supporting information is available in the online version of this paper available at http://onlinelibrary.wiley.com/doi/10.1111/acem.13705/full. Table S1. Rankings by all respondents.
Diversity among residents in particular and, among the emergency medicine (EM) workforce in general, is a goal of both specialty societies and accrediting agencies. The proportion of medical students and residents who self-identify as female has increased over the past few decades, but the proportion who are racial and ethnic minorities remains low. The percentage of emergency physicians and EM residents who are women and minorities is known to be lower than that of the general population. To our knowledge no one has examined trends in representation of sex, race, and ethnicity among EM residents. Understanding longitudinal trends in representation of women and underrepresented minorities in EM is a crucial first step both for designing programs that increase diversity within graduate medical education (GME) and for improving retention and promotion of underrepresented attendings. This knowledge can both provide a benchmark and highlight areas for future inquiry.

We obtained and reviewed publicly available, comprehensive, demographic information on resident physicians in Accreditation Council for Graduate Medical Education (ACGME)-accredited programs from 10 administrations of the National GME Census. The study population of interest included all residents in ACGME-accredited programs over a 10-year period (academic years 2007–2008 to 2016–2017). The total number of resident physicians in that period ranged from 106,012 (2007–2008) to 124,096 (2016–2017). We preidentified our subpopulation of interest as emergency medicine (EM) residents over the same period; the total number of EM resident physicians ranged from 4,479 (2007–2008) to 6,377 (2016–2017), reflecting 4.2% (2007–2008) to 5.1% (2016–2017) of the overall resident population. The demographics of interest for this study were sex (female), race (white, Asian, or black), and ethnicity (Hispanic). Due to extremely low percentages of all residents and EM residents who self-identified as

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Native Hawaiian, Pacific Islander, American Indian, or Alaskan Native (all comprising less than 0.75% of the overall resident population for the period analyzed) the decision was made to not examine trends in these groups. The study was deemed exempt by the institutional review board of Partner Health Care, Boston, Massachusetts.

We calculated proportions for sex, race, and ethnicity of all resident physicians and of EM resident physicians each year; 10 years of data were included. We then tested for trends over time in sex, race, and ethnicity proportions among both the overall group and the EM subgroup, using logistic regression. Specifically, using year as the predictor, we assessed demographic trends across the 10 years where odds ratios (ORs) and confidence intervals (CIs) provide the magnitude of the effect per successive year. In this context of multiple testing, we reduced the alpha to 1% and increased the confidence level to 99% to limit the overall Type I error to 5%.

Finally, we used recent year values (2016–2017) for demographics for both all residents and EM residents and compared them against similarly formatted July 1, 2017, U.S. Census Bureau population estimates to explore how resident population diversity from these groups relates to that of the current U.S. population. While race and ethnicity data for medical students are reported by the AAMC, the format of these data are not comparable to the data from the GME or the U.S. Census Bureau, and they were omitted from this analysis. To facilitate comparison of sex, race, and ethnicity between all resident physicians and EM resident physicians (2016–2017 data) and the U.S. population (2017 estimates), 99% CI around the most recent year proportions for residents were reported. SAS version 9.4 (www.sas.com) was used.

From 2007–2008 to 2016–2017 there has been a significant increase in the proportion of all resident physicians who are female (44.39% to 45.66%, OR = 1.004, CI = 1.002–1.006, \( p < 0.0001 \)) but a significant decrease in the proportion of EM residents who are female (38.62% to 35.09%, OR = 0.979, CI = 0.971–0.987, \( p < 0.0001 \)). The proportion female among EM residents was significantly less than the proportion female among non-EM residents (35.1% vs. 46.24%, \( p < 0.0001 \)). Both proportions are less than that of the U.S. population estimates (50.8%; Table 1).

There has been a significant increase in the proportion of EM residents who self-report as Hispanic (from 5.49% in 2007–2008 to 7.64% in 2016–2017, OR = 1.033, CI = 1.017–1.050, \( p < 0.0001 \)) but no significant change in the proportion of all resident physicians who identify as Hispanic. There have been no significant changes in the proportion of all residents or EM residents who identify as black. The current proportion of both all residents and EM residents who self-report as black or Hispanic is lower than that of the U.S. population estimates (black 13.4% and Hispanic 18.1%).

There were significant increases in the proportions of all residents (26.1% to 26.85%, OR = 1.003, CI = 1.001–1.004, \( p < 0.0001 \)) and EM residents (13.4% to 14.215%, OR = 1.010 CI = 0.999–1.022, \( p = 0.02 \)) who identify as Asian. The current proportion of all residents (26.85%, CI = 26.53%–27.17%) and EM

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<th>Table 1</th>
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<td>2007–2008 (%)</td>
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<tr>
<td><strong>All residents</strong></td>
</tr>
<tr>
<td>White</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Asian</td>
</tr>
<tr>
<td>Hispanic</td>
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<tr>
<td>Black</td>
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<tr>
<td><strong>EM residents</strong></td>
</tr>
<tr>
<td>White</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Asian</td>
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<td>Hispanic</td>
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residents (14.21%, CI = 13.13%–15.39%) who are Asian are both greater than that of the U.S. population estimates (5.8%).

This analysis provides novel longitudinal data on the percentage of all ACGME-approved residents and EM residents who are female, Hispanic, black, and Asian, compared to the general population. During the 10-year period examined in this study the proportion of all female residents increased, but only slightly; the proportion of all female residents remains lower than that of the general population. The proportion of EM residents who were female, however, decreased over this same period. Reasons for decreasing proportions of females in EM residencies are likely multitudinous, but may include increased attractiveness of other specialties, perceptions of EM as having high-level organizational disparities, or other reasons that still need to be assessed.10,11 Regardless, the fact that our specialty is losing women to other specialties should concern all of us, not just due to a commitment to equality, but also because gender diversity correlates with improved outcomes for both patients and for learners.10,11

Blacks and Hispanics remain grossly underrepresented among all resident physicians and among EM resident physicians compared to that of the U.S. population despite extensive efforts from organizations like the AAMC and the National Academy of Medicine (NAM) and despite slight increases in the number of EM residents who self-identified as Hispanic.7,12,13 These findings demonstrate a discrepancy between the demographics of resident physicians compared to the population they serve; they possibly reflect disparities in undergraduate medical education as well. Novel efforts by medical schools and select EM residencies that identify and remove institutional structures propagating racial and ethnic disparities that hinder the pipeline of underrepresented minorities may improve these rates going forward.11–13

There are limitations to the study. First, this work is observational and provides trends in resident diversity; we cannot determine causality for the observed trends and are unable to assess the potential impact of diversity initiatives. Second, this work also focuses on EM residents; trends in EM may not be reflective of those in other specialties. Third, the demographic information in both data sets is self-reported.

In conclusion, EM residencies’ diversity, relative to both the U.S. population at large and to residents overall, has stagnated for racial and ethnic minorities and has worsened for women. A paradigm shift is likely required if there is to be true change. Renewed efforts are needed to address issues facing underrepresented groups in entering and persisting in EM careers.

References


11. Saha S, Guiton G, Wimmers PF, Wilkerson L. Student body racial and ethnic composition and diversity-related...


Womem in academic emergency medicine (EM) experience disparities in both compensation and advancement.1-3 Some hypothesized causes of gender disparities include lack of mentorship and resources,4 unequal distribution of opportunity,5 sexism,6 and implicit bias.7 Gender differences in academic rank in EM may also be driven by differences in scholarly productivity, slower ascent to leadership among women, attrition from academic medicine, and potentially a lack of adequate support for faculty that have family obligations competing with work,4 although these factors are largely speculative.

Past data from interviews of chairs of non-EM specialties have demonstrated that interviewed chairs acknowledged individual and institutional barriers to the advancement of women in academic medicine.6 Moreover, several recommendations were made to address these barriers, and authors concluded that change at all organizational levels was necessary and more likely to have sustained impact than interventions at the individual level.6 Whether these recommendations have been adopted by EM is unknown. However, persistent gender gaps in salary and rank have been noted in our specialty,2 necessitating a deeper specialty-specific investigation.

To effectively design systems-based interventions that will increase gender parity in promotion to senior ranks in academic EM, we interviewed EM department chairs as they are best positioned to influence departmental policies addressing gender parity and can also reflect on their personal experiences in reaching a leadership position. The goal of this brief report was to explore perceived barriers and incentives for academic promotion from the vantage point of department chairs; additionally, we sought to investigate the existing faculty promotion processes and whether any specific faculty development interventions exist for women.

In this phenomenologic exercise, the Society for Academic Emergency Medicine Equity Research Taskforce, composed of 11 faculty from nine academic departments of EM, designed and conducted semistructured interviews with chairs of departments or divisions of EM across the United States. A convenience sample of chairs was chosen based on geographic location, gender, race, size of department, and length of tenure as a chair to maximize diversity and generalizability.

Chairs were recruited via standardized e-mails inviting them to participate in semistructured interviews. Interview guides were developed by the task force using a consensus method and included both open-
ended questions and closed-ended probes focused on institutional climate, promotions processes, and advancement within EM (Data Supplement S1, available as supporting information in the online version of this paper, which is available at http://onlinelibrary.wiley.com/doi/10.1111/acem.13680/full). Interviewers used these guides to facilitate discussion with chairs with a focus on identifying incentives for and barriers to promotion of women. One to two task force members interviewed each chair either in person or via phone between May and July 2018. Each interview lasted between 20 and 60 minutes. Interviews were not audio recorded to allow confidential but “off-the-record” discussion to uncover potential systemic biases. Faculty interviewers recorded detailed notes of each interview, and answers were compiled for analysis. No identifying information was collected.

Deidentified responses were reviewed by the study authors. As a group, authors then analyzed interview responses using a phenomenologic approach, allowing themes to come from the data without applying any prespecified constructs. Themes related to promotion and advancement, specifically related to the microprocesses by which faculty are identified, mentored, prepared, and approved for promotion as well as common barriers to promotion were discussed as a group. This study was approved by the institutional review board.

Twenty-five of 33 (76%) invited chairs consented and were interviewed, including six women and 19 men. They were geographically representative with approximately equal numbers from departments in the four regions of the United States.

Several themes related to the promotions processes and barriers to advancement were identified. Chairs often delegated the responsibility of faculty development to another faculty member, most commonly a vice-chair. Most chairs indicated that faculty development meetings occur at least once per year, with some reporting up to four meetings per year depending on career stage and individual faculty needs. Departmental promotion metrics mirrored institutional metrics, although some acknowledged that the institutional metrics are purposefully vague and as a result could cause confusion. While promotion was determined by a combination of internal/departmental committees, school of medicine committees, or the chair, there was variability by institution in the final authority that was responsible for initiating the promotion process. Thus, while typical tenure at each rank was reported to be between 0 and 3 years for instructors and 5 and 7 years for assistant and associate professors, chairs often identified outliers with time at assistant and associate levels being as long as 8 to 10 years.

Table 1 lists themes related to perceived barriers to advancement that chairs identified, some affecting their faculty universally and others primarily affecting women. These related to lack of faculty motivation, departmental incentives, academic productivity, and/or national reputation and conflict between clinical and teaching commitment and a scholarly focus. Inadequate peer-reviewed publications secondary to competing family obligations was perceived more frequently with women faculty. Chairs also indicated that women are more likely either to be assigned to or to choose task-oriented roles that do not necessarily lead toward promotion. Some chairs noted no barriers to promotion by gender, while some acknowledged implicit gender bias in the promotions process. Chairs also described strategies currently in place in their departments for the development of faculty, with few focusing specifically on women.

These themes describing barriers to and strategies for promotion and advancement in EM have important implications for faculty in general, and may serve as a guide for future research particularly related to advancement for women faculty. First, chairs expressed an overarching concern for a lack of effective motivators to encourage faculty to embark upon the sometimes arduous promotions process. This could potentially be explained by faculty challenging the “value of promotion” when considering overall reputation, professional growth, increased privileges, relatively modest compensation gains, increase in CME funds, and other incentives in relation to their competing obligations. It is also possible that the historical drive to promotion “because it matters” may be related to a shift in the demographic of the academic EM workforce (generational) or other. While this may have contributed to a gendered promotion gap in the past, chairs reported that they saw this enthusiasm shift in junior faculty of regardless of gender.

At an institutional level, promotion processes were highly variable in rigor and requirements within departments of EM. While this is not a gendered observation, chairs did reflect as a specialty with a primarily clinical emphasis, many EM faculty are on clinician-educator equivalent track, which often is less well defined and can be more difficult to navigate for advancement at institutions with traditional promotion metrics based primarily on grants and peer-reviewed publications. Refinement of
Examples

Some chairs noted no barriers to promotion by gender.
Appointment of dean of diversity.

Dispel myth of promotion readiness, a concern that may affect women disproportionately.
Ensure effective mentorship for each faculty; consider gender-matched mentor pairs.

There is a lack of training, mentorship, or support for faculty development at each rank.
Specific actions tailored for intentional advancement of underrepresented groups (such as women) were not common.
More support/resources for faculty may help improve scholarly productivity and chance for promotion.

There is a lack of clarity in process when the faculty leader who guides the promotion process is different from the chair.
Faculty may be assigned to “citizenship” tasks which benefit department but does not facilitate scholarly productivity, which may occur more often with women faculty.

Some faculty lack motivation to prepare promotions materials, or promotion is not a priority.
Individual faculty may have differing incentives to advance through academic ranks.
Faculty may not have time to publish due to family obligations or work-life balance priority, more often perceived with women faculty.

Faculty may choose task-oriented roles that do not advance them toward promotion, and this is perceived as being more common among women.
Some women may not come forward for promotion even if they are qualified.
Leadership positions often come with evening/weekend obligations that make them less attractive to young faculty and may disproportionately affect women.

Chairs were not aware of specific institutional steps that enhanced opportunities for women.
Academic promotions criteria are not always well suited to a clinical and procedural specialty such as EM or to clinically focused faculty in general.

Metrics for clinical-educator tracks are not well defined.
Teaching or clinical work is not valued the same as scholarly productivity.

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There is a lack of clarity in process when the faculty leader who guides the promotion process is different from the chair.
Create an internal promotion committee that regularly reviews each faculty and their trajectory.

Some faculty lack motivation to prepare promotions materials, or promotion is not a priority.
Individual faculty may have differing incentives to advance through academic ranks.
Faculty may not have time to publish due to family obligations or work-life balance priority, more often perceived with women faculty.

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Concerted efforts to direct women to leadership positions.
Teaching or clinical work is not valued the same as scholarly productivity.

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Concerted efforts to direct women to leadership positions.

Table 1
Key Themes Related to Perceived Barriers to and Strategies for Advancement, Identified by Chairs

<table>
<thead>
<tr>
<th>Topic/Subtopic</th>
<th>Key Themes*</th>
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| Institutional level† | • Chairs were not aware of specific institutional steps that enhanced opportunities for women.  
• Academic promotions criteria are not always well suited to a clinical and procedural specialty such as EM or to clinically focused faculty in general.  
• Metrics for clinical-educator tracks are not well defined.  
• Teaching or clinical work is not valued the same as scholarly productivity. |
| Departmental level | • There is a lack of training, mentorship, or support for faculty development at each rank.  
• Specific actions tailored for intentional advancement of underrepresented groups (such as women) were not common.  
• More support/resources for faculty may help improve scholarly productivity and chance for promotion.  
• There is a lack of clarity in process when the faculty leader who guides the promotion process is different from the chair.  
• Faculty may be assigned to "citizenship" tasks which benefit department but does not facilitate scholarly productivity, which may occur more often with women faculty. |
| Individual level | • Some chairs noted no barriers to promotion by gender.  
• Faculty do not have enough publications/scholarship for promotion.  
• Faculty may not have the necessary regional or national presence or reputation.  
• Some faculty lack motivation to prepare promotions materials, or promotion is not a priority.  
• Individual faculty may have differing incentives to advance through academic ranks.  
• Faculty may not have time to publish due to family obligations or work-life balance priority, more often perceived with women faculty.  
• Faculty may choose task-oriented roles that do not advance them toward promotion, and this is perceived as being more common among women.  
• Some women may not come forward for promotion even if they are qualified.  
• Leadership positions often come with evening/weekend obligations that make them less attractive to young faculty and may disproportionately affect women. |
| Existing Measures to Ensure Effective Advancement of Faculty With Focus on Women | Institutional level† | • Concerted efforts to add women to promotions committees.  
• Creating a culture for advancing underrepresented groups.  
• Medical school-wide training in implicit bias.  
• Appointment of dean of diversity.  
• Expanding the criteria for academic productivity to include newer models of teaching. |
| | Departmental level | • Concerted efforts to direct women to leadership positions.  
• Standardize and increase transparency of promotions process.  
• Concerted efforts to add women to departmental and institutional promotions committees.  
• Create an internal promotion committee that regularly reviews each faculty and their trajectory.  
• Provide administrative support for faculty going through promotions process (e.g., with preparation of CV or promotion materials). |
| | Individual level | • Ensure effective mentorship for each faculty; consider gender-matched mentor pairs.  
• Regular one-on-one meetings with departmental leadership to discuss growth and career trajectory.  
• Support women going to faculty development conferences.  
• Dispel myth of promotion readiness, a concern that may affect women disproportionately. |

*This table is designed to present key themes; additional themes and findings can be found in the text.
†Institutional level refers to policies or initiatives that are driven by the affiliated medical school rather than within the department of EM.

this track within the institutional guidelines should therefore aid the overall promotion process for EM as a specialty. While the majority of chairs reported no specific institutional barriers for promotion based on gender, they were also not aware of specific institutional steps that enhanced opportunities for women. This gap calls for deliberate and focused attention at an institutional level on creating a gender-neutral culture for equity and advancement. Prior studies have repeatedly indicated a need to create a culture change by creating equal opportunities for women and men to address gender gaps in salary, promotion, and leadership positions. Examples of steps include training in implicit bias, objective compensation plans, appointing women to promotion and key leadership committees, and aligning the processes to maximize their participation (e.g., holding meetings during business hours) as well as resources for growth (e.g., early research funding, scholarship, mentorship). On a departmental level, there were varied responses on how the promotion process is managed, and specific strategies to address gender disparities were infrequent. Although the Chair is often the person who submits the candidate’s dossier to the promotion committee, the process for preparing the candidate is often overseen by a different faculty member (e.g., Vice Chair for Academic Affairs/Faculty Development). There was ambiguity on whether these nonchair leaders are able to identify rate-
limiting steps that stall promotion or would have the authority or availability of opportunities to advance faculty along the promotion trajectory or to sponsor them for key opportunities. There was fairly uniform agreement that specific actions tailored for intentional advancement of underrepresented groups (such as women) were not common. A few chairs responded that they have supported faculty development opportunities for women such as the AAMC’s early/mid-career programs. Transparency in the promotion process as well as regular meetings with individual faculty guiding them through their career may help address these gaps.

At the individual level, chairs voiced concerns about the promotion readiness of women faculty sometimes being in conflict with departmental requirements. Chairs responded that faculty regardless of gender are moving away from academic or research tracks, but that women were even less likely to pursue these tracks and instead prefer or are steered toward teaching and clinical positions that have more difficulty in showing value toward promotion. Departments can support such faculty by clarifying the metrics of each track, by providing individual mentorship with regular meetings, by ensuring that the work women are doing is counted toward promotion, by providing resources such as administrative support for time-consuming tasks such as curriculum vitae and promotion application, and by providing access to role models and mentorship. Identifying successful women within the department, across specialties within the institution, or outside the institution would help address some of these gaps.

Our study is limited by the convenience sample of chairs, which has the potential for selection bias. It is also limited by factors such as a lack of data on whether chairs had spent significant time at other institutions prior to their chair role and the presence of potential bias among task force members. It was designed, however, as exploratory in nature with the objective of generating preliminary data on which to base further research.

Future research should focus on the perspectives of women faculty, investigating individual-level incentives for promotion, aligning departmental faculty development efforts with these incentives, mitigating barriers to promotion at departmental and institutional levels, and providing mentorship and administrative support with the ultimate goal of reaching gender parity and promotion of underrepresented groups in the advancement of academic EM physicians.

We acknowledge the AACEM for approving this project and the chairs who participated in the study for their perspective and insights.

References


Supporting Information

The following supporting information is available in the online version of this paper available at http://onlinelibrary.wiley.com/doi/10.1111/acem.13680/full

Data Supplement S1. Guiding questions/ Probes for Semi-structured Interviews.
Are Children Allowed? A Survey of Childcare and Family Policies at Academic Medical Conferences

Dara Kass, MD, FACEP, Priyanka Datta, Natasha L. Goumeniouk, Kristina Thomas, and Zackary D. Berger, MD, PhD

Conference attendance and networking have long been a staple of career advancement in medicine. Presenting one’s own research or chairing a conference panel provides academic physicians with the visibility necessary for career advancement and promotion.¹

Unfortunately, this pathway to career advancement may be obstructed for some physicians. Women physicians bear a larger proportion of domestic responsibilities (including childcare),² which may constitute a limitation to their participation in conferences. This in turn may ultimately be a barrier to their career development and promotion.

Literature addressing the gender promotion gap has specifically highlighted this barrier to conference attendance and suggested making “academic conferences family-friendly” as a potential solution³ but the definition of both this problem and the solution are vague. Such ambiguities affect those with academic careers, specifically women in medicine, in concrete ways. For example, policies banning children from poster sessions have prevented physicians from presenting their own research when childcare becomes unavailable.⁴ Without clear evidence-based recommendations in this regard, conference organizers are left without guidance and affected participants are left without support.

We thus asked the question: what are current practices relating to conference attendance relevant to those with childcare responsibilities? We sought to understand the landscape of childcare and lactation support and to ascertain if those policies differed across medical specialties, as a first step toward developing best practices in this area.

There is no consensus in the literature regarding essential characteristics that define conference accessibility for those with childcare responsibilities. Thus, we drafted an initial list of relevant information based on previous work⁵ reflecting childcare and family support policies. The list was iteratively discussed and revised by the study team for applicability until consensus was reached.

Data collection took place in August to October 2018. Specialties were selected to represent a range of gender distribution of residents as identified by the 2014 American Association of Medical Colleges data, including orthopedic surgery (14.8% female), emergency medicine (37.3%), neurology (48.4%), dermatology (62.9%), and obstetrics and gynecology (82.8%). Since we were cold calling representatives of numerous specialties, many of whom were outside our own specialty, we limited this study to five specialties for scope considerations, to minimize variation in responders, and to maximize response rates.
For each organization, the most well-attended conference (as per the organizing body contacted) was included. We decided to include two organizations within emergency medicine given the intended audience of this study. The hosting society or conference organizer was contacted via e-mail or phone call. Data for the most recent 2 years of the conference were collected. No follow-up was required. Consent to participate in the study was confirmed before collecting data from each conference. The Johns Hopkins Medicine Institutional Review Board approved this study.

All conferences took place between 2016 and 2018 (see Data Supplement S1 [available as supporting information in the online version of this paper]). Attendance at each conference ranged from 3,896 to 18,830 participants.

No two specialty conferences were associated with the same childcare policy profile. No conference reported the availability of entirely subsidized onsite childcare. Only two conferences provided participants with local childcare resources. The American College of Emergency Physicians (ACEP) conferences in 2017 provided subsidized onsite childcare. The American College of Obstetricians and Gynecologists (ACOG) conferences (in both 2017 and 2018) provided onsite childcare that was available but paid for entirely by the attendee.

Regarding policies associated with the inclusion of children and families in conferences, there was less heterogeneity among specialties. Children under the age of 16 were prohibited in the exhibit halls of multiple conferences (the American Academy of Orthopaedic Surgeons [AAOS] and the American Academy of Dermatology [AAD]). Only emergency medicine conferences (both ACEP and the Society for Academic Emergency Medicine [SAEM]) reported expressly allowing children in the exhibit hall. Children were allowed in lectures at some conferences, and most conferences (except AAOS) allowed children at social events. The AAOS conferences in 2017 and 2018 explicitly prohibited children in the exhibit hall or at lectures or events. They had no childcare events during conferences and provided no information to parents about local childcare resources.

All conferences offered lactation facilities. Only the AAD conferences reported a statement supporting breastfeeding during the conference.

Among major academic conferences in the included specialties across a spectrum of gender representation, we found heterogeneity in reported policies and practices relevant to childcare.

At many of the conferences, children were expressly prohibited from being at the conference exhibits or lecture hall. One respondent said that children were prohibited from exhibit halls “for their safety” but we could not find any evidence of a child sustaining an injury in a medical conference hall. While we appreciate the desire to anticipatorily protect children, this practice must be weighed against the barrier to participation and attendance it imposes on physician caregivers.

No conference reported the availability of free childcare; ACEP reported subsidized onsite childcare, and ACOG offered paid onsite childcare. One organizer reported cancelling a subsidized childcare program due to low utilization, stating that it was not a worthwhile expenditure. The perceived cost-ineffectiveness of providing or subsidizing childcare, whether or not empirically based, may be an implementation barrier not previously identified.

We suggest strategies to address these issues. A childcare committee would be a beneficial addition to conference planning teams; we suggest routine adoption of this measure. This committee could help to create a family-inclusive environment, reviewing any existing policies prohibiting children from conference events and working to develop childcare resources for participants. These can include free or subsidized on-site childcare. We understand that such a service would incur additional costs; corporate sponsorship or partnership might help defray costs. A “low utilization” of childcare may reflect lack of knowledge of such a resource rather than lack of interest.

Every conference included provided a dedicated lactation space. We are encouraged by this consistent practice across specialties. Prior to the conference, a written statement detailing family-inclusive resources should be sent to all potential attendees. During the conference, a statement should be displayed to encourage breastfeeding during lectures and events and discourage harassment of these women. The addition of an onsite live video stream would encourage women to pump or breastfeed their child without missing the conference. It would also allow anyone with a young child to watch the event without disrupting other participants. These strategies may help to increase participation of all physician parents at academic conferences but will likely have a disproportionate benefit for young parents, specifically mothers.

We only surveyed a subset of medical specialty conferences. We did not survey attendees about their
knowledge of the policies and did not attempt to ascertain whether those eligible to attend might have been influenced by the presence or absence of relevant policies.

Childcare and family-inclusion policies among medical subspecialty conferences are heterogeneous. Lactation rooms are common while on-site childcare is uncommon. Policies exist prohibiting children from conference spaces. Such policies might represent a significant barrier to the participation of faculty with parenting responsibilities, especially women, and consideration of inclusive policies a priori might encourage such participation.

References

Supporting Information
The following supporting information is available in the online version of this paper available at http://onlinelibrary.wiley.com/doi/10.1111/acem.13693/full
Data Supplement S1: Characteristics of medical specialty conferences surveyed and their childcare and family inclusion policies.
Antivirals With Corticosteroids for the Treatment of Acute Bell’s Palsy

Roberto C. Portela, MD, and Andrew C. Miller, MD

Review color recommendation
Green.

Summary heading
For every eight patients who took systemic antivirals with corticosteroids, one case of incomplete recovery (residual weakness, contracture, or hemifacial spasm) was prevented. Antivirals alone did not prevent incomplete recovery.

Benefits in NNT (NNTB)
Incomplete recovery: NNT of 8 for prevention of incomplete recovery when antivirals are prescribed in combination with corticosteroids (compared to placebo or no treatment).

Benefits in percentage
Incomplete recovery: 12% lower risk of incomplete recovery when antivirals are prescribed in combination with corticosteroids (compared to placebo or no treatment).

Harms in NNT (NNH)
No harms reported.

Harms in percentage
No harms reported.

Efficacy endpoints
Incomplete recovery of facial function, motor synkinesis, or crocodile tears syndrome.

Harm endpoints
Not clearly defined; listed only as ‘adverse events.’

Who was in the studies?
1,315 adults (age ≥ 18 years) with unilateral facial paralysis of unknown cause from eight trials.

NARRATIVE

Idiopathic facial paralysis (a.k.a. Bell’s Palsy) is the most common cause of unilateral facial paralysis. Maximal disability occurs within 48 to 72 hours, with symptoms involving both the upper and the lower face. Patients may exhibit flattening of the forehead and nasolabial fold on the affected side, with the forehead remaining flat on the affected side when the patient raises his/her eyebrows. Additional symptoms may include poor eyelid closure, eye pain, blurred vision, posterior auricular pain, otalgia, hyperacusis, and taste disturbances. The propensity for cranial nerve (CN) VII to form connections with adjacent CNs may explain occasional features including altered facial sensation (CN V), vestibular dysfunction (CN VIII), or pharyngeal symptoms (CN IX and X). Reduced lacrimation and salivation may occur secondary to parasympathetic effects. Although bilateral simultaneous Bell’s palsy can develop, it is rare with an occurrence rate 0.3% to 2% of that for unilateral palsy.

The annual incidence is 23 to 37 cases per 100,000 people, and recurrence rates of 7% to 11% have been reported. It may occur at any age, but peaks between ages 30 to 45 years and age > 70. There is no sex predominance. The incidence is higher in pregnancy, following viral upper respiratory infection, and in the immunocompromised setting. The risk of disease and incomplete recovery is increased in diabetic patients (30% each). Possible etiologies include infections (e.g., herpes zoster and Epstein-Barr viruses, cytomegalovirus, human immunodeficiency virus, Lyme disease, syphilis, and mycoplasma), inflammation or autoimmune reactions, microvascular disease, and hereditary causes.

Clinically important improvement occurs within 3 weeks (85%). Patients failing to show improvement by 3 weeks may have suffered severe facial nerve degeneration. Overall, 71% of patients will...
experience complete recovery in facial muscle function. The remainder may have incomplete recovery defined as either permanent residual weakness (29%), contracture (17%; together termed incomplete recovery), or hemifacial spasm (synkinesis; 16%). In some cases, damaged nerve fibers destined for a salivary gland mistakenly regrow into a tear gland resulting in excessive tearing during mastication (a.k.a. gustolacrimal reflex; crocodile tears syndrome).

The Cochrane meta-analysis cited here assesses the effectiveness of antiviral treatment alone or in combination with corticosteroids to decrease the risk of incomplete recovery from Bell’s palsy. It includes 10 clinical trials (2,280 participants). The analysis (eight trials, 1,365 participants) suggests that antivirals plus corticosteroids reduces the incidence of incomplete recovery when compared either to corticosteroids alone (RR = 0.61, 95% confidence interval [CI] = 0.39 to 0.97, absolute risk difference [ARD] = 6.5%, number needed to treat [NNT] = 15; quality of evidence = low) or to placebo or no treatment (RR = 0.56, 95% CI = 0.41 to 0.76, ARD = 12%, NNT = 8, quality of evidence = low). Antivirals alone did not improve the risk of incomplete recovery rates when compared to placebo/no treatment (RR = 1.10, 95% CI = 0.87 to 1.40; quality of evidence = low) and increased rates of incomplete recovery when compared to corticosteroids alone (RR = 1.52, 95% CI = 1.08 to 2.12, quality of evidence = low).

The risk of long-term aftereffects including motor synkinesis (abnormal involuntary facial movement) or crocodile tears syndrome (unilateral tearing when eating) was decreased when antivirals plus corticosteroids were compared to corticosteroids alone (RR = 0.56, 95% CI = 0.36 to 0.87, ARD = 8.5%, NNT = 12; quality of evidence = moderate), whereas corticosteroids alone decreased long-term aftereffects greater than antivirals alone (RR 1.52, 95% CI = 1.08 to 2.12, quality of evidence = moderate). No published data were available comparing either antivirals plus corticosteroids or antivirals alone with placebo or no treatment for this specific outcome.

The referenced meta-analysis contained an overall lack of details regarding adverse reactions. That being said, aggregate adverse events was significantly less with antivirals alone when compared to corticosteroids alone (RR = 0.85, 95% CI = 0.57 to 1.28, ARD = 2.04%, NNT = 49; quality of evidence = low) or placebo or no treatment (RR = 0.83, 95% CI = 0.56 to 1.24, ARD = 2.8%, NNT = 36, n = 651, quality of evidence = low). Adverse events were not significantly different when comparing antivirals plus corticosteroids to either corticosteroids alone (RR = 1.18, 95% CI = 0.83 to 1.69) or placebo or no treatment (RR = 1.14, 95% CI = 0.79 to 1.65).

CAVEATS

This systematic review and meta-analysis assesses the safety and efficacy of antivirals for decreasing the risk of incomplete recovery and long-term aftereffects in patients with Bell’s palsy. Unfortunately, the analysis does not control for antiviral type or administration route. Our search identified two clinical trials not reported in the Cochrane analysis that compared either antivirals alone or with corticosteroids to corticosteroids alone. The study by Khedr et al. supports the Cochrane analysis findings that the combination of antiviral plus corticosteroid decreases incomplete recovery in patients with moderately severe to complete acute Bell’s palsy. The study by Ghorbani and Kazemi also showed that antivirals alone does not outperform corticosteroids alone.

A green color recommendation is based on the evidence of low-quality evidence supporting the benefits that antiviral with corticosteroid therapy decreases rates of incomplete recovery from Bell’s palsy. Antiviral plus corticosteroid combination therapy also reduces long-term sequelae including motor synkinesis or crocodile tears syndrome. Although this is supported by moderate-quality evidence, only two trials reported this outcome. Antivirals alone earned a red color recommendation as monotherapy failed to show benefit for prevention of incomplete recovery over placebo/no treatment. Antivirals do not appear to have serious adverse effects (low-quality evidence).

CONCLUSION

When taken with corticosteroids for Bell’s palsy, antivirals decrease incomplete recovery (NNT = 8) and long-term aftereffects including motor synkinesis and crocodile tears syndrome (NNT = 12) when compared to placebo or no treatment. Antivirals in combination with corticosteroids should be considered in the management of patients with Bell’s palsy in the ED.

Editor’s Note: Brass Tacks are concise reviews of published evidence. This series is a result of collaboration between Academic Emergency Medicine and the evidence-based medicine website, www.aemj.org.
References


Topical Antibiotics for Clinical and Microbiologic Cure of Bacterial Conjunctivitis

Daniel S. Kowalsky, MD, and Allan B. Wolfson, MD

NARRATIVE

Acute bacterial conjunctivitis is an infective condition frequently resulting in mucopurulent ocular discharge, bulbar and palpebral injection, and discomfort. It may be difficult to differentiate between viral and bacterial conjunctivitis on clinical grounds, and swabbing eyes for cultures is not considered clinically practical. Therefore, although most cases are self-limited, antibiotics are typically given based on the belief that they decrease time to recovery, reduce sight-threatening complications, and reduce the rate of relapse.

This review, an update of a previous Cochrane review from 2006, included 11 randomized control trials totaling 3,673 patients with bacterial conjunctivitis, whereas the prior review included five randomized control trials and 1,034 patients. The review included trials that made the diagnosis of bacterial conjunctivitis based on either clinical or microbiologic grounds. Clinical criteria required varied but generally included ocular discharge and conjunctival injection. Two of the trials required microbiologically proven bacterial conjunctivitis with the remainder making the diagnosis on clinical grounds. The primary outcomes of this review included both clinical and microbiologic cure rates. How cure was assessed varied between trials but, in general, it was defined by absence of symptoms or microbiologic eradication.

Data analysis from the trials indicated improved early (2- to 5-day) clinical cure rate of 40% (risk ratio [RR] = 1.36, 95% confidence interval [CI] = 1.15–1.61) and microbiologic cure (RR = 1.55, 95% CI = 1.37–1.76). At 6 to 10 days (considered the “late” time point) antibiotics continued to show clinical benefit in clinical and microbiologic cure (RR = 1.21, 95% CI = 1.10–1.33; and RR = 1.37, 95% CI = 1.24–1.52 respectively). The absolute risk difference

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for early and late clinical cure were 11 and 9%, respectively, corresponding to NNTs of 9 and 11.1

Among subjects in the placebo groups, 30% achieved clinical cure by day 5, and 41% of cases had resolved by days 6 to 10. No serious outcomes were reported in either placebo groups or treatment groups.1

CAVEATS

Of the 11 included trials, two primary care–based trials were judged by the reviewers to be of high quality, with the remainder graded as being of poor quality. Nine of the 11 studies were judged to have a high risk of bias. Two of the 11 trials were done at primary care sites, and the remainder were performed at specialty care sites, suggesting the possibility of referral bias.1

Interestingly, the natural history of bacterial conjunctivitis could not be inferred from the trials, as some of the trials used placebo eye drops containing an antiseptic that when applied three to four times a day was likely to have some clinical effect. Moreover, all of the included studies utilized different antibiotic regimens, which was a major contributor to the high degree of heterogeneity of the trials. Of note, the majority of the more recent trials utilized fluoroquinolones. Other factors contributing to heterogeneity included patient age, method of diagnosis, and definition of outcome measures. There was no recommendation regarding which antibiotic or duration of treatment was superior. Also of note, only two of the trials required microbiologic evidence to make the diagnosis of bacterial conjunctivitis, while the remainder allowed for bacterial conjunctivitis to be diagnosed clinically. This is a potential limitation of the study as it is possible that other forms of conjunctivitis were being treated.

In this review, 30% of the placebo groups achieved clinical cure by day 5, and 41% had resolved at 6 to 10 days. This suggests that the benefits of antibiotics were reflected in the rate of resolution of conjunctivitis but not in a reduction in complications, since no serious outcomes were reported in treatment or placebo groups.1 Given that complications such as orbital cellulitis are rare, however, a larger trial would be necessary to assess the efficacy of antibiotics in terms of reduction in complications.

In conclusion, despite the limited existing evidence (mostly poor quality with high risk of bias) the demonstration of consistent positive outcomes supports the use of topical antibiotics to treat bacterial conjunctivitis. The risk of adverse events associated with this treatment appear to be minimal. Therefore, we have assigned a color rating of green (benefits > harms) to this treatment.

Editor’s Note: Brass Tacks are concise reviews of published evidence. This series is a result of collaboration between Academic Emergency Medicine and the evidence-based medicine website, www.TheNNT.com. For inquiries please contact the section editor, Shahriar Zehtabchi, MD (Shahriar.zehtabchi@downstate.edu).

Reference

I consider myself an empowered woman. Growing up I was told there is nothing I should not do because of my gender. I entered a male-dominated field in medicine and graduated from a predominantly male residency. I felt strong and resilient. While I was vaguely aware of gender biases in medicine, I felt I was preventing them from holding me back. And then, I began to apply for jobs.

My husband, also an emergency medicine physician, and I recently embarked on a joint job search. Separately, we sat down and wrote cover letters, highlighting our accomplishments for future employers. When we had finished, we swapped our letters for editing. I added a few commas to his and circled a run-on sentence. I remember feeling impressed by his confidence and accomplishments. In his letter, my husband sounded amazing. Reading mine, I saw his brow furrow. “You can’t send this” he said, “you sound so . . . average.” My letter was filled with actions where I “participated in” or “collaborated on” while he “created, led, developed, or single-handedly masterminded” (ok, not the last one).

“I cannot say those things,” I thought. It is bragging. It’s exaggerating. Sure, you can, I thought. That’s fine. But, for me, it somehow feels wrong. I found myself caught in the double bind of being a woman, expected to be humble and self-deprecating while also needing to be assertive and self-promoting.

When interviewing for jobs, I repeatedly witnessed my husband negotiate increased protected time, office space, and benefits while I smiled and thanked interviewers profusely for their time. While he went back and forth with potential employers, I cringed in the corner. While rationally, I recognized he was advocating for himself, I was completely unable to follow suit.

Initially, I saw my reticence to negotiate purely as a character flaw. This is something to work on and fix! However, as I learn more about gender biases, I am beginning to realize I, alone, am not to blame. Social expectations of appropriate gender behavior continue to hinder women attempting to function in a man’s world. In fact, women who negotiate during job interviews are negatively impacted by their attempts. Research demonstrates that interviewers are less likely to hire women who negotiate during interviews compared to men. Could it be that my hesitance is not, in fact, a flaw, but a subconscious reading of the room and society’s expectations?

Negotiation and self-advocacy will continue to be an important part of my career. I will need this skill if I hope to be promoted within academic medicine. Looking at the data, this will prove more challenging for me compared to my male colleagues. Similar to other professions, women continue to lag behind men in job promotion. While women are entering junior faculty roles at a higher rate than men, they continue to be statistically less likely to reach senior levels in academia. In addition, women tend to be paid less than male counterparts with comparable experience and advancement.

Through the interview process, my gender began to feel like a hindrance to be mitigated. I began asking questions about how women were recruited and retained. I began asking how many women had made full professorship and how women were actively promoted within the group. These questions played a large role in the final job decision.

My husband and I ultimately came to work for a group where women have been actively recruited. In fact, I am sitting and writing this because a senior female faculty member assured me that my “silly idea” for this piece

The author has no relevant financial information or potential conflicts of interest to disclose.
was valid. Self-promotion and self-advocacy do not come easily. As physician leaders, both women and men, we need to question the current status quo.

Slowly, there is the beginning of a shift from a “fix the women” to an “address the system” mindset. There have been proposals for mentorship, sponsorship, gender-specific support, and pay equity.\(^7\) We need to continue this push forward. Now, buoyed by strong women around me, success in academia feels possible for the first time.

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COMMENT FROM BRIAN ZINK, THE CHAIR AND DECISION EDITOR OF THE WORK

Life sometimes creates interesting confluences, and these should not be ignored. I was the Chair who sat on the other side of the desk during the job interview of the author of this remarkable essay. I hired her, and her husband. I was pleased to bring them both on board as promising new faculty members. We had built, with intention, a department that had a higher percentage of women than most, and innovative processes and programs to develop women faculty. We had success, won awards, and were justifiably proud of our accomplishments. I actually never got to serve as the Chair for the author, as I decided after the hiring to embark on a new phase of my career. She probably didn’t know that I serve as the Associate Editor for the AEM Reflections section. So hence, the confluence as I review an essay where I was a “character”. It now provides me with an opportunity for reflection.

The line that hit me the hardest from Dr. Moretti’s essay is: “Could it be that my hesitance is, in fact, not a flaw, but a subconscious reading of the room and society’s expectations?” Despite being a strong advocate for women in academic emergency medicine - even the father of a woman EM intern - do I still contribute, perhaps also subconsciously, to how women feel and react when they are being recruited and developed as faculty? I grew up in a rural community where the attitudes of many men were sexist. The feminist movement of the 1960’s and 70’s didn’t quite reach our little hamlet in the Allegheny Mountains. And yet, my most influential role models were women - my maternal grandmother, a Manhattanite transformed to a Western New York farmer’s wife who raised 11 children during the Great Depression, my mother who was valedictorian of her high school class, but unlike her brothers, was not given the opportunity to go to college, and my great aunt, who conquered breast cancer to run a garden market by herself while her husband slowly died of emphysema.

Based on this background, I was always rooting for women. When I had the opportunity to help women advance, I did so. And yet, as I consider Dr. Moretti’s essay, I am not immune from the subconscious influences of my past. As a chair, did I give positive cues to women applicants who were non-assertive, not self-promoting, and who didn’t ask for much? Did unconscious vestiges of sexism from five decades ago cause me to treat women differently than men as we crafted “packages” and discussed career advancement? I sure hope not, but the opportunity to consciously reflect on this essay has heightened my awareness that the subconscious mind is a powerful contributor to our impressions, behaviors, and actions. By pulling subconscious “thinking” out of the darkness, we can hopefully shed light on how to consciously create the diverse, equitable, inclusive world we all want in academic emergency medicine.

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References

A Rising Tide Lifts All Boats: Professors and Leadership in an Academic Department of Emergency Medicine

His commentary describes a novel solution for professional advancement that was implemented by an academic department of emergency medicine to increase the willingness and ability of faculty to meet existing promotion standards to the highest rank of professor. Subsequently, equal numbers of men and women (five each) were promoted to professor. The gains for women faculty were notable as this resulted in a rapid increase in women’s representation among faculty promoted to full professor, as well as gender parity in senior departmental leadership. Despite the typical “leaky pipeline” for women on faculty in academic medicine and persistent national gaps in the proportion of women at senior ranks our program increased representation of women professors (38% of all professors)—double the 17% national rate for women professors in departments of emergency medicine and 23% in clinical departments in schools of medicine. This structured intervention leveraged existing academic affairs, promotion review, and performance review processes to increase promotion for men and women to professor and could be adopted in whole or part by other academic departments.

Emergency medicine became an autonomous academic department in the University of Colorado (CU) School of Medicine on January 1, 2010, having started as a section of the Department of Surgery in 1985 and subsequently a division in 1992. The former division chief served as interim chair until an inaugural permanent chair (RDZ) was recruited in 2012. At that time, the newly formed CU Department of Emergency Medicine had 45 faculty, including four men professors and one women professor emerita (20% women professors); in 2017 faculty increased to 103 full-time regular academic faculty with 10 men and six women professors (38% women professors; Figure 1). All five of the nonretired women professors were appointed or promoted since 2015. The Chair subsequently appointed six academic vice chairs, three women and three men senior faculty spanning clinical, educational, and research missions. Medical direction is led by two women and three men across the Anschutz Medical Campus and Denver Health academic sites.

National reports for schools of medicine and their academic departments of emergency medicine show persistent disproportionality of women in senior ranks and in administrative leadership roles. The Association of American Medical Colleges (AAMC) Faculty Roster reports proportions of women by rank in clinical departments of emergency medicine: 35% overall faculty (all ranks instructor to full professor excluding “other”), 51% instructors, 38% assistant professors, 26% associate professors, and 17% full professors. Academic emergency medicine is more male dominated (65%; 35% women in Figure 1) than the average of clinical medical school departments (59%; 41% in chart), with lower proportions of women faculty at every rank compared to all clinical departments (see charted rates for AAMC and CU emergency medicine).

A recent national survey of academic departments of emergency medicine reported that among 47 departments with 447 women faculty, there were 29 women professors (17% of 185 professors), averaging less than one women professor per department. The same survey reported proportions of women as vice chairs (1.3%) or medical directors (30%); our department exceeds these rates with 50% women vice chairs and

The authors have no relevant financial information or potential conflicts of interest to disclose.
The goal to enhance academic success and encourage physician leadership was expected to increase senior faculty eligible for leadership positions, thus motivating an intentional, departmental structured academic affairs program.

Academic promotion at our institution requires a portfolio or dossier built on a structured rubric called the “Matrix.” The Matrix is composed of table(s) that outline the standards for demonstrating excellence (highest standard) or meritorious achievement in each of the school’s mission areas: clinical activity, education (teaching and mentoring), research, scholarship, and service. For promotion to associate professor, regular tenure-track faculty are expected to submit a dossier in the sixth year in rank with three optional 1-year extensions; at that time the faculty member must successfully promote or be reappointed to a terminal (nonladder) instructor rank. For promotion to associate professor, faculty must demonstrate excellence in one of the following areas: clinical activity, education, or research and meritorious achievement in two of the other areas. For promotion to full professor, faculty must demonstrate excellence in two of these areas plus excellence in scholarship broadly defined as discovery, application, integration, and education, as well as a national reputation and evidence of continuous growth in areas of expertise.

In contrast to promotion to associate professor, timing for advancement to full professor is flexible and not compelled by the school, “when you are ready”; therefore, it is common for faculty to remain at associate professor rank for the balance of their academic careers. Our academic affairs program goal was to engage faculty in working toward academic promotion by changing our cultural norm, i.e., shared beliefs about our expectations and departmental values, by making academic progression to the rank of professor an expectation. To successfully elevate the departmental standard over the school’s acceptance of associate professor as a terminal rank, the program provided both high expectations and high support. Our rationale was threefold:

1. As an academic department of emergency medicine we needed to enhance our contribution to and engagement with the academic missions, inspired by the Josiah Macy Foundation’s 1994 proceedings on the role of emergency medicine in the future of American medical care: By creating academic departments of emergency medicine, medical schools can best establish and implement high standards for educational programs in emergency care, and strengthen the collaborative professional relationships necessary for research and for high quality clinical services in emergency care.

2. Gender differences in patterns of professional advancement have been reported in peer-reviewed literature in academics and medicine and
popularized with case studies in “Women Don’t Ask” and “Lean In.”10,11 By changing universal expectations and organizational supports to seeking promotion, we reduced some conditions under which disparities flourish such as women delaying advancement until they have exceeded standards or needing to self-advocate regarding promotion readiness.

3. The promotion process was demystified with examples, mentoring, and reinforcement of diverse paths to reach academic emergency physician professor rank. Using multiple points for feedback and strategic career planning (pull) and structuring, disseminating, and mentoring (push), our faculty were shown many ways to meet excellence criteria for promotion to professor besides the stereotypical clinical scientist with two R01s and 100 publications. This empowered faculty to work toward professional growth in a myriad of ways and enhanced self-efficacy in reaching for promotion to professor by clarifying what was needed and who could help.

A detailed program description is beyond the scope of this commentary, but we will describe a few key elements. We implemented individual career development plans (Data Supplement S1, available as supporting information in the online version of this paper, which is available at http://onlinelibrary.wiley.com/doi/10.1111/acem.13689/full) for use in structured mentoring and review that provided repeated feedback on promotion elements such as possible external reviewers and narrative dossiers. This document, plus a curriculum vitae (CV) in promotion format, was required for annual review. Faculty who were preparing to submit a (fall) promotion were required to submit a “preview dossier” that was a partial promotion dossier of core elements (CV, Matrix, narrative reflective statements) to the departmental promotion committee in the preceding cycle (spring) for structured, written feedback on the dossier. Senior faculty on the departmental promotion committee provided mentoring on draft documents and gave strategic career advice to align effort with promotion goals. Recently successful promotion portfolios were solicited from faculty to be accessed confidentially as a resource example bank. We raised the visibility and prominence of our professors by holding an annual professors only dinner event where new professors were welcomed to the “club” and created individual videos for our professors sharing personal views on our academic missions. Professor videos were debuted at the annual dinner and then disseminated to the entire faculty at quarterly all-faculty meetings and via social media.

The generalizability of this academic affairs program is limited by its implementation in a single academic department of emergency medicine and only 3 years of experience. It benefited from an excess supply of associate professors ready to promote and a unique time in organizational history in a new department with an inaugural chair that eased intervention implementation. Expected resistance came from extra work in documentation (career development plans) and mentoring meetings. It was emphasized that the time spent early saved time later, and annual review documents were streamlined to use these documents. Program feedback was solicited and shared with faculty. Contextually these programmatic efforts were complemented by departmental attention to and transparency for salary benchmarks, parental leave, and leadership opportunities, with annual reports of financial goals and compensation by rank and gender.2,3 For example, a salary normalization was implemented in 2012 followed by annual updates and faculty reporting and open support for unpaid parental leave for both mothers and fathers.

Nevertheless, elements of this academic affairs program have been adopted by other departments in the school. Other campus leaders have commented on the extent to which we have women leaders in critical roles and our comfort and success in doing so; this is notable because it illustrates that these choices are nonstandard enough to be mentioned and that leaders must be fully supportive of any effort to change organizational behavior. By providing equal opportunity and support, our department intervened to successfully enhance faculty promotion to professor. It remains unknown as to whether this ultimately improves retention in academics as midcareer faculty can imagine an achievable career path forward. The needs for men and women faculty are the same and different, so it is not surprising that the impact was the same (in number) and different (in proportion); its qualitative evaluation is a future direction. This program improved academic progression for men and women, in doing so substantially increased the proportion of women professors and departmental leaders.
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References


Supporting Information

The following supporting information is available in the online version of this paper available at http://onlinelibrary.wiley.com/doi/10.1111/acem.13689/full

Data Supplement S1. Career development plan.
A Commentary on Impact of Women-focused Professional Organization and Academic Retention and Advancement: Perceptions From a Qualitative Study

Despite the steady increase in female medical students and female faculty in the United States, there has been little change in the distribution of women across the ranks of assistant, associate, and full professor over the past 30 years. Women are substantially less likely than men to be full professors even after accounting for age, experience, specialty, and measures of research and clinical productivity. From 2009 to 2017, the percentage of female faculty in emergency medicine (EM) dropped from 3% to 1.8%, while it stayed relatively stable for men (9% to 8.8%). In addition to academic rank disparities, a gender pay gap exists in most medical specialties, and EM is no exception. A 2017 study by Madsen et al. showed a salary gap of $19,462 in academic EM, with women earning less than men regardless of rank, clinical hours, or training. This gap persists throughout a woman’s medical career, compounding the financial loss over time. It appears that simply increasing the number of academic female physicians in the pipeline has not been enough to correct problems of career inequity.

There are a number of potential explanations for the professional gap that develops between men and women in the academic workforce from their entry point in medical school through participation in academia and leadership during their career. Inequities in mentorship, sponsorship, constructive feedback, and training opportunities may feed into inequities in advancement and opportunity. Persistent unconscious gender biases held by both men and women and, at times, overt or seemingly benevolent sexism also likely contribute to the cumulative devaluation of female performance.

Addressing such gaps is daunting, and while we await the deep cultural changes required to fundamentally change the workplace for women, it is likely that women’s networks are playing an important role. In 2005, the Society for Academic Emergency Medicine (SAEM) recognized the need to address the issues facing women in academic EM and formed a task force to recommend actions for increasing and sustaining the number of women in academic EM. One recommendation was for EM professional organizations to “develop and maintain a structured academy for women in academic EM ... to integrate and enhance current faculty development programs by providing an ongoing program for women.” The Academy of Women in Academic Emergency Medicine (AWAEM) was established as a result and has grown into one of the most active groups within SAEM.

In this issue, Lin et al. report the results of their qualitative analysis of the impact of AWAEM on the professional development of its members. The authors interviewed 17 members, many with leadership
experience within the organization, who described the importance of this organization on their career development as female EM physicians. Their paper highlights the multidimensional functions of such an organization for the women involved in it:

... facilitating academic advancement through scholarly productivity, leadership experiences, awards, and promotions; mentorship and sponsorship; peer support and collaborations; reduced professional isolation; and initiatives to address systemic gender inequities and challenges, including strategies to navigate bias, promote pay equity, and advocate for family-friendly workplace policies.

AWAEM’s success in providing these wide-ranging benefits to its members was likely due to a combination of traditional networking and didactic activities and year-to-year responsiveness to needs of academic women in EM, guided by both formal (a periodic member survey) and informal feedback. To help members grow as researchers, leaders, and educators, AWAEM has sponsored didactic sessions at the SAEM annual meeting, focusing on faculty development, navigating an academic career, obtaining leadership skills, and wellness. Intermittent didactics were expended into a half-day annual preconference for faculty development. A bimonthly newsletter—read regularly by > 90% of the membership—provided a medium for regular career advice and recognition of accomplishments and an outlet for members who wished to share their experiences, tips, and ideas, through writing.

We have supported and promoted the creation of the Sex and Gender in Emergency Medicine Interest Group within SAEM. Our members were instrumental in the development and implementation of the 2014 Academic Emergency Medicine consensus conference, “Gender-Specific Research in Emergency Care: Investigate, Understand, and Translate How Gender Affects Patient Outcomes,” that led to multiple publications that guide current research.

### Table 1
2018 AWAEM Awards and Scholarships

<table>
<thead>
<tr>
<th>Award</th>
<th>Description</th>
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<tbody>
<tr>
<td>AWAEM Resident Award and SAEM Travel Grant</td>
<td>To honor a female EM resident who has shown promise for significant career achievements in EM through research, education, service, advocacy, or administration and/or who has worked to promote the role of women in academic EM</td>
</tr>
<tr>
<td>AWAEM Early Career Faculty Award</td>
<td>To honor early career female faculty who have shown promise for significant career achievements in EM through research, education, service, advocacy, or administration and/or who have worked to promote the role of women in academic EM</td>
</tr>
<tr>
<td>AWAEM Mid-Career Faculty Award</td>
<td>To honor mid-career female faculty who have shown promise for significant career achievements in EM through research, education, service, advocacy, or administration and/or who have worked to promote the role of women in academic EM</td>
</tr>
<tr>
<td>AWAEM Outstanding Research Publication of the Year Award</td>
<td>Recognizes the first or last author of an outstanding research manuscript published in the past year</td>
</tr>
<tr>
<td>AWAEM Emergency Medical Director Award</td>
<td>To honor female faculty who serve as ED medical directors and have shown significant career achievements in EM through administrative innovations; advancing the quality, safety, and efficiency of care; and building relationships or consensus across departments</td>
</tr>
<tr>
<td>AWAEM “Hidden Gem” Award</td>
<td>To honor female faculty members making outstanding contributions through clinical work, teaching, mentorship, role modeling, or administration, having great impact locally or regionally</td>
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<tr>
<td>AWAEM Outstanding Department Award</td>
<td>Presented to EM departments that have shown support of women in academic EM through organizational initiatives that address the recruitment, development, and advancement of its women physicians, promoting gender equality, diversity, opportunity, and inclusion</td>
</tr>
<tr>
<td>AWAEM/GEMA Global Travel Grant</td>
<td>To assist with travel costs to attend SAEM national meetings for female EM practitioners who have shown promise for significant career achievements in EM through research, education, service, advocacy, or administration and who will benefit from attendance at a national SAEM meeting</td>
</tr>
<tr>
<td>AWAEM Pre-Day Workshop Scholarship</td>
<td>To assist with costs to participate in AWAEM pre-day workshops for applicants who have shown promise for significant career achievements in EM through research, education, service, advocacy, or administration and/or who have promoted the role of women in academic EM</td>
</tr>
<tr>
<td>AWAEM RAMS Medical Student and Resident Scholarship</td>
<td>To honor a female EM-bound medical student or an EM resident who has shown promise for significant career achievements in EM through research, education, service, advocacy, or administration and/or who has promoted the role of women in academic EM</td>
</tr>
<tr>
<td>AWAEM Junior Faculty Development Forum Scholarship</td>
<td>To honor junior female faculty who have shown promise for significant career achievements in EM through research, education, service, advocacy, or administration in academic EM</td>
</tr>
<tr>
<td>AWAEM SAEM Leadership Forum Scholarship</td>
<td>To honor female faculty who have shown promise for significant career achievements in EM through leadership in research, education, service, advocacy, or administration in academic EM</td>
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</table>
AWAEM was also responsive to filling critical niches such as the lack of representation of women in national medical awards, establishing awards and scholarships for women at every stage of their academic careers (Table 1). Lin et al. highlight the importance of nomination by both senior members and peer encouragement in identifying award opportunities suited to the individual’s expertise to women faculty. This year alone AWAEM has received over 100 nominations to its awards program.

In addition to helping individuals succeed, AWAEM contributed to the collective progress of our specialty toward gender equity. Through a collaborative effort of AWAEM and the American Association of Women Emergency Physicians, members published a white paper on best practice recommendations in 2016, supporting the recruitment and advancement of women physicians in the specialty of EM.13 The paper outlines a starting point to mitigate loss of women to alternative career choices with proactive policy changes.14 In addition, AWAEM’s research committee has supported or sponsored several articles on the gender pay gap,9 gender issues in the workplace,13 and financial planning and retirement to support female physicians at every stage of her career.11 In addition to bolstering the knowledge base in these areas, the scholarship contributed to the career advancement of the members involved.

Overall, the vision of AWAEM has been to enable its members to overcome barriers to senior rank, where they are able to bring their perspective to critical decisions and propel curricular, organizational, and policy changes that improve academic EM. In this way and others—for example, proposing improvements in parental leave policies and providing intensive faculty development sessions, which were attended by both men and women—AWAEM’s initiatives appeared to not only improve the professional environment for female faculty, but all faculty.

Investing in and achieving gender equity is critical to the future of our specialty and guarantees dividends for years to come. If female medical students perceive a glass ceiling in academic EM, they may be less likely to choose EM, thereby putting academic EM at a competitive disadvantage. For female faculty to advance, women need access to effective mentorship and sponsorship to maintain a career path toward promotion and leadership. Organizations like AWAEM can help ensure that female faculty have the resources they need to build robust, successful, and fulfilling careers and that institutions have the evidence, through research and education, of best practices to create a culture where all faculty can thrive. In the 10 years since its inception as a “womens’ group,” AWAEM’s place in the landscape of EM and its role in improving the workplace for the entire specialty have never been clearer.

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References