

# Towards Gender Equity in Critical Care Medicine: A Qualitative Study of Perceived Drivers, Implications, and Strategies

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**Objectives:** Critical care medicine is a medical specialty where women remain underrepresented relative to men. The purpose of this study was to explore perceived drivers (i.e., influencing factors) and implications (i.e., associated consequences) of gender inequity in critical care medicine and determine strategies to attract and retain women.

**Design:** Qualitative interview-based study.

**Setting:** We recruited participants from the 13 Canadian Universities with adult critical care medicine training programs.

**Participants:** We invited all faculty members (clinical and academic) and trainees to participate in a semistructured telephone interview and purposely aimed to recruit two faculty members (one

woman and one man) and one trainee from each site. Interviews were transcribed verbatim, and two investigators conducted thematic analysis.

**Interventions:** Not applicable.

**Measurements and Main Results:** Three-hundred seventy-one faculty members (20% women, 80% men) and 105 trainees (28% women, 72% men) were invited to participate, 48 participants were required to achieve saturation. Participants unanimously described critical care medicine as a specialty practiced predominantly by men. Most women described experiences of being personally or professionally impacted by gender inequity in their group. Postulated drivers of the gender gap included institutional and interpersonal factors. Mentorship programs that span institutions, targeted policies to support family planning, and opportunities for modified role descriptions were common strategies suggested to attract and retain women.

**Conclusions:** Participants identified a gender gap in critical care medicine and provided important insight into the impact for personal, professional, and group dynamics. Recommended improvement strategies are feasible, map broadly onto reported drivers and implications, and are applicable to critical care medicine and more broadly throughout medical specialties. (*Crit Care Med* 2018; XX:00–00)

**Key Words:** critical care medicine; equity; gender gap; healthcare human resources; workplace culture

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rank of full professor (14). Women also serve less often than men as lead authors and editors of publications in top medical journals (15), as speakers at medical conferences (16, 17) and medical grand rounds (18), in clinical practice guideline committees (19, 20), and are less likely to be introduced as doctor during rounds (21).

The discrepancy in representation, opportunities, and compensation between women and men in medicine (i.e., the gender gap) is further exacerbated in medical specialties. In Canada, less than 40% of specialists are women (22). Critical care medicine is a specialty with some of the lowest representation of women (27.7%) (3). The existence of gender disparity in critical care medicine, including the speaker gender gap at conferences (16), and the proportion of women on the boards of major intensive care societies (23), has been previously described (4). However, perceptions of gender composition in critical care medicine, including perceived drivers (i.e., influencing factors) of gender inequity, observed implications (i.e., associated consequences), and related strategies to encourage and retain women in the specialty, have not yet been comprehensively explained.

To better understand gender inequity in critical care medicine, and to generate recommendations for how opportunities for gender parity might be improved in medical specialties overall, we sought perspectives and experiences of gender inequity from women and men faculty members and trainees from critical care medicine training programs across Canada.

## MATERIALS AND METHODS

### Study Design

We conducted an in-depth interview-based qualitative study with Canadian critical care medicine physicians in accordance with the Consolidated Criteria for Reporting Qualitative Research (**Supplemental Digital Content 1**, <http://links.lww.com/CCM/E283>) (24). The University of Calgary Conjoint Health Research Ethics Board approved this study (Ethics ID: REB16-0890).

### Participants

We developed a list of all faculty (clinical and academic) and trainees (defined as those enrolled in an adult critical care medicine residency program accredited by the Royal College of Physicians and Surgeons) from 13 Canadian Universities with adult critical care training programs with publicly available data (**Supplemental Digital Content 2**, <http://links.lww.com/CCM/E284>). This list was composed of gender, academic and clinical rank, university name, and contact information. If this information was not available publicly, an anonymized breakdown of academic faculty by gender was requested by a personal contact (e.g., a colleague) at the University. Data were checked by a faculty member in critical care at each site to ensure lists were updated and complete. We invited all faculty members to participate with an e-mailed invitation. We purposely aimed to recruit two faculty members (one self-identified woman and one self-identified man) and one trainee from

each site ( $n = 39$ ) (**Supplemental Digital Content 3**, <http://links.lww.com/CCM/E285>). Upon reaching this target, we continued interviewing to ensure theoretical saturation had been reached (25, 26). Interview participants were reminded that participation was voluntary and that they could withdraw from the study at any time. Interviews were immediately transcribed and deidentified by an experienced female qualitative researcher who did not hold an appointment in critical care medicine (C.d.G.). To ensure anonymity, no one from the study team besides the researcher (C.d.G.) knew who was being interviewed, participated in the conduct of interviews, or had access to any deidentified participant information.

### Interview Guide

An interview guide based on questions developed by Mascarenhas et al (14) and Pattani et al (20), and refined for the context of Critical Care Medicine based on investigator discussion, was piloted with five participants at three sites (four faculty and one trainee) to ensure questions were appropriate (**Supplemental Digital Content 4**, <http://links.lww.com/CCM/E286>). At the start of the interview, our primary goal to identify strategies to recruit and retain women to practice critical care medicine was stated. We also clarified the existence of a gender gap in terms of representation (more men than women physicians) at a national level in the specialty. Interviews then broadly explored participant perceptions of gender composition at their site, drivers and implications of the gender gap, and strategies to attract and retain women. The interview guide was further refined by investigators following pilot interviews to ensure clarity and comprehensiveness of the questions.

### Data Collection and Analysis

Qualitative semistructured telephone interviews were conducted after obtaining informed consent from each participant. One investigator (C.d.G.) conducted the interviews between February 22, 2017, and September 26, 2017. Interviews occurred by telephone in a private office on speaker phone to audio record the conversation. Participant demographics were collected with a short, verbally administered questionnaire (**Supplemental Digital Content 5**, <http://links.lww.com/CCM/E287>). Demographics were stored in a separate password-protected database tagged with a unique identifier. Audio recordings were transcribed verbatim while identifying information (names, locations, and identifying context) was removed. The opportunity to review deidentified transcripts was offered to all participants.

Data analysis was conducted between May 23, 2017, and November 15, 2017. We analyzed transcripts using a thematic analysis approach with Nvivo9 (<https://www.qsrinternational.com/>) (27). Two investigators (J.P.L., C.d.G.) independently reviewed a small number of the same transcripts ( $n = 2$ ) using an open coding methodology (27) to fracture the data and develop a preliminary list of emerging primary and secondary themes. The investigators then came together to compare interpretations of the data and develop labels for each emerging theme (i.e., codes). A preliminary

coding framework was developed and pilot tested on three additional transcripts to further refine the framework for comprehensiveness (i.e., axial and selective coding processes were used at this time to ensure the capture of developing themes and subthemes in the overall coding framework) (27). Pilot interviews ( $n = 5$ ) were included in the overall dataset ( $n = 48$ ). Differences in preliminary coding were reconciled by discussion with a third investigator (H.T.S.) until agreement was reached. The coding framework was then finalized, and the transcripts were divided, so that each investigator applied the coding framework to half of the transcripts. Investigators met after coding approximately every five transcripts ( $n = 5$  meetings over 6 mo) to discuss emerging themes, resolve discrepancies, and adjust the coding framework as needed. During these analytic pauses, investigators recoded one of the other investigators transcripts as an audit of quality assurance. Annotations were documented by each investigator within a journal that was kept up-to-date with the pace of analysis and available to the other investigator at all times. Investigator journals included descriptions of the analytic process (i.e., how data were generated and analyzed, all decisions made, and questions that arose) and the development of thematic propositions and were referred to by investigators often to ensure continued agreement. Following this phase of analysis, a secondary stratified analysis of participant data grouped by gender and academic rank (i.e., faculty vs trainee) was conducted by both investigators from November 30, 2017, to January 15, 2018, following the same pattern described above.

## RESULTS

Three-hundred seventy-one faculty members (20% women, 80% men) and 105 trainees (28% women, 72% men), representing the universities' membership, were invited to participate through an e-mail invitation (Fig. 1). Eighty-two

volunteered to participate, and 48 interviews representing both faculty members (14 women, 18 men) and trainees (11 women, 5 men) from 13 universities were conducted to achieve saturation (Table 1). When asked about the gender composition of critical care medicine in Canada, participants unanimously characterized it as a specialty practiced predominantly by men. Participants from 11 of 13 sites characterized their institution as male dominant (both overall composition and leadership). All but three women in the study described experiences of being personally (e.g., belittled or underestimated) or professionally (e.g., no obvious path to leadership) impacted by gender inequity in their department or division, whereas a third of men reported an indirect impact (e.g., a previous trainee chose to pursue a different medical specialty).

### Drivers of Gender Inequity

Participants identified perceived drivers of gender inequity in critical care medicine. Prevalent themes described across all participants largely focused on factors perceived to impact the recruitment of women to the specialty, including 1) the organization of ICU work (e.g., long and inflexible hours); 2) predominantly male leadership (e.g., perpetuates the recruitment, selection and promotion of men over women); 3) the paucity of women in leadership and role modeling positions (i.e., creates an impression of limited success) (Supplemental Digital Content 6, <http://links.lww.com/CCM/E288>).

When stratified by gender, our data showed that women frequently postulated the open value placed on traditionally male dominant traits in critical care medicine (e.g., competitiveness) as a chief driver of gender inequity (a theme not strongly represented by men). (Supplemental Digital Content 7, <http://links.lww.com/CCM/E289>). In contrast, men more readily emphasized intensive training and limited job options as leading drivers of gender inequity. Of note, almost a quarter of men perceived women to be inherently unattracted to high-pressure medical specialties—

a theme that was not present in the accounts of women (Supplemental Digital Content 6, <http://links.lww.com/CCM/E288>).

When academic rank was considered, women trainees were found to largely view the lack of desire in critical care medicine groups to embrace flexibility (e.g., assume a “family friendly” approach) as a main driver of the gender gap, whereas men trainees regularly described uncertain job prospects (a theme not echoed by their female counterparts). Meanwhile, women faculty described predominantly male leadership as a main driver of

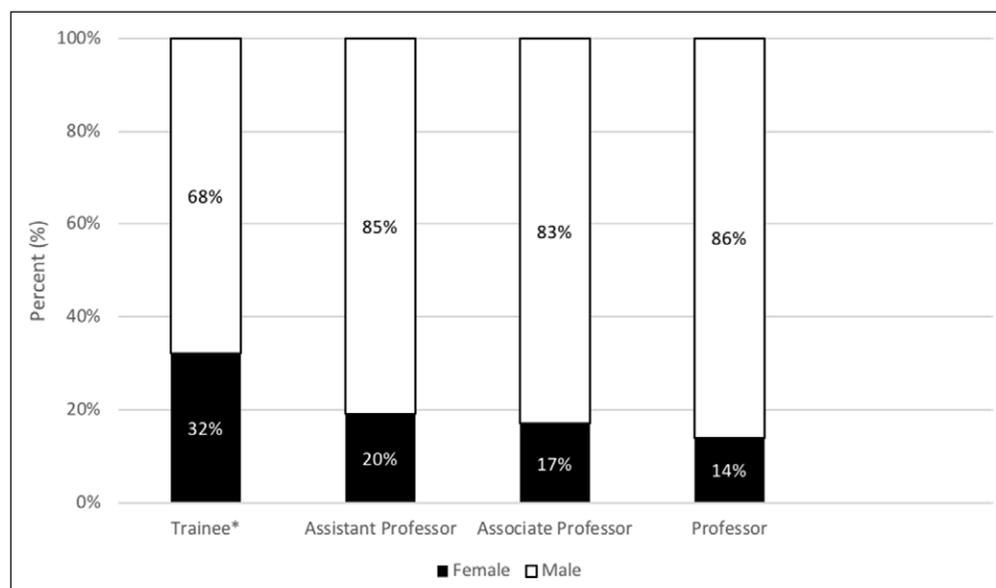


Figure 1. Academic rank of physicians.

**TABLE 1. Interview Participant Characteristics**

Characteristics	Participants (n = 48)
Female, n (%)	25 (52.0)
Academic rank, n (%)	
Trainee	18 (37.5)
Assistant professor <sup>a</sup>	13 (27.1)
Associate professor	4 (8.3)
Professor	13 (27.1)
Primary role, n (%)	
Clinician researcher/scientist	20 (41.7)
Clinician teacher/educator	7 (14.5)
Not applicable (trainee)	17 (35.4)
Clinician administrator	2 (4.2)
Clinician quality improvement specialist	2 (4.2)
Marital status, n (%)	
Single	3 (6)
Married/common law	45 (94)
Partner works outside of home, n (%)	43 (90)
Partner's profession, n (%)	
Physician	17 (35.4)
Other health professional	11 (22.9)
Other professional	6 (12.5)
Other	14 (29.2)
Has children, n (%)	29 (60)
Girl(s)	5 (10)
Boy(s)	8 (17)
Girl(s) and boy(s)	15 (31)
Ethnicity, n (%)	
Non-French Canadian caucasian	36 (75.0)
French Canadian caucasian	6 (12.5)
Other	6 (12.5)
Years since graduated medical school graduation, median (IQR)	13.5 (7–27.5)
Number of different academic institutions trained and/or worked in critical care medicine, median (IQR)	2 (2–3)

IQR = interquartile range.

<sup>a</sup>Assistant professor rank includes two clinical scholars/lecturer.

gender inequity (i.e., men in power are more likely to recruit and promote other men), whereas men faculty emphasized the inability of groups to be flexible due to size (i.e., in smaller groups it is difficult to find coverage).

### Implications of Gender Inequity

Both women and men discussed their own experiences or the observed experiences of colleagues when describing implications of gender inequity in critical care medicine (**Supplemental Digital Content 8**, <http://links.lww.com/CCM/E290>). Prevalent implications described by participants included 1) women in critical care medicine do not feel respected, valued, or secure in their work (e.g., feelings of constantly needing to prove their worth); 2) limited development in the specialty (i.e., in approach to treatment, planning, and patient engagement) due to the lack of diversity among critical care medicine groups and the tendency of leadership not to fully use available skillsets; and 3) women in critical care medicine experience subtle (e.g., higher value placed on conventionally male traits) and overt (e.g., bullying) discrimination.

When discussion of implications was stratified by gender, our data showed that women readily emphasized the paucity of female mentors, support networks, and a pervasive “old boys club” (e.g., insider culture that excludes women and minorities) as chief implications of the gender gap (**Supplemental Digital Content 7**, <http://links.lww.com/CCM/E289>). In contrast, men described female colleagues feeling obstructed from developing their careers (e.g., not engaged in leadership positions) and female clinicians working in intimidating environments where they are underrepresented, as central implications (**Supplemental Digital Content 7**, <http://links.lww.com/CCM/E289>; and **Supplemental Digital Content 9**, <http://links.lww.com/CCM/E291>). Of note, a small number of men described the gender gap as having no implications—a theme that was not present in the interviews of women (**Supplemental Digital Content 7**, <http://links.lww.com/CCM/E289>; and **Supplemental Digital Content 9**, <http://links.lww.com/CCM/E291>).

When academic rank was considered, we found that every trainee reported some manifestation (observed or experienced) of the lack of respect and value women experience compared with men in critical care medicine (**Supplemental Digital Content 7**, <http://links.lww.com/CCM/E289>; and **Supplemental Digital Content 9**, <http://links.lww.com/CCM/E291>). Meanwhile, faculty members emphasized the tensions women experience when attempting to advance their careers (e.g., navigating a work culture that does not place equal value on their contributions) (**Supplemental Digital Content 7**, <http://links.lww.com/CCM/E289>; and **Supplemental Digital Content 9**, <http://links.lww.com/CCM/E291>).

### Strategies to Improve Gender Inequity

Participants were asked to describe strategies that they believe would help to attract and retain women in critical care medicine (**Supplemental Digital Content 10**, <http://links.lww.com/CCM/E292>). Strategies described across all 13 sites included 1) develop and implement mentorship programs that include mentors from diverse backgrounds (e.g., race, ethnicity, culture) and lifestyles (e.g., with/without children) that span institutions; 2) support leave taking (e.g., parental leave, family medical or caregiver leave) with targeted policies (e.g., 1 yr

leave job protection) and appropriate accommodations (e.g., private pumping rooms for nursing mothers). Other commonly mentioned strategies included: 3) offer opportunities for modified role descriptions (e.g., job sharing) and flexibility in clinical and academic (e.g., teaching) scheduling; 4) have open conversations about gender equity in critical care medicine groups and dedicate time and resources toward addressing described issues (e.g., discriminatory behavior); 5) strive for gender equity in recruitment practices (e.g., gender-balanced search committees); 6) implement policies related to the appointment of decision makers in critical care medicine to ensure gender discrimination is eradicated (e.g., all leaders must complete formal equity training); and 7) promote meritorious women into leadership positions and prioritize their interaction with trainees (i.e., via protected time).

## DISCUSSION

Our findings suggest that a considerable gender gap exists in terms of representation and experience in critical care medicine. Postulated drivers include both institutional (e.g., limited job prospects) and interpersonal (e.g., bias against women in recruitment, selection, and promotion) factors. Unlike the findings presented in a similar single-center study (14), examples of both unconscious and intentional bias against women were provided. Observed implications spanned personal (e.g., belittled and underestimated), professional (e.g., difficulty advancing career), and group (e.g., limited development in the specialty) levels and provided insight into a hidden curriculum that impacts training and environment (e.g., the enculturation of trainees regarding the lack of respect women physicians experience relative to men) (28, 29). Many of the themes that emerged (e.g., the cycle and implications of predominantly male leadership) are reflective of the type of “path-dependent” change that is common in institutional reproduction (30). Although drivers and implications were described by participants in the specific context of critical care medicine in Canada, similar findings have been reported across medical specialties and geographic locations (30–32). Critical care medicine is a relatively new medical specialty (33). Despite low representation of women compared with other clinical specialties (3, 34), advancements toward improved gender parity are ongoing. For example, the Canadian Critical Care Trials Group ([www.CCCTG.ca](http://www.CCCTG.ca)) has a history of female leadership (19) and supports important initiatives to foster the development and success of a diverse group of trainees across the country (e.g., the Young Investigators Retreat) (35). In addition, the inaugural chair of the Canadian Sepsis Foundation (<https://canadiansepsisfoundation.ca>) is a woman, the problem of gender inequity in critical care medicine has been identified on both national and international scales (19, 36). Nevertheless, our findings suggest that there is more we can do to close the gender gap in this specialty.

Several prevalent strategies postulated by participants (e.g., gender parity in recruitment practices, the promotion of women into leadership positions) are widely applicable

throughout medicine (37, 38). The development of leaders and local champions poised to model change and implement targeted policies to support these strategies will be vital to success (39, 40). In addition, our data show that an important starting place for attracting and retaining women in critical care medicine will be the development and implementation of comprehensive mentorship programs. Frequent suggestions for program development included women and men mentors from varied backgrounds (e.g., race, ethnicity, culture), lifestyles (e.g., with/without children), and experiences (e.g., research, leadership), and the inclusion of a virtual online component to enable pairings across training programs.

Finally, it is important to note that perhaps not unexpectedly, men and women often approached the intricacies of the gender gap in critical care medicine in different ways. For example, men more readily assumed an institutional lens when discussing the drivers and implications of gender inequity (i.e., emphasizing system-level deterrents and implications for the group), whereas women more readily assumed an intersectional approach (i.e., citing historical, social, and political factors as drivers and describing the impact on their unique experience). These differences, combined with less prominent subthemes from men which suggested that women inherently dislike high-pressure medical specialties and that the gender gap has no implications, demonstrate the need for both broad training in gender equity and the increased participation of women in leadership and policy discussions. Involving advocates of gender equity in the negotiation over group policies and procedures will be a key improvement strategy (30).

There are limitations that should be considered when interpreting the findings of our study. First, racial and ethnic minorities were underrepresented in our sample, limiting our ability to fully explore intersecting axes of inequity (whether our population represents the overall demographics of critical care medicine in Canada is unknown) (41). Second, given that participants may have been motivated to interview because of mostly positive or negative experiences and that nonparticipants may have been deterred due to the same, it is possible that important perspectives were missed. Finally, our sample consists of faculty and trainees from teaching universities, and as such, results may not be transferable to nonacademic medicine. We attempted to reconcile these limitations by being inclusive in our sampling frame (we invited all faculty and trainees from 13 universities in six provinces to participate in our study). Although the distinct likeness and overlap of themes lead us to believe that our results are broadly applicable, future studies should further explore experiences of intersecting inequities and attempt to repeat this study in non-academic critical care practice settings.

## CONCLUSIONS

A gender gap exists in the clinical specialty of critical care medicine. Faculty and trainees identified perceived drivers (institutional and interpersonal) and observed implications (personal, professional, group) of gender inequity in the discipline.

Recommendations to improve gender equity (develop mentorship programs, support family planning, offer opportunities for modified role descriptions) are feasible, map broadly onto reported drivers and implications, and are applicable to critical care medicine and more broadly throughout medical specialties.

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