

## RESEARCH LETTER

## The Current State of Women in Cardiovascular Leadership and Their Impact on Trainee Program Selection



Lack of women role models has a negative impact on women choosing careers in cardiology, where they are underrepresented.<sup>1-5</sup> However, the impact women in leadership have on training program diversity is unknown.

This mixed methods study was approved by the institutional review board. Data on trainees at graduate medical education accredited programs for cardiovascular disease (CVD) were obtained from the Association of American Medical Colleges graduate medical education Track survey (2018-2019). Data on CVD leadership were collected from hospital websites, the Accreditation Council for Graduate Medical Education, and through direct contact with hospitals.

Women trainees were invited to an online focus group via fellow-in-training list serves for the American College of Cardiology and American Heart Association and the Accreditation Council for Graduate Medical Education cardiovascular program directors list serve. Participants were consented electronically and sent 1 open-ended question prior to their focus group: *Based on your personal experience, what are the most important features to consider when choosing a cardiovascular fellowship program?* During the 1-hour focus group, facilitators clarified responses to the survey question and compiled items for ranking.

All sessions were recorded, transcribed, reviewed, and coded using qualitative software (ATLAS.ti Scientific Software Development GmbH). The top 7 responses from each session were compiled into a 21-item survey and distributed nationally via the aforementioned list serves.

Descriptive statistics for cardiovascular trainees and leadership are presented. The association between leaders and the proportion of women trainees

was examined with robust Welch tests ( $P < 0.05$ ) and odds ratios (ORs).

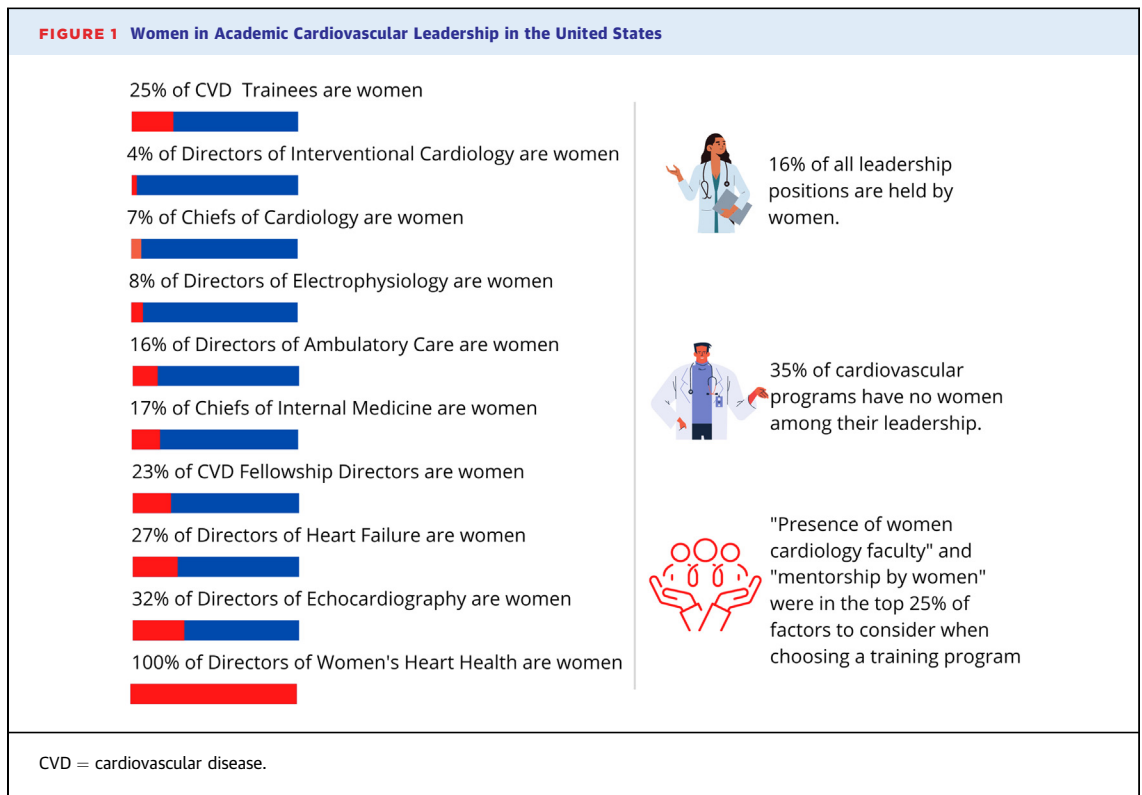
Data were collected from 233 CVD programs (3,007 trainees, 25% women). CVD programs had 2 to 51 trainees (median 12, IQR: 9) with a median of 3 women (IQR: 3). Almost 10% (21/233) of programs had 0 women. Larger size and Northeast programs were more likely to be in the top quartile for proportion of women trainees (OR: 3.48; 95% CI: 1.12-9.99;  $P = 0.02$ ; OR: 2.52, 95% CI: 1.15-5.48;  $P = 0.02$ , respectively). Midwest programs were more likely to be in the bottom quartile (OR: 0.3; 95% CI: 0.13-0.66;  $P = 0.003$ ). Other factors including program type, hospital size, ranked status by US News and World Report, and urban/rural designation were not associated with the proportion of women trainees.

The gender of academic cardiovascular leadership was obtained for 233 programs (1,693 leaders, 19% women). Among the 324 women in leadership, over one-half are Directors of Women's Heart Health (20%), Echocardiography (18%), or General Cardiovascular Medicine Fellowships (16%). Less than 7% of Cardiovascular Chiefs (6.6%, 15/228), Directors of Electrophysiology (6.5%; 14/215), or Interventional Cardiology (3.6%; 8/219) are women. Excluding Women's Heart Health Directors which is uniformly directed by women; 100%, 65/65, women make up approximately 16% of the remaining leaders reported (Figure 1).

More than one-third of programs (35%; 82/233) have no women leaders. There was no association between the proportion of women trainees and presence of women leaders.

Approximately 750 women trainees were reached to participate in a virtual focus group, of whom 16 (2%) participated. Participants were a mean age of 33. The majority (11/16, 68%) were married and one-third had children (5/16, 31%). One-third identified as White. Clinical exposure and professional preparation were the top priorities. The "presence of women cardiology faculty" and "mentorship by women" were in the top 25% of 84 factors considered.

A 21-item survey of the top 7 responses was then distributed nationally. A total of 35 responses (4%, 35/750) were received. The "presence of women cardiology faculty" ranked 14th, ahead of program



reputation and call schedule but behind professional preparation, work-life balance, and program culture.

The presence of women as mentors is a strong factor influencing women to choose cardiology careers.<sup>3</sup> Our results document few women leaders at academic cardiovascular training programs; consistent with well-documented gender disparities within cardiology. We were unable to find an association between women in leadership and the proportion of women trainees. We could not determine if this is due to the scarcity of women in leadership or a true lack of association. The uneven distribution of women leaders, from 4% in interventional cardiology to 100% in women's heart health is also noteworthy, suggesting that women may be relegated to arguably less prestigious or lower revenue leadership roles. The selection of a woman to lead in every women's heart program surveyed confirms the presence of qualified women in the cardiology leadership pool.

The variety of factors considered by women trainees when selecting a program confirms the need for a multi-pronged approach to improve gender diversity in cardiovascular training.<sup>5</sup> Institutions that prioritize a holistically inclusive culture including improvements to work-life balance, trainee wellness

and parity from recruitment, to mentorship, and leadership will attract top talent, regardless of gender.

There are some limitations: Leadership demographic data were self-reported and the survey response rate was low but similar to prior published response rates among trainees.<sup>3</sup>

In summary, women hold few leadership positions within cardiovascular medicine, especially invasive lab directorships and chief positions. More than one-third of academic programs have no women leaders. While addressing gender diversity in cardiovascular leadership does not preclude diversifying trainees, diversity is a major concern among trainees and clearly strengthens programs.

\*Kerrilynn C. Hennessey, MD  
 Emily P. Zeitler, MD, MHS  
 Terrence D. Welch, MD  
 Shayne E. Dodge, BSc  
 Rachel C. Forcino, PhD, MSc  
 Kinan Bachour, MD, MBA  
 Merle L. Myerson, MD, EdD  
 Pablo Martinez-Cambor, PhD  
 Pamela S. Douglas, MD  
 Megan J. Coylewright, MD, MPH

\*Section of Cardiovascular Medicine  
Heart and Vascular Center  
Dartmouth-Hitchcock Medical Center  
1 Medical Center Drive  
Lebanon, New Hampshire 03756, USA  
E-mail: [Kerrilynn.C.Hennessey@hitchcock.org](mailto:Kerrilynn.C.Hennessey@hitchcock.org)  
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The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the [Author Center](#).

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