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7-21-2021

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Almaz S. Dessie

Resa E. Lewiss

Lori A. Stolz

Josie Acuña

Srikar Adhikari

See next page for additional authors

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Recommended Citation

Dessie AS, Lewiss RE, Stolz LA, Acuña J, Adhikari S, Amponsah D, Del Rios M, Huang RD, Knight RS, Landry A, Liu RB, Gottlieb M, Ng L, Panebianco NL, Rosario J, Weekes AJ, and Jones JD. The state of gender inclusion in the point-of-care ultrasound community. Am J Emerg Med 2021.

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Authors

Almaz S. Dessie, Resa E. Lewiss, Lori A. Stolz, Josie Acuña, Srikar Adhikari, David Amponsah, Marina Del Rios, Rob D. Huang, R. Starr Knight, Adaira Landry, Rachel B. Liu, Michael Gottlieb, Lorraine Ng, Nova L. Panebianco, Javier Rosario, Anthony J. Weekes, and Jodi D. Jones



ELSEVIER

Contents lists available at ScienceDirect

American Journal of Emergency Medicine

journal homepage: www.elsevier.com/locate/ajemThe
American Journal of
Emergency Medicine

The state of gender inclusion in the point-of-care ultrasound community

In 1994, Dr. James Mateer trained the first three American emergency point-of-care ultrasound (POCUS) fellows. Drs. Beth Thoma, Verena Valley, and Mary Beth Phelan pioneered the field at the Medical College of Wisconsin-Milwaukee (Mary Beth Phelan, personal communication, 2/2/20). Despite the historic beginning, women remain under-represented in the field of POCUS. This paper describes the scope of gender inequity in the emergency POCUS community and offers strategies to create a more gender-inclusive environment.

The available data demonstrate a pattern of gender inequity in leadership among POCUS organizations. For example, the American College of Emergency Physicians (ACEP) has elected six women chairs out of 25 in the 25-year Emergency Ultrasound Section (EUS) history [1]. One of 10 physician members of ACEP's Clinical Ultrasound Accreditation Program is a woman [2]. Internationally, the World Interactive Network Focused on Critical Ultrasound (WINFOCUS) currently has its first woman president after 15 years of leadership by seven men (Anthony Dean, personal communication, 6/19/21). Women represent 15% of the WINFOCUS board members [3]. One-third of elected officers of the Society for Academic Emergency Medicine's Academy of Emergency Ultrasound (AEUS) have been women [4]. Of nearly 150 Society of Clinical Ultrasound Fellowships (SCUF) programs, more than two-thirds are led by men (Patrick Hunt, personal communication, 2/10/21). Related to leadership, we found women are less frequently recipients of POCUS awards; only 24% of AEUS awards and 38% of EUS awards have been granted to women (Julie Rispoli, personal communication, 1/1/2021) [5].

Looking more broadly, POCUS publications, conferences, and industry collaborations are all male-dominated. Two men served as the 2016 ACEP Ultrasound Guidelines editors. Women represented one-third of the author group [6]. Fourteen men wrote the 2014 ACEP Ultrasound Imaging Criteria Compendium, with no women contributors [7]. Three major ultrasound journals - *Journal of Ultrasound in Medicine*, *The Ultrasound Journal*, and *Journal of Clinical Ultrasound* - have men as editors-in-chief. Women comprise 18.5% of their editorial boards [8-10]. Most high-impact, multi-institutional POCUS research studies are led by men [11-15]. This lack of representation in research leads to additional disparities in publication. For regional and national POCUS conferences, men have outnumbered women as speakers, moderators, and course directors for decades. Similarly, the chief medical officers of most ultrasound companies are men, suggesting women are not regarded as POCUS experts [16-21]. This reinforces the status quo of the technology industry as a men-only space [22].

As the field of Emergency Medicine strives for diversity and inclusion, we need systemic change to create an equitable community of educators, researchers, and clinicians. At present, men are overrepresented

as the leaders and voices of the POCUS community. To that end, we propose the following solutions.

First, we need more data to understand the scope of the problem and structure improvements. POCUS divisions and organizations should collect and report data on recruitment, promotion, leadership, awards, speaking opportunities, and salary of faculty and fellows to assess the state of gender parity [23,24]. Public reporting allows for identification of ongoing disparities, corrective actions, and illustration of progress. SCUF's annual benchmark survey can collect this essential information. When parity is not present, a public statement of commitment with deliberate, measurable outcomes on a specific timeline would support this intention [25].

We recommend comprehensive efforts to increase leadership and speaking opportunities for women in POCUS. Term limits would allow women and other under-represented groups to advance to leadership positions [26]. Similar to *The Lancet* and National Institutes of Health Director, POCUS organizations can develop their own "no manel" pledges that reflect their equity goals [25,27]. National societies and conference organizers should strive for gender parity when selecting speakers, encourage women applicants for awards, create balanced planning committees, and ensure family-friendly conferences [28,29]. In addition, we suggest a holistic approach to selecting speakers and granting awards by considering academic niche, stage of training, prior opportunities, and diversity [30,31].

To increase equity in publishing, journals should strive for better representation on editorial boards. As an example, *The Lancet* made a public declaration regarding gender equity and were able to achieve gender parity of their editorial advisory board within six months [25]. POCUS journal editors can similarly solicit women as reviewers and authors for invited writing pieces and create peer-review mentorship programs to increase the diversity of their reviewers and editors [25,32,33]. Bias in manuscript acceptance may also be mitigated with implementation of mandatory double-blinded peer review [34]. First and last authors can disrupt gender inequity by seeking diverse authorship groups and promoting and citing the work of women colleagues.

POCUS fellowships provide the professional foundation for our growing community. Fellowship directors should consider equity in their recruitment and selection processes. We encourage reporting diversity-related data on fellowship websites and targeting additional recruitment resources towards women and underrepresented minority applicants. These efforts demonstrate a welcoming environment and can improve diversity in hiring [35,36].

Achieving equity is an ethical imperative for all healthcare leaders, and should not just be the priority of women or those underrepresented in medicine [37]. We urge individuals, particularly those with academic and professional capital, to self-reflect and assess their role in perpetuating gender inequity [38]. When assembling research teams, speaker panels, writing groups, and workshops, how many women are included? When nominating colleagues for awards, voting in national organization elections, or evaluating trainees, what are the criteria and how might they favor men? Commitment to gender equity requires a

personal investment in education, cultivation of skills needed to promote diversity, and transparency regarding successes and failures.

Emergency Medicine has reached a pivotal moment in which equity and inclusion are an urgent priority. The POCUS community is no exception to this mandate. We can level the playing field for our women colleagues. We do this by tracking data on gender parity to hold each other accountable. Women will be invited to speak on panels and serve on editorial boards. We need to ensure that women have a seat at any table where decisions are being made. As a community, we believe in equitable change.

Support

None.

Prior presentations

None.

Declarations of interest

ASD, JA, SA, DA, MDR, RDH, RSK, MG, LN, NLP, JR, LAS, and JJ report no conflicts of interest.

RBL has received funding personally from Philips Healthcare and Butterfly Network, Inc. for consulting.

AL has received funding personally from EchoNouS for consulting.

AJW reports grant money from the Agency for Healthcare Research and Quality to conduct research conceived and written by Anthony J Weekes MD MSc from Carolinas Medical Center at Atrium Health.

AJW reports grant money to Atrium Health to conduct research conceived and sponsored by Scanwell Health, Inc.

REL serves on the medical advisory board of Echonous.

REL is an uncompensated consultant for FeminEM.

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Almaz S. Dessie MD

Columbia University Vagelos College of Physicians & Surgeons, Department of Emergency Medicine, 630 W 168th St, New York, NY 10032, United States of America

*Corresponding author at: Columbia University Vagelos College of Physicians & Surgeons, Department of Emergency Medicine, 630 W 168th St, New York, NY 10032, United States of America
E-mail addresses: almazdessie@gmail.com, ad3463@columbia.edu

Resa E. Lewiss MD

Thomas Jefferson University, Department of Emergency Medicine, 130 South 9th Street, Philadelphia, PA 19107, United States of America

Lori A. Stolz MD

University of Cincinnati, Department of Emergency Medicine, 3230 Eden Ave, Cincinnati, OH 45267, United States of America

Josie Acuña MD

University of Arizona, Department of Emergency Medicine, 1501 N Campbell Ave, Tucson, AZ 85724, United States of America

Srikar Adhikari MD, MS

University of Arizona, Department of Emergency Medicine, 1501 N Campbell Ave, Tucson, AZ 85724, United States of America

David Amponsah MD

Henry Ford Hospital, Department of Emergency Medicine, 2799 W Grand Blvd, Detroit, MI 48202, United States of America

Marina Del Rios MD, MS

University of Illinois Chicago, Department of Emergency Medicine, 1853 W Polk St, Chicago, IL 60612, United States of America

Rob D. Huang MD

University of Michigan Medical School, Department of Emergency Medicine, 1301 Catherine St, Ann Arbor, MI 48109, United States of America

R. Starr Knight MD

University of California-San Francisco, Department of Emergency Medicine, 513 Parnassus Ave, San Francisco, CA 94143, United States of America

Adaira Landry MD, MEd

Brigham and Women's Hospital, Emergency Medicine, 75 Francis St, Boston, MA 02115, United States of America

Rachel B. Liu MD

Yale School of Medicine, Department of Emergency Medicine, 333 Cedar St, New Haven, CT 06510, United States of America

Michael Gottlieb MD

Rush University Medical Center, Department of Emergency Medicine, 1620 W Harrison St, Chicago, IL 60612, United States of America

Lorraine Ng MD

Columbia University Vagelos College of Physicians & Surgeons, Department of Emergency Medicine, 630 W 168th St, New York, NY 10032, United States of America

Nova L. Panebianco MD, MPH

University of Pennsylvania, Department of Emergency Medicine, 3400 Civic Center Blvd, Philadelphia, PA 19104, United States of America

Javier Rosario MD

University of Central Florida, Department of Emergency Medicine, 6850 Lake Nona Blvd, Orlando, FL 32827, United States of America

Anthony J. Weekes MD, MSc

Carolinas Medical Center at Atrium Health, Department of Emergency Medicine, 1000 Blythe Blvd, Charlotte, NC 28203, United States of America

Jodi D. Jones MD

UT Southwestern Medical Center, Department of Emergency Medicine, 5323 Harry Hines Blvd, Dallas, TX 75390, United States of America

11 May 2021

Available online xxxx