



Invited Perspective

Where Are the Women? The Underrepresentation of Women Physicians Among Recognition Award Recipients From Medical Specialty Societies

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Abstract

Membership in medical societies is associated with a number of benefits to members that may include professional education, opportunities to present research, scientific and/or leadership training, networking, and others. In this perspective article, the authors address the value that medical specialty society membership and inclusion have in the development of an academic physician's career and how underrepresentation of women may pose barriers to their career advancement. Because society membership itself is not likely sufficient to support the advancement of academic physicians, this report focuses on one key component of advancement that also can be used as a measure of inclusion in society activities—the representation of women physicians among recipients of recognition awards. Previous reports demonstrated underrepresentation of women physicians among recognition award recipients from 2 physical medicine and rehabilitation specialty organizations, including examples of zero or near-zero results. This report investigated whether zero or near-zero representation of women physicians among recognition award recipients from medical specialty societies extended beyond the field of physical medicine and rehabilitation. Examples of the underrepresentation of women physicians, as compared with their presence in the respective field, was found across a range of additional specialties, including dermatology, neurology, anesthesiology, orthopedic surgery, head and neck surgery, and plastic surgery. The authors propose a call for action across the entire spectrum of medical specialty societies to: (1) examine gender diversity and inclusion data through the lens of the organization's mission, values, and culture; (2) transparently report the results to members and other stakeholders including medical schools and academic medical centers; (3) investigate potential causes of less than proportionate representation of women; (4) implement strategies designed to improve inclusion; (5) track outcomes as a means to measure progress and inform future strategies; and (6) publish the results to engage community members in conversation about the equitable representation of women.

Where Are the Women?

Although it is well documented that women are underrepresented for awards in science, technology, engineering, mathematics, and medicine (STEMM) [1], to our knowledge, Silver et al [2,3] were the first to examine and publish in the medical literature the gender distribution in presentation of recognition awards to individual physicians by specific medical specialty societies. The first study revealed that for more than 48 years (1968-2015), women were

represented among recognition award recipients within the American Academy of Physical Medicine and Rehabilitation at proportions lower than expected based on their presence in the specialty since 1975 [4,5] and their membership in the American Academy of Physical Medicine and Rehabilitation since the society started collecting gender data in 2011 [2]. Notably, for 40 of 48 years, no women received a recognition award that was associated with a lectureship; a prestigious opportunity to speak to colleagues in a public forum, impart personal views, and guide the collective vision for the

future of the field. A second study that analyzed the gender of physician award recipients recognized by the Association of Academic Physiatrists over the 27-year history of the awards (1990-2016) also revealed a less-than-proportionate representation of women as compared with their presence in academic physiatry [3]. In that study, Silver et al [3] noted that no awards were given to women physicians during the most recent 4 years (2013-2016) or in one half of the award categories during the most recent decade (2007-2016). Moreover, no women received the outstanding resident/fellow award since the award's inception (2010).

The Power of Zero

In analyzing disparities, the number zero is particularly powerful and its presence is sometimes referred to as an inexorable zero. Huang, in the *Harvard Law Review*, wrote that "evidence of an inexorable zero can serve as a telling symptom of hidden attitudes or hiring practices that work to exclude women or minorities from whole categories of jobs" [6]. Courts, including the U.S. Supreme Court, have ruled in employment litigation that a "glaring absence" may provide for a prima facie inference [6], a suggestion that an underlying organizational issue may be at play. Importantly, very low numbers also may constitute evidence of an inexorable zero. In this investigation, we used zero or very low numbers (near-zero) as a mechanism to examine whether representation of women physicians in recognition awards at levels less than proportionate to their presence in their field of practice may extend beyond PM&R, and discuss (1) the effect that underrepresentation of women within a medical specialty society may have on career development, (2) the effect that underrepresentation of women may have on individual and institutional support for future society activities, and (3) how a joint effort to address underrepresentation of women on the part of societies and medical schools/centers may help speed progress toward closing of gender-related gaps in professional achievement and career advancement in medicine.

In January and February 2017, published recognition award recipient lists from medical specialty societies were surveyed for zero or near-zero representation of women physicians. Identification of each recipient as a man or woman was accomplished via online searches that resulted in association of recipient names with photographs and/or profiles that included gender-indicating pronouns such as "he" or "she." For calendar years in which recipient gender was not recorded (Table 1), the award was either not distributed or the recipient's name was not available on the society's Web site.

Zero has a "peculiarly persuasive quality" [7], and the data in Tables 1 and 2 demonstrate compelling reasons to conduct future formal diversity and inclusion

studies in medical specialty societies. In these 14 recognition award recipient lists [8-19] (Association of Academic Physiatrists Award Winners, Association of Academic Physiatrists, e-mail communication, December 2016) from 11 medical specialty societies in 7 unique surgical and nonsurgical medical specialties (dermatology, neurology, anesthesiology, orthopedic surgery, head and neck surgery, plastic surgery, and physical medicine and rehabilitation), noticeable underrepresentation of women physicians was observed when compared with distribution of women physicians in faculty positions within the respective academic or clinical department [20,21] in active practice [22] or associated with accredited resident/fellow programs [23], as reported by the American Association of Medical Colleges or by Gast et al [24].

The data presented in Tables 1 and 2 are illustrative and do not represent a comprehensive analysis of the representation of women physicians within these sample award recipient lists and societies. We did not assess gender representation among award recipients in every medical specialty society or in every award category sponsored by any one society. We also maintain that, as demonstrated in initial studies by Silver et al [2,3], analysis of the underrepresentation of women physicians among recognition award recipients within a society requires more than just an accounting of total numbers of women versus men recipients overall or in a single year or in a single award category and further that standard statistical analysis may not fully capture the significance of differences when the findings are zero [6]. Moreover, documentation of underrepresentation does not address causality.

Our goal in highlighting these examples was simple—to encourage further research on diversity and inclusion within all medical specialty societies, particularly with respect to professional achievement and career development. There has never been a more urgent need to support advancement and retention of the entire physician workforce, including women. The Institute of Medicine began to call for improvements in workforce diversity as a means to address disparities in health care in 2002 [25]. Women physicians have played and may play a uniquely important role in both medicine and specialty societies moving forward, as recent research by the Council on Contemporary Families suggests that each generation is more egalitarian (believing in equality) than the generation before, with Millennials being the most egalitarian of all [26]; the proportion of women graduating from medical school remained near equality (46.4%-48.0%) between 2012 and 2016 [27]; the proportion of women in the physician workforce increased to 32.0% in 2014 [28]; women accounted for 38% of all full-time medical school faculty in 2014 [29]; and, importantly, improvement in health disparities has been tied to the efforts and inclusion of women physicians as well as physicians from underrepresented racial

Women Physicians Underrepresented in Awards

Table 1
Gender distribution within a sampling of medical specialty society award recipient lists

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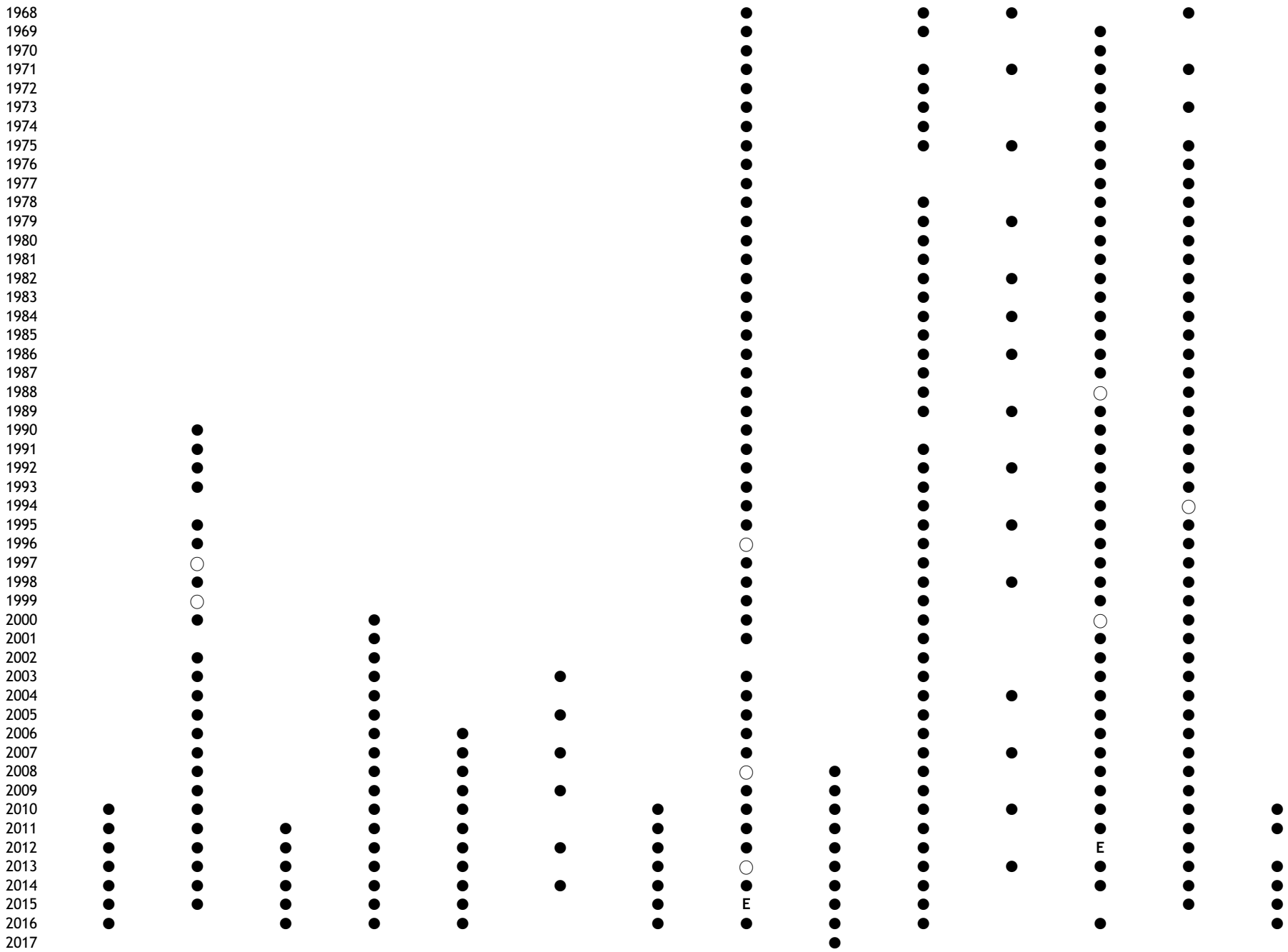


Table 2
Underrepresentation of women in medical specialty society recognition awards

Society	Award	Total Recipients	Men Recipients	Women Recipients	% Women Recipients	2016 %Women Faculty by Department (All Ranks)	2015 % Women Physicians in Active Practice
American Academy of Dermatology	Arnold P. Gold Foundation Humanism in Medicine Award	7	7	0	0%	49.2%	47.1%
American Academy of Dermatology	Marion B. Sulzberger, MD, Memorial Award and Lectureship	24	22	2	8.3%	49.2%	47.1%
American Academy of Neurology	Wayne A. Hening Sleep Medicine Investigator Award	6	6	0	0%	37.8%	28.1%
American Academy of Orthopaedic Surgeons	Humanitarian Award	20	20	0	0%	17.8%	5.0%
American Academy of Orthopaedic Surgeons	Tipton Leadership Award	11	11	0	0%	17.8%	5.0%
American Academy of Otolaryngology - Head and Neck Surgery	AAO-HNSF / International Hearing Foundation / Michael M. Paparella, MD Endowed Lecture for Distinguished Contributions in Clinical Otolaryngology	6	6	0	0%	31.5%	15.8%
American Academy of Physical Medicine and Rehabilitation	Outstanding Council Service Award - Musculoskeletal Medicine	7	7	0	0%	45.9%	35.1%
American Academy of Physical Medicine and Rehabilitation	Walter J Zeiter Lecturer	47	44	3	6.4%	45.9%	35.1%
American Association of Neurological Surgeons	International Lifetime Recognition Award	10	10	0	0%	37.8%	7.8%
American Association of Plastic Surgeons	Honorary Award	51	51	0	0%	14.1%	15.0%
American Neurological Association	George W. Jacoby Award	20	20	0	0%	37.8%	28.1%
American Society for Anesthesiologists	Distinguished Service Award	69	66	3	4.3%	36.1%	24.9%
American Society of Plastic Surgery	ASPS Honorary Citation Award	60	59	1	1.7%	14.1%	15.0%
Association of Academic Physiatrists	McLean Outstanding Resident/Fellow Award	6	6	0	0%	45.9%	38.8%

and/or ethnic groups [30-32]. However, at the same time and across the entire physician workforce, shortages currently exist and are anticipated to become more profound [33], burnout rates are unacceptably high and rising [34], and a large number of physicians are considering leaving academic medicine [35].

In a landmark report focusing on ethnic and racial equality that was published in the journal *Academic Medicine* in 2012, Peek et al [36] characterized "the magnitude, frequency and scope of" efforts by 167 national physician organizations to reduce disparities in health and concluded that, "Despite the national priority to eliminate health disparities, more than half of national physician organizations are doing little to address this problem." Moreover, they noted that "These societies are able to use their infrastructure, resources, human capital, and prestige to influence health care providers, patients, and other key stakeholders through a range of educational, research, clinical and advocacy roles. For example, physician organizations can influence undergraduate, graduate, and continuing medical education; promote health care workforce priorities; create and disseminate patient-education materials; identify and promote volunteer opportunities for their members; set research priorities; fund research and education; and advocate for health policy and legislation" [36].

Medical Specialty Societies and Career Development

In their *Trends Identification Report 2009*, the American Association of Medical Society Executives (AAMSE) recognized that "Medical societies provide critical career and leadership development opportunities for physicians from residency through retirement which is an important 'value added' benefit" [37]. Understandably, institutional leaders often encourage physician membership in medical specialty societies. However, membership alone does not necessarily confer substantive benefit with respect to physician promotion. Instead, it is the physician member who is able to navigate and successfully access and use society resources who may be in a better position to develop his or her career (Figure 1). Thus, similar to how the National Institutes of Health has been described as "a gatekeeper to career success in science" [38], societies may also be viewed as "gatekeepers" to key resources that physicians need for career development and advancement.

Although medical specialty societies may restrict membership by invitation, or election, or to physicians associated with a particular specialty or at a certain rank or position, for ethical and legal reasons, they generally do not condone discrimination based on gender, race/ethnicity, disability, or other factors. However, lack of discrimination alone does not indicate the presence of diversity or inclusion. For example, the

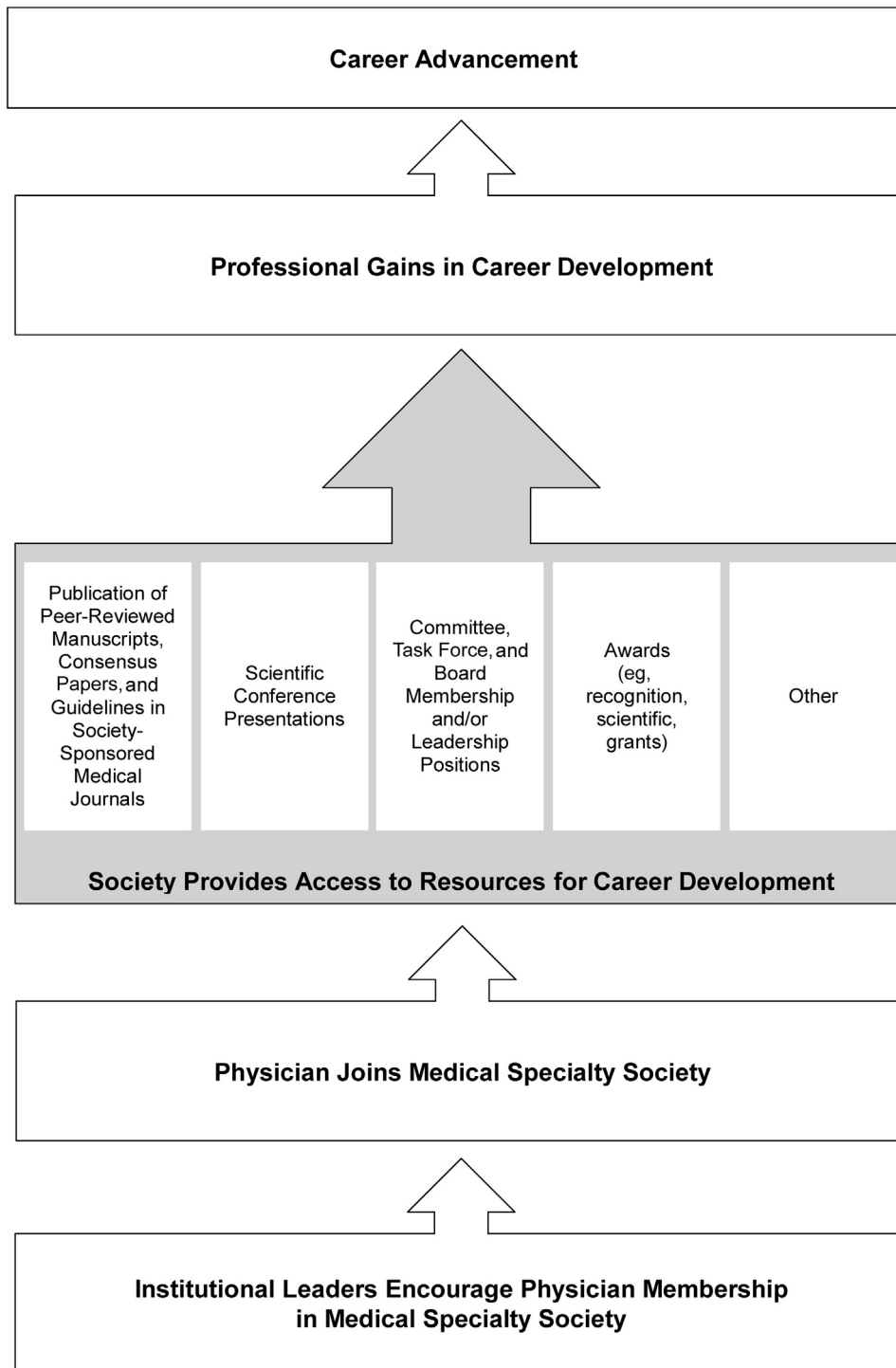


Figure 1. Role of access to medical specialty society resources in academic physician career advancement.

membership of a society may equitably reflect the proportion of women practicing in a particular medical specialty (diversity with respect to women), while at the same time a gap may exist when comparing the proportion of women physician members to the representation of women physician leaders on the society board (a gap in inclusion with respect to women in leadership roles). Diversity and inclusion then are 2

separate but related concepts that can be assessed through data-driven initiatives in all health care organizations, including medical specialty societies.

Although there are reports in the literature of gender gaps in leadership, promotion, rank, salary, grand rounds speakerships, publication rate, and h-index at the medical school level [39-47], few reports have focused on the inclusion of women and other

underrepresented groups [48] within medical specialty societies and access to their associated resources for career advancement. In a study of 54 journals across 28 specialties, researchers concluded that, "...women's representation on [professional medical] society and [journal] editorial boards does not always reflect their presence in the specialty," also noting that women's representation in society leadership positions was "critically lacking in certain specialties" despite significant representation within those fields [49]. Follow-up studies of 60 top-ranked journals covering a variety of medical specialties continued to show disparities [50]. One study of otolaryngology-related societies, which highlighted the importance of avoiding assumptions about representation and instead relying on the data to reveal the presence or absence of gaps, revealed simultaneous underrepresentation of women among members of the societies yet equitable or greater representation of women in various leadership positions depending on the society examined [51]. In a study of authorship in peer-reviewed gastroenterology journals, researchers found an increase in the representation of women physician authors from 1992 to 2012, although the proportion of women senior authors remained "lower than expected" [52]. More recently, the American Society for Gastrointestinal Endoscopy described several initiatives aimed at increasing the participation of underrepresented groups [53] and reported that women submitted more applications for committee appointments than expected from membership metrics and women were more likely to receive those committee appointments than applicants who were men [54]. A study of gender balance in invited speaker lists for 6 neuroimmunology conferences held during 2016 revealed instances of both equitable and inequitable representation of women as well as active and passive factors contributing to each respective gender outcome [55].

Although some progress has been made toward gender equity, the inconsistent nature of gender representation within some metrics is concerning, especially when examined in the context of a *Journal of the American Medical Association* editorial titled "Are Medical Society Conferences Useful? And for Whom?," in which Ioannidis commented that, "Each professional society creates its cadre of leaders, with meetings making these leaders visible to the members who usually participate passively by listening. Given the dynamics of large professional societies and conferences, leadership is sometimes judged not on scientific merit, hard work, and organization of thought, but on the ability to navigate power circles" [56].

Beyond the leadership and publication metrics already cited, another lens through which to assess whether disparities exist in physician access to resources for career development at the society level is individual physician recognition awards. Within medical

specialty societies, these types of awards typically are presented annually to physicians who have made significant contributions to their field in areas such as clinical care, research, innovation, education, administration, and/or service to the field, the society or the community-at-large. These awards are held in high regard, listed on a physician's curriculum vitae, often represent contributions made to the field and/or the society over a period of time, sometimes even provide financial support for research or travel, and may be announced to a wide audience that includes the entire membership and beyond through a variety of publications, including newsletters, conference brochures, press releases, website content, and social media channels. Therefore, it has been suggested that analyzing gender distribution among recipients of recognition awards may provide some insight into how an organization may have contributed to the career development of their members over a period of years, even decades [1].

Ensuring Stakeholder Support for Society Membership and Activities

Through sponsorship of faculty membership fees (ie, professional reimbursement benefits), conference and other fees, as well as paid advertisements, exhibitions and sponsorships, medical school departments and academic medical centers provide a great deal of financial support to specialty societies. Physicians themselves may bear out-of-pocket expenses if professional allowances do not cover all society-related fees and travel expenses. If societies are diverse and inclusive and supportive of career development, then physicians and medical school/center departments may perceive that the costs of membership and participation in society activities provide value and a good return on investment. However, if gender-related barriers to resources for career development exist, then women may be disadvantaged.

In turn, departments may feel pressure to allocate institutional resources to closing gender-related gaps in academic promotion [39,41,57], compensation [40], and funding [58-60]. Simultaneously, they may face pressure to allocate those same institutional resources to other issues not generally associated with access to society-controlled resources for career development such as faculty burnout [34], faculty attrition [61,62], education and training programs, patient care, facilities, and others. A difficult decision therefore potentially exists for institutional leaders: If the underrepresentation of women within a society poses barriers to access to career-enhancing resources and opportunities, should they continue to encourage women to participate in and provide support to those societies? Furthermore, although the *AAMSE Trends Identification Report 2015* did not specifically focus on diversity and inclusion,

Table 3
Examples of medical specialty society gender metrics*

Category	Assess Gender in Relation to:
Membership	• Age • Career stage (eg, student, resident, practicing) • Years in practice • Race/ethnicity/disability/other • Practice setting (eg, private, academic, administrative) • Part-time/full-time • Academic rank/professional title • Degrees/credentials • Years of society membership/service • Member status (eg, student, regular, honorary, fellow, distinguished fellow)
Leadership	• President/board chairs, officers, and members • Committee/task force/council/third-party advisory groups[†]/caucus chairs, officers, and members • Resident/fellow council/society chairs, officers, and members
Conference Presentations	• Plenary sessions/keynotes/lectureships/other invited speakers • Symposia/workshops/other lecturers • Paper/platform/poster presentations
Awards	• Recognition award recipients • Scientific paper/platform/poster award recipients • Grant/scholarship/other award recipients
Training	• Research training directors/faculty and speakers/mentors/participants • Leadership training directors/faculty and speakers/mentors • Other mentorship/mentors/mentees
Journal	• Editorial board members • First/senior/contributing author of original research articles/invited reviews/perspectives/consensus papers/guidelines/other articles

* Not intended to be a complete list.

[†] For example, Food and Drug Administration, Centers for Medicare & Medicaid Services, American Medical Association, third-party payer, technology assessment, and other panels and committees [72].

Blankenship and Slaw noted that early career physicians in particular "...tend toward a different view of what it means to join, derive value, become involved, and to be served, by their membership in medical societies. They are leading medical societies to think first and foremost about the "end user" of their products and services. They are voting with their feet if their needs can be served better elsewhere" [63].

Addressing Organizational Systems and Approaches

The analysis of gender among recognition award recipients presented in this perspective does not specifically address causality as this is likely based on a complex array of factors. However, the literature, which has focused primarily—although not exclusively—on diversity and inclusion in medical schools, may provide some clues. At the institutional level, some research has suggested that leadership support and accountability [64], pipeline theory [65], inadequate leadership training [65], and lack of suitable and/or sufficient mentors [66] may contribute to the underrepresentation of women and/or other minority groups. Within societies, implicit bias [65], gender disparity in the composition of awards committees [65], sex stereotype threat [67], gender-specific award criteria [65], passive nomination processes [2,65], and ineffectual diversity structures, policies and training [68] may be

players. For the physicians themselves, work/family balance [65] and an uneven distribution of women among medical specialties and subspecialties [66] also might negatively affect achievement potential. However, this field of study is complex and rapidly expanding and some research has indicated that some of these same issues may not play a determinant role in the underrepresentation of women [30,69].

Additional research has suggested that individuals' implicit bias may exert cumulative effects at the organizational level [70,71] and may be an important factor in the underrepresentation of women. As a result, recently many diversity experts have moved their focus away from helping women themselves become more successful (eg, skills development and mentoring) and toward addressing barriers within organizations that may be precluding or slowing women's ability to be successful [30]. For example, some societies have created formal "diversity structures" within their organization. While not to be completely discouraged, Kaiser et al [68] described how well-intentioned individuals in organizations may actually overestimate their diversity inclusion efforts by implementing diversity training programs, committees, and strategies that project an "illusion of fairness," even when data clearly suggest otherwise. Similarly, some societies have created awards that are gender specific and only available to women [1]. Although this approach may

increase the number of awards given to women, recognizing them in their own category may not reflect equivalent recognition if they remain underrepresented in other award categories available to *both* men and women [65].

Societies can provide physicians with a medical home through which they can, "...engage with smaller groups of likeminded people, find a common passion, work together for good purposes, renew each other, and improve the care..." provided to their patients [72]. In addition, recognition has been cited as one of the 3 "most important benefits of membership in professional societies" [72], and recognition awards have been called a "window into the values and culture of an institution" [73]. Therefore, we encourage widespread data-driven studies that help support inclusion for all members of specialty, subspecialty, state and national medical societies at all levels of member recognition and participation (Table 3) [72]. If found, instances of underrepresentation should then be studied with regard to causality—as attempts to improve inclusion will depend on the contributing factors. We suggest that efforts to improve diversity and inclusion within medical specialty societies might mirror processes used for quality improvement in hospitals—as a continuous process that is focused on metrics and outcomes, is transparent and progressive, is led by internal advocates who keep abreast of the research and best practices for workforce diversity and inclusion, and operates under the assumption that there will always be room for improvement. We also suggest that such efforts may align with AAMSE findings that, "There is strong evidence that early career physicians will become and remain engaged in, and fiercely loyal to, medical societies that strive to adapt to their needs," and that, "They want to have a hand in shaping the future of their organizations, co-creating products and services, and have increased desire for their organizations to be transparent, ethical, and socially conscious" [63].

Societies and Medical Schools/Centers as Allies for Inclusion

The idea that medical societies might play an important role in supporting the careers of women physicians is not new. In 2002, the National Academies convened a workshop focused on the role of professional societies in advancing the careers of women in science and academic medicine [66]. In her closing remarks, Diane Wara, MD, then the Associate Dean for Minority and Women's Affairs at the University of California, San Francisco, cited the need for societies to help move more women into leadership positions and asked, "So where should academic societies focus their energy?" She charged societies to help develop women leaders by appointing more women as committee chairs, nominating more women for achievement

awards, positioning more women as session chairs, collecting more data and developing best practices for career development. Moreover, Westring et al [38] recently included "engagement from national societies" among components critical for support of an "integrated framework for gender equity in academic medicine."

If medical specialty societies are gatekeepers to critical resources that physicians need to develop and advance their careers, then it seems clear that a comprehensive and transparent examination of gender metrics, that triggers responsive and data-driven strategies focused on the equitable inclusion of women, is essential. Moreover, because physicians and their medical institutions help support society activities, and society resources support physicians seeking personal and institutional advancement, a strong collaborative partnership between medical schools/centers and societies in this effort may be the "game-changer" needed to speed progress toward closing of gender-related gaps in professional achievement and career advancement outcomes in medicine.

The Direction Forward

This report investigated whether zero or near-zero representation of women physicians among recognition award recipients from medical specialty societies extended beyond the field of physical medicine and rehabilitation. Examples of the underrepresentation of women physicians, as compared with their presence in the respective field, was found across a range of additional specialties, including dermatology, neurology, anesthesiology, orthopedic surgery, head and neck surgery, and plastic surgery. In this report, we provide both the rationale and roadmap for beginning to address gaps with suggestions for metrics in Table 3 and call upon all medical societies to (1) examine gender diversity and inclusion data through the lens of the organization's mission, values and culture; (2) transparently report the results to members and other stakeholders, including medical schools and medical centers; (3) investigate potential causes of less than proportionate representation of women; (4) implement strategies designed to improve inclusion; (5) track outcomes as a means to measure progress and inform future strategies; and (6) publish the results to engage community members in conversation about the equitable representation of women.

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