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## Diversity and inclusion in a surgical society: A longitudinal investigation

Lindsay E. Kuo, MD, MBA<sup>a,\*</sup>, Sareh Parangi, MD<sup>b</sup>, Nancy L. Cho, MD<sup>a</sup><sup>a</sup> Department of Surgery, Brigham and Women's Hospital, Boston, MA<sup>b</sup> Department of Surgery, Massachusetts General Hospital, Boston, MA

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## ABSTRACT

**Background:** Although the presence of women and minorities is increasing in academic surgery, inclusion at the highest levels appears to continue to lag in many aspects of leadership and participation. Participation in medical societies is an opportunity in career development but may also propagate disparities. We investigated the presence of women and minorities within one subspecialty society, the American Association of Endocrine Surgeons, to better understand the presence of these groups in the leadership of this society.

**Methods:** Publicly available data regarding American Association of Endocrine Surgeons membership and leadership were obtained. North American active members in 2007, 2012, and 2017 were identified. Gender and race/ethnicity were determined via internet query. We analyzed the number and proportion of active members and members in leadership positions who were female, East/South/Middle Eastern Asian American ("Asian"), Hispanic/Latin/South American, or African American in each year throughout this period.

**Results:** The American Association of Endocrine Surgeons was established in 1981. From 2007 to 2017, active membership in the American Association of Endocrine Surgeons increased from 178 to 276. The percentages of female (17.4%–35.1%), Asian (9.0%–17.4%), and Hispanic/Latin/South American (3.9%–4.7%) members increased during this time. The percentage of African American members did not increase (1.7%–1.8%). In 2017, women and Asians composed disproportionately high percentages of council members (50% and 67%, respectively) and committee chairs (46%, 23%) and were inconsistently represented as officers (40%, 20%). Hispanic/Latin/South American and African American members were disproportionately underrepresented at every level of leadership.

**Conclusion:** Diversity in the American Association of Endocrine Surgeons has improved for all groups of diversity that were explored except African American members. Women and Asians are not consistently well represented throughout the organizational leadership, and Hispanic/Latin/South American and African American members are underrepresented. Opportunity exists to improve the diversity opportunities in this organization.

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## Introduction

Underrepresentation of women and minorities in academic medicine is well documented. Despite increasing their numbers in surgery, women and minorities remain underrepresented in leadership positions, such as chairs, journal editors, division heads, society presidents, conference moderators, grand rounds speakers, and award recipients. Multiple reports have demonstrated that the pathway for the advancement of women through the ranks of

academic medicine is "broken" because fewer women than men attain the rank of full professor or other high-level positions despite a wealth of leadership roles at lower levels.<sup>1–6</sup> A 2015 study of women in academic surgery revealed that women comprise just 25% of assistant professors, 19.2% of associate professors, and 9.2% of full professors, and estimates that gender parity at the full professor level will not be achieved until 2136.<sup>7</sup> A review of the 2006 US surgical workforce revealed that African American and Latino American surgeons were grossly underrepresented when compared with the general population, and this disparity worsened when examining academic surgeons as a cohort.<sup>8</sup> Meanwhile, despite overrepresentation of Asian American surgeons when compared with the general population, Asian American representation in positions of leadership is disproportionately low.<sup>2</sup>

\* Reprint requests: Lindsay E. Kuo, MD, MBA, 3401 N. Broad St., 4th Floor, Zone C Philadelphia, PA 19140.

E-mail address: [lindsay.kuo@tuhs.temple.edu](mailto:lindsay.kuo@tuhs.temple.edu) (L.E. Kuo).

A diverse medical leadership offers a multitude of benefits. Diversity is a “core value and driver of institutional excellence” at academic medical centers.<sup>9</sup> A diverse leadership is most likely to cultivate a diverse workforce. In turn, minority physicians are more likely to care for and perform research in similar patient populations.<sup>8,10</sup> The presence of female or minority role models are important to female and minority students and residents when considering to choose surgery or an academic career.<sup>7,11,12</sup> Consequently, the dearth of minorities and women in academic positions of surgical leadership likely contributes to the underexpansion of these surgeon populations.

Past studies have examined the presence of women and minorities in medical specialties or at academic institutions; however, representation in specialty societies has not been investigated. Societies aim to advance a specific field of medicine. A secondary goal is to support its members. Ideally, all society members should have an equal opportunity to participate and benefit from membership.<sup>13</sup> Selection for a position of leadership in a society reflects academic and nonacademic accomplishments and is often used as a marker of academic success.<sup>14</sup> Simultaneously, holding a leadership position “synergistically enhance[s] one’s professional contacts and future career opportunities,” because these societies “own or control key resources” that factor into academic promotion, such as speaking opportunities or task force assignments.<sup>14,15</sup> Societies therefore, hold great potential for advancing the careers of those elevated to leadership positions—they are “gatekeepers.”<sup>15</sup> Inherent in this system is the potential to propagate disparities. If groups of members are less likely to hold a leadership position, these members are less likely to reap the associated benefits that have the power to propel an academic career. Despite the power specialty societies have in the career advancement of its members, few studies have investigated the gender and racial diversity of membership and representation among the leadership.

We hypothesize that the gender and racial disparities found in academic surgical institutions will also be present in the membership and leadership positions of national surgical societies, both reflecting and perpetuating existing disparities. To investigate this issue, we examined trends in the gender and race/ethnic composition of the membership and leadership of the American Association of Endocrine Surgeons (AAES), which will be referred to as “the society.” This society was chosen because of its perceived openness and forward-thinking nature.

## Materials and Methods

### Data sources

All data regarding the society were gathered from the publicly available Web site of the AAES during the month of October 2017. Current member information was obtained by querying the “Find a Surgeon” feature.<sup>16</sup> The programs for the AAES annual meetings from the years 2007 through 2017 were downloaded from the society Web site.<sup>17–28</sup> The programs contained information on society leadership for each year and historical information on officers, dating back to the founding of the society. The programs from 2007 and 2012 also listed society membership for those years. Society bylaws were obtained from the society Web site.<sup>29</sup>

Information on the gender of all practicing general surgeons was obtained from the Association of American Medical Colleges (AAMC). This information was available for 2007, 2010, 2013, and 2015.<sup>30–33</sup> Information on the race/ethnicity of practicing general surgeons was also obtained from the AAMC, but this information was only available for 2013.<sup>34</sup>

This study was ruled to be exempt from review by the Institutional Review Board of Partners in Health. This study was not

endorsed or initiated by the AAES, and all research was performed independent of the society and its leadership.

### Inclusion and exclusion criteria

All North American, general surgery-trained, active members of the AAES were included in the study because these members were considered to be the pool of members most likely to participate and take on leadership roles within the organization. Active members who live on other continents were excluded from analyses because these individuals were deemed unlikely to take leadership roles because of geographic limitations. Similarly, members with medical training in another field, such as medicine or pathology, were also excluded from analyses because specialization in a field of nongeneral surgery makes advancement within the AAES less likely.

Nonactive members, including senior, honorary, corresponding, allied specialist, candidate, resident/fellow, and affiliate providers were excluded from analyses. With the exception of senior members, members in these categories are not eligible for election as officers. Senior members—determined based on age or retirement from practice—were deemed unlikely to take future leadership roles and were excluded.<sup>29</sup> In 2007, the first year for which membership data are available, categories of membership did not exist. Therefore, all members listed in the 2007 program book were included in the study if they were alive and actively practicing at that time, based on internet query. The 2012 program book noted each member’s membership category, and members were included or excluded accordingly. In 2017, active members were located through the “Find a Surgeon” feature on the AAES Web site and were included if they were at least 2 years out of training and in active practice,<sup>29</sup> based on internet query.

### Determination of gender and race/ethnicity

All individuals included in the study were categorized into gender and racial/ethnic groups. This was done by performing an internet query and locating a photograph of each surgeon, usually from a department or practice Web site. The individual’s photograph, name, or assigned pronoun collectively determined the gender and racial/ethnic groups. Two surgeons independently performed this analysis. If ethnicity was still uncertain, individual surgeons were contacted.<sup>35</sup>

We defined “Asian American” as individuals of East Asian, Southeast Asian, South Asian, and Middle Eastern descent, as well as any other nationality from the Asian continent. This approach is in keeping with the definition used by the Society of Asian Academic Surgeons and the literature.<sup>35,36</sup> Individuals were categorized as “Hispanic/Latin/South American” (HLSA) if they were of Latin or South American descent. Surgeons in the “African American” category included surgeons who are black or are of African or African American descent. Surgeons of Caucasian descent were considered as such. An “Other” category was also created to include surgeons of ethnic or racial backgrounds that are not included in other categories, such as Native Americans or native Hawaiian Americans.<sup>8</sup>

### Data analysis

The gender and racial/ethnic composition of the membership was determined at three time points: 2007, 2012, and 2017. The proportions of female members within the society were compared with the proportion of female general surgeons nationwide during several time points. These analyses were also performed for Asian American, HLSA, and African American members by comparing the

**Table 1**  
Society demographic changes through time, with comparative United States data.

Demographic category	2007	2012	2017	US surgeons, 2015 <sup>37</sup>	US population, 2017 <sup>41</sup>
Total members	178	206	276		
Women	31 (17.4%)	48 (23.3%)	97 (35.1%)	4,835 (19.2%)	50.8%
Men	147 (82.6%)	158 (76.7%)	179 (64.9%)	20,398 (80.8%)	49.2%
				<b>2013 (34)</b>	
Caucasian	152 (85.4%)	162 (78.6%)	210 (76.1%)	25,482 (52.4%)	76.6%
Asian American	16 (9.0%)	30 (14.6%)	48 (17.4%)	5,531 (11.4%)	5.8%
Hispanic/Latino/South American	7 (3.9%)	10 (4.8%)	13 (4.7%)	2,331 (4.8%)	18.1%
African American	3 (1.7%)	4 (1.9%)	5 (1.8%)	2,117 (4.4%)	13.4%

2013 national data on practicing general surgeons to membership data of the AAES.

For each year of the organization's history (1981–2017), the gender and racial/ethnic composition of the officers (president, vice president, secretary, secretary-treasurer, recorder and treasurer) was determined; secretary-treasurers, secretaries, treasurers and recorders were included for each year of their term and not only for the year of election. Immediate past presidents were not included in the analyses. For the years 2007–2017, the gender and racial/ethnic composition was also analyzed for council members, committee chairs, committee members, and others with a named title. These are the more junior leadership positions listed in descending order. Committee chairs were included in the analysis if there were at least one other committee member, otherwise this individual was considered a committee member. Representatives or liaisons to other organizations were considered committee members. The proportion of female members was compared with the proportion of women in leadership positions in 2007, 2012, and 2017. This analysis was also performed for each racial/ethnic group at each time point.

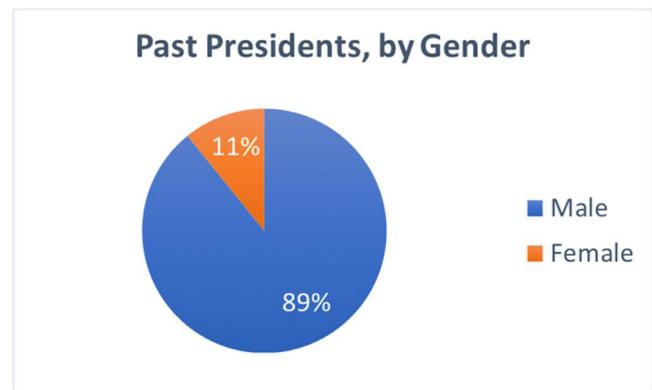
## Results

### Membership composition, 2007–2017

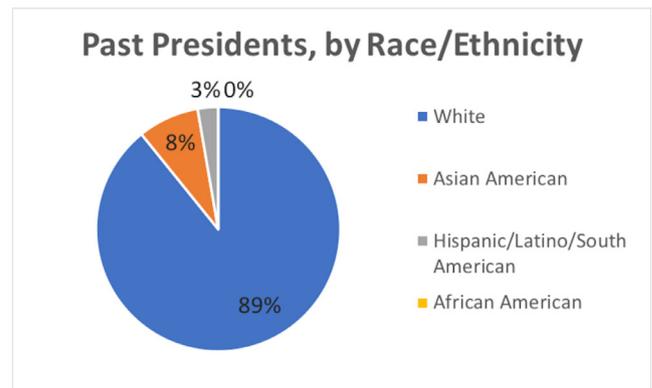
Between 2007 and 2017, the society increased from 178 members to 276 members. In 2007, 17.4% of active society members were women. This percentage increased to 23.3% in 2012 and 35.1% in 2017 (Table 1). When compared with the percentage of practicing female general surgeons (13.6% in 2007 to 19.2% in 2015), the percentage of women in the AAES was consistently greater.<sup>31–33,37</sup> The percentage of Asian American members increased over time from 9.0% in 2007 to 14.6% in 2012 and 17.4% in 2017 (Table 1). In comparison, 11.4% of the general surgeon population in 2013 was Asian American.<sup>34</sup> The percentage of HLSA members within the AAES increased from 3.9% in 2007 to 4.8% in 2012 but remained stable at 4.7% in 2017. This percentage is consistent with the percentage of HLSA general surgeons in 2013 (4.8%).<sup>34</sup> African Americans comprised 1.7% of society membership (3 members) in 2007, with a small increase to 1.9% in 2012 (4 members) and 1.8% in 2017 (5 members). These percentages are consistently low when compared with 4.4% of the percentage of practicing general surgeons in 2013. There were no known surgeons in the Other category.

### Leadership positions

The AAES, founded in 1980, had its first woman elected to the officer position in 1993 and its second in 1999. The first Asian American officer was chosen in 1986 and the second in 1997. An HLSA member was first elected to an officer role in 2002 and the second in 2012. No African American member has held an officer position. The past presidents have been predominantly white and male (Figs. 1A and 1B).



A. Past Presidents by Gender



B. Past Presidents by Race/Ethnicity

**Fig. 1.** (A) Past Presidents by Gender. (B) Past Presidents by Race/Ethnicity.

Between 2007 and 2017, the proportion of women elected of officers was inconsistent with the proportion of female members (Table 2). Although 75% of officers were women in 2014, there were no women officers in 2011 or 2012. Female membership during this time was about 20%. Women in general have demonstrated proportionate representation as council members and committee chairs, especially during the latter study years. Of note, women comprised a disproportionately high number of committee members compared with overall membership.

Asian Americans have been disproportionately underrepresented at the officer level and have only held officer positions for 4 of the 11 years studied (Table 3). Asian American representation at the council-member level was inconsistent with overrepresentation in 2016 and 2017 but with no representation in 3 of the last 11 years. In general, Asian Americans have had a proportionately high number of committee chairs and have had a proportionately equivalent number of committee members.

HLSAs have held two officer positions, one council member position, and two committee chair positions during the past 11 years.

**Table 2**  
Percentage of leadership positions held by women.

Position	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All members	17.4					23.3					35.1
Officers	25.0	25.0	25.0	25.0	0.0	0.0	25.0	75.0	25.0	25.0	40.0
Council members	0	0.0	11.1	11.1	44.4	37.5	33.3	16.7	66.7	66.7	50.0
Committee chairs	0	16.6	14.3	0	12.5	37.5	55.6	35.2	57.1	60.0	46.2
Committee members	25.0	32.3	37.5	27.5	42.5	36.5	38.2	48.9	40.0	40.7	35.3

**Table 3**  
Percentage of leadership positions held by Asian Americans, Hispanic/Latin Americans, and Black/African Americans.

	Position	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Asian Americans	All members	9.0					14.6					17.4
	Officers	0	0	0	0	0.0	50.0	25.0	25.0	0	0	20.0
	Council members	13.0	11.0	0	0	11.0	0	33.3	16.7	33.3	66.7	66.7
	Committee chairs	0	16.7	0	0	12.5	25.0	22.2	11.7	21.4	26.7	23.1
	Committee members	4.2	6.5	15.6	13.8	15.0	19.5	17.1	21.9	20.9	20.8	14.7
Hispanic/Latin/South Americans	All members	3.9					4.9					4.7
	Officers	0	0	0	0	0	0	25.0	0	0	0	0
	Council members	0	0	0	0	0	0	11.1	0	0	0	0
	Committee chairs	0	0	0	0	0	0	11.1	11.7	0	6.7	0.0
	Committee members	4.2	3.2	3.1	0	0	2.4	7.9	7.3	9.1	4.6	4.3
African Americans	All members	1.7					1.9					1.8
	Officers	0.	0		0.	0	0	0	0	0	0	0
	Council members	0	0	0	11.1	11.1	25.0	11.1	16.7	0	0	0
	Committee chairs	0	0	0		0	12.5	0	5.9	0	0	0
	Committee members	4.2	3.2	3.1	6.9	5.0	2.4	1.3	0	0.9	0.8	0.9

(Table 3). Because of the relatively low number of members, the proportionate representation for those years is greater than the percentage of members. At the level of committee member, representation has generally been proportional.

African American members have held a council member position each year from 2010 to 2014 and two committee chair positions. Because of the small number of African American members, this representation in leadership positions is relatively high (Table 3). African Americans have held a roughly proportionate number of committee member positions when compared with society membership, but this trend has been inconsistent over time.

## Discussion

To our knowledge, this is the first study to comprehensively examine the diversity of membership and leadership positions within a national specialty society (the AAES) within any medical field. Our findings both confirm trends found in other settings and raise new concerns.

Within the society membership, the greatest disparity is the very low presence of HLSA and African American members, particularly the low percentage of African American members (1.9%) when compared with the percentage of African American general surgeons nationwide (4.4%). A lack of membership diversity is neither surprising nor new. In 2008, Satiani et al<sup>13</sup> also found underrepresentation of minority and female members and leaders within a regional vascular surgery society. The near-zero percentage of African American members in the AAES, however, may “constitute evidence of an inexorable zero,” suggesting an underlying organizational issue.<sup>29</sup> Because membership in the society is open to all surgeons, this exclusion is inherently not attributable to any action by the AAES itself; however, deliberate action to eliminate these disparities may be necessary to increase the membership of underrepresented racial and ethnic groups.<sup>38</sup> Earlier studies have shown that underrepresented minority students need to see a “real life example” to believe they can achieve it as well.<sup>8</sup> Efforts to increase the number of minority surgeons in the AAES may, therefore, have the downstream effect of encouraging younger generations of

minority surgeons to join in the hope of eradicating this fundamental disparity.

Asian American members of the society face a different obstacle. When compared with the national population of general surgeons, Asian Americans are well represented in overall society membership. At the junior leadership levels, Asian Americans are overly or well represented in comparison with the larger membership. Unfortunately, this degree of representation has not, as of yet, translated to the senior leadership positions that have a comparatively lower proportion of Asian Americans. Moreover, Asian Americans are inconsistently advanced to the officer level. These findings are not unique. In the only investigation into the presence of Asian Americans in a variety of surgical leadership positions, Nakayama<sup>35</sup> found a glaring underrepresentation of Asian American surgeons throughout the highest echelons of the field. Nakayama<sup>35</sup> hypothesized that Asian American surgeons, despite succeeding by academic metrics, fare less well in specialty societies, governing boards, or other domains influenced by “professional socialization,” meaning networking and relationships with others.

Female AAES members face a similar problem. Women attain the highest levels of governance inconsistently within the AAES. In contrast, women have an overwhelming, constant presence at lower leadership levels. This finding is encouraging in that there is a large number of women in junior leadership positions who are presumably being groomed for future senior leadership roles. For this, the AAES should be commended; however, it is simultaneously disheartening that the disproportionately high presence of women in junior leadership roles has not yet translated consistently to a similarly large presence at the officer level. These findings echo those of other studies that demonstrate that women are overly represented at lower levels of leadership and underrepresented at higher levels in general surgery and other medical and surgical specialties.<sup>2–5,39</sup> One potential explanation is that an individual must belong to the society for a duration of time before being elected or appointed to a leadership position. As more women joined the AAES in the past decade, the demographic change has been first reflected in the lower leadership positions, and the senior leadership has not yet fully adapted. Alternatively, these

results may show that the widely acknowledged “glass ceiling” that limits women in academic medicine exists in surgical societies as well. Because leadership positions in specialty societies contribute to academic advancement, extension of the glass ceiling in these organizations may propagate and intensify its limiting effect in a cyclic fashion. Conscious effort is needed to reverse this trend and promote instead a diverse and representative senior leadership.<sup>3,15</sup>

Our study has a few weaknesses. First, gender, race, and ethnicity were determined based on a composite assessment of surname and photograph rather than self-identification; contacting every AAES member for the study period would have been prohibitive. Although we investigated gender and race/ethnicity, we did not examine gender identity or sexual orientation, two elements of diversity that contribute to cultural and institutional norms, or the presence of surgeons with disabilities. We also did not compare academic versus private practitioners who have been shown to be underrepresented in a regional vascular surgery society.<sup>13</sup> Gender disparities exist within racial/ethnic groups, but because of the low numbers of members of these groups, we did not pursue this subgroup analysis.<sup>35</sup>

In addition, this study examines only a single surgical society (the AAES), and its findings may not be applicable to other surgical societies that have different compositions of their memberships. Future investigations of surgical societies are crucial to understanding barriers that women and racial/ethnic minorities face in other subspecialties. Our overall findings that women and minority racial/ethnic groups are underrepresented within the senior-most leadership are concordant with multiple other studies that examined these questions in different settings within academic medicine. Efforts to promote diverse membership and representation within senior leadership positions are needed to reflect the needs of a changing surgical workforce and optimize care for a diverse patient population. One possible course of action is sponsorship of minority residents to attend the annual meeting. “Professional exposure programs” that introduce medicine through experiential opportunities have been shown to encourage minority students to enter medicine. An analogous introduction to endocrine surgery may overcome the simple obstacle of lack of familiarity.<sup>11</sup> Similarly, a “pipeline program” to sponsor research or clinical electives in endocrine surgery by minority or female residents would both introduce and stimulate engagement in the field. Pipeline programs have been successful previously in recruiting women and minorities to enter procedure-based residencies, and endocrine surgery should be no different.<sup>40</sup> Lastly and most simply, drawing attention to the issue of diversity in membership and leadership, perhaps through a session at the annual meeting, may spur individuals or the organization to devise solutions. The problem will not be solved if one is unaware that a problem exists.

This study is strengthened by its examination of junior leadership positions. Leadership at junior levels fosters skills that help surgeons advance at their home institutions and helps surgeons develop skill sets needed for success in more senior positions of national leadership. In some societies, leadership at a junior level may be prerequisite for a senior leadership position.

Last, the longitudinal nature of this study is unique. Our analysis of the membership rolls and leadership positions for the past decade demonstrates the changing landscape of the AAES and may allow for a more dynamic understanding of diversity within the AAES than investigation at a single time point.

During the past 10 years, membership diversity within the AAES has improved, although disparities still exist, particularly for HLSA and African American members. Women and Asian Americans are not consistently represented in senior leadership positions despite robust junior leadership engagement. Opportunity exists for the society to both promote internal diversity and ensure a leadership that represents its members in every aspect.

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