5. Centers for Medicare & Medicaid Services. Medicare Part D drug spending dashboard & data. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Information-on-Prescription-Drugs/MedicarePartD.html. Accessed May 20, 2018.

6. Lieberman SM, Ginsburg PB. Would price transparency for generic drugs lower costs for payers and patients? https://www.brookings.edu/wp-content/uploads/2017/06/es_20170613_genericdrugpricing.pdf. Published June 2017. Accessed May 20, 2018.

PHYSICIAN WORK ENVIRONMENT AND WELL-BEING

Analysis of Gender Equity in Leadership of Physician-Focused Medical Specialty Societies, 2008-2017

The long-standing underrepresentation of women among medical academic leaders (deans, chairs, and professors) is well documented. However, little is known about trends in medical society leadership. Because tenure in society leadership positions contributes to academic advancement and provides opportunities to influence both the organization and the medical specialty, it is crucial to begin examining the demographics of society leadership.

Methods | In this cross-sectional study, we identified 1 major physician-focused medical society for each of the 43 specialty groupings listed in the 2016 *Physician Specialty Data Report* (**Table**).[1] We generally selected the largest and/or most influential society in the field. Groupings for internal medicine/pediatrics, neonatal-perinatal medicine, pediatric cardiology, and pediatric hematology/oncology (4 of 43 groupings) were then excluded because physicians in these specialties generally belong to the American Academy of Pediatrics (AAP). The primary outcome measures were years of presidential leadership attributed to men and women. To minimize some lack of independence across years, which is even greater for societies using 2-year presidential terms (4 of 39 societies; Table), data were collected for a 10-year period (2008-2017), allowing for a minimum of 5 election cycles. For 38 societies, presidents' names were assigned to the year of election. For the AAP, which changed the start of its presidential term from fall to January in 2014, presidents elected before 2014 were assigned to the year following election. Gender was determined and verified via publicly available online profiles. One-sample tests of proportions comparing the percentage of women among association presidents with the percentage of women in active practice (**Figure**) were used to determine the significance (2-sided *P* values) of underrepresentation or overrepresentation.[1-3] The Partners Human Research Commit-

Table. Profiles of Included Medical Specialty Societies

AAMC Specialty Grouping	No. of Active Physicians in 2015[a]	Active Women Physicians in 2015, No. (%)[a]	Medical Specialty Society Assessed (Abbreviation)	Presidential Term, y	Years With Woman President, %[b]	Difference, %[c]
Allergy and immunology	4628	1675 (36.2)	American Academy of Allergy, Asthma, & Immunology (AAAAI)	1	10	−26.2
Anatomic/clinical pathology	13 277	4869 (36.7)	College of American Pathologists (CAP)	2	0	−36.7
Anesthesiology	41 306	10 276 (24.9)	American Society of Anesthesiologists (ASA)	1	10	−14.9
Cardiovascular disease	22 038	2908 (13.2)	American College of Cardiology (ACC)	1	10	−3.2
Child and adolescent psychiatry	8731	4519 (51.8)	American Academy of Child & Adolescent Psychiatry (AACAP)	2	30	−21.8
Critical care medicine	10 143	2588 (25.5)	Society of Critical Care Medicine (SCCM)	1	40	14.5
Dermatology	11 696	5514 (47.1)	American Academy of Dermatology (AAD)	1	0	−47.1
Emergency medicine	39 547	10 509 (26.6)	American College of Emergency Physicians (ACEP)	1	30	3.4
Endocrinology, diabetes, and metabolism	6957	3231 (46.4)	American Association of Clinical Endocrinologists (AACE)	1	10	−36.4
Family medicine/general practice	111 127	42 685 (38.4)	American Academy of Family Physicians (AAFP)	1	20	−18.4
Gastroenterology	14 107	2307 (16.4)	American College of Gastroenterology (ACG)	1	10	−6.4
General surgery	25 233	4835 (19.2)	American College of Surgeons (ACS)	1	20	0.8
Geriatric medicine	5221	2673 (51.2)	American Geriatrics Society (AGS)	1	60	8.8
Hematology and oncology	14 457	4611 (31.9)	American Society of Hematology (ASH)	1	30	−1.9
Infectious disease	8501	3371 (39.7)	Infectious Diseases Society of America (IDSA)	1	20	−19.7
Internal medicine	113 871	41 951 (36.8)	American College of Physicians (ACP)	1	20	−16.8
Interventional cardiology	3248	240 (7.4)	Society for Cardiovascular Angiography and Interventions (SCAI)	1	0	−7.4
Nephrology	10 070	2751 (27.3)	American Society of Nephrology (ASN)	1	30	2.7
Neurological surgery	5343	419 (7.8)	American Association of Neurologic Surgeons (AANS)	1	0	−7.8
Neurology	13 378	3760 (28.1)	American Academy of Neurology (AAN)	2	0	−28.1
Neuroradiology	3289	642 (19.5)	American Society of Neuroradiology (ASNR)	1	40	20.5

(continued)

Table. Profiles of Included Medical Specialty Societies (continued)

AAMC Specialty Grouping	No. of Active Physicians in 2015[a]	Active Women Physicians in 2015, No. (%)[a]	Medical Specialty Society Assessed (Abbreviation)	Presidential Term, y	Years With Woman President, %[b]	Difference, %[c]
Obstetrics and gynecology	41 446	22 585 (54.5)	American College of Obstetricians and Gynecologists (ACOG)	1	10	−44.5
Ophthalmology	18 584	4436 (23.9)	American Academy of Ophthalmology (AAO)	1	20	−3.9
Orthopedic surgery	19 142	951 (5.0)	American Academy of Orthopaedic Surgeons (AAOS)	1	0	−5.0
Otolaryngology	9405	1485 (15.8)	American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS)	1	20	4.2
Pain medicine and pain management	4595	840 (18.3)	American Academy of Pain Medicine (AAPM)	1	0	−18.3
Pediatrics	57 491	35 573 (61.9)	American Academy of Pediatrics (AAP)	1	30	−31.9
Physical medicine and rehabilitation	9137	3204 (35.1)	American Academy of Physical Medicine and Rehabilitation (AAPM&R)	1	20	−15.1
Plastic surgery	7017	1050 (15.0)	American Society of Plastic Surgeons (ASPS)	1	10	−5.0
Preventive medicine	6588	2160 (32.8)	American College of Preventive Medicine (ACPM)	2	20	−12.8
Psychiatry	37 717	14 335 (38.0)	American Psychiatric Association (APA)	1	50	12.0
Pulmonary disease	5480	615 (11.2)	American Thoracic Society (ATS)	1	30	18.8
Radiation oncology	4845	1312 (27.1)	American Society for Radiation Oncology (ASTRO)	1	10	−17.1
Radiology and diagnostic radiology	27 505	6799 (24.7)	Radiologic Society of North America (RSNA)	1	30	5.3
Rheumatology	5599	2378 (42.5)	American College of Rheumatology (ACR)	1	30	−12.5
Thoracic surgery	4484	271 (6.0)	American Association for Thoracic Surgery (AATS)	1	0	−6.0
Urology	9804	780 (8.0)	American Urologic Association (AUA)	1	0	−8.0
Vascular and interventional radiology	2966	273 (9.2)	Society of Interventional Radiologists (SIR)	1	0	−9.2
Vascular surgery	3356	379 (11.3)	Society for Vascular Surgery (SVS)	1	10	−1.3

Abbreviation: AAMC, Association of American Medical Colleges.

[a] Data from Association of American Medical Colleges. 2016 Physician specialty data report: active physicians by sex and specialty, 2015. table 1.3. https://www.aamc.org/data/workforce/reports/458712/1-3-chart.html. Published 2015. Accessed January 30, 2017.

[b] From 2008 to 2017; n = 10

[c] The percentage of years with a woman president vs the percentage of women among active physicians in 2015. Positive values indicate equitable or better representation of women among years of presidential leadership. Negative values indicate lower than equitable levels of representation of women among years of presidential leadership.

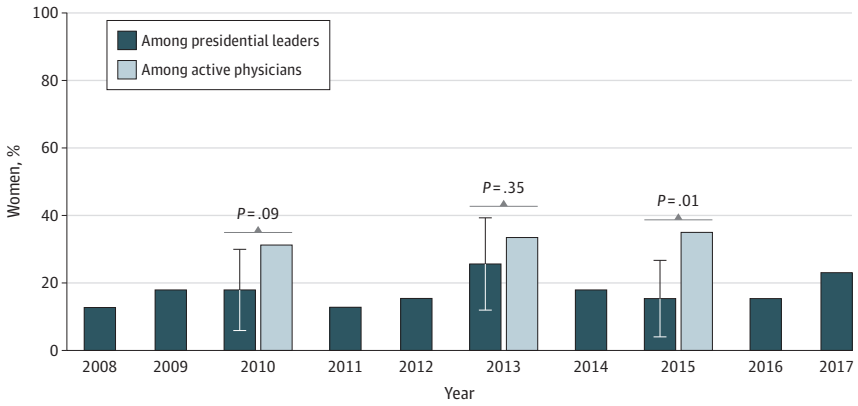
tee/institutional review board determined that review of the study and participant written consent were not required.

Results | Between 2008 and 2017, presidential leadership was held predominantly by men, with men serving as presidents in 82.6% of years (322 of 390 years) vs women serving as presidents in 17.4% of years (68 of 390 years). Women were underrepresented overall but were significantly underrepresented in 2015 in terms of the percentage of women among society presidents vs the percentage of women among active physicians (15.4% vs 34.0%; $P = .01$) (Figure). The Society of Critical Care Medicine, American Society of Neuroradiology, American Psychiatric Association, and American Geriatrics Society had the highest number of years with women presidential leaders (4-6 of 10 years; Table). In contrast, 10 societies had 0 of 10 years with women presidential leaders.

To gain perspective on the representation of women in top leadership roles, data on presidents from each society were compared with the representation of women among active physicians in the respective specialty grouping in 2015 (Table).[1] We were limited to this single comparison because the Association of American Medical Colleges workforce data were not reported in consistent specialty groupings or at consistent intervals during the study period, and society membership information generally was not publicly available. Equitable or better representation (positive differences) was found in 10 societies. However, gaps (negative differences) were found in 29 societies, with the 5 largest gaps (>30%) found in the American Academy of Dermatology, American College of Obstetricians and Gynecologists, College of American Pathologists, American Association of Clinical Endocrinologists, and AAP.

Discussion | Society leadership has a role in academic advancement, and leaders may exert considerable influence on their organizations and specialties. Our finding of sustained underrepresentation of women within the critical post of society president highlights a challenge to achievement of gender equity in medicine that persists today. We suspect that barriers to equitable representation of women within societies may have affected women's ability to ascend to presidential leadership, though we have data only for selected societies and no data on internal processes used during selection of presidential leaders.[4-6] Our re-

Figure. Representation of Women Among Presidential Leaders of 39 Major Medical Specialty Societies by Year From 2008 to 2017



Because society membership information generally was not publicly available and the Association of American Medical Colleges (AAMC) did not report workforce data in every specialty grouping or every year during the study period, the percentages of women physicians in active practice as reported by the AAMC are only available for 2010 (30.4%),[2] 2013 (32.6%),[3] and 2015 (34.0%).[1] Error bars indicate the 95% CIs for the percentage of women among presidential leaders.

sults suggest that efforts to improve diversity and inclusion may have been more successful in some societies than in others. Therefore, societies must prioritize examination and mitigation of disparities in the inclusion and support of members and report both challenges and successful strategies.[4,5]

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1. Association of American Medical Colleges. 2016 Physician specialty data report: active physicians by sex and specialty, 2015. table 1.3. https://www.aamc.org/data/workforce/reports/458712/1-3-chart.html. Published 2015. Accessed January 30, 2017.

2. Association of American Medical Colleges Center for Workforce Studies. *2012 Physician Specialty Data Book*. Washington, DC: Association of American Medical Colleges; 2012.

3. Association of American Medical Colleges Center for Workforce Studies. *2014 Physician Specialty Data Book*. Washington, DC: Association of American Medical Colleges; 2015.

4. Silver JK, Cuccurullo SJ, Ambrose AF, et al. Association of Academic Physiatrists women's task force report. *Am J Phys Med Rehabil*. 2018;97(9):680-690. doi:10.1097/PHM.0000000000000958

5. Silver JK, Slocum CS, Bank AM, et al. Where are the women? the underrepresentation of women physicians among recognition award recipients from medical specialty societies. *PM R*. 2017;9(8):804-815. doi:10.1016/j.pmrj.2017.06.001

6. Silver JK, Poorman JA, Reilly JM, Spector N, Goldstein R, Zafonte RD. Assessment of women physicians among authors of perspective-type articles published in high-impact pediatric journals. *JAMA Netw Open*. 2018;1(3):e180802. doi:10.1001/jamanetworkopen.2018.0802

Consumer Responses to Price Disclosure in Direct-to-Consumer Pharmaceutical Advertising

In the "American Patients First"[1] blueprint released in May 2018, the Trump administration proposed including the drug price in any direct-to-consumer pharmaceutical advertising (DTCPA) as an approach to lower prescription drug prices. In October 2018, the Centers for Medicare & Medicaid Services proposed requiring that television DTCPA disclose drug prices.[2] We conducted a behavioral experiment to understand how consumers are likely to respond to the price disclosure.

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Supplemental content

Methods | We recruited participants using Amazon's Mechanical Turk,[3] an online job board commonly used to enlist experiment