

# Women in Pediatrics: Progress, Barriers, and Opportunities for Equity, Diversity, and Inclusion

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Gender bias and discrimination have profound and far-reaching effects on the health care workforce, delivery of patient care, and advancement of science and are antithetical to the principles of professionalism. In the quest for gender equity, medicine, with its abundance of highly educated and qualified women, should be leading the way. The sheer number of women who comprise the majority of pediatricians in the United States suggests this specialty has a unique opportunity to stand out as progressively equitable. Indeed, there has been much progress to celebrate for women in medicine and pediatrics. However, many challenges remain, and there are areas in which progress is too slow, stalled, or even regressing. The fair treatment of women pediatricians will require enhanced and simultaneous commitment from leaders in 4 key gatekeeper groups: academic medical centers, hospitals, health care organizations, and practices; medical societies; journals; and funding agencies. In this report, we describe the 6-step equity, diversity, and inclusion cycle, which provides a strategic methodology to (1) examine equity, diversity, and inclusion data; (2) share results with stakeholders; (3) investigate causality; (4) implement strategic interventions; (5) track outcomes and adjust strategies; and (6) disseminate results. Next steps include the enforcement of a climate of transparency and accountability, with leaders prioritizing and financially supporting workforce gender equity. This scientific and data-driven approach will accelerate progress and help pave a pathway to better health care and science.

Gender bias and discrimination have profound and far-reaching effects on the health care workforce, delivery of patient care, and advancement of science and are antithetical to the principles of professionalism. In the quest for gender equity, medicine, with its abundance of highly educated and qualified women, should be leading the way. Because women comprise the majority of pediatricians in the United States, pediatrics has a unique opportunity to stand out as progressively equitable. Indeed, there has been much progress to celebrate

for women in medicine<sup>1-7</sup> and pediatrics.<sup>3,4,7</sup> However, many challenges remain, and there are areas in which progress is too slow, stalled, or regressing.<sup>8-14</sup> Moreover, women with intersectional identities (ie, simultaneously belonging to multiple underrepresented groups, including gender, race, sexual orientation, ability, age, or socioeconomic status<sup>15</sup>) may experience heightened levels of bias and discrimination, sometimes called a “double bind.”<sup>16</sup> Therefore, this report focuses on persistent disparities and highlights key

## abstract



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opportunities for leaders to close gaps for women physicians.

Although this report focuses on women physicians and pediatricians in particular, equity, diversity, and inclusion are crucial for everyone in the health care workforce, including men who identify with underrepresented groups.

Importantly, we recognize that gender exists on a spectrum. However, much of the disparities research has been reported in binary terms. According to evolving best practices (which are not universally agreed on) for writing about disparities in medicine, we used gender-related terms. For example, “women” is meant to be inclusive of all people who identify as women. Because we are mindful of the need to be consistent with what the original source reported, terms that denote biological sex, such as “female” or “male,” were applied only when the cited literature used those terms. Furthermore, equity, diversity, inclusion are not synonyms, and we have aimed to use them according to their accepted meanings.

### A BRIEF OVERVIEW OF PROGRESS AND CHALLENGES

There is much progress to report for US women physicians (Table 1). For example, in 2017, the number and proportion of women matriculating as first-year medical students exceeded that of men (50.7%).<sup>1,2</sup> At the same time, they comprised 45.6% of residents and fellows,<sup>3</sup> 35.2% of active physicians,<sup>7</sup> and 41.1% of medical school faculty.<sup>4</sup> In pediatrics in 2017, women comprised 72.3% of residents,<sup>3</sup> 63.3% of physicians in practice,<sup>7</sup> and 57.4% of academicians.<sup>4</sup> Concurrently, the National Institutes of Health (NIH), through the efforts of the Office of Research on Women’s Health and Working Group on Women in Biomedical Careers, launched a series of programs aimed at career reentry, mentoring, and development.<sup>5</sup> Doximity reported

**TABLE 1** Gender-Related Physician Workforce Metrics (2017)

	Women in Medicine, <i>n</i> of <i>N</i> (%)	Women in Pediatrics, <i>n</i> of <i>N</i> (%)
Matriculating medical students	10 810 of 21 326 (50.7) <sup>1,2</sup>	—
Residents and fellows	58 967 of 129 294 (45.6) <sup>3</sup>	6323 of 8745 (72.3) <sup>3</sup>
Active physicians	313 808 of 891 770 (35.2) <sup>7</sup>	36 945 of 58 382 (63.3) <sup>7</sup>
Full-time faculty	72 134 of 175 625 (41.1) <sup>4</sup>	13 103 of 22 823 (57.4) <sup>4</sup>
Full-time professors	9236 of 37 988 (24.3) <sup>4</sup>	1412 of 4059 (34.8) <sup>4</sup>
Department chairs	586 of 3260 (18.0) <sup>12</sup>	41 of 149 (26.2) <sup>10</sup>
Deans	25 of 149 (16.8) <sup>9</sup>	Data not reported

—, not applicable.

that the gender compensation gap may be starting to close, with physician salaries for women increasing at the same time salaries for men remain constant.<sup>6</sup>

Despite advances, there are many reports demonstrating disparities, particularly at the highest levels of leadership in academic medicine. Although accounting for 44% of all dean-level administrators in US medical schools in 2016, higher proportions of women were found in positions focused on education and mentoring (49%) and institutional public image (57%) than leadership (15%) and corporate decision-making (39%).<sup>8</sup> Moreover, in 2018, women accounted for only 16.8% of deans,<sup>9</sup> 18.0% of medical school department chairs, and 26.2% of pediatric chairs<sup>10</sup> (Table 1). Inclusion of women among department chairs and deans has remained at 18% since 2016<sup>12</sup> and between 16% and 18% since 2012,<sup>9</sup> respectively, despite accounting for 25% of professors in 2018.<sup>11</sup>

Investigation of leadership in physician-focused medical specialty societies also revealed less-than-equitable representation among presidents,<sup>13</sup> with the American Academy of Pediatrics (AAP) being among those with the largest gaps. Similarly, calculation of gender-related representation within the Federation of Pediatric Organizations (FOPO) and its 7 associated pediatric societies revealed women comprised 55 (54.5%) of the 101 board positions yet 3 (37.5%) of the 8 president-equivalent positions (Table 2).<sup>17–24</sup> Therefore, data indicate insufficient progress in the promotion of women into the most senior levels of leadership.

### ADVANCING WOMEN IN PEDIATRICS

It has been more than a decade since Carnes et al<sup>25</sup> published a report on progress in women’s leadership and advances in women’s health. The authors noted slow progress into leadership roles and systematically

**TABLE 2** Representation of Women Among Leadership of the FOPO and Associated Pediatric Medical Societies

Society	Women, <i>n</i> of <i>N</i> (%)	President Equivalent
FOPO leadership and society representatives <sup>17</sup>	10 of 18 (56)	Woman
Academic Pediatric Association Board of Directors <sup>18</sup>	6 of 11 (54)	Man
AAP Board of Directors <sup>19</sup>	6 of 10 (60)	Man
American Board of Pediatrics Board of Directors <sup>20</sup>	8 of 15 (53)	Man
American Pediatric Society Council <sup>21</sup>	4 of 11 (36)	Woman
Association of Medical School Pediatric Department Chairs Officers and Board of Directors <sup>22</sup>	6 of 10 (60)	Woman
Association of Pediatric Program Directors <sup>23</sup>	4 of 7 (57)	Man
Society for Pediatric Research Council <sup>24</sup>	11 of 19 (58)	Man
Aggregate	55 of 101 (54)	3 of 8 (38%)

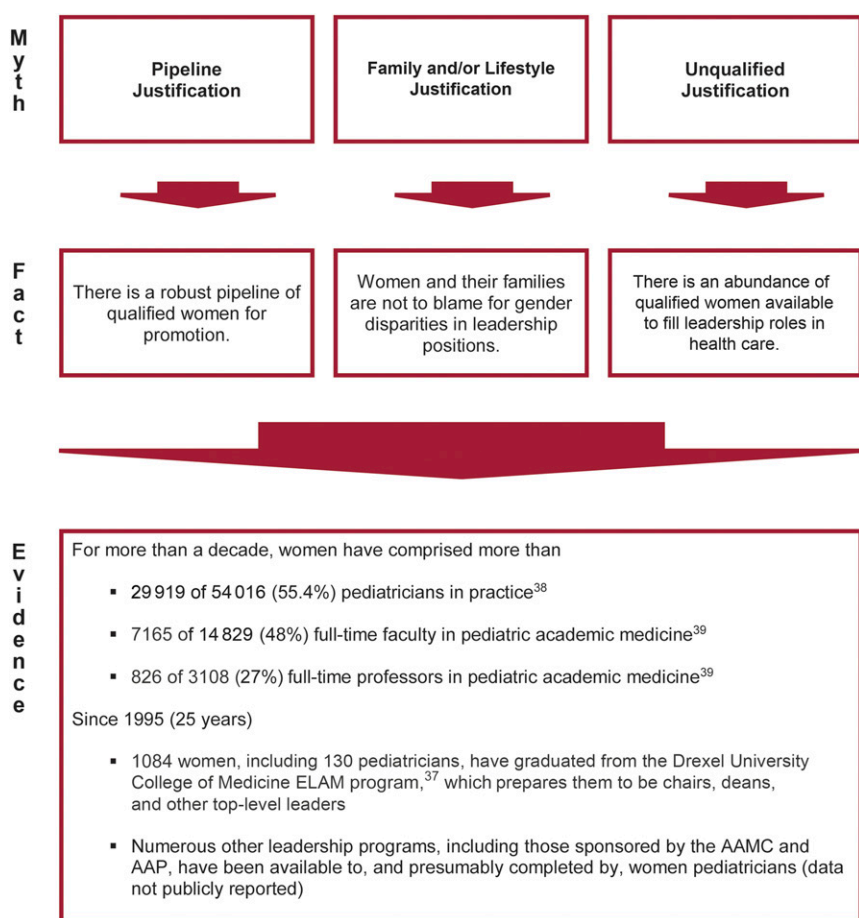
refuted 3 conventional disparity justifications (Fig 1): (1) there are not enough women to promote (pipeline), (2) they do not compete for leadership positions because of family and/or lifestyle reasons (family and/or lifestyle), and (3) they lack the necessary leadership skills (unqualified).

The pipeline (not enough women) justification may work well when there are no other impediments to advancement and there is simply an absence of women, an issue that is not applicable to pediatrics (Table 1, Fig 1). The family and/or lifestyle justification for there being too few women in top-level leadership positions is often cited alongside the pipeline issue because many women

do make personal decisions that impact their individual career trajectory (eg, having children or acting as caregivers). However, research shows that family and/or lifestyle choices do not adequately account for gaps in the representation of women in leadership positions or other gender-related disparities. For example, Carr et al<sup>26</sup> found that women faculty with children faced greater obstacles than men faculty with children, including lower levels of institutional funding and secretarial support, fewer publications, slower career progress, and lower career satisfaction. Other reports reveal women in the workplace experience impediments to advancement that are different and more challenging to

overcome than men.<sup>27-29</sup> Similarly, Dr Keith Lillemoe recognized during his 2017 presidential address to the American Surgical Association that traditional justifications simply do not fully account for today's gaps when he stated, "The number of outstanding, qualified female candidates is more than adequate to fill every open surgical leadership position in America today. The problem is not the pipeline—it is the process."<sup>30</sup>

The AAP noted in a 2013 policy statement<sup>31</sup> that supporting a diverse workforce is imperative to ensuring the best delivery of care, and creating and sustaining diversity would require leadership in recruitment, mentoring, and education. In 2015, the FOPO, an umbrella organization comprising 7 pediatric medical societies (including the AAP), stated "maintaining the status quo is not an option" while envisioning "a strengthened profession of pediatrics that has optimized its expertise, leadership, and diversity in a changing pediatric workforce."<sup>32</sup> After examining gender, diversity, and generational-related data and differences in the pediatric workforce,<sup>33</sup> including how these differences influenced part-time and research careers, work-life balance, and competency training, the FOPO Gender and Generations and Diversity and Inclusion working groups stressed the need to (1) "acknowledge the impact that the increasing proportion of women has on the field of pediatrics," (2) achieve greater diversity in the workforce, and (3) "ensure equity in paths to leadership positions."<sup>32</sup> The AAP's 2018 Diversity and Inclusion Statement went further in stating, "Maximizing the diversity of our members and leaders allows the AAP to benefit from the rich talents and different perspectives of these individuals."<sup>34</sup> In 2018, it was a natural step for the AAP to join 5

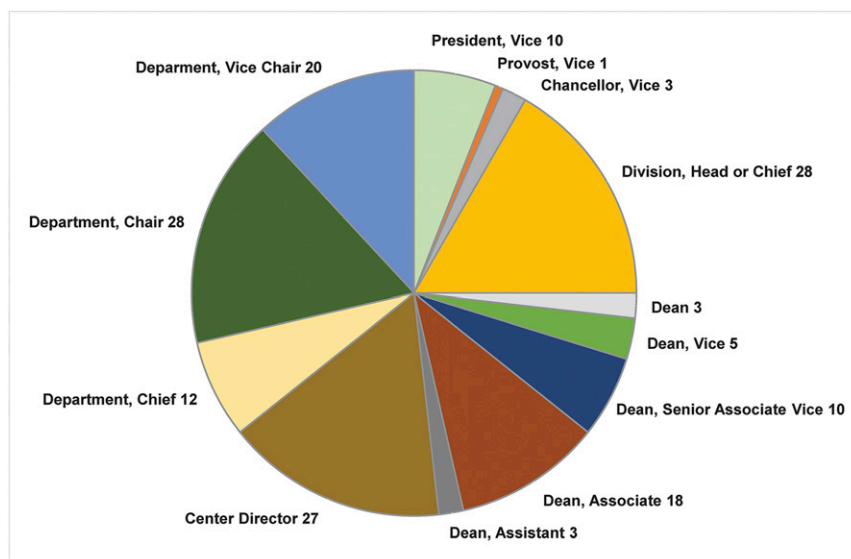


**FIGURE 1** Debunking myths related to the advancement of women pediatricians to top-level leadership positions.

other physician-focused societies in developing the Women's Wellness through Equity and Leadership collaborative to foster workplace equity, networking, mentorship, and leadership training.<sup>35</sup>

In addition to pediatric society-sponsored leadership training, thousands of women physicians, including pediatricians, have received formal education from other organizations. For example, the Association of American Medical Colleges (AAMC) Mid-Career Women Faculty Leadership Development Seminar<sup>36</sup> has trained nearly 5000 women from early to midcareer faculty ranks, including ~650 women in pediatrics (Diana Lautenberger, Director, Diversity & Inclusion and Women in Medicine & Science, AAMC, personal communication, 2019). Similarly, the Drexel University College of Medicine's The Hedwig van Ameringen Executive Leadership in Academic Medicine (ELAM) program<sup>37</sup> has graduated nearly 1100 women who currently hold high-level leadership positions at 259 US and Canadian academic health centers (Nancy Spector, Executive Director of ELAM, personal communication, 2019).<sup>37</sup> Of the graduates, 130 (12.0%) are pediatricians, 42 of whom were at the associate professor level when they entered the training and 18 (42.3%) of whom have since achieved full professor ranking. Graduates have also realized higher administrative positions, including vice dean, dean, and vice president (Fig 2). These leadership training examples lend support to our conclusion that a lack of numbers (pipeline), qualifications (training), or interest (Fig 1) likely cannot account for low numbers or the absence of women in pediatric leadership positions.<sup>37-39</sup>

Although education and networking opportunities are benefits of leadership training, promotions



**FIGURE 2**

Pediatric ELAM alumnae. As of May 2019, women pediatrician alumnae of the Drexel University College of Medicine ELAM program<sup>37</sup> ( $n = 130$ ) were serving in a variety of leadership positions. The count ( $n = 168$ ) exceeds the number of graduates because many hold >1 leadership position at their institution.

generally cannot be attributed solely to training. Mentorship is usually considered to be positive for retention, productivity, and career advancement but also has challenging components (eg, investments of time and money by individuals and organizations). Nevertheless, formalized mentoring programs can be structured in a variety of ways,<sup>40</sup> such as traditional dyad mentoring, peer mentoring, and group mentoring, and mentoring programs in professional societies can provide opportunities for women as well.<sup>41-43</sup> However, women may be less likely than men to have mentors<sup>44</sup> and might benefit more from sponsorship: an intentional effort by a current leader to effectively advocate for a woman so that her career is advanced.<sup>45</sup> Indeed, despite the value in mentorship for those of all genders, including those who identify with underrepresented groups,<sup>40</sup> it may not be sufficient to equitably advance careers.<sup>46,47</sup> Sponsorship, an additive, may be "critical to career advancement."<sup>46</sup>

## DISPARITIES IN EQUITY, DIVERSITY, AND INCLUSION FOR WOMEN IN PEDIATRICS

### Compensation

Single-institution studies of pay gaps for women in pediatrics report mixed results (Table 3). For example, the Vanderbilt University School of Medicine's Department of Pediatrics found no significant gender-related compensation differences after accounting for years since first appointment, rank, clinical productivity, and track.<sup>48</sup> On the other hand, the University of Colorado's Department of Pediatrics found that, after adjustment, 72% of women and 51% of men doctor-of-medicine faculty received pay below the Association of Administrators in Academic Pediatrics national median salaries.<sup>49</sup>

National studies and surveys, however, consistently report pay gaps for women in pediatrics even after adjusting for confounding variables.<sup>6,50,51,53-57</sup> For example, Medscape and Doximity ranked pediatrics among the lowest-compensated medical specialties,

**TABLE 3** Salary Gaps for Women Pediatricians

Authors, Publication y	Sources	Cohort	Gender	Results	Pay Gap	Comment
Multiinstitution research studies						
Weaver et al, 2015 <sup>50</sup>	Society of Hospital Medicine and 3 multisite hospitalist groups	776 hospitalists, including 113 pediatric specialists	513 (66.1%) men, 263 (33.9%) women, including pediatricians numbering 57 (50.4%) men and 56 (49.6%) women	Salary gap of \$14 581 for women hospitalists and \$31 126 for women pediatric hospitalists after adjusting for covariates	Yes	—
Jena et al, 2016 <sup>51</sup>	24 publicly funded medical schools	1285 pediatricians	661 (51.4%) men, 624 (48.6%) women	Salary gap of \$24 553 (95% CI \$13 058–\$36 047) after adjusting for covariates	Yes	Calculated sixth-largest gap as percentage of adjusted income among 18 specialties <sup>52</sup>
Pallant et al, 2019 <sup>53</sup>	Academic institutions	149 pediatric program directors who were active members of the Association of Pediatric Program Directors	67 (45%) men, 82 (55%) women	Women had lower salaries after adjusting for covariates	Yes	Gender was a significant predictor of salary
Frintner et al, 2019 <sup>54</sup>	AAP Pediatrician Life and Career Experience Study participants	998 early and midcareer pediatricians working in general pediatrics or hospitalist or subspecialty care	264 (26.5%) men, 734 (73.5%) women	Salary gap of \$7997 after adjusting for covariates, including labor force, physician-specific job, and work-family characteristics	Yes	—
Single-institution research studies						
Darbar et al, 2011 <sup>48</sup>	Vanderbilt University Department of Pediatrics	112 pediatricians at 1 academic institution; full-time and part-time	70 (62%) men, 42 (38%) women	No significant difference (detailed salary data not given)	No	—
Rotbart et al, 2012 <sup>49</sup>	University of Colorado Department of Pediatrics	158 promotional-track physicians; salaries corrected to 1.0 FTE	91 (57.6%) men, 67 (42.4%) women	72% of women and 51% of men received pay below the Association of Administrators in Academic Pediatrics national median when matched for rank, years at rank, and subspecialty	Yes	—
National physician surveys						
Medscape, 2019 <sup>55,56</sup>	National physician survey of Medscape members	19 328 US physicians across 30+ specialties	Among physicians, ~12 370 (64%) men and 6958 (36%) women, 10% of whom were pediatricians. Among ~1933 pediatricians, there were ~773 men (40%) and 1160 women (60%)	Women earned less than men, with men earning 25% more among primary care physicians, 33% more among specialists, and 25% among pediatricians (~\$51 000)	Yes	—
Doximity, 2019 <sup>6,57</sup>	National physician survey	~90 000 full-time US physicians	Gender breakdown unknown	Salary gap of 25.2% overall, 20% in pediatrics	Yes	Pediatrics had the third-lowest annual compensation and fifth-largest gender pay gap of 40 medical specialties

CI, confidence interval; FTE, full-time equivalent; —, not applicable.

both noting 20% to 25% gaps for women.<sup>56,57</sup> Doximity's survey went further, ranking pediatric pulmonology and general pediatrics among the 5 medical specialties with the highest gender-related wage gaps by percentage of annual income.<sup>57</sup> Notably, because both surveys used full-time salary equivalents, discrepancies cannot be explained by women pediatricians working part-time, making the case that pay gaps are not entirely due to women pediatricians' personal work-related choices. Medscape, in particular, has refined its survey over time, and evidence suggests women physicians remain at risk for being unfairly compensated after adjustment for a variety of factors.<sup>58</sup> Importantly, the effects of unfair compensation are likely underestimated because analyses have not accounted for slow advancement of women, reduced 401(k) contributions, and slow debt repayment.<sup>25,29,59</sup>

To better understand the effects of pay disparities, we calculated the potential investment yield from the gaps found in 2 compensation studies demonstrating gender-related disparities in pediatrics even after accounting for confounding variables. Jena et al<sup>51</sup> reported the annual gender-related pediatric compensation gap was ~\$24 500, whereas Frintner et al<sup>54</sup> more recently found the gap to be \$8000. Respectively, over a 35-year career, a woman pediatrician could earn an additional \$857 500 or \$280 000, without accounting for inflation. Using publicly available financial modeling tools,<sup>52,60-62</sup> a relatively conservative estimate of the inflation-adjusted yield following annual investment of after-tax income could add >\$700 000 and \$200 000, respectively, to her income over the course of her career. Moreover, equity in pay could exact benefits beyond financial yield because this additional income could

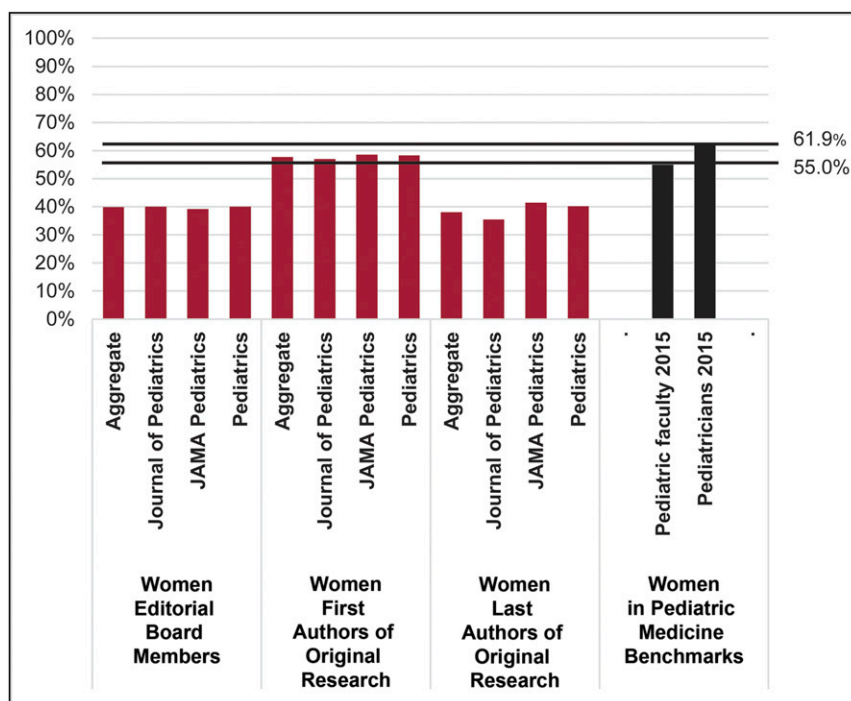
be used to relieve stress related to paying off educational debt or time spent on household and family responsibilities<sup>63</sup> (eg, allow for the hiring of a cleaning service or caregiver).

### Editorial Boards

Over the last 2 decades, the number and proportion of women on the editorial boards of pediatric journals has increased.<sup>64</sup> In aggregate in 2001, <18% (average, 17.8%) of the editorial boards of 3 major pediatrics journals were women, although they represented 44% of pediatric faculty at that time.<sup>64</sup> In 2016, the editorial boards of these same journals consisted of almost 40% women (average, 39.8%).<sup>64</sup> However, the year before, they represented 55% of pediatric faculty<sup>64,65</sup> and 61.9% of pediatricians.<sup>66</sup> Therefore, despite the number and proportion of women on editorial boards in

pediatrics increasing, and some publication organizations making more progress than others, a gap in the representation of women remains (Fig 3).<sup>67-69</sup>

The editorial gender-related gap cannot be explained by a lack of qualified candidates because there were >3200 women pediatric associate professors and professors working full-time in US medical schools in 2015.<sup>65</sup> A large body of research that documents publishing disparities for women at many levels; however,<sup>70</sup> relevantly, there are data that suggest gender diversity in reviewing teams, including editors, may improve equity in publication.<sup>71</sup> Although concerning, this may not always be the case because a recent study of the relationship between an associate editor's gender and the publication of original research articles in the *Journal of Pediatrics*



**FIGURE 3** Representation of women among pediatric editorial board members and authors of original research. Proportions of women among editorial board members and first and last authors of original research in 3 pediatric journals are shown as found by Fishman et al<sup>64</sup> in 2016. Comparators include women among pediatric faculty (55.0%)<sup>65</sup> and women among active pediatricians (61.9%)<sup>66</sup> as reported by the AAMC in 2015. JAMA, *Journal of the American Medical Association*.

showed no gender-related differences in outcomes.<sup>72</sup>

Regardless of whether it affects other disparities (eg, publications for women), inequitable gender-related representation on editorial boards is itself a disparity that could be easily corrected.<sup>73</sup>

### Publication

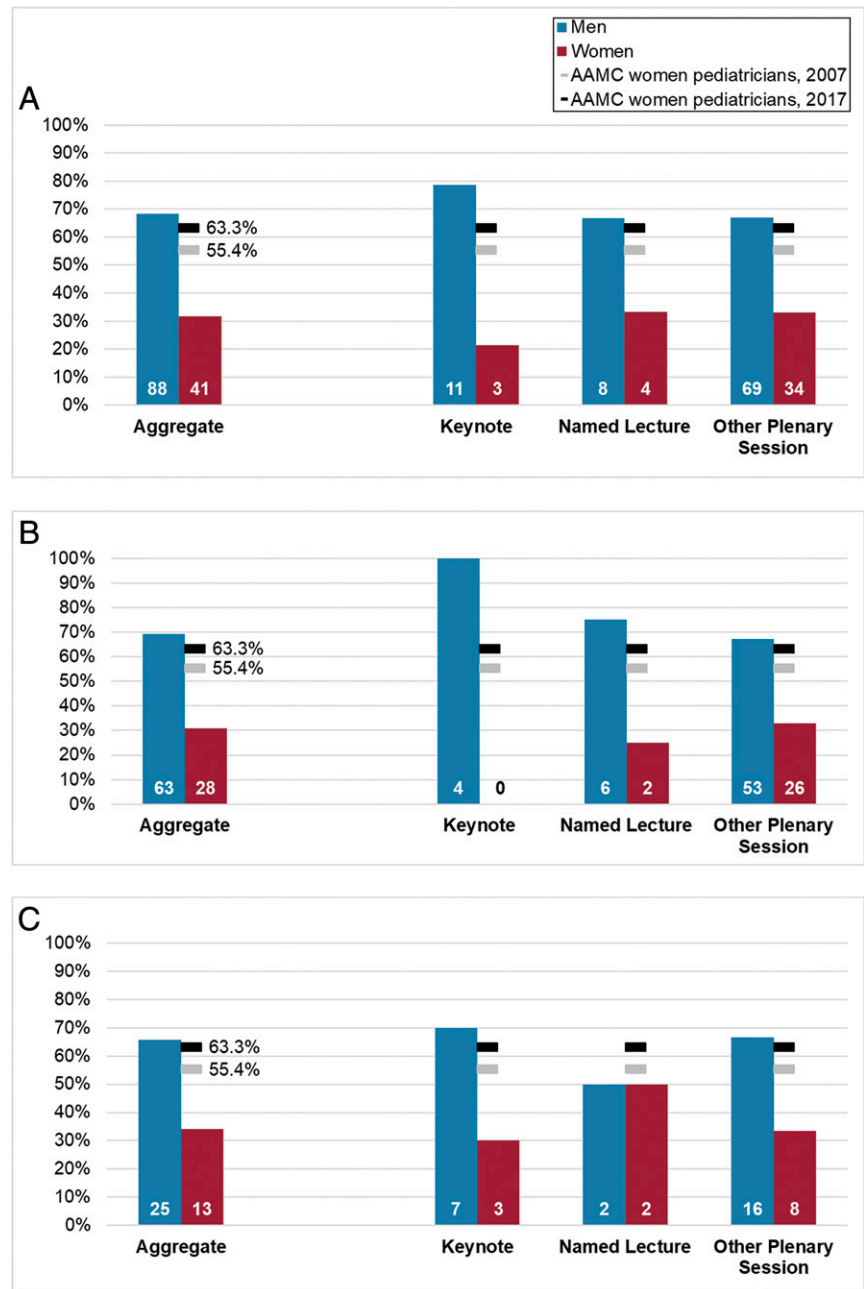
In a large study of gender bias in medical publications that evaluated authorship in core specialties (pediatrics, internal medicine, obstetrics and gynecology, and surgery), researchers found that the proportions of women among first and last authors of original research increased between 1970 and 2004, with their percentages in the *Journal of Pediatrics* increasing from 15% to 39% among first authors and 4% to 38% among last authors.<sup>74</sup> However, women were represented at lower-than-expected levels as both first and last authors. More recent data in pediatrics similarly showed increasing proportions of women among authors of original research over time, with the percentages increasing from 40% to 57% among first authors and from 29% to 38% among last authors from 2001 to 2016.<sup>64</sup> Although these trends are promising, given that the majority of pediatric faculty (55%)<sup>64,65</sup> and pediatricians (61.9%)<sup>66</sup> were women in 2015 and the representation of women among pediatric faculty remains lower than among pediatricians in active practice, further work is needed to reach equity in representation (Fig 3). Moreover, a study of gender-related authorship of perspective-type articles in the 4 highest-impact pediatric journals revealed women, when compared with their proportions among pediatricians, were represented at lower-than-expected levels among physician first authors, last authors, and coauthors of articles written by men physician first authors.<sup>75</sup> This latter study highlights the importance of

research in microinequities (more subtle forms of bias, such as being left out of medical society newsletters<sup>76</sup> or being introduced less formally as a speaker<sup>77</sup>) because they likely contribute to

macroinequities, such as those in pay or promotion.<sup>78</sup>

### Funding

One explanation for some of the underrepresentation of women in



**FIGURE 4**

Representation of women among AAP plenary faculty (2006–2018). Numbers and proportions of men and women annual conference plenary faculty as a whole, among physicians, and among nonphysicians were determined for 2006–2018. For comparison, the AAMC reported that 55.4%<sup>38</sup> and 63.3%<sup>7</sup> of pediatricians in 2007 and 2017, respectively, were women. Named lectures included the E.H. Christopherson Lectureship in International Child Health and Stockman Lectureship on Pediatric Education and Workforce. A, All plenary faculty (2006–2018). B, Physician plenary faculty (2006–2018). C, Nonphysician plenary faculty (2006–2018).

academic publishing could be lower research productivity, and so it is important to assess the role of gender bias in grant funding. Although men and women physicians were found to be equally likely to receive mentored K awards,<sup>79</sup> several studies have shown that critiques written for NIH Research Project R01 Grant applications from men and women appear to be written differently.<sup>80–82</sup> For example, critiques of women’s funded grant applications tended to have more references to competence or ability, whereas men’s tended to have more negative terminology,<sup>81</sup> suggesting women’s grant applications might need to be of higher quality to receive a fundable score. Similarly, male investigators were more likely to be described as leaders and pioneers, whereas female investigators were more likely to have their success attributed to their environment.<sup>82</sup> Numerical scores assigned to women’s grants were also worse than those assigned to men’s.<sup>80,82</sup> Even when women had successful grant applications, they were awarded less money than men were.<sup>83</sup> However, when applications to the Canadian Institutes of Health Research were assessed by the quality of the science rather than characteristics of the investigator, the funding gap between men and women decreased.<sup>84,85</sup>

### Plenary Speakers

On its Web site, the AAP states the National Conference and Exhibition is the “premier venue for pediatric health care professionals to come together and share their passion for the health of all children,”<sup>86</sup> and undoubtedly, equity in the gender-related representation of speakers at this conference is an important metric to consider. We divided lists of plenary faculty<sup>87</sup> (AAP, personal communication, 2018) from meetings taking place from 2006 to 2018 into 3 categories according to information provided by the AAP

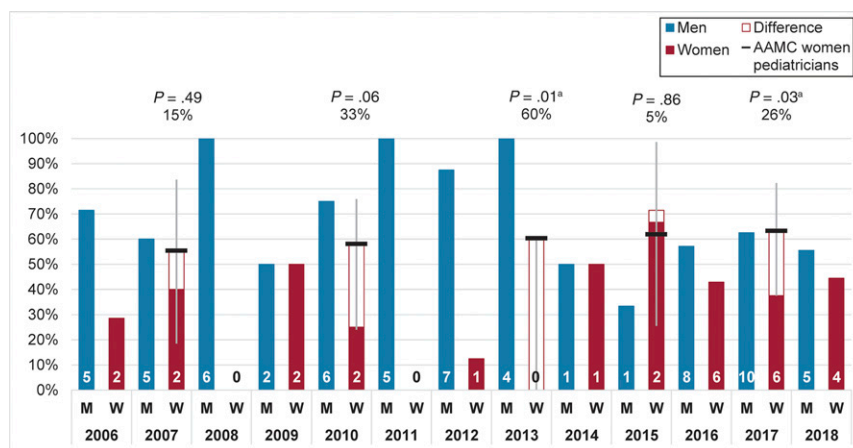
(keynote, named lectureship, and other unnamed plenary session) and compared the data with benchmarks equivalent to the proportion of active women pediatricians reported by the AAMC near the beginning (55.4%; 2007)<sup>38</sup> and end (63.3%; 2017)<sup>7</sup> of the 13-year study period (Fig 4). Our analysis demonstrated that women among all (Fig 4A), physician (Fig 4B), and nonphysician (Fig 4C) plenary faculty were represented at lower-than-benchmark levels in all session categories. Moreover, women physicians (Fig 4B) were represented at lower levels than women nonphysicians (Fig 4C) in all (30.8% vs 34.2%), keynote (0% vs 30%), and named lectureship (25% vs 50%) sessions, respectively.

Comparison of the yearly proportion of women physician plenary faculty during the 13-year study period to the proportion of women pediatricians as reported in each of 5 years by the AAMC<sup>7,38,66,88,89</sup> (Fig 5) revealed 3 important findings: (1) representation of women physicians at higher-than-benchmark levels 20% of the time (1 of 5 years; 2015); (2) representation of women physicians at lower-than-benchmark levels

80% of the time (4 of 5 years) with statistically significant underrepresentation occurring in 2013 and 2017; and (3) over the course of the entire study period, zero representation of women physicians 23% of the time (3 of 13 years: 2008, 2011, and 2013). Moreover, each year since 2015, the representation of women physicians among plenary faculty has remained <45%. Going forward, intentional effort will be needed to equitably represent women among physician speakers, particularly for keynote and named lectures.

### Women With Intersectional Identities

The intersection of race and/or ethnicity and gender disparities has been studied in academic medicine, including pediatrics. Johnson et al<sup>90</sup> reported on unconscious racial bias among pediatric academic leaders, who may be influential in addressing workforce disparity through hiring decisions, such as training program directors, medical directors, or departmental or division leaders. Although underrepresentation of minorities in their pediatric departments was noted by 98% of participants, researchers found that when stratified by race or gender,



**FIGURE 5** Representation of women among physician plenary faculty at the AAP annual conference (2006–2018). Numbers and proportions of men and women annual plenary faculty during the study period are shown compared with the proportions of women among pediatricians reported by the AAMC in 2007,<sup>38</sup> 2010,<sup>88</sup> 2013,<sup>89</sup> 2015,<sup>66</sup> and 2017.<sup>7</sup> Error bars indicate the confidence intervals around the differences noted above the columns. M, men; W, women. <sup>a</sup>  $P < .05$  in  $\chi^2$  comparisons.



**TABLE 4** Organizational Initiatives for Women in Pediatrics by Societies Included in the FOPD

Sponsoring Society	Initiative	Characteristics or Outcome	Specificity Toward Women
AAP <sup>a</sup>	Women's Wellness through Equity and Leadership Project, 2019 <sup>114</sup>	Nurture a cohort of early to midcareer female physicians in wellness, leadership, and equity initiatives Develop principles for equitable and productive work environments Develop a sustainable cross-society data collection plan Joint initiative between AAFP, ACP, ACOG, AP[sych]A, and AHA	Focused
	Task Force on Diversity and Inclusion, 2012	Published a policy statement "Enhancing Pediatric Workforce Diversity and Providing Culturally Effective Pediatric Care: Implications for Practice, Education, and Policy Making" <sup>31</sup> in 2013, which combined and updated 2 previous statements from the AAP on culturally effective health care and workforce diversity Published the AAP Diversity and Inclusion Statement in 2018 <sup>34</sup> Make recommendations regarding surveillance and tracking of member data Outreach and inclusion activities in the AAP leadership pipeline Integration and diversity initiatives within AAP medical education, leadership education, membership, and workforce activities	Inclusive
	Task Force on Addressing Bias and Discrimination	Develop a plan to address common types of bias across a broad spectrum Report findings and recommendations; report is currently under review by the Board of Directors	Inclusive
	Wellness Advisory Group and Initiatives Women-specific initiatives	Engage with the FOPD in working toward physician wellness Sponsored by a number of AAP councils and sections (eg, Women in Neonatology Group)	Inclusive Focused
	Leadership development	Actively work to ensure and enhance diversity among individuals serving on volunteer boards and committees Women are prominently represented in leadership roles (eg, chair of Board of Directors, chair-elect, past chair) Majority of Board of Directors and senior management team are women	Focused and inclusive
AMSPDC <sup>a</sup>	Pediatric workforce development	Move membership data into a dashboard platform, including information regarding location, certification, gender, etc.	Inclusive
	Workforce and leadership recommendations	Published "Women in Pediatrics: Recommendations for the Future," 2007 <sup>115</sup> Published "A Change in the Pediatric Leadership Landscape," 2011 <sup>116</sup>	Focused
	Networking events	Yearly Women's Chair Luncheon to foster and support the growing number of women chairs with specific talking points (eg, salary equity and turnover rates)	Focused
	Frontiers in Science Program	Accepts 40 residents per year Each chair can nominate 1 resident but, during the last 2 years, 2 residents if 1 was considered underrepresented in medicine All underrepresented-in-medicine nominees are automatically accepted, with remaining slots being open to remaining nominees by lottery	Inclusive
APA <sup>a</sup>	Education	Launched webinar titled "Gender Bias: Advocating for Collaborative Leadership Solutions," which is to be written up in the AMSPDC pages in the future	Focused
	Women in Medicine Special Interest Group <sup>117</sup>	Review disparities related to women in medicine, such as salary, advancement, negotiating, work-life integration, harassment, part-time work, and leadership	Focused
APPD <sup>a</sup>	Women's Wellness through Equity and Leadership Project <sup>114</sup>	Detailed above (see AAP)	Focused
	Learning communities <sup>118</sup>	Joint initiative between the AAFP, ACP, ACOG, AP[sych]A, and AHA Facilitate member communication related to learning and projects LGBTQA Underrepresented Minorities in Pediatric Graduate Medical Education	Inclusive
	APPD LEAD Program, 2012 <sup>119</sup>	Encourage women and minorities to take on leadership roles in the organization and programs	Inclusive
APS <sup>a</sup>	Diversity and Inclusion Committee <sup>120</sup>	Promote diversity and inclusion within the APS Promote diversity and inclusion in academic pediatrics	Inclusive
	Membership database, 2018	Collect demographic information from APS membership to identify gaps, if present Make database accessible to members for leadership recruitment	Inclusive
FOPD <sup>a</sup>	Diversity and Inclusion Working Group <sup>121</sup>	Determine the state of diversity in the pediatric workforce and its level of cultural competency training Includes the AAP, APA, APS, APPD, AMSPDC, and SPR	Inclusive
	Workforce recommendations, 2015		Inclusive

**TABLE 4** Continued

Sponsoring Society	Initiative	Characteristics or Outcome	Specificity Toward Women
SPR <sup>a</sup>	Diversity Workgroup <sup>122</sup>	Published "Diversity and Inclusion Training in Pediatrics" <sup>121</sup> with representation from the societies involved in the Diversity and Inclusion Working Group (noted above), 2015	
		Published "Blueprint for Action: Visioning Summit on the Future of the Workforce in Pediatrics," 2015 <sup>32</sup>	
	Enhance the diversity of SPR membership as well as among physician scientists or child health scientists	Inclusive	
	Session at the Annual Meeting on Diversity	Held session entitled "Diversity in the Scientific Workforce: Why Is This Important in Pediatrics?" 2018	Inclusive
	Targeted grants	Planning session on promotion of equity, 2020	
		Launch grant programs targeting women and others underrepresented in medicine to enhance diversity in the research workforce	Focused and inclusive
Joint society collaborations	Travel awards		
	Young Investigator Coaching Program		
Perspective article, in development	Joined with Federation of American Societies for Experimental Biology in promoting diversity, equity, and inclusion	Inclusive	
	Other collaborations planned for the future		
	Linked early-stage and senior investigators to address building a career as a physician-scientist, including examples highlighting women	Inclusive	

The FOPO is an umbrella organization made up of leadership from the APA, AAP, ABP, APS, AMSPDC, APPD and SPR. AAFP, American Academy of Family Physicians; ABP, American Board of Pediatrics; ACOG, American College of Obstetrics and Gynecology; ACP, American College of Physicians; AHA, American Hospital Association; AMSPDC, Association of Medical School Pediatric Department Chairs; APA, American Pediatric Association; APPD, Association of Pediatric Program Directors; APS, American Pediatric Society; AP[sych]A, American Psychiatric Association; LEAD, Leadership in Educational Academic Development; LGBTQIA, lesbian, gay, transgender, queer, asexual; SPR, Society for Pediatric Research.

<sup>a</sup> Information was collected via searches of the literature and each organization's Web site. Additionally, we reached out to each organization at least twice requesting that they verify their information and offering them an opportunity to share other relevant initiatives. Each organization responded to our request.

non-Hispanic whites and men demonstrated more pro-white and/or anti-black preference, as evidenced by higher scores on the Implicit Association Test, a validated instrument that assesses unconscious bias.<sup>91</sup> Moreover, 50% of these pediatric faculty leaders cited a lack of qualified minority candidates as a barrier to recruitment. This study did not evaluate outcomes pertaining to women of color. However, given disparities for women and the overrepresentation of men in leadership roles in pediatrics,<sup>49,92</sup> the bias described in this report deserves more study because it could influence the hiring, compensation, promotion, and retention of minority women pediatricians. For example, according to Ly et al,<sup>93</sup> 47.8% of white male physicians earned >\$200 000 annually. Even after adjusting for years in practice, practice type, specialty, and percentage revenue generated, only 14.3% of black women physicians earned the same amount.

The concern about potential bias influencing the pipeline of women of color in medicine is underscored by their low levels among academic faculty. The AAMC reported in 2016 that although 39% of full-time faculty were women, only 4% of them were underrepresented minorities.<sup>94</sup> Lett et al,<sup>95</sup> reporting on trends in faculty representation in 16 clinical specialties at US medical schools, found that black and Hispanic women physicians were underrepresented at the assistant professor level both overall and in pediatrics. Moreover, in pediatrics and 14 other clinical specialties, there were fewer black and Hispanic women physicians among associate or full professors in 2016 than in 1990.

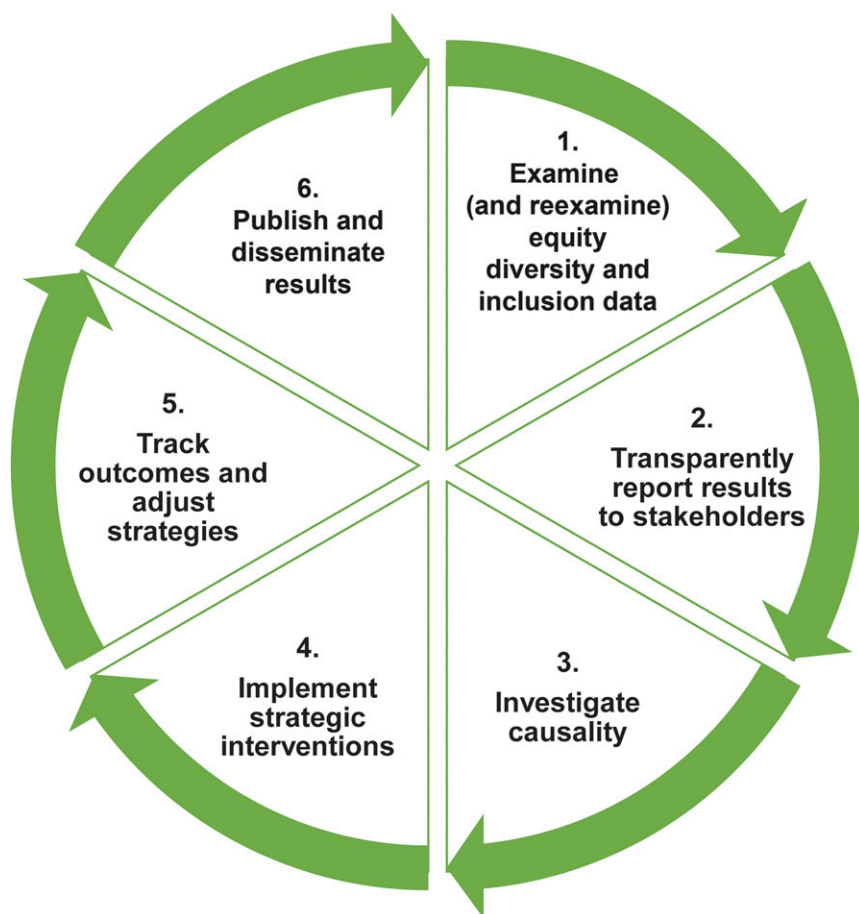
### Physician Burnout

Physician burnout was declared a public health crisis in the United States,<sup>96</sup> and despite some improvement,<sup>97</sup> it is associated with decreased job performance, disruptive behaviors, poor relationships with staff,<sup>98</sup> and large economic burden.<sup>99</sup> Workforce

gender disparities in US physician burnout are multifaceted and emerging,<sup>100</sup> but some studies show that women experience more symptoms than men.<sup>101-104</sup> Rates vary considerably by specialty,<sup>105</sup> with pediatricians demonstrating relatively low levels.<sup>106</sup> Although studies in pediatricians have produced inconsistent results with regard to whether symptoms are more prevalent in women,<sup>107-109</sup> women reported spending more time on household responsibilities than men regardless of work intensity.<sup>63</sup>

### OPPORTUNITIES TO ENHANCE EQUITY, DIVERSITY, AND INCLUSION OF WOMEN IN PEDIATRICS

The prescription for gender equity in medicine should involve the basic scientific principles we use to tackle other difficult problems: (1) leadership accountability; (2) dedicated financial and human resources; and (3) an evidence-based, data-driven, and transparent approach to evaluation and reporting.<sup>110</sup> For example,



**FIGURE 6**  
The equity, diversity, and inclusion cycle: a strategic approach to accountable documentation and the resolution of gender (and other) disparities in medicine. The cycle is based on previous gender equity, diversity, and inclusion work by the senior author (J.K.S.) and colleagues.<sup>110,126</sup>

institutional hospital safety leaders, not patients (those most affected), are held responsible for identifying and prioritizing inadequacies, eliciting solutions, assigning institutional funds and resources, and collecting, analyzing, and compiling outcome data into reports distributed both internally and to regulatory agencies. In contrast, gender-equity initiatives have been largely driven from a grassroots level (with little or variable institutional recognition or support) by those most affected (women who are underpaid and underrecognized) with few resources (volunteering their spare time and often underwriting the initiatives themselves). Hospital safety initiatives rely on actionable metrics to ensure that interventions and the allocation of resources positively affect

patient morbidity and mortality. In contrast to metrics, the creation of diversity structures, such as task forces, has been described as providing an illusion of fairness, and it has been suggested that they may actually make gender discrimination and inequities worse, particularly if the absence of data enables leaders to “legitimize the status quo.”<sup>111</sup> Like safety data, gender-equity data must also be collected, analyzed, and reported accurately to stakeholders on a regular basis, not just as part of a 1-time or irregular spot check. Crucially, organizational leaders must be actively engaged in creating and sustaining initiatives that advance progress because data collection is necessary but not sufficient to drive change.<sup>111–113</sup>

For more than a decade, pediatric professional organizations, including the FOPO and its 7 member organizations, have been focused on strategic initiatives to improve diversity and inclusion for women physicians (Table 4). Initiatives include the creation of leadership development programs for women, policy statements for diversity and inclusion, publications, committees or task forces, and special interest groups.<sup>31,32,34,114–122</sup> Similarly, pediatric subspecialty organizations have developed initiatives directed at women in pediatrics as well as diversity and inclusion broadly. For example, the American Society of Pediatric Hematology/Oncology has both a Diversity Special Interest Group and a Diversity Advisory Group, with the goal being to support members by increasing diversity (including gender diversity) and inclusiveness in membership and leadership.<sup>123</sup> The Society for Adolescent Health and Medicine Diversity Committee is constructing a workforce development plan that emphasizes the recruitment of providers from diverse backgrounds and improves the integration of ethnic, racial, and sexual diversity and inclusiveness into all Society for Adolescent Health and Medicine activities.<sup>124</sup> Other organizations, such as the Pediatric and Congenital Electrophysiology Society, have held networking receptions specifically for women.<sup>125</sup>

Undoubtedly, pediatric professional organizations have contributed to progress; however, transparent metrics and reporting to stakeholders are lacking, making it difficult to assess efficacy. Because outcomes such as pay, promotion, publication, and recognition may be intertwined (especially in academia),<sup>126</sup> fair treatment of women pediatricians will require enhanced and simultaneous commitment from leaders in 4 key gatekeeper groups:

**TABLE 5** Proposed Time Line and Suggested Actions Toward Resolving Gender-Related Disparities in Medicine

Proposed Time Line	Decision-making Group	Action
Immediately	Gatekeepers: (1) academic medical centers, hospitals, health care organizations and practices; (2) medical societies; (3) journals; and (4) public and private funding agencies and foundations (eg, the NIH, including the <i>Eunice Kennedy Shriver</i> National Institute of Child Health and Human Development, the Patient-Centered Outcomes Research Institute, and the Agency for Healthcare Research and Quality) Gatekeeper: NIH	Focus new and existing task forces and alliances on improving diversity and inclusion Use a scientific approach that includes metrics, analysis, and transparent reporting of outcomes to demonstrate impact <sup>110</sup>  Accelerate gender-equity efforts to change the culture and climate in medicine Enforce funding restrictions to incentivize health care organizations to combat sexual harassment <sup>127</sup> Continue to condemn the exclusion of women (eg, all-male panels ["manels"]) <sup>128</sup> Enforce the >15-y-old policy on the inclusion of women speakers and panelists <sup>129</sup>
Within 1–2 y	Gatekeepers: medical societies, especially those supported by women physician members and their employers  Gatekeepers: medical journals  Gatekeepers: medical societies and journals, especially those with financial or other relationships with each other  Gatekeeper: NIH	Collect a comprehensive set of membership data Use a comprehensive set of metrics similar to that used by the Association of Academic Physiatrists <sup>130</sup> Engage in strategic planning to correct disparities in membership and leadership roles (eg, committee members and chairs, course directors, speakers, the board, and executive team) Release gender-equity status in a transparent manner similar to the first of its kind report published by the Association of Academic Physiatrists <sup>130</sup> Use a comprehensive set of metrics to monitor progress in correcting disparities Commit to diversity on conference panels similar to the NIH commitment to ending the use of "manels" <sup>128,129</sup> Achieve equitable representation of women physicians and scientists on editorial boards and among leadership, including at the highest levels <sup>73,110,131,132</sup> Hold each other accountable for the equitable inclusion of women in medicine Avoid pairing with an organization that supports ongoing gender bias and discrimination affecting women physicians and scientists <sup>110</sup> Document and augment progress in the equitable inclusion of women, including those with intersectional identities Target equity in leadership at the highest levels of the organization <sup>110</sup> Augment progress in the equitable inclusion of women among recipients of all grants and awards, including the Director's Pioneer Award <sup>80–82,110,133</sup>
Within 2–3 y	Affected group and their supporters: women members and their colleagues	Give medical societies a short period of time, not more than 2–3 y, to document and dramatically improve their workforce equity efforts Consider withdrawing financial and other support because it is unethical to support organizations that discriminate against women physicians and scientists <sup>110,134</sup>
Within 3–5 y	Gatekeepers: academic medical centers, hospitals, health care organizations, and practices	Prioritize and achieve fair pay and equitable promotion for women physicians and scientists, including at the highest levels Review the diversity of all selection and interviewing committees Track and transparently report the proportion of women and those underrepresented in medicine in institutional leadership roles

(1) academic medical centers, hospitals, health care organizations, and practices; (2) medical societies; (3) journals; and (4) funding agencies.<sup>52</sup> By customizing metrics according to their unique structure and purpose,<sup>110,126</sup> each gatekeeper

group can use the same strategic 6-step approach<sup>52,110,126</sup> (Fig 6): the equity, diversity, and inclusion cycle. The equity, diversity, and inclusion cycle provides a strategic methodology to examine equity, diversity, and inclusion data; share

results with stakeholders; investigate causality; implement strategic interventions; track outcomes and adjust strategies; and disseminate results. Because the use of a cyclical data-driven approach to problem-solving is considered best practice,

widespread adoption may accelerate progress toward workforce gender equity (Table 5).<sup>73,80–82,110,127–134</sup>

## CONCLUSIONS

Although much work has been done and some progress has been made, numerous reports suggest medicine, including pediatrics, is not leading the way in gender equity, and attempts to close some gaps are slow, stalled, or even regressing. Beyond examining gender data and disparities, implementing strategic interventions, tracking metrics, and reporting outcomes, next steps must include enforcement of a climate of transparency and accountability, with leaders prioritizing financial and

human resource support for workforce gender equity.

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Academic Pediatric Association, the Association of Pediatric Program Directors, the American Pediatric Society, the FOPO, and the Society for Pediatric Research.

## ABBREVIATIONS

AAMC: Association of American Medical Colleges  
AAP: American Academy of Pediatrics  
ELAM: Hedwig van Ameringen Executive Leadership in Academic Medicine  
FOPO: Federation of Pediatric Organizations  
NIH: National Institutes of Health

**FINANCIAL DISCLOSURE:** Dr Marcelin gives professional talks such as grand rounds, diversity and inclusion workshops, and medical conference lectures and receives honoraria from conference or workshop organizers. Dr Silver has personally funded the Be Ethical Campaign, and proceeds from the campaign support disparities research. As an academic physician, Dr Silver has published books and receives royalties from book publishers, and she gives professional talks such as grand rounds and medical conference plenary lectures and receives honoraria from conference organizers. Dr Silver has grant funding from (1) The Arnold P. Gold Foundation (physician and patient care disparities research) and (2) the United States–Israel Binational Scientific Foundation (culinary telemedicine research); the other authors have indicated they have no financial relationships relevant to this article to disclose.

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