

GWIMS Equity in Promotion Toolkit

AAMC GWIMS TOOLKIT

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Authors	Title	Organization
Maria Q. Baggstrom MD FACP*	Associate Professor of Medicine, Oncology	Washington University in St. Louis School of Medicine
Toi Blakley Harris MD*	Senior Vice Present, Chief Equity, Diversity, and Inclusion Officer	Memorial Hermann Health System, GWIMS Steering Committee
Melissa D. Bauman PhD*	Director, UC Davis Health Women in Medicine and Health Services (WIMHS) Program, Professor, Department of Psychiatry and Behavioral Sciences	University of California, Davis School of Medicine
Camille A. Clare MD MPH CPE FACOG*	Chair, Department of Obstetrics & Gynecology, Tenured Professor of Obstetrics and Gynecology	Downstate Health Services University
Libby Ellinas MD MS*	Associate Dean for Faculty Affairs & Women's Leadership, Professor of Anesthesiology	Medical College of Wisconsin
Magali Fassiotto PhD*	Associate Dean, Office of Faculty Development & Diversity	Stanford University School of Medicine
Kathy K. Griendling PhD*	Executive Associate Dean for Faculty Affairs and Professional Development, R Wayne Alexander MD Professor of Medicine, Cardiology	Emory University School of Medicine
Nancy D. Spector MD*	Senior Vice Dean for Faculty, Professor of Pediatrics, Executive Director ELAM and EH, Executive Director of Lynn Yeakel Institute for Women's Health and Leadership	Drexel University College of Medicine, ELAM
Elizabeth Gillespie MD	Physician, Hospital Medicine	Denver Health
Richelle J. Koopman MD MS	Vice Chair of Research and Faculty Affairs, Professor of Family Medicine	University of Missouri
Linda Nelson MD PhD FACOG	Director of Faculty Development, Professor of Obstetrics and Gynecology	University of Arizona College of Medicine-Phoenix
Jennifer Sasser PhD	Associate Professor, Director of Medical Pharmacology PhD Program	University of Mississippi Medical Center
	All Authors contributed to the original 2017 Toolkit * Authors who contributed to the updated 2023 Toolkit	

Learning Objectives

- Describe the gender inequities present in faculty advancement within academic medicine.
 - Identify societal, organizational, and individual barriers that delay or prohibit the advancement of women faculty.
 - Review best practices and strategies described in the literature that have successfully impacted academic promotion rates for women faculty.
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- *We acknowledge that, at the time of this update, this toolkit has utilized both gendered and URM language throughout and that language continues to evolve in order to be inclusive of all of the members of our audience.

How diversity supports excellence in academic medicine

- Improved health care quality outcomes
- Reduced health care disparities
- Broadened research agenda
- Enhanced learning and work environment
- Maximizes the potential problem-solving capacity of teams

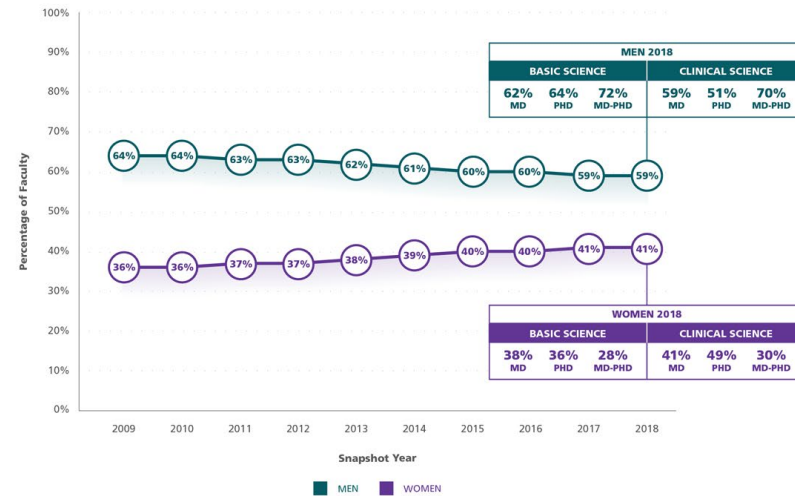
Gender Inequities in Academic Medicine

THE STATE OF WOMEN IN ACADEMIC MEDICINE, 2018-2019

Percentage of Full-Time U.S. Medical School Faculty by Gender, 2009-2018



FIGURE 9



KEY TAKEAWAY

The proportion of full-time women faculty has increased steadily over the past 10 years, from 36% in 2009 to 41% in 2018.

LEARNERS

FACULTY

SENIOR LEADERSHIP

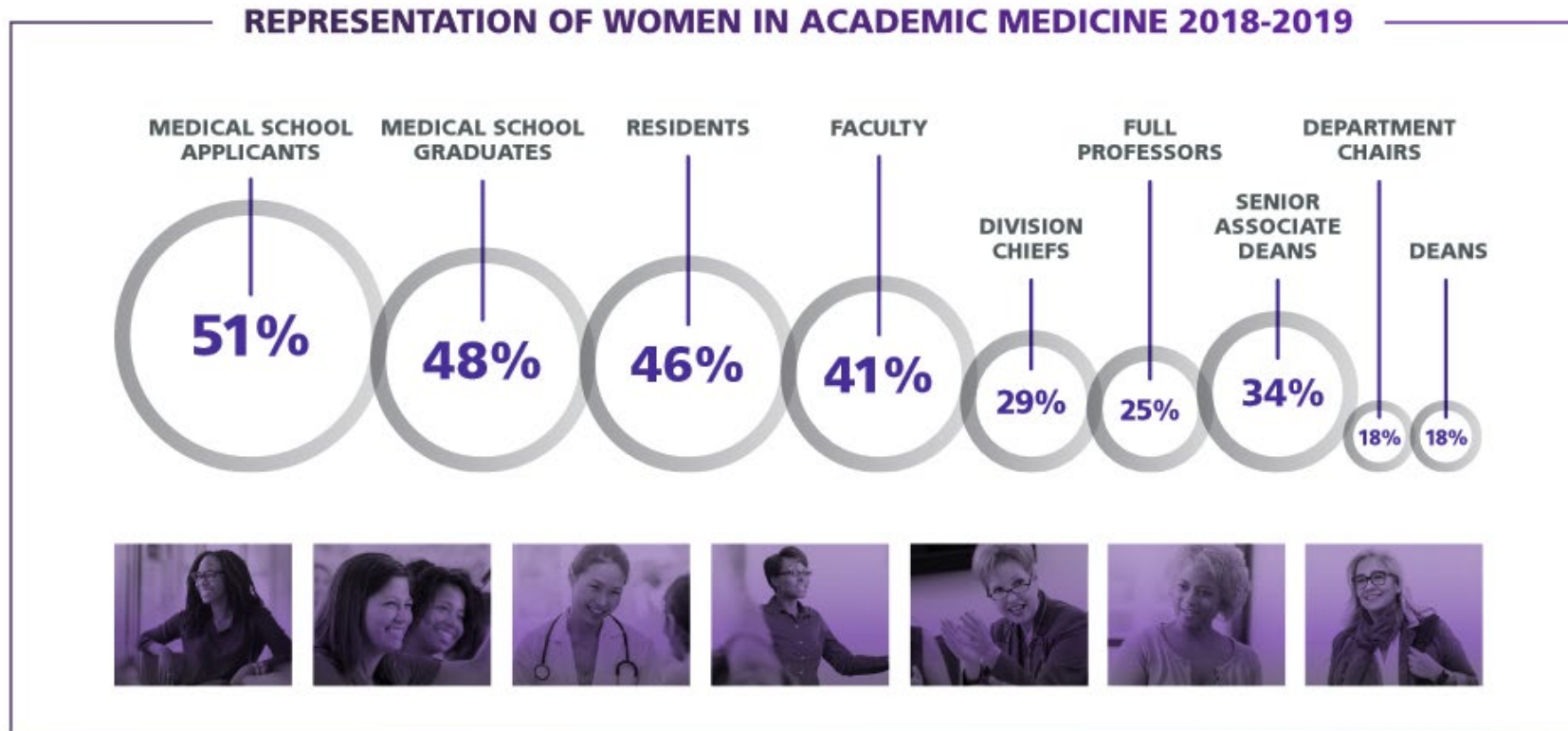
Source: AAMC Faculty Roster, Dec. 31, 2018 snapshot. Data represent Dec. 31 snapshots for each year presented. US Medical School Faculty Tables, Table 14. U.S. Medical School Faculty by Sex, Degree, and Department, 2018.

Note: This figure excludes faculty with missing gender, which accounts for less than 0.5% of all faculty in each snapshot year. The data displayed by department type and degree type include faculty in basic science and clinical departments only; faculty in "other" departments and faculty with other degrees were excluded. Department degree type breakouts exclude faculty of other and unknown degree types and faculty in "Other Health" departments.

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Association of American Medical Colleges

Gender Inequities in Academic Medicine



Consequences of Gender Inequities in Academic Medicine

- Lower publication rates and fewer first/last author papers
- Less NIH grant funding
- Fewer roles as a clinical trial investigator
- Less recognition and fewer awards from specialty society
- Less advancement to senior roles and leadership

Challenge 1

THE PROBLEM STARTS EARLY.

Background – The Problem Starts Early

- Medical student evaluations appear riddled with racial and gender biases. White women and underrepresented in medicine groups were more often described by words about their personalities, while white men were evaluated with more words describing their competency.
 - “Men are ‘scientific,’ women are ‘lovely’ and underrepresented in medicine students are “pleasant” and “nice.” If those sound like stereotypes, they are. But they’re also words commonly used to evaluate medical students, a study finds.
- Four characteristics create higher levels of risk for women in academic medicine: male-dominated environment; organizational tolerance for harassing behavior; hierarchical and dependent relationships between faculty and their trainees; and isolating environments.
- Women students in engineering and medicine experience more frequent gender harassment than women students in other non-science/engineering/medical (SEM) fields or women in science majors.
- Women medical students now outnumber men, yet they still face significant levels of gender harassment, contributing to increased rates of burnout and dissatisfaction.
- Women made up 53.7% of students matriculating into MD-granting medical schools in 2019-2020, and 51.9% of matriculants into DO-granting medical schools.
- Women still make up just 18% of all Department Chairs. Of these, just 15% of women chairs in basic and clinical science departments identify with racial and ethnic backgrounds underrepresented in medicine.
- Women fall off the pathway because the problem starts early.

Strategies	Challenge 1: The problem starts early.
Institutional	Offer flexible work options along the medical education continuum.
	Ensure that instruction throughout the medical student curriculum is inclusive of all leadership voices (i.e., avoid “manels”).
	Ensure medical school curriculum examples, cases, and topic areas do not include stereotypical interpretation of women and include women as physicians and successful scientists in cases.
	Institutions should take responsibility for developing culturally appropriate mentorship programs that are available for women medical students as they make specialty selections and for residents as they make career decisions. This should be inclusive of peer mentors, near-peer mentors, and faculty – formally establishing the importance of a personal “board of directors.”
Leaders	Mentor and sponsor women medical students and trainees (both men and women sponsors).
	Provide training in negotiation and career advice early on that is specific to the needs of women in medicine.
	Hold sessions for medical students, residents and junior faculty led by business school faculty who are experts in this area.
	Recruit successful female faculty who have balanced family and work to provide career advice to medical students.
Individual	Seek out a personal board of directors for career guidance.
	Approach potential mentors and sponsors at various stages throughout your career, including peers.

Challenge 2

BIAS AND DISCRIMINATION OCCUR DURING THE HIRING AND PROMOTION PROCESSES.

Background - Bias and discrimination occur during the hiring and promotion processes.

- In 2015, only 22% of full professors, 18.7% of permanent department chairs, and 17% of highest-tier deans/interim deans were women.
- Over a 35-year period (AAMC data on 559,098 graduates from 134 U.S. medical schools from 1979-2013 with faculty data through 2018), Richter et al NEJM 2020 found that:
 - Women physicians in academic medical centers were less likely than men to be promoted to the rank of associate or full professor or to be appointed to department chair, and there was no apparent narrowing in the gap over time) even after adjustment for graduation year, race or ethnic group, and department type.
 - Women physician graduates were more racially diverse than men, but Indigenous persons, Black individuals, and other persons of color were less likely than white individuals to be promoted.
- Looking at the data and overall trends of the promotion of women physicians in academic medicine, Nocco and Larson in the Journal of Women's Health 2021 found that:
 - 10 of the 39 societies studied did not have a single woman presidential leader from 2008-2017.
 - In a cross-sectional analysis of the gender distribution of decanal positions across 136 United States medical schools, men outnumbered women by a factor of 1.5.
 - Furthermore, the representation of women decreased with increasing decanal rank and men outnumbered women by a factor of 6 in the highest-tier positions (i.e., dean or interim dean).
 - The average term length of department chairs at United States medical schools was 8.7 years for men and 6.1 years for women, with some terms lasting about 43 years (it could take another 50 years to achieve gender parity among leaders in academic medicine).

Strategies	Challenge 2: Bias and discrimination occur in the hiring and promotion processes.
Institutional/Leaders	Train search committees on implicit bias and discrimination.
	Provide child and elder care.
	Provide spousal hiring programs.
	Institute systematic collection of the experiences of women in academic medicine.
	Initiate and continue special programs for recruiting, promotion, and retaining women.
Individual	Pursue individual and interpersonal strategies (training, mentoring, and networking).

Challenge 3

WOMEN LACK A SUPPORTIVE NETWORK AND INCLUSIVE ENVIRONMENT.

Background - Women lack a supportive network and inclusive environment.

- There is a negative correlation between lack of an inclusive culture and wellness/job performance.
- Networks (operational, developmental, and strategic) contribute to career advancement, but women have difficulty accessing networks (actively blocked, not aware of them, no clear strategy for access) and benefiting from them.
- More than 50% of women faculty and staff in academic institutions report being harassed.

Strategies	Challenge 3: Women lack a supportive network and inclusive environment.
Institutional/Leaders (short-term)	Host networking events for women at your institution and in your professional societies and create a welcoming environment for all members of your community (intersectionality) with intention.
	Appoint a “champion” in each unit who identifies resources, protected time, administrative support, mentors, and sponsors for their women colleagues.
	Create WIMS affinity groups at your institution.
	Establish a formal mentoring program for women that includes peer mentoring.
	Ensure that women have a sponsor who can help them become connected with others in their field; ask sponsors to be personally responsible for recruiting and fostering success of their women colleagues.
	Use gender-inclusive pronouns and URM-inclusive language and photographs in institutional communications.
	Nominate women, including URM women, for institutional/regional/national/international awards.
	Ensure that women, including URM women, are included as invited speakers for seminar series and conferences.

Strategies	Challenge 3: Women lack a supportive network and inclusive environment.
Institutional/Leaders (long-term)	Adopt “Stop the clock” policies for tenure in case of childbirth that are “opt-out” instead of “opt-in.”
	Create specific behavioral guidelines (action items) to lead to cultural change and regularly assess progress using specific metrics. Hold leaders accountable for improving diversity, equity and inclusion metrics in the organization by tying efforts to an incentive program.
	Increase representation of women in leadership positions, for example by placing term limits on department chairs to increase the number of available positions.
	Review institutional policies for gender bias; revise them through collaboration with diverse stakeholders.
	Address toxic culture. Hold leaders accountable to address the issue of toxic environment.
	Enact policies that cover gender harassment.
	Foster cooperation, respectful work behavior and professionalism.
	Issue annual reports providing information on gender harassment policy violations and general outcomes.

Strategies	Challenge 3: Women lack a supportive network and inclusive environment.
Institutional/Leaders (long-term)	Provide support for the target of harassment.
	Adopt a professionalism pledge, including training on how to safely raise concerns about professionalism. Provide violators with 360 feedback.
	Reward those who prioritize a professional and supportive culture.
Individual	Be proactive in participating and taking advantage of mentoring programs.
	Seek out a sponsor who can help you get connected.

Challenge 4

WOMEN HAVE FEWER OPPORTUNITIES TO PARTICIPATE IN SCHOLARLY ACTIVITIES.

Background – Women have fewer opportunities for scholarly activities.

- Women continue to lag behind men as both first and senior authors, especially in prestigious publications and are less likely to receive authorship credit when participating in research teams.
- Women remain underrepresented among editors of scientific and medical journals, particularly in senior positions.
- Despite overall increases in the percentage of women researchers successfully competing for NIH grants, sex imbalances in grants awarded during formative career stages persist. Gender bias may persist in NIH grant reviews, in particular for renewals of RO1s.
- Women are underrepresented as invited conference speakers in the fields of science, technology, engineering, math, and medicine (STEMM).

Strategies	Challenge 4: Women have fewer opportunities to participate in scholarly activities.
Institutional	Offer grant writing boot camps for women.
	Test interventions (implicit bias training for all reviewers, removal of stereotypical male behaviors from wording of review criteria, inclusion of more women on grant review committees) to prevent bias in the context of grant reviews.
Leaders	Provide training on authorship considerations for all gender identities.
	Raise awareness of existing, persisting and even increasing imbalances in citation practices.
	Leaders who serve as journal editors should increase the pool of women reviewers and intentionally invite more women to write reviews and editorials.
	Disseminate information from initiatives such as #NeedHerScience to raise awareness of gender bias in publishing.
	Petition conference organizers and invited speakers to end the tradition of all-male speaking panels referred to as “manels.”
	Utilize online resources to identify diverse speakers.
	Include women on conference planning committees to enhance diversity of speakers.

Strategies	Challenge 4: Women have fewer opportunities to participate in scholarly activities.
Individual	Seek training on authorship considerations for all gender identities. Define and document authorship criteria expectations for collaborative projects in advance.
	Strategically form and engage in collaboration networks to combat the gendered gap in productivity and prominence that is largely explained by differences in social networks.
	Raise awareness of existing, persisting and even increasing imbalances in citation practices.
	Disseminate information from initiatives such as #NeedHerScience to raise awareness of gender bias in publishing.
	Petition conference organizers and invited speakers to end the tradition of all-male speaking panels referred to as “manels.”
	Utilize online resources to identify diverse speakers.
	Include women on conference planning committees to enhance diversity of speakers.

Challenge 5

WOMEN ARE LESS LIKELY TO OBTAIN THAT FIRST CRITICAL PROMOTION AND ARE LESS LIKELY TO RECEIVE A RAISE WHEN THEY ASK FOR IT.

Background - Women are less likely to obtain that first critical promotion and are less likely to receive a raise when they ask for it.

- Women and non-white faculty are promoted in rank at lower rates than men (first promotion from assistant to associate).
 - Among assistant professors, women had lower promotion rates ($P < .001$) than men.
- Women in academic medicine are paid less than men (Dandar et al. AAMC 2019).
 - Starting salaries are lower for women in 42 of 45 specialties.
 - Gaps in median total compensation existed for women in basic and clinical science departments/specialties but were generally larger for women in clinical science.
 - Women were paid between \$0.72 and \$0.96 per \$1 paid to men across different departments and specialties.
 - The greatest differences in median total compensation between men and women were for faculty with an MD or equivalent degree.
- Women ask for raises, but do not receive them.
- Women were less likely to ask for a raise during the COVID-19 pandemic.

Strategies	Challenge 5: Women are less likely to obtain that first critical promotion and are less likely to receive a raise when they ask for it.
Institutional	Ensure that your institution is applying the same rigor to all persons when considering promotion and work reviews. Set clear guidelines for promotion.
	Provide implicit bias training to leaders and evaluators.
	Track hiring and promotion outcomes. Work as hard on promotion reviews as on hiring.
	Hold leaders accountable for progress on diversity goals.
	Provide salary information standards and transparency.
	Equalize starting salaries.

Strategies	Challenge 5: Women are less likely to obtain that first critical promotion and are less likely to receive a raise when they ask for it.
Leaders	Managers should be aware of work assignments – assign “taking charge” roles and “taking care” roles across a range of genders.
	Advocate for new opportunities for women of color, and actively mentor and sponsor them.
	Work to mitigate maternal wall bias – don’t assume she doesn’t want that assignment or promotion.
Everyone	Attend implicit bias training and learn all you can. Be open to the idea that you may have implicit bias.
	Obtain negotiation training and engage mentors when seeking promotion.
	Be aware of maternal wall bias and work to mitigate it.
	Work to be an ally for women and women of color.

Challenge 6

THERE ARE INEFFECTIVE PATHWAY PROGRAMS TO LEADERSHIP.

Background – There are ineffective pathway programs to leadership.

- Women face subtle and overt bias, including perceptions of “aggressive” behavior.
- Gendered career paths* may not appeal to women. *Gendered career paths being defined as careers that are designated or stereotypically defined as being for women or for men.

Strategies	Challenge 6: There are ineffective pathway programs to leadership.
Institutional	Develop and implement policies to promote equity in faculty advancement.
	Standardize processes that support the life cycle of a faculty member. Establish an annual career/professional development conference.
	Utilize best practices for mentorship and faculty development.
	Establish expectations for chairs for promotion and advancement of faculty.
	Monitor promotion outcomes annually with respect to gender and race/ethnicity and share the outcomes with faculty. Be transparent: measure and show the disparities. Create dashboards. Set goals and measure achievement.
	Monitor pay equity.
	Provide implicit bias and allyship training for all Department Chairs, Search and P & T Committees, both within departments and at the institutional level, and evaluate the effectiveness of training. Ensure that there is a critical mass of diverse members serving on all major search committees (e.g., people of color, underrepresented minorities).
	Foster a climate that will enhance success for all groups.
	Develop an office for gender equity and professional parity through multidisciplinary gender and racial diverse taskforce.

Strategies	Challenge 6: There are ineffective pathway programs to leadership.
Leaders	Work within the medical societies.
	Review inclusion and diversity data, then report data to stakeholders.
	Explore possible etiologies of inequities, if present, and effect strategies designed to promote inclusion. (Professional societies are linked to journals, diversity on editorial boards, and awards.)
	Make a public pledge to equity, monitor outcomes, and share results with stakeholders to invite dialogue about goals to achieve equity. Include women as peer reviewers.
	Avoid having a sole woman or underrepresented person as a member of a team.
	Ensure a critical mass of women and URM leaders.
	Tie DEI metrics to performance reviews.

Strategies	Challenge 6: There are ineffective pathway programs to leadership.
Individual	Educate yourself about promotion and tenure (P&T) requirements including promotion tracks for your institution.
	Seek honest feedback on whether you are reaching milestones for promotion. Appropriate people may include chair of P & T committee, prior members, Faculty Affairs/Faculty Development/Diversity Offices and who can serve as advisors.
	Actively seek advice about your own readiness for promotion.
	Utilize graceful self-promotion.
	Inquire about institutional flexibility in promotions pathways (e.g., process to change tracks).
	Understand requirements to extend the promotion clock.
	Identify a mentor and/or be a mentor for career progression.
	Identify a sponsor.
	Obtain an executive coach.
	Participate in training and skill building.
	Be an ally.

Additional GWIMS Toolkits

1. [Mentoring Women – A Guide for Mentees](#)
2. [Mentoring Women – A Guide for Mentors](#)
3. [Strategies for Cultivating Career Satisfaction and Success through Negotiation](#)
4. [Strategies for Advancing the Careers of Women in Color in Academic Medicine](#)
5. [Equity in Recruitment: Your Go To Equity Guide for Recruitment: Positions, Committees, and Speakership](#)
6. [A Guide to Allyship](#)
7. [How to Build, Engage, and Support a WIMS Group](#)
8. [Implementing an Intensive Career Development Program for Women Faculty](#)
9. [Addressing Sexual Harassment in Academic Medicine](#)
10. [Equity: Defining, Exploring and Sharing Best Practices for Gender Equity in Academic Medicine](#)

References

References: Challenge 1

1. <https://www.sciencenews.org/article/medical-student-evaluations-skewed-race-gender-biases>
2. <https://nap.nationalacademies.org/read/24994/chapter/5>
3. <https://www.aamc.org/news-insights/ending-gender-harassment-medicine>
4. <https://www.ama-assn.org/education/medical-school-diversity/women-medical-schools-dig-latest-record-breaking-numbers>
5. <https://www.aamc.org/data-reports/data/2018-2019-state-women-academic-medicine-exploring-pathways-equity>

References: Challenge 2

1. Murphy M, Callander JK, Dohan D, Grandis JR. Women's Experiences of Promotion and Tenure in Academic Medicine and Potential Implications for Gender Disparities in Career Advancement: A Qualitative Analysis. *JAMA Netw Open*. 2021;4(9): e2125843. doi:10.1001/jamanetworkopen.2021.25843.
2. Phyllis L. Carr, MD Christine Gunn, PhD, Anita Raj, PhD, Samantha Kaplan, MD, MPH, Karen M. Freund, MD, MPH. Recruitment, Promotion, and Retention of Women in Academic Medicine: How Institutions Are Addressing Gender Disparities. *Women's Health Issues* 27-3 (2017) 374–381. DOI: <https://doi.org/10.1016/j.whi.2016.11.003>
3. Kimber P. Richter, Ph.D., M.P.H., Lauren Clark, M.S., Jo A. Wick, Ph.D., Erica Cruvinel, Ph.D., Dianne Durham, Ph.D., Pamela Shaw, M.D., Grace H. Shih, M.D., Christie A. Befort, Ph.D., and Robert D. Simari, M.D. Women Physicians and Promotion in Academic Medicine. November 26, 2020. *N Engl J Med* 2020; 383:2148-2157. DOI: 10.1056/NEJMSa1916935.
4. Sarah E. Nocco and Allison R. Larson. Promotion of Women Physicians in Academic Medicine. *Journal of Women's Health* Vol. 30, No. 6. 10 Jun 2021. <https://doi.org/10.1089/jwh.2019.7992>.
5. Leung TI, Wang KH, Lin TL, Gin GT, Pendharkar SS, Chen CA. Women Physicians in Transition Learning to Navigate the Pipeline from Early to Mid-Career: Protocol for a Qualitative Study. *JMIR Res Protoc* 2022;11(6): e38126. doi: 10.2196/38126. PMID: 35653172.

References: Challenge 3

1. Aysola J, JAMA Netw Open, 2018) doi: [10.1001/jamanetworkopen.2018.1003](https://doi.org/10.1001/jamanetworkopen.2018.1003)
2. van Helden DL, Educational Management Administration and Leadership, 2021).
<https://doi.org/10.1177/17411432211034172>
3. (NAM 2018 report on Sexual Harassment of Women <https://www.nationalacademies.org/our-work/sexual-harassment-in-academia>)
4. (Kang SK, The Lancet, 2019) [https://doi.org/10.1016/S0140-6736\(18\)33138-6](https://doi.org/10.1016/S0140-6736(18)33138-6)
5. <https://successinstem.ca/wp-content/uploads/2019/02/BBS3-Institutional-V2-EN-SQ.mp4>
6. (Adjo J, Pediatrics 2021) (<https://doi.org/10.1542/peds.2021-051440E>)

References: Challenge 4

1. Filardo G, da Graca B, Sass D M, Pollock B D, Smith E B, Martinez M A et al. Trends and comparison of female first authorship in high impact medical journals: observational study (1994-2014) BMJ 2016
2. Ross, M.B., Glennon, B.M., Murciano-Goroff, R. et al. Women are credited less in science than men. Nature 608, 135–145 (2022). <https://doi.org/10.1038/s41586-022-04966-w>
3. Pinho-Gomes A, Vassallo A, Thompson K, Womersley K, Norton R, Woodward M. Representation of Women Among Editors in Chief of Leading Medical Journals. JAMA Netw Open. 2021;4(9):e2123026. doi:10.1001/jamanetworkopen.2021.23026
4. Hart KL, Perlis RH. Trends in proportion of women as authors of medical journal articles, 2008-2018. JAMA Intern Med. 2019;179(9):1285-1287.
5. Oliveira DFM, Ma Y, Woodruff TK, Uzzi B. Comparison of National Institutes of Health Grant Amounts to First-Time Male and Female Principal Investigators. JAMA. 2019;321(9):898–900. doi:10.1001/jama.2018.21944
6. Ruzycki SM, Fletcher S, Earp M, Bharwani A, Lithgow KC. Trends in the proportion of female speakers at medical conferences in the United States and in Canada, 2007 to 2017. JAMA Netw Open. 2019;2(4):e192103.
7. Arora A, Kaur Y, Dossa F, Nisenbaum R, Little D, Baxter NN. Proportion of Female Speakers at Academic Medical Conferences Across Multiple Specialties and Regions. JAMA Netw Open. 2020;3(9):e2018127. doi:10.1001/jamanetworkopen.2020.18127

References: Challenge 4

8. <https://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>
9. <https://www.springer.com/gp/editorial-policies/authorship-principles>
10. <https://www.science.org/content/article/how-navigate-authorship-scientific-manuscripts>
11. Li, W., Zhang, S., Zheng, Z. et al. Untangling the network effects of productivity and prominence among scientists. *Nat Commun* 13, 4907 (2022). <https://doi.org/10.1038/s41467-022-32604-6>
12. Dworkin, J.D., Linn, K.A., Teich, E.G. et al. The extent and drivers of gender imbalance in neuroscience reference lists. *Nat Neurosci* 23, 918–926 (2020). <https://doi.org/10.1038/s41593-020-0658-y>
13. <https://www.amwa-doc.org/need-her-science/>
14. <https://www.nih.gov/about-nih/who-we-are/nih-director/statements/time-end-manels-tradition>
15. Kibbe MR, Kapadia MR. Underrepresentation of Women at Academic Medical Conferences—“Manels” Must Stop. *JAMA Netw Open*. 2020;3(9):e2018676. doi:10.1001/jamanetworkopen.2020.18676
16. <https://500womenscientists.org/>

References: Challenge 5

1. <https://womenintheworkplace.com/>
2. Xierali IM, Nivet MA, Syed ZA, Shakil A, Schneider FD. Recent Trends in Faculty Promotion in U.S. Medical Schools: Implications for Recruitment, Retention, and Diversity and Inclusion. *Acad Med*. 2021 Oct 1;96(10):1441-1448. doi: 10.1097/ACM.0000000000004188. PMID: 34074899. <https://pubmed.ncbi.nlm.nih.gov/34074899/>
3. <https://www.qualtrics.com/blog/inequitable-effects-of-pandemic-on-careers/>
4. Catenaccio E, Rochlin JM, Simon HK. Addressing Gender-Based Disparities in Earning Potential in Academic Medicine. *JAMA Netw Open*. 2022;5(2):e220067. doi:10.1001/jamanetworkopen.2022.0067 <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2789168>,
5. <https://nwlc.org/resource/the-wage-gap-the-who-how-why-and-what-to-do/>
6. <https://www.aamc.org/news-insights/new-report-finds-wide-pay-disparities-physicians-gender-race-and-ethnicity#:~:text=Major%20findings,across%20different%20departments%20and%20specialties>
7. <https://www.marketplace.org/2019/06/10/men-and-women-ask-for-pay-raises-at-the-same-rate-but-men-get-them-more-often/>
8. <https://www.glassdoor.com/blog/covid-19-pay-survey/>
9. [https://journals.lww.com/academicmedicine/Abstract/9900/Advancing Salary Equity in Schools of Medicine in.91.aspx](https://journals.lww.com/academicmedicine/Abstract/9900/Advancing_Salary_Equity_in_Schools_of_Medicine_in.91.aspx)
10. <https://www.nejm.org/doi/full/10.1056/NEJMp2114955>
11. <https://hbr.org/2018/03/for-women-and-minorities-to-get-ahead-managers-must-assign-work-fairly>
12. <https://www.science.org/content/article/working-mothers-face-wall-bias-there-are-ways-push-back#:~:text=Maternal%20wall%20bias%20occurs%20when,problem%20for%20women's%20career%20advancement.>

References: Challenge 6

1. Beeler, Whitney H., Christina Mangurian, and Reshma Jagsi. "Unplugging the Pipeline — A Call for Term Limits in Academic Medicine." *New England Journal of Medicine* 381, no. 16 (October 17, 2019): 1508–11. <https://doi.org/10.1056/NEJMp1906832>.
2. Silver, Julie. #Be Ethical A Call to Healthcare Leaders: Ending Gender Workforce Disparities Is an Ethical Imperative. http://sheleadshealthcare.com/wp-content/uploads/2018/10/Be_Ethical_Campaign_101418.pdf.
3. Jagsi, Reshma, and Nancy D. Spector. "Leading by Design: Lessons for the Future From 25 Years of the Executive Leadership in Academic Medicine (ELAM) Program for Women." *Academic Medicine*, vol. Publish Ahead of Print, July 2020, <https://doi.org/10.1097/ACM.0000000000003577>.
4. Spector, Nancy, and Barbara Overholser. "Leadership & Professional Development: Sponsored; Catapulting Underrepresented Talent off the Cusp and into the Game." *Journal of Hospital Medicine*, vol. 14, no. 7, 2019, p. 415, <https://doi.org/10.12788/jhm.3214>.
5. Fernandez, Cristina R., and Nancy D. Spector. "Leadership & Professional Development: Dis-Missed: Cultural and Gender Barriers to Graceful Self-Promotion." *Journal of Hospital Medicine*, vol. 15, no. 8, Aug. 2020, pp. 494–494, <https://doi.org/10.12788/jhm.3395>.
6. Smith, Stephanie. "How a Lack of Sponsorship Keeps Black Women Out of the C-Suite." *Harvard Business Review*, Mar. 2021, <https://hbr.org/2021/03/how-a-lack-of-sponsorship-keeps-black-women-out-of-the-c-suite>.
7. Kirk, Valerie, et al. "Executive Coaching for Leadership Development: Experience of Academic Physician Leaders." *Healthcare Quarterly*, vol. 22, no. 1, Apr. 2019, pp. 54–59, <https://doi.org/10.12927/hcq.2019.25835>.
8. Melaku, Tsedale M., Angie Beeman, David G. Smith, and W. Brad Johnson. "Be a Better Ally." *Harvard Business Review*, November 1, 2020. <https://hbr.org/2020/11/be-a-better-ally>.
9. The Career Management Life Cycle: A Model for Supporting and Sustaining Faculty Vitality and Wellness Thomas R. Viggiano and Henry W. Strobel
10. Gottlieb, Amy S., and Reshma Jagsi. "Closing the Gender Pay Gap in Medicine." *New England Journal of Medicine*, October 20, 2021, NEJMp2114955. <https://doi.org/10.1056/NEJMp2114955>.
11. http://www.kirkpatrickpartners.com/Our-Philosophy/The-Kirkpatrick_Model
12. Vineeta Mittal and Erin Shaughnessy, Framework for Driving Equity and Professional Parity, Women in Pediatrics - The Past, Present and Future; Nancy D. Spector, Jennifer O'Toole, Barbara Overholser, Editors, Springer Nature