

**ADDRESSING GENDER INEQUALITY IN THE NIH INTRAMURAL RESEARCH PROGRAM  
ACTION TASK FORCE REPORT AND RECOMMENDATIONS  
NOVEMBER 2016**

**EXECUTIVE SUMMARY**

Extensive NIH-funded research has documented persistent gender inequality in biomedicine. In a collection of articles supported by the National Institutes of Health (NIH) Office of Research on Women's Health and published in the journal *Academic Medicine* in August 2016,<sup>1</sup> women faculty were reported to have lower salaries, smaller start-up packages, and limited authorship roles. The findings suggest that these factors might be direct contributors to perpetuating the lack of gender diversity in the academic ranks of biomedical research careers. Across the United States, women comprise 39% of tenure-track faculty, 23% of tenured faculty, and even fewer hold leadership positions (department chairs, medical school deans).<sup>2</sup> The situation is even worse for certain racial/ethnic groups who comprise 10% of biomedical Ph.D. recipients but only 4% of research faculty.<sup>3</sup> The underrepresentation of women cannot be explained by an insufficient pool of highly qualified women, because women have exceeded half of Ph.D. graduates in the biological sciences for more than 10 years.<sup>4</sup>

Underrepresentation of women in the NIH intramural research program (IRP) among its tenured and tenure-track scientists is identical to national data, heightening concerns regarding the appearance of gender inequality in the NIH IRP. Research indicates that issues of gender inequality are part of an unsupportive culture and climate experienced in microenvironments, along with structural issues that negatively influence career advancement of women. NIH is committed to identifying and correcting any inequality in the recruitment and advancement of all scientists by directly addressing the factors that impede women's careers. NIH Director Dr. Francis Collins issued a charge to the Addressing NIH Gender Inequality Action Task Force (TF), which will report to the NIH Steering Committee, to develop specific, actionable, recommendations. These actions should go beyond formal policies and should include institutional processes for transparency and accountability.

The TF met eight times between October 2016 and January 2017, leading to the recommendations in this document. The TF believes strongly that preventing gender inequality and mitigating its consequences starts at the top and requires leadership action and accountability. Institutional change is essential for sustainability as leadership positions change over time. An overview of the TF's recommendations appears below. For maximal and rapid effectiveness toward addressing gender inequality in the NIH IRP, and beyond, the TF recommends integrated solutions that effect systems-level culture change. Because the TF's recommendations align with general principles of institutional change, and transparency in IC-specific data collection and public dissemination, the recommendations also

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<sup>1</sup> *Academic Medicine*, August 2016 - Volume 91 - Issue 8:  
<http://journals.lww.com/academicmedicine/Pages/toc.aspx?year=2016&issue=08000>

<sup>2</sup> AAMC U.S. Medical School Faculty, 2016, Table 9:  
<https://www.aamc.org/data/facultyroster/reports/475478/usmsf16.html>

<sup>3</sup> AAMC Facts and Figures 2016. Current Trends in Medical Education, Diversity in Medical Education:  
<http://www.aamcdiversityfactsandfigures2016.org/report-section/section-3>

<sup>4</sup> National Science Foundation, National Center for Science and Engineering Statistics. 2016. *Doctorate Recipients from U.S. Universities: 2015*. Special Report NSF 17-306. Arlington, VA. Available at [www.nsf.gov/statistics/2017/nsf17306/](http://www.nsf.gov/statistics/2017/nsf17306/).

apply to other underrepresented groups and should provide a general compass for addressing workforce inequality more broadly.

## OVERVIEW OF TASK FORCE RECOMMENDATIONS

The TF's findings and recommendations that appear in this report address the group's charge to be transparent, and by extension, to establish expectations and procedures for making gender-related data, for each IC, publicly available to the NIH community. Although gender inequality affects individuals, its roots lie in institutional cultures and norms. Thus, mitigating and preventing inequalities requires leadership action and accountability, supported by the availability of effective tools for institutional culture change in hiring, advancement, and retention of women. The TF'S recommendations have two distinct foci: on institutional/systemic change and on individuals. Each focus area is supported by specific recommendations, strategies and tools, and accountability metrics.

**I. Institution/systemic change-focused recommendations** address two specific goals:

**Goal 1.** *Establish concrete leadership commitment at the highest level to address gender inequality at all levels of the NIH IRP in the hiring and promotion process for tenure-track and tenured investigators.*

Operational strategies to achieve this goal are clustered in two groups:

### **Strategies for the NIH Office of Intramural Research (OIR) and the NIH Scientific Workforce Diversity office (SWD):**

- Provide tools for enhancing gender equality including coaching and workshops for IC Directors, Scientific Directors, Branch Chiefs, and Lab Chiefs, on strategies to enhance recruitment, advancement, and retention of women investigators
- Develop and implement a dashboard of gender-equality metrics along with annual benchmarks for comparison with national and peer-institution data
- Create a new centralized position of NIH Mentoring Coordinator
- Establish policies and metrics consistent with applicable law and agency policy for annual evaluations of IC Directors' and Scientific Directors' progress toward addressing gender inequality
- Conduct implicit-bias education and implicit-attitude testing with search committees and Boards of Scientific Counselors (BSCs)
- Develop best practices for search committees

### **Strategies for ICs:**

- Hire senior investigators, including women, into tenured positions at NIH
- Enhance flexibility of the TT entry process to enable more pathways to the TT
- Explain clearly to TTIs the criteria used for nomination and tenure acquisition
- Consider ways to increase opportunities for leadership roles including development of rotating and/or co-leadership positions
- Endorse the use and value of NIH work-life resources

**Goal 2.** *Establish systems for transparency in tracking, reporting, and accountability in investigator resource allocation and salary determination.*

Operational strategies include:

- Conduct standardized data-tracking for resource allocation and salary, by gender and by IC
- Make corrections to observed gaps, and consider exemptions to the 8% NIH cap on salary increases
- Ensure NIH-wide transparency of hiring and retention packages; provide centralized assistance for salary/resource negotiation

**II. Individual-focused recommendations** address issues related to resources and belonging:

**Goal 1.** *Provide support, mentoring, coaching, and sponsorship for all TTIs.*

Operational strategies include:

- Provide annual/biennial feedback and mentoring for TTIs to allow timely course corrections
- Pilot a yearlong pilot program for a diverse TTI cohort, with mentoring, coaching, networking, and sponsorship being key elements of the program
- Ensure reliable, routine access for all TTIs to staff scientists and administrative resources
- Consider sponsorship of “ambassador” roles in community/outside NIH to advance TTI status beyond the NIH IRP TT

**Goal 2:** *Address inclusion and belonging among TTIs.*

Operational strategies include:

- Conduct moderated discussion groups to identify underlying factors and solutions to eliminate inequality
- Ensure that TTIs have both structured and informal opportunities to discuss issues and concerns

### **ACCOUNTABILITY METRICS and TOOLS FOR SUCCESS**

Sustainable institutional culture change leading to enhanced representation of women, and of all individuals from underrepresented groups in the NIH IRP, requires committed, accountable leadership, coupled with the provision of effective tools for successful implementation. Throughout this report, the TF emphasizes the need for establishing accountability metrics and milestones of success to assess progress and guide course corrections rapidly when necessary. Broadly, accountability metrics and tools for success include:

- Develop, distribute, and assess tools and metrics to assist leadership in addressing gender inequality in the NIH IRP hiring and promotion process.
- Consistent with applicable law and agency policy, monitor gender equality performance metrics for IC Directors and Scientific Directors, and, where appropriate, Branch Chiefs and Lab Chiefs.
- Consistent with applicable law and agency policy, conduct annual centralized review of the number of TTIs and tenured investigators, and conduct mentoring evaluations (by TTIs), for IC Directors, Scientific Directors, Branch Chiefs, and Lab Chiefs (demographic data should be provided by IC).
- Conduct annual centralized accounting of gender-related data on resources and salary by IC and present to IC Directors, Scientific Directors, Branch Chiefs, and Lab Chiefs; take corrective actions to address identified gaps.
- Provide annual queries to TTIs about scientific and administrative support needs; correct when needed.
- For implicit-bias education: assess extent of trans-NIH dissemination across search committees and BSCs; collect and analyze pre-and post-implicit attitude test (IAT) scores; monitor hiring and tenure

decisions before/after implicit-bias education; and conduct scientific analyses to determine the contribution of bias education on search committee and BSC decisions.

## INTRODUCTION

As stated in the National Institutes of Health (NIH) Strategic Plan for FY 2016-2020, NIH believes strongly that diversity in the biomedical research workforce is critical to producing new scientific discoveries.<sup>5</sup> Enhancing workforce diversity, including women and other underrepresented groups<sup>6</sup> in faculty and leadership positions, is beneficial for NIH in at least four ways: increasing creativity and innovation, broadening the scope of inquiry, narrowing the health gap, and promoting and ensuring fairness.<sup>7</sup> Currently, gender diversity is lacking both nationally and in the NIH intramural research program (IRP); women comprise 39% of tenure-track faculty, 23% of tenured faculty, and even fewer hold leadership positions (department chairs, medical school deans).<sup>8</sup> The situation is worse for certain racial/ethnic groups who comprise 10% of biomedical Ph.D. recipients but only 4% of research faculty.<sup>9</sup> The limited gender diversity cannot be explained by an insufficient pool of highly qualified women, because women have exceeded half of Ph.D. graduates in the biological sciences for more than 10 years.<sup>10</sup> Women of color are particularly underrepresented in biomedical research, and may be subject to more negative experiences related to the prevailing culture of academia. In the NIH IRP, women of color represent 11% and 6% of TT and tenured investigators, respectively.

Beyond issues of fairness and social justice, impacts of gender inequality in biomedical research are significant. Some include substantial lack of return on investment from startup packages when scientists drop out of the workforce prematurely, as well as lack of attention to sex-based and gendered issues in research.<sup>11</sup> NIH-funded research on extramural institutions has documented persistent gender inequality at multiple levels including salary and start-up funds.<sup>12</sup> Evidence points to the fact that underrepresentation in and of itself creates institutional cultures that perpetuate the inequalities described. Conversely, enhanced gender diversity has a direct impact on institutional culture, as evidenced by the positive effect of role models and mitigation of effects of stereotype threat and other sociocultural elements. Lessons learned from the National Science Foundation (NSF) ADVANCE Institutional Transformation awards provide a range of strategies shown to enhance gender representation among university faculty.<sup>13</sup> A consistent theme is that institutional transformation

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<sup>5</sup> [NIH-Wide Strategic Plan, Fiscal Years 2016–2020: Turning Discovery Into Health](#)

<sup>6</sup> Notice of NIH's Interest in Diversity: <https://grants.nih.gov/grants/guide/notice-files/NOT-OD-15-053.html>

<sup>7</sup> Draft Report of the Advisory Committee to the Director Working Group on Diversity in the Biomedical Research Workforce, June 13, 2012:

<http://acd.od.nih.gov/Diversity%20in%20the%20Biomedical%20Research%20Workforce%20Report.pdf>

<sup>8</sup> AAMC U.S. Medical School Faculty, 2016, Table 9:

<https://www.aamc.org/data/facultyroster/reports/475478/usmsf16.html>

<sup>9</sup> AAMC Facts and Figures 2016. Current Trends in Medical Education, Diversity in Medical Education:

<http://www.aamcdiversityfactsandfigures2016.org/report-section/section-3>

<sup>10</sup> National Science Foundation, National Center for Science and Engineering Statistics. 2016. *Doctorate Recipients from U.S. Universities: 2015*. Special Report NSF 17-306. Arlington, VA. Available at [www.nsf.gov/statistics/2017/nsf17306/](http://www.nsf.gov/statistics/2017/nsf17306/).

<sup>11</sup> Clayton JA, Collins FS. Policy: NIH to balance sex in cell and animal studies. *Nature*. 2014 May 15;509(7500):282-3.

<sup>12</sup> Special issue of *Academic Medicine*: August 2016;91(8):

<http://journals.lww.com/academicmedicine/Pages/toc.aspx?year=2016&issue=08000>

<sup>13</sup> National Science Foundation ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers. Institutional Transformation Grantee Two-Page Summaries:

[https://www.nsf.gov/crssprgm/advance/advance\\_Two-Page\\_Summaries\\_2007.pdf](https://www.nsf.gov/crssprgm/advance/advance_Two-Page_Summaries_2007.pdf)

requires an integrated approach involving both top-down and bottom-up initiatives. A key element in ADVANCE initiatives that have led to substantial increases in the representation of women faculty in academic settings is concrete leadership commitment at the highest level, usually from a university president. This has been accomplished through the provision of endowments and resources for hiring; establishing policies for annual evaluations of deans' and department chairs' progress toward transformational change; providing coaching and workshops for deans and department chairs on strategies to enhance recruitment, advancement, and retention of women faculty; establishing educational platforms for faculty search committees on best practices, including on implicit bias; and deploying systems for transparency in tracking, reporting, and accountability in investigator resource allocation and salary. These ADVANCE strategies focused at institutional leadership and administrators have generally been integrated into bottom-up approaches that include coaching, mentoring, and networking for women faculty, along with expansion and de-gendering of work/life policies.

### THE NIH IRP LANDSCAPE: INFORMATIVE DATA

Recent observations have heightened concerns regarding the appearance of gender inequality in the NIH IRP, as reflected in the underrepresentation of women among its tenured and tenure-track investigators (TTIs). Female representation in agency-wide leadership also lags (see Data Appendix, p. 21). Nationally, women represent 39% of tenure-track investigators and 23% tenured investigators, with regional variation (see Data Appendix, p. 22); NIH IRP gender representation (in aggregate) is identical to the national data, but widely variable across ICs, with approximately 65% and 50% of the institutes being below the national average for women tenured and TTIs, respectively (see Data Appendix, pp. 23-24). There is also wide variation in female representation across all levels of IRP scientific staff and leadership (see Data Appendix, pp. 26-27). Far fewer women of color are represented in the NIH IRP TTI and tenured pools (11% and 6%, respectively, see Data Appendix, pp. 25), underscoring the potential for double-bind effects of gender and race (termed intersectionality) in limiting career advancement.<sup>14</sup> Collectively, these numbers are even more concerning since equal numbers of women and men at the graduate and postdoctoral levels are available to apply for independent research positions. In addition, there is a 10-percentage-point gender gap between TTI women and men who attain tenure in the NIH IRP (60% vs. 70%, respectively, NIH Office Intramural Research (OIR) data), a gap that remains unexplained but requires redressing. Moreover, women take about a year longer than men to attain tenure, a difference that may warrant further study.

Gender inequality is not unique to biomedicine, nor is it unique to science, technology, engineering, and math (STEM). Rather, corporate America and other sectors have similar imbalances in female representation at leadership levels.<sup>15</sup> Extensive NIH-funded research indicates that in the research community generally, these issues of gender inequality arise from an unsupportive culture that is further exacerbated by unsupportive climates experienced in microenvironments, along with structural issues that impede women's career advancement.<sup>16</sup> Within the NIH IRP environment, "pipeline" issues

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<sup>14</sup> *Seeking Solutions: Maximizing American Talent by Advancing Women of Color in Academia: Summary of a Conference* (2013): <https://www.nap.edu/catalog/18556/seeking-solutions-maximizing-american-talent-by-advancing-women-of-color>

<sup>15</sup> Statistical Overview Of Women In The Workforce: <http://www.catalyst.org/knowledge/statistical-overview-women-workforce>

<sup>16</sup> Strategies for Effecting Gender Equity and Institutional Change: <https://www.colorado.edu/eer/research-areas/women-science/strategic-toolkit>

cannot be ignored, as the female applicant pool for NIH IRP TT positions remains low at approximately 25-30%, yet another observation that may be rooted in experiences of scientific institutional culture.<sup>17</sup> NIH is committed to addressing gender inequality in the NIH IRP by ensuring equality in the recruitment and advancement of all scientists and by directly addressing the factors that impede women's careers. Implementation of actions, and policies, that enhance gender diversity in biomedicine, especially at leadership ranks, are pivotal for paving the way for broader diversity and inclusion of other groups that are represented at all career levels. Success in achieving an institutional culture of gender equality will require leadership accountability, transparency, and oversight of data-driven metrics, coupled with effective tools to implement change strategies and ensure sustainability.

### TF CHARGE AND PROCEEDINGS

NIH Director Dr. Francis Collins issued a charge to the TF, which will report to the NIH Steering Committee, to develop specific, actionable recommendations. These actions should go beyond formal policies and the TF should be transparent and accountable in proposing and monitoring such actions. Actions should include processes for transparency and accountability in a range of relevant issues.

The TF met eight times between October 2016 and January 2017, with frequent additional communications by email between meetings. The TF considered it essential to hear directly from the TTIs about their experiences "on the ground." Thus, the NIH Deputy Director of Intramural Research (DDIR) requested that scientific directors conduct listening sessions with their respective TTI cohorts and take notes so the results can be shared with the TF. The NIH Scientific Workforce Diversity office (SWD) also developed an anonymous online survey for TTIs, to generate candid feedback in a distinct manner from the Scientific Director meetings (but with the same general questions). Finally, the TF obtained additional (blinded) input from TTI discussion groups; this activity was coordinated through the NIH Women's Scientist Advisers (WSA). Together, the TF deliberations and TTI input led to development of a set of recommendations, that when applied in an integrated approach, will address systemic challenges facing NIH as it strives for addressing gender inequality in the NIH IRP.

### RECOMMENDATIONS

The TF'S recommendations have two distinct foci: on institutional/systemic change and on individuals. Each focus area is supported by specific recommendations, strategies and tools, and accountability metrics.

**Institution/systemic change-focused recommendations** include: 1) provide concrete leadership commitment at the highest level for hiring and promotion and 2) establish systems for transparency in tracking, reporting, and accountability in investigator resource allocation and salary determination.

**Individual-focused recommendations** include: 1) provide support, mentoring, coaching, and sponsorship and 2) ensure that TTIs have both structured and informal opportunities to discuss issues and concerns

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<sup>17</sup> Gibbs KD Jr, McGready J, Bennett JC, Griffin K. Biomedical Science Ph.D. Career Interest Patterns by Race/Ethnicity and Gender. *PLoS ONE* 9(12): e114736.

These recommendations, operational strategies, and accountability metrics are described in detail below. Included under each recommendation is a discussion section that reflects the TF's deliberations regarding potential challenges and barriers to each implementation strategy. Data used to inform the TF's work appears in the Data Appendix beginning on p. 20 and is referred to contextually in this report. In addition, the NIH Women's Scientist Advisors (WSA) canvassed members for input and that has also been included categorically below. The narrative below also includes TTI input gathered to date and is identified as such. A more detailed analysis of the full TTI response is forthcoming.<sup>18</sup>

## I. RECOMMENDATIONS FOCUSED ON INSTITUTIONAL AND SYSTEMIC CHANGE

**Institution-Focused Recommendation 1.** Provide concrete leadership commitment at the highest level to address gender inequality at all levels of the NIH IRP in the hiring and promotion process for TTIs and tenured investigators.

### 1. Strategies for the NIH Office of Intramural Research (OIR) and the NIH Scientific Workforce Diversity office (SWD):

- Provide tools, coaching and workshops for IC Directors, Scientific Directors, Branch Chiefs, and Lab Chiefs on strategies to enhance recruitment, advancement, and retention of women investigators
- Develop and implement a dashboard of gender-equality metrics along with annual benchmarks for comparison with national and peer-institution data
- Provide mentorship development for leaders, including assessment, and use incentives to reward excellent mentorship
- Create a new centralized position of NIH Mentoring Coordinator
- Consistent with applicable law and agency policy, establish policies and metrics for annual evaluations of IC Directors' and Scientific Directors' progress toward transformational change. Ensure routine reviews of Scientific Directors (currently every 5 years), and encourage IC Directors<sup>19</sup> to also consider metrics of gender equality
- Conduct implicit-bias education and pre- and post-testing (using the implicit-attitude test, IAT) of search committees and Boards of Scientific Counselors (BSCs)
- Develop best practices for search committees; explain characteristics of applicant pools including why investigators were and were not considered

### 2. Strategies for ICs:

- Hire senior investigators, including women, into tenured positions at NIH
- Enhance flexibility of the tenured and TT entry process to enable more pathways for women to join
- Explain clearly to TTIs the criteria used for nomination and tenure acquisition
- Consider ways to increase opportunities for leadership roles
- Create rotating and/or co-leadership positions
- Endorse the use and value of NIH work-life resources

### Accountability Metrics:

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<sup>18</sup> The data and responses in this document correspond to the approximately two-thirds of TTIs who have completed the online survey.

<sup>19</sup> section 2033, 21<sup>st</sup> Century Cures Act, P.L. 114-255

- Monitor effectiveness of OIR and SWD strategies and tools (outputs, use, feedback from leadership and investigators, etc.) and include in annual performance metrics evaluations of the DDIR and the NIH Chief Officer for Scientific Workforce Diversity (COSWD). For implicit-bias education, monitor extent of use across IRP search committees and BSCs, as well as impact on IAT scores through pre- and post-testing, and on search committee and BSC decisions.
- Consistent with applicable law and agency policy, monitor gender-equality performance metrics for IC Directors and Scientific Directors, and, where appropriate, for Branch Chiefs and Lab Chiefs. Metrics may include the following and are limited to the scientific workforce:
  - Offer letters
  - Number of outside hires
  - Number of inside hires
  - Number of new/co-leadership positions
  - Female TT application rate
  - Number of promotions to tenure
  - Relative gap for each IC in gender-equality metrics compared to national and peer-institution data
- Conduct annual centralized review of the number of TTIs and tenured investigators, and present the data to IC Directors, Scientific Directors, Branch Chiefs, and Lab Chiefs (demographic data should be analyzed for each IC separately)
- Conduct annual centralized review of a TTI survey of perceived gender inequality
- Conduct annual centralized evaluation (by TTIs) of mentoring from IC Directors, Scientific Directors, Branch Chiefs, and Lab Chiefs (demographic data should be analyzed for each IC separately)
- Examine applicant pool of search committees, including those for all senior searches
- Survey TTIs and other IRP scientific personnel on use of work-life resources

The current state of gender inequality in the NIH IRP may be sustained by lack of transparency and bias (both overt and implicit) in tenure-review decisions, in promotions, and in mentoring/sponsorship along the TT journey. There is wide agreement among TF members on the essentiality of transparency, as demonstrated by the need for accountability metrics for hiring, promotion, and resource allocation among IC Directors, Scientific Directors, Branch Chiefs, and Lab Chiefs.

### *Hiring and promotion*

One top-priority TF recommendation is to hire senior investigators, including women, into tenured positions at NIH. It should be noted that scientists are hired into NIH tenured positions only if they are already tenured outside of NIH, with few exceptions. Per OIR, 15 women (of a total of 38 individuals) were hired as tenured from an OIR-approved national search (FY 2011-2015 data) and two women investigators were hired in December 2016 (FY 2017).

The hiring and promotion process is a clear focus for ameliorating gender inequality, but any proposed actions require endorsement and accountability from NIH scientific leadership and should carefully consider potential outcomes. For example, a disproportionate increase in outside hires compared to hiring from within the NIH IRP may send a message to NIH scientists that they are not valued and supported fully, which could have unintended consequences that affect morale and motivation for working in the NIH IRP. The TF believes that, even though outside tenure hires are a necessity given the overall numbers of women in the TT system, there must be visible upward mobility for women in the NIH IRP, and ICs should consider ways to increase opportunities for leadership roles. The TF also

recommends enhancing flexibility of the TT entry process to enable more pathways for women to join. There is mixed agreement on the logistics of this process, however, pointing to potential difficulty in distinguishing between the “readiness” of staff clinicians and staff scientists for the TT.

### *Objectivity of the tenure process*

Online survey feedback from TTIs (both women and men) spoke to a general need for more clarity in criteria for being nominated for tenure and for obtaining it. More objectivity in this realm will provide less opportunity for gender, or other, bias to occur. Many TTIs, both women and men, voiced a dissonance about the role of risk-taking as stated publicly -- but not necessarily valued -- when tenure decisions are considered. As with the NIH-funded extramural community, many TTIs lament what they perceive as a publish-or-perish mentality, with overemphasis on high-impact journals.

The TF recommends ensuring that the tenure-decision process be as objective as possible and recognized that the 10 percentage-point gender difference in promotion to tenure (60% vs. 70%) is accounted for by decisions made at the IC level rather than at the central tenure committee. One recommendation is to administer implicit-bias educational modules (and IAT pre- and post-testing) to Scientific Directors, Branch Chiefs, and Lab Chiefs, as well as to BSC members (including ad hocs) and coaching leaders about how to avoid making decisions based on biased assessments. NIH’s SWD office has developed an educational tool being used with various NIH scientific leadership groups that not only

#### **Intersectionality: Women of Color**

Women of color (WOC) are less than half as likely as white women to attain a Ph.D. in science or engineering (6.8% vs. 18.6%). Representation of WOC in the IRP is especially low, as is representation nationally in academia. As a descriptive term, WOC combines gender and race/ethnicity and thus creates a dual dilemma and a propensity for both racial and gender bias. These differences, and potentially others, create a “double bind” that plays out in various ways in WOC careers. For example, although white women are equally likely to obtain NIH R01 funding, the same is not true for WOC. Women and individuals from underrepresented groups also have a heavier administrative burden than men, because they are called upon more frequently to serve on equity-related committees or to be “the” female or racial/ethnic representative on other committees. Recent data at one institution but across scientific disciplines demonstrates that WOC face career advancement hurdles linked to smaller coauthor network reach than white female and male faculty. Connectivity among faculty may thus be an especially important feature to include in any interventions for enhancing gender equality in biomedicine. Also speaking to this point is the importance of finding a good mentor fit, which may be especially relevant for WOC. The TF supports the need to recognize combined challenges for WOC and to ensure the availability of social fora for communications and networking.

raises awareness of implicit bias, but also provides practical, evidence-based actions for changing behavior. Although preliminary in number, results to date suggest that the educational tool is effective. As more educational sessions are administered, additional data will be collected to monitor awareness and behavioral response (e.g. hiring, promotion). SWD and OIR can disseminate best practices to set expectations for recruitment and hiring practices: In general, tenure decisions (as well as senior scientific leadership positions) should have as a clear goal the need to obtain a diverse applicant pool.

More generally, the TF recommends taking steps to ensure that the selection process of ad hoc BSC members best serves TTIs under review. Standing membership of BSCs are vetted for diversity (see gender distribution

by IC in Data Appendix, p. 28), but the same is not always true for ad hoc members. For example, there is general agreement that BSC/IC decision discordance is rare but that NIH should enable a full, “formal” second review if this happens. It is important to note that BSC decisions are advisory only. Central tenure committee (CTC) decisions do not appear to have a gender bias (see Data Appendix, p. 29).

### *Mentorship*

Effective mentorship is a vital aspect to career mobility and professional success; yet, this process is uneven across NIH and would benefit from centralized provisioning of tools and evidenced-based strategies. The TF endorses establishing a new, centralized position of NIH Mentoring Coordinator, to oversee and systematize this activity across ICs. Importantly, this position and its activities are not intended to supplant existing IC mentoring activities, which are a key responsibility of ICs. This individual could also assist with ensuring equitable resource negotiation and allocation in initial salary and start-up packages; as such, the coordinator would need access to such data NIH-wide. (Notably, pay data is publicly available online.) The TF also recommends that NIH develop and provide mentorship development for leaders, including assessment, and use incentives to reward excellent mentorship. One accountability metric should include TTI assessment of mentoring quality.

### *Opportunities for leadership*

Overall, the TF group concludes that “one size does not fit all ICs,” but that a more systematic approach for creating leadership opportunities would be beneficial. The TF recommends that the current trans-NIH Scientific Director review process encourage/allow succession planning to accommodate positioning of new leadership.

The TF discussed the merits and potential pitfalls of rotating and/or co-leadership positions. Although this strategy could create additional leadership slots, care must be taken to ensure that co-leadership is equivalent and not lop-sided toward one co-lead role being solely administrative. An important constraint is IC size: small ICs may not have sufficient numbers to accommodate this model. Other cautionary notes to potential implementation of this recommendation include addressing human-resources rules/policies. As well, facilitating concomitant cultural change may be challenging: there is consensus that 5 years is not sufficient time for a leader (a Lab Chief, for instance) to make a meaningful impact before rotating off leadership. However, 5-year assessments should be routine for any individual leader; currently these positions persist without limit in the NIH IRP in many/most cases.

### *Work-life issues*

Currently, the NIH IRP tenure clock is flexible, but few TTIs pursue a non-standard route or alternate timing. However, women (on average) take one additional year to achieve tenure in the NIH IRP. Although “choice” is often raised as a/the reason why women leave biomedicine (and by proxy, the NIH IRP) early in their careers, inhospitable climate, workplace culture, and outmoded work-life expectations likely mean that the choice to leave is often made *for* women, not *by* them.<sup>20</sup> NIH-supported research confirms that low use of family-friendly resources by investigators is in part due to lack awareness of

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<sup>20</sup> Valantine H, Sandborg CI. Changing the culture of academic medicine to eliminate the gender leadership gap: 50/50 by 2020. *Acad Med.* 2013 Oct;88(10):1411-3.

their existence, and that raising awareness can enhance their use.<sup>21</sup> However, other NIH-funded studies have shown that low use of family-friendly policies has less to do with availability, and more about the scientific cultural message that use of these policies implies a lack of seriousness or commitment to career advancement. These observations underscore the need for a cultural shift that reframes the issues as work/life and work/work conflicts, emphasizing solutions as career-advancing rather than career-pausing. The TF discussed several approaches. They include providing reliable access to scientific and administrative support, publicizing leadership role models for career flexibility, and enhancing leadership endorsement for the use of work-life resources such as those that appear in the existing Workforce Resource Eligibility Matrix<sup>22</sup>.

Notably, there is wide support for encouraging the use of work-life resources by both women and men to decrease stigma that continues to have pervasive effects on work-work and work-life issues. There is also some support for protecting TTIs from time-consuming activities such as committee service – but ensuring that they are not penalized for opting out of such commitments (which tend to be more onerous without the administrative support typically offered to more senior positions). Strategies should address the reality that women and men display different behaviors in the use of work/life policies – some of which reflect cultural norms and some of which do not.

**TTI input:** Concerns relate to clarity in tenure criteria, implicit bias, and inclusion. All may be affected negatively by the IRP mission-oriented structure that may separate ICs and scientists and a general lack of other gender and other types of diversity.

Overall, 70.3% (71 out of 101 respondents)<sup>23</sup> reported that they have not experienced or observed gender inequality in their ICs; however, many comments suggest individual nuances:

- “[Need] more female Scientific Directors”
- “In terms of advancement, women are (still) underrepresented in leadership positions, including Lab/Branch Chiefs, deputy directors etc. Given the seemingly equal numbers of female and male tenure-tracks, there appears to be an attrition of female PIs over time.”
- “NIH leadership repeatedly frames the problem of female scientists as problem of family values. Instead, it is a problem of unconscious biases and lack of transparency that allows these biases to be propagated and to lead in discrimination of female scientists.”
- “Female scientists have to be more qualified than their male counterparts for the same job.”
- “I saw one woman apply for a tenure-track job while she was pregnant and was immediately dismissed by the hiring committee. This woman was highly qualified, and has gone on to a successful career at a premier Ivy university.”
- “In a hiring discussion for a TTI, one senior person suggested that if the candidate was female then hire them without further discussion.”

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<sup>21</sup> Villablanca AC, Beckett L, Nettiksimmons J, Howell LP. Career flexibility and family-friendly policies: an NIH-funded study to enhance women's careers in biomedical sciences. *J Womens Health (Larchmt)*. 2011 Oct;20(10):1485-96.

<sup>22</sup> <https://hr.nih.gov/sites/default/files/public/documents/working-nih/work-life/pdf/nih-workplace-flexibilities-matrix-10.04.pdf>

<sup>23</sup> There are no statistically significant gender differences – although there is a trend that more women are claiming that they have seen or experienced inequity (23% for men and 36% for women)

- *“Because I am a male, I do not feel any serious gender-related challenges affect me directly. However, I have observed comments and attitudes among older, senior male investigators that make me worried about female tenure-track investigators. There is very much an ‘old boy’s’ culture that it’s okay to make inappropriate jokes and that women would be fine if they could just toughen up.”*
- *“[Would like to see] an introductory guide for new tenure-track investigators to help orient them in the NIH community, demystify the BSC process, and lay out guidelines for getting tenured.”*
- *“There is still this perception that women should do safe “rigorous” science, but men can do “sexy” science.”*

And alternatively,

- *“There is a generalized push to promote women and if men have the same or better qualifications, women will advance if in direct competition. There is no meritocracy anymore at NIH.”*

**TTI input on use of work-life resources in particular:**

Many TTIs are unaware of NIH work-life resources (approximately 34.6%; 35 out of 101 respondents). Child care is particularly expensive and perceived as unreliable. Many (22.77%; 23 out of 101 respondents) are hesitant to use work-life resources for fear of “looking weak” or its impact on tenure.

- *“To get tenure, you need to be perceived as strong. Taking more time off is interpreted as either weakness or a lack of dedication to your science.”*
- *“I have not required or desired any of the resources about which I would be hesitant. However, when it comes to slowing the tenure clock, I would expect most to be hesitant to use it due to perceived “weakness” in those who do.”*
- *“I never [take] vacation days because I am concerned about tenure.”*
- *“Like many others on tenure track I feel the pressure a heavy workload with long hours and little time for anything else.”*
- *“The back-up care program is simply poorly run and is not at all reliable. The gym has very few offerings, far inferior to any outside gyms. ”*

**Institution-Focused Recommendation 2.** Establish systems for transparency in tracking, reporting, and accountability in investigator resource allocation and salary determination.

**Strategies:**

- Conduct standardized data-tracking for resource allocation, by gender and by IC, and report these in a visible way
- Make corrections to observed gaps, and consider exemptions to the 8% NIH cap on salary increases
- Ensure NIH-wide transparency of hiring and retention packages
- Provide centralized assistance for salary/resource negotiation

**Accountability Metrics:**

- Conduct annual central accounting of data on resources and salary for investigators in each IC, analyzed by gender, and presented to IC Directors, Scientific Directors, Branch Chiefs, and Lab Chiefs

There is a well-documented gender pay gap throughout biomedicine.<sup>24,25</sup> The TF believes that IRP leadership should take a proactive, rather than reactive, role to continually monitor resource allocation on an annual basis. Results of such monitoring should be reviewed centrally, consistent with applicable law and agency policy, and incentives could be provided for elimination of disparities. At the least, such metrics should be monitored in performance evaluations for IC Directors, Scientific Directors, Branch Chiefs, and Lab Chiefs.

The TF was unable to gather definitive IC data regarding gender differences in salary/resources, due to lack of systematic data reporting across NIH, as well as inability to compare resources accurately across scientific disciplines. The TF recommends that NIH establish a standard data-capture process for full disclosure of resource allocation that is tied to NIH leadership accountability metrics, as appropriate related to applicable law, agency policies, and discipline-distinct standards.

There is general agreement among TF members for standardizing the TTI base start-up package, but to maintain flexibility based on the presence of written competing offers (noting that men typically are more likely to have obtained competing offers, potentially “stacking the deck”). Many online resources are available to TTIs for help with negotiation skills, networking, and other career-advancing activities.<sup>26</sup> NIH currently has a policy that enables up to 8% upward salary corrections; to avoid disparities in salaries between comparable men and women in investigator positions at the NIH, appropriate salary adjustments should be recommended and approved even if these exceed current limits on salary adjustments. The TF is strongly supportive of “normalizing” resource allocation by offering centralized assistance in setting/negotiating salaries and resources, possibly as one role of the newly established NIH Mentoring Coordinator (see institution-focused recommendation 1). There is general agreement that within-IC comparisons are the most relevant for setting salary levels, although AAMC (50<sup>th</sup> percentile) and other standards can be used as appropriate when sufficient NIH-position “comps” are truly unavailable. The Stadtman TT package (standardized across NIH) is generally viewed as among the most generous of NIH start-up packages. There are various ways to maintain equivalence using a base standardized package as the starting point.

**TTI input:** There is a view that NIH salaries do not compete well with those at academic institutions. \*Of note, these differences depend on science type: NIH IRP TTI salaries for basic science are highly competitive and often exceed those at academic institutions, but clinical NIH IRP TTI salaries are often lower than their counterparts in academia.

- *“Look at public advancements (prizes, appearance on the NIH website) as an example of lack of equity in promoting scientific advances.”*
- *“I would like to be treated like my male peers within the laboratory. Not to be dismissed or ignored when speaking, to have the same salary (and not \$30K less) and resources, will be a good start.”*

<sup>24</sup> Freund KM, Raj A, Kaplan SE, Terrin N, Breeze JL, Urech TH, Carr PL. Inequities in Academic Compensation by Gender: A Follow-up to the National Faculty Survey Cohort Study. *Acad Med*. 2016 Aug;91(8):1068-73.

<sup>25</sup> Sege R, Nykiel-Bub L, Selk S. Sex Differences in Institutional Support for Junior Biomedical Researchers. *JAMA*. 2015 Sep 15;314(11):1175-7.

<sup>26</sup> Stanford Center for the Advancement of Women’s Leadership: Voice and Influence: <https://womensleadership.stanford.edu/voice>

- *“Clear focus ... and follow-through ... there is a seemingly revolving door with no advancement. Example: 15-20% salary gap, and Building 1 committee denies raise or mandates, waiting for BSC - another 4 years with no equity adjustment.”*
- *“Males are viewed as primary financial support to their family and discussed/given higher salary as a result, when women, whom may also be primary financial support are not given equitable considerations.”*
- *“Male scientists have significantly higher salaries for the same amount of work and are more often recommended for awards and for NIH-wide lecture series.”*

## II. RECOMMENDATIONS FOCUSED ON INDIVIDUALS

**Individual-Focused Recommendation 1.** Provide support, mentoring, coaching, and sponsorship for all TTIs.

### Strategies:

- Provide annual/biennial feedback and mentoring for TTIs to allow timely course corrections
- Pilot a yearlong, diverse TTI cohort with mentoring, coaching, networking, and sponsorship
- Ensure that all TTIs have reliable, routine access to staff scientists and administrative resources
- Consider sponsorship of “ambassador” roles in community/outside NIH to advance TTI status beyond the NIH IRP TT

### Actions and Accountability Metrics:

- Establish a central pool of skilled mentors (women and men) available to TTIs, ensure good interpersonal fit
- Establish and test trans-NIH networking, coaching, and sponsorship model for TTIs (women and men)
- Establish centralized mentoring criteria
- Annually, query TTIs about scientific and administrative support needs and redress as appropriate
- Require annual leadership central review and corrective action regarding TTIs’ scientific and administrative support needs

A key influence on retention in the IRP appears to be quality mentoring and an opportunity for course corrections early enough in an investigator’s tenure journey to be effective. There is currently a yearly review for most TTIs, and the TF generally feels that too-frequent reviews could be onerous (and potentially affect TTI productivity). However, the TF believes that identifying problems early is very important so NIH should enable those opportunities, potentially with biennial (every 2 years) assessments/check-ins. The WSA recommends that TTIs select their own mentoring committee and choose the chair to ensure a good fit: Finding a compatible and supportive mentor is especially important for women, and for women of color.<sup>27</sup> A TTI’s mentor should serve as her/his advocate and be present at meetings with the TTI’s Scientific Director and mid-level leadership (Lab and Branch Chiefs). Periodic reviews should not preclude more frequent assessments, even if informal. The TF supports

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<sup>27</sup> Carapinha R, Ortiz-Walters R, McCracken CM, Hill EV, Reede JY. Variability in Women Faculty’s Preferences Regarding Mentor Similarity: A Multi-Institution Study in Academic Medicine. *Acad Med.* 2016 Aug;91(8):1108-18.

availability of a central pool of skilled mentors for TTIs and development of trans-NIH mentoring criteria; both tasks could be facilitated by the newly proposed NIH Mentoring Coordinator (see institution-focused recommendation 1). Notably, so as not to overburden underrepresented individuals, NIH should not over-focus on gender equality in the mentor pool. Included in mentorship should be longer-term planning, to tailor TTI career trajectories based on individual scientific and personal needs. Such career-development conversations should occur early in the TT process and may require moderation (to buffer potential cultural misalignments with IRP leadership).

Research has shown that many scientists experience a sense of isolation that can have a negative effect on career satisfaction and productivity.<sup>28</sup> Moreover, interactions among researchers in similar environments can create a sense of belonging through formalized mentoring from peers and senior faculty, shared experiences, and networking.<sup>29</sup> As such, the TF recommends building on the existing IRP Discussion Groups: gender-mixed cohorts of NIH IRP TTIs. Sponsored by the NIH WSA, TTIs within these groups meet with senior (tenured) investigators roughly three to four times per year to discuss issues of interest to TTIs and Assistant Clinical Investigators. Examples of discussion topics include the tenure process at the IC- and CTC levels, obtaining letters of recommendation, work-life balance, managing collaborations, personnel issues, questions and answers from recently tenured NIH investigators, and research (both basic and clinical). The organizational subject areas are intentionally very broad in nature, with a primary focus on providing an informal setting where participants can engage in candid discussions and develop contacts.

The TF discussed building on this model by piloting a gender-mixed cohort of TTIs that meet socially on a regular basis, and that receive mentoring, networking, and sponsorship through a yearlong trans-NIH career-development program. Components/elements might include: competitive nomination of TTIs comprising a diverse group; careful selection of mentors; and career-development activities. For optimal effectiveness as an experimental program, participation in the cohort should be viewed as a special opportunity afforded to TTIs rather than as an add-on element for some TTIs and not others. There are mixed reactions among the TF members to this proposal, with some stating that such opportunities should not be meted out to a small group/cohort, but instead made available to all TTIs. A broader approach would remove testability of the concept, but have the advantage of making resources available widely. As such, more discussion is needed to flesh out this idea. In addition, the TF urges consonance with ongoing efforts underway at NIH and avoidance of duplicative elements (such as 360-degree evaluations and current, successful IC leadership programs).

The TF learned of a persistent conundrum related to matching “everyday flexibility” that NIH IRP scientists enjoy with more rigid, unyielding longer-term expectations and career milestones. It is a vivid example of how existing policies are not enough because they collide with overarching dominant cultural norms. To enhance career flexibility, the TF recommends providing various ways for a TTI to receive sufficient, reliable support for both scientific and administrative responsibilities. These include routine access to staff scientists and administrative/editorial help. OIR notes that the current TT duration is very flexible, and that encouraging even more flexibility is more of a cultural than policy challenge.

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<sup>28</sup> Cohen GL, and Garcia J. Identity, Belonging, and Achievement: A Model, Interventions, Implications. *Current Directions in Psychological Science* 2008 17: 365

<sup>29</sup> Warner ET, Carapinha R, Weber GM, Hill EV, Reede JY. Faculty Promotion and Attrition: The Importance of Coauthor Network Reach at an Academic Medical Center. *J Gen Intern Med.* 2016 Jan;31(1):60-7.

Many TTIs, both women and men, expressed a need for administrative support. Regarding sponsorship, many TTIs stated a wish for more knowledge and transparency about offers for lectureships and awards, both of which affect career advancement, including recognition outside NIH. There is widespread agreement that non-scientific work, such as committee service, is a time sink that disproportionately affects women and people of color. As NIH strives to achieve diversity in committees and review panels, women and individuals from underrepresented groups experience a heavier administrative burden, and women of color are hit especially hard. Despite agreement, and suggestion that TTIs could be exempt from such activities, no concrete solutions have been put forth, and this problem is not unique to NIH.

**Individual-Focused Recommendation 2: Address inclusion and belonging among TTIs.**

**Strategies:**

- Conduct moderated discussion groups to identify underlying factors and solutions to eliminate inequality
- Ensure that TTIs have both structured and informal opportunities to discuss issues and concerns

The TF believes that qualitative information about why scientists (both women and men) leave the TT and/or the NIH IRP would provide valuable insight to guide NIH in its efforts to sustain the interest of scientists from underrepresented groups including women. However, NIH should not assume that the TT is the only “successful” pathway for research and continue to promote additional scientific positions for women and men. Candid, professionally conducted interviews with the relatively small universe of investigators who have left NIH (aside from those who did not gain tenure) may unearth important insights about culture and other influential factors that affect inclusion, belonging, satisfaction, and productivity. Because there are proportionately more female clinical scientists in the IRP (see Data Appendix, p. 27), this population may offer insights about positive features of the IRP. An additional TF recommendation is to conduct moderated discussion groups to identify underlying factors and solutions to eliminate inequality, with a focus on enhancing social interactions across identity groups. The NIH WSA has been making progress in this area, and will begin soon to conduct exit surveys with postdocs (facilitated through NIH’s Foundation for Advanced Education in the Sciences).

**“Safe Spaces”: Opportunities for Reporting and Discussion of Challenges**

Ideally, for TTIs, informal recurring discussion groups provide opportunities for sharing individual challenges that may not have escalated to a level requiring formal reporting or other actions. However, when problems that have arisen do not get solved in early stages, more formal routes for reporting are available to TTIs (and tenured investigators and trainees as well). These include the NIH Office of the Ombudsman and EEO complaints submitted through the NIH Office of Equity, Diversity, and Inclusion (EDI). TF discussion noted that despite the availability of these resources, more could be done to provide “safe spaces” for IRP scientists to discuss and resolve problems. Potential solutions include establishing additional, pre-emptive trans-NIH mentoring/sharing/networking opportunities. There is also general support for a “train-the-trainer” model to make available more people to consult with individuals facing workplace challenges.

**TTI input:** Top perceived barriers to tenure in the NIH IRP are an over-emphasis on publications (the “publish-or perish” mentality) and unclear expectations about tenure criteria, including a perceived message that convention trumps risk-taking (and that this may be magnified for women). However, many respondents feel supported at NIH, as evidenced by several comments about the value of the new-PI workshop offered by Roland Owens, Assistant Director, OIR. Overall, TTIs report NIH as a supportive/collaborative environment, appreciate the mentoring committee and concern from leadership, and recognize opportunity for joining networking/support groups. According to comments, however, there is still room for improvement in mentoring, particularly for women.

- *“The tenure-track committee mentorship has been outstanding and key to my advancements. In addition, the new-PI workshop offered by NIH was incredibly valuable.”*
- *“I have not experienced this myself, but the vast majority of women TTIs (and women senior investigators) frequently speak of the higher expectations and barriers to which they are exposed, but none will speak openly of it.”“... having small lab sizes compared to equivalent colleagues in the extramural [community] has made it difficult to compete.”*
- *“[One challenge is] lack of an everyday mentor.”*
- *“[There is a] paucity of senior women mentors and role models. I have supportive male mentors but it isn’t the same.”*

## LOOKING FORWARD

Despite achieving considerable consensus that led to the recommendations appearing in this report, the TF notes unfinished business requiring further attention toward addressing gender inequality in the IRP that may serve as a model more broadly for underrepresented groups in the NIH-funded workforce. First, development of a workforce-turnover model that serves as a dynamic “dashboard” for effects of interventions on gender equality at various levels of NIH leadership may be a valuable tool to both predict and measure impact. Second, the TF did not have ample time to fully develop a set of concrete options for women to report challenges using “safe spaces:” confidential, supportive environments. Nonetheless, this remains an important priority and deserves further attention NIH-wide. Third, the TF recommends continued consideration and discussion of impacts of sociocultural factors that affect belonging and inclusion such as microaggressions, stereotype threat, and impostor syndrome.<sup>30</sup> These issues can be explored more fully: Discussions, potentially guided by professional facilitators, may be appropriate in IRP retreat settings, for example. Potential interventions include experiential learning<sup>31</sup>, video-enhanced discussion, and role-playing. Finally, it should be noted that the federal government, of which NIH is a part, lacks an effective maternity/paternity leave policy: employees must accumulate and use sick leave or vacation leave for this purpose. At NIH, the lack of daycare capacity can translate to very long waiting times, up to a year or more. Despite the need for cultural shifts in the use of available resources, practical structural issues must also be addressed and much of this is beyond NIH’s direct control.

Enhancing gender equality in the NIH IRP and in biomedicine supports institutional excellence resulting from diversity of thought, experience, and problem-solving. However, the culture of research-intensive institutions has led to a focus on strategies for “fixing the individual” rather than developing and implementing systemic, institutional practices that ensure objectivity and fairness for all. The TF appreciates the opportunity to serve a leadership role in promoting gender equality by setting an example for sustainable change within the NIH IRP. The TF’s recommendations are supported by a broad-based literature on the use of integrated methods to inspire institutional transformation that paves the way to equality and fairness, not just for women, but for all underrepresented groups.<sup>32,33</sup> The TF reiterates that sustainable change in representation of women, and of all individuals from underrepresented groups, requires committed, accountable leadership along with effective tools to accomplish this important goal.

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<sup>30</sup> Clance PR, Imes, SA. The imposter phenomenon in high achieving women: dynamics and therapeutic intervention. *Psychotherapy: Theory, Research and Practice*. 1978;15 (3): 241–247.

<sup>31</sup> Cundiff JL, Zawadzki MJ, Danube CL, Shields SA. Using Experiential Learning to Increase the Recognition of Everyday Sexism as Harmful: The WAGES Intervention. *Journal of Social Issues*, Vol. 70, No. 4, 2014, pp. 703–721.

<sup>32</sup> Valantine HA, Grewal D, Ku MC, Moseley J, Shih MC, Stevenson D, Pizzo PA. The gender gap in academic medicine: comparing results from a multifaceted intervention for stanford faculty to peer and national cohorts. *Acad Med*. 2014 Jun;89(6):904-11.

<sup>33</sup> Fried LP, Francomano CA, MacDonald SM, Wagner EM, Stokes EJ, Carbone KM, Bias WB, Newman MM, Stobo JD. Career development for women in academic medicine: Multiple interventions in a department of medicine. *JAMA*. 1996 Sep 18;276(11):898-905.

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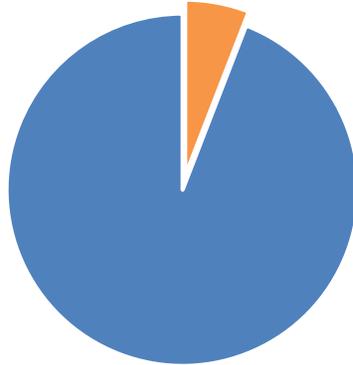
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Barbara McGarey OGC

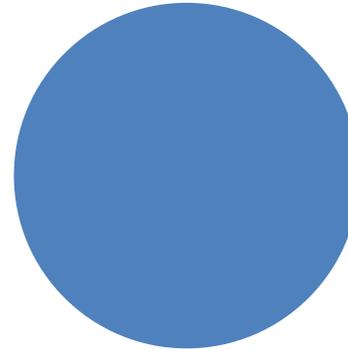
# **DATA APPENDIX**

# Representation of Women in NIH Leadership (as of February 2017)

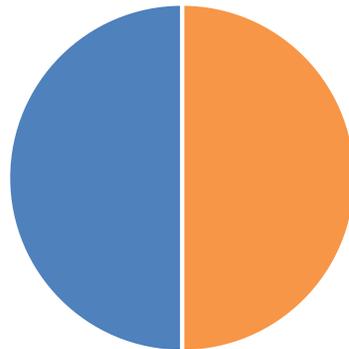
NIH Directors  
1/16 are **women**  
(data over time)



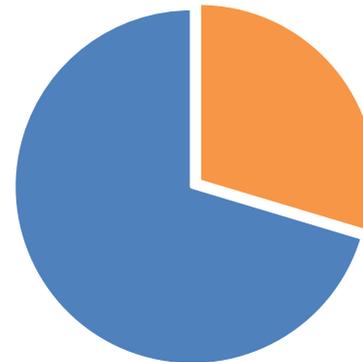
NIH Deputy Directors\*  
0/5 are **women**  
(\*in the Office of the Director)



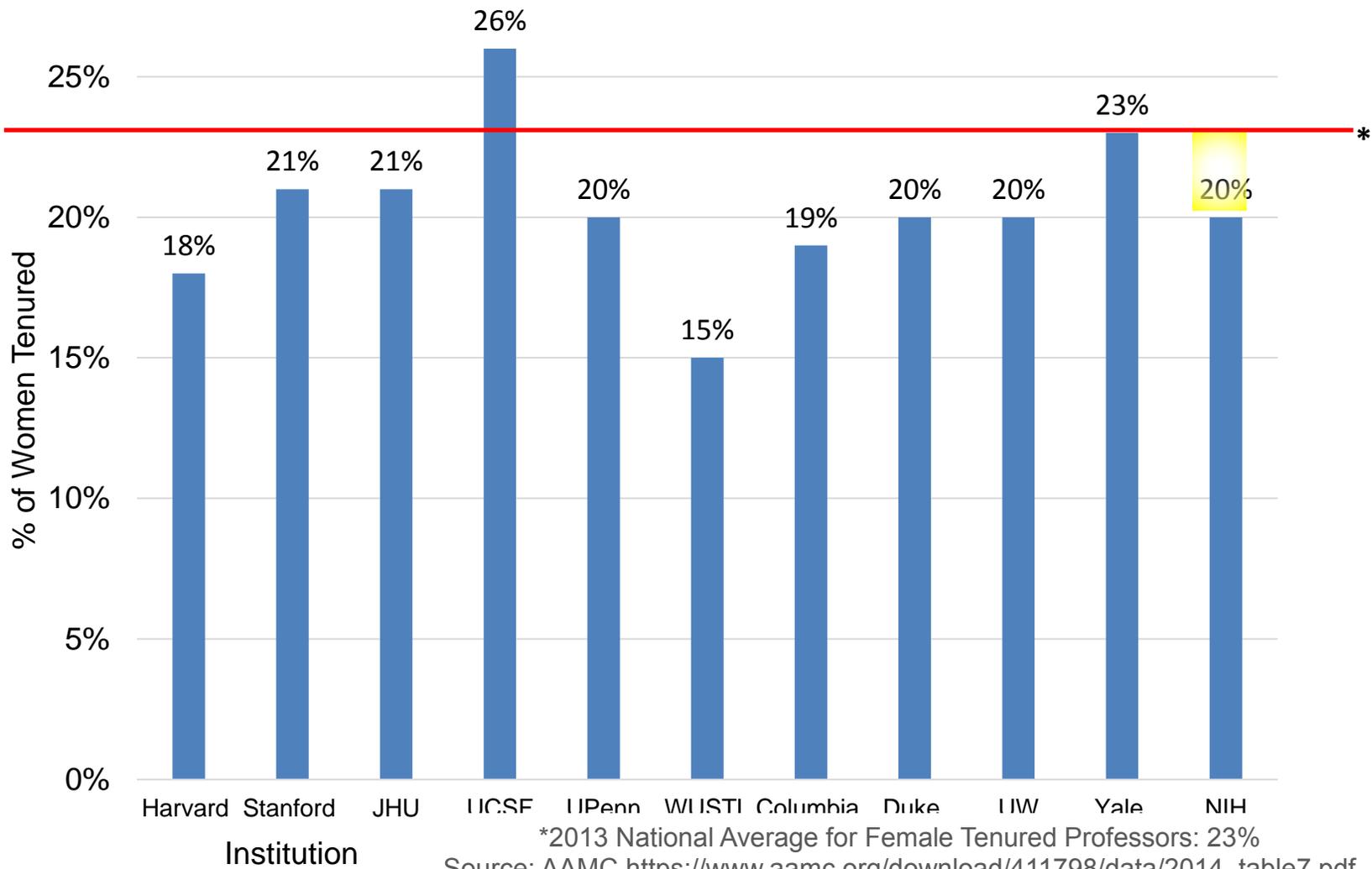
NIH Associate Directors  
7/14 are **women**



NIH IC Directors  
8/27 are **women**



## Tenured Women in Top 10 Research Institutions vs. NIH, FY 2013



2013 is most recent AAMC data. NIH is 23% in 2016

## IRP Tenure-Track Investigators

Oct. 2015 Investigator			
IC	Female	Total	%
NINR	2	3	67
CC	2	2	100
NIDCD	2	2	100
NCCIH	2	3	66.7
NIA	3	5	60
NIEHS	7	12	58.3
NINDS	6	12	50
NIDCR	1	2	50
NICHD	5	12	41.7
NIDA	2	5	40
<del>NCI</del>	<del>31</del>	<del>81</del>	<del>38.3</del>
NIAID	7	19	36.8
NIAAA	2	6	33.3
NIAMS	1	3	33.3
NIDDK	5	18	27.8
NHLBI	4	16	25
NIMH	1	6	16.7
NEI	0	3	0
NHGRI	0	3	0
NIBIB	0	3	0
NIMHD	0	1	0
NLM	0	1	0

\*

Oct. 2014 Investigator			
IC	Female	Total	%
CC	2	2	100
NIDCD	2	2	100
NCCIH	2	3	66.7
NINR	2	3	66.7
NIEHS	7	13	53.8
NIDA	2	4	50
NIMH	2	4	50
NICHD	6	13	46.2
NINDS	5	12	41.7
NIA	2	5	40
<del>NCI</del>	<del>31</del>	<del>80</del>	<del>38.8</del>
NIAID	7	21	33.3
NIDDK	5	15	33.3
NIAMS	1	3	33.3
NIAAA	2	7	28.6
NHGRI	1	4	25
NHLBI	3	14	21.4
NEI	0	3	0
NIBIB	0	3	0
NIDCR	0	2	0
NIMHD	0	1	0
NLM	0	1	0

\*

Oct. 2013 Investigator			
IC	Female	Total	%
CC	2	2	100
NIAMS	1	1	100
NCCIH	2	3	66.7
NIDA	2	3	66.7
NIDCD	2	3	66.7
NINR	2	3	66.7
NICHD	8	15	53.3
NIA	3	6	50
NIMH	2	5	40
<del>NCI</del>	<del>30</del>	<del>79</del>	<del>38</del>
NINDS	4	11	36.4
NIDDK	5	15	33.3
NIEHS	4	12	33.3
NIAAA	2	6	33.3
NIAID	8	26	30.8
NHGRI	1	4	25
NHLBI	4	18	22.2
NEI	0	6	0
NIBIB	0	2	0
NIDCR	0	4	0
NIMHD	0	1	0
NLM	0	2	0

\*

\*National Average for Female Tenure-Track Professors: 39%  
 Source: <https://www.aamc.org/members/gwims/statistics/>

## IRP Tenured Investigators

Oct. 2015 Senior Investigator			
IC	Female	Total	%
NCCIH	1	1	100
NHGRI	8	22	36.4
NIMH	13	38	34.2
NIA	10	35	28.6
NIDCR	6	24	25
NIEHS	10	42	23.8
NCI	51	217	23.5
NICHD	17	74	23
NIAAA	3	14	21.4
NIAID	21	102	20.6
NIDDK	15	75	20
NHLBI	10	52	19.2
NIDA	4	21	19
NIAMS	2	11	18.2
NIDCD	2	12	16.7
NEI	3	22	13.6
CC	2	21	9.5
NINDS	3	34	8.8
NLM	1	14	7.1
NIBIB	0	3	0
CIT	0	1	0

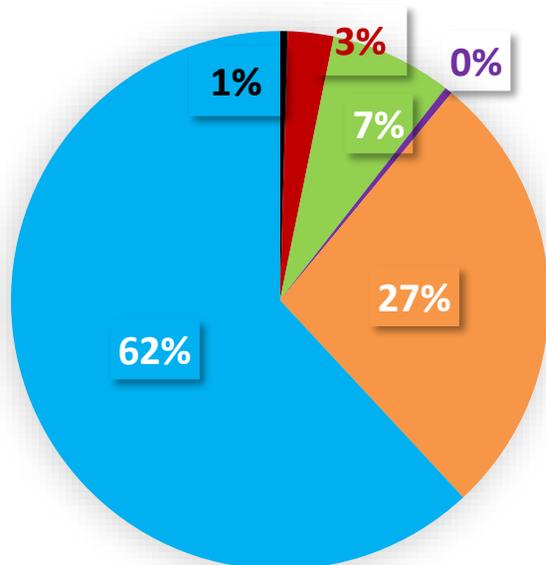
Oct. 2014 Senior Investigator			
IC	Female	Total	%
NCCIH	1	1	100
NHGRI	8	21	38.1
NIMH	11	36	30.6
NIA	10	35	28.6
NIDCR	6	24	25
NIEHS	10	44	22.7
NICHD	16	71	22.5
NCI	48	227	21.1
NIAAA	3	15	20
NIAID	20	102	19.6
NIDA	4	21	19
NIDDK	14	75	18.7
NIAMS	2	11	18.2
NHLBI	9	51	17.6
NEI	4	23	17.4
NINDS	3	33	9.1
NIDCD	1	11	9.1
NLM	1	13	7.7
CC	2	22	9.1%
CIT	0	1	0
NIBIB	0	3	0
NIMHD	0	1	0

Oct. 2013 Senior Investigator			
IC	Female	Total	%
NCCIH	1	1	100
NHGRI	9	23	39.1
NIMH	11	38	28.9
NIDCR	6	23	26.1
NICHD	17	73	23.3
NIA	7	32	21.9
NCI	49	229	21.4
NIEHS	9	43	20.9
NIAID	20	103	19.4
NIAAA	3	16	18.8
NEI	4	22	18.2
NIDA	4	22	18.2
NIDDK	13	75	17.3
NIAMS	2	12	16.7
NHLBI	7	48	14.6
CC	2	22	9.1
NINDS	3	36	8.3
NIDCD	1	12	8.3
NINR	1	12	8.3
NLM	1	12	8.3
CIT	0	1	0
NIBIB	0	4	0
NIMHD	0	3	0

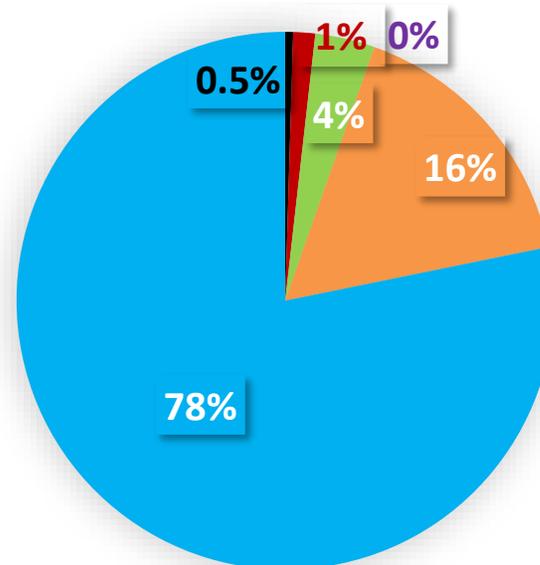
\*National Average for Female Tenured Professors: 22%  
 Source: <https://www.aamc.org/members/gwims/statistics/>

## Women of Color in the NIH IRP

Tenure  
Track



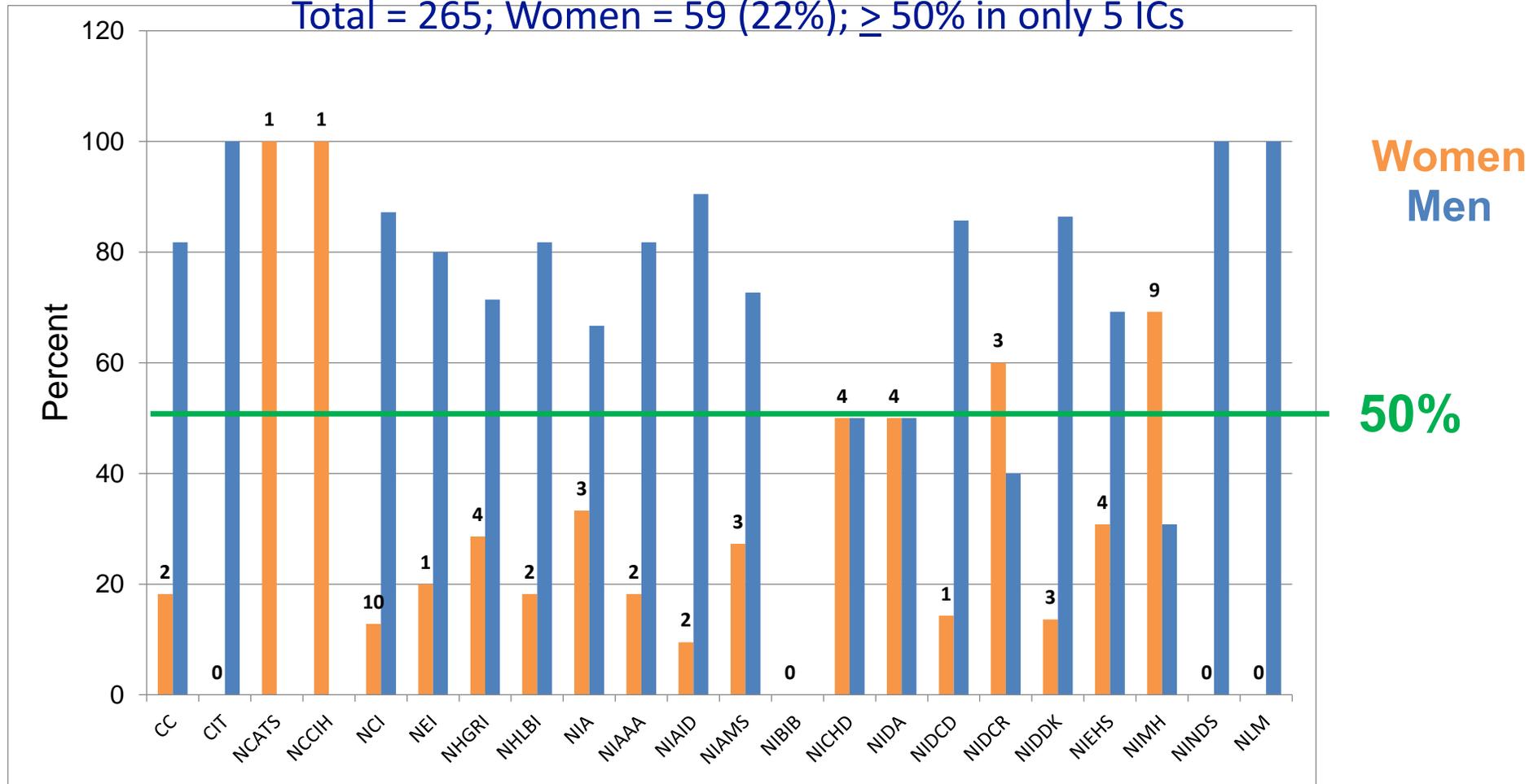
Tenured



- Black women
- Hispanic women
- Asian/Pacific Islander women
- American Indian/Alaska Native women
- White women
- All males

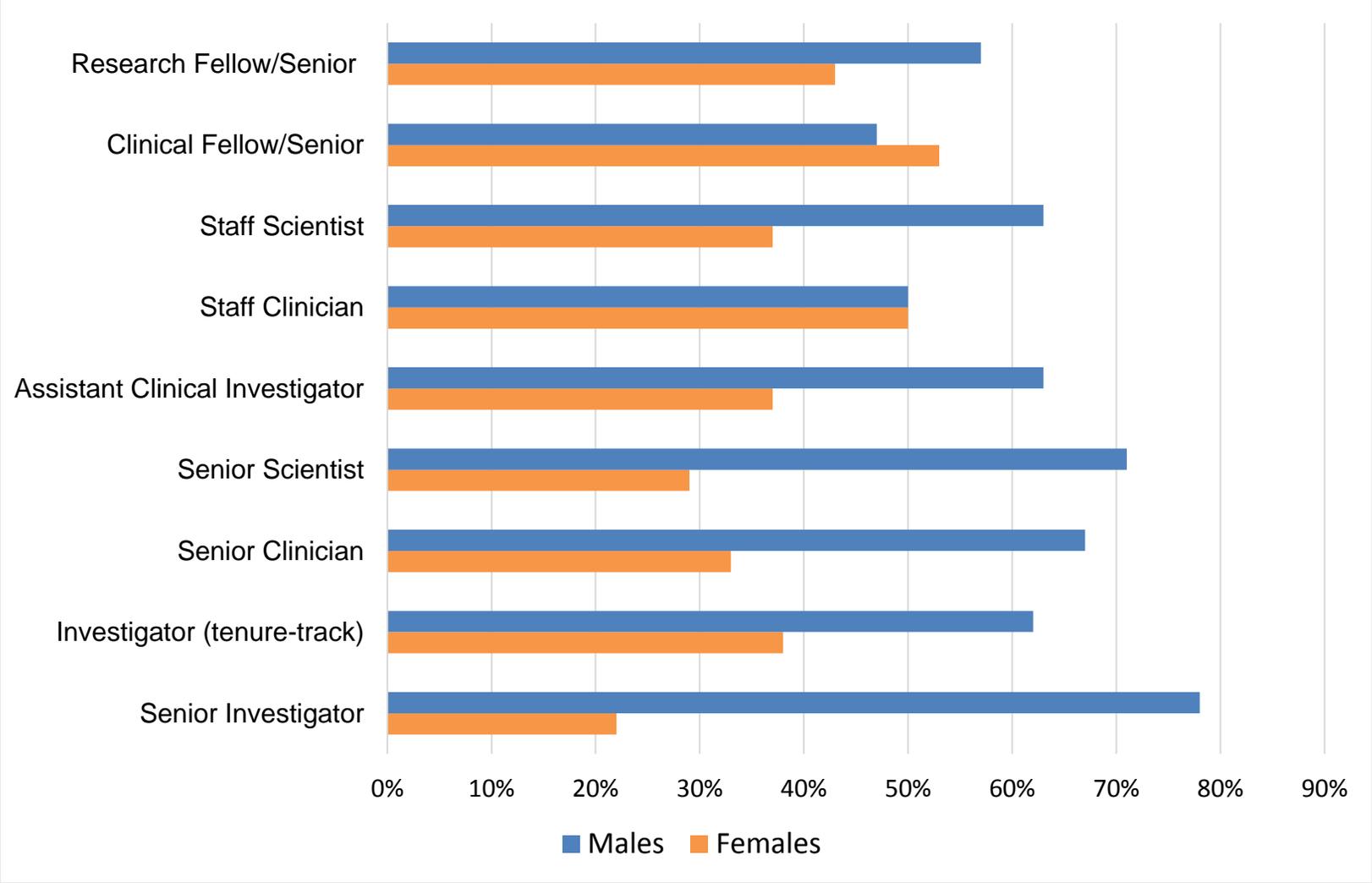
## Gender Distribution: IRP Scientific Leadership

Total = 265; Women = 59 (22%);  $\geq 50\%$  in only 5 ICs

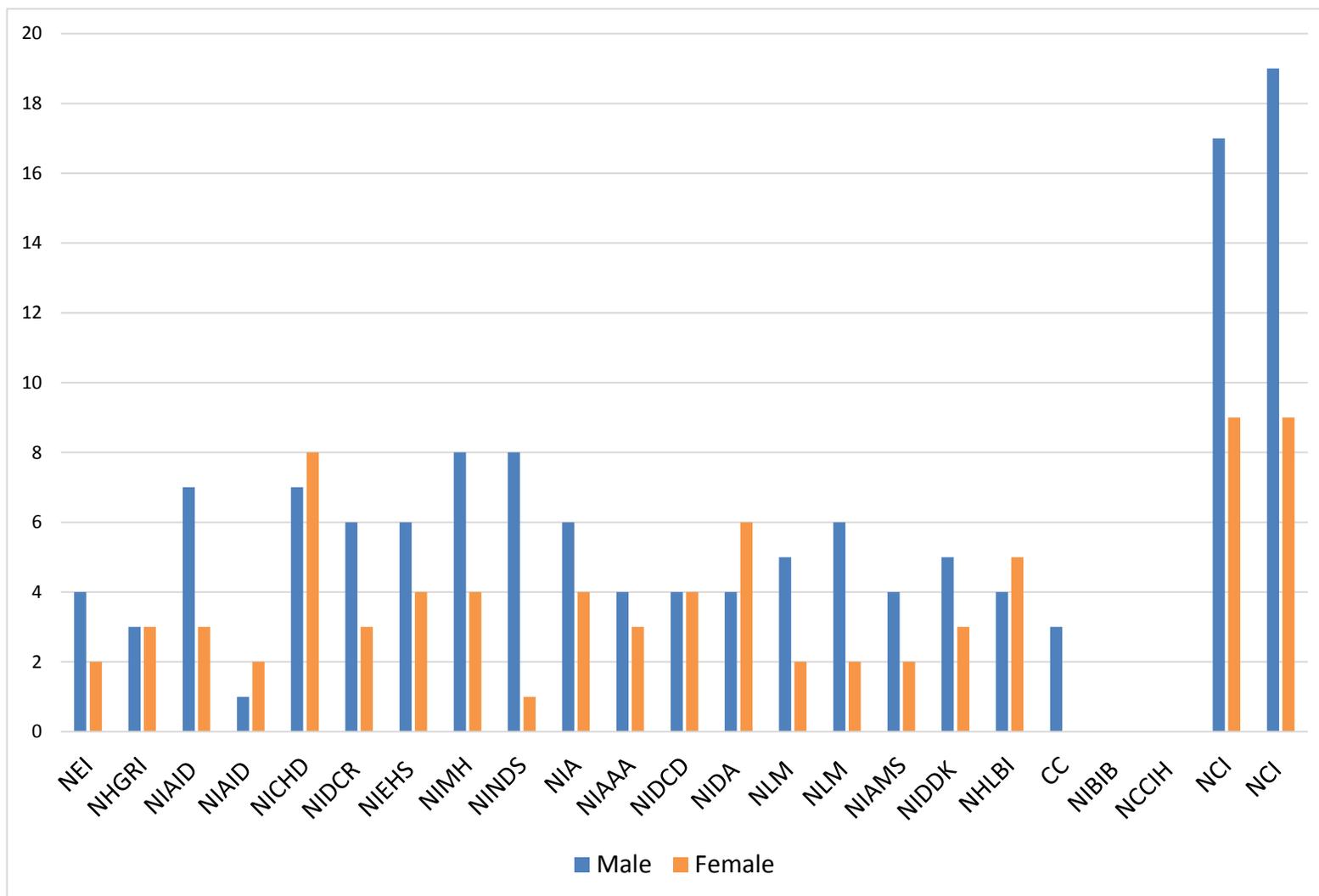


\*Not all ICs have the same structure of lab/branch chiefs, and some ICs have additional leadership positions beyond this structure

# IRP FTE Personnel



# BSC Member Gender Diversity



# CTC Decisions (2011 - 2016)

