New Transitions:

Presence and Voice of Female Perspectives Within Radiology

Report of the Workshop held October 7, 2022

Washington, D.C.

The ACADEMY
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Imaging Research

Advancing Innovation in Imaging Science

Contents

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- Beth Israel Deaconess Medical Center, Department of Radiology (Chair: Dr. Jonathon Kruskal)
- Emory University, Department of Radiology and Imaging Sciences (Chair: Dr. Amit Saindane)
- Mallinckrodt Institute of Radiology, Washington University School of Medicine in St. Louis (Chair: Dr. Richard Wahl)
- Nationwide Children's Hospital Department of Radiology (Chief: Dr. Ellen Chung)
- The Ohio State University Department of Radiology (Chair: Dr. Pari Pandharipande)
- University of Alabama at Birmingham, Department of Radiology (Chair: Dr. Cheri Canon)
- University of California, San Diego, Department of Radiology (Chair: Dr. Alexander Norbash)
- University of Michigan, Department of Radiology (Chair: Dr. Vikas Gulani)
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Introduction

On October 6-7, 2022, the Academy for Radiology & Biomedical Imaging Research ("Academy") convened a first-of-its-kind workshop designed for women in their early imaging research careers, providing a platform for frank and open discussions about the challenges and opportunities in their imaging communities. The workshop, *New Transitions: Presence and Voice of Female Perspectives Within Radiology,* was designed by the workshop participants, including four Academy leaders and seven invited attendees. The desire to create this initiative, and the content within the Academy as a new program, was initiated by members of the Academy Council of Early Career Investigators in Imaging. To ensure that this new program did not duplicate efforts elsewhere, have meaning and impact, and ensure continuity, longevity and engagement, the entire process was designed and implemented by the very individuals whom this is intended to impact. The Academy is the facilitator and

will continue to ensure that the vision of these women are met and nurtured. The luminaries invited to lead discussions were also identified by the participants. We felt that for this program to be unique and impactful, the experts should reflect who the attendees want to learn from. Attendees for this pilot were selected from an application process offered to all Academy academic department members. Attendees were immediately engaged and tasked to create an agenda that provided opportunities to learn about and discuss issues directly connected to career development, balance of personal and professional goals, institutional regulations, and key drivers that affect their success as individually defined. The participants shared resources and policies from their own institution and brainstormed methods of making them universal to create a library of resources not available elsewhere which reflect cross institutional materials. The final agenda (Attachment 1) is the result of this collaborative process between the discussion leaders and attendees.

This workshop was the first action in a broader effort to determine the needs for and approaches to programming supporting women in radiology and imaging research at institutions across the United States. Through these discussions it quickly became clear that the community is seeking a broader and more holistic set of resources. Consequently, these inaugural participants are expected to be the first in a growing and evolving cohort over time. The intent is to create a ripple effect reaching well beyond the initial participation to create a wider community of women in radiology and imaging research, all having access to these resources. While the workshop will likely continue to convene annually, the broader resources, materials, discussions, and networking provided through this initial meeting will result in a strong and vibrant community.

Pre-Workshop Resources

Prior to meeting in-person, the Academy assembled short video vignettes submitted by other female leaders in the field responding to topics supplied by the attendees. Additionally, discussion leaders provided materials that could be read in advance, ensuring we came to the table prepared. The following Academy board members and leaders provided pre-recorded answers/advice/stories in video format for attendees to view in advance. All questions came directly from the attendees, and we are grateful that the following women leaders who participated. These videos will be shared with future participants as well, ensuring that ripple effect.

- Katherine Andriole, PhD, Director of Research Strategy and Operations; Massachusetts General Hospital & Brigham and Women's Hospital Center for Clinical Data Science
- Miriam Bredella, MD, Professor of Radiology, Vice Chair Department of Radiology; Massachusetts General Hospital
- Cheri Canon, MD, Professor, Chair of Radiology; University of Alabama at Birmingham
- Etta Pisano, MD, Chief Research Officer; American College of Radiology
- Hollis Potter, MD, Chair, Department of Radiology and Imaging; Hospital for Special Surgery

Themes from these vignettes included:

- ➢ Balancing work and home:
  - ○ Balance in your work and home life will take time. You will learn how to balance out your priorities and maximize your free time. Work may take priority over home life on occasion, but the opposite will also be true. Know when to bend on certain priorities.

- Take time for yourself. Make time for the activities you enjoy outside of responsibilities at work or at home.
- Support systems are important to success. Spouses, partners, and networks need to be supportive of your career goals and your need for dedicated time in this area. An unsupportive system in your home life can cause major disruption to your career.

➢ Becoming a leader:
- When pursuing leadership roles, start taking on responsibilities without being asked. Leave situations better than when you found them; and stop asking for permission to take on projects that you will be successful in or are passionate about.
- Emotional intelligence is necessary for success in leadership. Consider: how are your actions directly impacting those around you? Emotional intelligence is worth learning about if you want to take on more leadership roles.
- Women often feel a sense of "not being good enough" or "imposter phenomenon" when taking on leadership positions. Think through the accomplishments you have made thus far, on both a large and small scale. Look at your long-term accomplishments. Do not stay hyper-focused on one "failure," because it is unproductive.

➢ When to say "no":
- Knowing when to say no is very important, especially at the beginning of your career.
- Resist saying yes on the spot. Take some time to think about each opportunity you are presented. You can say "I need to check my calendar" or even "I would like to discuss this with my mentor."
- If you know you will excel in this opportunity or are especially excited about it, saying yes is usually the best choice.
- Consider saying no to "low yield" opportunities like reviewing articles in low impact journals.
- If you are going to say no to an opportunity, try to recommend someone else. This will show that you care about the outcome and are open to being approached with opportunities.

➢ Mentorship:
- Pick a mentor that is engaged and interested in your career focus and ultimate success. This can be someone you relate to both personally and professionally.
- Be intentional in having a myriad of mentors and sponsors throughout your career. Reflect on gaps in your experience and skill set to identify mentors who will help you bridge those gaps.

➢ Research and your specialty:
- When choosing your specialty, consider what you enjoy as much as what you do well.
- Interest in your field will drive you passion and work ethic more than just talent.
- Being a researcher means being resilient. Do not take rejection personally; never assume your first grant submission will be funded.

➢ Recruitment, retention, and improving the work environment for women:
- Flexibility is key for recruiting new faculty in an academic environment. Following the COVID-19 workforce decreases, we are in a period of rebuilding and need to consider

how a workday should be structured. Flexibility in virtual and in-person work, as well as options outside of a "normal" 5-day work week, is needed.

o Departments have an obligation to help people feel comfortable in their environments. The move away from a "one-size-fits-all" academic radiologist pathway must end. Part-time work and remote work need to be considered and will help retain valuable staff.

In-person Workshop

To produce an open and honest discussion, the participants convened in-person with the understanding that there would be no video or audio recording, but that a high-level report on the topics discussed, themes identified, and resources considered would be prepared. The workshop also served as a networking and community building effort to connect clinical and basic science researchers from across a spectrum of institutions, backgrounds, and experiences around common challenges and opportunities going forward.

The workshop comprised three broad discussion topics, identified by the attendees, with guiding questions and discussion leaders. Each discussion leader provided a short introductory video to be viewed in advance to allow for a quicker transition into substantive discussions. The three main discussion topics were:

- Discussion #1: *The Journey of a career in research, highs/lows and how we can effectively and meaningfully connect as a community of women, creating a forum to support one another.*
- Discussion #2: *Moving on from being an "early career" researcher.*
- Discussion #3: *What does it mean to lead?*

This report is a summary compilation of the discussions held during the in-person session on October 7, 2022. Individual attributions, specific situations, and/or challenges are not provided here. The overall goal of this effort was to establish a community of individuals who can support the field in new and expansive ways. Best practices, resources, and future efforts are provided in this report. Opportunities for continued learning and discussion through different media will be made available to the attendees going forward. However, participants specifically discussed that other efforts in this spirit previously failed because they relied on one-off discussions. Beyond the initial workshop itself, the attendees were clear that year-round resources, discussions, and continual sharing are needed to create the community being sought. By leveraging existing cohorts, such as the Council of Distinguished Investigators and the Council of Early Career Researchers in Imaging, there are many connections that can be established within the "women in radiology" community. Beyond the formal workshop, the participants identified the year-round connections, discussions, and resources as the principally valuable pieces of this effort.

Discussion Summaries

An opening session was led by Academy President and University of Michigan Professor, Ruth Carlos, MD, MS. Dr. Carlos outlined the objectives for the day; opened the discussion concerning identification of resources and best practices; and challenged all attendees to brainstorm opportunities to engage champions, create methods to initiate change, and serve as a community of support within the field.

Meeting attendees quickly endorsed the need for resources, referrals, and a more connected community of women researchers. For example, participants noted the value of collecting policies from different institutions on issues like promotion criteria, tenure checklists, and parental leave to compare across departments and help create policies in departments that do not yet have them.

Attendees recommended creation of a collection of short, written vignettes from a wide spectrum of individuals describing challenges and possible solutions as an invaluable resource to someone facing a similar challenge for the first time. These vignettes could be signed or anonymous and will be added to a library that can be accessed by any individual within an Academy member department/society/company. The topics were both common (applying for tenure and challenging colleagues), and unique/sensitive (dealing with marital challenges, infertility, pet care, and infidelity).

The participants then proceeded to address the topics and discussion questions they selected for further exploration. Each session had a discussion leader along with appointed "scribes" to accurately capture notes of the discussion that informed this report. The participants were:

- Discussion #1: *The Journey of a career in research, highs/lows and how we can effectively and meaningfully connect as a community of women, creating a forum to support one another.*
    - o Discussion Leader: Pamela K. Woodard, MD; H M Wilson Professor of Radiology and Senior Vice Chair, Radiology Research Facilities at the Mallinckrodt Institute of Radiology. Washington University in St. Louis.
    - o Scribes: Patricia Balthazar, MD, Assistant Professor; Emory University & Souda Fazeli, MD, MPH, Assistant Professor; University of California, San Diego
- Discussion #2: *Moving on from being an "early career" researcher.*
    - o Discussion Leader: Rebecca Rakow-Penner, MD, PhD; Associate Professor; University of California, San Diego
    - o Scribes: Anna Sorace, PhD, Associate Professor; University of Alabama at Birmingham; & Kristin O'Grady, PhD, Assistant Professor; Vanderbilt University Medical Center
- Discussion #3: *What does it mean to lead?*
    - o Discussion Leader: Elizabeth Krupinski, PhD; Professor & Vice Chair of Research; Emory University
    - o Scribes: Mai-Lan Ho, MD, Professor; Nationwide Children's Hospital/The Ohio State University; Swati Deshmukh, MD; Beth Israel Deaconess Medical Center; & Jessica Fried, MD, CIIP, Assistant Professor; University of Michigan

Following the discussions, Aisling Chaney, PhD, Assistant Professor at the Mallinckrodt Institute of Radiology, Washington University in St. Louis provided closing remarks and a concluding discussion.

Discussion #1: The Journey of a career in research, highs/lows and how we can effectively and meaningfully connect as a community of women, creating a successful ongoing forum to connect and support one another.

Discussion #1 addressed the following topics, indicated **in bold,** with individual summaries following.

Balancing professional and personal/home responsibilities.

The core concept was "you must take care of yourself before you can take care of others." Part of finding personal balance is ensuring scheduled time for yourself in whatever form that appeals (e.g., reading, hiking, cooking, etc.). However, balance is not the same for everyone. What is balance to one person may not reflect balance to another and is impacted by factors, including being single or partnered, the presence or absence of children and home responsibilities, and financial situation. It is important to be mindful that needs are different from person to person. Moreover, there are two microcosms that need balance: work and home. Individuals' needs and options may differ between

those two contexts. What may work in a professional setting may not in a personal setting. Leadership reiterated this last point and suggested that individuals must model their own values to exhibit different approaches of implementing balance.

Of the suggestions discussed, there was a recurring focus on the opportunity to use financial strategies to address challenges. Many participants spoke about hiring needed help. Housekeepers, animal caregivers, chefs and meal planning strategies, and other service providers can enable an effective solution to the constraints of time. Some attendees asserted that when launching a career, non-credit card debt may be acceptable to ensure achieving the necessary balance. However, some concerns were raised during this conversation, which are recapped below in "Cautionary Notes."

The above points illustrate the value of an Academy vignette library collection of those who have experience, ensuring that if you need guidance you can perhaps find it easily from those who came before you and have the experience to share.

Participants discussed other, non-financial strategies, including:
  ➢ Do not hesitate to ask for help and not from the typical sources! Your best resources may be a department Admin or CAO, find people who are working in the weeds and get to know them.
  ➢ Look for ways to take control of your schedule—schedule items proactively in advance, including suggested scheduling for a child's school events like holiday parties or class presentations to ensure you can participate. Taking control includes staking out a position early about what you are willing and able to do/not do and not being drawn in by someone else's failure to plan.
  ➢ "Pick and choose" the battles you are willing to fight when it comes to time demands.
  ➢ Set your own terms as early in your career as possible to set a precedent. Setting boundaries early regarding off-hours/weekend requests or evening meetings that conflict with childcare will be easier than trying to reverse established trends. In this regard, administrative assistants are invaluable gatekeepers. Ensure they can control your schedule and that they are empowered to schedule/reschedule important discussions to keep your schedule within the bounds you set.
  ➢ Understand when you can be flexible and when you choose to be flexible. This understanding may develop over time with experience.

What to say Yes to, how to say No, and standing up to bullies.
When determining which opportunities or requests to accept or decline, the primary guidance is "accept only when it benefits your career." Many early career researchers feel they need to accept all requests that come to them, especially from superior or individuals with more experience, and women are often more likely to be apologetic and people-pleasing. Setting early terms and conditions, with strict adherence, is crucial. When saying no, it is important to explain your reasons why. Mentors can advise when to accept an offer by providing guidance on which opportunities are beneficial, as well as how to provide a strong rationale for declinations. Participants also discussed the existence of a third response to a request, "not right now," which allows doors to remain open while prioritizing current commitments. Trust that future opportunities will arise. Clear conversations can convey that you are

open to future opportunities when the timing is better. Conditions can even be placed on "not now" responses, such as, "I will take this on when I get tenure."

The above discussion illustrates that having a network with a safe, confidential space for connections and gathering advice from more than one person, as well as learning from shared experiences by capturing vignettes would be valuable and further contribute to the desired ripple effect.

There was also robust discussion around being "the token candidate." Women, and especially women of color, are often asked to participate in multiple committees, boards, recruitment efforts, and similar departmental efforts. While participation in these activities can be important, over-participation will decrease your availability for other efforts needed by the job. Participants underscored that individuals need not accept such invitations every time. Limits can be put on these requests, and there may be occasions to serve as a sponsor of someone else's career by recommending other women that are interested but have not yet had the opportunity.

The above discussion illustrates the importance of expanding the network by promoting one another, by creating and maintaining a list of women who want to engage and would appreciate more opportunity to be representative.

Nonetheless, there will always be requests that cannot be declined. If saying "no" is not an option, consider sharing responsibilities with a colleague or delegating some of the requests to other appropriate individuals to reduce time or other substantive burdens.

Other ideas and recommendations discussed included the following:
  ➢ Early in a career, it may be hard to learn the institution and its accepted processes. Asking several mentors for advice and not relying on just one mentor can be beneficial. Fight the feeling of burdening others or "annoying people with questions." Mentors will remain mentors throughout your career. Peer mentors can also be utilized for this.
  ➢ When saying no, consider leveraging your mentor as an excuse, such as "my mentor advised I decline this opportunity but stay open for future requests." However, be aware of the possible negative perception of your mentor that may result and consider how to coordinate in advance.
  ➢ To the extent possible, accept only those requests that are of legitimate interest to you and where there is a clear path to further your career interests.
  ➢ Consider breadth of exposure when accepting requests. For example, will you work with a campus chancellor, provost, or vice president? These relationships could be critical for future endeavors.
  ➢ Some of the best allies can be the administrative staff in the department. Ask them about time commitments or other benefits or burdens associated with a request. They are typically more realistic about the requirements than faculty. To that end, learning and respecting how department administrative staff like to operate will result in better information and more efficiency.
  ➢ Recognize that no one individual can be on everything. Balance is crucial.

- When declining, consider recommending other colleagues from your community for the opportunity, which then enables you to become a peer sponsor.
- There may be short-term issues that need attention, like a student crisis or temporary work-life imbalances. Remember, this too shall pass. Periods of stress or imbalance are to be expected and can be worked through. Understanding when flexibility is required is critical.

Can we change the system, or do we need to look elsewhere? How to learn of a department's culture before you accept a position? Including issues surrounding maternity leave and other gender disparities.

There was consensus that institutions want to hire more women but there is a lack of infrastructure in place to retain them. Attendees broadly discussed the need to understand institutional employment policies such as sick leave, vacation time, recording and tracking leave, and other rules. Also consider that the ability to reduce effort to less than full time (i.e., 80% effort/4 days) is different across institutions. Some attendees noted their own institutional policies are hard to find or are less complete or detailed than policies at counterpart institutions. In other instances, attendees noted that candidates are sometimes responsible to find and understand institutional policies without initial guidance or conversations when onboarded.

Issues around parenting and maternity/paternity leave became an in-depth topic of discussion. Participants noted maternity leave as a large concern for many of the attendees, either previously, currently, or for those that are forward planning. Parental leave while funded by NIH or another government institution (e.g., DOD, DOE, ACS) is also a unique concern, as there are not typically individuals in place to continue the research during leave. Most notably, attendees were concerned about trainees that go on maternity leave when funded from PI grants and not trainee-specific grants. There was uncertainty with whether NIH has supplemental funding available for maternity leave. Unfortunately, many in a position to take maternity leave were not given complete or any information about their options or processes beyond standard institutional guidelines. More individualized planning is needed. Academic institutions all approach this issue differently, with different policies, benefits, processes, and documentation. This can be related in part to state employment laws, such as with those that address supplemental maternity leave. However, dedicated budgets for support while on maternity leave, along with easy and visible access to individual policies, are needed.

Unfortunately, there is often a bias, conscious or unconscious, toward women around pregnancy and maternity leave. Those in attendance identified the following struggles they or colleagues have faced:

- Principal Investigators may resist hiring women of childbearing age for fear of losing laboratory productivity.
- Broadly, women are paid less, as noted by many publications, making it more difficult to outsource any home duties (see above discussion on balance).
- Women feel pressured to facilitate recruiting and hiring women into the department. Further, administrative leaders may rely on part-time arrangements for female faculty as the costs are the same or lower.
- Without a firm understanding of how, where, and when leave can be used, accrued benefits are more likely to be ignored and forfeited.

Attendees agreed that issues around maternity leave and support during pregnancy must be addressed at both the national (e.g., NIH) and institutional levels. One identified solution was to make parental leave for men and women equal as a tool for reducing instances of discrimination.

The above discussion led to the suggestion that a library of cross institutional and departmental resources could be collected and shared in one location.

Need for mentorship training and resources.
Mentoring is very often taken on by women, and women will mentor other women with whom they are not directly collaborating. This results in a network of women helping each other in unique ways, but mentoring can add to extra workload. Attendees suggested:
➢ Have a council of mentors, with at least one person who is familiar with the pathway you are on and someone outside of your department.
➢ Have mentors outside of your institution for diversity of perspective.
➢ Both formal and informal mentoring relationships are important.

Cautionary Notes
Unique to Discussion #1, attendees identified limitations or risks with the ideas, including:

➢ Saying "no" when there is already low representation by women in the field may perpetuate disproportionately low participation by women. Conversely, saying "yes" creates an increased workload that may not be sustainable or match with existing priorities. Saying "yes" can also result in an unbalanced administrative burden on women and underrepresented groups.
➢ Financial – Outsourcing household help can create financial stressors or be unavailable at lower household incomes. Accumulating such debt for personal services could create long-term constraints for short-term gains. In many instances, taking on debt may be a privilege of which not everyone can take advantage. Individuals must determine their own cost-benefit balance of taking on debt to help achieve personal or professional goals.
➢ Boundaries – Balancing professional and personal lives is not as easy as simply saying "no." Political and professional ramifications can result when the establishment of boundaries is not contextualized effectively or when boundaries are placed on senior colleagues who do not operate under the same value systems.

Discussion #2: Moving on from being an "early career" researcher.
Discussion #2 addressed the following topics, indicated **in bold,** with individual summaries following.

Where do you begin? That first grant (when to apply/where/how/then what?).
In academia, securing financial support for basic research, clinical research, and other pursuits is crucial to ensuring a successful career. Attendee discussions focused on how women can intentionally and proactively pursue meaningful funding opportunities from a variety of sources. During the workshop, the attendees discussed the following points:

➢ There are more opportunities to pursue grant funding when on a PhD track than on an MD track. For PhDs, it is never too early to start applying for grants. If there is a funding opportunity that is of interest, it should be pursued. On an MD track, most are familiar with the RSNA grant opportunity during residency, which requires six months of protected research time across the

length of the residency program. Other subspeciality societies or institutions offer different training grant opportunities for MDs that come with their own unique conditions.

➤ Be aware of university-based funding opportunities, industry funding, and outside fellowships. Be open to creative solutions that allow one to temporarily quit a current job to take a Fellowship with additional benefits.

➤ Understand your own worth and do not pursue "lesser" opportunities simply because they are there. Do not let others define your worth. Resist cultural expectations and set your own standards.

➤ Understand long-term timelines. Taking a fellowship (e.g., Robert Wood Johnson Foundation) may delay an academic promotion timeline, but it may provide benefits in the future that offset that short-term disruption. These benefits may need to be balanced against the desire to move directly into the career for which you prepared. Those looking to move into clinical practice may feel this pressure particularly acutely and may forgo research grant opportunities. Pursue those efforts that you enjoy. Understand there are different paths to the same destination. Leverage informed choices.

➤ If in clinical practice, advocate for balanced time between clinical volume and research responsibilities. Those commitments may conflict at times.

➤ Opportunities will present themselves in diverse ways and at different times. Be alert for opportunities where they may not be expected.

The righteous path to tenure.
Attendees quickly noted this topic may have been misnamed, as there is nothing "righteous" about pursuing tenure. It is a long and arduous process and is rarely easy. However, it is a widely accepted goal and provides several benefits. Participants identified their thoughts on efficiently pursuing tenure:

➤ Understand the process and criteria for achieving tenure and salary increases at the institution. Every institution approaches these differently, and having the promotion checklist, tenure criteria, and administrative processes can provide a valuable roadmap. In the event there is ambiguity in this information, additional research is encouraged, including in supplemental sources such as university-wide policies, faculty rules, and practices (e.g., whether there is a "publication bell curve" that may be helpful for meeting established criteria).

➤ If pursuing tenure is the goal, start preparing early. Building relationships with chairs and vice chairs in the department will be important. They can be helpful and are aware of opportunities that will support a tenure recommendation and help provide a committee that can review and guide your application process.

➤ One commonality among tenure pursuits is achievement in service, research, and teaching. Strategically consider how to distribute your achievements between these spheres, including when to say yes or no to requests (see above).

➤ There are two committees that are invaluable to understanding the promotion and tenure process: Compensation and Promotion. Saying "yes" to the opportunity to serve on either of these committees may provide valuable insight and information not readily available otherwise.

➢ Regarding promotion, understand there is variability among institutions between achieving assistant, associate, and full professor ranks. It is important to become familiar with the process and pathway in place at your own institution.

How to build a brand without traveling?

Building a brand can be beneficial to several professional pursuits, including funding, promotion, tenure, and clinical and research practices. However, women sometimes disproportionately miss travel opportunities due to family considerations or may not be considered for such opportunities (fairly or not). The attendees discussed the following actions that can be used to help building a brand without extensive travel:

➢ Videoconferencing platforms are helpful. Today there are more opportunities to appear at virtual conferences and meetings, and these opportunities are seen as substantive contributions.

➢ Social media is also helpful, as it can serve as an outlet for self-promotion and mutual cross-promotion by and for others. Groups like RadiologyChicks, (https://twitter.com/radiologychicks and https://www.facebook.com/RadiologyChicks/) exist to help with referrals and opportunities for invitations and cross-promotion.

➢ Lecturing (locally or virtually), co-authoring review articles, and organizing virtual meetings can provide visibility and collaboration with colleagues from a wide spectrum of institutions. In addition, inviting speakers and lecturers from within this community will become another outlet for visibility and cross-promoting brands.

➢ Try to be consistent with the name you use for publications and visibility. Tools like ORCID numbers, https://orcid.org/, can help, but are not a "cure all." It is possible to use a personal name that is different from a professional name.

➢ When travel is necessary, conferences can be supportive of women and families by not scheduling sessions on a weekend and providing on-site childcare.

Difficult colleagues, Difficult leadership.

All participants recognized that at some point in their career they have interacted with a "difficult" colleague or an unsupportive leader. There is known bias against women in leadership roles in all fields of research and medicine that, in part, explains the differences in how colleagues may be treated. The limits of patience for these interactions are personal and differ between people. Attendees centered a discussion around questions to pose internally when considering these situations:

➢ What are the comparative stress levels between staying at an institution and trying to work through the current problem versus leaving for a better atmosphere? Is it better to stay to fight or go through the stress of a major life change? There may be long-term benefits of staying. A lifechanging move can be stressful and may not be a rewarding decision with the benefits of hindsight.

➢ What are outside mentors and others with a non-biased perspective saying about the current challenges?

➢ What do challenges at other institutions look like? Are they the same or different? If different, how?
➢ While moving may be the best solution, are you identifying places where you can be supported and advance? Is the move "to" something better or simply "away" from an unpleasant situation?

How can we help one another more effectively?
Attendees identified some specific ideas to purposefully build a more cohesive community of women in radiology and imaging research:
➢ Ensure representation. For example, when planning for a scientific seminar or panel, assess its composition to ensure appropriate participation by women.
➢ Provide opportunities for women in radiology. For example, develop, maintain, and share lists of people who can be invited to events. However, be aware of relying on the same people all the time. Diversifying invitations and opportunities is beneficial.

Branching out beyond your institution to find Your Community.
Participants discussed how to create a strong community when it can be uncomfortable or even intimidating to reach out beyond the known confines of a home institution. Attendees agreed that the discomfort of reaching out to new people and places is minor compared to the benefits that can result. Participants discussed the following thoughts:
➢ While staying at one institution is easy and can be comfortable, it may result in developing blind spots. Changing institutions may open new and unexpected perspectives and opportunities. Consider "taking a chance" when a new opportunity arises. Moreover, you can explore an opportunity that you may not end up pursuing. Interviewing and visiting as a speaker can provide new perspectives on how other institutions operate.
➢ It is never too late to be a novice. Attending diverse types of sessions to meet new people and learn new areas can open pathways and relationships. Reaching beyond a known field can result in new partnerships, team science, and developing contacts in niche areas.
➢ Having a pathway to reach out to a large group of people is advantageous, but you must actively work on maintaining a network.

Is mentoring still a thing? Paying it forward for the next generation of women researchers.
Participants considered whether and how traditional concepts of mentoring are still important for career development and agreed that it is still important. In addition, participants encouraged each other to find a sponsor as well as a mentor. While a mentor provides advice, perspective, and guidance, sponsors are well-connected and will talk about you and nominate you for opportunities when you are not in the room. While they may not meet with you regularly, they understand your capabilities and will promote you at the appropriate times. Participants also identified the following additional considerations:

➤ Consider having at least three mentors from different perspectives. Diversity of voice and backgrounds will provide more complete and comprehensive advice while minimizing bias or blind spots.
➤ Utilize your network to identify mentors. Mentorship can be the sum of advice over a career rather than individual relationships.
➤ Mentors can be leveraged for a wide range of input, not just purely professional considerations. Mentors can provide professional referrals for employment, attorneys to review new contracts, or medical or other healthcare resources that may be needed personally.

The final discussion from Topic #2 generated recommendations or thoughts that did not fit neatly into any prior subtopic, such as leadership resources and discussion forums to build community outside of a professional setting. These additional thoughts are:

➤ There are a number of leadership or other professional advice books that are highly recommended and can be good for broader discussion. Examples are:
  o *Getting to Yes*, by Roger Fisher and William Ury
  o *Who Moved My Cheese*, by Spencer Johnson and Kenneth Blanchard
  o *Crucial Conversations*, by Joseph Grenny, Kerry Patterson, Ron McMillan, Al Switzler, and Emily Gregory
  o *Good to Great*, by Jim Collins.
➤ Developing five – or 10-year plans can be both irritating and beneficial. It is important to remember that answers change, and "I don't know" is acceptable at times.
➤ When thinking medium or long term in the imaging research context, consider if you want to be an administrator or have less focus on research, and consider where NIH might play a role to advance those goals (such as Multiple Principal Investigators (MPI) designations).
➤ Embrace thinking big. Especially with items like start-up or hiring packages, always ask for a benefit you want. The worst they can say is "no." Do you want:
  o A certain number of hours of scan time?
  o A minimum amount of protected research time per week, guaranteed for how many years?
  o The option to reduce clinical time when additional grant money is earned (this may not always be possible due to clinical coverage issues)?
  o Certain attributes in lab space, such as offices, cubicles for trainees, or other infrastructure?
  o The ability to spend start-up package funds on computers, training, travel, and other non-research opportunities?
  o Funding for a lab manager?
  o Specific agreements for clinical duties such as limiting the number of tumor boards per week?
  o Strong informatics support?
  o A full-time research assistant to support tenure track efforts?
  o Administrative support for components of grant writing?
➤ Embrace finding professional services to help you achieve your goals. Attorneys, financial advisors, and other professional services can provide value that outweighs the short-term cost.

Leverage NIH resources where appropriate. For example, a Program Officer can review an employment contract for people on training grants.

➢ Consider other resources you may need to be successful:
  o Good mentors and connections.
  o Identified pathways to leadership.
  o More protected time to find the route to leadership within radiology, as opposed to other focus areas.
  o Embracing the challenge of not knowing for a while.

Discussion #3: What does it mean to lead?

Discussion #3 addressed the following topics, indicated **in bold,** with individual summaries following.

How to be a leader/boss.

For early career professionals, how to be a boss and leader is an important topic of conversation. There is rarely a guidebook when one suddenly finds oneself responsible for the productivity, professional satisfaction, and professional development of a colleague. Many times, people strive to be a leader before first asking themselves, why do I want to be a leader? Leadership—especially formal leadership—can be a choice. You can also control the type and style of leader to be, and cultivate different leadership skills (e.g., personnel, financial, research). Your motivation for becoming a leader is important and can help define the kind of leader you want to be. However, several attendees pointed out that "career advancement" may come through paths other than "leadership." Participants also discussed these additional thoughts and considerations about becoming a leader:

➢ There are a wide range of leadership resources available. Outside organizations like the Center for Creative Leadership (https://www.ccl.org/), the Radiology Leadership Institute (https://www.acr.org/Practice-Management-Quality-Informatics/Radiology-Leadership-Institute), and AAMC training seminars (https://www.aamc.org/career-development/leadership-development) provide a wide range of resources and approaches. More locally, institutional business schools or other campus programs may be available for education and consultation.

➢ There is also specific training for people who want to be deans or chairs. Understand the department's nomination process for programs to help make yourself competitive. Moreover, proactively ask about a nomination to leadership programs, as it may identify to the chair, dean, or committee that you have strong interest in participation.

➢ Networks are a crucial component of developing leadership. Institutional allies help provide the latitude to make unpopular statements in pursuit of change or culture.

➢ While leadership can be "nurtured," it also has a "nature" component. Much like a clinician's bad bedside manner may be innate in many different contexts, there are people who will be ineffective leaders despite training and education.

➢ There are "positives" and "negatives" to leadership.
  o Positives: being a leader in a research/clinical field can align with the core value of doing meaningful/impactful work, provide an ability to support and help people, be an opportunity to enact change, confer agency, and make you a role model for others (e.g., women, people of color).

- o <u>Negatives</u>: administrative responsibilities take away from research/clinical time, lead to inevitable interactions with difficult people, and result in more work.
- ➢ Personality tests can be instructive in identifying one's soft and hard skills. However, be aware of your own emotional intelligence and your own weak/blind spots to focus on for improvement.
- ➢ Being seen as "aggressive" is not necessarily bad. Ask yourself, what is wrong with other people thinking you are aggressive? Remember, you can control your reaction to other people, not their actions.
- ➢ Leadership styles are personal. You do not have to accept the way other people lead. In fact, observing poor leadership and avoiding those traits can be just as valuable as watching good leaders. With effort, cultures can change, and new cultures can be created.
- ➢ Leadership is also recognizing that there may be some mentees, trainees, and employees for whom no amount of effort can make them successful. That is not your failure. Accept that sometimes these individuals need to find a different path. Mentorship is partly about helping people learn how to be a professional—setting accountability goals and reviewing them on a regular basis.
- ➢ Unfortunately, there are still disparities facing women in leadership positions. From small slights—such as disparate uses of honorifics between men and women—to more direct discrimination, local customs and culture may play an influential role in encouraging women in leadership roles.
- ➢ Leadership is giving space for everyone's opinions. There is a balance to asserting oneself while giving space to others. Sometimes, however, you just have to say, this is the way I do it.

Planning your ascent, navigating the imposter phenomenon.
The imposter phenomenon affects people in different ways and times. However, all the participants agreed that self-doubt has been part of their story. The foundational theme was: when thinking about past meetings or interactions, why does it matter what someone thought of you? When focused on self-doubt resulting from an interaction, it is important to realize most people do not remember the meeting or conversation about which you are concerned. Additionally, people may not notice when you adjust your style or change an approach to be accommodating. Other points included the following:
- ➢ There are resources available on addressing imposter phenomenon. Amy Cuddy's TED Talk, https://www.youtube.com/watch?v=RVmMeMcGc0Y , is just one example.
- ➢ Saying "I don't know" is acceptable. You cannot be an expert on every topic all the time.
- ➢ Most junior faculty focus on "needing to be careful," want to be liked, and worry about their career. You are unlikely to be fired for simply making your opinion known or for an informed decision. Moreover, there are a lot of job opportunities. While you cannot be completely dismissive, minor events rarely lead to major changes in employment.
- ➢ Be unwilling to be afraid to speak up.
- ➢ If your chair does not know who you are, that is a problem. Blending into the background because of the imposter phenomenon is counterproductive. Your leadership needs to know who you are for when opportunities come up. It takes a lot of investment to recruit new faculty and

they want to invest in their people. Sometimes you need to help them to make that investment by asking for it.

How to manage/balance challenging/difficult work environments, from peers to the Chair and beyond.

Institutional allies are an important resource when interacting in difficult environments. Establishing relationships with like-minded individuals of all career levels and seniority helps to create a comprehensive support network. Participants offered the following recommendations and advice:

➢ Find an institutional ally with whom to raise issues and who may be able to advance them. Sometimes finding an ally involves identifying the challenge and making them aware of it.
➢ Find the institutional ally by observation if obvious candidates are not apparent. Departmental meetings, committee meetings, and other informal interactions can reveal them.
➢ The longer you engage in these efforts at one place, the more institutional capital you will generate. This puts you in a position to be an institutional ally and help others as you achieve seniority and influence.
➢ Nevertheless, there is a fine line between speaking up and working to change the culture and becoming replaceable. You are extremely unlikely to be fired for making reasonable comments or pointing out inappropriate situations. Understand your own agency.
➢ There is also a fine line between speaking the truth and identifying an issue to the point of oversaturation.

Difficult conversations when addressing inequity.

Within the context of "difficult conversations" there was specific attention paid to issues of inequity and how to address them. There are several ways equity issues can arise in the imaging research context, and certainly more awareness is becoming commonplace. However, no culture has yet reached the point of having "fixed" the challenge of inequity. Participants offered the following tools and tactics:

➢ Addressing inequities in professional and effective ways can be learned through training and education. Effective communication is crucial to discussing inequity.
➢ Most universities or departments have ombudspersons who can be a good outlet for safely raising these issues for investigation by an unbiased office. It is important to know the official outlets for raising difficult concerns, be it human resources who can take official action or an institutional ombudsperson who can facilitate the conversation, and where those resources reside. Some institutions have these offices at both the department (https://hr.medicine.umich.edu/hr-services/about/contact and https://faculty.medicine.umich.edu/office-faculty-affairs/ombuds) and university (https://hr.umich.edu/ and https://ombuds.umich.edu/) levels. Note that human resources and ombuds offices serve different purposes and are not interchangeable.
➢ In addition, institutions have formal grievance processes, and knowing and understanding how they work can also be helpful. An example can be found at (https://hr.umich.edu/working-u-m/my-employment/academic-human-resources/faculty-grievance-procedures).

> ➤ Not all institutions provide orientation to new employees on these resources. Individual research may be needed.

Closing Remarks: How do we carry this forward?

This session worked to bring all the conversations together in an actionable and sustainable way. While there were more topics discussed than could be summarized in the final minutes of the day, some consistent themes and recommended actions were identified.

Next steps

The cohort agreed that creating a digital resource library with tools and materials to address the raised topics and concerns from this workshop would be advantageous.

Resources considered for these initial topics included:

- ✓ Start-up packages and negotiation
- ✓ Criteria and checklists for tenure/promotion
- ✓ Mentorship training and resources – how to source a good mentorship team, maintain a fruitful mentor-mentee relationship, mentorship vs sponsorship, and how to be a good mentor
- ✓ Leadership training and resources
- ✓ Avoiding burnout, how to delegate, time management, balancing professional and personal responsibilities
- ✓ "When to say yes" and "how to say no"
- ✓ Environmental scans of institutional policies to use as templates and benchmarking
- ✓ Institutional policies related to diversity, equity, and inclusion (DEI) policies to create a digital resource for reference
- ✓ Navigating pregnancy and maternity leave in academia and radiology
- ✓ Advocating for yourself and women-based policies
- ✓ Where to turn when you need help
- ✓ Training and awareness for men to serve as allies
- ✓ A list of willing allies from within the Academy (e.g., Board, DIs, CECIs) for networking, advice, and other professional resources
- ✓ A database of early career female faculty as a resource for invitations to give seminar talks, co-author articles, appear on panels, or similar professional branding opportunities
- ✓ A repository of NIH funded grantees who may serve in advisory roles for a first-time applicant
- ✓ An actionable list that you can bring to department chairs on changes to support women within institutions

In the immediate aftermath of the workshop, some of these pages started being created, and several will be issued for public use. Other resources will remain private to invited participants to encourage candor and honesty within the conversations held.

Action Items & Conclusion

Throughout the discussions, participants identified the following action items for achieving the goals and assembling the resources discussed.

Action Items from Discussion #1: *The Journey of a career in research, highs/lows and how we can effectively and meaningfully connect as a community of women, creating a forum to support one another.*

- ➢ Share this report with other imaging societies, such as SCARD, ADPR, and other organizations, who can help effectuate change where needed. This might include the creation of a template slide deck for those who wish to make presentations on this workshop to their home institutions or other affiliated societies.
- ➢ Mentoring and community building:
  - ✓ The Academy can create a digital community where people can come together to connect, network, seek support, and/or provide support and resources, such as:
    - o The NIH policy on diversity in extramural research: https://extramural-diversity.nih.gov/
    - o Institutional policies on sick/vacation/maternity leave, promotion and tenure, and diversity/equity/inclusion standards, including enforcement mechanisms that benefit the employee
    - o Identification of and discussion about NIH grants that provide leave support or where support differs (i.e., T32 grants provide maternity support, R01 grants do not, and K awards are unclear)
    - o A document with sample talking points, to help with saying "yes" or "no"
    - o A resource page on considerations/support on pregnancy while in academia
  - ✓ Individuals can encourage affiliated societies and departments to invest in training on how to be a good mentor or on how men can become allies.
- ➢ Creation of "launch committees" for women in radiology and imaging science to support new career researchers through community-building, resources, advice, initial mentoring, and being available to answer questions. Topics potentially addressed by such groups are:
  - ✓ How to negotiate a start-up package with a new employer
  - ✓ Effectively negotiating a salary, with resources such as the AAMC's benchmark publication: https://www.aamc.org/data-reports/workforce/report/aamc-faculty-salary-report
  - ✓ How to ask and receive protected research time and an appropriate title, and how to best advocate for yourself
  - ✓ How to best leverage administrative staff to understand department finances and other available support
  - ✓ How to build a network of supportive women in the field
  - ✓ How to exert control over the system where you can, understanding and leveraging applicable policies

Action items from Discussion #2: *Moving on from being an "early career" researcher*

- ➢ Creation of a database of early career female faculty to promote visibility for talks, seminars, lectures, and sessions. These can be used for in-person and digital programming.
- ➢ Establishment of a regular forum for reading and discussing professional development articles, books, or other materials.
- ➢ Creation of an online library of career development resources, such as:
  - ✓ Start-up package considerations
  - ✓ Promotion/tenure policies, resources, and guidance
  - ✓ Resources for negotiating hiring or transfer packages, including professional services to consider
  - ✓ Resources on mentoring and sponsors
  - ✓ Questions to consider when facing difficult colleagues or leadership

Action Items from Discussion #3: *What does it mean to lead?*

- Create an online collection of leadership resources and links to radiology/imaging specific courses.
- Begin assembling university and department policies, procedures, ombuds offices, and related resources for reference and comparison.
- Cross reference to other society resources on these topics (AAMC, AAAS, and others) as appropriate.

Finally, survey results and other feedback make clear that the Academy continuing to convene a community of early career, women researchers in radiology and imaging research is a worthwhile and substantive effort. The Academy anticipates operating on parallel paths going forward:

1) Development and release of the resources, communities, and tools discussed throughout the workshop, and

2) Consideration of how best to convene future workshops and interested individuals to assist in their career development and community building.

The Academy is grateful to all the participants, attendees, planners, and others who provided advice, input, and video recordings for this effort.

Attachment 1: Final Agenda with Discussion Leads, Attendees, and Supporting Contributors

New Transitions:
Presence and Voice of Female Perspectives Within Radiology

October 7, 2022

Time	Session
7:45-8:30am	Breakfast & coffee Conference Center, 2nd Floor, Suite 230 (luggage can be stored in the Academy offices in Suite 601)
8:30-9:00am	Welcome Remarks & Objectives for the Day *Ruth Carlos, MD, MS* Professor, University of Michigan Academy Vice President Overall Objectives for the Day: • Create a vision statement & mission for this group • Create a centralized location for program information/resources • Create a "best practices" report or white paper for distribution • Brainstorm on ways to engage champions & methods to initiate change at various levels Complete anonymous notecards on current challenges for lunch discussion.
9:00-10:30am	Discussion #1: *The Journey of a career in research, highs/lows and how we can effectively and meaningfully connect as a community of women, creating a successful ongoing forum to connect and support one another.* Lead: *Pamela K. Woodard, MD*

	H M Wilson Professor of Radiology and Sr. Vice Chair, Radiology Research Facilities; Mallinckrodt Institute of Radiology, Washington University in St. Louis Scribes: *Patricia Balthazar, MD,* Assistant Professor; Emory University *Souda Fazeli, MD, MPH,* Assistant Professor; University of California, San Diego Topics for discussion (as identified by the attendees): • Balancing professional and personal/home responsibilities • Changing institutions • What to say Yes to, how to say No, and standing up to bullies. • Which grant? Which IC? Is there funding beyond NIH? • When your Chair or division leader isn't supportive. • Can we change the system, or do we need to look elsewhere? How to learn of a department's culture before you accept a position? • When does this get easier? How did you do it? • Shifting from mentee mindset to supervising others. • What if you don't have money to toss at problems when struggling with balance? What to prioritize if you do have money (grant budget or start-up funds)? • How to negotiate a faculty start-up package?
10:30-11:00am	Coffee Break
11:00-12:30pm	Discussion #2: *Moving on from being an "early career" researcher.* Lead: *Rebecca Rakow-Penner, MD, PhD* Associate Professor; University of California, San Diego Scribes: *Anna Sorace, PhD*, Associate Professor; University of Alabama at Birmingham *Kristin O'Grady, PhD*, Assistant Professor; Vanderbilt University Medical Center Topics for discussion (as identified by the attendees):

	• Where do you begin? That first grant (when to apply/where/how/then what?). • The righteous path to tenure. • How to build a brand without traveling? • Difficult colleagues, Difficult leadership. • How can we help one another more effectively? • Branching out beyond your institution to find a Your Community. • Is mentoring still a thing? Paying it forward for the next generation of women researchers.
12:30-1:30pm	Working lunch in the conference room Discussion of current topics and challenges written on post cards during the morning; shuffle and redistribute for conversation during lunch.
1:30-3:00pm	Discussion #3: *What does it mean to lead?* Lead: *Elizabeth Krupinski, PhD* Professor & Vice Chair of Research; Emory University Scribes: *Mai-Lan Ho, MD*, Professor; Nationwide Children's Hospital/The Ohio State University *Swati Deshmukh, MD*, Beth Israel Deaconess Medical Center *Jessica Fried, MD, CIIP*, Assistant Professor; University of Michigan Topics for discussion (as identified by the attendees): • How to be a leader/boss. • Planning your ascent, navigating the imposter phenomenon. • How to manage/balance challenging/difficult work environments, from peers to the Chair and beyond. • Difficult conversations when addressing inequity.
3:00-3:15pm	Break

3:15-3:45pm	Closing remarks/discussion/questions/next steps *Aisling Chaney, PhD* Assistant Professor Mallinckrodt Institute of Radiology; Washington University in St. Louis • How do we carry this forward in a way that has impact? • Opportunities for creating a network/cohort • Opportunities to reconvene this group • Initial feedback and potential for an annual event?

Pre-Meeting Interviews

The Academy conducted interviews using pre-submitted questions from the attendees with the following individuals. The goal is to obtain perspective and thoughts from a variety of speakers to help the attendees further consider the discussion topics. Pre-recorded remarks were provided by:

- Katherine Andriole, PhD, Director of Research Strategy and Operations; MGH & BWH Center for Clinical Data Science
- Miriam Bredella, MD, Professor of Radiology, Vice Chair; Massachusetts General Hospital
- Cheri Canon, MD, Professor, Chair of Radiology; University of Alabama at Birmingham
- Etta Pisano, MD, Chief Research Officer; American College of Radiology
- Hollis Potter, MD, Chair, Department of Radiology and Imaging; Hospital for Special Surgery

Discussion Leads

- Ruth Carlos, MD, MS, Professor, University of Michigan, Academy Vice President
- Pamela K. Woodard, MD, H M Wilson Professor of Radiology and Sr. Vice Chair, Radiology Research Facilities; Mallinckrodt Institute of Radiology, Washington University in St. Louis
- Rebecca Rakow-Penner, MD, PhD, Associate Professor; University of California, San Diego
- Elizabeth Krupinski, PhD, Professor & Vice Chair of Research; Emory University
- Aisling Chaney, PhD, Assistant Professor; Mallinckrodt Institute of Radiology; Washington University in St. Louis

Participating Attendees

- Anna Sorace, PhD, Associate Professor; University of Alabama at Birmingham
- Jessica Fried, MD, CIIP, Assistant Professor; University of Michigan
- Kristin O'Grady, PhD, Assistant Professor; Vanderbilt University Medical Center
- Mai-Lan Ho, MD, Professor; Nationwide Children's Hospital/The Ohio State University
- Patricia Balthazar, MD, Assistant Professor; Emory University
- Souda Fazeli, MD, MPH, Assistant Professor; University of California, San Diego

- Swati Deshmukh, MD, Beth Israel Deaconess Medical Center

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