I always wondered why somebody doesn’t do something about that. Then I realized that I am somebody.

— Lily Tomlin
Dear colleagues,

Our October newsletter summarizes our three-day diversity event, which the Stanford Radiology diversity committee organized in collaboration with the World Molecular Imaging Society (WMIS) and the Stanford CME office. My heartfelt thanks go out to Dr. Lisa Baird, CEO of the WMIS, Lauren Whitman and Sylvia Anderson from the WMIS as well as Mekemeke Faaoso and Tricia Hatcliff from Stanford Radiology and Emily Manche from the Stanford CME office, who organized all administrative aspects of the event.

We received a flood of positive comments and feedback from people at Stanford and around the world! Many thanks to all of you who participated and contributed to the success of this conference! We learned a lot from each other and highly enjoyed our discussions of important topics related to social justice, women in STEM and global health. Overall, we got 908 total views as of September, with 514 attendants of the live event and 394 attendants who watched the online lectures at a later time.

I would also like to thank members of the WMIS and Stanford Radiology leadership team, who provided opening remarks on each of the conference days, including Dr. Martin Pomper, immediate past president of the WMIS, Dr. Garry Gold, Interim Chair of the Radiology Department at Stanford, Dr. Carolyn Anderson, president elect of the upcoming WMIS, Dr. Jason Lewis, editor-in-chief of Molecular Imaging & Biology and Dr. Payam Massaband, residency program director of the Radiology residency program at Stanford Radiology. Many thanks also to 32 moderators from 15 different institutions, who facilitated the presentations and breakout sessions!

We are grateful to our invited speakers, including Dr. Kassa Darge, MD, PhD, DTM&P, FSAR, FESUR, Chair of the Department of Radiology at Children’s Hospital of Philadelphia, Dr. Iris Gibbs, MD, FACR, FASTRO, Associate Dean of MD Admissions, Stanford Medicine, Dr. Miriam Bredella, MD, Vice Chair, Department of Radiology and Director of the Center of Faculty Development, Massachusetts General Hospital, Harvard, Dr. Michele Barry, MD, FACP, Senior Associate Dean of Global Health at Stanford, Dr. Yuri Quintana, PhD, Director of Global Health Informatics at BIDMC, Harvard, Dr. Brielle Ferguson, PhD, NRSA Postdoctoral Fellow at Stanford, Dr. Jayne Seekins, DO, faculty leader of our Radiology outreach program and Dr. Justin Tse, MD, Stanford Radiology resident. A big thanks to all of these contributors for investing the time and effort to share their experiences with us!

The event also offered nine breakout sessions, where expert moderators facilitated discussions regarding actionable steps towards advancing diversity and inclusion in STEM and Radiology in particular. These breakout sessions were a great opportunity to share ideas, how we can advance diversity in our field and provided ample networking opportunities.

Our newsletter will summarize some take home points, that our moderators collected. In case you would like to review any of the lectures, you can find them under this link: https://www.wmislive.org. Click on any of the topics, register and you get free access to all lectures. A summary article about the conference and all scientific abstracts also will published in Molecular Imaging & Biology.

This conference was a major team effort and facilitated very timely reflections on diversity in Radiology and Molecular Imaging. Thank you for joining the conversation! I am so glad we could be a part of these important discussions!

Heike E. Daldrup-Link, MD, PhD
Professor of Radiology
Associate Chair for Diversity, Radiology
Professor, by courtesy, Pediatrics
Stanford Medicine | Radiology
We strongly believe that every member of our community, regardless of disability, race, gender, background, religion, sexual orientation, or mental health status, should have the opportunity to thrive in a supportive, inclusive, and diverse professional setting, be able to share their thoughts and opinions, ask questions, and participate in discussions. We therefore expect all insights, concerns and questions raised during our discussions to be treated with the respect and value they deserve. As such, we expect all participants to collectively and purposefully eliminate harmful vocabulary and microaggressions that inhibit a positive experience during the entirety of this conference, including post-conference communications.

EXAMPLES OF ACTIONS THAT COULD BE PERCEIVED AS MICROAGGRESSIONS:

- Introducing the female doctor by first name and the male doctor by Dr. Last name
- Cutting a minority team member short when they communicate
- Questions about appearances: “Is this your real hair”?
- Comments about status: “Oh, you are a real doctor”?
- Judgements of personal communication styles: “…name… seems to be quite assertive”
- Unsolicited advice to minority members what they should be doing differently
- Absence of entirely positive feedback
- Every praise is followed by criticism

WHAT ALLIES CAN DO INSTEAD: EXAMPLES OF MICRO-INCLUSION:

- Listen
- Believe others’ experiences. Do not assume that something cannot happen simply because you did not personally experience it
- Address MD and PhD minority members with their title
- Invite minority members to share their opinions
- Ask minority members for advice
- Thank minority members for comments or actions that were helpful to the team
- Acknowledge a great idea
- At a breakout session, repeat a comment and provide credit: I agree with Lisa’s suggestion to improve..
- Normalize changing your opinion when new information is presented
- Introduce minority team members to sponsors and influencers
- Praise without attached criticism
- Advocate for inclusion of minority members at important events
- Always speak up if you witness perhaps unintentional ignorant comments
- facilitate leadership opportunities for minority members
“Radiologist-in-Chief and URM: Perspectives on Diversity and Inclusion”

Dr. Kassa Darge, MD, PhD, FSAR, Radiologist-in-Chief and William L. Van Alen Endowed Chair in the Department of Radiology at the Children’s Hospital of Philadelphia, University of Pennsylvania kicked off the event with perspectives on diversity and inclusion.

It is a known fact that in academic positions of medical schools, the rate of underrepresented minorities (URMs) is exceedingly low. There are many extrinsic and intrinsic factors that contribute to this underrepresentation. One of these is the lack of academic mentorship. Mentorship is the act of guiding and supporting a mentee at different stages of their study and career - medical student, resident, fellow, young faculty, researcher. It is a critical factor to motivate a trainee to take the path of academic medicine and to help a young faculty and researcher to succeed. Mentoring has been shown to be a critical element for faculty career advancement in academic medicine. Like in all other academic fields in medicine, mentoring also plays an important role in advancing the career of young faculty members in radiology. A well-designed departmental mentoring structure is necessary to support such an undertaking. Through mentoring it is possible to support URMs not only to go into academia but also to advance and succeed once in the position of a faculty in an academic department. Dr. Darge discussed the critical importance and impact of mentoring on enhancing diversity and inclusion in an academic Radiology department.

BACKGROUND: Faculty

- 7% of full-time faculty – Black or Latinx [31% of population – 2015]

Commentary: Racism and Bias in Health Professions Education: How Educators, Faculty Developers, and Researchers Can Make a Difference

KASSA DARGE, MD, PHD

- Received his MD from Addis Ababa University, Addis Ababa, Ethiopia and PhD in diagnostic radiology in Ruprecht-Karl University of Heidelberg
- Specializes in pediatric urogential radiology Pediatric gastrointestinal radiology
- Research expertise includes:
  - Ultrasound advanced modalities - 3D, elastography, contrast US
  - Ultrasound contrast agent in children
  - Contrast-enhanced voiding urosonography
  - MR urography - morphology and function in children
  - Bowel ultrasound in children
Black people in STEM are used to being the “only” in their cohort, program, or department, and neuro-related fields are no exception. Black people remain starkly underrepresented in Neuro graduate programs, and this is only exacerbated as one considers postdocs, faculty, and leadership roles. In addition to the general challenges that face all trainees in the fast-paced and often competitive environment of academia, this lack of representation and visibility can often leave Black students and other marginalized groups feeling like this space is not meant for them. To counter this, 23 graduate students, postdocs, and professionals organized the recent #BlackInNeuro week with the goal of highlighting and celebrating Black voices in Neuro. In less than three weeks, our organization put together an online database of over 500 Black scholars, including but not limited to neuroscientists, neuroengineers, neurologists, and industry professionals, organized a virtual conference, and raised funds from universities, companies, and individuals in order to fairly compensate all our speakers and panelists. During her talk, Dr. Ferguson shared some of the strategies, principles, and future goals, with the hope that this model can be more broadly applied to future diversity initiatives.
"Women of Color in Academic Medicine: Unique Challenges and Opportunities”

Dr. Iris C. Gibbs, MD, FAAWR, FACR, FASTRO; Professor of Radiation Oncology, Professor of Neurosurgery (by courtesy) and Associate Dean of MD Admissions at the Stanford School of Medicine reflected on Unique Challenges and Opportunities for Women of Color in Academic Medicine.

The overall representation of women in STEM has increased over the past 2 decades. However, despite these gains, women remain under-represented in many areas of medicine and science. Gender discrimination and sexual harassment are persistent barriers for equity, career advancement and impact wellness. Dr. Gibbs discussed unique challenges faced by women, particularly women of color in academic medicine by sharing her personal journey. Using this as a backdrop, Dr. Gibbs discussed the opportunities and recommendations to turn the tide to enhance equity and inclusion.
Miriam Bredella, MD, Professor of Radiology, Harvard Medical School and Vice Chair at the Department of Radiology, Massachusetts General Hospital and Director of the Center for Faculty Development at Massachusetts General Hospital shared experiences regarding women in academia during the COVID-19 pandemic.

Despite extensive work to improve gender equity in academic medicine, women continue to lag behind men in promotions and leadership positions. This inequity has intensified during the COVID-19 pandemic which disproportionately is affecting women who are tasked with taking on increased childcare and household responsibilities and/or the care of ailing relatives. Dr. Bredella’s presentation reviewed recent studies on the impact of the rate of academic publications of COVID-19 on women in academia and described approaches to promote women during the crisis. An innovative Visiting Scholars Program that provides opportunities for women to be visiting professor at a national and international institutions, to receive mentorship and career development was discussed.
“Medical Imaging in Tanzania”

Justin Tse, MD, Clinical Fellow in the Division of Abdominal Imaging / Cross-Sectional IR at the Department of Radiological Sciences at David Geffen School of Medicine at the University of California, Los Angeles and Jayne Seekins, DO, Clinical Assistant Professor in the Division of Pediatric Radiology in the Department of Radiology at the Stanford University School of Medicine shared their experiences as visiting radiologists at the Muhimbili National Hospital in Dar-es-Salaam in Tanzania.

Muhimbili National Hospital (MNH) in Dar es Salaam, Tanzania serves as the tertiary referral center for a country of over 55 million people. Eight staff radiologists provide medical imaging related services for this 1600 bed hospital. Radiology as an independent department is relatively new at MNH and the residency program is only 10 years old. The hospital has modern radiology equipment, highly motivated residents and staff, a wide referral base, and a large patient population with complex pathologies, including neurology, cardiology, oncology and surgery, including renal transplant services, among many others. One of the last remaining barrier for radiologists at MNH is advanced subspecialty training. In the falls of 2018 and 2019, Dr. Tze joined a group of radiologists to teach MNH radiology residents as part of a longitudinal training program to foster skill transfer. In this lecture, Dr. Tse shared lessons learned, including 1) the role of radiologists in promoting healthcare access in developing countries 2) common misconceptions about global health radiology 3) ways to contribute and maximize impact and 4) strategies to maintain sustained growth.
Keynote Lecture

“Women Leadership and Global Health”

Michele Barry, MD, FACP, FASTMH, Drs. Ben and A. Jess Shenson Professor of Medicine and Tropical Diseases, Senior Associate Dean for Global Health and Director of the Center for Innovation in Global Health Stanford University shared her experiences regarding Women Leadership and Global Health.

Attention in global health is often focused on financing, the distribution of commodities, and the development of innovative tools, but rarely on the people responsible for ensuring these resources reach everyone who needs them. There is a growing recognition that the billions we are spending on innovation and tools needs to be complemented by far larger investments in leadership and management (L&M) capacity. To put it simply, we cannot achieve the Astana Declaration on Primary Health Care, Universal Health Coverage, or the health-related Sustainable Development Goals without visionary leadership and meticulous management. Despite making up over 70% of the global health workforce, fewer than 20% of individuals in leadership positions identify as female. Research has shown that a greater proportion of women in leadership correlates with increased public health spending, greater public confidence in the government, and a reduced gender pay gap. WomenLift Health’s mission is to unleash and elevate accomplished mid-career women leaders in global health. Addressing the fact that women are untapped and underutilized at leadership levels raises awareness, empowers leaders and catalyzes change by engaging both women and men through a portfolio of scaled interventions that includes a leadership journey for midcareer women, a curated digital platform, and global, regional and local convenings.
Keynote Lecture

“Expanding Diversity in Global Health Research and Capacity Building”

Dr. Yuri Quintana, PhD, Assistant Professor of Medicine, Harvard Medical School and Chief, Division of Clinical Informatics at the Beth Israel Deaconess Medical Center shared his experiences regarding Diversity in Global Health Research.

In his presentation, Dr. Quintana described approaches to increasing the impact of medical research and treatments to global populations. Currently, most medical research occurs in developed countries with patient populations that may not well represent global biomarkers. While precision medicine could deliver therapeutics tailored to patients' genetic profiles, more research will need to be done with a broader variant of patient populations to deliver more effective therapies. Conducting large-scale research in developing countries will require a sustained collaborative approach that focuses on capacity building and a better understanding of local priorities. In his talk, Dr. Quintana reviewed various global networks that have developed long-term approaches to sustained collaborations for global health research and expanding local healthcare delivery. The model of online collaborative communities of practice was discussed, which can be used to build trust and local capacity. The need to create career pathways for global health researchers was also discussed as essential to increasing the scope of research and the inclusion of underrepresented groups in medical research and service delivery.
Breakout Day 1: Diversity in STEM

“Increasing URM Representation and Inclusion in STEM”

Moderators: Rakhee Gawande, MD, Assistant Professor of Radiology and Radiological Science, Johns Hopkins Medicine
Virginia Hinostroza, MS, Cardiovascular Imaging Research Staff, Stanford University

What does “diversity” mean? And why is it so important to increase diversity in STEM fields? This breakout session discussed the numerous factors that must be taken into consideration when aiming to increase diversity in STEM departments, particularly since underrepresented minorities (URM) are not a monolith. This session also explored how we can start exposing and attracting students to STEM fields at different stages of the educational spectrum. Supporting underrepresented students and trainees throughout their STEM careers requires understanding the challenges they may continue to face outside the classroom and workplace. We examined strategies and initiatives to help support URM students, trainees, and colleagues at all levels of their careers.

“Pipeline Programs”

Moderators: Kimberly Kallianos, MD, Assistant Professor of Clinical Radiology, Cardiac and Pulmonary Imaging, University of California, San Francisco; Marina Codari, PhD, Postdoctoral Research Fellow in Cardiovascular Imaging, Stanford University

We discussed programs and initiatives which could help URM students choose a career in STEM and then thrive in a STEM field. The goal of this breakout session was not only to highlight notable pipeline programs, but also to learn from participants who have worked closely with and started such programs. Hurdles one may face when building a pipeline program can be of administrative, financial and political nature. Concerns about uncovering discrimination can make it difficult to measure current gaps and create metrics of success. Our discussions also focused on how to build successful mentor-mentee relationships. Participants were invited to contribute to a rolodex of pipeline programs aiming to increase URM representation in STEM that is available to all participants of the Diversity Event.

“Supporting Current URM STEM Members”

Moderators: Lisa States, MD, Associate Professor of Radiology, Director of Oncologic Imaging and Endowed Chair of Molecular Imaging, Children's Hospital of Philadelphia
Alexandria Hicks-Nelson, DVM, Resident, Department of Comparative Medicine, Stanford University
Lucia Baratto, MD, Clinical Life Science Research Scientist, Radiology & Pediatric Radiology, Stanford University

We discussed programs and initiatives which could help URM students choose a career in STEM and then thrive in a STEM field. The goal of this breakout session was not only to highlight notable pipeline programs, but also to learn from participants who have worked closely with and started such programs. Hurdles one may face when building a pipeline program can be of administrative, financial and political nature. Concerns about uncovering discrimination can make it difficult to measure current gaps and create metrics of success. Our discussions also focused on how to build successful mentor-mentee relationships. Participants were invited to contribute to a rolodex of pipeline programs aiming to increase URM representation in STEM that is available to all participants of the Diversity Event.
Breakout Day 2: Women in STEM

“Pipeline Programs”

Moderators: Brenda Yu, BS, PhD Student, Stanford University
            Lynn Griffin, D.V.M, Assistant Professor, Colorado State University

How can future and current trainees be best supported on their pathway into STEM? This breakout session discussed current pipeline programs, while brainstorming key actionable items that could be implemented to guide trainees and professionals to the next step of their career. Participants were encouraged to share their own career journey and the resources that guided them. Special emphasis was made to discuss gaps within the field of Radiology that could be addressed through pipeline programs from high school to the professional level.

“How to Address Microaggressions”

Moderators: Mana Shams, MD/PhD Student, Karolinska Institutet
            Tanya Stoyanova, PhD, Assistant Professor, Stanford University

Microaggressions are subtle, daily cues and interactions that communicate bias towards historically marginalized groups. This session aimed to help participants identify microaggressions and develop strategies to actively address them. Targeted areas of discussion included how to recognize one’s own biases, how to build cultural and social awareness of diverse backgrounds, and how to develop initiatives to address microaggressions.

“Increasing Female Representation & Inclusion in STEM”

Moderators: Chirag Patel, MD/PhD, Clinical Assistant Professor, Stanford University
            Priyanka Jha, MD, Associate Professor, University of California San Francisco

We discussed programs and initiatives which could help URM students choose a career in STEM and then thrive in a STEM field. The goal of this breakout session was not only to highlight notable pipeline programs, but also to learn from participants who have worked closely with and started such programs. Hurdles one may face when building a pipeline program can be of administrative, financial and political nature. Concerns about uncovering discrimination can make it difficult to measure current gaps and create metrics of success. Our discussions also focused on how to build successful mentor-mentee relationships. Participants were invited to contribute to a rolodex of pipeline programs aiming to increase URM representation in STEM that is available to all participants of the Diversity Event.
Breakout Day 3: Global Health

“How ‘Global’ is Global Health?”

Moderators: Fanny F. Chapelin, PhD, Associate Professor, Department of Biomedical Engineering, University of Kentucky
Anna Liu PhD; Department of Biomedical Engineering, Georgia Institute of Technology, Atlanta, GA
Ali Rashidi, MD; Department of Radiology, Molecular Imaging Program at Stanford, Stanford University

The common point of all of these definitions of Global Health is “trans-national collaboration, research, and practice to improve worldwide health for people.” Global Health focuses on a more general aspect of health, rather than International Health or Public Health, with emphasis on the equal value of health for all people in the world. In this breakout session, we discussed inequalities in health distribution all over the world and different access to resources to treat a given health issue. If Global Health should have equal value for all people, then why are most of the Global Health centers located in high-income countries? Participants of this discussion group felt a strong sense of responsibility to support more vulnerable nations on health issues.

“Cultural Competence in Global Health”

Moderators: Brett Z Fite, PhD, Department of Radiology, Molecular Imaging Program at Stanford, Stanford University
Krzysztof Marycz, PhD, Professor, Wroclaw University of Environmental and Life Sciences
Steve Dou, Lynbrook High School School

This discussion group discussed cultural competence, and why it is integral to the effective delivery of health care. Participants discussed how global health is impacted by linguistic, socioeconomic, and cultural diversity. This discussion group further explored how medical curricula incorporate cultural competence education and discuss strategies to educate health care providers on cross-culture issues. Culturally competent health care can improve quality of care, outcomes, and assist in the elimination of racial and ethnic disparities in health care.

“Global Health Research”

Moderators: Fernando Alvarez, PhD, Department of Radiology, Canary Center at Stanford for Cancer Early Detection, Stanford University
Yuri Quintana, PhD, Assistant Professor of Medicine, Harvard Medical School
Guido Alejandro Davidzon, MD, Associate Professor, Department of Radiology, Stanford University, Stanford, CA

What is global health research? How does it expand beyond traditional biomedical research? In the context of global health, economic, cultural, political, and social systems must also be studied. In this breakout session, we discussed current and future areas of global health research. Participants discussed how outcomes from global health research can be translated into actions, such as guiding policy and the delivery of health care.
Disparate Participation of Male and Female Conference Attendants in Scientific Discussions

Melika Rezaee (MD), Audrey Verde (MD PhD), Benedict Anchang (PhD), Sarah A. Mattonen (PhD), Jordi Garcia-Diaz (BS), Heike Daldrup-Link (MD PhD)

Dean's Office Operations, Stanford University

Purpose: One important metric of a radiologist's visibility and influence is their ability to speak up within their scientific community. In addition to publications and grant success, visibility may be achieved through active participation in scientific meetings. Participation in discussions is an essential skill that enables participants to be recognized, to share ideas and to influence the field. The goal of our study was to determine the level of participation of female and male attendants in scientific discussions at the annual meeting of the Radiological Society of North America (RSNA).

Methods: Eleven volunteers collected data about female and male participation in 59 randomly selected sessions (286 presentations) at the 2018 RSNA meeting. The collected data included the type of session, presenter's gender, number of male and female moderators, number of male and female attendants who asked questions as well as the time male and female attendants asked questions during the Question and Answer (Q&A) portion after each presentation. Data of male and female attendants were compared with an exact binomial test.

Results: Of all professional attendees at the RSNA, 68% were males and 32% were females. Of the 2869 presentations listed in the program, 65% were presented by male speakers and 35% were presented by female speakers. We randomly selected 59 sessions with 286 presentations, which were presented by 177 (61.8%) male speakers and 109 (38.1%) female speakers and moderated by 81 (63%) males and 47 (37%) females. From audience, 190 male attendees asked questions in 134 presentations and 58 female attendees asked questions in 52 presentations (P=1.065e-11). Female attendees who did participate in discussions talked for a significantly shorter period of time (mean 7.14 ± 17.7 seconds) compared to male attendees (28.7 ± 29.6 seconds; P<4.07e-13).

Conclusions: Female attendants participated less than men in discussions at scientific sessions and talked for a shorter period of time. The fact that women were outnumbered among their male peers may explain the difference in behavior by gender.

Relevance to diversity in STEM: Understanding the gender gap representation of male and female radiologists in their scientific community could provide a new angle for supporting the recognition, visibility and career success of female radiologist which could promote faculty career advancements for female, improve diversity in radiology and ultimately improve patient care.
“Wiki Presence” for Highlighting Achievements of Women and Underrepresented Minorities in STEM

Keshav Datta, Heike Daldrup-Link (MD PhD)
Dean's Office Operations, Stanford University

Purpose: One of the ways to promote diversity in thinking and action is to eliminate the subconscious bias originating from perception and impression. Education is perhaps the best way of disseminating facts and knowledge, with long term implications. Wikipedia, with over 50 million pages, almost 40 million users and 20 billion views per month, is one of the most visible portals in the world \(^1\). The ease of sharing knowledge on this open system as well as the rigor of peer reviewed process makes it an authentic source for information.

In this work, we propose to highlight the achievements of eminent women and people from underrepresented minorities by creating Wikipedia pages, with information on their personal background and professional accomplishments. Additionally, the goal of this work is to outline the steps and methods to create a Wiki page so that this effort can be replicated at scale.

Methods:
1. Identify an eminent person who does not have a Wikipedia presence. (Friends, colleagues, family, community leaders etc.)
2. Collect information from various sources about the biography and professional achievements of the person (google search, departmental/institutional web page).
3. A template for questionnaire is created to collect information from the individual.
4. Publish the biography on Wikipedia using their editing tools and specified format/style \(^2\).

Results: Wikipedia pages for eminent women and persons from underrepresented minorities.

Conclusions: Wikipedia pages for eminent women and underrepresented minorities in STEM, and a method to create them at scale, provides a rapid way to educate people about the achievements of diverse class of persons.

Relevance to diversity in STEM: This work aims to disseminate achievements of women and underrepresented minorities in STEM, thus cultivating and underscoring the value of diversity, to ultimately promote inclusion.

References:
Imposter Syndrome in a Radiology Department

Mana Shams (MD), Sara Shams (MD, PhD), Audrey Verde (MD PhD), Gloria Hwang (MD), Rebecca Blankenburg (MD), Heike Daldrup-Link (MD, PhD)

Dean's Office Operations, Stanford University

Purpose: Impostor syndrome (IS) is the inability to believe that one's success is deserved or legitimately achieved, with a subsequent feeling of fraud. IS is prevalent among physicians and can negatively impact on self-confidence and productivity. We hypothesized that IS would be more common in minority groups in the department.

Methods: We surveyed the prevalence of impostor syndrome in a radiology department. Trainees and faculty of the radiology department were invited to participate in a survey. Responses were quantified on a Likert scale and analyzed in generalized linear models.

Results: 93 (62.4%; 42% males, 55% females) of our team members responded to the survey out of which 58 (44% males, 55% females) reported that they had impostor syndrome. Participants with impostor syndrome reported that they to a higher degree had missed opportunities in life, secretly worried that others may doubt their capability, saw others as more capable, shied away from challenges, chalked their accomplishments up to a fluke and doubted their own success (P<0.05). They also reported that impostor syndrome had a high impact on their life and feared that others would discover they weren't qualified for their position (P<0.05). There was no association between impostor syndrome and ethnic minorities. Participants associating with a minority group (LGBTQ, first generation immigrant, first generation college graduate and people with disabilities) more often identified with impostor syndrome (P<0.05).

Conclusions: Impostor syndrome is common in a radiology department and associated with self-doubt and shying away from challenges. Identifying with a minority group is associated with impostor syndrome.

Relevance to diversity in STEM: Impostor syndrome is prevalent in a radiology department and linked to minority groups such as LGBTQ and people with disability. This abstract further investigates impostor syndrome in a radiology department.
International Diversity Training: A Collaboration Between US and Australian Nuclear Medicine

K Elizabeth Hawk, Geoff Currie
Department of Radiology, Nuclear Medicine and Molecular Imaging, Stanford University

**Purpose:** In order to best represent and support the needs of our radiologists and teammates at Radiology Partners, we identified the need for a committee dedicated to looking at challenges surrounding gender and underrepresented minorities in radiology.

**Methods:** Speakers from both Australia and the United States prepared lecture content on issues surrounding gender diversity and underrepresented minorities in Nuclear Medicine. Topics included discussion of the indigenous population in Australia, national and international challenges faced by women in nuclear medicine and the current black lives matter movement. Lectures were recorded and delivered digitally. The speakers then joined attendees via video conference for a live discussion and question and answer session.

**Results:** This is the first time a special diversity workshop has been included in ANZSNM annual meeting programming. The workshop programming was well attended by conference registrants and resulted in lively impactful discussion. Although the challenges in diversity do differ regionally, discussion of creative potential solutions facilitated problem solving and resulted in a greater understanding of the global nuclear medicine community.

**Conclusions:** Building awareness of the challenges women and underrepresented minorities in nuclear medicine face requires strategic incorporation into structured conference programming. Formal lectures help build awareness, while live workshop discussions allow for international discussion, and synergistic problem solving.

**Relevance to diversity in STEM:** Women and underrepresented minorities face many challenges in the field of nuclear medicine. Raising awareness through didactic teaching, and using video conference to facilitate live international discussion and problem solving helps to shift the culture in nuclear medicine towards greater inclusivity.
Belonging: Looking at Diversity in the Radiology Private Practice Setting

K Elizabeth Hawk

Department of Radiology, Nuclear Medicine and Molecular Imaging, Stanford University

**Purpose:** In order to best represent and support the needs of our radiologists and teammates at Radiology Partners, we identified the need for a committee dedicated to looking at challenges surrounding gender and underrepresented minorities in radiology.

**Methods:** First, a small core of founders held a brainstorming session of possible approaches to initiating a diversity effort. An outside consultant in diversity then conducted a full day deep dive into the current state of diversity in our practice. We then held a series of open town halls. We asked the questions:

- How should the Belonging Committee articulate our mission?
- What would more belonging, diversity and inclusion look and feel like at RP?
- How can the taskforce help support the mission of the Belonging Committee?

Following the series of townhalls, thoughts and ideas were collected and then discussed amongst the founding core and we invited members of our practice who expressed interest in taking on a leadership role to form a larger committee.

**Results:** From this process, the Belonging Committee was formed. The committee is composed of 10 members. Additionally, there are three affinity groups (each with one leader and three additional members). The affinity groups are: Education and Development, Mentorship and Advocacy, and Celebrating Differences.

**Conclusions:** Evaluation by a professional diversity consultant paired with open town hall meetings, facilitated effective creation of the Belonging Committee. Through this process we were able to solicit ideas towards understanding, as well as promote and leverage the differences that each teammate brings to the table. The process allowed us to gain perspectives and understand how to make a meaningful difference for our practice, and to explore what the more precise mission of the Belonging Committee should be and how we can act.

**Relevance to diversity in STEM:** In order to best represent our practice teammates, the Belonging Committee is focused on the importance of practice diversity and addressing issues that create barriers to diversity, inclusion and equality in the radiology private practice setting.
Abstracts

**diversityxMESH: A Collaboration between a Hospital Innovation Incubator and Diversity, Equity, & Inclusion**

DB Chonde, MD-PhD, SP Rincon, D Ricciardelli, C Alavarez, AK Narayan, D Daye, Ej Flores, JA Brink, MD Succi

Department of Radiology, Massachusetts General Hospital
Medically Engineered Solutions in Healthcare (MESH), Incubator, Boston

**Purpose:** Diversity, Equity, & Inclusion (DE&I) programs have historically lacked resources, access to technical experts, and broad workforce/community engagement. A concerted partnership between DE&I programs and hospital innovation groups can supplant these obstacles by providing access to additional expertise and funding streams and by empowering staff to develop creative solutions. Our purpose was to describe the framework for our partnership.

**Methods:** The Massachusetts General Hospital (MGH) Radiology DE&I Committee partnered with the Medically Engineered Solutions in Health Care (MESH) Incubator, the innovation center for MGH. We applied concepts of design-thinking to develop creative solutions to health and racial disparities in medicine. We created multidisciplinary teams including front-line clinical staff, nonclinical engineers, and entrepreneurs.

**Results:** We present two examples of projects from our partnership. Using design thinking, we created Radtranslate (www.radtranslate.com) wherein nurses and technologists acted as problem identifiers and worked with programmers to develop a one-way communication tool to better serve patients with limited English proficiency. The diversityxMESH Health Disparities Hackathon is aimed at engaging the greater Boston innovation community and fostering connections with hospital staff as they tackle health disparities. Initial efforts to solicit participation generated 81 responses (31% clinical staff, 12% business professionals, 16% science and engineering, 30% students).

**Conclusions:** We have presented a novel paradigm for addressing health disparities in addition to equity and inclusion in healthcare. Engaging hospital staff at all levels, in addition to patients, and entrepreneurs, innovators, programmers, etc, allows for the development of creative solutions and an engaged workforce.

**Relevance to diversity in STEM:** DiversityxMESH provides a novel framework for collaboration between traditional DE&I groups and hospital innovation centers.

**References:**
Abstracts

Differences in Types of Events Reported Through the Stanford Alert for Event (SAFE) System by Physician Demographics

Brenda Flores BA, Barbara Jerome MPH, Magali Fassiotto PhD, Yvonne Maldonado MD, and Elan Burton MD

Office of Faculty Development and Diversity, Stanford University

Purpose: Female physicians and physicians of color are more likely to report having experienced workplace discrimination from peers, support staff, and patients (Coombs & King, 2005; Nunez-Smith et al., 2009). Given that patient safety event reporting systems are inherently reliant on the perceptions of others, physicians who are reported through these systems may be subjected to biases on the basis of their demographic characteristics. We explored how the gender and racial/ethnic identity of a physician might affect the types of events for which they are reported through the Stanford Alert for Event (SAFE) system, which is intended to capture events that do not follow patient care or workplace best practices at Stanford Health Care.

Methods: We conducted an inductive thematic analysis of 301 SAFE reports corresponding to 147 physicians filed between 2010 and 2018. Each report was coded with up to two of seven themes that emerged from the data and was additionally coded by severity: distressing, harsh, or egregious. Distressing represents the lowest level of severity for a reported event and egregious represents the highest.

Results: Physicians who identified as male or Black were markedly overrepresented in terms of the proportion of SAFE reports filed against them relative to the overall Stanford physician population (% in overall population vs. % of SAFE reports - male: 58.8% vs. 82.1%; Black: 1.5% vs. 6.0%). Compared to the proportion of SAFE reports filed against them, female and Asian physicians tended to be disproportionately reported for issues surrounding conversational conduct (% SAFE reports vs. % of reports for conversational conduct - female: 17.9% vs. 37.5%; Asian: 21.9% vs. 37.5%). Black physicians were overrepresented in reports of lack of communication issues (6.0% of SAFE reports vs. 18.6% of lack of communication reports). On the other hand, male and White physicians were overrepresented in reports of physical intimidation (% SAFE reports vs. % of reports for physical intimidation - male: 82.1% vs. 92.3%; White: 60.1% vs. 73.1%). Similarly, female, Black, and Asian physicians were disproportionately reported for distressing events (% SAFE reports vs. % of reports for distressing events - female: 17.9% vs. 24.7%; Black: 6.0% vs. 9.6%; Asian: 21.9% vs. 26.6%). In contrast, male, Latinx, and White physicians were overrepresented in reports of egregious events (% SAFE reports vs. % of reports for egregious events - male: 82.1% vs. 84%; Latinx: 5% vs. 10.3%; White: 60.1% vs. 65.5%).

Conclusions: These findings demonstrate that demographic characteristics may influence how a physician’s behavior is perceived for various types of events, and therefore how susceptible they may be to SAFE reports.

Relevance to diversity in STEM: Although SAFE reports are intended to ensure an optimal standard of patient care, biases that lead to demographic differences in who is being reported may foster a psychologically unsafe workplace for select physicians groups. This could ultimately have a negative impact on the retention of diverse faculty and trainees at Stanford Medicine.

References:
Trends in Racial and Ethnic Diversification of the Women Professoriate in U.S. Medical Schools from 2007 to 2018

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Purpose: Racial, ethnic, sex, gender, and disability status disparities are well-established in the fields of science, technology, engineering, and mathematics/medicine (STEM/M) [1-3]. In 1847, Elizabeth Blackwell was the first woman accepted to a U.S. medical school. In the 1970's, the Public Health Service Act and Title IX of the Higher Education Act Amendments allowed for women to enter the medical field unimpeded. In 2017, for the first time in the U.S., women outnumbered men as first-year medical students. In 2019, the majority of total matriculated U.S. medical students were women. The downstream effects of these historical medical education trends on the U.S. medical school professoriate are not fully understood [4]. We set out to determine the changes in the composition of the U.S. medical school professoriate over the past decade based on sex and race/ethnicity.

Methods: We analyzed the 2007-2018 faculty datasets from the American Association of Medical Colleges (AAMC) [5] to determine the trends in racial and ethnic diversification of the women professoriate in academic medicine. We calculated the percent of women at the assistant, associate, and full professor levels, by total number and by racial/ethnic subgroups. For the four largest racial/ethnic subgroups of women professors (in order of prevalence: White [subgroup 1]; Asian [subgroup 2]; Black or African American [subgroup 3]; and Hispanic, Latino, or of Spanish origin [subgroup 4]), we calculated the fold-change of assistant professors, associate professors, and full professors from 2007 to 2018, and normalized these values to the fold-change for White women professors (reference group) during the same time period, to obtain a unit-less ratio of the fold-changes.

Results: In 2007 ==> 2018, women represented 39.7% ==> 47.4% of all assistant professors, 28.7% ==> 38.3% of all associate professors, and 17.0% ==> 25.3% of all full professors in academic medicine. In 2007 ==> 2018, White women made up 60.1% ==> 57.0% of women assistant professors, 74.9% ==> 65.4% of women associate professors, and 81.2% ==> 74.5% of women full professors. From 2007 to 2018, there was a 95% increase in women assistant professors, 84% increase in women associate professors, and 91% increase in women full professors. For women assistant professors, the relative population fold-change from 2007 to 2018 compared to the reference subgroup (White) was 1.5 for the Asian subgroup, 1.2 for the Black or African American subgroup, and 0.7 for the Hispanic, Latino, or of Spanish origin subgroup. For women associate professors, the relative population fold-change from 2007 to 2018 compared to the White reference subgroup was 2.1 for the Asian subgroup, 1.5 for the Black or African American subgroup, and 1.1 for the Hispanic, Latino, or of Spanish Origin subgroup. For women full professors, the relative population fold-change from 2007 to 2018 compared to the White reference subgroup was 2.1 for the Asian subgroup, 1.5 for the Black or African American subgroup, and 1.1 for the Hispanic, Latino, or of Spanish Origin subgroup.
**Conclusions:** The disparity between women and men U.S. medical school professors has narrowed over time from 2007 to 2018, with almost-parity (5.2% gap) for assistant professors but larger gaps for associate professors (23.4% gap) and full professors (49.4% gap). The disparity between White women and non-White women U.S. medical school professors has narrowed over time from 2007 to 2018, most markedly at the associate professor level, but overall more slowly for this race-/ethnicity-based disparity compared to rate of narrowing of the sex-based disparity. The growth rate from 2007 to 2018 of Asian women medical school professors exceeded that of the majority (White) women reference subgroup at all three levels of the professoriate. Although the growth in the number of Black or African American women in the academic medicine professoriate over time has exceeded that of the majority (White) women reference subgroup, there is a reduced growth in the number of Hispanic, Latino, or of Spanish origin professors over time compared to that of the majority group.

**Relevance to diversity in STEM:** Foundational structural changes through laws and public policy have paved the way for women to matriculate into U.S. medical schools at higher rates, and although there is close to parity with men at the assistant professor level, larger disparities remain at the associate and full professor levels. Even among the various under-represented racial/ethnic minority women groups in the U.S. medical school professoriate, there are disparities in the rate of population growth from 2007 to 2018 between the Black or African American subgroup compared to the Hispanic, Latino, or of Spanish origin subgroup. The potential for more recent platforms (e.g., social media) to accelerate the closing of these disparities by promoting diversity in STEM/M will be determined in the future.

**References:**


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“Treat people as if they were what they ought to be and you help them to become what they are capable of being.”

– Johann Wolfgang Von Goethe
Representation of Women Among Scientific Nobel Prize Nominees

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**Purpose:** Women have received 3.3% of the scientific Nobel Prizes awarded in Physics, Chemistry, Physiology or Medicine from 1901-2018. This enormous gender disparity has drawn considerable attention and sparked widespread debate. In the United States, courts have used a concept called, ‘inexorable zero’, when zero or near-zero levels of people from underrepresented groups are included. An inexorable zero is a prima facie inference of discrimination, and it is well documented that women in science often receive awards at zero or near-zero levels. Although reasons for this are multi-factorial, a necessary (though not always sufficient) component of receiving an award is to be nominated. As such, we analyzed nominations from the Nobel Foundation database which stipulates that only information older than 50 years is included due to restrictions imposed by the Foundation. Therefore, our analysis focused on nominations and awards in the scientific categories of Physics, Chemistry, Physiology or Medicine between 1901-1966 (the data for Physiology or Medicine was available till 1953). In this period, women received 2.7% of the scientific Nobel Prizes.

**Methods:** We analyzed the available full list of Nobel prize nomination on the Nobel prize website ([https://www.nobelprize.org](https://www.nobelprize.org)) from 1901 until 1966 (except for the Nobel prize in Physiology and Medicine in which the data was available between 1901-1953).

**Results:** Our analysis revealed that the success rate of women scientists in winning a Nobel Prize in Chemistry and Physiology or Medicine is actually higher than the rate for men. This analysis of Nobel Prize nomination data suggests that one reason for the huge awardee gender gap is that qualified women are not equitably included in the nomination process.

**Conclusions:** Our generation should fairly recognize the contributions of women's breakthrough scientific works. We analyzed the available nomination data of the scientific Nobel prizes. Our outcomes suggest that the Nobel prize committee was fair towards female scientists as they revealed similar success rates in both men and women scientists in the ratio of their wins compared to their nominations. The outcomes also suggest that to diminish the historical imbalance between the sexes in winning major awards, both the public and the scientific community need to focus the scientific community’s attention (including former Nobel Prize winners) on the breakthrough science conducted by women researchers, which in turn may markedly increase the nomination numbers of women and consequently enhance their winning numbers. We have presented a novel paradigm for addressing health disparities in addition to equity and inclusion in healthcare. Engaging hospital staff at all levels, in addition to patients, and entrepreneurs, innovators, programmers, etc allows for the development of creative solutions and an engaged workforce.

**Relevance to diversity in STEM:** Our research, among the research of many others, might provide a unique opportunity to better understand why the contributions of women scientists have not been fairly acknowledged.

**References:**
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Reframing the Edge Case:  
The Importance of Diversity in Design Research  

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**Purpose:** Design practitioners pride themselves in being able to embed into their users’ pain points and design researchers pride themselves in uncovering those pain points. However, designed products and services continue to exclude many users’ needs. Products are still being developed based on first-hand experience and, often in the technology industry, that centers the experience of White men.

Design claims empathy as its most important standard but fails to truly grasp empathy when people of color are excluded from research samples and their experiences are relegated as edge cases. This creates a culture of exclusion within technology further marginalizing communities of color.

The field of design is wide reaching and can influence everything from how a patient accesses treatment to how a business manages their money so it's imperative that researchers learn from underrepresented voices.

In this talk, I will share a collection of case studies that illustrate the importance of diversity in design research. We will explore failures and successes in inclusive design and highlight the research methods that can help us reframe the conversation around ‘edge cases.’

**Methods:** This talk will rely on a collection of qualitative research in the form of design case studies. Each case study illustrates ways in which a design has excluded a community of color from fully accessing the product or service and presents facts and figures illustrating the ways in which design research is currently conducted.

**Results:** The results will demonstrate a thematic practice of exclusionary design techniques and contrast the impact of inclusionary design research.

**Conclusions:** It is time for a paradigm shift within the tech sector. As emerging technologies such as AI continue to play a more integral part in our daily lives, so must inclusive research and design. Researchers must actively seek to diversify their research samples. Edge cases are deserving of a thorough inspection to ensure that findings do not reinforce marginalization.

**Relevance to diversity in STEM:** Design research is critical to the development of new and existing technology. As we continue to expand our technological knowledge, we must continue to expand the scope of our design research and allow research to play a more integral part in the development of products and services.
In case you were not able to join some or all of the presentations, these were recorded and are now posted online. You can access them here: https://www.wmis.org/education/diversity/