Approaches to mentoring in the field of aging and dementia

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Abstract

Mentoring the next generation of clinical researchers is vital to the ongoing success of science and advancements in medicine. It is also a privilege for and a responsibility of the mentors who were once mentees themselves. In this article, we summarize discussions about mentoring that took place during a virtual retreat at the Mass General Brigham Center for Alzheimer Research and Treatment in conjunction with the Harvard Aging Brain Study and affiliated studies. The speakers, moderators, and audience consisted primarily of clinical researchers in the fields of aging and dementia. The goals of the retreat were to engage in a general discussion of mentoring in the academic setting using the example of aging of dementia, as well as to focus on mentoring of women and underrepresented minorities. We conclude that there is a need for more women and diverse faculty in research and in positions of leadership in order to advance the development of effective treatments of Alzheimer's disease and related dementias for a more representative population. To that end, we discuss multiple aspects of mentoring that contribute or detract from this goal. The lessons shared here apply to mentoring broadly.

Introduction

    A key component of academic medicine and research is mentoring the next generation of investigators. At its best, this can be a satisfying and productive long-term relationship, while at its worst, this can be frustrating and drive promising clinician researchers away from the field. On October 13, 2020, we held a virtual mentoring retreat at the Mass General Brigham (MGB) Center for Alzheimer Research and Treatment (CART) in conjunction with the Harvard Aging Brain Study and affiliated studies. The retreat consisted of four sessions, one hour each with 3-4 speakers per session moderated by an MGB faculty member. The speakers and moderators were primarily clinical researchers in the fields of aging and dementia. One goal of the retreat was to engage in a general discussion of mentoring in the academic setting since clinical research mentoring in aging and dementia has a lot in common with mentoring in other fields. That said, it also has unique features such as interacting with older vulnerable research participants who may have cognitive impairment and neuropsychiatric symptoms, measurement challenges due to frequent reliance on subjective or collateral report, and multifactorial etiologies clouding the biological and clinical findings. Considering the great need for more effective treatments for Alzheimer's disease and related dementias, it is critical that the next generation of researchers is trained in these various intricacies and beyond. This includes the training of more diverse investigators, who may in turn help address the significant gap in representation of diverse populations in clinical research.

    As such, another goal of the retreat was to discuss mentoring of women and diverse mentees. Women and underrepresented minorities have fewer leadership positions in academic medical centers, which affects both clinical care and clinical research. In 2009, a survey of over 1,000 Harvard Medical School women faculty showed that a little over half had a mentor, and of

those who did not about three quarters wanted a mentor[1]. Furthermore, mentor availability was endorsed as the most important characteristic, and mentoring about negotiation skills, career goals, finding collaborators, and balancing work-life were identified as gaps. A recent systematic review of mentoring of women in academic medicine revealed that women were very satisfied with available mentorship programs regardless of the structure or emphasis of the program, underscoring the need to systematically expand such programs[2]. Another systematic review focused on mentoring of underrepresented minorities in academic medicine demonstrated the lack of publications about such mentoring programs and pointed out several barriers, including a lack of institutional funding for such programs, the heavy burden on mentors, and inadequate participants[3]. One such model is the Peer-Onsite-Distance (POD) model developed at the University of Arkansas, which is a targeted, multi-level program tailored for the needs of underrepresented minorities[4].

In this brief article, we will share key points discussed during the retreat, feedback gathered from the audience, lessons learned, and future directions.

Speakers, moderators, and attendees: There was a total of 14 speakers, 6 of whom were women, and 2 of whom were minorities. There were 5 moderators, 3 of whom were women, and 1 of whom was a minority. The speakers were experienced mentors, primarily focused on aging and dementia across the disciplines of neurology, geriatric psychiatry, neuropsychiatry, neuropsychology, neuroimaging, neuropathology, and epidemiology from several leading institutions across the United States. One hundred and four people were invited to attend the retreat, 65% of whom were women and 36% of whom were minorities. The audience consisted

of junior faculty, clinical fellows, postdoctoral research fellows, research assistants, and research coordinators from the MGB network.

Definition of mentoring: We began the meeting by discussing the many definitions that have been proposed for mentoring, emphasizing that at the core there is an interaction between two people—a less experienced person (the mentee), who learns from the more experienced person (the mentor). Multiple titles are applied to the mentor, who may take on one or many of the roles implied in these titles: advisor, counselor, consultant, coach, guardian, guide, guru, overseer, protector, role model, sensei, sponsor, and teacher[5]. Due to these many roles, it is best for a mentee to have more than one mentor to ensure that many if not most of these roles are covered. It is critical that the mentoring relationship be based on trust, that it be intentional and not incidental, and that the goal of the mentor be to serve. The main goal of mentoring is not to further the mentor's own science but to identify and provide opportunities for the mentee. However, usually the mentee does give back to the mentor, which in turn does often further the mentor's research. The success of this interaction rests on trust that the mentor and mentee have in each other: Does the mentee trust that the mentor knows them, has the mentee's best interests at heart, and believes the mentee can be successful? As such, mentors have to be interested in mentoring for its own sake, not just to promote their own research.

Mentoring plans: It is important to establish the mentoring relationship in advance and to make clear the expectations for both mentor and mentee. Individual development plans (IDP's) can feel formal, but it is important to lay out a short-term (1 year) and long-term (5-10 years) plan in writing to force both mentor and mentee to think in advance about the mentee's goals and what

the mentee is trying to accomplish in their career. While the onus is on the mentee to set the goals, the mentee can share and discuss these goals with the mentor to refine them and make specific and actionable plans. Therefore, the process of setting goals is collaborative even though the final goals are set by the mentee. These goals should be discussed regularly to ensure the needs and goals of the mentee are met and are on track. It is important to keep in mind that mentees do not need to mirror their mentors. The mentor should listen to their mentee's goals, "encourage the heart" (that is, encourage the mentee to pursue their passion), help the mentee find their niche, and advise the mentee about their career trajectory.

What does a good mentor do? Broadly speaking, an effective mentor instills in every mentee the notion that they have independent value. The mentor helps the mentee figure out exactly what they want to study, and who they want to be. It is important not to focus just on the job title, but how the mentee wants to spend their time. When delving into details, an effective mentor focuses on giving the mentee access to data and research participants, access to resources, such as analytic tools and data analysts, and introduction to collaborators (networking/sponsorship). The mentor protects the mentee from distractions early on and over time. The mentor helps the mentee create and stick to short- and long-term goals. The mentor helps with manuscript writing, grant applications, and speaking opportunities. The mentor highlights activities that bring community together. It is also important for the mentor to foster mentoring opportunities for their mentees. To that end, the mentor can enlist mentees at all levels to participate in other external mentoring and career development activities (ex: mentoring within youth programs). The mentor encourages the mentee to mentor someone junior and guides the mentee in the process. Finally, the mentor helps the mentee become independent and find the best opportunity

to move to the next career stage. With that in mind, learning how to mentor others and do so well may be challenging, and although there are not many structured programs for teaching mentoring in academia, you can teach people how to become a mentor (Ex: UCSF Mentor Development Program[6, 7]).

Successful vs. unsuccessful mentor-mentee relationships: It is important to understand what a successful mentor-mentee relationship might look like for those involved—a hands-on vs. hands-off approach, involved (often less senior mentors) vs. less involved (often more senior mentors). The mentor should identify with the mentee what it is they need. It is also critical to set expectations early for how to measure success—academically, this may manifest as publications, funding, speaking engagements, and promotions; however, just as important are feelings of satisfaction, mutual respect, trust, a sense of a safe place to express opinions, and a feeling of being part of a team. The mentor should anticipate early on how they will help the mentee transition to independence as the mentee grows. For instance, the mentor might transition from a senior author position on a manuscript to second to last or third to last author when the mentee is more established and ready to be the senior author. Another important question is how will the mentee launch their own lab at the mentor's institution or elsewhere depending on what is best for the mentee's personal and professional trajectories?

Mentor-mentee relationships do not always proceed smoothly. It is important to accept when a mentee-mentor fit might not be mutually satisfactory or when the best outcome might be bringing the relationship to an end. In these situations, it can be very helpful to have the option of an outside perspective. There should be a way for either the mentor or mentee to consult with someone outside the relationship for advice (for example, speaking with an ombudsperson or a

department chair viewed as fair and supportive of both mentee and mentor). Recognizing a mismatch in the mentor-mentee relationship early on is critical in order to avoid poor interactions that could lead to unnecessary anguish and disruption and could greatly influence the career and quality of life of those involved.

Mentoring women: When mentoring women, it is often important to focus on confidence building. The mentor should discuss with the mentee how she can balance being successful and confident with the desire to be "liked", which is typically less of an issue for men. The mentee should know that it is okay to take advantage of being the "token" woman at first and then get asked back to work on projects, speak at conferences, etc. because of who you are, your confidence, abilities, and competence, rather than your identity as a woman. Since women are underrepresented in clinical research and positions of leadership in academic institutions, it is critical to foster programs that promote mentoring of women and equip them with the tools to be successful.

Mentoring diverse mentees: Similar to mentoring of women, there are limited programs focused on mentoring underrepresented minorities in academic research, and there is a lack of diversity in clinical researchers and those in positions of leadership. There are benefits of having diverse mentees within the group, and science is more exciting with a diverse team who can think about problems differently. Diversity in culture, as well as scientific discipline and background is catalytic. In clinical research, a diverse team also has a greater chance of recruiting diverse research participants. A crucial change to increase diversity among lab members is to move away from recruitment in "traditional" channels (ex: a colleague in Europe

suggests a trainee from their lab for a position). This requires looking for candidates through channels that have not been prioritized before and through a wide and transparent search process. Recruiting diverse lab members and mentees goes hand in hand with retention. Therefore, mentors must work on retaining them. Targeted opportunities can be helpful for retaining diverse mentees (for cultural diversity, women scientists, those with families, etc.). It is important to increase visibility for mentees of all backgrounds, establish partnerships (internal or external), and support cross-mentoring via a team of diverse co-mentors. Over the course of the mentoring relationship, mentors should initiate conversations about diversity or cultural differences, leaving the door open for dialogue in the relationship. This avoids laying the onus upon the mentee to bring it up or waiting for somebody to do something "wrong" before speaking about it. Finally, mentors should not assume diverse individuals want to work on diversity initiatives.

Mentoring mentees on a different path: It is important for mentors not to expect mentees to be like them. The only path a mentor knows well is their own, and unconsciously, a mentor may expect their mentees to have the same workstyle, work-life balance, and trajectory. However, there is more than one path forward for mentees. Mentors should specifically talk to their mentees about this. The mentor's career path does not need to match that of their mentees. Mentors should ensure their mentees have access to a role model or additional mentor who can speak to their differing aspirations. The mentor has to be open minded about "where" a mentee ends up, and not offended if they do not stay with the mentor. Consequently, mentors should not have a specific agenda for their mentees.

Work-life balance: Mentors should convey to their mentees that they need to find joy and significance in all corners of life—home, work, self, and community[8]. That said, the work-life balance is never perfect. Work is intense sometimes, and therefore mentors need to encourage mentees to focus intensely on family sometimes as well.

Audience feedback on retreat: Twenty attendees completed a post meeting evaluation survey, which consisted of 6 questions with Likert scale responses (see Table) and 8 open ended questions allowing for free text responses. The feedback was generally favorable. The audience reported the following strengths: 1) Having multiple speakers in different sessions; 2) the inclusion of speakers outside of CART; 3) hearing about different mentoring styles and experience from senior mentors; 4) hearing about formal methods of mentoring; 5) hearing anecdotes about mentor-mentee relationships with examples of challenges and successes; 6) discussing how to measure mentee success; 7) discussing the power dynamics of mentor-mentee relationships; 8) receiving tips about conflict resolution; 9) learning about the priorities of mentors and how they may differ from those of mentees; and 10) the question and answer portion of each session.

The audience reported the following weaknesses: 1) There was insufficient discussion about diversity and women and how to deal with sexism and discrimination; 2) it would have been helpful to have a clear theme or topic for each session; 3) they wanted to hear about the time commitment required for mentoring and how to communicate that to mentees; 4) there was a discussion by the mentors about when it is appropriate to end a mentoring relationship that is unsuccessful—they wanted more information about strategies that can help prevent or turn around such challenging relationships; 5) they wanted to hear from more junior investigators; 6)

they suggested involvement in future retreats of mentees at different stages; and 7) it could have been helpful to have breakout sessions with the speakers for small group discussions or to integrate workshop style sessions.

Conclusions: Mentoring the next generation of researchers is a privilege and duty for those who were mentored by others and have received the opportunity to become independent investigators and leaders in the field. Great strides have been made in the development and refinement of diagnostic assessments, clinical and biological alike, in the field of aging and dementia. However, truly effective treatments and preventions remain elusive. As we continue to tackle this challenging goal, the ranks of clinical and translational researchers must be grown and nurtured. Additionally, many of the natural history studies and most of clinical trials have suffered from limited diversity and have not been representative of the greater population at risk. To that end, it is critical to ensure that this new generation of researchers consists of more women and is itself diverse. Guiding them to find their voice and supporting them as they cut their teeth in their respective domains is their mentors' charge.

Table. Post meeting evaluation survey (20 respondents).

Question	Response
Please rate how well the program met your expectations on a scale of 1-5 (1=not at all, 5=very well)	4.3±0.7 (well – very well)
Please rate the content of the program on a scale of 1-5 (1=poor, 5=excellent)	4.2±1.0 (very good – excellent)
Please rate how well women and diversity issues were addressed during the discussions (1=not at all, 5=very well)	3.8±1.2 (well)
Please rate the format of the program (webinar, including brief talks followed by panel Q&A) on a scale of 1-5 (1=poor, 5=excellent)	4.3±0.8 (very good – excellent)
Please rate the duration of the program on a scale of 1-5 (1=too short, 5=too long)	3.7±0.6 (just right)
Please rate the overall quality of the program on a scale of 1-5 (1=poor, 5=excellent)	4.4±1.0 (very good – excellent)

Values represent mean ± standard deviation.

References

[1]   Blood EA, Ullrich NJ, Hirshfeld-Becker DR, Seely EW, Connelly MT, Warfield CA, Emans SJ (2012) Academic women faculty: are they finding the mentoring they need? *J Womens Health (Larchmt)* **21**, 1201-1208.

[2]   Farkas AH, Bonifacino E, Turner R, Tilstra SA, Corbelli JA (2019) Mentorship of Women in Academic Medicine: a Systematic Review. *J Gen Intern Med* **34**, 1322-1329.

[3]   Beech BM, Calles-Escandon J, Hairston KG, Langdon SE, Latham-Sadler BA, Bell RA (2013) Mentoring programs for underrepresented minority faculty in academic medical centers: a systematic review of the literature. *Acad Med* **88**, 541-549.

[4]   Lewellen-Williams C, Johnson VA, Deloney LA, Thomas BR, Goyol A, Henry-Tillman R (2006) The POD: a new model for mentoring underrepresented minority faculty. *Acad Med* **81**, 275-279.

[5]   Johnson WB, Ridley CR (2018) *The Elements of Mentoring: 75 Practices Of Master Mentors*, St. Martin's Press.

[6]   Feldman MD, Huang L, Guglielmo BJ, Jordan R, Kahn J, Creasman JM, Wiener-Kronish JP, Lee KA, Tehrani A, Yaffe K, Brown JS (2009) Training the next generation of research mentors: the University of California, San Francisco, Clinical & Translational Science Institute Mentor Development Program. *Clin Transl Sci* **2**, 216-221.

[7]   Feldman MD, Steinauer JE, Khalili M, Huang L, Kahn JS, Lee KA, Creasman J, Brown JS (2012) A mentor development program for clinical translational science faculty leads to sustained, improved confidence in mentoring skills. *Clin Transl Sci* **5**, 362-367.

[8]   Nash L, Stevenson H (2004) Success that lasts. *Harv Bus Rev* **82**, 102-109, 124.