

## Evaluation of a Virtual Culturally Aware Mentoring Workshop for Biomedical Faculty

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The Culturally Aware Mentoring (CAM) workshop was developed to help biomedical faculty gain awareness and skills to work more effectively with racially and ethnically minoritized mentees. The purpose of this paper is to present evaluation findings from a national cluster randomized comparative study in which CAM was delivered in an online format. We evaluated data from the primary arm of this study, which included 231 biomedical faculty from 12 universities. Overall, participants evaluated both the presentation and content of the online interactive intervention favorably, reporting it helped them become a more culturally aware mentor. They further suggested how the workshop may be improved. We discuss implications for mentorship practitioners and future research directions.

*Keywords:* biomedical faculty, minoritized mentees, culturally aware mentoring, online intervention, workshop

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### Introduction

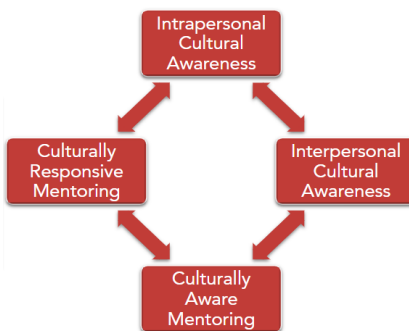
Mentorship is a significant determinant in mentee success. Fostering culturally responsive mentorship, whereby mentors show interest in and concern for students' cultural backgrounds and social identities (NASEM, 2019), is a key strategy to making graduate research training in the biomedical sciences more inclusive and equitable (NASEM, 2018; Rodriguez et al., 2022). While diversity initiatives are widespread across academia and beyond, many are not evidence-based (Moss-Racusin et al., 2014), and often take the form of lecture-style presentations or self-paced online modules. Responding to the need for evidence-based curricula to advance culturally responsive mentorship in the biomedical sciences, the Culturally Aware Mentoring (CAM) workshop was developed through National Institutes of Health (NIH) funding. The CAM curriculum is grounded in social and behavioral sciences research with design elements known to facilitate targeted attitudinal and behavioral change and that allow for assessment of the curriculum's effectiveness (Byars-Winston et al., 2018).

Pilot data showed promising impacts of the CAM workshop on mentors' attitudes and behaviors in both the short and long term (Byars-Winston et al., 2018; Womack et al., 2020). Mentors reported

that the insights and skills they obtained were not only applied to their mentees, but also extended to faculty and staff peer relationships. The purpose of this article is to report insights gained from survey evaluations of the CAM workshop with a new national participant sample, focusing in particular on how the workshop could be improved. These data will be useful for others designing diversity-focused interventions that target mentors in the science community. They provide insights into how CAM was experienced virtually during the COVID-19 pandemic, as many other mentor development trainings continue to be administered online.

### Overview of CAM Development

The CAM workshop, created through the NIH National Research Mentoring Network (NRMN), was designed as an advanced mentor training, providing a deeper dive into diversity issues than could be achieved through the Entering Mentoring series (House et al., 2018). The target audience was faculty and staff engaged in biomedical research training efforts, both those working deeply in efforts related to diversity, equity and inclusion (DEI) or those new to these efforts. The design aligned with Moss-Racusin's (2014) framework, grounded empirically and theoretically with active

**Figure 1***The Journey Toward Culturally Aware Mentoring (CAM CIMER, 2017)*

learning techniques, and drew heavily on multiple foundational theories, including multicultural and feminist theories, critical race theory, and transtheoretical/model motivation theory and incorporating multimodal learning formats (e.g., case scenarios, short videos) delivered in both short didactic and group discussions (Byars-Winston et al. 2018).

A full-day workshop, CAM was purposely designed to engage participants in DEI topics they typically neglect to consider in biomedical disciplines, and to develop new skills to apply to mentoring across cultural differences. While the core CAM principles apply to a broad range of cultural identities, developers decided to focus on depth rather than breadth. Race was chosen because it is the topic that scientists are often least prepared or inclined to discuss (Byars-Winston et al., 2020; Prunuske et al., 2013). Further, although the design was created to be applicable to all faculty and others engaged in scientific diversity work, the CAM authors focused on those who made up the racial majority in the biomedical sciences, namely white faculty. To offload some didactic material and focus on interactions and skill development during the workshop, an online module was developed as pre-work. This self-paced module, called iCAM (Introduction to CAM), has been previously described (Black et al., 2022; Byars-Winston et al., 2018; Eiring et al., 2024). As such, the CAM intervention consists of both the workshop and the online iCAM module. A fundamental CAM framework was established in which the learning 'journey' to culturally responsive mentorship begins with intrapersonal reflection and self-education about one's own sociocultural identities and worldviews, enabling interpersonal understanding and engagement, which increases cultural awareness in mentoring. A set of CAM principles are provided along with the opportunity to practice applying them in a role-playing scenario. Thus, the workshop is organized in three sections: intrapersonal, interpersonal, and skill building. This learning journey is a lifelong process, as self-awareness grows, and practice enacting CAM skills subsequently informs mentorship effectiveness (see Figure 1). Critical

to the workshop implementation are highly skilled facilitators who received more than 30 hours of preparation to deliver the intervention both in person and virtually. They were also intimately involved in the ongoing refinement of the curriculum based on participant feedback and their collective experiences. House et al. (2023) describe the framework for and details about their preparation to be culturally responsive facilitators.

The current article describes evaluation data from one component of an NIH supported research award, which enabled the CAM team to ask the question - what are the comparative outcomes of a half-day versus a full-day CAM workshop? We pursued two aims in this study. In AIM I, we employed a cluster randomized trial design to compare the two doses. The online pre-workshop module, iCAM, as a stand-alone module, was included as a third study arm as many had asked if similar impacts could be had with a self-paced training. In AIM II, we conducted case studies at two institutions to get a deeper understanding of how the knowledge and skills gained through CAM are diffused into graduate departments and programs. Our study was about to launch when the COVID-19 pandemic hit, and we had to rapidly pivot to a virtual delivery format. The half-day vs. full-day workshops were converted to be either two or three, 3-hour sessions, respectively, with a week between each session. The self-paced online iCAM module remained the same. The full study results for AIM I and AIM II will be reported elsewhere; here we focus on evaluation data from participants in the full CAM intervention, consisting of iCAM plus the 3-session virtual facilitated CAM workshop.

## Methods

### Study Sites and Population

Participants for the full study were recruited from graduate research training departments and programs in the biomedical sciences from 34 research intensive universities in the US. These data, as they are limited to participants who received the full intervention, includes 12 of those

**Appendix**

**Table 1**  
*Participant Demographics*

<b>Demographic</b>	<b>N</b>	<b>%</b>
<b>Race/Ethnicity</b>		
American Indian/Alaskan Native	6	2.1
Asian	42	14.9
Black or African American	5	1.8
Hispanic, Latinx, or Spanish Origin	27	9.6
Middle Eastern or North African	10	3.6
Native Hawaiian or Other Pacific Islander	0	0
White	209	74.4
Some other race, ethnicity, or origin	4	1.4
<b>Gender</b>		
Female	147	52.1
Male	135	47.9
Non-binary	1	0.4
Transgender	0	0
Other	0	0
<b>Career Stage</b>		
Assistant Professor	83	29.2
Associate Professor	83	29.2
Full Professor	116	40.8
Other	2	0.7

Note: Total N = 286; mentors could choose more than one racial category.

**Table 2**  
*Ratings of iCAM Components*

	<b>N</b>	<b>Mean (SD)</b>
<b>Readings</b>	213	3.8 (0.97)
<b>Videos</b>	213	4.0 (0.99)
<b>Key Terms</b>	213	3.8 (0.95)
<b>Discussion Slides</b>	214	3.9 (1.06)
<b>Reflections</b>	213	3.9 (1.04)
<b>Readiness assessment</b>	208	3.5 (0.97)

Note: 1 = not valuable and 5 = extremely valuable. SD = standard deviation.

sites. Across all sites we targeted departments and training programs that had a minimum enrollment of 15% PhD students from underrepresented racial/ethnic groups, the rationale being that faculty participants could have occasion for immediate use of their cultural awareness skills with minoritized trainees. To be eligible, participants had to be actively mentoring at least one graduate student,

meet workshop attendance expectations, and have participated in  $\geq 4$  hours of previous mentor training. Interested faculty without previous mentor training were offered a free, evidence-based, online option through NRMN and the University of Minnesota to meet this requirement (Weber-Main et al., 2019). All participants signed an informed consent statement that was embedded

**Table 3***Ratings of CAM Workshop Activities*

	Effectiveness		Most Challenging
	N	Mean (SD)	N
iCAM Debrief	208	3.7 (0.83)	1
<b>Intrapersonal</b>			
Culture Box Activity	215	4.0 (1.03)	5
Personal Reflection #1: Racial Identity	213	3.9 (0.85)	6
Intersession Reflection #1	211	3.9 (0.85)	7
<b>Interpersonal</b>			
Video: Tale of O	208	4.2 (0.97)	5
Personal Reflection #2: Culture of Your Research Group	210	4.0 (0.77)	6
Seeing Color and research on colorblindness	209	4.0 (1.00)	7
I Fit the Description	205	4.1 (0.88)	17
<b>Skill Building</b>			
Principles for Culturally Aware Mentoring Practices	204	4.2 (0.73)	2
Intersession Reflection #2	203	3.8 (0.86)	6
Research on Broaching Challenging Conversations	201	4.1 (0.85)	9
Personal Reflection #3: Race/Ethnicity in the Mentoring Relationship	204	4.0 (0.86)	11
Case Scenario: Trainee Differences	194	4.3 (0.84)	7
Role Play: Trainee Differences	192	4.3 (0.93)	64
Action Plan: Next Steps in Your CAM Journey	199	4.0 (0.89)	11

Note: 1 = very ineffective, 2 = ineffective, 3 = neither effective nor ineffective, 4 = effective, 5 = very effective. SD = standard deviation.

within the presurvey, which served to enroll them in the study. The demographic characteristics of the participants are summarized in Table 1.

### Data Collection and Analysis

As noted, the data for this paper were collected as part of a large NIH study (U01-GM132372U01). The data collection and consent procedures were reviewed and deemed exempt by the Education and Social/Behavioral Science Institutional Review Board at the University of Wisconsin-Madison (#2019-1240). Data were collected between October 2020 and January 2023. Demographic data were collected on the presurvey; all other data were collected on a survey administered immediately after the intervention. A total of 286 mentors in the 3-session condition completed the presurvey and 231(81%) completed the post.

All quantitative survey data are descriptive and were analyzed using Stata 18. Open-ended responses were coded in NVivo using an inductive iterative process by one of the authors (SCH) and

all codes were reviewed by a second author (EE); disagreements were discussed and adjustments made until consensus was reached. All quotations are included verbatim, without corrections made for typos, grammar, or punctuation errors.

### Findings

#### Evaluation of the Intervention

All participants were asked to complete the self-paced online module iCAM, which most (88%) mentors did. We asked participants to rate the value of each module component on a 5-point scale with 1 being 'not valuable' and 5 being 'extremely valuable' (Table 2). Means ranged from 3.5 to 4.0, indicating that all components were regarded as 'valuable.' Participants were further asked the extent to which they agreed with the statement "The iCAM module helped me prepare to engage in the Culturally Aware Mentoring Workshop." Responses were rated on a 5-point scale (1=strongly disagree, 2=disagree, 3=neutral,

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**Table 4**  
*Workshop Structure and Facilitation*

	<b>N</b>	<b>Mean (SD)</b>
The amount of time dedicated to this workshop was sufficient.	217	4.7 (0.93)
The pacing of the workshop felt right.	217	4.3 (1.26)
The workshop content was presented in a respectful and sensitive manner.	217	5.6 (0.69)
The facilitation in an online format was effective and engaging.	217	5.0 (1.18)
The facilitators were knowledgeable about the workshop content.	217	5.6 (0.78)
The content was organized and easy to follow.	217	5.4 (0.78)
The objectives of the workshop were clearly defined.	217	4.9 (1.27)
The Google site for the workshop materials was well organized and accessible.	216	5.0 (0.89)

Note: 1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = somewhat agree, 5 = agree, 6 = strongly agree. SD = standard deviation.

**Table 5**  
*Who*

<b>Topic (# of respondents)</b>	<b>Participant Comments</b>
<b>Demographics of participants (5)</b>	<p>If the participating faculty also have cultural diversity, it may help to have more diverse dialogues.</p> <p>if this is to be about cultural diversity and a lot of debate revolves around the cultural aspects of African-American culture in the US, it will be appropriate that the African-Americans are not represented simply by ONE facilitator.</p>
<b>Target Audience (5)</b>	<p>It should also include mentoring all trainees, including postdocs.</p> <p>I found the workshop geared towards a white majority audience and the discussion was usually brought back to the challenges white women face in academia. There weren't enough faculty of color to broaden the discussion.</p>

4=agree, 5=strongly agree). Most agreed it was helpful (mean=3.9, sd=0.87; n=214).

As shown in Table 3, we also asked participants to rate the effectiveness of each activity within the facilitated CAM workshop in helping them become a more culturally aware mentor, as well as choose one activity that they found to be the most challenging. "Effectiveness" was rated on a 5-point scale (ranging from 1=very ineffective to 5=very effective). All activities were found to be 'effective' or 'very effective,' and each was selected as the most challenging by at least one participant. The activity receiving by far the most votes was the role play (n=64), followed by the "I Fit the Description" activity in which participants discuss the lived experience of a Black professor who was profiled and detained by police (n=17). There was some correlation between those activities which participants identified as effective with those they chose as most challenging. For example, the iCAM debrief received the lowest effectiveness rating (3.7) and only one person chose it as the most challenging activity, whereas the role play

received the highest effectiveness rating (4.3) and was also deemed to be the most challenging.

Participants were also asked to rate their agreement with various aspects of the CAM workshop (6-pt scale: ranging from 1="strongly disagree" to 6 ="strongly agree") (Table 4). They 'agreed' or 'strongly agreed' with each of the statements, with items about the dedicated time and pacing receiving the lowest ratings and those related to the facilitation receiving the highest. Similarly, when participants were asked to rate the overall facilitation on a 4-point scale (1=poor, 2=fair, 3=good, 4=excellent), the mean score was 3.5 (n=214, sd=0.74).

### Intervention Improvement

All participants were asked the open-ended question, "What could be done to improve this training?" A total of 144 of the 231 mentors (62%) who completed the post survey provided a response. Participant suggestions for improvement fell within four broad, albeit interrelated categories:

**Table 6**  
*What*

Topic (# of respondents)	Participant Comments
<b>Broader and Beyond Race (19)</b>	<p>Include more about culture from an international perspective. About 40% of our trainees are international and present more differences and struggles than trainees of different races who are all American.</p> <p>I thought the “CAM” title was misleading -- based on what I knew about the workshop beforehand, I expected to talk and learn a lot more about other dimensions of culture, like nationality or disability or gender or religion or political affiliation.</p> <p>expand to consider cultures other than Black and Brown Americans.</p>
<b>More Skill Building (45)</b>	<p>I would focus more on the skill building as opposed to the background on race and racial identity. In the current climate many of the issues that were covered have now reached a point where people are much more aware of these issues being important and the presence of them, the bigger question is how to effectively engage with mentees, which was only really addressed in the final session and most effectively during the role playing session. I would build more on this and provide feedback on ways to approach culturally sensitive issues.</p> <p>The exercises and role plays during Session 3 were excellent. More exercises like these, and earlier on, would help to improve the workshop.</p> <p>I think the audience was really wanting to soak up as much practical advice as possible. This could be approached in part by having more time to cover the principles, and more time to practice with cases/role plays.</p> <p>More role plays, addressing the more challenging situations that actually arise in lab - like bi/multi-racial identities, passing, how to have conversations with everyone (not just people who are obviously UR in science).</p>
<b>Not Deep Enough (5)</b>	<p>I would have liked it to go deeper and for there to be an even more proscriptive session.</p> <p>As with most workshops, material is pitched for “beginners” so to speak, but the participant population represents individuals looking for more advanced techniques and evidence-based approaches to improving mentorship.</p>

‘Who’ - related to the participant demographics or the target audience

‘What’ - related to the nature of the training content

‘When’ - related to the length and pacing of the training

‘How’ - related to the way in which the training is delivered

Each of these categories was subdivided into smaller categories; example quotes are provided for each of the more prevalent categories. The number of responses in each category are included; percentages below are based on the total N (231), not the number who responded (144). Some responses were coded into more than one category.

### **Who**

First, ten participants (4%) commented on the composition of the faculty/mentors attending the sessions (Table 5). Given that discussions of race are central in the CAM intervention, some mentors

noted the lack of ethnic or racial diversity among their fellow participants and stated their desire for the presence of more faculty of color to broaden workshop discussions. Second, participants suggested that the CAM intervention could be targeted to a broader audience, both in terms of the mentors themselves and the career stage they are mentoring.

### **What**

As shown in Table 6, 69 participants (30%) felt the focus of the CAM workshop should be shifted. Rather than be centered on race, some felt it should span a broader array of diversity topics, in particular the experiences of international students. It was further suggested that the title in itself was misleading, that it presupposes a greater range of cultural diversity topics might be covered. Others merely felt that race should be addressed in a more nuanced and inclusive way, considering the experiences of more racialized groups.

Others suggested the focus be adjusted by simply going into more depth in a particular part of the workshop. In particular, there were many comments that they would have liked the final section of the workshop, Skill Building, to be longer or more

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**Table 7**  
*When*

Topic (# of respondents)	Participant Comments
<b>Too Long (8)</b>	I think an equally valuable workshop could be held in half the time. Too long - I think it could fit in 2 sessions instead of 3.
<b>Faster Pacing (10)</b>	A faster pace that allowed more depth would be better the pace for the first session could be faster, perhaps it could be shortened? The third session was the most useful
<b>Too Short or Desired Follow Up (6)</b>	I wanted one more workshop! I left the 3rd workshop and the role playing experience still feeling uncomfortable and lacking the skills to address race. I want hoping for more tangible skills and we brainstormed a few of these right at the very, very end, but this would have been helpful to spend more time here.  Perhaps have refresher short courses every year or so.  Please continue offering this course. In addition, creating additional advanced versions of the course would be amazing!

**Table 8**  
*How*

Topic (# of respondents)	Participant Comments
<b>More Guidance (20)</b>	More involvement and insight from the facilitators would have been useful. If the goal is to arrive at more culturally aware mentors/mentoring, it seems like a missed opportunity merely to have faculty with no training (and many with no direct experience working with diverse trainees) talking about their experiences without directed feedback from the facilitators  More readings. More historical perspective on systemic racism.  Perhaps there could be more guidance on the role playing exercise. I worried that as the student Allen, I might say something inappropriate in that character.  The training was mostly discussion rather than instruction on how to approach culturally responsive mentorship. I would've like more guidance on how to approach challenges.
<b>Issues with Facilitation or Facilitation Style (10)</b>	During some of the breakout sessions, someone would say something racist or sexist - and it fell on the [name of university] person in the room to point this out. Certainly on the first day, it would be good to have a facilitator/observer in the break out rooms who would not participate much in the discussion except for keeping it on track and calling out racist/sexist/ etc. comments.  Increase participation of all more than relying on volunteers.  The fact that it is a study apparently made it inflexible, whereas I think one improvement would be to tailor the training to participants.
<b>Logistics - Breakout Groups (10)</b>	Make sure that breakout rooms are truly randomized/mixed up. there were several people i was with multiple times and several people I was never grouped with. I would have preferred to have more variety--no repeats unless its round 2 of the same activity  More time in breakout groups.... we would just get into the discussion and then be brought back to the room. In larger group discussions, unless the person said who they were in a group with, we didn't know, which felt awkward.

developed. There were general calls for more strategies, practical skills and advice in addition to calls for more focus on specific components of this section, including the CAM Principles, case studies, and role play. Several others voiced that the workshop was too elementary, either in general

or for the specific mentors who attended their session. Finally, a couple of participants suggested that some discussion of institutional change would be beneficial.

## **When**

While overall mentors reported that the amount of time dedicated to the workshop was sufficient (4.7/6.0), 24 of the participants (10%) suggested the length or pacing of the workshop should be adjusted (Table 7). Some participants voiced both the opinion that the workshop was too long and that the content could be covered in less time. While overall participants indicated the pacing felt right (4.3/6.0), some felt that it could be increased. In contrast, there were those who felt it was too short, suggesting that more time would provide space for additional discussion and skill development. Similarly, there were those who did not feel that the length of the workshop should be extended but redistributed, with more time dedicated to the final section on Skill Building. Still others suggested that a follow-up course would be helpful, either as a refresher or with more advanced material.

## **How**

As summarized in Table 8, 40 mentors (17%) noted how the workshop could be improved in terms of the way it is delivered. This included suggestions that ranged from the level and type of guidance provided to logistical concerns. First, many wanted more guidance, either from facilitators or through didactic materials, feeling that relying on their peers was inadequate. Others asked for more guidance about specific activities, especially the role playing exercise, which was challenging for many. Second, some expressed concerns about facilitation, including the way facilitators managed troubling comments by other participants. Others suggested that facilitation could be better tailored for each group.

Many of those with logistical concerns voiced an opinion on how breakouts or small group discussions could be better managed in Zoom. This included comments about the composition of mentors within those groups or the time spent in breakout rooms. There were also a few comments on communications and materials distribution and a couple who noted they would have preferred to meet in person. Finally, there was one mentor who suggested that the workshop be made mandatory, at least for some mentors.

## **Positive Feedback**

Finally, nine mentors (4%) responded to the question for how the workshop could be improved by using the space to instead highlight what worked well in the CAM intervention. For example, one mentor wrote, "The content I engaged with was outstanding, and the perfect balance of engaging and not overwhelming." Another noted that "The workshop was really well structured for the Zoom environment. I really thought the pacing was excellent."

## **Discussion**

The CAM intervention was developed to support faculty in the biomedical sciences in more effectively mentoring a diverse range of mentees. Its design aligns with guidelines proposed for effective diversity initiatives by Moss-Racusin et al. (2014) in that it: 1) is theoretically founded and evidenced-based; 2) employs active learning techniques; 3) frames issues of diversity in terms of collective responsibility rather than individual blame; and 4) has proven efficacy and continues to be studied using rigorous research methods across different groups. While the full analysis of the measurable outcomes of the randomized comparative trial are ongoing and will be reported elsewhere, here we provided a glimpse of CAM's perceived effectiveness from a national sample of faculty mentors engaged in graduate research training.

These evaluation data, collected from over 200 faculty mentors across twelve institutions nationwide, demonstrate that participants actively engaged in CAM to the level of providing thoughtful reflections on when and how it was effective, gained insights on culturally responsive mentorship practices, and offered ways to increase the workshop's effectiveness. They found value in the iCAM module and thought the CAM workshop activities were useful in helping them become a more culturally aware mentor. It is worth noting that many of the activities rated as most challenging were also rated as highly effective, suggesting that being challenged inspired growth rather than impeded participation. Mentors also rated the workshop facilitation, structure, and organization favorably.

These findings are consistent with earlier assessments of the CAM intervention's effectiveness (Byars-Winston et al., 2018; Womack et al., 2020). The current findings are significant not only because we report on a national sample with a more diverse population of mentors than the pilot study (Byars-Winston et al., 2018; Womack et al. 2020), but because it is the first time the CAM workshop was assessed as a fully virtual intervention. When both the COVID-19 pandemic and the resurgence of national focus on anti-Black racism occurred in 2020, there was some hesitancy as to whether or not a challenging topic like race could be adequately translated to an online format. Yet our current findings are very comparable to those from in-person CAM interventions. For example, the activities rated as most effective in the pilot study were the Tale of O video, Culture Box, the Trainee differences case scenario and subsequent role play, and the CAM Principles; all of these activities were also given the highest ratings in the current study. It should also be noted that some of the activities that received lower ratings in the pilot study have been modified or replaced in the current CAM workshop. These modified or newly developed activities received comparably higher ratings in the current study.



Roughly 62% of participants chose to provide a suggestion for improving the workshop. Since a parallel question was not asked about what they liked about the workshop, it is unclear if non-respondents had no suggestions because they were highly satisfied, or merely did not take the time to comment. Among those who did offer a response, suggestions were made about who the target audience should be, the focus of the content, the pacing and length of the workshop, and how it should be delivered. Below, we discuss each of these points when considering how the current CAM intervention might be further modified and conclude with considerations for facilitation and future directions for addressing institutional diversity change efforts.

### Directions for Quality Improvement of CAM Workshop

First, *who* the workshop targets could be expanded. Because the current intervention was part of a randomized trial, we chose to limit registration to the mentors of PhD students for greater uniformity. The CAM principles and content are more broadly applicable, and outside of the trial, the workshop has been implemented with faculty who mentor trainees across career stages, including junior faculty. In addition, while content was originally targeted toward white faculty, those who identified as having minoritized identities have also reported benefits from the intervention (Womack et al., 2020).

Second, among those who made suggestions about *what* the focus of the content should be, there were those who thought that too much emphasis was placed on race, especially for a workshop titled “Culturally Aware Mentoring.” We raise a few points in response. First, we have now clarified in pre-workshop communications that race will be at the center of discussions. Second, the workshop title refers to the notion that we all have culture, which is why the first CAM section focuses on intrapersonal reflection; it is important to understand one’s own cultural lens in order to understand how it impacts one’s mentoring relationships. Third, as noted previously, the decision to focus on race was deliberate because it is the topic that many research scientists are least comfortable discussing (Byars-Winston et al., 2020; Colón-Ramos & Quiñones-Hinojosa, 2016; Prunuske et al., 2013) and one that many research trainees from underrepresented racial/ethnic groups welcome being discussed (Muller et al., 2012; Puritty et al., 2017).

We acknowledge that the workshop content has comparatively more focus on the experiences of Black Americans, does not provide depth into any racialized groups in the US, and does not delve into the ways race is constructed internationally. Ideally these nuances would be explored, workshop time constraints notwithstanding. In the original pilot of CAM, we justified attention primarily on Black and also Latine research trainees given the

availability of published studies on their research training experience and mentorship needs from which we could construct intervention content. At the time, we found scant scholarship on the mentorship and training experiences of individuals identifying as American Indian/Native Americans and none for those identifying as Southeast Asian. Further, while we did not originally intend to focus on anti-blackness, because of the history of colonialism and the trans-Atlantic slave trade, such a focus is relevant to the goals of CAM given that anti-blackness is at the core of racism both nationally and internationally (Kaur 2020; Whitten and Torres 1998). Significantly, the current CAM training was implemented concurrent with George Floyd’s murder in 2020, spurring many campuses to intentionally provide opportunities for reflection on racial justice for Black Americans (NASEM, 2023), a focus already included in the CAM workshop content. That said, the CAM principles are applicable to other aspects of social identity and there is merit in discussing how they might be applied to international students, LGBTQ+ students, those with disabilities, and others. We do think that additional follow-up discussions would be beneficial and we have encouraged sites to consider convening such meetings. We are also considering the development of a more advanced follow up workshop to build on learnings and behavioral changes catalyzed by the current intervention.

The most commonly expressed feedback about the focus of the content was that more time and attention should be given to the skill building portion of the workshop. These participants expressed wanting more time dedicated to discussing and applying the CAM principles, potentially through additional case scenarios and role plays, to discuss the implications of various approaches. This portion of the workshop was perceived to be the most practical. There are two ways we are addressing this feedback. One is that we have begun to emphasize and make more transparent that skill development occurs throughout the course of the workshop. For example, the Culture Box provides an opportunity to reflect on and practice sharing stories about their own identities in an academic setting, just as we suggest they judiciously share with their mentees. Second, we have tried to slightly truncate some activities in the second section, so that more time can be dedicated to the role play discussion and action plans. We have further considered adding 30 minutes to the workshop, providing additional space for dialogue.

Third, as to workshop timing, the ‘*when*’ responses, some participants suggested that the pace be increased, and that CAM could be shorter. We designed the pace of the workshop to provide cognitive space for participants to question and challenge their own cultural assumptions and biases, given cognitive research on how slowing down, reflecting on your assumptions, and seeking alternative perspectives are effective means

of reducing implicit bias (House et al., 2023; Kahneman, 2011). Further, a shorter version of CAM is under study as part of the larger randomized trial.

Fourth, participants made suggestions for *how* the workshop should be delivered. The most common feedback entailed requests for additional guidance, be it from facilitators and more prescriptive content. Many of these comments also centered on this skill building portion of the workshop and the role play activity in particular. Some also seemed to want more concrete and definitive advice as well as didactic content to gain insight into minoritized groups' perspectives, particularly as some did not trust their mostly white peers' perspectives in the workshop. This suggests that allowing graduate students to voice their concerns via a survey or anonymous qualitative information may be useful to include in the CAM intervention to prepare faculty to hear students' distinct voices on diversity and mentorship.

The CAM workshop is a process-based curriculum that focuses on utilizing discussion for active learning, with preparatory didactic content introduced through an online self-paced module. The process-based foundation relies on sharing CAM principles and facilitating interactive discussions that guide participants to apply those principles rather than providing prescriptive answers (Hood Cattaneo, 2017). We also emphasize that culturally responsive mentorship is an ongoing learning process that requires continuous effort. Participants are provided with additional brief materials that include strategies for continued understanding of their own cultural lens and ways to learn about others as well as additional relevant readings. Facilitators also responded to participant requests for more guidance by being more transparent about their role, discussing why they were not just giving them 'the answer.'

### Additional Considerations

We cannot emphasize enough that the facilitators who led this workshop had extensive training as a group and on their own prior to the current study, in addition to quarterly meetings throughout the trial to discuss ongoing facilitation concerns (House et al., 2020; House et al., 2023). This strong facilitator preparation is reflected in participants' ratings of confidence in the facilitators' skills and competence. Even so, some participants expressed concerns about the treatment of people of color while in 'unmonitored' Zoom breakout rooms. The facilitators became aware of the mistreatment of some participants of color during breakout sessions during the course of the trial. It was discussed among the facilitator group and was decided that having facilitators popping in and out of breakouts would be too disruptive and largely ineffective. They instead added 'see something, say something' to the list of ground rules, encouraging participants to let a facilitator know should they witness any disrespectful or

abusive behavior while in breakouts. This example points to the real challenges of leading DEI trainings and the importance of having both a co-facilitator and a community of practice with whom you can discuss concerns.

There were comments that while uncommon, merit some discussion. First, while only one participant suggested this training be mandatory, we have heard this suggestion elsewhere. We highly discourage making these trainings compulsory; they are designed to make good mentors better, not as remediation for problematic ones. Given this is a discussion-based curriculum, those forced to attend are also likely to contribute little to discussion or even disrupt it. Second, there were a couple of mentors who suggested adding content to support institutional change. While time is again limited, we do acknowledge the importance of addressing structural biases and have considered ways to seed the conversation on institutional change. Indeed, change must occur at both the individual and institutional levels. As such, we have also encouraged institutions implementing CAM to consider how it fits into broader professional development efforts to improve the climate for mentees (which AIM II of the larger study addresses). Departments and DEI staff in academic institutions play an important role in providing the space for creating, sustaining, and monitoring diversity efforts, increasing learning opportunities for faculty mentors, and improving the culture and climate of biomedical fields. Changing mindsets and behaviors is a critical first step in broader organizational change (Dee & Leišytė, 2016; Garvin, 1993), which can be best achieved with intentional, structured activities such as the evidence-based CAM intervention.

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