Diversity in the Biomedical Research Workforce

Session Transcript: 2022-2023 Grants Conference

Dr. Erika Boone: So, hello, everyone. Thank you all for joining today's panel discussion focusing on diversification of the biomedical research workforce. My name is Erika Boone, I currently serve as the Director for the Division of Biomedical Research Workforce, and I'm going to be serving as your moderator today. Thank you for joining us for today's panel instruction, again, focusing on diversification of the biomedical research workforce. Diversity is inextricably tied to the success of the NIH mission, thus ensuring diversity within the extramural biomedical workforce is of the utmost importance.

Today we're going to talk about programs that can be used to broaden the face of science. I hope that you're ready to take notes, because today's panel session will be chock full of information. I'm absolutely honored to be joined by an all-star lineup of panelists today that are going to discuss how to navigate NIH programs, strategies, etcetera, that you should be keeping in mind when you're planning and executing your career, and more.

All right, enough of me chatting away -- let's introduce you to today's panelists, who will serve as your guides for the next few minutes. So we are joined by Dr. Jean Shin, who is a Supervisory Social Scientist Analyst within the Office of the Chief Officer for Scientific Workforce Diversity, or COSWD. Next is Dr. Lauren Hill -- errrrr! She is the Director -- or Deputy Director, rather, I gave her a promotion -- for the Office of Disparities Research and Workforce Diversity at the National Institute of Mental Health, or NIMH. And then lastly, but certainly not least, and one of my favorite people, Dr. Marguerite Matthews. She is Program Director for the Office of Programs to Enhance Neuroscience Workforce Diversity, or the OPEN Office at the National Institute of Neurological Diseases and Stroke, or NINDS.

Here is our outline for today. So these are our topics. We're going to be talking about why diversity matters to science, and to NIH. You'll get an NIH primer, or an NIH 101, a primer for Early-Stage Investigators and first-time applicants, and then we'll talk a little bit about strategies to support your research training and career continuity.

So now I'm going to turn things over to Dr. Jean Shin.

Dr. Jean Shin: Thank you, Dr. Boone. And good morning, and welcome to everybody. Thank you for joining us today. My role is to just give you a brief introduction to why diversity matters to both science and to NIH. And on the science side, this is a summary of a study of 2.5 million scientific papers which shows various types of diversity lead to higher impact factor publications, as well as a greater number of citations. Some of you are probably familiar with Freeman and Huang's 2015 paper in the Journal of Labor Economics. In that paper, they showed that a lack of ethnic diversity in multi-author papers actually lowered the impact factor, as well as the citation percentile of those papers. Also, geographic diversity and information diversity both increased impact factors and citation percentiles. And, so this is just one important, but one of several studies that exist that point to how diversity improves science.

Now with that said, here at NIH, we are aware that there is a lack of utilization of the full talent pool that exists out there. And here, just looking at race and ethnicity and racial and ethnic representation among NIH R01 and equivalent grantees, and then comparing those grantees across the STEM doctoral workforce, and also to the U.S. population, you can see the numbers and percentages that exist across racial and ethnic groups. For White and Asian groups, the percentage of R01 equivalent awardees as well as the STEM workforce are actually higher than the percentage of that population in the United States. Whereas for Black and Hispanic individuals, the reverse is true: that percentage of R01 equivalent awardees and those in the STEM workforce are actually far lower than the percentage in the population.

It's with those figures in mind that, in fact, our office, the one that I work at, the Chief Officer for Scientific Workforce Diversity, or COSWD office, was founded at NIH in 2014. It was based really on a lot of attention being paid to the gap in R01 and equivalent grant awards that were given across racial and ethnic groups. And over time, our office has had a mission and a vision develop that you can see on screen here. Our current Chief Officer, Dr. Maria Bernard, has stated in a lot of presentations and documents that exist, which you can find on our website, which is listed below, at diversity.nih.gov, that our vision is to enable NIH and NIH-funded institutions to benefit from a full range of talent, fostering creativity and innovation in science. And the intent of our mission is to be the NIH thought leader in the science of scientific workforce diversity, using evidence-based approaches to catalyze cultures of inclusive excellence. I wanted to point out that if you go to our website, you'll see the 2022 to 2026 COSWD strategic plan, in which the organization of which is built around three principles, building the evidence, disseminating the evidence, and acting on the evidence. For the interest of time, I'm going to go ahead and jump to what we do, and something to share with all of you in terms of disseminating the evidence. You will have a copy of this slide show, which has links to what I'm about to describe.

For disseminating the evidence, the COSWD office shares evidence-based insights through several communication channels that I think are really worth noting. Number one is our now not quite new scientific workforce diversity seminar series, or SWDSS, where we host renowned researchers to share the latest research on scientific workforce and diversity topics, engaging with interested professionals and researchers at NIH and beyond. Our -- If you go to the page, you'll see that our last event, which was held in November, focused on the impact of diversity supplements on the biomedical research workforce, and career trajectories and related items. And the ones that we have planned here for the first part of 2023 focus on a soon-to-be-released National Academies Report on anti-racism, diversity, equity and inclusion, as well as the role of mentoring in enhancing diversity in the biomedical research workforce. So stay tuned for those. And you'll see those on our page, if you go there. You also will see links on our page to our bi-weekly blog and our quarterly newsletter, which goes to a variety of different topics, both within and outside of NIH in terms of their focus. And finally, Dr. Bernard and colleagues have published manuscripts in high-impact journals, some of which are listed here. And again, we invite you to see the variety of topics and their range of diversity, equity, inclusion and accessibility topics are covered in these articles. Because I think they really do represent the full range of items that our office is interested in.

Finally, in terms of acting on the evidence, we advance successful programs in collaboration with stakeholders to facilitate broader impact; one of which is a recruitment search protocol that is being used across NIH, but now also getting interest at institutions outside of NIH in terms of identifying qualified, diverse talent. We also very recently have released our second iteration of the DEIA mentorship supplements, and again, this can be found on our website, that catalyzes recognition of DEI and mentoring scientists with already-funded research. So this is an FOA that has a deadline of February 17th. And finally, in the first quarter of 2023, you will also see a release upcoming of a prize competition for institutional excellence in DEIA, which aims to acknowledge transformative cultures, systems, projects and processes that higher ed institutions have developed to achieve inclusive excellence.

So with that, that's our summary of activities in the COSWD office, and I'm happy to turn things over to my colleague, Dr. Lauren Hill.

Dr. Lauren Hill: Thank you, Dr. Shin. That was fantastic. There's a lot going on in this space. So we're going to change direction a little bit. And I am -- let me advance the slides -- Dr. Lauren Hill from NIMH, and I am going to talk about a talk I call "NIH 101," a primer for Early-Stage Investigators and first-time applicants.

So the talk will.. . First I'm going to start with a definition of Early-Stage Investigators, introduce you all to what we call ICs, or NIH Institutes and Centers, talk a little bit about how to find the right scientific home for your research, and how to work with NIH Program Officers.

So NIH has a very specific definition of Early-Stage Investigators. An Early-Stage Investigator is a new investigator, so a new investigator is someone who has not yet had a major NIH grant, usually an R01. So an ESI is someone who has completed their terminal degree, usually a PhD or an MD, and their medical residency within the past 10 years, and has not yet been awarded a substantial completing NIH research grant, again, typically an R01. The ESI status can be extended for certain critical life events, like childbirth and other reasons, like active military duty, etcetera, and those extensions are considered on a case-by-case basis. You would contact the ESI office to extend that, if you need to. What's important about having ESI status is, in order for us to increase the number of new investigators and Early-Stage Investigators coming into our pipeline, Early-Stage Investigators receive special attention at review based on their career stage, and that can be advantageous for Early-Stage Investigators when they submit their initial R01 application.

So NIH, plural, the National Institutes of Health is a big place, and we are composed of 27 Institutes and Centers, which we call ICs; sometimes ICOs, or Institutes, Centers and Offices. And each of the Institutes and Centers have their own mission, their own charge and their own acronym, by the way, and many of them have funding authority. The ones shown here at the bottom of the slide do not have funding authority. The Center for Scientific Review is one of those without funding authority, but it's highlighted here because all of the applications for grant funding come in through the Center for Scientific Review, or CSR. And then they're assigned to the various ICs, based on scientific focus.

So as I started to say a moment ago, each IC has its own mission based on the scientific priorities. Each has its own budget. Each has its own activities, and each has its own way of doing business. For example, even though all of the Institutes and Centers offer funding mechanisms, they may not use the funding mechanisms in the same way, even if they offer the same funding mechanisms. For example, the K01 -- that's a standard career development award. Not ICs use the K01. Some ICs have Diversity K01s, some do not. At NIMH, we have a Diversity Dissertation Award, or an R36. Not all ICs offer that mechanism, so be sure to look at your particular IC and speak to a Program Officer. So if you don't hear anything else in this talk, if you're interested in applying to any NIH mechanism, please, please contact a Program Officer at the IC that you're considering applying to well before you submit a grant application.

Although the ICs are very, very different in terms of size, in terms of mission, they do typically share an organizational structure in common. Each IC has a Director, and there is an intramural side where research is done typically on-campus, or something similar to on-campus. And there's an extramural side, and that's all where you all would be interacting with NIH staff. So on the extramural research side, there are sets of scientific programs separated by division. And within divisions there are Program Officers, Scientific Review Officers and grants management staff.

So Program Officers -- and these are the folks that interact most frequently with people in the extramural community, are scientists and administrators. Their role is to identify areas of scientific need based on gaps in the research, research opportunities, public health need. Their job is to communicate NIH priorities to investigators and others in the extramural community. They typically manage a portfolio of grants, and they communicate with IC leadership about the science. Scientific Review Officers are the people who put together review panels and generate summary statements. And Grants Management Officers handle "anything with a dollar sign," and also ensure that grantees are compliant with NIH policies and regulations. The overwhelming majority of your interaction would be with Program Officers.

So it is super, super important to identify the right Program Officer, and again, your correct scientific home for your research. How do you do that? Certainly you talk to mentors and colleagues. Search the NIH RePORTER for projects that are similar to yours. And NIH MATCHMAKER, which is associated with the NIH RePORTER, if you type in key words, or your abstracts, you will see projects that are similar to yours, and the Program Officers who have the portfolios that match those projects. And that's a good way to start to identify with whom you should speak about your project. Look at the Institute and Center missions, the strategic plans, the research priorities -- all of those are on their websites. And then you can drill down to the specific divisions and the programs. And those are also on the website. And it's good to do your homework before you reach out to a Program Officer.

When you do contact a Program Officer, we recommend that you do so by email, not by phone, then ask for a time to speak with a Program Officer. It's a great idea to include a concept paper; very brief. It's not a contract, just an idea, right? If you're planning on submitting a research project grant, include a very brief background, the significance of the problem, why it's important, what your project will address, what questions it will address, and a set of specific aims. If you're submitting a training project in addition to what I just talked about, and that includes a K-Award, a career development grant, also talk about your training goals. Give us a sense of who's on your mentoring team, their current funding, and include your CV or NIH bio sketch. And please, by all means, if you don't hear back from your Program Officer with an initial ping by email, please do follow up. Lack of response does not mean lack of interest. We are very, very busy people, as you are, I'm sure. Email piles are deep.

So that's it for me. We encourage you to please, please, whatever you do, contact a Program Officer before submitting an application. And we look forward to working with you. And next, I will turn it over to my colleague, Dr. Matthews.

Dr. Marguerite Matthews: Thank you, Dr. Hill. That was a lot of great information. So I will try to bring us on home. And, so my portion of the talk will focus on strategies to support your research training and career continuity.

So one thing that I would like to encourage everyone to do, whether it's through NIH funding or not, is to think about a very systemic approach to your career. What do you need as an individual to get to the next stage of your career? How can your institution or other institutional support be an additional set of support resources to your career advancement, and look more broadly into the scientific community and see what resource business support networks are out there for you.

So I'd like to bring your attention to the research training page hosted by Dr. Boone's office, which can be found at the web address at the bottom of the screen, researchtraining -- one word -- dot-nih-dot-gov. And this page has a lot of information about how to search for different training mechanisms. If you're curious, what is available to me as a post-doctoral researcher, or someone doing a clinical residency and looking for clinical research opportunities? You can go to this page and click by your career stage, or if you're more familiar with the NIH terminology and you're thinking about applying for a fellowship award, or wondering if you qualify for one of the career development awards, you can also search the page by using these different terminology.

So I'll focus on a few of these types of programs that you may or may not be familiar with. Once you get to sort of the post-doc stage of your career, it can be very tricky. And so what my colleague, Dr. Hill, said, every institute sort of has their own way of doing things, and many of them support different types of mechanisms. And this becomes even more clear at the post-doctoral stage, so I won't spend too much time on specific pre-doctoral opportunities, since those are widely supported by all of the funding NIH ICs.

So one really important mechanism that NIH utilizes to increase the diversity of the workforce are the research supplements to promote diversity. Every single funding NIH IC participates in the diversity supplement program. But it's important to remember that each IC has different deadlines, policies, procedures and eligible career stages. Supplement funding is essentially an administrative supplement to an existing active NIH research grant. Oftentimes people apply for a supplement to an R01, but there are hosts of other mechanisms that are also available on the funding announcement. It's also important to note that for the transition awards, the R00, talk to a Program Officer before applying because not all institutes support the R00 mechanism for diversity supplements. These supplements are used to support the training of high school students all the way up to junior faculty, and each stage in between. And this is for them to either gain a research experience, to gather preliminary data, to apply for an individual award, or to gain skills that are necessary for transitioning to the next phase of one's career. This is especially important for helping folks get the skills and data that they need to apply for a fellowship award, or a career development award. These are administratively reviewed applications, so each IC will review them internally. There is no peer review. And they will make decisions about funding based on their priorities and their policies. These supplement applications do provide training for salary or stipend and fringe benefits. There are funds that are available for supplies and travel, and there is tuition remission available to pre-doctoral students.

So it's important to know how to even approach applying for your own funding, and it can get tricky, and that's why it's so important to lean on the Program Officers at the NIH to help you decide what's the best mechanism for you based on your career stage, your goals and your particular needs, such as eligibility or other things such as that. So for fellowship awards, I wanted to draw your attention -- you may have heard of the F32 post-doctoral NRSA award -- there is a parent announcement that is supported by 20 of the funding Institutes and Centers, but there are also three other F32 mechanisms that support post-doctoral research. And it's important to know if you are eligible and what the requirements are for those different types of funding announcements. They can be very different, so it's important not to lean on your own understanding of what you think an F32 is, and make sure you read the funding announcement, as well as talk to a Program Officer. There are also a host of different career development opportunities, also known as K-Awards. Perhaps the most prominent one that people know is the K01 awards mechanism. But this can be used in a variety of different ways; it can be for post-docs, but it can also be for junior faculty. And then there's the K99 Award. For a long time we only had the parent K99 Pathway to Independence Award. But there are now a number of other similar funding announcements that support this same type of transition, providing funding for advanced post-docs, and then also funding for independent research through the R00 portion of the grant.

So I will talk just about a couple of them, but happy to answer questions more specifically during the Q and A.

So the MOSAIC K99 is one of the newer K99 programs. This is specifically to promote faculty, diversity. They are essentially folks who fit into the purpose of the program, apply to this funding mechanism, and then have the opportunity to not only receive individual funding through the K99 mechanism, but are also tapped into what we call a UE5, a cooperative agreement where different nonprofit, professional organizations provide career development for these cohorts of scholars. And it's a great opportunity to broaden your network, so you're not just getting the individual piece of it, but you're also having some institutional, specific, specialized support.

There's also a new R01 funding mechanism that is specifically for targeting diverse investigators. This has been something that has rolled out to show that while there are some faculty of color that have been able to receive NIH funding, the numbers are really, really small in terms of those who are applying and getting awarded. So this funding announcement allows those from underrepresented backgrounds to be able to apply for this R01 mechanism, having the same criteria as the traditional parent grant R01, but also takes into account that this is a set-aside that various institutes who have signed on to the funding mechanisms are saying that they have a vested interest in ensuring the increase in investigators of color who are applying for this mechanism. Not every single institute at NIH supports this particular funding announcement, but you can find on the screen, as well as in the funding announcement, which of those ICs are participating.

Another really great opportunity for researchers is the Loan Repayment Program. And this is an opportunity for those who have already achieved their doctoral degrees to commit to two years of research for a new award, and have up to $50,000 in educational debt repaid by the NIH. And so there are a number of different eligibility criteria here that I won't get into, but it's a really fantastic opportunity; not just for clinician scientists, but even for basic research scientists to be able to continue in a research career without feeling the burden of educational debt that may make, you know, a lower paying job in academic research perhaps not as effective. So I highly encourage you to look more into this. This application window typically opens up in September and closes in November. So there's an opportunity that we can also answer more questions about at the end.

I'd also like to talk about specific institutional types of programs. Many of you know about the T32 training grant programs that support both pre-doctoral and post-doctoral research, but there are also K12 institutional programs that provide institutional support for clinician scientists.

We also have the first program which is a cohort program to provide faculty recruitment and hiring, and looking to further diversify the academic faculty research. We've already awarded, so far, I believe 11 awards, and there are a few more to be made in the coming months.

And I want to draw your attention to R25 programs. These are to support more scientific community in terms of providing that career development; other pieces that are not just focused on the individual research or research training through an institutional training grant, but opportunities for scientists to grow in a variety of different ways to help them achieve their long-term career goals.

And you can also find these R25 programs in the NIH RePORTER. There's a number of ways that you can search for these, but if you know what you're looking for, you can find it. Or you can reach out to a Program Officer to find perhaps a program that suits your needs.

And I won't talk specifically about these programs, but lastly I did want to mention that social networks are a really great opportunity for support and guidance. I think it's easy to say that social media is sort of a cess pool, because it certainly can be. But it's a great opportunity for scientists across the globe to be able to connect, get resources, commiserate, celebrate, but also learn about opportunities that perhaps you're not as aware of, if you want to apply for a K99 and need some help. There are always people on social media who are willing to share their applications. It could be for NIH applications or other applications, but there's such a vibrant community of strangers who are so willing to help you out. You don't have to go through this alone, if you're not sure of what to do. Or maybe you're just scared to talk to one of us, a Program Officer -- which you shouldn't be -- but if you are, perhaps you can find some other social support through your virtual networks.

So now I will turn it back over to Dr. Boone to lead our Q and A.

Dr. Erika Boone: All right, I had to remember to take myself off of mute. Thank you, thank you, thank you to Dr. Hill, Dr. Shin, Dr. Matthews for such really great presentations that were just so full of information. I'm hoping that everybody had their pencil and paper out so -- you can tell I'm old-school -- so that they can really take note. And also, please check the Chat as well as the Q and A box for answers to questions that have been submitted. So there are lots of links, there's lots of information within the Chat that everyone could find very useful.

So we had some very good questions. Some were kind of basic and some were a bit more nuanced. But I'd like to start off with one question that someone had: there's a lot of conversation about, or a lot of suggestion to reach out to a Program Officer. How do I find one? Dr. Lauren Hill, how about you start off with that?

Dr. Lauren Hill: Sure! Certainly. So as I suggested in my talk, but let me slow it down, it probably came pretty quickly, is, I would suggest, you know, you want to make sure that you're matching your science to the Program Officer and to the institute. So if you have absolutely no clue, as I said, you want to start talking to mentors and colleagues, that would be a good start. You can also look on the NIH RePORTER. By.. . and you can.. . I think there was a link that was provided for that. Or you can just Google "NIH RePORTER," "NIH MATCHMAKER" in particular. It will pop up, and put in something from your abstract or keywords associated with your project and similar projects. And the Program Officers who have the portfolios that house those similar projects should pop up. And that will be a hint as to where to start to identify your Program Officer. I don't know if my colleagues have other suggestions on where to start.

Dr. Erika Boone: I call the NIH MATCHMAKER tool the "plenty of fish" for researchers and NIH staff, or information relevant for NIH. So find your scientific home, find your research boo and a Program Officer. Now when you do reach out to the Program Officer, please do not call them "Boo," do not say that Dr. Boone said for you to call them that. I am trying to make this conversation really lively, and for other people to kind of feel like they're a part of this. So really, but on a serious note, make sure that you're utilizing resources such as NIH RePORTER and such as the NIH Data Book, such as the MATCHMAKER tool. This helps for you to find more specific information that's relevant for use, so that you can find the best home to nurture your research career and your research ideas. The one thing that you do not want to do is to spend a lot of time developing an application that you have not talked to anyone about, submitting that application, finding it that you either submitted it to the wrong NIH IC or that it's not a priority area, but it is at the right IC. So make sure you are in contact. Establish that open line of communication with your NIH Program Officer.

Another person asked a question about how far in advance should you contact a Program Officer? I say give it as much time as you possibly can. If you're reaching out to your program the week before an application is due, that's no bueno. Why? Because whatever questions that you have, you may not have time to fix or address those within your application within a week. Also, you may not be able to get an appointment with your Program Officer within that week's time. So I would say reach out with as much time as you possibly can to talk to these individuals, because you want to give them enough time to actually be able to be of help to you.

And I see that we only have five minutes left. Jean, this question is for your office. It says, the NIH First U54 mechanism was impressive, but the last submission date was 2022. Does NIH have plans for similar future programs?

Dr. Jean Shin: I'm -- just for a point of clarification, are you talking about one of the things that I presented on --

Dr. Erika Boone: No no no, the NIH First program.

Dr. Jean Shin: Oh, the First program -- sorry. Pardon me. So, not to my knowledge. I believe that the three cohorts that were originally in the funding plans for NIH have been a set. So I don't believe that there's another round, but we would certainly let folks know if that changes.

Dr. Erika Boone: Thank you so much. We have a question with regards to eligibility and Diversity F31. So for the Diversity F31, is it recommended to describe what qualifies you as an individual, or within a required letter for your institution, particularly if you meet multiple components of eligibility? Or should you stay away from disclosing?

Dr. Marguerite Matthews: Yes. So in the eligibility letter, the candidate eligibility letter - it's a different name for different funding mechanisms - but your information does have to be there. As far as the rest of your application, I would say use your own discretion. If, say, you have a disability, and that is what drove you to study a particular thing, and that's what drives you every day to wake up and to do that type of research, I think it's fine to include that. It shows your personality, it shows a lot about how you come bring yourself to the work. But it is not required. You don't have to treat this as sort of the oppression Olympics, and oh, you should feel so sorry for me -- that's not what the point of these mechanisms are. It's really about giving opportunities to folks who have historically and traditionally shut out of the academy. So use that at your discretion. Think about it. And if you would like to share it because you think it's an important part of your story, feel free to do so. But you are in no way required to talk about your axes of diversity within the application, outside of the eligibility letter.

Dr. Erika Boone: Thank you so much, Dr, Matthews. I do have one final question for the group, and that is about making a funding strategy and incorporating, or thinking about your career transitions. The one thing that I want for people to be thinking about is, how do you use the information that's been presented today in order to help you progress? How do you make this stuff actionable? So when you're thinking about your career growth and your career trajectory, how do you utilize some of this information? If you're a first-year pre-doc or a first-year post-doc, what should you be thinking about when trying to piece together and pull together, develop your career trajectory plan? I will start off with Dr. Hill and then Dr. Matthews.

Dr. Lauren Hill: Sure. One of the things you might want to do is, use an Individual Development Plan, or an IDP. There's information on IDPs on the NIH website -- again, Google is our friend. And I'll just stop there in the interest of time. So keep it in today, but also kind of look ahead and think about how what you're doing today might fit.

Dr. Marguerite Matthews: Yeah, I think assessing your needs, what do you actually need to reach the next stage of your career, or the next stage of your training, because not every mechanism is meant for everybody. And if you don't get it, it's not a knock on you and your ability to do well. Perhaps applying for something within your field, something from the American Cancer Society, or the American Chemical Society may be more in line with your needs, and connecting you to a different type of community. So I don't think that just because there are these opportunities available that everyone needs to take advantage of them. But no, what your needs are and what you think is going to be best for your career, and then making a plan from there. Like, what is it that I need? Is a fellowship going to help that? Is just more exposure, having the opportunity to travel to conferences, to expand my networks? And you should have these conversations with your colleagues, with a mentor. And if it's necessary, you think that having a fellowship or a career development award or an R-Award is what is best for you, then have that conversation with your Program Officer.

Dr. Lauren Hill: And don't eliminate yourself, right? Don't eliminate yourself

Dr. Erika Boone: No, don't tell yourself no. My mother used to always say that. Let someone else you "no," don't tell yourself "no" first.

So thank you so much, Dr. Matthews, Dr. Shin, Dr. Hill. We're going to be closing out today's session. I hope that you all found this as invigorating and informative as I have.