Grant Writing for Success

Michelle Hamlet: My name is Michelle Hamlet, I'm from the National Institute of Nursing Research, where I serve as a program officer. Welcome to the grant writing for success seminar. I hope to provide you with some tips and tricks and some resources that will help you to make the best application you possibly can. So let's dive in, here's an overview of what we'll be discussing today, we'll talk about the importance of planning early, we'll talk about applying for the right opportunities, contacting appropriate program staff and doing that early, presenting ideas clearly and we'll also talk about what to do after the review is over. This slide shows the grant lifecycle, you'll see that starting from the top right from the planning phase, all the way to the end of the circle, the share results phase, is a lengthy one. It can take several months even after submitting your application to go through review and then post review, etc. What we'll be talking about mostly today is the process of going from the planning phase to the apply phase. And keep in mind that just that portion of this circle can take at least eight months. So starting early is a very, very good idea. So where to start? Well, one good place to start would be NIH’s grants and funding page where you can find a wealth of information is divided into sections about preparing to apply, writing the application, submitting the application and there are also videos to guide you through the application process. So this is a place that you might want to start. Well, that's nice but you also need to know what are you applying for? Which opportunities are you applying for? And are they the best ones that best align with your research project? A very helpful way to find that out is to use NIH Reporter Site. This site provides a wealth of information, tons of data and we love data that can help you find for example, which institutes are funding what? What topics are they funding? Who is being funded for a particular research in a given area? You can see funding trends; you can see success rates. Opportunities for information here are almost limitless. A really important feature that I'll talk a little bit more about later, is a matchmaker function. You can see that on the slide, it has a yellowish heading above it. This is a tool that you can use to find program officers or find similar projects. Again, we'll talk about this a little bit later in the talk. Another very helpful resource is the NIH guide to Contracts and Grants. This is another helpful resource that NIH uses to publish policy updates, funding opportunity announcements, you can get weekly updates. In fact, I encourage you to sign on to their listserv so that you can get a weekly table of contents to know the very latest and greatest regarding new funding opportunities and new policy guidelines. Another thing I want to share with you that I hope will be helpful you'll see when you look through the guide is a veritable plethora of NIH acronyms around funding opportunity announcements. Wanted to walk through some of the common ones you might see. The first is the RFA, Request For Applications. These are particularly special because they have funds set aside for them. They typically have a special receipt date or due date, and they have a special review panel. You'll also see PAs, PARs, PASs these are all iterations of the Program Announcement or PA. The R designates a special receipt date or special review criteria. The S typically stands for set aside funds for a particular Program Announcement. You'll also see the ‘Parent’ Announcement. This is the one that many people are most likely familiar with. They're the ones that are the investigator initiated funding opportunity announcements, and are typically activity codes specific. So for example, the RO1, RO3, etc. Another type of funding opportunity that you're likely to find that's not on this slide is the notice of special interest or NOSI. NOSIs have actually been around for a while, but they're in much more common use these days. They’re similar to program announcements in that they give the institute an opportunity to highlight changes in Institute priority in particular research areas where they want to fund more research. NOSIs are also available in this guide and are typically attached to a parent announcement such as an RO1, RO3 etc. So it's important to look at the related notices section of a program announcement to see what NOSI’s are related or attached to a particular funding opportunity announcement. We're going to take a second to talk about the early stage investigator or new investigator. These designations are important; they matter in the context of RO1 applications. While both ESIs and NIs have not yet received RO1s, ESI are within ten years of receiving their terminal degree. Whereas in NIs there is no specific date after which an individual receives a terminal degree, they still have not yet received an RO1. ESI, NI applications are clustered together in a review session. And an institute will use ESI and sometimes NI status to help in making funding decisions for a particular application. So now let's talk about contacting the appropriate program staff. Again, it's important to do it early, early it's never too early to contact us. Well, first, what does the program officer even do? We manage grants and contracts, cooperative agreements, we identify needs and scientific areas, we report on scientific progress. And we have a lot of names. I'm going to read some of them for you, Program Director, Chief Health Scientist, Administrative Program Official. And frankly, there could be a host of other names that may be a PI might call us if things don't go so well. So what are some of the things that you'd want to discuss with the program officer? Well, your idea, of course, it's very helpful if you provide a specific aims page for a program officer to review because we want to get a sense of fit. Does your idea fit within the mission of the Institute or center or IC? it can be a fit but is it a priority? It'd be important to get a sense of whether or not your project would be a priority for the Institute. You want to talk to the program officer about funding opportunity announcements, particularly those NOSIs that I mentioned earlier. And then you want to find out what type of funding mechanisms that institute supports. Keep in mind that not every institute participates in every program announcement or RFA that comes out, so you definitely want to get clarification there. So that's nice, but then how do you identify a program officer? Well, you know, one, that's me but you can also use that matchmaker tool that I mentioned earlier through the NIH reporter website. In the matchmaker tab there's a large space for text so you can input an abstract or specific aims or a string of words and you can find out who else is doing research in that area or if someone else is doing research in that area. If you find an individual, you click on their name, you then select the Details button, which I have highlighted with an orange arrow to the left hand part of the screen. And there you'll find the program officer information. In addition, there will be a direct link to an email to contact one of us. Now let's talk about presenting ideas. Some general grant writing tips, read instructions for the application form, read instructions for the application form. And did I mention you should read instructions for the application form? This is so incredibly important. You don't want your application withdrawn because there was an instruction that was missed that wasn't followed. You want to be realistic and what you propose. You don't want it to be overly ambitious. You want to definitely talk about potential problem areas and possible solutions and another really important tip is being explicit. Reviewers can't read your mind; you can't expect reviewers to read between the lines. And you can't assume that the reviewers know that you know what you intend to do. So being really clear and open about that is extremely important. Another important thing to do is to align your application with the review criteria. For the sake of time, I won't be able to go through all of these criteria. But we'll speak a little bit about significance, innovation and approach. But first, I'm going to digress with two brief but very important slides. So the first thing is thinking about the overall scientific impact of an application, reviewers are likely going to have in mind two critical questions when they're considering the scientific impact of your project. Should they do it? Or can they do it? So it's helpful to have those two questions in mind as you're formulating your application. So the second little digression is a specific aims page. This is so important. This is what grabs the reader's attention, hopefully, immediately. It's a roadmap to your application. You began with an overall section where you might state the general purpose for example, include some key supporting data, state the hypothesis and state long term objectives and expected impact. And organizing the aims in a sequential numeric format is really helpful. And importantly, tell the reviewers what the results will mean. We do not have degrees in divination and so again, being explicit is very important. Now let's talk about significance. Significance talks about the so what question; it answers that question. This is very important. There are so many important questions out there that we need to answer. So the onus is on you as the applicant to determine what makes your project rise above the others that merit funding. It gives you an opportunity to show your overall understanding of the field, you can demonstrate that your questions are novel, are important and they represent the next logical step in the research field. You also get a chance to highlight critical gaps in the area that your application will address. What about innovation? Innovation shows that the proposed research is new and unique. It either shows how research refines and proves or proposes a new application of an existing method, or it shows how the research would shift a current paradigm. If you're going down the paradigm shift road you will need to make a very very compelling case so that reviewers will buy in and believe that in fact, what you are proposing could be paradigm shifting and quite significant. Regarding preliminary studies, preliminary studies can certainly help your application, strengthen your application. What it does is shows that you have the available resources, it shows that you know the methodology, you know how to do it. It shows whether or not your project has potential impact. And the preliminary data can be qualitative, it can be quantitative. It can come from one of your collaborators. If you don't have expertise in a particular area, but your collaborator does it's certainly okay to present their preliminary data. Regarding the approach in general, several things you want to keep in mind, does your plan flow logically from literature review and prior studies, how will each hypothesis be tested? Do your measures capture the variables needed to test the hypotheses? Why did you choose those measures in the first place? Methods and analyses must match and you might want to consider organizing each aim in the same way. As an example, starting with the rationale, then the experimental approach, anticipated problems and then alternative solutions. Regarding the approach for clinical studies, you'd want to include in the research strategy, the overall strategy, the methodology, and the analyses. Any other information regarding the protocol, human subjects information etc. needs to go in the special human subject and clinical trials information form section. Now let's talk about the hallmarks of an outstanding grant application. A lot of this will probably look familiar to you and you've likely heard it before. A good application has strong significance, high degree of novelty and innovation, strong track record of the PI and collaborators. The rationale is clear, preliminary data are relevant and supportive. The approach is clear in focus, and can yield unambiguous results. And there's careful attention to details such as spelling, grammar, etc. You can probably imagine what the next slide is going to be about. And this is a good time, to mention to you a little strategy that I have that I use with PIs when I'm talking to them about what are some ways to write a good application. And that is what I call the reviewer distraction mitigation index. This idea exists only in my mind, but I envisioned an algorithm using machine learning and natural language processing and to which you can feed your application and what it will spit out is not only areas of distraction, but the intensity of that distraction, so that you'll know where you need to focus your efforts to lessen the distraction index. So here we go with some common weaknesses in applications that don't fare well. The impact is weak, you want to try to avoid descriptive and incremental projects. The application can be too ambitious, but it could also lack focus, there could be too many unrelated aims, or conversely, the aims are dependent on each other. The hypothesis or rationale are unclear, there's not evidence of sufficient expertise to carry out the project. There's no evidence of feasibility, meaning can it be done? Remember those questions we talked about? Can they do it? Should they do it? The approach is flawed and there's no discussion of pitfalls and alternative solutions. And the writing is poor with lots of errors, small figures and it’s densely packed. As a matter of fact, the last point is really an important one. Admittedly, poor grammar, etc. are not a review criteria in and of themselves. But I know that for me when I'm reading an application, and I need to put on both my bifocals and my readers, and I'm doing this, “Okay is that a five or an eight? Does that figure go with that section, is it figure two is it figure three?" It's not score driving, but is certainly a huge distraction that can easily be avoided. So what next? What do you do after the application is reviewed? You want to read and reread the summary statement. In fact, you might want to read, take a break and then reread the summary statement. Then you want to contact us, contact your program officer, and talk about the reviewer comments from the summary statement. The scores and percentiles, funding prospects, resubmission and other options. Thanks to NIAID, which has an enormous wealth of helpful information about the grant writing process, I strongly encourage you to go to their website and look up these tools. They've kindly provided, for example, sample summary statements, sample RO1 applications in full that you can review and get a sense of what makes for a really good application. Shown here is a sample summary statement. This is the face page. Just to highlight a couple of things here, information that you can find. In the top left is the program contact information so that you can contact me or whoever your program officer might be to talk about next steps to talk about the review of the application. It’s important for me to add here too, that the summary statement is the official document of the review session. It is this document that we can use and talk about together when we’re talking about your application. This is the only document that we can use to discuss the review of your application. So please keep that in mind. You'll also find on this page, the percentile, of course, the priority or impact score. And towards the bottom of the screen, you'll see something that says human subjects, animal studies, animal subjects, if there any codes or concerns all of that will be listed on the face page. Those are issues that need to be resolved before an application can be funded. If you go a little farther down in the summary statement, you're going to find this information. The first at the top is the resume in summary of discussion. This is written by the scientific review officer, the SRO and this provides a summary of the discussion. This is an opportunity for you to see the areas of strengths and weaknesses that the reviewers identified. This is also the area where you'll see where there were areas where there was agreement, or areas where there were disagreements, both are perfectly fine. To also mention to that summary statements are available to all applications that go to a particular study section. So even not discussed applications will get a summary statement, but they will not have the summary review. What they will have what follows in this slide, which are the critiques from those who reviewed the application. So these critiques are written by the individual reviewer, and they summarize their overall thoughts about the strengths and weaknesses of the application. You'll also see criterion scores shown in the circle in the slide. It's really important to note that these scores are indices only, they have no mathematical relationship to the priority or impact score. That said, one should really consider the criterion scores carefully. So the written comments in summary of discussion, they're going to tell a more complete story for sure. But pay attention to the numbers that follow significance and approach, in general if something is of low significance, even if the other scores are better, it might be really difficult to fix that particular application. However, if the significance is high, but the approach is weak, there might be a good opportunity or a good chance to revise and resubmit that application and achieve a better outcome. So if you're not funded, try again, you're not alone in this process. Know your options which you can find out about through your program officer, you can talk to colleagues, just reach out for help. One little digression here to tell you about the early career reviewer program. This is a great opportunity for early career investigators to get reviewer experience to see up close and personal, what makes for a well written and good application, what makes for a not so well written application. So I encourage you to look into that program through the Center for Scientific Review. And now to my last slide about revising and resubmitting your application if it doesn't review well, it's an opportunity to improve your application, of course and you could talk to your program officer about options resubmitting does it makes sense to do so etc. And if you do decide to resubmit your application, you have a whole one-page introductory page to address the critiques. And you can address them or you should address them thoroughly, respectfully and constructively. So with that, I end my presentation. I thank you for your time and I look forward to answering any questions that you might have. Thank you.