Transcript

I-Corps at NIH Office Hour

November 21, 2017

Christie: Good afternoon or good morning everyone, depending on where you are situated. We are going to start our I-Corps office hours now. My name is Christie Canaria. I am at the I-Corps at NIH program manager, and we are joined by the lead instructor for cohort 1, Mr. Edmund Pendleton. Edmund, are you there?

Edmund: I am, Christie.

Christie: Folks, we are doing something a little different this time. We are doing an open air style office hour. It looks like we have a decent amount of people. If folks want to call out their questions, we can accommodate that. We can also accept your questions through the Q&A window you see on the right hand side of your screen. Some housekeeping notes. We are recording this session and it will be available afterward. Everyone who was at this session will receive a link to the materials. Also, we have a late update. The original funding opportunity announcement came out with 16 participating ICs and CIO from NIH and CDC. But now we have 17 participating. Phase I grantees from NIGMS are now now eligible to respond to this FOA PA-18-314. I will open it up now. If folks have questions, please feel free to shout them out.

Christie: I've a question that came in online. What makes up an ideal I-Corps team? What do you look for in each member of the team? Edmund, I will start with my answer and perhaps you could tack on with the some of your insights as an instructor.

Edmund: Sure. Sounds good.

Christie: First and foremost, we need three people on the team. No more, no less. And those three people should cover the following characteristics: one is someone who has decision-making authority for the company. If you're going to go through the eight weeks of I-Corps and you learn something important, we want to make sure it is actionable by the company, by the team. We need someone on the team who has decision-making authority. Usually that is the CEO. But if it is another level person, that would be fine. We are also looking for someone who has technical expertise for the Phase I work you have been awarded. You will want to have the info with you when you are conducting customer discovery. So you know which questions are the right ones to ask. These customer discovery activities don't have a lot of predefined structure and you will discover when you grounded your first one, we just send you out there. So you will want someone on the team who knows what questions to ask and then you will want someone who is in industry expert at the very beginning they should at the very least be

able to help you identify who those first sets of customer discovery interviewees are going to be. That's who I say you need for those three members. Edmund?

Edmund: I think that pretty much summarizes it very well. The only thing I would add is generically speaking we of course when people that are excited and bought into the process. This takes a fair amount of time. But it is very rewarding. I often will tell people that I would much rather have someone that is in the course for the right reasons and excited about it rather than somebody who may be an industry expert that you brought in to help you but does not buy in. Just make sure the three of you are on board. Understand what you are getting into, and you'll learn a lot in the course.

Christie: Someone else just asked what do you look for in application for I-Corps. If you look in the chat window we have that link for the funding opportunity announcement, FOA PA-18-314. The nitty-gritty of what we are looking for is actually in there. But the general sense is we are looking for a one-page executive summary that describes your team and the technology. Followed by a more in-depth five-page research plan. What goes in there is in the details of FOA. We are looking to see that the budget that you layout basically follows what we prescribed in the funding opportunity announcement. Those three criteria are high level of what we are looking for. But for more details, please look at the FOA.

Christie: We have an, "add to this question, can you please extend the industry expert." I'm going to assume that they want more description of the expert role, that's a great question. We have lots of different types of people who have successfully worked as industry experts. And Edmund can tell me how's he thinks each of them has fared. Some folks bring on someone from their board. If they are in STTR and have a board member at one of the research institutions or at the small business. Sometimes people bring in that person as an industry expert. Sometimes they will pick someone who is an established consultant with the company. Maybe they are someone they have already hired and have a relationship with and they just have that person act as the industry expert. That person typically has some business development experience. Sometimes people will hire, will pay for the external personnel using either some of their budget or sometimes they will provide an honorarium in the form of options from the company. So we try to give each team a little bit of latitude to do what works best for them in their situation. Edmund, do you want to add onto that?

Edmund: A couple of quick thoughts there. In the ideal world, that particular role is meant to be somewhat of a go-between, between the actual teaching team and the team during discovery. Someone who can act as an in between. They should be as independent as possible, I think. We want all the people on the team to be open to what you're hearing. And even that if anybody comes in with a specific bias against pivoting or changing direction based on what you're hearing, then that's not a good person to have on board. So no matter who it is, that person has to be willing to hear what the market is saying, and make a judgment call based on what you are actually hearing as opposed to what that person may want to be the truth. So in general, when it comes to industry experts, you want somebody that is bought into the process again, that's willing to put in the time, and understands what the whole course is about. You can find these people from all walks of life. It is not absolutely required that the person know your industry inside and out. That's not what we are asking them to do. We are not asking these people to tell you where to go. We are asking them to help you build a business. So hopefully they

are coming in with prior experience in that area, even if it's not specifically in the area you're interested in. Some of our best industry experts and mentors have come from completely separate industries from the teams they have helped. Keep that in mind, too. The generic way of saying industry experts in a more general sense as opposed to specific sense—is a way I would put it.

Christie: Thanks, Edmund. We have another question that just came in. Someone wants to confirm you can pay the industry expert for his or her time or effort using NIH funds. That is correct. If you are awarded the administrative supplement through PA-18-314, you will receive $50,000 in supplements. It's designed to be used such that $20,000 goes toward registration fees for I-Corps, and the remaining $30,000 can go towards, direct cost only, related to the I-Corps. Typically this will include your travel and lodging to both the kickoff and the closing for all three of your team members. But this can also include things like effort for the individual team members. Again, we leave how you divide the funds at the discretion of the company. Each company has its own specific needs.

Christie: I have another question here—what is the typical acceptance rate for I-Corps? We do cap the cohort at 24 teams. We have -- we do not accept all teams that apply. As Edmund mentioned, we like to see teams who are coachable and are open to being receptive to what the I-Corps curriculum offers. But in terms of numbers, any numbers I give you would be misleading since the n are so low, but it's fairly responsive to those who apply.

Edmund: I will make a quick comment to that, Christie. We know that all of you received a Phase I award, and that to some degree is already validation. We believe that what we offer in this course is very helpful to any grantee. So, if the grantee applying is interested and committed to the program, we are going to want you in it because we think it will benefit you. It will increase your odds for success and hopefully increase the odds that the taxpayers see a nice return from their investment, so to speak. So I would encourage you to apply if you have an interest and you can commit to time.

Christie: Great. We have another question. How often is the program offered, beyond next spring? The NIH has the capacity to offer two cohorts per fiscal year. You will notice that PA-18-314 refers to only a single cohort, which does imply that we have a second cohort coming up. Unfortunately, I'm not able to disclose what the dates will be, but we are hoping to announce that information fairly soon. So if folks can't apply for the spring cohort, there will be one later one in FY 18.

Christie: We have another question about funding for actual survey or market studies. And I am going to say that is not how the I-Corps funds are designed to be used. Edmund do you want to follow up on that?

Edmund: Yes. At a high level, the I-Corps program is very much focused on teaching teams how to go do this customer discovery in person. So the one of the real focuses of the course is to teach how to do the interview process to understand the problem or the need, more generically speaking. That doesn't mean you can't learn some good things from market research or doing general research on your own. But that is not the focus of what we do. So when you are in this course, the primary use of funds should be to travel, to go visit customers and other stakeholders, to make sure that you are headed in the right

direction from that perspective. Again, not to say that the industry research reports and market reports are not helpful, it's not something we found through our program.

Christie: Thank you, Edmund. I want to follow up that if you want to take advantage of the resources or survey or market studies, NIH and SBIR program have a Niche Assessment Program, NAP, available for all Phase I awardees. I encourage everyone to look into that. You can look online for niche or NAP. We will also try to send out that link. If you want to get market studies there are resources that will help get you those reports.

Edmund: One follow-up, Christie. One of the better investment teams will make will be attending relevant trade shows or conferences where they can go talk to a lot of people. That's an allowable expense and it's something that most teams haven't had the opportunity to do before they come into I-Corps. So do keep that in mind, too.

Christie: That's a great point, Edmund. Another question. Is this program only for people who have received Phase I? Or otherwise does the receipt of an early Phase II grant affect acceptance? The answer is, because this is an and administrative supplement, it is tied to a parent award. And the way we structured it at NIH is to tie that award to a Phase I. So if you have already progressed to Phase II, unfortunately you will be nonresponsive to PA-18-314. Likewise if you have an active Fast-track and you've already segued into the Phase II portion, you would also be not responsive to this funding opportunity. If you are still in a Phase I and your budget activity is going to end before June 1, which is the end of our cohort, I encourage you to talk to your program director to talk about options that may be available for you to still participate and apply for the I-Corps program. But I stress I recommend anyone in that particular situation to reach out to their program officer and talk with them.

Christie: I have another question. What if a team member can't make all of the sessions? A common question. So this one I would say it is absolutely a requirement that all three team members attend the kickoff and the closing. Those are mandatory in-person events that the NIH expects you to participate in fully. And I can't stress enough "in-person". In addition to that there are six WebEx sessions. We realize that throughout the week, throughout the cohort, teams may be taking advantage of the conferences, like Edmund mentioned. We do have a little bit of flexibility, but this course goes by so quickly; we really need to limit any absence. Edmund, do you want to add onto that?

Edmund: Yes. I agree. In an ideal world, you do not miss anything. We know we do not live in the ideal world, so occasionally something might arise. If you know right up front you have a conflict, I would encourage you to disclose that and see if it is okay. Generally speaking, if someone has to miss one of the weekly meetings, we can usually find a way to deal with that through office hours. I would encourage you still to apply but just make sure it is clear that we know up front, because we prefer that everybody be on each of the calls. That is the ideal situation.

Christie: I have another question here: is I-Corps application weighed when scoring Phase II applications? That's a great question. Officially, no. I-Corps is not weighed. The criteria for Phase II include the innovation, significance, approach, key personnel, environment, and additionally for Phase II, commercialization plan. Now when I say I-Corps is not weighed, having gone through I-Corps is not

something that gets a weight when you get scored. However, the quality of your commercialization plan certainly influences how the viewers receive your application. And if you look at what the curriculum in I-Corps covers—customer segments, value propositions, etc—those are all components of what the commercialization plan is looking for. And so, I don't want to say directly, but participation is weighed in scoring Phase II applications, but certainly we think that it can help in crafting and producing a strong Phase II application.

Edmund: I would agree. I will double down and say that what will be weighed is your understanding of the commercial opportunity. And it is virtually impossible, I would say nearly impossible, to go through a I-Corps course, because we won't let you, without popping out the back and knowing a good deal more than you did coming in. I will let you take that for what it's worth. I can assure you it definitely helps with the commercialization planning.

Christie: I did want to share something that is a byproduct of having run the I-Corps course at the NIH. When we started the program, we thought certainly this is going to help with Phase II application. We are going to see a lot of changes to how Phase II's are written. But a very interesting side note, or development that we have noticed, is that teams come out and they have these revelations about where there are opportunities for them to pivot in a positive direction. And so we will get a lot of teams applying back into the SBIR program with new Phase Is. The numbers are still coming in, but for example of the 19 teams that went through our pilot cohort, 17 of them received new awards afterwards, in the almost 3 years since the program ended for the pilot cohort. So that's another great metric that we are tracking, how teams do in terms of getting new Phase Is, because certainly things that you learned in the eight weeks and beyond are how to refine your business thesis so that you are developing a technology that is adoptable.

Christie: We have a question here. Are you going to provide a detailed schedule in advance, to ask any experts if they can make it? That is a great question. The answer is we have provided the dates. So if you look at these funding opportunity announcement. PA-18-314. There is a table buried in that long website that has all of the dates and the times for the WebEx sessions, the dates for the kickoff, and the dates for the closing. So we feel that before you apply, it is up to the applicant to make sure that they have set aside the time to participate fully. And that is why we have these mandatory participations for the kickoff and closing, because we do give you those dates in advance.

Christie: Another question. How is the I-Corps application assessed or how do you score the application for Ward? Since these are administrative supplements, they come to program staff. The do not go to peer review through CSR, the Center for Scientific Review. There is a two-phase review process that happens. One is a review of the application materials by program staff at the awarding IC. And the second round includes a short telephone interview that includes NIH staff and instructors, which is part of why we have Edmund Pendleton on the line today. He will be one of the interviewees for the second round of interviews. That interview process is required. It's only 15 minutes long. And so we do expect that every effort will be made by those chosen to move into round 2 to sign up for a spot to have that phone interview take place. A little bit of that is subjective. Edmund, do you wanted talk about what you

look for in the phone interviews? Some of that is written in the FOA but maybe you could share a little bit of your feeling.

Edmund: Yes. I would say Christie, as we mentioned earlier on, we are obviously looking for teams committed to the process. That's first and foremost. We rarely really look at the technology and try to determine what its potential is. We are looking at the team and thinking okay, is team committed to the process? What have they done prior to this? That is one of the things we look for most importantly. Again, part of the commitment is knowing that you will make all the in-person meetings, you will try to be at the calls, and you are agreeing to do the 100 interviews. It's really more of an assessment of people's willingness to jump in and follow through with the process. It is not an assessment of the technology. It's really not an assessment what you have done in your company's prior year. You may have had another startup and sold it. He may have worked at a big company and had a great career prior to that. We are looking for people who want to dive into the process. That is the most important thing for us.

Christie: Edmund, we have another question. I will let you answer first and then I will follow-on. Here is the question: from an outsider point of view, pivot sounds drastic. How often does that happen after attending I-Corps, based on your experience, does attending the program help teams come to terms with pivoting better or easier?

Edmund: Okay. Great question. It's got a multilayer answer. Let me say that when we use the word pivot, that doesn't necessarily mean that you change your technology. It doesn't necessarily mean you change the customer you think you are going to serve. It generically means you change some thought you had about how you are building your business. Let's take a simple one for a moment. Kind of innocuous. We thought we needed a partner to do something. But we went out and did a discovery process and realized we didn't need that type of partner we needed another one. Or we thought we were going to use this specific channel, or this OEM strategy. It turns out that's not really the best one to use. Now having said that, very commonly people learn things unique and different about their customers because that's the focus. We've had lots of teams come in saying they are going after a particular therapy for cancer and they say this is the indication we are going after. And interestingly about six or seven weeks into the course, sometimes sooner, they realize maybe that's not the best place to start. Based on their discovery they pick a different starting point. So when you hear pivot, that doesn't mean you are dead in the water. What it means is you have learned something, and in all likelihood you learn something you didn't expect or perhaps it went against what you originally thought coming in. But it's not a bad thing. In fact it's a common thing. And if you don't pivot in building a startup, you probably are not building a start the start up in the correct way to be honest. So don't fret over that term. That's I'll say. And certainly NIH supports people making those decisions. We've had some, I'll give you one extreme example. We had one team that came in, and after a few weeks realized we don't think there is anybody, there is not a significant enough of market here. We are really surprised. They were able to pivot and headed in a different direction. My recollection is they were reapplied for another Phase I for an additional opportunity. Again the course is about learning. It's about being honest in what you are hearing. Because that is why we all teach it. That is why NIH supports it. We want to increase your odds for success. The last thing we want you to do is keep going in a particular

direction if it doesn't ultimately make sense. The ecosystems you tend to be entering into in life sciences space are very complicated. It's one thing to understand a patient needs a cure or a therapy for example or perhaps a surgeon needs a new medical device. The question is what stands between you and your potential innovation and the ultimate user and beneficiary of the product of service. You often find out a lot of interesting things through this discovery process. I will leave it at that.

Christie: Thank you, Edmund. That is great. I do want to say it from the NIH side, we do support your going through this program and discovering for yourselves whether or not a pivot is needed; whether or not a new direction is in sight; whether or not a path needs to be ignored. You as a team are going to drive a lot of the learning that you get. And we want you to know that NIH supports you in that process. Part of what you will get from hopefully your industry expert is some support and understanding in what you receive during customer discovery interview. And then from the instructors during the WebEx and during the office hours, further clarification on how you might interpret and think about the data is your getting. You will get a lot of information and understanding how to parse that out to make best decisions for your team is going to be up to you. Because that is a big charge on you, the NIH supports you in those decisions that you make after having gone through the I-Corps program.

Christie: Another question. Can we get feedback on the draft of our commercialization plan during the process? That sounds like something Edmund can address. I don't know if that is the sort of an activity you see in office hours?

Edmund: Actually it is, Christie. What I would typically tell people is wait towards the end. I know some of you, depending on where you are in the process, may be looking to submit earlier rather than later. In general that is something that the instructors will often review for the teams. It isn't always a common practice but if asked, they typically will do that. The short answer is yes.

Christie: Another question for Edmund. About the 100 interviews. The three person team should be doing this or can you split it up?

Edmund: Another good question. We definitely want the three people to go out in the beginning so that they are all comfortable with the process and understand how to do the work. It also makes it easier on you. As you get more proficient, is certainly possible to split up. Doing a one-person interview can be challenging, so I would never sing just that right out of the box. But once you get some practice you can certainly do that. And again the 100 interviews is the total, that is the goal. It sounds like a lot. In reality it is not that many and you will be surprised how quickly you can accumulate the numbers. It takes a little bit of time to get started, but most teams walk out of the program with a list of customers that they still are planning to talk to in the next several weeks. Once you build momentum, you can really start to hit a good pace. But definitely we will emphasize you going out together in the beginning and then as you get more practice, perhaps being able to separate individually.

Christie: And here is a little bit of a preview. At the kickoff, you will be doing customer discovery. So when you get to the city for the opening, which we have not yet disclosed, you will be spending parts of your day driving around, heading out, conducting customer discovery interviews. During that time, it is expected that the three member teams will be out there, out of the building conducting interviews

together. I also want to follow on to something Edmund was saying, and that is teams after the I-Corps program officially ends and closes, teams continue to do this process. I have been trying to follow up with teams that have gone through previous cohorts, and one great piece of feedback that I'm hearing is that the network that companies develop through the customer discovery process makes such a strong impact on their ability to meet future milestones like identifying new contractors, identifying strategic partners, identifying investors. So even though eight weeks is a relateively short time—I'm sure while you're in it feels like a long time—the effects of I-Corps will carry on after you finish the program.

Christie: I have another question here: can you give some examples of companies using I-Corps for projects related to online educational products, behavior intervention products, websites and apps, etc. That's a great question. We do have the cohorts in NIH program split into what we call "tracks". This is different from how the NSF runs I-Corps, where technology is agnostic throughout the cohort and teams actually get shuffled every few weeks throughout the course. At NIH teams are sort of split out into tracks. Typically that tracks are split into therapeutics, another one is medical devices, and another one for diagnostic, tools, and when appropriate e-health and behavioral intervention. Yes, we have had teams that are not therapeutics, not devices, not diagnostics come to I-Corps. And because the curriculum was designed for all technologies, it is not a problem to have different types of teams mixed together. Edmund, do you want to comment on that?

Edmund: Thanks, Christie. We have actually run cohorts for intervention teams exclusively. As an example, we have one cohorts open to any types of teams, educational software teams as well. And we have had several of those teams as Christie just mentioned, in the NIH SBIR program. So don't let it concern you if you are not a device or a therapeutic or a diagnostic. We have had other software oriented, I.T. oriented solutions for health. And can certainly accommodate those teams. And would be happy to have some. I don't have a list. I know Christie you might have a list of former participants. I don't know how NIH handles that but we've had a good number of teams prior.

Christie: If anyone would like to connect with an alumnus in a particular area, please reach out to me. I will include my email address again. And I would be happy to help facilitate that connection. I was just looking at a previous team that had an educational product. And that team, I was looking on our database, they received a Phase 2 for their I-Corps product. Teams like that do come through I-Corps, and they continue on with hitting milestones. We are happy to see those teams come in and do well.

Christie: A question here: can we use a consultant to support our commercialization plan? Can a consultant be a part of the team? I did address this earlier, and I'm happy to address it again. A consultant is welcome on the team in that industry expert role. Sometimes that person is paid with some of the funds. Sometimes they are paid through other in-kind support from the company. That's up to the company and how that works. Certainly consultants can be part of the team.

Christie: Another question. Of you have a platform technology and a Phase I that was funded was for a particular application, does a I-Corps allow you to ask questions in general about the platform or should be specific to what the Phase I was. Edmund, do you want to answer that one?

Edmund: Yes. I think the answer to that one is to some degree, it depends. Let me give you the instructor's perspective. We want you to make sure that you are exploring any opportunity that you think makes sense for the company. We usually tell people that one of the biggest challenges for startups, mine included—you'll learn a lot more about me if you come into the course, was lack of focus. We do want people to focus. That doesn't mean that you can't do a broad scan in the I-Corps program to figure out the best place to focus. So that's really kind of dependent on the team and where you are in the process. We've had some teams with platform technologies dive straight into an application where they got their Phase I. We've had others use the time to at least do a little bit of a scan outside of it to make sure they are headed in the right direction. So that's something you would probably figure out collectively with the instructors in that first few days of the course. So the answer really is you could take either approach. But we will ultimately want you and recommend that you focus once you start building and bringing the company on the line. This I-Corps program is a good opportunity to do a little bit of the sampling. I'll just leave it at that.

Christie: I think we are close to exhausting all of our questions, unless you have more you want to throw in there. I did want to make a housekeeping repeat. And that is that a transcript from today's session will be made available afterwards. All registered participants will receive links to access materials. Someone is asking if they can have a copy of an old I-Corps application. That's a great question. We have on our website a sample application. By sample application I mean the one page executive summary and the five-page research plan, which is the bulk of what the application looks like. So please check that out. It's sbir.cancer.gov/icorps. Here is a very detailed question: do you use launchpad central just do data. We have a database system that we use to store the data. I can't comment on what we will be using in the next cohort but it will be something that is a platform where both participants and NIH and instructors can access and interface with students.

Christie: Here's another question. Some of the I-Corps attendees say they spent 40 to 50 hours a week on I-Corps program. Is that typical?

Edmund How about no comment. [Laughter]. Here's the honest truth. The more you put into the course, the more you will get out of it. Once you stop thinking of it, as a class, and start thinking of it as "this is the way we should do business," meaning we should incorporate this discovery process into building this company, then the line starts to get blurred. So is it typical for people to put in more than 20 hours a week? I think so. Is it because they have to? Well, I don't know about that. I think generally speaking it's because they get excited about it and they dive in and they realize how critical it is. That would be my comment on the many, many hundreds of teams I've seen do this. Including a lot of NSF, SBIR teams as well. It takes a lot of time. But again when you start not thinking of it as a class, more in terms of this is what we ought to be doing, you will see is the advantage of can continuing it.

Christie: I just want to add that in the FOA we say 20 hours per week is, you should anticipate that being the minimum. But absolutely what Edmund said is correct. Teams do put in more than that. And those who do get more back. But when we query the teams afterwards, we do get averages of about 20 hours per week. Depends on the program.

Christie: Another question: are there any differences if you have a Phase I contract? That's a great specific question. So PA-18-314 is designed for Phase I grantees. But something we are doing this time around is introducing applications from SBIR contractors. Programmatically or delivery-wise we don't anticipate there being any differences if you are a contractor or a grantee. Another question about the 20 hours a week, do we mean for team member or collectively? I actually meant per team member. There will be a lot of things you may not think of that count as activities toward I-Corps. But they do, things like meetings, researching where you are going to interview next. Those all count towards the effort in I-Corps.

Christie: Someone asked: I understand the I-Corps program has a regulatory element added; where does this of peer in the NIH I-Corps program? Do you want to answer this question, Edmund?

Edmund: I will. So the regulatory implications of your businesses tend to get addressed in the breakout sessions that we have. As Christie mentioned, we have three separate tracks. Notionally, it's devices, therapeutics, and diagnostics. Understand we also put some I.T. teams in with the diagnostics teams. We will have to instructors and each one of those groups. One of those instructors is a domain expert. That person stays with you the entire course. The other person is a general I-Corps instructor that will rotate out of your room. They will be in there a few times and then out. And the domain experts will bring their relevant regulatory, even reimbursement, clinical types of things that might come up specifically as it relates to the type of project you're on. It tends to get embedded or integrated. It's not treated separately. Just keep that in mind. So again we try to tailor those types of topics to the specific types of teams in each track. It does get addressed at that level. All of these folks have teaching have had a lot of experience in these areas. It will be helpful not just in the class setting but also in the office hours if you need help.

Christie: Thank you, Edmund. One thing we also do, when we branch out a little bit, is we do talk about the ecosystem, which is something that's a natural fit for companies to be thinking about. Especially complex industry segments like biotech. So many of you come in wondering who your customer segments are going to be and your first inclination is to think about the patient as the customer. Or maybe the physician. Or surgeon as the customer. But once you come into I-Corps and realize the real breadth of the ecosystem around your technology, you will realize that your customers are a lot more than just the classic doctor or patient. And you will need to think about people like those who work in hospitals, those who make the decisions on which pharmaceuticals get put on the list for a hospital. Those are rolled into the regulatory processes. You will get a good sense of all of that through the I-Corps program.

Christie: Another question. When will the venue for the two off-site events be announced? The kickoff venue will not be announced until after applications are submitted. I can let you know that the closing, however, will take place in the Bethesda, Maryland area, in close proximity to the NIH. One of the wonderful things about that lessons-learned closing event is that your program officers have an opportunity to come and see your lessons-learned presentation at the end. And Edmund, would you be able to share a little bit about what happens at the end? What folks are working on at the lessons learned? What they are working towards?

Edmund: Yes. I think you hit the key point there, which is the final presentations truly are lessons learned. We came in thinking this, this is what we have done in the course, and this is what we've learned and what we plan to do going forward based on what we learned. That's another generic way of saying we don't expect every team to reach a certain specific endpoint. Rather, we expect every team to do the discovery, report what they are learning, and adjust based on that pick so that they have a more informed path forward once the course is over. So it really is first and foremost a lessons learned presentation. I tell every team at the end you have 10 minutes, but you should be able to tell us your lessons learned in two minutes without slides. And most of them can do that. Usually two or three very compelling things, most teams have two or three compelling things they learned in the course that change the direction, and that's what they tend to focus on. It's hard to cover everything you learned in the short presentation towards the end, so you have to extract the key things.

Edmund: One of the other things we do those final two days you will have a one-on-one meeting with instructors too to talk about your next steps. That could include things like we want to apply for a Phase II, what should we put in our commercialization plan, what do you think? We try to make sure every team has the opportunity to have that kind of conversation at the end of the course as well.

Christie: Edmund, we have a question I will let you tackle. I think you will hear that there is a multilayer response here. What do you ask during the phone interview in addition to what is there in the application? I'm assuming this phone interview is the round 2 phone interview. Can you speak to that?

Edmund: All right. There are number of things when you're talking about the actual interviews of the teams getting into the course that we will address. Then again, I want to assure you that most of them are related to, do you understand the time commitment? Are you able to could commit 20 hours per week? Will you be there for the opening and closing? Do you have any known conflicts? Have you all work together previously or not? How well do you think you work together as a team? The types of things will ask, we're really trying to get at, is—does this team know what they are getting into? Are they bought into it? And those are the high-level things I know that are most important to me as an instructor. I will help anybody who wants to learn. But I don't want people in there who will follow the process and thinks in a way to get additional money, because it's not. It's not that. I can assure you all the instructors do this because we are passionate about what we think the value is. We are all startup founders ourselves. We are not academics. So if we are going to tell you not only what we think, but we will show you the results we have gotten ourselves in lessons we have learned at our startup experience, too. I want to make sure that's clear. This is immersive, practical course. Many of the instructors, myself included, actually have been through the course. It's not just that I'm a startup, and it's not just that I'm an instructor but I've set your shoes before as a team. With all of that experience we are hoping to bring to bear as much as we can to help you increase your odds for success. That's why were there. We want to make sure you're committed to it and if you are, we are going to help you. We will be more committed to you. That is the key.

Christie: Thanks, Edmund. Can foreign investors serve as industry experts? There is no rule that says foreign investors cannot serve. However, SBIR funds cannot go off-site. We would expect that foreign

investor to be working with the team, conducting customer discovery. They would not be working remotely. I wanted to clarify that particular detail for an industry expert.

Christie: Another question, Edmund, maybe you can help answer this. For therapeutics specifically, is it reasonable to include customer segments that are closer to the current stage of development for the small company -- for example rather than physicians, can we interview strategic partners, CROs, investors, etc.?

Edmund: Excellent question. In some sense I would like to say yes, we want you to talk to all of those people. However, in the course, one of the things we will very much stress, and this is really important for the therapeutics teams that are often many years from actual commercialization or licensing of the technology—what would it take for a physician to adopt a new solution? What are they really looking for? Now this may sound kind of crazy because any of you that of gone out and talk to physicians previously will know that they say "show me the data". "Show me the clinical trial data and I will tell you if I will use it." But we help teams push past that, because what we want you to ask is: understood it has to get through clinical trials, we know it has to be reimbursed, but what would it take for you to adopt it? It sounds kind of simple. It's not easy to get there. But it's critical to understand and we've got great examples. Some of the instructors in the course can share some experiences they had where they got through clinical trials in record time, fast-tracked, only to be dead ended at the other side and nobody adopted what they had developed because they had not gone out and understood. So going back to your question, we certainly would encourage you to talk to lots of people in the ecosystem including the one that you mentioned. But we are really going to focus on who do you think will be the primary decision-maker, who is going to will use the thing, and what are they looking for in terms of a better solution. Anyway, hopefully, that's helpful. We realize therapeutics teams have a particularly long time to market. And ultimately to your point, we will want you to understand from a licensee's or partner's perspective, what are they looking for? Some of the teams get there, by the way, in I-Corps. They are actually having conversations at that level. What thresholds do we have to meet? What we need to show you in order to make us a potential licensing partner or acquisition? Yu get there, but you won't start there. That's a simpler way to put it.

Christie: Thanks, Edmund. We are getting close to the end. So before I let you share your last thoughts,, I wanted to follow on to your response. And also stress that customer discovery is many of those things Edmund just talked about. One of the things that customer discovery is not is sales. So when you are going out and interviewing strategic partners or investors, I want you to be careful that you aren't trying to pitch your product or sell your product. Edmund, do you want to follow up on that thought?

Edmund: Absolutely. At the end of the day the most important thing any startup thing does is sell. But that's not we are doing in this course. We are just trying to make sure that your headed in the right direction. You're validating the need. You are understanding the complexity of the ecosystem. You know, the key things that you need to fill out in terms of building your business. I will leave you with a thought, because we often get the question: is it too early or too late for me to take this course? I can tell you that I've worked with teams that of nothing more than an idea and no technology. I've worked with big corporate clients that are medical products companies that have been in the market for dozens

of years. Trust me, you can all learn something from this process if you buy into it. What you might emphasize might be little different but the discovery process is very enlightening. I will point blank say there are not many teams that go through I-Corps that don't get something interesting out of it. It doesn't come necessarily from instructors—it comes from the interviews that you do. And we are there to help guide you through that process, be a sounding board, and make sure you we get you back on the rails if you go off the rails. Hope to see a lot of you here in the next few months. If not in my cohort, perhaps in the one after that. That's all I had, Christie.

Christie: Thank you, Edmund. My last parting thought is that I, too, am excited to hear from folks. In the chat box, I've left my email address. If you have any questions about who the right people are for your team, I encourage you to reach out. We can set up a call and talk about who you are thinking of proposing for that three-person team. I know that can be the hardest part in putting together the application. I welcome it. Go ahead and give me an email and we can set up a call. Again, I want to thank everyone for participating in today's open-air office hours. We will have a transcript of today's event made available. That will be sent to all the registrants, as well is made available online. With that, thank you so much to Edmund for participating today. Your insight, again, is as always much appreciated. Thank you to all of the participants who have hung in there for this hour. I hope you all have a great holiday ahead. Be safe. We will see you next time. Goodbye.

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