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Transcript of
Inovio Pharmaceuticals, Inc.
Fourth Quarter 2017 Financial Results Conference Call
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Participants

Benjamin Matone – Director, IR
Dr. Joseph Kim – President and CEO
Peter Kies – CFO

Analysts

Charles Duncan – Piper
Shawn Egan – Citi
Gregory Renza – RBC
Alex Schwartz – Stifel
Yi Chen – H.C. Wainwright
Michael Okunewitch – Maxim Group

Presentation

Operator
Greetings, and welcome to the Inovio Fourth Quarter 2017 Financial Results Conference Call. At this time, all participants are in a listen-only mode. A question-and-answer session will follow the formal presentation. [Operator Instructions] As a reminder, this conference is being recorded.

I would now like to turn the conference over to your host, Benjamin Matone. Please go ahead sir.

Benjamin Matone – Director, IR
Thank you. Good afternoon and thank you for joining us today. Today's call is also being webcast live at our website, ir.inovio.com, and will be available for replay as indicated in our press release.

During this call, we will be making forward-looking statements relating to our business, including our plans to develop SynCon® DNA immunotherapies in combination with our proprietary CELLECTRA® delivery devices, as well as our capital resources, all of which involve certain assumptions, risks, and uncertainties and could cause actual results to differ materially from these statements. These statements are based on the beliefs and expectations of management as of today. Our actual results may differ materially from our expectations. Investors should read carefully the risks and certainties described in today's press release, as well as the risk factors included in our filings with the SEC. We assume no obligation to revise or update forward-looking statements, whether as a result of new information, future events, or otherwise.

With me today are Dr. Joseph Kim, President and CEO, and Peter Kies, Chief Financial Officer.

I would now like to turn the call over to Inovio's President and CEO, Dr. Joseph Kim.

Dr. Joseph Kim – President and CEO
Thank you, Ben, and good afternoon everyone.

I'm very excited to discuss our fourth quarter and year-end results for 2017 with you, as well as provide a few updates on our recent clinical development. Inovio continues to be well-positioned to bring forth relentless innovation and executional excellence towards advancing DNA immunotherapies to treat both cancer and infectious diseases. We are also continuing to make strong progress on enrolling patients in Phase 3 trial with our lead product candidate VGX-3100 for treating high-grade cervical dysplasia, which I plan to highlight later in the call.

In addition to our precancer and cancer-focused therapies, Inovio continues to effectively utilize recent grant and non-dilutive funding for our infectious diseases platform. These collaborations and funding continue to support our versatile technology while providing us with multiple out-licensing opportunities. In 2018, we expect additional external funding to support these efforts.

Since coming off our clinical hold, our path for getting VGX-3100 back on track has been a straight line. We commenced our pivotal Phase 3 clinical program to evaluate the efficacy of 3100 in June of 2017, and I'm excited to report that we have already opened nearly 50 U.S. trial sites to date and have initiated nearly 10 trial sites internationally to recruit patients. And, our overall enrollment is on track. Ultimately, we plan to open 100 sites across five continents.

We're also continually adding innovative features to our HPV franchise. You may also recall that in November, we published a post-hoc analysis of data generated from our Phase 2b trial of VGX-3100 in which we identified in-treatment biomarker signatures that predicted success of VGX-3100 treatment with 94% accuracy as early as two weeks after the completion of treatment regimen at week 14. I want to emphasize that this was a full 22 weeks prior to the formal efficacy assessment, and we continue to believe that these biomarkers can aid doctors in guiding patient care during treatment using VGX-3100 and improve the overall value of the franchise.

As mentioned during our last quarter's earnings call, we plan to initiate a Phase 2 proof-of-concept study to extend our VGX-3100 program into anal dysplasia, and we expect this to occur within the next two months. This adds to our ongoing Phase 2 trial for vulvar dysplasia caused by the HPV virus, which is up and recruiting patients. So for VGX-3100, you can expect the Phase 3 data from the two cervical dysplasia studies to be available in 2020. And we anticipate open-label Phase 2 data for both VIN and AIN in 2019.

Lastly, as it pertains to VGX-3100, we entered into an amended license and collaboration agreement with ApolloBio Corporation, which we expect to become effective, as well as to receive the upfront payment of $23 million before the end of this month upon approval by ApolloBio stockholders and receipt of other regulatory approvals.

As a refresher for everyone, this partnership grants ApolloBio the exclusive right to develop and commercialize VGX-3100 in greater China, including Hong Kong, Macau, and Taiwan, which we believe will offer broader capabilities, resources, and market opportunities for treating patients with cervical dysplasia across the globe.

Turning to our Phase 1 hep B program, we announced interim Phase 1 results in a press release this morning, which demonstrated the potential of INO-1800 as an immunotherapy for this widespread infection that is a major cause of liver cancer. Key to my optimism about INO-1800 is that it generated HBV specific killer T cells across all cohorts, and we see INO-1800 as a key immunotherapy component of an effective anti-HBV combination therapy. These results were very encouraging, and we expect to report additional data from this trial at upcoming scientific conferences and in a publication.

As it relates to the next steps for the hepatitis B program, our current focus is on selecting and working with a partner who could best advance INO-1800 in a combination therapy. We have had and are continuing to have

discussions with several potential partners, and we expect to further advance this product through a collaboration or partnership.

Shifting now to our immuno-oncology focused programs, I'll start with our head and neck cancer patient trial. As HPV-caused head and neck cancer remains the fastest rising cancer among men in the United States, we are pleased to see this program moving forward with our partner MedImmune for treating HPV-related cancers. Just this past December, we received a $7 million milestone payment from MedImmune, which was triggered by MEDI0457, formerly known as INO-3112, in combination with the durvalumab, the PD-L1 checkpoint inhibitor, completing the Phase 1 safety review portion of the study and advancing to the Phase 2 efficacy stage of the trial. MedImmune is testing the combination approach in patients with recurrent metastatic HPV-associated head and neck squamous cancer in a Phase 2 clinical trial with an estimated total enrollment of 50 patients. We expect other regulatory milestones ahead from our MEDI partnership in 2018.

In conjunction with MEDI's development of MEDI0457, our progress associated with VGX-3100 for cervical, vulvar, and anal precancers fully positions Inovio as a leading immunotherapy provider for HPV-related diseases across the landscape of HPV infection from precancer to cancer in both men and women.

Now, let's take a look at our INO-5401 program. INO-5401 encodes for three of the top cancer antigens, including human telomerase reverse transcriptase or hTERT, WT1, and PSMA. Indeed, 2017 was a pivotal year for Inovio as we initiated two combination immuno-oncology trials in bladder cancer and glioblastoma. Bladder cancer is considered one of the more immune-responsive cancers while glioblastoma is one of the most difficult to treat cancers. With these two shots on goal, Inovio has targeted both ends of the immune-responsive cancer spectrum, allowing us to see INO-5401's broad potential.

Just last quarter, we initiated a Phase 1/2 I-O trial for bladder cancer evaluating Roche/Genentech's PD-L1 checkpoint inhibitor in combination with INO-5401 and INO-9012, an immune activator encoding IL-12. This trial is designed to evaluate the safety, immune response, and efficacy in approximately 80 patients in advanced bladder cancer, specifically advanced unresectable, metastatic, urothelial carcinoma. As a reminder, the majority of the patients to be enrolled in this trial will be checkpoint inhibitor refractory patients, or patients who have previously received and failed to demonstrate meaningful response to an anti-PD-1 or PD-L1checkpoint inhibitor alone. We anticipate having interim immune response and safety data, as well as potentially early signals of efficacy in 2019.

As for our third shot on goal within our I-O program, we also initiated a Phase 1/2 immuno-oncology trial to evaluate Regeneron's PD-1 checkpoint inhibitor, cemiplimab or REGN2810, in combination with INO-5401 and INO-9012. This open label trial is designed to evaluate the safety, immune response, and clinical efficacy in approximately 50 patients with newly diagnosed glioblastoma multiforme or GBM, which is an aggressive brain cancer. Enrollment for our GBM program remains on track to begin within the next two months, and we anticipate having interim immune response and safety data in 2019.

I also want to highlight our January announcement involving our clinical collaboration with the Parker Institute for Cancer Immunotherapy, as I think this is something many investors underappreciated. Our ability to continue to develop and progress our innovative DNA immunotherapies to be used as a next-generation treatment for cancer remains a core component for our strategic goals. Our initial trial that is under consideration would address muscle invasive bladder cancer with INO-5401 in combination with checkpoint inhibitors and immune modulators, where Parker will have the responsibility for clinical study execution, as well as to provide funding for the initial set of trials. Through the Parker Institute's unique model, we will be able to work with university research pioneers and combination oncology therapy partners while leveraging the Parker Institute's capabilities and expertise to ultimately lead to better cancer patient responses to immunotherapy, all of which aligns with our goal to address cancer with our ASPIRE immunotherapies.

So, looking at our key and fundamental catalysts over the next 6 to 12 months, 2019 will provide us with significant discoveries from our I-O programs, while we can expect 2018 to provide us with more resources and executing capabilities from our infectious disease platform.

Just this past January, we announced the collaboration with the Wistar Institute, to advance two novel SynCon vaccine programs against tuberculosis and malaria, which are both fully funded by more than $4.6 million in total grants from the Bill and Melinda Gates foundation and the NIH. These grants from the Gates Foundation and from the NIH will continue to support Inovio's efforts to develop new DNA vaccines, employing its novel and versatile ASPIRE platform. Specifically, these grants provide Inovio both the resources and opportunities towards the discovery of delivering optimized synthetic antigenic genes into cells, which speaks to our broader capabilities and initiatives to generate robust targeted T cells and antibody responses.

Now, I'd like to introduce our CFO, Peter Kies, who will discuss our fourth quarter and end of year financials. Peter?

Peter Kies – CFO
Thanks, Joseph.

Total revenue was $8.8 million and $42.2 million for the quarter and year ended December 31, 2017, compared to $8.5 million and $35.4 million for the same periods in 2016. Operating expenses were $31.7 million for the last quarter and $125.9 million for the year ended, compared to $30.9 million and $111.6 million for the same periods in 2016.

Net loss attributed to common shareholders for the quarter and year ended December 31, 2017 was $21.5 million or $0.24 per share and $88.2 million or $1.08 per share, as compared to a net loss attributed to common stockholders of $26.2 million or $0.35 per share and $73.7 million or $-1.01 per share for the same period in 2016.

Research and development expenses for the quarter and year ended December 31, 2017 were $24.6 million and $98.6 million as compared to $23.9 million and $88.7 million for the same periods in 2016. The year-over-year increase in R&D expenses was primarily was actually related to an increase in employee headcount to support our R&D and clinical trial activities.

General and administrative expenses for the quarter and year ended December 31, 2017 were $8 million and $28.3 million, compared to $7 million and $23.9 million for the same periods in 2016. The increase in G&A expenses for the year was primarily related to an increase in employee headcount and non-cash stock-based compensation.

Finally, our financial position remains very solid with total cash and cash equivalents and short-term investments of $127.4 million, compared to $104.8 million as of the year-end December last year. At quarter end, the company had 90.4 million shares outstanding and 99.6 million shares outstanding on a fully diluted basis. Back to you, Joseph.

Dr. Joseph Kim - President and CEO
Thanks, Peter.

Before we get to your questions, please remember the three top goals that Inovio will deliver on becoming. Number one: The go-to immunotherapy solution provider for all diseases caused by HPV, including for precancerous diseases like CIN, VIN and VaIN with VGX-3100, and cancers caused by HTV along with MEDI in utilizing MEDI0457. Number two: To become a leader in T cell, generating immunotherapy in combination with PD-1 and PD-L1 checkpoint inhibitors for multiple cancers, MEDI0457 with MEDI, as well as INO- 5401 with both Regeneron and Genentech. Number three: To become a leader in a new vaccine development for rapidly combating emerging infectious diseases, utilizing full external funding and to leverage platform safety and immunogenicity data to additionally develop novel commercially-attractive vaccine franchises. These three goals show where we're going and how we're going to get there.

Now for your questions. Operator?

Question-and-Answer Session

Operator
[Operator Instructions] Our first question Charles Duncan with Piper Jaffrey. Please go ahead.

Q: Thanks for taking the questions, Joe, and thanks for the overview. I had a couple of questions. So, first one, I just wanted to dismiss quickly, and that is, recently a mind-share competitor had a clinical hold placed on a cervical cancer trial. I'm just wondering if you could compare and contrast your technology to that mind-share competitor and whether or not you think your efforts are at risk.

Dr. Joseph Kim - President and CEO
First of all, I don't think our efforts are at risk at all. Obviously, I can't directly speak to the competitor's clinical hold. But our ASPIRE platform and our product candidates have demonstrated a favorable safety profile in over 1,500 patients dosed, over 5,000 times, across multiple trials, and multiple indications. And, it's not surprising that we have a very strong safety profile, as our products are elegantly designed, engineered, pure DNA sequences delivered with transient electrical energy. So, we don't use any chemicals. We don't use any adjuvant. We don't use any viruses or bacteria to deliver our products. So, I think ASPIRE platform and product candidates are superior in its design. And, so far, the clinical data has borne out.

Q: Have you had any recent discussions with the agency around that, perhaps as a result of this recent news, or do you feel like it's not necessary?

Dr. Joseph Kim - President and CEO
No, we haven't had any concerns or discussions about that.

Q: And, if I could just ask a question regarding VGX-3100 cervical dysplasia. You mentioned that the site initiation was going well. I think you have about 60 out of 100 that you've started up. When you start a site, that doesn't necessarily mean that you've enrolled patients at that site. I think you mentioned enrollment was on track, but could you provide a little bit more color on either numbers or the kind of patient characteristics that you are seeing enroll in that trial.

Dr. Joseph Kim - President and CEO
Well, I can tell you that enrollment currently is on track as we planned. As we discussed before, we don't plan to give a play-by-play numbers like the ESPN Sports Center. But, once we complete and enroll the first trial, we will report that. But, what I can tell you in terms of the context of our site openings, you are correct. Just because the site is opened for recruiting, doesn't mean we have utilized that site to already recruit—dosing the patients. But, typically, you've got to first open it and then enroll the patient. So, we are pretty optimistic and very happy with how we are progressing now.

Q: And, interest in the trial seems to be, either from patients or investigators thus far seem to be—how would you characterize the interest thus far?

Dr. Joseph Kim - President and CEO
It's very high. March 4th was the first international HPV day that was celebrated or memorized throughout the world. As you know, there has been more and more recognition of what kind of diseases that HPV infection causes, including cervical dysplasia and cancer, as well the head and neck cancer in men. And, it's finally being recognized as a number one, sexually-transmitted disease. And, you and I have known this for a long time, but I think the world in general is starting to recognize it more, and the physicians and patients, there's huge interest in having an immune therapy-based treatment that doesn't involve surgery, which has lots of side effects and complications. So, I think the overall sentiment and excitement is in Inovio's favor, in our VGX-3100's favor.

Q: And then, last question—I appreciate you've taken them all—is that the biomarker information that you mentioned was pretty intriguing from the previous study. And, I guess I'm wondering, in the ongoing Phase 3 are you still collecting that biomarker signature information and could that prove to be, call it, a validation set or study, and may you perhaps pursue a companion like diagnostic type thing, or I guess it would be a prognostic thing, or is this just background research?

Dr. Joseph Kim - President and CEO
No, I think you hit the nail on the head with the earlier part of your question. So, the published data that we mentioned is actually from a post-hoc analysis of our 167-patient data from our Phase 2 studies. And, having found that, we actually prospectively built that into our Phase 3 evaluation as secondary endpoint. So, those information are getting gathered, and we will be able to, in a double-blinded fashion, be able to test our hypothesis that we can predict, as early as week 14, how well all the patients are responding at week 36. And, that in itself, as you said, can be served as a separate diagnostics or companion treatment aid that will definitely help in managing the disease with VGX-3100 and, I think, in an overall health economic way, it will improve the commercial value of our franchise.

Q: Excellent. Thanks, Joe, for taking all the questions, and good luck on the progress this year.

Operator
Our next question comes from Joel Beatty with Citi. Please go ahead.

Q: Hi, Joe. This is Sean calling in for Joel. Thank you for taking my question. For my first question, can you talk to us briefly on the market opportunity for your HPV franchise, specifically, what message will differentiate your vaccine from current surgical intervention and, also, what role emerging diagnosis could play in that setting?

Dr. Joseph Kim - President and CEO
Yes, absolutely. So, HPV-caused precancers currently are treated mostly with surgical procedures. And, especially for cervical dysplasia, surgery can have lots of surgery-related side effects. But, perhaps most importantly, the cervix, which is a critical component of a woman's reproductive capability, is damaged. So, the post-LEEP patients have twice the rate in future birth, twice the rate of miscarriages and preterm birth. And, because the surgeons cannot see the virus in the top layer of the cervix, often they miss, and the virus is still there. So, approximately a quarter of the patients, even right after the surgery, still we can detect the presence of HPV. So, there are recurrences. Up to 16% of the women after the surgical procedure CIN 2/3 experience recurrence, so having to go through this procedure again. When you look into vulvar and anal dysplasia, the recurrence rates bounce up to 50 to 60%. So, that's a major disadvantage of the surgical procedure.

Market opportunity is about 400,000 women are newly diagnosed for CIN 2/3 just in the U.S and Western Europe alone, and that 10 to 20 times when you include the rest of the world. So, we're talking about a huge potential market. And for vulvar and anal dysplasia, this is much smaller, but it also gives us an opportunity for utilizing those indications as orphan disease indication. So, we are positioning VGX-3100 as the first in class, first nonsurgical, and first immunotherapy solution for these diseases.

And then, I think you were asking about the diagnostics, and I think I covered that a little bit earlier with Charles's question. But, I think having a diagnostics—or tools that can help to manage the disease during treatment, will be highly valuable additional source of revenue and also a great tool for the patients and the doctors.

Q: That makes sense. Thank you. And, my second question is could you provide any enrollment update on your study I-O checkpoint study? And then, as a quick follow-up to that, will your studies be evaluating from a mutational group?

Dr. Joseph Kim - President and CEO
The last question first. We will be evaluating those informations in each of those studies. What I can tell you about our INO-5401 study is that we had our IND approved late last year. We are working to open the sites and have the first patients dosed, both for our bladder and GBM studies, in the next few weeks. And, we have 20 plus sites in each study ready to enroll. For the MEDI0457 studies, MedImmune has full control of the information. But, what I can share with you publicly is we have gone from the Phase 1 lead-in portion to Phase 2, which triggered the milestone payments that I mentioned in my earlier statement. So, the head and neck study is a little bit ahead compared to our own 5401 studies. But, we like to see healthy competition along our sibling I-O programs.

Q: Great, and then, my final question is can you provide any additional color on the Parker Institute collaboration, specifically what will be the focus of the studies and which products will be enrolled?

Dr. Joseph Kim - President and CEO
Which products is, initially, it's INO-5401. And, the Parker Institute agreement or the master agreement really covers a broad collaboration between Inovio and the Parker Institute. Our initial studies that we are contemplating together is in muscle invasive bladder indication where we will be utilizing INO-5401 in combination with other checkpoint or immune modulators that the Parker has access to from other organizations, which is distinct from our currently open study for treating metastatic PD-1, PD-L1 refractory bladder cancer patients with Genentech's PD-L1 inhibitor. So, and our goal is to really expand into bladder cancer where Inovio has a significant presence and expertise and dominance in terms of the checkpoint combination and treatment paradigm for such an important cancer.

Q: Great. Thank you, Joe. I appreciate it.

Operator
Our next question comes from Gregory Renza with RBC. Please go ahead.

Q: Hi. Congratulations on the progress, and thanks for taking the questions. Just a few quick ones, if I may. Just returning to 3100 and the enrollment, could you just please remind us of or perhaps provide additional color on the potential mix with U.S. versus international and what you are potentially doing to account for any potential variability there or ensure consistency of the study once it's set up?

Dr. Joseph Kim - President and CEO
In our Phase 2 study, we had an aspiration of having VGX-3100 as a global product that can reach multiple regions, including our home region of U.S. and also primary markets of Western Europe and elsewhere. So, we

had a breakdown of about 70% U.S. sites and 30% global, even in our Phase 2 studies. Now, Phase 3, in efforts to expand our enrollment capabilities and also accessing other market opportunity regions, we will have approximately more than half of our enrollment ex-U.S. So, I mean, we have certain goals. But, I think we're not going to have any proportions that are preselected, meaning we're going to open these sites and let them enroll as rapidly as possible. So, there's no quota for any of the regions and so on. What we saw in our Phase 2 studies was that, whether it was in the U.S. or ex-U.S., we didn't really see any statistical significant differences among the responses from these patients, and their demographic makeup didn't really make any difference.

Q: Got it. Thank you. With respect to the timing and the coordination of the Phase 3s and REVEAL 1 and 2, what's the latest on REVEAL 2 as far as getting that up and running? How should we think about that timing?

Dr. Joseph Kim - President and CEO
REVEAL 1, just to jog our memory is an in-study portion of the study. REVEAL 1 and 2 are identical dosing at month zero, one, and three, and efficacy and safety evaluation at month nine, or week 36. REVEAL 1, just like our Phase 2 study had, the FDA asked for a one year safety follow-up. So, it's a full 88-week study. So, 36 weeks actively monitoring and then there's safety monitoring of another year, so it's an 88-week study completely.

REVEAL 2 through week 36 is identical to REVEAL 1, but we have a one month follow-up or four weeks follow-up. So, the total study period for that is 40-week study. So, each study will enroll 198 patients. And, as you could imagine, we want to land at the same time. So, we've started REVEAL 1 first, last year, and then REVEAL 2 we expect to start when we are about to finish REVEAL 1. The reason for that is there's no need to start REVEAL 2 before the REVEAL 1 is completely dosed, because you're really at the last person in for REVEAL 1, which has the longer follow-up. So, as you can imagine, our team is looking very extensively in how best to manage that. My current projection is REVEAL 2 will start by the end of this year or early part of next year.

Q: Great. Thank you. And just one more on the INO-1800. I'm just curious when you'd expect to share that forward data. And, then, also, it sounds like partnership certainly the goal here. I'm just curious if you have a sense of timing expectations on the partnership itself, and certainly, most importantly, when you expect to share that forward data and which venue?

Dr. Joseph Kim - President and CEO

Yes. The partnership first, as I said that finding a right partner that can most effectively move the program forward in combination with other drugs to have the most effective, anti-HPV regimen is our primary goal. So, we have had meetings and discussions with several top potential partners, and we will share these new data with them privately and under confidentiality. I think, that's our primary goal, because that's the best value driver for us. In terms of presenting to the field, we are evaluating several liver or viral conferences this year, and we are also drafting a manuscript going forward. So, all of these things are forthcoming. And, as they happen, we will certainly share those with you and others.

In terms of our focus, I just want to add to this, we are looking at a partner for INO-1800 because really our true focus, where our hearts and mind, and where we're spending our money, really is our HPV program and our I-O combination programs. Everything else, we want to leverage and bring value to our company, but through our partners with companies and funders and so on. So, we see infectious disease as ways to add value but where we drive value is really is where our focus is, which is our HPV and I-O combination therapies.

Q: Got it. Thanks you, Joseph, and congratulations again.

Operator
Our next question comes from Alex Schwartz with Stifel. Please go ahead.

Q: Hi, Joseph and all the team. Congratulations on all the progress. I had two question. First off, can you give us an update on the next steps with your HIV program, maybe what trials are you looking to conduct next? As well as, when I look at your milestones, I see additional data report publications of HIV for this year. What can we expect to see next with HIV, both in results and maybe a next study?

Dr. Joseph Kim - President and CEO
Yes. Thank you, Alex. You can expect to see two things. One is our HVTN 098 data where the topline data was presented last year. The full data sets are getting prepared, and we are working with HVTN and our collaborators to submit a manuscript later in 2018. So, you would expect to see full Phase 1 data through a publication and additional presentations in conferences in 2018.

In terms of why we were so excited about that data is, it's a vaccine that has the potential to protect against multiple different subtypes and clades, and the level of T cell immune responses generated in that study, as well as antibodies. And, just to remind us, these are all funded with an NIH grant and conducted by the HVTN, which is a NIH-funded clinical trials group. They conducted all the trials and they conducted all the assays. And, they have the wherewithal to compare, platform-wise, with all the other HIV vaccines that they have tested in the last 25 years. And, guess what, we had the best T cell responses from any other vaccine platforms that were tested. And so, we share their optimism and excitement in that. Where that study is going to go, where that program for PENNVAX-GPs going to go, once these are clarified then we can share with the public. But, we expect there to be additional studies with PENNVAX-GP in a preventive HIV vaccine setting.

Now, the second part of our HIV program is also fully-funded by the NIH. We have received with our clinical collaborator at UCSF, Dr. Steven Deeks, who is the PI for a new study that's being prepared, where we're using PENNVAX-GP as an immune therapy, and it will be used in combination with antiviral drugs initially. And what's so cool about this is the second part of these clinical studies will bring in a PD-1 checkpoint inhibitor, with the goal of seeing if an immunotherapy combined with PD-1 can, along with antiviral HIV drugs, help to clear the virus in the patients where the virus is hiding away in different reservoirs or different sites in the body. But, perhaps using these different drug combinations can flush out the virus, and may I say, to bring about a functional cure of HIV infection. Now, this is a very high-risk, high potential benefit type of a trial. Precisely what you want to use, external funding from the NIH to do. So, more information on the study, when it starts, and when they progress, we will share with the public.

Q: Okay. Thank you. Excellent. And, then, a second question, more of a modeling question. In addition to the potential $23 million upfront by ApolloBio, what other revenue milestones are you anticipating this year? And, do you have a sense of where your year-end cash balance may be?

Dr. Joseph Kim - President and CEO
So, $23 million this quarter from ApolloBio is a major non-dilutive license fee expect. We could project additional partnerships can generate more non-dilutive cash into the company. We're not comfortable in sharing that exact number at this point. But, as things become more solidified, we can do that in the future. In terms of ending cash balance, we expect the overall net burn for 2018 and 2019 to be approximately $70 million. So, with our current cash, plus what's coming in from Apollo, we expect about two years of cash runway right now, which I think is a solid financial position that Inovio's in. And, obviously, we will look to bring in additional non-dilutive partner and grant funding going forward as well.

Q: Okay. Excellent. Well, thank you for taking my questions and congratulations on the progress.

Operator
Our next question comes from Yi Chen with H.C. Wainwright and Company. Please go ahead.

Q: Thank you. My first question is, can you update us on the current status of the ZIKA trial in Puerto Rico? When can we expect to see results, and what are the likely steps after the data readout?

Dr. Joseph Kim - President and CEO
Yes. So, ZIKA trial, we had enrolled all 160 people last year prior to the hurricane problems that the island had. So, we expect very little disruption from the power problems that they have been having in the island. Eighty people have received our vaccine, 80 have received the placebo, and they are participating through frequent follow-up visits. We expect to have the final visit later this year and the results will be tabulated and we expect to be reported.

Our first trial in the U.S. and Canada, the results were published in the New England Journal of Medicine, where we had 100% antibody response rates in all participants. So, we're looking forward to similar level of results from our Puerto Rico trial. What's really cool about the design of this trial is a placebo-controlled nature. We could have an early look of signal of efficacy. We are hoping to see a difference between the vaccinated group versus the non. Obviously, really it's driven by the infection rates in the island with ZIKA. And, based on both sets of study data, we are discussing with various potential funders for the next steps in advancing our ZIKA vaccine to Phase 2 evaluation and beyond. So, this is a program that we will utilize external funding to advance.

Q: Thank you. And, my second question is do you expect to have the universal flu vaccine enter the clinic sometime this year?

Dr. Joseph Kim - President and CEO
So, that's a really good question. Flu vaccine is a key R&D area for us, for our research group. And, we published really forceful paper in vaccine earlier this year, or late last year, showing that we can protect against multiple different strains of H1N1. We also have similar results for H3N2, which is a second component, and then type B as well. Similar to my response to ZIKA, we are evaluating the potential funders for advancing the flu program. Obviously, with the recent flu season we have encountered, there is a strong push for better seasonal vaccines, which Inovio's candidates can serve. And, as you approach better seasonal vaccines, I think we can eventually get to where these vaccines can be universal or highly, broadly protective. And, our clinical progress, which we will share as they happen, and the timelines will be predicated upon the external funding, but we have very active discussions going right now.

Q: Thank you.

Operator
Our next question from Jason McCarthy with Maxim Group. Please go ahead.

Q: Hi. This is Michael Okunewitch on behalf of Jason McCarthy. So, I was just wondering if you could give us an update on some of the other trials, such as Ebola and MERS.

Dr. Joseph Kim - President and CEO
Yes. Both studies are completing, meaning, there are some safety follow-ups and so on. The top line data have been presented at conferences where we expect to have clinical publications for both Ebola and MERS Phase 1 studies this year in 2018.

Q: Thank you. My others questions are already answered. So, thanks for taking my question.

Dr. Joseph Kim - President and CEO
Great. Thank you very much.

Operator
Thank you. There are no further questions at this time. I would like to turn the floor over to Joseph Kim for closing comments.

Dr. Joseph Kim - President and CEO
Thank you everyone for your questions and joining us this afternoon. We have a lot to look forward to here at Inovio over the next 6 to 12 months. And, I know we are all very eager to see additional clinical results during this time. I want to just remind everyone on what makes Inovio so special and what I think places of in the best position to execute over the next 12 months. Utilizing our ASPIRE technology platform, we have been able to establish our T cell activating immunotherapy as a foundational component for treating HPV, as well as in combination strategies to improve patient responses to checkpoint inhibitors for treating cancer, all while having a favorable safety profile. So, again, we look forward to providing more updates from posters, publications, and from various presentations over the coming months. Thank you again, everybody, for joining us tonight and have a great evening.

Operator
This concludes today's teleconference. You make disconnect your lines at this time. And thank you for your participation.