

Michael J. Fox: This is Michael J. Fox. Thanks for listening to this podcast. Learn more about The Michael J. Fox Foundation's work and how you can help speed a cure at michaeljfox.org.

MJFF: Welcome to a recap of our latest Third Thursday Webinar. Hear directly from expert panelists as they discuss Parkinson's research and answer your questions about living with the disease. Join us live next time by registering for an upcoming webinar at michaeljfox.org.

Sohini Chowdhury: Hi, everyone. Thank you for joining. My name is Sohini Chowdhury, and I'm Deputy CEO, Head of Research at The Michael J. Fox Foundation for Parkinson's Research. Today, our panelists will discuss the Foundation's landmark study, the Parkinson's Progression Markers Initiative, or PPMI for short. We'll cover the study's expansion and impact, scientific results coming out of PPMI, and the critical role you can play in speeding a cure.

Sohini Chowdhury: Before diving into things, I want to take a moment to introduce our panelists. We have Dr. Ken Marek, the president and senior scientist of the Institute for Neurodegenerative Disorders in New Haven, Connecticut. He's also the principal investigator, AKA the head honcho, of PPMI. We also have Ray James, a nurse specialist in the Parkinson's Disease Movement Disorder Center at Boston University Medical Campus. He's also the PPMI study coordinator at our Boston University site. Jen Gaudio of New London, Connecticut was diagnosed with Parkinson's disease in 2010. She was one of the first participants to ever enroll in PPMI at the Institute for Neurodegenerative Disorders. Last, but certainly not least, we have Jerry Pollack of Meridian, Idaho. He doesn't have Parkinson's, but his father, brother, and sister all do. He's a PPMI participant at our University of Washington, VA Puget Sound Health Care System site.

Sohini Chowdhury: Thank you all for joining us today and welcome to this webinar. I wanted to maybe start off, before diving straight into PPMI, I wanted to start off and maybe talk a little bit about what it takes to accelerate science. Living in these past two years of the pandemic, one of the silver linings out of it has been the ability to actually see what can happen and how quickly science can react to things. I think the COVID vaccine shows us the possibilities of fast science delivering impactful things into patient's hands.

Sohini Chowdhury: Dr. Marek, maybe what I'll start off first is asking you, what does it take or what will it take to really move Parkinson's science to get us there faster in terms of delivering impactful therapies into patient's hands?

Ken Marek: Great. Thank you so much, Sohini, and thanks everyone for listening. I think really the key to moving us forward is acquiring convincing, reliable information or data from as many people as possible. I think one of the issues we have in Parkinson's disease is that we think of this as a single entity, but it's really many different entities that everyone with Parkinson's disease is a little different. Collecting information on the experience of many, many different people is

extremely valuable to us in order to try to understand what the best ways are to move forward for the most people.

Ken Marek: I think the other point here is that we need to collect information in a timely way and we need it to be over time, so not just one time, but over a period of time, because of course Parkinson's disease is a disease that changes over time and we need to understand how it changes in different people. I think that's really a key and it's an area where we really need the help of everybody on this call.

Sohini Chowdhury: Thank you, Ken. I think that's a great segue then into jumping into exactly what PPMI is, because essentially, PPMI really is trying to address a lot of what you just outlined as critical factors that would help us accelerate and get a better understanding of disease to therefore treat the disease. For those on this webinar who may not be familiar with PPMI, as I mentioned earlier PPMI stands for the Parkinson's Progression Markers Initiative, and it's one of the landmark studies within MJFF's research portfolio. It was launched around 11 years ago with the goal of following individuals with and without Parkinson's disease and collecting enormous amounts of information on these individuals, asking them questions when they come to site about cognitive, about motor, about balance, all sorts of things like that, about imaging their brain, collecting different bio samples, et cetera, all with the idea of really developing as much information to understand exactly what Dr. Marek identified, to understand how does this disease progress.

Sohini Chowdhury: We know it progresses differently for people for different people, so what can we parse out, are there different journeys, are there eight different journeys, are there more, are there two different journeys, and how can we maybe better understand who might be on what journey as they go through Parkinson's disease. It's really been a critical study to help us gain that understanding, again, all with the idea that if you better understand the disease, you're better able to then determine is a drug having an effect on the disease. It progresses at a certain rate and we have a drug and we can test it, does it stop or slow that progression? That's why it's been such a landmark study.

Sohini Chowdhury: The exciting thing about the study is that in the past 11 years, we have seen how the study has firsthand really catalyzed the biopharma industry. We know that there are over 20 clinical trials that have moved into clinical testing because they've been able to utilize data coming out of PPMI to gain that sense of, yes, there's something here, let's move in and let's really test our drug now with patients. That's extremely exciting.

Sohini Chowdhury: But we are here still to talk about PPMI, so clearly our job with PPMI is not yet done. Again, Dr. Marek, maybe I'll go back to you. I referenced earlier expansion and the study expansion. Could you talk a little bit about why are we expanding the study and what do we hope to accomplish by expanding PPMI?

Ken Marek: Certainly, thank you. Just taking a step back, PPMI is really a study which is designed to collect information to try to understand what are the determinants of disease progression, with the goal being that with this information in hand, we can accelerate therapies that would be more effective for the larger number of people.

Ken Marek: We initially focused this study on individuals with Parkinson's disease, but as we have expanded the PPMI program, we have both been able to increase the number of individuals who we now have involved in the study with Parkinson's disease, but also move to try to understand what are the determinants of Parkinson's disease before it begins, so that is to say individuals who don't yet have Parkinson's disease but we believe have some level of risk of developing Parkinson's disease during the next few years. We hope that if we can focus on these individuals, ultimately we can identify what are the different journeys these people take and eventually identify drugs that might actually prevent the onset of disease, in addition to treating the symptoms of disease.

Ken Marek: This is, as you can imagine, it's a difficult task, because we need to involve many thousands of individuals who we can ask to participate and to provide information in order to identify those much smaller number of individuals who we believe might be actually at risk to develop Parkinson's.

Sohini Chowdhury: Thank you, Dr. Marek. I think you know, your number of thousands is a great way to underscore just how at the end of the day clinical research really relies on individuals volunteering and participating in that research. It's a true partnership between the science and the individual participant. When we think about volunteers, clearly we would not be where we are today, the field would not be where it is today, without the over 1,400 individuals who have participated in PPMI to date.

Sohini Chowdhury: I'd like to now turn it over to Jen and Jerry for a moment. I'd like to ask you both if you would be willing to share some of the motivations that drove you to participate in PPMI. Maybe I'll start with you, Jen, if you wouldn't mind talking to us, as one of the first participants enroll in the study back in 2010, what were some of the drivers that led you to make that decision?

Jen Gaudio: Well, I started having symptoms in 2007 when I was living in Virginia. I was afraid it was Parkinson's, but no one would tell me directly because I was 38 years old and a woman, which was unusual, I guess. When I moved up to Connecticut, things started advancing. I found a fantastic neurologist, Dr. Morrow, who again, well, she told me she thought I had Parkinson's but she didn't want to diagnose me without sending me to the Institute for Neurodegenerative Disorders, where I met Dr. Russell and we talked about the prognosis. I was uncomfortable with the way that I was being tested for Parkinson's.

Jen Gaudio: The conclusion was that I was actually diagnosed by the PPMI study because they had a DaTscan, which at the time it was not used for diagnostic purposes. It

proved that I did have Parkinson's. From there, it was a no-brainer to stay in the program because I was devastated and could not think of any other way to fight this disease by providing data to help cure it. That was the ultimate motive. It was a little bit altruistic and a lot of my saving my own sanity, giving me a goal to fight for.

Sohini Chowdhury: I think your answer really highlights that it's probably never one driver of why one makes a decision to participate in research. There's probably a lot of factors that come into play. I'm curious, Jerry, having heard Jen's experience, what was your experience like? What were some of the things that you were contemplating as you thought about participating in PPMI?

Jerry Pollack: Well, as you heard from Sohini's introduction, my father, brother, and sister were all Parkinson's victims. That in itself was motivation enough for me to join the PPMI study. Not only do I owe it to them and the rest of our family, but it's an opportunity to hopefully contribute in some way to the advancement of the research and ultimately positive outcomes.

Jen Gaudio: It really was something that I could cling to as something productive, as Jerry said, that he owed it to his family. It was the best thing in the world for me to feel like I was contributing to something greater than myself.

Sohini Chowdhury: Well, I mean, I just want to take a moment to just thank you both, A, for sharing that, and also just again, for your continued support and participation in PPMI, it is very inspirational.

Sohini Chowdhury: I might just turn things over, Ray, I haven't had a chance to talk to you yet, but you clearly are at the front line as one of the site personnel study coordinator who often interacts with individuals very early on, as they're thinking about whether they want to participate in a clinical research study, and in this case in PPMI. I'm just curious, what are some of the questions that you get as you talk to people about this study, and in particular if I could ask you to address, one of the things that I know is always of interest to people is the fact that through participation in a study like this, you're giving a lot of information about yourself and people are naturally always concerned about how that information will be safeguarded, so how do you also address the concerns around privacy and safeguarding data and information?

Ray James: Yeah, thanks, Sohini, and thanks everyone. It's nice to join this panel and also to be part of this study since its beginning back in 2010. You asked a lot of great questions there and that definitely opens up the floor to just a lot of things in terms of what people have questions about and how are we keeping information safe and secure, because it is a lot of information that we have to go through. Oftentimes, people wonder what information is going to be clinically relevant versus what information is going to be kept as part of the research. I think that's another thing that comes up too, but it's important for people to know that their information is going to be kept secure. There's a lot of passwords and firewalls and things like that that we use at our institutions and

hospitals to make sure that that information is kept secure. We also have to make sure that we pass muster with the ethics boards that review these studies. So these aren't just generated out of nowhere. I mean, we have to make sure that what we're doing is correct. So we have regulatory specialists, other scientists, physicians, nurses, people in the community who look at this study and make sure that we're really safeguarding people's information the right way.

Ray James: It's not being sold to other people, and we make sure to code people's information too. So at a site we hold onto that information and then we make sure to code it so that when it's given over to other researchers to look at and analyze, they do it in a somewhat de-identified fashion. So when they do pull all that data together and they share the results, it's not your personal information that's going to be part of that. And another other question people often ask is, "Well, how long am I going to be part of this study?"

Ray James: As Dr. Marek said, it's over time that Parkinson's changes. And so, yes, it's going to take a bit of time, and what we're asking people to do is to commit to five years in this study. And like Jen is doing, she's even participating a bit longer. She's been part of this study for a long time now, and so we're offering an extension for folks who were part of that original cohort and can ...

Jen Gaudio: They can't get rid of me.

Ray James: A few more years.

Jerry Pollack: I might add that I think I've been in this study now either five or six years and am obviously continuing. So hopefully, I was going to say this could go on forever and I'd like to be there to do it.

Jen Gaudio: I've actually signed off on donating my brain at the end of it, because I would like to provide the most clear package of information. And if they need my tissues for it, then I am all for it because I won't be needing it at that point.

Sohini Chowdhury: I think you both raise, I mean, Dr. Marek, you mentioned earlier and Ray referenced this, over time, but I think one of the things we're realizing with PPMI that maybe surpassed our original expectations is that just how much are valuable the information is that are contributed by participants the longer they stay in the study and the longer we can sort of see their individual journey with the disease and compare it to those who may not and to really start to tease out what is going on.

Sohini Chowdhury: And so I'm just curious listening to this, what are your thoughts about the longevity of PPMI and the value of being able to really have this longitudinal data set?

Ken Marek: Yeah. No. I totally agree that these longitudinal data sets are increasingly valuable. And I always tell people that every day you participate, your data gets more and more valuable. So Jen is really off the charts here. And I think that it's valuable in a number of ways. It's valuable, of course, because we learn what happens to people over time. But I just point let me make one other point and how it's valuable in that it's a way of accelerating research because now we have this data, we are collecting all these clinical information and we also are collecting what we call bio samples.

Ken Marek: We're collecting blood and urine and spinal fluid and those are stored. So when new ideas come up, we can sort of access these bio samples and we already have all of that information on all of these people over the years to compliment those bio samples. And this has really enabled us to really take advantage of new ideas as the study has gone on in a very efficient way and I think it's really helped us to really jumpstart a number of different areas in Parkinson's.

Sohini Chowdhury: Yeah. I think one of the things I hope our audience is realizing is what a unique research study PPMI is. I mean, it's designed to try to get in a short term fashion to some really essential questions to try to drive drug development. But it's also been designed to be this ongoing resource for research so that as new ideas come up, we don't have to start over, but that we can actually leverage what has already been built. And I think that's a very unique type of infrastructure if I can call it that in the research community.

Sohini Chowdhury: One of the things, if we keep moving, is that in 2010, when PPMI started, it was a very different world than what it is today. And one of the exciting aspects of the expansion of the study is that not everything has to occur within a traditional clinical research setting. What most people think of, you go to a site, you meet with someone like Ray, you talk, you have your blood drawn, or your other samples are collected that can reference, etc., and you do this maybe every six months. One of the unique things about the expansion of PPMI is actually the launch of an online study component.

Sohini Chowdhury: So whereby really anyone over the age of 18 in the United States, and hopefully next year outside of the United States, are able to actually contribute information wherever they have an internet connection and to be able to kind of contribute to the study in a different way. And so, Dr. Marek, maybe what I might go back to you to sort of talk a little bit about how does this online portion of the PPMI study, how does it fit within some of the other sort of components of the study, like the traditional clinical visits that I just described?

Ken Marek: So PPMI online really complements the more traditional clinical component of the study. PPMI online is just been launched very exciting and we're all now much more familiar with going online and getting information and buying things we need and so forth. And here, we're what we're asking people to do, anyone who's over 18, is just go on and provide us with some information about you. Based on your responses, we are going to potentially ask you to provide some additional information, but this is a way where we can really kind of broaden

the study dramatically and enable individuals to participate now throughout the country, but hopefully throughout the world, and also increase the numbers of individuals who participate dramatically.

Ken Marek: We're thinking again to have tens of thousands of people on this PPMI online platform that can provide information, and this will really serve two roles. One, it will dramatically accelerate our understanding of Parkinson's, in general. But it also provides us with an opportunity to really identify individuals, as I was mentioning earlier, who might have some additional risk of Parkinson's disease, who we might be able to identify and ultimately bring them into the more detailed PPMI study can help us even further.

Sohini Chowdhury: And I think for those of you who may be intrigued by this, I believe that you can actually, there's a get started button in the take action box on the bottom right of your screen. So while we definitely don't want to lose your attention for this webinar, you can actually, I think, kind of click that button and explore online and sort of see what that entails. And again, I think, Ken, Dr. Marek, you referenced a really important component, which is that you can get so much information from tens of thousands of individuals. And I'm always reminded by something that Michael has said, which is if you meet one Parkinson's patient, you've met one Parkinson's patient.

Sohini Chowdhury: And the journeys and the heterogeneous nature of the disease is such that you really need to learn about everyone's journey with Parkinson's to really tease out, again, the essentials of how we tackle this disease. And I think an online component really just allows us to get to that scale, that number of volunteers that we would never otherwise be able to do, which is just so exciting.

Ken Marek: I was going to say, and just to reach individuals who might not have an easy access to kind of experts in movement disorders. This is an opportunity for everyone anywhere now, again, around the US and hopefully larger to that to participate, and we would encourage you. Yeah.

Sohini Chowdhury: Yeah. Absolutely. And I think the online component of the study is fascinating and I think we're so excited about the potential of it and what it's going to yield as more and more individuals enroll. But the study itself, the clinical component, again, the part that maybe we're more familiar with is actually also expanding. And we're moving actually from over 30 sites from the original iteration of the study when it was launched in 2010 to around 50 sites in 12 countries, and really looking to enroll up to 4,000 individuals.

Sohini Chowdhury: Which again is really a Testament to kind of trying to get as much information from as large a group as we can to really hit some of these important questions we need to hit to understand how we can accelerate developing therapies. In this particular slide, we talked a little bit about too while the study's open to everyone and we just talked about the fact that you're over 18 in the United States, and eventually outside of the United States, you can participate through the online portion of the study.

Sohini Chowdhury: There are some groups that we have a particular interest in really making sure that they hear this call to action and they consider getting involved. And I think that the first group I wanted to kind of highlight is the group that we call the de novo Parkinson's group, which are individuals with Parkinson's disease who are diagnosed within the past two years, so relatively early in the course of their disease and are not yet on medication. And again, Jen, I was going to go back to you because in 2010, you fit this profile.

Sohini Chowdhury: And you referenced it a little bit that you were at that point in time really trying to you get to the diagnosis of your disease, etc. But did you have any concerns about sort of being in that early stage of diagnosis and participating for a research initiative? Was there any concerns? And if there were, how did you mitigate that?

Jen Gaudio: I was not. I tend to do a lot of things all or nothing and I was in the process of being diagnosed. Before I went to the institute, I was put on medication that scared the life of me. One made my tears and sweat turned black, another was hallucinations, and it seemed to me to be an inelegant and kind of crazy way to diagnose an illness by getting this medication. And so when I was presented with the opportunity to help, not only confirm the diagnosis scientifically, but to help get around that kind of, I mean, honestly, in some cases, the medication is worse than the disease and it was, I don't even think I really thought of it at all.

Jen Gaudio: It was something I had to do because I mean, things are culminating to a point for me, I've had to give up a job I love. I'm waiting for disability. It's torture when it advances and it's hard to remain hopeful. And the way I remain hopeful is to try and give back to ... If I have to suffer this, then it's got to mean something. And that is the way it means something, and I'll take possible privacy implications or odd lumbar punctures or whatever, although Dr. Russell is excellent at lumbar punctures. I never feel them.

Jen Gaudio: But it was just something I had to do. And I probably should have thought more carefully, but being in the program saved my sanity on a number of levels.

Sohini Chowdhury: Thank you. Thank you for being so frank and sharing that. Ray, listening to Jen, I'm just wondering you interact with a lot of individuals who have just recently been diagnosed and are coming in and talking about the study and asking questions about it. What are some of the concerns that people who are recently diagnosed might have about study participation?

Ray James: Yeah. I mean, I think you touched on some of that already. Obviously, there's some risks there to anything you're going to do when you participate in research or when you go to have even a clinical intervention. So one has to consider that and really think about how that lines up with kind of the risk benefits, so to speak. Do those benefits really outweigh the risk for you? So yeah, I have to talk to a lot of people about that. Of course, there's going to be concerns about, like when we mentioned earlier, some privacy concerns.

Ray James: But also, not everyone's used to getting a lumbar puncture done or having their blood drawn whenever they come in for a visit. So there's-obvious concerns about that. And I find that a lot of times that may be rooted in the unknown.

Jen Gaudio: The only thing I'm disappointed about is that I don't have superpowers yet. Because I've been through a number of so many x-rays and so many injections, I at least could have superpowers.

Ray James: Kind of like the radioactive spider that bites you, I guess. But yeah, go ahead.

Sohini Chowdhury: Can you give us maybe a little bit of insight, an individual comes in, you talk to them about the study, what can they expect when they come in for that conversation in that first clinic visit?

Ray James: Yeah, absolutely. If it's a first time, we've got to go through the consent form, we've got to make sure that people are comfortable. They've gone through it. They've asked all the questions they possibly can. And then we go ahead and we sign that and then we move forward with some study activities, whatever it is we have to do. Again, that's going to run the range of things. So that first time we also, these days, like we said, we're in a pandemic, so we're still trying to move this thing forward. So we still have to ask people about COVID and make sure that we're taking all the right precautions. So our teams are fully vaccinated, but we're asking all people to come. We're asking people of all different backgrounds. We need diverse populations of folks, as many people stepping up to the plate as possible to be part of this.

Ray James: But so when they come in, besides checking all those things out, we do like to have some fun along the way. Got to do that. But you know what? We are going to take folks through a bunch of exams, there's a physical exam and neuro exam, something focused on Parkinson's where we have people tap just like they might do with their doctor or might expect to do if they were being evaluated for Parkinson's. Yes, we do have to do the samples. So there is blood draws and collecting urine, and now the screening visit, we're just seeing to make sure that that's a safe thing to do, all these other things that we might be doing. So we're really at that first visit, just making sure that you're safe, that this is appropriate for you. If it's not appropriate for you, we're not going to move ahead with this.

Ray James: And then we can move to baseline and other visits where we might be doing a DaTscan scan, which would help us identify those dopamine levels or whether they're off or not as they can be in Parkinson's and doing an MRI and also we're doing some cognitive testing with folks too. I like to call brain games, the fun way of looking at it, but we're testing memory, attention, language, and other things. So even smell testing, we do that too. It's a little scratch and sniff. So, it's one of those hallmarks in Parkinson's where people do tend to lose their ability to identify smell on the same level they were prior to showing symptoms of Parkinson's, which we always think is an interesting way to kind of track this and see who might have Parkinson's even though just because you've lost your

sense of smell doesn't necessarily mean you're going to go on to get Parkinson's, but it is one of those hallmarks there.

Jerry Pollack: I'd like to piggy back that on your outline of what you might expect. I thought it was a lot of fun, especially the cognitive portion. I mean, who knew about smelling and tasting and as you say, the brain games, which I failed miserably, but of course you don't know that because nobody tells you anyway. It was and continues to be a really, really worthwhile experience discounting the prodding and the poking and the whatever else and the imaging. It is an extraordinarily painless, if you will, experience. And the people that I've been in contact with for my twice yearly evaluations have been just terrific, just super and they couldn't make it more user friendly. So I thought I would just add to what you've already outlined.

Jen Gaudio: The only thing I could recommend is you change up the brain games because I've done them for so long I could do them in my sleep.

Sohini Chowdhury: We will note that down. But you know, Jerry, I wanted to turn to you because the other group that we are particularly focused on within PPMI are, dr. Marek referenced this earlier, individuals who might help us better understand risk and who might go on to develop Parkinson's and who doesn't and why. And one of the components of risk clearly is family heritage or family history of Parkinson's disease. And I was curious, you mentioned this a little bit in your earlier remarks about the fact that your family members had Parkinson's that it was a motivator for you. And I'm just curious, did you think about risk for yourself and did that come into play as you thought about PPMI and providing that information for research?

Jerry Pollack: You mean in terms of participation?

Sohini Chowdhury: Yes.

Jerry Pollack: Not for a moment. In my case, my family situation, selfishly speaking, it seems to me that I'm somewhat of a miracle and I'm in an odd sort of way grateful. On the other hand, in my situation, personally speaking, I'm obligated to participate in this program. There was never any sort of hesitation and there hasn't been since. I have to say for those who are out there, who are considering being part of this program, the best way I can describe it for myself is that it's been a slam dunk.

Sohini Chowdhury: Well, that is great to hear that it's been such a positive experience. And I think, again, it's so important that this study obviously yields information that helps with research, but we also want this study to have an impact for those who are involved. And I think Jen and Jerry, you certainly highlight that participation yields its own benefits in this particular research study, which is I think really a powerful sentiment,

Ken Marek: I'm going to add that I think the participants are really partners in the research effort. This research is not possible without participants. And we hope that it is an enjoyable experience and we rely on you to participate and to give us information and tell us how the study is affecting you. But it's really nice to hear from you both that this has been a positive experience. That's really the idea. And again, it's entirely dependent upon the participation of people like yourselves.

Sohini Chowdhury: So if we keep moving, there was actually a question from the audience about what PPMI has accomplished to date. And it's a great segue way into this next slide and really the impact that PPMI has had in the past 11 years. And I made a few allusions to it earlier, but Ken, maybe, or Dr. Marek. So used to calling you Ken, but Dr. Marek, may I maybe turn it over to you to kind of maybe give us a brief summary of what are some of the highlights that have come out of PPMI since it launched?

Ken Marek: Sure. So, I mean, PPMI has really been... A game changer for Parkinson's research in a number of ways, one is that we have been over the last now decade collecting both clinical data imaging data, bio samples, and all of these data have really been widely utilized and have helped to accelerate a number of clinical trials that are ongoing and developing. And this really was the goal of PPMI from its start is to really work with pharmaceutical companies, biotech companies, to enable them to more rapidly bring drugs to clinical studies and hopefully into clinical practice. I think that's really an important issue.

Ken Marek: I think it's also been important because as one of the goals of PPMI from its start was to develop sort of standardized approaches to collecting information. So the way we collect data or the way we collect samples, the way we do all of the work that we do has become a model for other groups. And now we can actually look at this more carefully. Whoops. I think my... I'm being asked by my Alexa to answer some questions. I apologize.

Ken Marek: And I think the third thing, I think that's so important about PPMI is that from the start, it has been an open source data. All of the information is available to researchers around the world and millions of people have taken advantage of this. Millions of researchers have got these data to do their own work and advance the field. And I think that might seem very straightforward. Why wouldn't everybody do this? It would seem like a natural way to do research, but it's actually very different from the way research had been done prior to PPMI. And now it is becoming more of a standard. And really, I think, again, stands to accelerate research and get new ideas into federal studies and into practice more effectively.

Jen Gaudio: I was pleased that it was non proprietary data. That it didn't belong to one company, that anyone can access to a study. That was important to me.

Ken Marek: And it isn't proprietary. That's a really good point. This is a pre-competitive consortium. This is what the Fox Foundation has achieved. They have brought

30 plus groups together, all of whom have agreed that it is in everyone's interest to collect this information so everyone can benefit from it. And that's really the way it should be. But it's also an unusual situation.

Sohini Chowdhury: Yes, unfortunately it's still not the norm for science and for research. I think we want to leave enough time to address some of the questions that the audience has posed. So if we move to the next slide, I just wanted to reiterate again that you could glean that this is a really, I think, unique study whose impact is enormous in terms of what it could do for us in terms of understanding the disease. And eventually, perhaps one day preventing the disease if we can better understand the risk and who may go on to develop Parkinson's. And so, we wanted to just remind you all that if you are interested in learning more about this study, and if you've been recently diagnosed with Parkinson's, you can click on the resource list to find a site near you.

Sohini Chowdhury: And if you're over 18 and living in the US and may or may not have Parkinson's, but you also are interested in joining, consider PPMI online. And again, you can click on the get started button in the take action box on the bottom right of your screen. But what I'd love to do right now is segue way a little bit into some of the questions that we've gotten from the audience over the course of the conversation. And I might actually go back to you, Dr. Marek, because we had a question here about risk and talking about risk and sort of the fact this study is looking to address it. Could you talk a little bit about what we know about risk right now about risk for developing Parkinson's and what do we actually hope the study will tell us, how will that increase our knowledge about risk?

Ken Marek: Absolutely. This is a really tricky subject because on the one hand, we would like to identify individuals who have some risk, but of course even some risk doesn't mean you're going to get Parkinson's disease and we don't want to make people anxious or concerned. But I think what we've learned over time is that we can identify certain events that occur even before the typical symptoms of Parkinson's occur.

Ken Marek: Some of these are related to different biochemical changes that occur. Some of these are related to different changes we can detect by imaging. Some of these are just different symptoms people get. So I think as an example, one type of symptom that people can get prior to the onset of Parkinson's is that they have a loss of their sense of smell. And as Ray was saying earlier, while it is true that most people with Parkinson's have a loss of sense of smell, most people who have a loss of sense of smell are never going to get Parkinson's disease. So what we're trying to do is kind of collect all these tidbits of information and develop a better tool to be able to provide people with an accurate assessment of what their risk might be and learn from those people who are at risk whether we can intervene at an earlier stage and ultimately, as we were saying earlier, prevent the onset of Parkinson's disease moving forward.

Sohini Chowdhury: Thank you, Ken. Ray, there were some questions that came out while you were talking a little bit about what to expect in a study visit and if you came to the

site. The first question was, does one have to commit to doing everything in PPMI if you enroll in the study?

Ray James: That's a good question. Obviously, that's our goal is for folks that will want to commit to everything. Usually, someone's asking that question out of the fear of the unknown. What is a lumbar puncture? What does that have to do? What's the level of radiation I might experience going through scans and things like that. I mean, that's why we have very well built together consent forms to read ahead of time so that you really are very informed about what's going on.

Ray James: But yeah, in terms of doing all of the testing, that's our main goal. But I think for some folks, as long as we do attempt to try to do all of the testing, if for some reason there's maybe a one-off here that we can't do with a person for a particular reason, we'd take it on a case-by-case basis. We could work through that and see if we have to take an alternative route, so to speak.

Ray James: For example, we've had people with scoliosis participate in the study. For those of you who don't know, scoliosis is that curve to the back and not great for just doing a blind lumbar puncture. So we do fluoroscopy. We do a specialized procedure, and we go right in and right out.

Jerry Pollack: If I may, let me interrupt there.

Ray James: [crosstalk 00:47:00].

Jerry Pollack: I have scoliosis. I guess my situation, it accounts for what you've just said. So the testing takes a different approach-

Ray James: You got it.

Jerry Pollack: ... because of the scoliosis.

Ray James: Right, exactly. Perfect example.

Sohini Chowdhury: Ray, there was another question which I think you probably also receive over the course of talking to participants or potential participants, which is, "Can I join PPMI if I'm in another Parkinson's clinical trial testing a new treatment?" I think one of the situations we're confronted with today, which is not a bad thing, it's a good thing, but it's challenging, is that there's actually a lot of clinical trials happening in Parkinson's, which is wonderful. But it does mean that we're all looking for participants. So when you get that question, what's the answer?

Ray James: Yeah, that's great. It's not a simple answer either. I wish it was. But it's a great question because we want people to really participate in research. There is a lot going on. So it really depends on the kind of research that person's participating in. If they're participating in something where it's levodopa-based, it's maybe an approved medicine like that for Parkinson's and they're testing out a different

feature of it, we would say no, because we don't want people on approved medicines or [inaudible 00:48:39].

Ray James: But when there's the case of maybe an experimental, a new therapeutic that's out there, say an antidiabetic medicine, which right now, it doesn't have an indication for Parkinson's. But if that's a particular trial that they were interested in or participating in, that wouldn't exclude them from participating in PPMI. They would be able to do both. In some cases, there is some overlap between the kinds of testing that we do in each study.

Ray James: Some of the information, thankfully due to open channels and how the research works, that information, the person can agree to share that information where it needs to overlap. For example, DaTscan. They won't have to redo a DaTscan to be part of PPMI or vice versa, depending on some criteria there to make sure it all works out. Or even a study in exercise, for example. That's an intervention, but right now we haven't concluded that, yes definitely, this is a cure, it slows progression, but we're looking at that. What is the impact of exercise to a great degree, even though we know it improves quality of life. But can we say it slows progression? We're looking for markers of that, inflammatory markers, biomarker-type things in the blood and through imaging even.

Ray James: There's no short answer to that. We want people to participate in multiple studies if they can and if they're participating in a study that is allowed.

Sohini Chowdhury: Go ahead, Jen.

Jen Gaudio: I was just going to say, I was worried when I had in 2015 bilateral DBS, deep brain stimulation. I was concerned that it may disqualify me from the study. And it didn't, so there is some leeway.

Jerry Pollack: Can I add to that? Both my father and brother had deep brain stimulation procedures. My father was one of the originals in that whole course of treatment way back in the '60s. They both experienced both positive and not positive results. But they were anxious to participate for the hope of a positive outcome.

Sohini Chowdhury: Thank you [crosstalk 00:51:09]

Ken Marek: I was going to encourage people who are asking these questions about, do they need to do everything, can they be part of the clinical trials? We're trying to be as inclusive as possible. I would bring these questions to ... if you're near a clinical site and you want to call someone, and let's see. Let's see if there's a way to enable that to happen. Our goal is to try to be as inclusive as we can be. Yeah.

Sohini Chowdhury: I did want to just say, there are a lot of questions in the chat about how to find out about a site. If you want to find a PPMI site, the first link in the resources list

is a link to recruiting PPMI sites. For those who may be outside of the US, that includes links to sites outside of the US as well. We have 12 countries participating, including Canada and sites in Europe and Israel. So definitely just wanted to flag that, since there seems to be a lot of questions.

Sohini Chowdhury: We have five minutes left, and I think I would like to end it actually by asking Jen and Jerry a question. But before I do so, Ken, there's some more questions about if you can go into a little bit more detail about some of the specific scientific results coming out of PPMI.

Ken Marek: Absolutely. Yeah. I talked a little bit about the broad results. But more specifically, I think really PPMI has been ... Some key results out of PPMI have been that now we are using dopamine imaging in Parkinson's studies, both as tools to identify who gets into the study and as a tool to monitor change over time. PPMI data was used in order to enable that to happen. That's a key issue.

Ken Marek: We're collecting data from spinal fluid, as we've discussed. Now, we have already shown that there is an ability to detect synuclein in spinal fluid. We believe that this may actually lead us to a very valuable kind of a test that can be widely used in detecting this protein, which we know is affected in Parkinson's disease. We can detect synuclein as a way of identifying whether people might have Parkinson's disease.

Ken Marek: We have looked at cognitive changes in Parkinson's disease over time and have added to our expectation and how we might think about ultimately understanding cognitive impairment in Parkinson's disease. There's really a wide array of information that's been collected that spans the gamut from clinical information to biomarker data in blood and spinal fluid, to imaging data, and genetic data, where we have really had an opportunity to really have detailed discovery of the genetics of everyone in PPMI. This has really led us to really understand better how individuals with various genetic variants might change with regard to their Parkinson's disease over time and potentially how therapies might be utilized in those individuals as well.

Ken Marek: I'm going to stop there because I know we want to go back to Jen and Jerry, but this is an area where we're very excited about the data that has been acquired and is being acquired in the study.

Sohini Chowdhury: Thank you, Ken. Jen, Jerry, I want to end it with you by asking the two of you to close this out, so to speak, on this webinar and by answering you both are participants in PPMI. If there is one message you would like to leave individuals who've joined us on this webinar, what would that be? What would you share with them? What would be your last remarks to all of these people listening to us today?

Jen Gaudio: One of the things that I experienced is that a disease like this can make you feel isolated and alone and that you're only going through this by yourself. The study

disproves that, gives you someone to reach out to. I've had conversations with other study participants in the Institute. The doctors at the Institute are phenomenal. It's made me feel less isolated, and that is a good thing.

Sohini Chowdhury: Thank you, Jen. Jerry?

Jerry Pollack: The fact that those who are out there and have listened to this presentation indicates that there is sufficient interest to maybe want to go forward. I would encourage you to do so because whatever, wherever this leads, the fact that you have participated will make you feel good. So I encourage you to join us.

Sohini Chowdhury: Thank you. Thank you, Dr. Marek, Jen, Jerry, Ray for being part of our community and for joining us today. Thank you all for joining us as well wherever you may be. We sincerely hope that you found it helpful and informative. We wish you a great rest of the day and a very happy holiday season. Thank you again for joining us.

MJFF: Did you enjoy this podcast? Share it with a friend, or leave a review on iTunes. It helps listeners like you find and support our mission. Learn more about The Michael J. Fox Foundation at michaeljfox.org. Thanks for listening.

Michael J. Fox: This is Michael J. Fox. Thanks for listening to this podcast. Learn more about The Michael J. Fox Foundation's work and how you can help speed a cure at michaeljfox.org.