PULMONARY ARTERIAL HYPERTENSION
PUBLIC MEETING
ON
PATIENT-FOCUSED DRUG DEVELOPMENT
Tuesday, May 13, 2014
1:00 p.m.

Food and Drug Administration
White Oak Campus
10903 New Hampshire Avenue
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APPEARANCES

FDA PANEL

Ellis Unger
Norman Stockbridge
Shari Targum
Maryann Gordon
Anne Pariser
James Bona
Theresa Mullin

Patrick Frey
Pujita Vaidya
Soujanya Giambone
Sara Eggers
Graham Thompson
Pegah Mariani
Georgiann Lenzi

PANELISTS

TOPIC 1
Kevin Paskawych
Cynthia "Alex" Flipse
Nicole Matthews
Holly Tissue-Thompson
Colleen Connor
TOPIC 2
Lucille Monko
Colleen Brunetti
Katie Tobias
Stacey Gausling
Tamera Pixler

PROCEEDINGS

MS. GIAMBONE: All right. Well let's go ahead and get started. And we have some extra seats back there if anybody wants to take a seat, please feel free there are lots of seats up here at the round tables also. All right. Well good afternoon. My name is Soujanya Giambone. I am with the FDA Center for Drug Evaluation and Research, Office of Strategic Programs. And on behalf of all my FDA colleagues I would like to welcome you and thank you for coming to the seventh Patient-Focused Drug Development Meeting.

Today's meeting is on Pulmonary Arterial Hypertension, PAH, and we are looking forward to a great day of discussion and hearing from you and learning from you. And I am very happy that the D.C. Metro area is giving you a great day. So thank you for being here.

So I am going to spend just a few quick minutes going over the agenda. You should all have a copy of that. We had them out at the registration desk. But if you don't have one, feel free to ask one of my FDA colleagues and we will be happy to give you one. And then just a few more housekeeping items and we will get our meeting underway.

Okay. So we are going to start off with some presentations from the FDA Panel. We have three presentations. They'll review some opening remarks, overview of the Patient-Focused Drug Development initiative and a background on PAH and treatment options.

And then I will come back and review the discussion format with you. We have two discussions today; two topics. We will have a panel discussion followed by a group discussion for each of these topics. Topic 1 is on the symptoms, the most significant symptoms of PAH and how it impacts your daily activities. And Topic 2 is on your perspectives, patient perspectives to current treatment options.

After that we have reserved a half an hour towards the end of the day for open public comment. And what that is is if there is anybody, not just patients or patient representatives, if anybody wants to share some thoughts on PAH that are outside of the scope of Topic 1 or Topic 2 you can feel free to sign up for open public comment. We will be taking signup at the registration desk up until break time. And then we will see how many people signed up and how much time each speaker will have during open public comment.

And then we will have some closing remarks and that will wrap up the day. So it is a full day. But we are really looking forward to hearing from you.

Just a few housekeeping items: Restrooms are back out into the lobby area and make a right and go all the way down to the end of the hall and that is where the restrooms are. And you will pass a kiosk that serves basic sandwiches, snacks and drinks for purchase. And I just want to make sure that you know this might be a bit of a different kind of public meeting than others that you may have attended. It is a bit informal. It is more talk show style. I want you to feel comfortable to stretch, take a break if you need to use the restroom, grab a snack, please feel free to do so. Okay.

So before we get started can I have my FDA colleagues please introduce yourself.

MR. UNGER: Good afternoon everyone. I'm

Ellis Unger. I'm the Director of Office of Drug Evaluation 1 in Office of New Drugs.

MS. MULLIN: Hi I'm Theresa Mullin. I direct the Office of Strategic Programs in the Center for Drugs.

MS. TARGUM: Good afternoon everyone. I'm Shari Targum. I'm a cardiologist and I'm a Medical Officer in the Division of Cardio Renal Drugs.

MR. STOCKBRIDGE: Good afternoon. I'm Norman Stockbridge. I'm the Director of the Division of Cardiovascular and Renal Products.

MS. PARISER: Good afternoon. I'm Anne Pariser. I'm the Associate Director for Rare Diseases in the Office of the New Drugs at Cedar.

MR. BONA: Hi I'm Jim Bona from the Office of Orphan Products Development here in the Office of the Commissioner.

MS. GIAMBONE: Graham and Pujita?

MR. THOMPSON: Graham Thompson, Office of Strategic Programs.

PUJITA VAIDYA: Pujita Vaidya, Office of Strategic Programs.

MS. GIAMBONE: Great. Thank you. So I am going to be turning this over to Ellis for your comments. And just a very quick note this meeting is being recorded and transcribed; so after the meeting is over the recording will be available on our website. Okay.

With that I'll turn it over to you.

MR. UNGER: All right, everyone, again good afternoon and welcome to our seventh meeting on Patient-Focused Drug Development; this one on pulmonary hypertension. And as I mentioned I am Ellis Unger, I am the Director of the Office of Drug Evaluation 1; and our office oversees the Division of Cardiovascular and Renal Products. And they are the Division that regulates the drugs for pulmonary hypertension. So you have the key people here this afternoon and you have our ear. We are very excited to have all of you here. I believe we have a number of patients; we have caregivers and patient advocates in the audience. There are also many people who have joined us online, I guess we will have a count later but there are generally a lot. I know we have representatives from industry and academia joining us here. And I would like to thank all of you for participating in this meeting and it is a meeting that involves participation.

So this is one of a series of meetings that we've had. And the goal is to try to better understand how patients feel about their disease; how they experience, how you experience your disease or your loved one's disease. And help us understand your perspectives, your viewpoints and hopefully help us better help the drug companies to develop drugs that are what you need for your disease.

Our job as you know is to protect and promote the public health. And we evaluate the safety and the efficacy of new drugs. And of course part of what we do is to oversee the drug companies as they develop new agents. Some of you may be surprised to know that we don't actually do what most people think of a drug testing. We don't do clinical trials at the FDA generally. So the drug companies that do those trials. But we work very closely with the drug companies to help them design those studies so that when we receive those studies, the results of those studies we can actually get the information we need to make very rational decisions about whether the drug works or not, how well it works and whether the drug is safe or not, how safe it is. And so that is what we do and we want to insure that every single patient who enrolls in a trial for a drug provides information that is useful and that the benefits and risks of participating in a study are explained. Those are all things that we do here at FDA.

We pay a lot of attention to what we call the end-point of a study which is what is actually measured to convey whether the drug works or not. And generally for most of the drugs we have, how a drug works is conveyed in terms of how a patient feels or how well a patient functions. Occasionally it is whether they live or die or how long they live or die. And we want to hear some of your views on the end- points we've been using for these studies which generally for pulmonary hypertension is how far can you walk in six minutes, how many meters can you cover in six minutes. And that may or may not be important to you but it may, in fact, capture what it is that bothers you the most whether it's being short of breath when you exercise or hitting a wall or something. But that is part of what we would like to get out of this today.

So what we would like to do is hear from you in terms of what you feel and how you function and we have, I don't know, 12 pages single spaced of material from pages that was very -- I found it very enlightening going through that explained maybe seven or eight different patients and their viewpoints. I believe we are going to hear from some of you this afternoon.

So we are also very fortunate to have with us the key members of the review team who generally review drugs for pulmonary hypertension, Dr. Targum and Dr. Stockbridge. These are senior people in the Division of Cardiovascular and Renal Products who help design the studies, who help interpret the results, who help protect your safety. And they are the key people so they are here to listen to you.

We want to hear how you view your disease, what really matters to you, what symptoms bother you the most. You know what activities would you like to be able to do that you can't do? Even the hassles of dealing with therapies whether it is bandages or broken IV lines or the fear of your IV line kinking in the middle of the night and your alarm going off. Those things are important to you and we want to know about them.

And we would also like to know how you view the various risks of treatment for pulmonary hypertension. In general we try not to be too paternalistic here. We get criticized for having drugs out there that aren't safe enough and we get criticized for not allowing drugs on the market because they are viewed to be not safe enough when people think they are. And generally if people shout about the same volume of loudness on both sides we're probably doing things right. But in general we try not to be too paternalistic and we try to approve drugs that work. And if we think there are risks we put them in the label so that you understand what they are.

And I think that is pretty much what I wanted to say. We know pulmonary hypertension affects people in different way. So we want to hear your perspective on how you experience the disease and what you would like to see in treatments for pulmonary hypertension. And so I will just with that thank you again for being here and welcome you. And turn it over to Theresa Mullen who will talk about our broader efforts in patient-focused drug development.

Thank you very much.

MS. MULLEN: Thanks Ellis. And again thank you for coming out today to White Oak and joining us in this meeting and thanks very much also for the people who are participating on our webcast. These meetings are you know the more we can engage and make it possible for patients to participate the better they are, the more benefit we get out of the meeting. As Ellis was saying the whole point of these meetings is to hear from patients and get the patient's perspective.

And so this -- I am going to tell you just for a few minutes a little bit about this effort of Patient-Focused Drug Development and this meeting is one of a set that we committed to do over the next several years and so we are doing this to develop a more systematic way to gathering up the patient's perspective on their condition and the available treatment options as Ellis was saying. And this is recognizing the obvious but that patients are in a unique position to inform FDA about the drugs that are available and what those drugs are providing and not. They are the ones that derive whatever benefit there is to get and the ones who experience the risks that may be associated with those products.

And so we realized that we really didn't have a mechanism for getting a more systematic kind of comprehensive hearing from as many patients as possible. We have some mechanisms that exist that really focus more on asking an individual patient or maybe a few patients about a particular issue for a particular drug product or an application that may be under review. And that is very valuable to us. But we realize that that is very limited. That one person can really speak best for their own experience and may not be able to reflect the diversity of experience of people who have that disease. And so how can we go about getting more input from a broader cross section of patients experiencing a disease and not have to go through the kind of conflict of interest screening that we have to do in fact when you are talking about a particular product and a particular case.

And so this initiative came out of our thinking about how we could try to do this, the information that we get we thought would help inform us both in terms of as Ellis was saying telling or advising companies if they ask us for advice on developing a drug or even in giving us insight in reviewing an application that comes in for a drug to treat that disease. So this initiative is part of a commitment that we made under the reauthorization of the Prescription Drug User Fee Act. FDA has a number of user fee sources of funds that supplement the money we get from tax payer funding that helps us to run our operations. And when that was reauthorized we committed to do at least 20 of these meeting each in a different disease area. And the idea was this was like a big pilot to see how could we do this and how can we get good at getting this kind of information. We don't just need it for 20 diseases; we really ideally would have it for every disease. And we are learning a lot about how to do this through this process.

So this began in September that is the beginning of our fiscal year, actually October 1 is the beginning of our fiscal year so in September we announced a preliminary set of diseases that we would look at. Our candidate list of about 40, we got a lot of good public input about their comments on those diseases, which ones that the public thought that we should choose. We selected a set of 16 diseases that we are covering in the first three years of this five year period; so 2013 to 15. And we will go through a process again in 2015 to identify additional disease areas that we'll focus on in these kinds of meetings in 2016 and 2017.

And here is the set of diseases that we have identified so far so you can see last year we had a meeting on Chronic Fatigue Syndrome, HIV, on Lung Cancer, and Narcolepsy. So far in this fiscal year we have a meeting on Sickle Cell Disease and Fibromyalgia and today's meeting is focusing of course on Pulmonary

Arterial Hypertension. And you can see on this slide the other diseases that we will be aiming to have meetings on over the next year and a half. And there is quite a diversity as you can see; a really wide range of diseases. But they generally have in common as Ellis was saying how patients feel and how they function are areas where we would really benefit from hearing more than what we know today.

So we are really excited to have you here today to tell us about what your experience has been.

Each of these meetings because of that diversity of the range of diseases is somewhat tailored to the areas that the review division would particularly like to have asked patients about having this rather unique opportunity to ask for your perspective, they take advantage of that. And we also want to cover some common questions. And each of these meetings we do want to hear explicitly about your experience with living with your disease, the things that impact your life the most, maybe how that has changed over the course of your disease and then how the treatments that you are using today are working for you or not working for you; and so we understand just how well or not well those treatments meet your needs. And these questions of living with the disease and the impact on your life, the severity of that and how well current treatments work fit right into this framework that we use to make decisions about new drugs, so our benefit risk framework. And those two elements tell us the context of the disease really help us to sort of weigh the evidence that we get in an application about a drug and how well it works and what we know about its safety profile.

So we find that each of these meetings really the patient involvement in the meeting, your engagement in this discussion this afternoon is going to be critical to how much we can learn and how well this goes for all of us.

We'll produce a report after the meeting; we call it the Voice of the Patient Report. You can find this on our website. We try to capture what we hear through the panels, through all the audience participation, what input we get on the webcast and also any information we might receive in our docket, our electronic docket; pull these components together, we try to capture what you tell us faithfully to the way you tell us, the words you use to describe what it is like to live with the disease are the ones we try to put in the report to make sure the review divisions and people who weren't here get to hear it as close as we did to what you told us about how it is to live with the disease. That report provides a really important purpose for us to capture that for reference for the future if the division receives an application for PAH in the future they can look at this report and say this is what patients were telling us it is like to live with this disease and what they thought of the treatments that are there. That is a very important piece of information for them.

We think it may also in some cases trigger the development of new tools to collect better information more systematically in clinical trials about what it is like to live with the disease and whether a new treatment that is being tested has an impact on those things that you tell us about. That is called a patient reported outcome tool. Those may also follow -- ideas for those may follow these meetings.

So with that I am going to turn it over to Doctor Targum and she is going to give you a bit of a background on PAH.

Thank you.

MS. TARGUM: Good afternoon. Welcome. My name is Shari Targum. And as I said I am a Medical Officer in the Division of Cardiovascular and Renal Products. And this afternoon I am going to be providing you with some background on pulmonary artery hypertension and therapeutic options. So as you have heard pulmonary artery -- arterial hypertension is the third rare disease being featured in our series. And I have included a definition of what is a rare disease and at FDA what constitutes an orphan drug. So even though a rare disease is a condition or disease affecting less than 200,000 people in the United States if you take rare diseases in the aggregate it is actually much more common than that. So almost one in ten Americans suffer from rare diseases.

This is to show you that there are three different offices at FDA that deal with rare diseases.

From a patient perspective the first office, the FDA office of Health and Constituent Affairs is probably the office that you would interface with. But there are two other places at FDA that look at rare diseases and orphan products. And we have representatives from both offices here today.

So pulmonary artery hypertension is a rare under diagnosed progressive condition and it is defined by an elevated pulmonary arterial pressure. The pulmonary artery circuit is generally a low pressure system. And it is the system that delivers blood from the right ventricle to the lungs. So the definition that I put here is that the average pulmonary arterial pressure is higher than 25 millimeters of mercury at rest compared with patients without pulmonary hypertension. This is one way to think about pulmonary artery hypertension. There are other classification systems as well. But I have listed three general types. There is idiopathic which means of unknown cause. There are types that are familial. And there are types of pulmonary artery hypertension that are associated with underlying diseases.

In terms of symptoms there are a variety of symptoms that patients may experience such as chest pain, dizziness, shortness of breath. One of the issues with pulmonary artery hypertension is that the symptoms also occur with other conditions that are more common. So it might be that you go see a doctor with some of these symptoms and you get diagnosed with something else first because there are other conditions that occur more commonly. And so PAH or Pulmonary Artery Hypertension can be difficult to diagnose because the symptoms are similar to other conditions like asthma, pneumonia, coronary disease. And the other piece of this is that the physical examination in the early stages can be almost normal. So that leads doctors to conduct a number of tests. And I have listed a series of tests that doctors might conduct to try to get down to the bottom line of why you might be having a symptom. The most definitive tests would probably be the echo-cardiogram which gives a picture of the right heart and also might give an estimate of pulmonary artery pressures and the right heart catheterization which is a special device that doctors put into the heart and arteries to measure the actual pressures.

In terms of treatment options generally the goals of treatment are to make people feel better; improve their quality of life or to make them live longer. In the case of pulmonary hypertension the goals that we've had are to improve quality of life, reduce symptoms, slow down how quickly the disease progresses and improve your function as measured by the six minute walk test. The treatment options include medications which is what we deal with. In certain patients that are eligible surgery might be an option. And a third option would be lifestyle changes.

This is a list of some of the drugs, some of the classifications of drugs that have been approved, mostly been approved to improve symptoms. In conditions like pulmonary artery hypertension input from you and patients is very important. There are tools called patient reported outcomes that can be questionnaires that might capture how people feel. And this is a great way that patients can contribute to drug development and developing new drugs that can really help.

I am going to now turn it over to the overview of the discussion format.

Thank you very much.

MS. HAMILTON: What you just went over is that available to us because you went over it pretty quickly.

MR. TARGUM: I am sorry for that.

MS. HAMILTON: The slides that you used are they available to us?

MR. THOMPSON: We post the slides along with the recording of the meeting maybe a week or so after the meetings are.

MS. TARGUM: But I apologize if I talk too quickly.

MS. HAMILTON: The slides were only up --

MS. GIAMBONE: Okay. Well thank you to my FDA colleagues for your presentations.

I am going to spend just a few minutes going over the discussion format. As I mentioned earlier on we have two topics to cover today. Topic 1 is on the most significant symptoms of PAH and how it impacts your daily activities. So here what we are really looking to listen for is what are your most significant symptoms and what is it that you can or can't do because of those symptoms. Or maybe activities that you are not able to do as fully as you would like because of your symptoms. And if you can even compare what an average day of symptoms looks like versus a more severe day of symptoms and give us some specific examples of what that means for you.

Topic 2 is on current approaches to treating PAH. So here what we are listening for is what is your current treatment regimen and is it working for you. How do you know that it is working for you? Can you give us specific examples on maybe what you are able to do now to show that your specific treatment regimen is working for you?

Also what are the side effects? And what are the biggest downsides that you are experiencing with this treatment. And also what would you look for in an ideal treatment for PAH.

Next slide.

So we are going to first hear from a panel of patients and I've been working closely with these panelists for the last week and a half and they've been really really wonderful in preparing some great summaries to share with you all today. They reflect a range of experiences with PAH. And they have each put together about four minutes of comments. And the purpose of the panel discussion is to really set a good foundation for our discussion for the rest of the day.

What we will do is after the panel is finished with their comments we are going to broaden the dialogue and invited those of you other patients and patient representatives in the audience to also share your experiences. And by that what we would like to hear from you is not just what resonates with you, what experiences did you share with what the panelists shared with us but also what is different for you. Build on what you heard from the panel and share as many specific examples as you can.

We are going to have some microphone runners around the room and if you are comfortable to do so raise your hand and they'll come to you. And if you could please state your name before you answer, that would be great.

And periodically I am going to be checking in with the FCA panel to see if you have any clarifying questions.

All right. Next slide. So there are a few other ways we are going to also be learning from you and that is that we are going to have some polling questions along the way. And Chad would you mind passing out the clickers. Thank you. We are going to test these out in just a few moments. But the purpose of the polling questions is for us to get some more understanding of what are the perspectives in the room and also on the web for those of you joining us on the web. And for the web participants you can answer your polling questions via the webcast. The polling questions are not a scientific survey and it is entirely voluntary. And we ask that patients and patient representatives answer these questions please.

And on that note as I just mentioned we have quite a few people joining us on the web. I would like to extend a very very special welcome to all of you joining us on the web. We can't see you but your voice is being heard. And we are looking forward to checking in with you periodically throughout the meeting today. We will be reading comments that are coming in via the webcast but also we will check in via telephone with some of the people on the web. So thank you all of you for joining.

Next slide. And last but not least another way that we are really looking forward to hearing from you is through the public docket. So this is really a website, a space that we have that it is going to be open for two months through July 13 and we invite you and encourage you to continue to share more comments, more experiences and thoughts as they come up. If you weren't able to share that with us today you will have two months to be able to go there and enter your comments there. All of those comments will be incorporated into the summary report and anybody is welcome to comment.

And just a few ground rules for today we are so happy to see so many patients and care givers and patient representatives here. We are looking forward to hearing from you. And we encourage you to contribute to the dialogue. We know that there are a lot of you from the industry and academia and other government agencies. We are very happy that you are here. We think this meeting will be extremely useful for you too. We just ask that you stay in listening mode. The FDA also is here to listen. We are as I mentioned before looking forward to hearing what you have to say. And once in a while I will be checking in to see if they have any questions. But we are here to listen to you today.

The discussion is going to focus on symptoms and treatments. So as I mentioned we have two topic questions and we are going to try to stay in scope with those topic questions. Those are the questions that are most beneficial for the FDA to hear from you to hear your responses on. We know that there is a lot of different aspects of PAH. And we invite you to continue to share those comments with us via the public docket and again for those of you that may want to contribute to the dialogue today but if it is outside the scope of Topic 1 or Topic 2 you can sign up for open public comment.

The views expressed today are personal

opinions. And on that note respect for one another is paramount. And last but not least let us know how the meeting went for you today. We are going to have some evaluation forms out on the registration desk. And we will also be passing them out closer to the end of the meeting. So let us know how it all went for you today and that will help us to make our next meeting better. Great.

So we are going to start with a polling question. And does everybody have clickers. Okay. Excellent. So we are going to start with an easy one first. Where do you live? Press A for in the Washington, D.C. metro area or B for outside of the D.C. metro area.

Oh, that is the result. Wow, look at that. Talk about an even split, huh. Well welcome to all of the locals but also to everyone coming outside of the D.C. metro area. I know that we have had quite a few long travels here. I know there is someone from California, Ohio, we really appreciate it. And also I know many of you took the bus to get here; right. So thank you for coming.

Next question. Have you ever been diagnosed as having Pulmonary Arterial Hypertension; A yes, B no. So 59%, the majority of you have been diagnosed as having PAH.

And we have 41% as not having been diagnosed as having PAH. We are thankful to all of you for being here and hearing the experiences that you have to share since your diagnosis.

Next question. What is your age? A younger than 30, B 31-40, C 41-50, D 51-60, E 61-70 or F 71 or greater.

So it looks like the majority of you are in D 51-60. We also have 61 70. It looks like we have a great spread of everyone. And that is going to be really helpful for us as we hear more perspectives from each of you.

And let's check in with the web real quick and see what the polling results look like.

MS. VAIDYA: Well I just wanted to chime in and say that we have a pretty similar spread on the web, were about 60% have said that they have been diagnosed as having Pulmonary Arterial Hypertension. So we are thinking we do have a good representation of patients on the web as well. And for the age group it is quite similar about 26% 51 - 60, 41 - 50 and 31 -40 actually.

MS. GIAMBONE: Great. Thank you.

So now let's move on to the next polling questions. Are you A male or B female?

So we have mostly female in the audience but we are also very thankful to have some male representation here also.

Next question and I believe this is the last one. What is the length of time since your diagnosis? A less than five years, B five to ten years, C ten to 20 years, or D more than 20 years.

So we have it looks like the majority of you in the room have had the diagnosis from five to ten years. We also have some more newly diagnosed members in the audience so less than five years. And then we also have some representation from longer periods of diagnosis, so ten to 20 years and more than 20 years. Great.

And can I check in with the web quickly to see what the web is looking like?

MR. THOMPSON: It is about the same, it looks like with a few more people who have been diagnosed for a long time.

MS. GIAMBONE: Great. Thank you.

So now let's move on to our Topic 1 panelists and on that note can I have my Topic 1 panelists come on up and take a seat and bring your name cards with you.

So once again just to remind everyone and we are going to have the slide up in just a moment but Topic 1 is on the most significant symptoms of PAH and their impact on daily activities. And I know our panel members have been working very hard to prepare these comments. So thank you so much.

So what I'll have you guys do is introduce yourself as it is your turn to speak. And make sure that you press the little red button to make sure that the microphone is turned on. We will make sure we get one for you, no problem. So shall we start with you Colleen?

MS. CONNOR: Sure.

MS. GIAMBONE: Okay.

MS. CONNOR: Hello. Hi. I am Colleen Connor. Thank you for having us today to the FDA. So I am just going to quick start because I prepared some comments. My most significant symptom is shortness of breath. I was misdiagnosed for asthma for two and a half years prior to the PAH diagnosis. At work early on I couldn't catch my breath to give a presentation or even to keep up with my peers walking down the hallway. It was very embarrassing and I would tell people that I was having a bad asthma day. Once diagnosed, people were much more forgiving because it was evident from the oxygen that I needed to wear that I had a breathing problem.

Early on I would wake up breathless just from rolling over in my bed. I was out of breath getting into my car. The medications have helped but I am still much more short of breath than my peers and I am quite limited in what I can physically do. When I am active my oxygen requirement goes up dramatically and my heart rate increases.

Over the last six years I have experienced a very wide spectrum of health due to PAH. And in bad times I have had months of not being able to accomplish much, walk up the stairs, do household choirs or leave the house in any weather condition other than the ideal. I needed to purchase a scooter to go almost anywhere outside my home. As an example I couldn't walk from my car to my son's baseball field.

I had deteriorated to a point I was encouraged to list for lung transplant. And I have since stabilized and improved and the transplant plans are on hold.

At one point I had a dramatic symptom of extreme dizziness which accelerated over a matter of several weeks and my cardiac output had fallen dramatically. I was not perfusing oxygen to my brain and I could no longer think or read. They put me on the IV medication and within a week and a half I had regained my ability to think, the buzzing in my head went away and I was able to read again.

I am very grateful to have this IV medication. But even on the best days my life is nowhere near normal. Things people take for granted like a peaceful night sleep are not in the cards for us. I sleep with my oxygen and my IV and I sleep much lighter as I am concerned I will kink my line and the alarm will sound. This has happened many times and I try frantically try to fix the kink as my husband looks on helplessly. And my biggest fear is that I worry that someday the blockage will be on the inside of me and it will be an emergency situation because my medicine has a half life of four minutes and if interrupted it can result in extreme rebound pulmonary hypertension affects and even death. In addition I worry that I will pull the IV line out accidentally if I flip around in my sleep. I also worry that I will catch a life threatening infection. I also have the oxygen on, so it is just best not to turn over for fear some point my tubing will become a noose around my neck. And yes, this happens.

Showers are difficult. Is the water bandage on securely? Is the IV bag pump securely hung somewhere where I can get under the water but it remains dry? Should I take off my oxygen so I don't have water shooting up my nose and I have more mobility and less tubing in the shower or do I take it off and let my heart race?

Daily activities such as cooking, washing dishes, family errands are often exhausting. Some days I just can't manage the work load and we order food in several days a week. I can't bring laundry up or down the stairs. Just walking up the stairs by myself causes my oxygen to drop significantly and my heart to race.

If I have a good day and I am on my feet a lot I start to have flint (ph) leg pain which is a common side effect of this IV medicine. On those days even when I feel great I am forced often to sit down so that my feet are up and the pressure is taken off of them.

Weather plays a significant role in my life. It was and still always is difficult to breathe in the cold and humid air. On windy days I can't catch my breath. This past winter for weeks at a time I was stuck inside due to the snow and temperatures of below 32 in the Philadelphia region. And it is difficult to breathe.

On bad days I take a shower and I feel like I need to rest following that. I don't accomplish much at all. I'll wake up, eat, and go back to sleep until my children come home from school.

Other bad days are caused by my heart giving off sharp pangs which scare me. And so I lay down no matter how I am feeling.

My condition has changed over time. I talked about some of this and other than pre-pulmonary hypertension I was very healthy. I had tremendous stamina. I could fly to the west coast for a work engagement, have lunch, dinner, fly home on a red eye and be in the office the next morning at 8:00 a.m. Since pulmonary hypertension I become very sick each winter for a matter of weeks or months with bronchitis and pneumonia. The fevers last for weeks or months on end.

Initially after diagnosis I still was able to work. I worked through some of my progression onto IV therapy. But as time passed I became too tired to get dressed in a business suit and to go into the office. My company modified my position to give me flexibility.

But at 41 my fatigue had increased to the point where I had to stop working altogether to rest in the afternoons or I have a difficult time making it through the rest of the day.

The things that didn't even register as tasks pre-pulmonary hypertension serve as accomplishments for me now like going to the grocery store or shopping for my children. I am very thankful to rely on the internet for a lot of non-perishable shopping.

And they were the remarks that I prepared.

MS. GIAMBONE: Thank you so much Colleen.

Alex?

MR. FLIPSE: Hi. My name is Alex. I was diagnosed with Pulmonary Arterial Hypertension on September 6, 1998. I suffered with symptoms more than two years prior my diagnosis. My daughter recently told me how much it impacted her life for me not to be able to pick her up. I would tell her she was too heavy for me and she took it as she was fat. And if she lost weight I would be able to pick her up more often. She also told me not being able to pick her up impacted her because she felt like I didn't love her or her sisters enough. I did cuddle with them as often as I could but picking them up was so important to them I really don't understand it but that is how they felt.

Now with my granddaughter weighing nearly 40 pounds I'm having such a hard time picking her up. I could barely pick her up when she was just a few months old and ten pounds and walk around with her in my arms. I can't carry her to bed if she falls asleep watching TV or playing. I can't lift her to wash her hands in the bathroom or to reach something that she wants to get. She is at a stage now where everything is don't help me nana, I can do it. But if she wants to reach something that she can't; picking her up is out of the question. But if I do for whatever reason I get very short of breath and I even get chest pains.

A couple of nights ago we took a walk to the park, she wanted to play on the swings and of course that meant picking her up and putting her in the toddler swing. That was very difficult. We couldn't stay very long after that. Before that we played on the seesaw and I got short of breath on that as well. It was almost like running a marathon I was so short of breath.

Walking up hills causes me to get short of breath. I don't normally stop what I am doing when I am SOB because as soon as I start again I am once again short of breath. So I usually just keep going. If it is really bad I'll stop and if I get palpitations I will stop.

I was on Flolan for the first four years of my diagnosis. And because of that I developed photosensitivity. I cannot walk outside without sun glasses on even on a cloudy day.

Exhaustion is another symptom that drastically impacts my life. Before I was diagnosed 15 years ago I slept 18 to 20 hours a day. I would wake up in the morning, make breakfast for my kids, put them in front of the television and fall asleep on the couch. At noon I would get up and make lunch, send my little ones out to play with their friends and fall asleep on the couch. I would wake up with just enough time to make a quick dinner, wait for their father, my ex-husband to come from work. I'd meet him at the door with all three girls and say I am exhausted and go off and sleep for the rest of the night.

Even still 15 years later exhaustion plagues me. I can sleep sometimes until 11:00 in the morning after having a full night sleep and still take a two hour nap from 2:00 to 4:00. Nowadays napping is not a luxury; it is a necessity. And if I don't get a nap for whatever reason, even if I am sitting watching my granddaughter as she watches television I have zero energy for anything other than sitting.

Another symptom that affects my life negatively is raising my arms in the air above my head, washing my hair, reaching for a cup in the cupboard, brushing my hair; these things make me very tired. I only wash my hair once or twice a week depending on how I feel. Emptying out the dishwasher is very difficult. Putting cups and plates away makes me tired. I have to do these things in sections. For example doing the dishes; I empty the dishwasher and sit and rest. Rinse the dishes, sit and rest. Load the dishwasher, sit and rest. The same goes with vacuuming, pick up stuff off the floor, vacuum the dining room, vacuum the living room, vacuum the hallway, vacuum my bedroom. On good days I can put a couple of these steps together and not have to rest as often. And on bad days I have to break it up even further.

Things I cannot fully do as I'd like to because of Pulmonary Arterial Hypertension are things that include bending and standing. Picking things up off the floor makes me dizzy and most often I get short of breath. Before I was diagnosed I passed out when I would bend over. When my children were babies, my youngest daughter was two years old when I was diagnosed it was even worse. Picking them up, cooking for them, cleaning after them, these things would make me so short of breath I'd get palpitations and I would pass out. I passed out more than 30 times in a three month period and was told it was just in my head.

I am very afraid of taking my granddaughter out in public because I won't be able to run after her if she takes off. Watching her nearly full time is very difficult. I get exhausted after just a few short hours. She is so full of energy.

I would love to become a productive member of society again. Going back to work, not having to rely on family and friends to support me; being able to work a 40 hour work week; not having to rely on food stamps, Medicare and Medicaid would be wonderful.

My new normal is a lot slower than before, a lot calmer than before; and a lot quieter than before. But thank God I have a new normal to live.

Thank you.

MS. GIAMBONE: Alex, thank you for that.

Kevin?

MR. PASKAWYCH: Yes. I am Kevin Paskawych. And at first glance I may look like a mostly healthy 32 year old man. Unfortunately that is not the case. The symptoms I deal with most frequently are the greatly reduced energy levels that I have to schedule my life around. Pardon? Oh. I have to deal with the greatly reduced energy levels that I have to schedule my life around and the shortness of breath that can bring my daily activities to a screeching halt.

In short my daily life is rationed. I have to make decision based on how I feel every morning, look at my schedule and decide what I can or cannot do. A busy day today might mean a day of recovery tomorrow to recover my energy level. My energy is less than half of what it was five years ago. After I look at my day I have to account for what activities could be potentially taxing; what could lead me to a bout of shortness of breath.

Watching my children can become an issue as well as helping my wife with simple tasks around the house.

Finally I must add time to my daily tasks, as lapses in concentration make it much harder to complete certain jobs than I once was able to.

Fortunately PAH has not just cost me the joys of a schedule free day. It has cost me many of my favorite activities as well. Being able to take my kids to mini-golf, being able to go on walks and hikes with my wife. Those are all very limited now and have to be scheduled accordingly.

From my early teens to my late 20s I was an active hockey player, competitive rower, a kayaker, a biker and a hiker. Any excuse to get out on the water or into the woods I would take. The loss of these activities has been perhaps one of the hardest parts.

Where once I could strap on the pads and play a game now I can only watch. Where once I could kayak several miles with friends or canoe with my wife now getting in the water is hard enough. Taking my kids to a game, being able to play with my step son or my daughter in the back yard, now I have to watch. Where once I enjoyed long hiking excursions in the mountains of Appalachia; now a walk downtown with my wife if I schedule my day properly is the best I can do.

But for me things have improved. When I was diagnosed with Pulmonary Arterial Hypertension in August 2012 my condition was such that getting up and moving from one room of my house to another as an example moving from my living room to my kitchen, a distance of 20 feet, could be taxing. Even the simple act of leaving my home and walking to my car, a 50 yard journey that required me to traverse one flight of steps had to be planned out.

But in September 2012 I started medication and my symptoms and condition slowly started to improve. On a three-drug cocktail Adcirca, Tracleer and Tyvaso I have been able to take back small parts of my life. My walk distances have improved and where once walking up the front steps to my home would result in shortness of breath or light headedness now I can manage a very light workout, a walk around town with my wife.

Where once I had enough energy to make it to maybe one appointment a day if I was lucky; with proper scheduling I can make it to several.

I am fairly certain that I speak for patients, some patients, in that I hope we will be able to look back at these proceedings one day and say that this was the beginning of the end for our journey for PAH; that somehow us sharing with you today our struggles as patients will empower the FDA to work closer with our community of patients, caregivers and researchers so that we can look forward to the day that this disease is either completely in the past or that a newly diagnosed patient will have no fear of what is to come.

Thank you.

MS. GIAMONE: Thank you Kevin.

Holly?

MR. TISSUE-THOMPSON: Hi. My name is Holly Tissue-Thompson and I was diagnosed with PAH in June of 2008. I am the mother of two children. They are both boys. At the time they were three and seven. I was in the midst of potty training my youngest son and was diagnosed with this disease and was told, oh, you can't pick anything up over 15 pounds. And I was like my son is 20 pounds and I have to put him on the potty. Well, you are going to have to figure something else out.

So as Alex said I had to figure out a new normal and a new way of doing things. And I have done very well at doing that since being placed on medications. I am on IV Remodulin and Tracleer as well as I was placed in a study for the drug Imatinib a few years ago. That drug was not approved but I have been approved by my insurance to use it off label. After starting this drug I saw an amazing improvement in my health and decided it was worth the risks to continue on that medication.

The three symptoms that most significantly impact my life are the fatigue, the shortness of breath of course, and I also have as weird bloaty feeling in my belly all the time. My fluid levels are well controlled; I am not over hydrated or dehydrated. The doctor said it is just a matter of backing up blood into my liver, things like that. Sometimes there is some extra fluid there and just going out to dinner with my family is sometimes not an enjoyable experience because just eating and getting that full feeling in your belly makes it hard to breath.

I have continued to work as a pharmacist 24 to 32 hours a week. It is very difficult to stand the eight to ten hour days. I often sleep after putting my children on the bus if it is a day off almost the entire time they are at school. And then I get up, get them off the bus, get dinner and get them to their activities. So we lead a rather busy life but it is something I prefer to continue to do due to the fact that I spent a lot of time and energy to get my degree.

Other things that bother me is obviously the shortness of breath. Just doing things with my children that I would like to do walking our dogs, going to the park, whatever activities they want to do, that is what I would like to be doing with them. We live in a two story house with a basement. So stairs are always an issue. I typically will leave piles at the bottom of the steps and at the top of the steps of things for my husband or my boys to bring up or down when they get home.

Losing this independence is a difficult thing to deal with but after six years I have wrapped my head around it.

Laundry is an issue, stooping down to get things out of the dryer, put things in the dryer, any of that, lifting the laundry baskets to take them to the living room to fold is also something that you deal with everyday and you wonder if that is ever going to get better.

As I've said the medications that I am on have helped immensely with that and with the shortness of breath I am much better today than I was six years ago. But it would be great to not have to have the IV line in your chest and be concerned about the kinking of your line, possibly your line slipping out, taking a shower with having your pump hanging outside and trying to twist around without getting tangled up.

We have -- as I mentioned we have two dogs, we got them as puppies about six months before I was diagnosed. So again when I was told you need to slow down, you can't be walking as much. When I was first diagnosed, that was a very difficult thing to wrap my head around. My husband and I had bought bicycles and a cart to pull our children in right before I had gotten severe symptoms. I wish I could have logged many more hours with him and our boys.

When I was first diagnosed I experiences extreme pain and cramping in my legs even when I would walk my son the short distance down our driveway to the bus. The Remodulin as I said has controlled my PH symptoms as well as the Tracleer. And my six minute walk test has improved.

About two years after my diagnosis my disease had progressed and I was put on the lung transplant list. But at that same time was when my doctor mentioned the trial of the Imatinib drug and I decided to give that a try and amazingly enough I have improved enough that I am just waiting to put the transplant on hold.

Life with PH is a roller coaster of ups and downs. Some days are good, some days are bad. There is always that week or two that you think everything is going smoothly and then suddenly you find out it is not. Your cu-site that you attach your medicine to your IV catheter might get a crack in it and you didn't realize it. Later you have a spot of blood on your shirt and you're panicked at work, what is going on? And you have to go and remix your medicine. Just remixing and reconnecting doesn't make the problem go away. You then have to deal with the flushing, the headache and all of that all over again.

I have occasionally had problems with my line cracking or it even slipped out once. So I had to make an emergency trip to the emergency room and stay a few days to get a line replaced. So PH although we have a new normal is a ride of up and down that we have to take our family on.

MS. GIAMBONE: Holly. Thank you.

Nicole?

MS. MATTHEWS: My name is Nicole Matthews. I am 35 years old and I was diagnosed with Pulmonary

Arterial Hypertension in 2012. It was the end of Heart Disease Awareness month and I remember that because there had been so much discussion that month about the different symptoms. And I woke up at about one o'clock in the morning with severe chest pain and heart palpitations. And at first I tried to rationalize it thinking I am 30, I am healthy or relatively healthy, I shouldn't be a candidate for a heart attack. But I had had a classmate from high school pass away from a heart attack a month before so I thought I should go to the emergency room.

After a few tests and several hours the emergency room doctor came to me and said I wasn't having a heart attack but before I could breathe a sigh of relief he said you do have pulmonary hypertension and we can't let you go home but we are going to have someone come and talk to you about life going forward.

I remember the phrase life going forward because it just seemed so final. And after doing some research and talking to the doctor on the staff I understood why.

I went through a battery of more tests and finally got transferred to a specialist who performed a right heart catheterization to confirm the diagnosis.

During the first year after my diagnosis I often dealt with extreme fatigue, shortness of breath, heart palpitations and dizziness and the same chest pain that sent me to the emergency room in the first place.

The fatigue started with me just being groggier in the morning but it progressed to me falling asleep at my desk at work. I've fallen asleep at a stop light. And I have fallen asleep in the driveway waiting for the garage to lift up.

I do have more energy today with the medication I am on but on the weekends I still need a minimum of about 12 hours of sleep.

The remaining symptoms that arose for me with even small amounts of physical activity were dizziness, lightheadedness, I've fainted multiple times. And just as an example before pulmonary hypertension I was very active. I have Lupus and have had it for a while but it has been under control with the use of medication for several years. I exercise regularly. I would walk our dogs in the park. My husband and I would go hiking and that kind of thing. And we had planned you know for children. Pulmonary hypertension stopped all of that.

Walking around the grocery store or walking from the parking lot to my office became a major task. I don't know why I am getting so emotional. Excuse me. My heart would flutter or I would get lightheaded just walking the aisles of the grocery store. I would have to stop for frequent rests because I would pass out if I didn't.

Sleeping at night I would have to sit up and if I laid down I would feel pressure on my chest as if I couldn't breathe and that made sleeping difficult because you are scared that you are going to pass away in your sleep.

I would have trouble talking for presentations and I didn't say my career in the beginning, I am an attorney, so I have to stand up in court a lot, I have to make arguments and that kind of thing and it is really a high pressure job. So the thought of not being able to give an opening argument or to be able to present an argument on behalf of a client effectively was horrible to me after all the work I had put in for school to get my degree.

On more severe days any amount of walking would lead to chest pain and dizziness. There were times when walking from the parking lot to my office that I would have to stop and rest in the parking garage for fear that I would pass out and no one would be able to find me.

The symptoms were made worse if I tried to climb the stairs. And we actually live in a three level townhouse and so there were oftentimes where I would just sleep in the living room instead of making it up to bed.

I am lucky that I have a job that understands my symptoms and that has been really understanding about letting me work from home when I need to. But if I have a meeting and I need to go in I always have to have oxygen available. So I keep a tank in my office, a tank in my car and obviously multiple tanks and a concentrator at home. The ability to travel for my job is greatly diminished because I can't fly without an oxygen concentrator which adds on pretty much another person traveling with you because you have to pay for rental of the concentrator is your don't own one, you have to get all of these clearances through security at the airport which as I am sure all of you can relate is already difficult enough. And it becomes a severe process which means I elect not to fly when I don't have to taking away some of the conferences and travel opportunities I would have for my job. But at least I am lucky enough to have the energy to still be working.

It is clear that my life totally changed after I developed pulmonary hypertension. Exercising, playing with our dog in the park, hiking with my husband were all eliminated for a while. And the fatigue caused by my symptoms and the physical issues that I developed left me without energy or ability actually to keep up.

Today however I am a little over two years from my diagnosis and I've gotten the right medical cocktail down with the help of a great medical team back home in New York. I take Sildenafil, I take Tracleer and I do an inhaled prostacyclin called Ventavis. I do six to nine treatments a day. With those medications if I compare this year to the year I was diagnosed I can say that my symptoms are minimal. There are still moments where I am short of breath or have chest pain but it occurs mostly with intense exercise. I am able now to walk on the treadmill and do zumba classes whereas two years ago I wasn't able to walk the 50 feet from my car to the elevator at my building or even up the stairs from my living room to my bedroom.

There are still days where my oxygen levels are very low. And I feel short of breath and lightheaded just walking around the house or trying to do normal household chores. I do have an oxygen concentrator in my home for those days. And if I am mobile I will use my portable oxygen.

Today because of the medication and I feel keeping my faith first I can say that I feel pretty normal but like everyone else on the panel has said it is a brand new normal. There are things that we have to consider that our friends don't have to consider. You know you will have friends who will call and say oh, let's go out for cocktails or friends who say let's plan a trip and go away and those are things that I did easily before and now it is a big planning process or it is just a no because I physically can't do it.

That is it.

MS. GIAMBONE: Thank you so much Nicole.

It takes a lot of courage to come and share such personal stories with a large group so I want to give -- can we all give our panel a round of applause.

[Applause.]

MS. GIAMBONE: Thank you to all of you for coming and sharing those experiences with us. So before I move on if you are comfortable to do so can we have a show of hands and see how many of you heard your own experience shared by one of our panelists, at least one of our panelists?

It looks like many of you did. And I saw a lot of heads nodding as our panelists were speaking; so we are looking forward to hearing what you have to say.

So before we move on to our polling question also we do have one polling question to sort of kick off our group discussion. There are a lot of interesting points that came up and I'm curious to see how many of you also share that.

So we heard that weather can impact your symptoms. By a show of hands how many of you agree that weather has impacted your symptoms.

Okay. And we also heard photosensitivity. By a show of hands, anybody else share that experience.

Okay. All right. Well we will be hearing from you in just a moment. But let's do our next polling question. Okay. So everybody have your clickers. All right. So of all the symptoms you have experienced -- oh, you can stay here, do you have your clickers or no? Oh okay. We will get you some. Do you have your clicker? Okay. Good. Thank you Sara.

So of all of the symptoms you have experienced because of Pulmonary Arterial Hypertension which do you consider to have the most significant impact on your daily life and you can choose up to three: A pain, such as chest pain; B shortness of breath, wheezing or other breathing difficulties; C dizziness, fainting or lightheadedness; D fatigue; E swelling such as swollen ankles or legs; and F other symptoms not mentioned. If you can all enter your --

So here are the results and I believe that our panel has shared many of these symptoms also. So the one that came up the most was B shortness of breath, wheezing or other breathing difficulties, so 87% of you said this is the most significant symptom. We also have D fatigue followed by it looks like C and E, so dizziness, fainting or lightheadedness and swelling such as swollen ankles or legs. And we did have a little bit of pain such as chest pain and other symptoms not mentioned. So I would like to check in towards the end of this dialogue, maybe we can check in and see what are some of those other symptoms that haven't been mentioned?

And we will get to the fatigue in just a moment but does anybody want to share -- oh, let's check in with the web. Thank you. Let's check in with the web.

MS. VAIDYA: So on the web it seems like fatigue and shortness of breath are the main two top symptoms followed by dizziness, fainting or lightheadedness. We do have several who mentioned other symptoms. So there are people on the web as well who said that there are other symptoms that they experienced. So we can get to that later.

MS. GIAMBONE: Okay.

MS. VIADYA: Thanks.

MS. GIAMONE: Great. Thank you.

So let's spend just a few more moments on the shortness of breath. So does anybody want to start our conversation today and tell us how you experience shortness of breath? Do you experience it differently than what you've heard from our panel? Anybody want to share your experience. Oh yes we have a hand.

MS. ISA: My name is Deborah Isa. Mainly when I climb hills it really has -- not stairs just flat going up the hill it makes me have a lot of chest pain and I'll be [huffs and puffs] even with oxygen on.

MS. GIAMBONE: Okay. Thank you very much Deborah. Yes.

MS. HARRINGTON: Thank you. My name is Kathleen Harrington. It impacts me -- I am always feeling like there is a tightness in my chest and that I can't get enough air and I've definitely had to alter my activity level. But I can think you know the hardest thing right now is that I have an almost four year old son and I read to him every night and I have to pick books that don't have long sentences or it has to be a lot of pictures, a lot of one or two sentences at a time. Otherwise I tell Dad he has to read. But that is -- my son is always saying no I want mommy to read. And so that is really hard not to be able to read a book to my son.

MS. GIAMBONE: Thank you Katherine.

In the back.

MS. MAXWELL: Hi my name is Nancy Maxwell. If I keep to my own slow pace I can walk a good distance without really feeling a shortness of breath. But almost immediately with bending or twisting I'll feel shortness of breath. Loading and unloading the dishwasher I heard people mention that; doing laundry, anything that take lateral movement I feel shortness of breath extremely quickly. So I just wanted to say that.

MS. GIAMBONE: Thank you Nancy.

Anybody else?

So we've heard from the panel and also I just heard you say Nancy that you have to sort of pace your day and plan your day. Does anybody want to share their experience with how that helps the shortness of breath symptom or how does that impact what an average day with shortness of breath is like if you are able to sort of plan out your day and pace what you are doing? Or maybe you can share with us what does that average day look like experiencing shortness of breath versus a more severe day?

MS. BROWN: I experience shortness of breath when I exert myself. So on a daily basis I have to decide okay today I can't go to the supermarket today and do the laundry at the same time. I have to make a list of non-exerting stuff and stuff that is exerting. So I have to make a conscious decision and say okay today I will do these five things and two of the five must be things that I have to exert myself in. So I can't just get up in the morning and says okay I have the laundry to do, the dishes to do, I have to go to the supermarket. No. I have to make a conscious decision today I am going to do the laundry. Supermarket will have to stay until tomorrow even if there is no food in the house. You know stuff like that.

MS. GIAMBONE: Thank you.

MS. BROWN: Oh my name is Marcia Brown.

MS. GIAMBONE: Thank you.

Anyone else? Yes.

MS. PIXLER: My name is Tammy Pixler. And basically every day that I wake up I live in a three story townhouse and I live by myself. So every morning when I wake up I determine what I need to do because I need to minimize going up and down the steps. So if I have outside appointments, that means I stay in my room, I get dressed, I get showered. I do everything that I need to do upstairs before going downstairs to let the dog out, to make my coffee and to take on the rest of my day. If I am not going out that means I can just get up and go down and get my coffee right away. So it is all about chopping up your day and trying to figure out what you can do. Things take longer because cooking you really have to take into consideration how you are going to have to plan things because it does take longer because you have to chop up the vegetables and then sit back and take a break and you know do another piece. I do laundry by carrying it step by step up the stairs because I can't do it. And I just move it around from level to level. When people come over I am like hey can you get that laundry upstairs or downstairs. I take advantage of people when they come over. And then I also do grocery deliveries and stuff like that. But it really is your whole perspective of things that you used to take for granted it is just -- it is amazing. And yeah bending over my goodness, bending over is not a good thing. So I understand all this stuff as well.

MS. GIAMBONE: Thank you Tammy. I saw a lot of heads nodding. It sounds like it is a similar experience, a shared experience.

Yes another comment here.

MS. HAMILTON: I can use -- my name is Blanche Hamilton. I can walk about one mile on a treadmill indoors without any problem. I can barely walk a block outside. It is a lot more difficult to walk in air, no matter, the outside no matter whether it is warm or cold, whatever, it is just very difficult.

MS. GIAMBONE: It is very interesting. Let's do a show of hand here. Does anybody share that experience that being outside versus inside - being outside is more difficult with breathing?

Okay. Good to know.

Tammy, hang on. Let's get you on microphone.

MS. PIXLER: No I am the same way. If I am outside and I am on oxygen but it is much harder for me to get around or get down an aisle at the grocery store because I'll put my oxygen in the cart and push it but it still takes forever. But at home I can do the same thing, I can get on the treadmill, I have to crank up the oxygen really high but I can go on the treadmill for like 20 minutes very easily and not be too terribly short of breath. So I understand what you are saying.

MS. GIAMBONE: Okay. And we will take one more comment and then we can check in with the web also.

MS. MAXWELL: Thank you. For me the weather has become a major issue. I live in the Washington, D.C. area and it is so hot and humid here in the summers. I was a school counselor for the past 15 years until last week disability was approved sadly. But in the summers I have been spending as much time with friends and family in the northeast as possible because I can just breathe when I am there. If I am at home I am completely home bound all summer and as you can imagine with a small child that is not fair to either one of us. So definitely weather hot and humid makes it very hard to breathe.

MS. GIAMBONE: Okay. Thank you.

Let me check in with the FDA Panel did you have any follow up questions regarding this particular symptom.

Okay.

Can we see what is coming in on the web?

MR. THOMPSON: Yeah, so we have a lot of similar comments from people talking about shortness of breath, fatigue, exhaustion, mentioning that activity outside is more difficult than inside. We also had several people mention weather sensitivity and light and heat sensitivity and one person also put a lot of emphasis on irregular heartbeats usually from exertion but sometimes just spontaneously.

MS. GIAMBONE: Okay. Thank you Graham.

So I think this is a good lead in for the next symptom that came up in the polling which was fatigue one of the most significant symptoms being fatigue. So we've heard exhaustion now, we've heard from the panel also their severe days of exhaustion and so forth. So does anybody want to share their experience with the fatigue?

Yes.

MS. WILLIAMS: Hi, my name is Debbie Williams. And I just wanted to say you get tired doing anything that requires oxygen. And that is like 90, 95% of everything that you do. Thinking takes oxygen, talking takes oxygen. I had a friend come over to help organize my house so it was much more convenient for me a few weeks ago and Shari did all the work. I just sat in a chair and told her save this, put this in front, put that in back, things like that. She picked everything up, she moved everything. I just went around from room to room, sat in a chair and told her what to do. But I had to think about what we were doing. I had to tell her what to do. Shari left at five o'clock. And I decided I need to rest a little bit before I started supper. I went in and laid down around 5:30, I woke up at 8:00 the next morning. Just talking, just thinking all day, that is it.

MS. GIAMBONE: Thank you for sharing that. Again I saw heads nodding.

So let me ask you a follow up question with the fatigue. Is it the type of fatigue where you -- and I feel like we've heard a little bit of both, is it the type of fatigue where you need to pretty much sleep to overcome that. Or is it the type of fatigue where you need to maybe take more rest. Is there a way to tease that out? Or is it both. Does anybody want to speak to that?

Oh we have a hand back there.

MS. BROWN: My name is Burdine Brown. The fatigue for me it doesn't -- I don't do a lot of sleeping but I do need to rest for instance it can take me like four hours to just clean up my living room or something or almost all day to do one room but then when I finish if I sit down I don't really have to sleep. Matter of fact I don't do a lot of sleeping but some days you know my PH really doesn't hinder me a lot. At least I don't let it. So I am very active. And I could be gone for days, you know just go day after day after day and then I'll realize that I am really tired and then one day I will sleep all day. But as a rule I can go all day and I am good.

MS. GIAMBONE: Thank you Burdine.

Anybody else? Yes we have.

MS. VOLPE: Yes my name is Joann. I'm from Connecticut. And I've had it over 20 years and I found just recently I had a sleep study test and it really made a lot of difference now that I have the mask because I find I am not as tired in the morning. I get up, I am not yawning and I do still tend to have a little down time in the afternoon like between 3:00, 4:00, 5:00 I have to rest, then I am okay. But like that other lady said I don't really require a lot of rest. Or maybe I fight it. I don't know. I am always on the go also and it -- the fatigue is there but I find the shortness of breath is more difficult.

MS. GIAMBONE: Thank you.

Yes, we have somebody.

MS. COOPER: Hi my name is Nicole Cooper and I want to comment about fatigue. I think with some -- people think that fatigue is you exert yourself when you are doing something. With PH you can sit in the chair for five hours and do nothing and get up and feel like you have ran back and forth in this room for thirty minutes. And you can absolutely just sit and do nothing.

MS. GIAMBONE: I see a lot of heads nodding. Nicole I think that sounds like it resonates with a lot of people.

Does anybody else want to talk about how they experience fatigue?

Yes, Holly.

MS. TISSUE-THOMPSON: As I stated I am a pharmacist so I work many hours on my feet which causes the chest pain and the fatigue. Luckily my work is nice enough that I can never work three days in a row. Two days I can do, three days is impossible. But after that two days I'm done for for the next day at least. Typically that next day after I am still resting and I tell the girls at work it is not -- I don't think it is the fatigue that I felt before I was sick. It is a different fatigue. I don't know how to describe it but there is a PH tired and there is a I'm tired. And it is just a totally different feeling.

MS. GIAMBONE: Yes, Alex. Thank you Holly.

MS. FLIPSE: I get both the I need to sleep as well as I need to just sit and rest. And when I need to sleep it is like an all of a sudden crash. Where it is like I am doing well, I am doing well and bam I need to go to sleep. That happens frequently to me. Also taking showers is very exhausting and on really really bad days I have a shower chair. And walking like I said before I have a wheel chair that -- a companion chair that like going to the zoo or whatever that I use as well.

MS. GIAMBONE: Thank you Alex.

Does that sound like it is a similar experience? Yes.

Holly brought up a point that I want to expand on just a bit. You talked about experiencing this particular symptom fatigue before PH and after, sort of a how it used to be before you were diagnosed versus what it is after PH. Can somebody talk to us about how your symptoms have changed over time? So what -- how did you experience a symptom maybe early on the diagnosis versus later on? Okay we have a few. Let's start there.

MS. DOYLE: Hi my name is Stacie Doyle. I have had PH for seven years now. In the beginning I used to use Ventavis and Tracleer, so I could pretty much do anything with stopping and resting. I was still very active. I still work full time. And I have a ten year old daughter. I was able to go on vacation and swim. I could even snorkel. And about a year ago I got progressively worse and I am now on Remodulin Subcu Pump and that has helped me in terms of my heart and being able to do things but the side effects of the medication has limited me more in some ways than the condition itself I feel. So I'm at a dilemma in terms of what I am able to do. I still work full time as I said. I am trying to push through this and wait for the next level of drugs to come out to help me become normal again so that I can do the things I used to be able to do if that is even possible. I do do things on the weeks when I don't have the pain. I walk. I still try to go out dancing with my family and my sisters but then I pay for it the next day and as you said with fatigue and having to sleep and recover. So it does limit what you are able to do over time. And but I have hope that some of the medications will enable us to get more of our activities back on track and we can do things that we used to be able to do if that is possible.

MS. GIAMBONE: Thank you for sharing that. And we had someone here.

MS. FRAZER: Hello. My name is Rosalind Frazer. I was diagnosed 12 years ago with PH and I started off exactly where these patients are talking about taking two hours to shower to get from the shower to the bed, from the shower to the toilet to sit and then to just get to the bed and feel like I have done it all -- my son was eight at the time. And I remember not being able to walk up a flight of stairs or to -- I was a dance instructor when I first got diagnosed and I kind of thought hey what is wrong because I was teaching dance and then next day or week I was unable to walk up stairs or anything like that. And then they diagnosed me with PH. And I remember my doctor saying to me on a scale of one to ten I was probably at a nine at needing a lung transplant. 12 years later I can do a full class of zumba and then go on the treadmill, do the elliptical, I can -- I work full time as a social worker. I am no longer in the field but I did field work just last year and I have a very busy schedule. I had stopped dancing and just directed and choreographed but now I dance again with my dance ministry. And I do also like a hand dance, not kicking and all that but I can do like hand dance for 45, 50 minutes for our routines. So my life has totally gone back to normal. The only thing that I can't do is swim because you can't get the pump wet. But otherwise to that I feel like I live a totally normal life. So I just want to encourage everybody that 12 years later you can feel 100% normal outside of just having the pump. People don't even know that I have anything wrong with me because I am even more active than some people -- a lot of people that I am with who are just normal. So you can eventually become feeling just completely normal.

MS. GIAMBONE: Rosiland thank you for sharing that.

So to recap it sounds like we are hearing both sides. We are hearing that with time some of the symptoms are getting progressively -- are progressing and becoming worse and Rosiland has had the opposite experience in some aspects of the symptoms and so forth.

MS. FRAZER: Initially I started off on Flolan and now I am on Veletri which is still the infusion drug and I am on Adcirca. I was initially on Revatio which is Viagra but I am not on that anymore. And I am on Letairis and I know my doctors are thinking about the oral Remodulin. So right now I am on two oral meds and the infusion pump.

MS. GIAMBONE: Thank you Rosalind.

Anybody else want to share their experience with how their symptoms have changed over time?

Yes, Alex.

MS. FLIPSE: So like I said before I passed out 30 times in a three month period before I was on

Flolan and I can pretty much walk as far as I you know inside like I said but and then also the different things that I can do now that I couldn't do before that would make me pass out, that would make me dizzy and that sort of thing. I can do those things now again. And I am not at 100%, definitely not. I would probably say I am at 70% from before but definitely things are getting better. But at the same time I can also feel myself declining a little bit. My six minute walk has dramatically increased. I just did one a couple -- well last week I guess it was and I increased more than 100 feet. So it definitely has gotten better.

MS. GIAMBONE: Thank you Alex.

Now I remember that one of the other symptoms that came up was pain, such as chest pain. And on that note we've also heard that pain can manifest itself as chest pain, we heard leg pain. Does anybody want to share their experience with how you are experiencing the pain? Is it similar? Or is there a different pain that you are experiencing?

Did I see a hand back there? Okay.

Let me ask you a follow up question. Is

there a particular symptom that can make another symptom worse?

Yes. Okay. Do you want to share that experience with us?

MS. FEENEY: Hi. My name is Patricia Feeney and I am from Connecticut. I've had pulmonary artery hypertension for four years. Now the pain that I experience was the fact that I had a heart attack and triple bypass and then a year after when I was still feeling heaviness in my chest and pain my cardiologist sent me to a great, great lung specialist. They did try me on several inhalers. They at first thought I had asthma, your typical symptoms, asthma, emphysema, so I went through a lot of different type of inhalers before they actually sent me to a specialist in pulmonary artery hypertension. And he tested me. I did walk tests, I had every kind of test you can possibly think of and that is when they found out the chest pain I was experiencing was actually from the shortness of breath, the tightness in my chest, I feel it more with weather change. I can relate to everything they are saying. Many go along without having or experiencing having a heart attack and having a triple bypass. So it is very hard to distinguish between the two; the tightness, the heaviness, the shortness of breath.

But thankfully they resolved it and I see my doctors on a regular schedule and I am on Remodulin which is and I have an IV in my chest and it is probably the greatest thing that has happened to me. I was a hair dresser for 44 years. Unfortunately the one thing I love the most in my life I had to give up. But I thank God because they solved the problem. It wasn't -- I blamed the chemical, ladies, having my hair done and doing other people's hair but it is not the chemical and I realize it now. It took a long time for me to accept it and acceptance is part of your healing process.

MS. GIAMBONE: Thank you for sharing that.

MS. FEENEY: You're welcome.

MS. GIAMBONE: Thank you. So let's do a quick show of hands before I go on to the FDA Panel and we will check in with the telephone in just a moment. We talked about pain, chest pain, tightness in the chest, by a show of hands how many of you can relate to that feeing of the tightness in the chest.

Okay. Great.

Any follow up questions. Yes. Ellis.

MR. UNGER: Maybe we could do this with a show of hands but I'd be interested in seeing a show of hands for an answer to this question, multiple choice. If a drug could fix one of your symptoms, which would you pick and I think the answers would be shortness of breath, fatigue and chest pain. And I would like to see a show of hands.

MS. GAIMBONE: Okay. Great question. So let's start with the shortness of breath would you want to address that as the main symptom that a drug could fix? Okay. I see a lot of hands there and here to.

How about fatigue? Okay. You can raise your hand for both if you would like.

And the third one was chest pain. Okay. This is interesting to see.

MR. UNGER: Yeah, I saw about 18 hands for shortness of breath and about nine for fatigue and none for -- I didn't see any for chest pain. Does that seem right?

MS. GIAMBONE: Yes.

MR. UNGER: About half as many.

MS. GIAMBONE: Yes, I didn't see any for chest pain either.

Yes, Theresa?

MS. MULLIN: Soujanya can we ask that question of the people on the web cast. I don't know if you can but --

MS. GIAMBONE: Yes, definitely. Let's -- is there a way to sort of type that out or get their?

MS. VAIDYA: We have gotten some responses. So they have mentioned shortness of breath, fatigue and chest pain on the webcast. So we can't get an approximate number but about a handful have responded to each.

MS. GIAMBONE: Okay. All right. Good to know.

Okay. And I just want to take a minute. We did see some other symptoms not mentioned come up in the polling. Does anybody want to share a symptom that they are experiencing that we haven't talked about yet?

Yes.

MS. LEVINE: Hi. My name is Lynn Levine. I was diagnosed about three years ago with PAH. I don't know if this falls into a symptom but ever since I have had the PH I tend to get a cough that turns into a cold that turns into bronchitis and I have been fortunate I haven't actually gone all the way to pneumonia though I have had at least twice when my pulmonologist did chest x-rays because they thought that I was that far along. For me it happens -- it is not a specific season. I can get a winter cold. I can get a summer cold. But normally before PAH I would get a cold, it would take a few days, it would be over. This becomes a four to six week experience sometimes with an enormous amount of coughing for many of those weeks. So I definitely associate that with PAH and it just I want to bring it up. I think somebody mentioned something about bronchitis perhaps. But for me it is a very significant event that repeats itself, three four times a year now.

MS. GIAMBONE: Thank you. So it sounds like from what I understand a higher frequency of colds and bronchitis and they last longer too, those episodes. Do others share that experience? Yes, Alex?

MS. FLIPSE: So we are a family of singers. We sing constantly. And when I was first diagnosed, before I was diagnosed and then even on Flolan I lost my voice. I could barely talk, I was hoarse like crazy but I could not sing at all. And it was during Christmas and that made me very depressed that I couldn't sign at Christmas. But changing of the voice was something that was very difficult to deal with for me.

MS. GIAMBONE: Okay. Thank you Alex.

Yes, Colleen?

MS. CONNOR: Yes typically I was never -- I never had a chest cold in my life until I had Pulmonary Hypertension. And then when I get them I usually get a fever, it turns into bronchitis, they treat me then and there for pneumonia because it typically turns into pneumonia, sometimes even with the medicines that they give me. Several times they have wanted to hospitalize me but they hesitate to do that because my local hospital is not authorized to deal with the prescriptions that I am currently taking, the IV medications, they don't have the facilities to mix it or administer it to me. And our greatest fear is that I'll catch another infection on top of all the infections that I currently have at that time. So we in the end always decide to treat me at home as if I am in the hospital and the doctor staff calls me daily to make sure that I am progressing in the right way. But it is very scary when you need to sleep sitting up because you can't lay down at all and you have trouble walking a couple of feet because even the shortest or most shallow breathe causes a coughing fit that you can't recover form and you know that you are blue and you start to feel anxious. And so it is scary to be in that position when it does happen. And it seems like it is unavoidable so we try very carefully to you know in my house I have soap dispensers that give me soap and separate hand towels because I have two young children in two different schools, so my thought is I am dealing with at least a thousand germs every day coming into the house. So we try to go out of our way because it is so scary to my kids to see me not be able to talk or move or to if I breathe just more the most shallow breathe going into a coughing fit that I can't recover from and they don't even want to be there. They are scared. So it is all of those things that come into it too and that is all directly related to my PH.

MS. GIAMBONE: Okay. Thank you.

So it sounds like coughing is -- let me do one thing. Let me check in with the phone. We are a little bit short on time. So let me check in and see if we can bring some callers in.

OPERATOR: Yes, we do have a question from Orna Levy. Your line is open.

MS. LEVY: Hi. It wasn't so much of a question as an additional experience. So in my case five years ago I weighed 500 pounds. I thought I was obese. I was preparing to do a gastric bypass surgery. And it turned out that I was swollen not fat once they cut me open. So I was eventually diagnosed with severe Pulmonary Arterial Hypertension. I was sent to a different hospital where they knew how to treat me and I was hooked up immediately with IV Remodulin with a little pump that I wear in my back pocket. And it turned my life around because I lost 300 pounds of fluid in one year. The first hundred pounds I peed in the first month in the cardiac ICU. So when I talk about swelling I talk about that kind of swelling it is severe swelling. So we were talking about different symptoms. That is my biggest symptom. I have to watch my sodium very closely. I stick to 1500 milligrams a day. And if I go out to dinner I am going to gain weight that day, not because of whatever fat content there might be in the food but because of the sodium content. So I don't drink coffee anymore or drink anything with caffeine in it at all. I have given up soda and I - because it is a vaso-constrictor anything that constricts my blood vessels affects me quite immediately. And like if I inadvertently get served something with caffeine I get chest pains. I feel it. So that is to me the biggest thing that affects my life. I gain and lose five pounds in a day and I gain and lose 20 pounds quite easily across the span of a week.

MR. GIAMBONE: Thank you for sharing that. And you didn't see but there were quite a few heads nodding when you talked about the controlling the sodium in your diet I saw a lot of heads nodding in the audience. So thank you for sharing that thought with us.

Operator can we have one more caller.

MR. THOMPSON: That is actually it for phone calls right now. If other people want to call in, please follow the instructions as we do have a few more thoughts from the webcast.

OPERATOR: And there are no questions in queue at this time.

MS. VAIDYA: So on the web we have for other symptoms, we have loss of voice that was mentioned by one of the web participants and anxiety and depression. We also have when going into talking about fatigue a participant talks about the erratic nature of fatigue. And another mentions feeling as if he or she has just pulled an all nighter, so a bit of confusion, being confused and exhausted. Another participant actually mentions dealing with not looking sick which is a problem because people don't consider them to have any issues. So that is it for the web at the moment.

Thank you.

MS. GIAMBONE: Thank you Pujita.

Anymore final questions from the FDA Panel?

Yes, Ellis?

MR. UNGER: I have one more. So one of the panelists mentioned a six minute walk and going an extra hundred feet. I wonder how many people here have a six minute walk test on some kind of a repeat basis and pay attention to it, keep track of it, show of hands.

MS. GIAMBONE: Okay. Great. So the question was how many of you have a frequent six minute walk test. It looks like pretty much the majority of the patients and patient rep. Yes. Okay.

Ellis was that -- did that answer your question?

MR. UNGER: Yes, that is huge. Thank you.

MS. GAIMBONE: Okay. Great.

Well I want to thank you all for participating and sharing so many experiences on Topic 1. We've learned so much from you on the symptoms, the shortness of breath, the chest pain, how you experience it and the activities that it limits you on. So thank you for that.

Let's take a break. And when we come back we will pick up with Topic 2.

Thanks everyone.

(WHEREUPON, a break was a taken.)

MS. GIAMBONE: So let's take our seats. We will be getting started again.

And Topic 2 Panelists if you could start making your way up to the panel table.

Tammy are you back, you are on your way. Great. Take your time. It is okay.

So let's go ahead and get started again. We want to thank you for a really rich discussion in Topic 1. I know that we didn't get to all of the comments so if you have more to add we encourage you to go to the public docket and make sure you enter your comments there. We want to read them. We want to capture them all; so please definitely go visit that website and enter your comments.

And the other note I just want to mention is that we do have evaluation forms that have been passed out. They are also on the registration desk I believe. So please make sure you fill those out and that will help us a lot to hear your feedback.

So let's get started with Topic 2 and once again I will have the Topic 2 Panelists introduce yourselves when it is your turn to speak.

A really quick overview of what Topic 2 is covering, this is on current treatment approaches to PAH and patient's perspectives on these treatments. And we want to hear from you what are you currently doing? What is your treatment regimen? Is it working for you? And how do you know it has made a difference for you? How do you know that it is working for you? And if you could point to specific examples on how you know it is working for you. What are the most significant downsides to these treatments? And what specific things would you look for in your ideal treatment?

So let's get started with our panel. And Tammy would you like to go first

MS. PIXLER: Sure.

MS. GIAMBONE: Make sure you press the red button. There you go.

MS. PIXLER: Hello. Hi my name is Tammy Pixler. And I was diagnosed in 2008. My current treatment plan is I take Revatio, Tracleer and Ventavis. I am on oxygen 24/7. I use a pulse oximeter to monitor my oxygen levels throughout the day and when I exercise. I maintain a low sodium diet. I limit my fluid intake. And I also take a hefty dose of lasix everyday, except today I did not. And I do light cardio exercises.

Each of these medications took a couple of months to start feeling the effects. For Revatio it's a pill three times a day. And after a little while I did feel a little bit more energized. Tracleer was then layered on and that is a pill that you take twice a day. And you have to take a monthly liver function test. And my improvements after a few months were significant. I could tell it in my oxygen levels. I could tell it in my energy and my stamina. Then Ventavis was added. And this is an inhalation nebulizer. And you are supposed to take it six to nine times a day. And it has a very tedious maintenance requirement. I noticed a big improvement in my oxygen levels my stamina after taking that therapy for a few months.

This combination of drugs is working really well for me and I am so grateful for the improvements that I have achieved through my whole routine. I can do multiple errands in one day. I rarely need to take a morning or afternoon nap. I have much more energy and stamina to accomplish daily tasks as well as enjoy some leisure time and low key activities.

The downsides to these medications are there are no automatic refills for the drugs. They are provided through a specialty pharmacy that calls you every month for each medication; wants to know how many pills you have; and they schedule deliveries for each one of those.

Travel is also to be considered. You either have to get early delivery or you have to have it rerouted to an alternate location. And that is the same for my oxygen as well.

And Ventavis is a nebulizer and you are supposed to take it at least two hours apart and each treatment takes about 10 to 15 minutes by the time you put it together, take it apart and actually do the treatment. And the parts have to be stored in distilled water. The nebulizer has to be wiped down with alcohol after each use. And all of the parts are washed daily in a distilled water and dawn detergent and then rinsed in the distilled water. And then once a week they have to be boiled to be sterilized. The prescribed dosage is six to nine treatments a day. When I first started these treatments I can tell you I was not awake for 12 hours a day to be able to accomplish that. The most I was ever able to do consistently was seven. I was never able to do eight or nine in one day. My current dose is five which is manageable. And I use about two gallons of distilled water a week. And again gallons of water, bringing them into the house, very heavy, not an easy task to do all the time.

I need to make sure that my medication bag for my Ventavis is ready to go. I need to make sure the nebulizer is charged; my oxygen tanks are full. I have a stash of AA batteries for my oxygen tanks. And this insures that I am prepared for any kind of power outages or the need to leave the house unexpectedly.

Leaving the house is a process. I have to determine if I need to take my Ventavis with me or if I can get my five doses in throughout the day. I also need to determine how much oxygen I need to take with me. Usually I take minimally two tanks which are about five pounds a piece. No longer can I grab my keys, my purse and run out the door.

What would help? A medication that is as effective as Ventavis but last longer so that the treatments only need to be done three or four times a day. A medication that is as effective as Ventavis but is in an inhaler form instead of a nebulizer. A less cumbersome cleaning and maintenance process would be beneficial. And also medications that do not contribute to fluid retention.

For oxygen and I know this is more supposed to be medication driven but if we could have lighter portable tanks and a truly portable oxygen concentrator with continuous flow greater than three liters a minute and a longer battery life; that would be very great for me as well.

Thank you very much.

MS. GIAMBONE: Thank you Tammy.

We have Colleen.

MS. BRUNETTI: Hello before we begin I'd just like to take a moment to thank the FDA for having us here today. As you all know in a rare disease state like pulmonary hypertension it can be a challenge to feel heard and we really appreciate you taking the time to listen.

I was diagnosed on January 2, 2008. What I thought was shortness of breath due to being de-conditioned from having a baby and high stress job was in fact pulmonary hypertension. From the night I went to the ER for an unrelated illness to the point of diagnosis was actually just two weeks. And we know if often takes well over two years to get a diagnosis if not more so I was very lucky.

I currently take three medications: Adcirca, Lotaris, and Tyvaso. I am also on nocturnal oxygen. For the first couple of years after diagnosis I needed digoxin but do not any longer.

To begin I wanted to try one treatment at a time so that I could gauge which might be helping me and how I might be impacted by side effects. We started in the beginning with Revatio which was later switched to Adcirca for convenience. We added Lotaris about eight months after the Revatio. And I felt okay on those two medications but there were definitely moments my PH stopped me short particularly when it came up to keeping up with my son who was a toddler.

I caught swine flu when it came through in 2009 and I was unable to fully recover. So it was at that point that we added Tyvaso which had worked quite well and it was soon after I started taking it that my activity levels started to come back up. And today I feel like I function just about as well as I did prior to diagnosis which is a huge improvement for me.

In addition to all these treatments I have practices integrative medicines almost from the beginning. I believe that the PH medications alone are not enough. I could see how they helped a great deal and I could also see how they would never work as well as I wanted them to if I used them as a standalone approach.

I take supplements which are carefully

selected with the help of my naturopathic doctor and the go ahead from my PH specialist. I exercise several times a week and I try to have a spiritual practice that keeps me in balance.

I also overhauled my diet a few years after diagnosis and now I'm vegetarian. After studying nutrition for some time I felt that a vegetarian diet was the most heart healthy and conscientious decision that I could make. I do think I fare better eating and living this way because fighting disease is a mind, body, and soul approach.

My current treatments in conjunction with life style practice control the shortness of breath and heart function quite well. But as we heard earlier nothing has been able to touch the fatigue that comes and goes.

The medications have definitely improved quality of life, however, they also kind of run my life because every four hours I am taking something. I was due for a Tyvaso treatment at the break and I opted to push it back because I was afraid I would cough through this presentation. So you do have to plan sometimes.

My quality of life is also impacted by the specialty pharmacy system. I personally experience quite a few barriers to getting my medications in a timely fashion primarily due to issues with the order and delivery process. And I know many other patients have experienced the same; some even being forced to go without treatment or getting dangerously low on vital medication because the system does not always work as smoothly as it should.

I have taken an active role in addressing those issues with the help of the Pulmonary Hypertension Association. In fact we now have an entire system in place where many of our key players in the pharmacy industry are taking their own direct role in gathering and analyzing patient feedback and working with PAH on working to build best practices as well as improve in areas where there is need.

The downsides to the treatments themselves include the nagging cough from the nebulizer and acute nasal dilation which makes it a little uncomfortable to breathe through my nose on a good day and impossible if I get a minor cold. The equipment can be somewhat cumbersome.

One key area of impact for me is actually psychologically related. I understand that it is a mandate that I must use two forms of birth control, get monthly pregnancy testing and monthly pregnancy counseling because of one of my medications. And I can't stress enough the emotional toll that monthly counseling can take on women like me. We do not want to have to relive every month the way this disease has taken one of life's most precious gifts of being able to have our own children. And yet we are forced to as if we could ever forget for a minute what this disease has done not only to our lungs and hearts but to our families and our lives as well.

Assuming that there is no complete cure directly on the horizon my dream is to have treatments where the side effects don't impact us just as badly as the disease. I want equipment that doesn't get us treated like potential criminals at the airport because we carry high caliber medication. Or better yet no need to carry equipment at all. If there are more way to titrate up and down on oral medications more carefully that would be wonderful. I am five foot two. I don't know how the same Lotaris dose works for me as it does for someone much larger or smaller.

Finally I would like FDA approved medications for children with Pulmonary Hypertension. This is a pretty tough disease to handle as an adult but we have a lot of options. I would love to see so much more research and opportunity for the kids. Right now we know the outcome of PH for children is likely worse than it is for adults in any treatment that might be selected or prescribed off label. Additional research and trials that will get our kids appropriate treatment options would be priceless.

Again thank you for taking the time to hear us today and to weigh our thoughts and ideas moving forward. I feel confident speaking for the PH community in saying we very much appreciate it.

MS. GAIMBONE: Thank you Colleen.

Lucille?

MS. MONKO: Hi. Hello my name is Lucille Monko. I am 53 years old. And I have idiopathic PH. I was diagnosed in August of 2010. Unlike many of the others I was fortunate enough to have a primary care physician who listened and sent me to a knowledgeable cardiologist who made the difference. He took immediate action once the diagnosis was complete. My pulmonary systolic pressure was between 80 to 100. By the end of September I was hospitalized and began a combination therapy of Remodulin IV and Tadalafil Adcirca. My only choice was subcu or IV and it was determined that the IV would cause immediate relief and assistance to me.

In addition I take a diuretic, a beta blocker, several vitamins and an allergy suppressor which is actually for another medicine that I take.

I try to maintain a healthy lifestyle by limiting coffee, caffeine, eating healthy, minimizing salt intake and getting plenty of rest. This is very difficult because I have to limit the water intake. I cannot perform vigorous exercise. I do not sleep well because of the meds and waking to readjust my IV line so that it is not being pulled or tangled; hence the need for extra coffee and/or protein to maintain energy.

After two years Lotaris was added to my treatment because my second cath showed slight improvement. My Remodulin dose was at a 108 nanograms. Most recently this increased to 120.5 nanograms as my latest cath in November showed a lowered pressure of 60. It was about a 25% improvement but my doctor still thought the number should be better. They recommendation titration to 130 nanograms. I wasn't ready for this. Mentally I wonder if I -- if I have any other options if the treatments do not work or if any of the other meds would make more of a difference. I do believe, however, that without this treatment I would not be alive today.

Days when I miss my morning scheduled Tadalafil I feel sluggish by noon and notice breathing is different, slightly harder. Similarly if I do not replace the Remodulin within that 24 hour shelf life I feel like a wall is against my chest, a slight tightening begins. It is a little difficult to explain but it is a different feeling that I have when my medicines are not taken as scheduled.

The meds do allow me to have a new norm. I can do almost anything I used to before diagnosis. But if I do over exert myself I pay for it the next day by resting the entire day. I still work full time but I am granted tele-work every other day. This allows me for the needed recuperation time. Having the meds allow me to continue with life even though I have to stop and take a rest or take deep breathes to keep on going.

The meds are very strong and I feel the general side effects but I also feel the lack of oxygen throughout my body; I note that oxygen doesn't go to the brain anymore. I often feel dehydrated. I hate the tube in my chest. I hate cleaning the site and changing the dressing and carrying an emergency kit which I have used a few times. My line is always getting caught on something. I smell like the medicines I take. My skin coloring is always flushed. This is not a tan. And I hate that there are many medical persons not versed in PH, the respective meds, and how they should be administered.

For me the ideal treatment should include information, statistics and/or examples that would explain to me why certain meds are used and others are not; why doctors choose the treatments they do; perhaps a protocol that is proven effective. I would like to see more natural and/or alternative treatments, studied and approved for PH; treatments that are age appropriate for pediatrics, for geriatric if they should live that long; FDA approval of the internal pump that administers the protast -- Remodulin, I can't say that word. But mostly I would like to see full coordination and communication between all government agencies and medical participants to work together on a best treatment and possible cure.

Thank you.

MS. GIAMBONE: Thank you so much Lucille.

And next we have Stacey.

MS. GAUSLING: Hi I am Stacey Gausling. I was diagnosed with Pulmonary Arterial Hypertension in 2006, secondary to Lupus and Mixed Connective Tissue Disorder. Prior to diagnosis I had finished two marathons, the Chicago and the D.C. marathon and at the time of diagnosis I was working full time as a medical sales rep. I also have a background as a licensed occupational therapist of 24 years.

At the time of diagnosis my pulmonary pressures were between 80 and 100 and I was short of breath with all activity even just sitting and resting. I was immediately started on two oral medications Revatio and Tracleer. Within six months my doctor wanted me to start Remodulin. At first the subcutaneous route was presented to me, however, the pain that I experienced was unbearable and the only way that I can explain to those of you that don't have a subcu treatment is it feels like a hot burning iron is on your skin continuously. So I opted to go the IV route and I've never looked back since.

There were a variety of other prescription medications added to address fluid retention and meds to counteract the side effects of my medications such as potassium.

The way that it impacted my daily life I chose to take my Lasix at night so that I could continue to work full time. I was also on oxygen therapy for two years 24/7. So I left my house with my medications on board, all my oxygen tanks for the entire day and made sure that I was going to be near a toilet at all times or ready to stop because of the side effects of the medications.

I also stated following a low sodium and low fat diet which was recommended by my doctor which was at the time of initial diagnosis was hard for me to grasp at first because I had never been on a true diet before. And you know I had a little bit of a pity party for myself saying well if I am going to have this diagnosis you know I want to be able to eat what I would like to eat. But then I soon realized that embracing eating a low sodium diet made me feel better and counteracted the fluid retention that I was experiencing.

I slowly started to improve and after about two to three years, that was my turning point where I was able to come off of the oxygen during the day. I was able to start integrating some exercise in addition to working full time and I went ahead and made the decision to switch from Revatio to Adcirca because to be quite honest with you the mid day dosing was getting missed. When you are trying to maintain an active daily schedule stopping to take an additional medication during the middle of the day just got forgotten.

So a couple of years ago we decided that we wanted to make a drastic change. We decided to move back to California from Texas at the end of December. We sold all of our belongings including our house, wanted to simplify life and enjoy the weather that would allow me to improve my health; so just the act of moving and being around a community of excessively healthy people kick started a new adventure in alternative health. I cut out all artificial sweeteners, sodas, and made a strict conscious effort to stay under the 1500 milligrams of sodium per day. Shopping at the local farmers' market and eating organic as well as going for walks and exercising has become a new normal as I am not only short of breath with attempts at jogging or climbing more than three flights of stairs at a time.

Now I have added personalized supplementation with vitamins and minerals and striving to follow an anti-inflammatory diet.

So in summary, yes my drug regimen has been effective but it hasn't changed after year one. Yet my function and feeling of well-being has steadily improved with each year now. I am not eight years post. And my six minute walk test I can surpass 640 meters. So is it the medication after a certain point or is it lifestyle with the medication?

I know it is going to take a new medication that has proven benefits over my current regime in order for any changes to be made since I am doing so well. I would love to not be on IV but I will not trade my function for it. My ideal treatment would be one that allows me to receive my medications in the least invasive way possible with the least harmful side effects. I would consider the implanted pump over my current IV strictly for the additional freedom it would allow me to swim or shower without fear of an infection. A treatment option that would allow for the greatest amount of freedom and flexibility such as a monthly infusion or longer or a patch would help normalize our lives. I would like to see some new options other than reinvention of the same drugs to different forms or versions. I would live to see the concept of personalized medicine carry over into the PH community. DNA testing that would show which medication within a category would work best for our individual genetics using the simple swab test that they are currently using for other drugs. I would also like to see how the new advances in stem cell such as growing new lung tissue and genomic technologies such as genetically coding the manipulation may benefit us. I am very grateful for all the new treatment options available to us with PAH but with the advances in technology I would like to see alternatives other than IV, subcu and oral options. If those were the only options then I would like to see some developments in smaller pumps, pain free delivery systems and alternative oxygen delivery systems that are less cumbersome.

MS. GIAMBONE: Thank you Stacey.

And Katie?

MS. TOBIAS: My name is Katie Tobias. I am 27 years old. When I couldn't breathe they said I had asthma. I was passing out and they called it epilepsy.

Three years and several specialists later I was finally diagnosed with PH in September 2006.

IV Remodulin was started immediately and Revatio was added a year later. Breathing and heart function had greatly improved. I went from knocking on death's door to living a relatively normal life.

The palpitations started in July 2010. Lotaris and digoxin were added. By November I was using four liters of continuous oxygen and could barely walk without gasping for air. With every exhale there was an intense squeezing pain in my back. The Remodulin dose was raised several times but my condition only worsened. I transitioned to Flolan in November 2010. Flolan is considered the gold standard in PH treatment. I was on the drug for a little over two years and it was the worst experience I have ever had. The pain started halfway through the transition. It felt like every last piece of skin was constantly being pinched. The sharp pain never went away. The slightest touch made me want to scream. Sitting on the couch sometimes took up to eight ice packs; one to sit on, one under each thigh, one under each foot and one under each arm and one to hold on to.

Over time the pain just went deeper and deeper. I remember saying it is like my blood hurts. I went through several different narcotics in a little over two years. Each one only helped for a few months. Despite around the clock use the pain never fully went away. On a one to ten scale with ten being the worst pain you ever felt my good days were maybe a six but the bad days could easily be a ten or above.

I tried Veletri but couldn't finish the transition; the pain was ten times worse. I am still on Revatio and Lotaris. In February 2013 I successfully transitioned from Flolan to Tyvaso. Within a week I was completely pain free. Tyvaso liberated me from the tube in my chest and the machine at my waist. I no longer feared the next site infection, the next line break, the next life and death crises. Breathing is better than ever and so are the test results.

However, there is now extreme pressure and bloating every time I eat. Nosebleeds can start suddenly and can last 45 minutes or more often causing me to vomit blood and blood clots. Mood swings have changed drastically. It is as if someone flips a switch and I am suddenly ecstatic, a few hours later flip the switch again and I am absolutely terrified then content, then depressed, then livid, around and around several times a day. Steps have been taken to help relieve these issues but I never had them before Tyvaso. But I would gladly take a bad day on Tyvaso over a typical day on Flolan.

Every drug has side effects. But every drug also has the potential to improve lives, to save them. I hope that one day the pills we take will be just as effective and strong as the IV medications we have now. Until then I hope we can find a safer and more reliable alternative to the central lines currently used for IV treatments. Site infections mean extended hospital stays. And line breaks mean life threatening emergencies. I was on IV medications for about seven years. The central line had to be replaced six times. Five of those times were because the line broke. When IV medications have a half-life measured in minutes like Flolan every single time that piece of plastic breaks your life is in jeopardy. I had one site infection and a few infections under the skin when new line was placed. I even had a piece of an old line left inside of me.

In spite of all the negative effects these drugs have I would have died without them.

Life with PH is not easy and the current treatments are not perfect. But these treatments enable us to defy the odds with every breath we take. We are alive; we will live to see tomorrow; and tomorrow may hold the cure.

Thank you.

MS. GIAMBONE: Thank you so much, Katie.

Let's give this panel a round of applause.

[Applause]

I know it is difficult to talk about such a personal story but we truly are grateful that you are here sharing this with us.

Now one thing I do want to do is we are very grateful today to have the pediatric perspective in the room. We have Martha Gonzalez here and Martha would you like to share just a few comments before we open up to the greater group.

MS. GONZALEZ: Yes. Hi. Like she said my name is Martha Gonzalez. My son, Daniel, could not make it today. But I brought a picture of him. It is not a recent one. I am the mother of Daniel, an eight year old patient. Daniel was diagnosed with PH when he was one year old. He started his PH treatment with low doses of Revatio. Every month the dose was increased until he reached 20 milligrams three times a day. As we all know proper dosage in child patients is impossible for many PH pediatric specialists which is why it has to be well monitored. Reaching the proper dosage of 20 milligrams took months to achieve. However, the hard work paid off. As Daniel's PH is stable and has shown no sign of progression since then.

His specialist decided to be proactive as Daniel was growing and added a second medication to his treatment, inhaled Treprostinil. With this other medication Daniel has completed and gradually improved his six minute walk test. Now he walks an average of 600 meters with a saturation of 94 at exercise and back to 98 after he completes the test.

While the downsides to his medication are minimal Daniel does sometimes have random nosebleeds which are attributed to Sildenafil. That is what we think. He has borderline low platelet counts which is known to be possible effect to Tyvaso.

The only major downside to his medication is if he contracts a respiratory virus due to the Tyvaso if he has a cough he cannot take his medication. His specialist advised us to use Ventalin and Flolan 30 minutes prior to treatment to prevent him from coughing out of the medication if he is sick. However, if the cough is unmanageable we must take him to emergency for alternative treatment.

Using these medications also interrupts his school day as he must take it during class.

Yet in the face of those obstacles we are grateful that Daniel is doing well due to his treatment. He is growing to be an active elementary school student. Like many children his age he has expressed an interest in sports as well. He loves to play and lives his life uninhibited by his disease.

Lastly I would like to say that although there are no PH drugs approved for children, children benefit from drugs approved for adults. On behalf of my son and many children affected by this terrible illness I ask the FDA to consider more studies to target the approval of treatment for children.

Thank you.

[Applause.]

MS. GIAMBONE: Okay. Now it is working. We really -- you know when we learned that Martha was going to be able to attend today's meeting we really thought it would be very, very helpful and important to hear the pediatric perspective. So Martha thank you for joining us today.

And thank you again to our panel members for your comments.

So before we move on to the polling question let me ask as I did with Topic 1 how many of you felt that you heard your experiences being shared by at least one of the panelists here?

Okay. It looks like the majority of you share similar experiences.

And just to sort of recap what I heard it sounds like the treatment regimen has changed over time, you've had to sort of determine which drug therapy works best for you, you seem to also have incorporated lifestyle changes and so we are looking forward to hearing what the rest of you also have to say and experiences that you have.

So let's go on to our polling question. And I am going to apologize in advance if I mispronounce some things. So jump in and tell me if I am saying something wrong, okay.

So have you ever used any of the following drug therapies to help reduce the symptoms of Pulmonary Arterial Hypertension, check all that apply. And really quick do you all have your clickers? Okay. Good. Okay. A Endothelin Receptor Antagonist such as Tracleer, Letairis, and Thelin; B PDE5 Inhibitors such as Revatio, Adcirca and Levitra; C Prostanoids such as Flolan, IV Remodulin, and Beraprost; D Calcium Channel Blockers; E other or F I am not sure.

And also to those of you on the Web please make sure you enter your responses.

Okay. So here is what we see here. It looks like 88% of you are taking the ERA, Endothelin Receptor

Antagonist followed by almost the same 79% of you are taking PDE5 Inhibitors, 58% take the Prostanoids, am I saying that correctly. Okay. Good and we also have other so we look forward to hearing some of the other drug therapies that you are using. And finally Calcium Channel Blockers. Okay.

Let's check in with the web. Do we have something similar?

MR. THOMPSON: So the biggest difference on the web is that about 50% of people said they took something other than these categories listed above.

MS. GIAMBONE: Okay. Great. Thank you.

So let me ask a question to sort of you know begin this discussion. How many of you take these therapies, it sounds like most of you take these therapies on a daily basis; is that correct. Okay. And it sounds like it is multiple times a day too; right? Okay. Lots of heads nodding. So would anybody like to start our discussion with what you are taking and if you could point us specifically if it works for you how do you know that it is working for you?

Would anybody like to share?

Yes. Alex?

MS. FLIPSE: Thank you. So right now I am taking Sildenafil, I am about to take it. And I know that it is working because my six minute walk increased by over 100 feet. Prior to that I was on Flolan for four years. My pulmonary arterial pressures were at 115. After I think about four months they went down to 25. Four years later I was transitioned off of Flolan on to Tracleer, they shot back up to 55. And now that I am on Sildenafil they are still at about 50. So I know that it is working because they could go way back up to 115 again. And I can do the six minute walk a lot further plus walk a mile and not have to stop.

MS. GIAMBONE: Okay. Thank you for giving us specifically those examples on how it is working for you.

Yes we have another comment here.

MS. VOLPE: Okay. I started on Flolan because obviously it was many years ago. There was nothing else. It was that or I had to have a lung transplant. At the time it was going to be a lung and heart. I started on Flolan before it even became FDA approved. And I feel it saved my life. I can't believe what Katie went through because I didn't have anything like that. I did go on a couple of oral medications but I just -- they made me so flushed and I just felt terrible with them. Tracleer did a job on my liver. So I couldn't take that. And now I am on Remodulin with the Crono pump and I kind of liked better like Veletri on my other pump, this seems more sensitive and even though it is longer lasting and everything but I wished I could -- I even tried it one time coming off all IV medication and going with oral. And I went like for four months and I just couldn't breathe. So they had to put me back on IV treatment. But that is what I am stuck with for now until something better comes along.

MS. GIAMBONE: Thank you. And sorry, your name?

MS. VOLPE: I am Joann.

MS. GIAMBONE: Joann, Thank you Joann.

Yes and right next to Joann we have another comment.

MS. LEWIS: I am Ann Lewis. And I have had

PAH for about five years. I think I started with Revatio and then it was changed to Adcirca and then we tried Tracleer because my pressures were not what the physician felt they should be and that did not work for me because of the liver situation. I am so grateful that there were other drugs we could turn to, we didn't have just one choice. So I am on Letairis now and that seems to be working fine for my body.

But I think I would want to go just a little further with this to say that I think the other medications of course oxygen but exercise and diet change have made a tremendous difference for me. So I think it has been a holistic change in how I view my body and how I view PAH. I think it is hard to separate out you know which is more effective. I have done some studies at NIH so I know that my pressures are better, I know that I am walking farther, the stress test with checking the oxygen and all of that showed significant improvement even over a six month period. But I can't tease out is it the medicine; is it the exercise; is it the diet change.

MS. GIAMBONE: Great point. And to your

point we will have a second polling question in just a moment that is going to address some of the other non-drug therapies such as lifestyle changes that you've made. I know we've heard some on the panel too.

Anybody else that wants to share more about their current treatment regimen and if it is working for you and how you know?

MS. HAMILTON: I am not sure how I know. I am taking as of December the 17th I started on Opsumit and that was just approved by FDA. And the pharmacist told me that he thought I would see a difference in four months. And I can't say that I have found that I have any significant improvement. And none of the other medications that I am on which is Adcirca and Tadalafil. I don't see any significant changes. So I honestly with the exception of the six minute walk that seems to be the only real measurement that we have and that has not been up. So we'll see and probably a change in diet and exercise; I've been exercising but maybe a change in diet would be helpful as well. I just don't know.

MS. GIAMBONE: Blanche, thank you very much.

I think we had one more comment here.

MS. HARRINGTON: I just wanted to say I've been on the medications for nine years and I went from hiking and running and biking to not being able to walk up a flight of stairs within six months. Once I was started on the medication, starting with Revatio, it took about a year for me to get back to a comfortable level. I can you know now walk on the treadmill whereas I couldn't before. And one way I know for sure that the medicines are helping is I tried a quick 24 trip to New York City to visit my niece and put all of my meds that I would need in that 24 hours in one bottle and was so nervous about what if I need them and they are in my backpack. Well okay then I will put them in my purse and it turned out that I didn't put them in either place. So within 12 hours of getting to New York I couldn't even walk a block. And I can walk on a treadmill with oxygen right now. So you know I could not wait to get home and but a day or two later after getting back on my regular medicine regime I was okay. But that was very scary and it tells me that it is working.

MS. GIAMBONE: Thank you for sharing that. And I am sorry your name.

MS. HARRINGTON: Kathleen.

MS. GIAMBONE: Kathleen.

And I believe we had one more comment?

MS. DOYLE: Okay. Hi I am Stacey Doyle. I'm currently on Remodulin. When I started I was on Ventavis and Tracleer. And I noticed the biggest difference when I went on Tracleer because I came to Baltimore and was able to walk around two weeks -- pretty much two or three weeks after I went on Tracleer when before I couldn't even walk a up a flight of steps when I came out of the hospital. And I was pretty stable on both of those medications for almost six years. And then I started to get worse, I started to get more fluid in my legs. And I started to have trouble walking up a slight incline, having trouble with stairs again. And I went on the Remodulin pump and stopped the Ventavis. And part of that was because I was having trouble getting all the treatments in. I was supposed to have six treatments a day, every three hours, I had a full time job, I had a two hour commute every day, ten year old daughter, I wasn't getting my six treatments in a day. So that did affect me. I felt like that made me get a little worse. And then when I went on Remodulin I got better. I mean the symptoms, the fluid, what I am able to do so I know it is working but I have to deal with the downside. I have to deal with the site pain. I have to deal with the site changes. And that is impacting my life, my work, my relationships. But I know I need it. So I am thankful to have the medications that I've had over the past seven years or I don't think I would be here. But it is just learning to deal with the side effects in order to continue to live your life.

MS. GIAMBONE: Thank you Stacey.

I am going to make a quick comment to those of you joining us on the Web. I will be checking in with the phone in a few minutes. So if you would like to dial in, please make sure you do that.

Okay. And I do want to follow up with a question that somebody had -- Blanche I think it was you could you share your experience -- all of you, would anybody like to share your experience on how long you give a particular treatment a try or you try it before you know that it is not working and it is time to make a change. Blanche I believe you mentioned about four months you had tried. So does anybody else want to share their experience with that?

Yes, Lucille.

MS. MONKO: I actually can't share that experience but in my situation the combination therapy that I am on, I am actually too afraid to try something else for fear of it not working as good and not taking that chance for something else because I understand that if the disease does progress it is then either much more difficult to regress again and/or does not at all. So contrary to that I am too afraid to change and try out another therapy.

MS. GIAMBONE: Let's do a show -- oh, yes.

Thank you Lucille.

MS. FEENEY: My name is Patricia Feeney. And I have been on Remodulin since day one which my doctor included Letairis and Adcirca. I've been on it for four years now and because my condition and my walking test was doing so well I said to my doctor if I am doing so well why can't I get off of one of the drugs. Well, believe me if we were all doctors we would not be here. I said to my doctor I'd like to get off the Adcirca and try it. I've been off for two months and I have been starting to experience a change in my breathing. I realized that my decision to go off it was not a good one; that he was 90% right; and I was 10% wrong.

[Laughter.]

MS. FEENEY: So we all realize that they put us on these drugs for a reason. And it is to help us. And I've never felt better. I went from being 20% to 97%. Since I have been off of the Adcirca for two months I bet you I am down to about 50% and having a hard time with walking distance. My walking test was up to 1400. I don't know how they measure it out but now if they were to test me today I bet you it is probably way down. So next week I see him and I am going to go back on it.

Thank you.

MS. GIAMBONE: Thank you for sharing that.

Yes. We have one comment here from Alex.

MS. FLIPSE: I can't really say how long I let a medication work because I think I am from the old school generation where if a doctor tells you take this you take it and you don't question it. That was my only thing.

MS. GIAMBONE: Thank you.

Yes and let's take one more comment there.

MS. CONNOR: Hi it is Colleen Connor. I was just going to say when I was first diagnosed back in late 2007 my doctor wanted to start me on the least intrusive therapy so we started with Calcium Channel Blockers. We gave it three to four months at a time. They just made me swell. My legs were probably 20 pounds heavier each side. I couldn't put any socks and shoes on and I didn't feel any benefit other than like a swollen mess. So we moved on to Tracleer and I still didn't feel a benefit to that. So after three months he added Revatio. I still was like doc I can't do anything more than I have ever been able to do since we came to you. So then I went to Ventavis which was the breathing treatment and most people -- you know at the time it was supposed to take eight to ten minutes, for me for whatever reason it would take me like 20 minutes until this nebulizer would finish. They had the nursing staff out to watch me do it. Of course they would say don't wear your oxygen so the oxygen is off, so I am blue doing the nebulizer for Ventavis several times a day when I am trying to work, stopping in the middle of meetings to say excuse me while I break my vials and I need to be quiet for the next 20 minutes during a conference call. It was when I was on Ventavis that I had the experience where I felt dizzy and within four to five weeks I could no longer think or read. And we were in an emergency situation I clearly was in distress not getting enough oxygen to my brain. So they put me on the Flolan at that time and like I said within a week and half of being on Flolan my brain unwound as my cardiac output improved and that was a huge, huge life changer for me. So since then I have been able to switch to what is the name of -- the other version of Flolan where I don't need to worry about ice packs which is -- Veletri which is a giant quality of life improvement to not have those ice packs on your hip and a frozen hip for years. So yeah, so my -- we started at the beginning at the smallest therapies and then quickly kind of ramped up with I would say three to four months in between each one.

MS. GIAMBONE: Let's do a quick show of hands here. Thank you Colleen. So Colleen mentioned and now we have heard multiple times now about three to four months of trying a drug therapy you are able to tell whether it is working for you or not. By a show of hands does that sound similar to what you think?

Okay. So we have about five or six hands being raised. Thank you for that.

Let me check in with the FDA Panel.

Ellis I believe you had a question and anybody else?

MR. UNGER: Well I had a question, kind of a follow up to the earlier panel but this question will work. We had a question about the six minute walk and what it was people thought kept them from walking faster than they were able to walk. Was it -- could they walk faster if they had less shortness of breath? Or was the problem energy? In other words was their legs just couldn't do it or was it the breathing problem? I wondered if we could get a show of hands on that.

MS. GIAMBONE: Okay. Great question. So did everybody hear that? The question is what specific symptom is it that maybe you are not able to complete the six minute walk test or --

MR. UNGER: Well what -- why everyone walks at a certain maximum speed.

MS. GIAMBONE: Uh-huh.

MR. UNGER: The question is finish the sentence you could walk faster if not for and is it shortness of breath or energy.

MS. GIAMBONE: Got it. So let's do a show of hands. How many of you think it is the shortness of breath that was stopping you from walking faster on the six minute walk test?

Okay. So we have -- I am counting about 13 to 15 -- about 17 hands or so being raised. Does that sound right?

And the other chest pain --

MR. UNGER: Energy.

MS. GIAMBONE: Energy.

MR. UNDER: Tiredness.

MS. GIAMBONE: Okay. Tiredness. Let's see we have one, two, three, four, five. Okay. We have five hands being raised for that. So it sounds like it is more of a shortness of breath issue.

Thank you Ellis.

All right. So let me do this, let me check in with the web to see what comments are coming in there.

MS. VAIDYA: Just to get back to Ellis's question on the web they are also saying shortness of breath.

MS. GIAMBONE: Okay.

MR. THOMPSON: We have a lot of similar comments on the web as to things we've heard before. People mentioning IV Remodulin, Revatio, oxygen therapy in general, Tracleer, Adcirca and some people noted some bad experiences with IV regimes and a few people have noted that they've seen significant improvements on some of the drugs you mentioned. I think overall I have a balance that reflects what we've heard in the room so far.

MS. GIAMBONE: Great. Thank you.

And I am going to check in with the phones now. For those of you who are going to be providing us some comments on the phone we would be curious to see what your thoughts are on what specific things you'd look for in an ideal treatment.

So operator can we have the first caller.

OPERATOR: Yes we do have a comment from Toni Minerva. Your line is open

MS. MINERVA: Hi. I am Toni. I was diagnosed with Pulmonary Hypertension. I was diagnosed when I was two months old. It is due to a congenital heart defect. I was first put on Tracleer in 2002 for that and I was on no treatment just seeing my cardiologist every few months. And then in 2011 I was placed on Adcirca for nine months which I had to come off of due to intense joint pain. About a month or so later I was placed onto Revatio which I am still on. The combination of these two drugs have been indispensable really. I am quite sure that I wouldn't still be here were it not for the medication.

I don't know my walk test numbers. I don't keep track of them. I find doing that can just sort of provoke anxiety. And I really don't need that.

But I can tell you that I do know my walk test has been better as have my echo cardiogram results. So that for me is fantastic.

I do wish that going forward and finding medication that, of course, there would be less side effects from a drug and more convenience in both taking them and obtaining them.

MS. GIAMBONE: Thank you. Thank you for that.

MS. MINERVA: Thank you.

MS. GIAMBONE: Can we take one more caller? Okay.

OPERATOR: Yes we do have a comment from Orna Levy. Your line is open.

MS. LEVY: Hi I spoke earlier about the swelling that I deal with as a result of the Pulmonary Hypertension. I wanted to talk a little bit about my experience with Remodulin which is my IV medication. I have it through a PICC line in my arm. When I was first put on Remodulin I was in the hospital. I could barely move due to my 500 pound weight and as they started me on medication, of course, they are dilating my heart and lung blood vessels so my heart was finally able to pump which it hadn't been able to do for a very long time because I had constricted blood vessels. As a result I became very, very, very flush, very, very hot. They had to put ice packs on me Because I was so heavy I couldn't move my own legs so I had to ask the nurse to reposition my legs periodically because I would get so hot. And I had severe nausea and diarrhea. So I remember one particular day I could only take one -- eat one of two saltine crackers that day which is impressive.

Slowly as my body began to adjust to it, those things calmed down a little bit although I am still on a daily anti-diarrhea dose that I take along with my 30 other oral medications but all of those side effects were definitely worth enduring. I have jaw pain occasionally when I bite into something. I have occasional leg achiness. But all of that is worth enduring for the amazing benefits that I've achieved or received because of this medication. I can now walk a mile and a half where when we reached the hospital at 500 pounds I was only able to walk about four feet. So it is a huge tangible difference for me besides the 300 pound weight loss; just mobility.

Also a couple of times you guys have mentioned sort of is it tiredness or is it shortness of breath that causes you to have problems walking. And my answer is it is both combined because a lack of oxygen causes both of those things. When you don't have enough oxygen in your body your body becomes fatigued, your muscles don't have enough oxygen to function properly so your muscles themselves get tired, there is not a quick enough exchange of oxygen in and out of your muscles to refresh them. It also means that your brain becomes fatigued. You make mistakes; we call it PH brain because you are unable to think as clearly. Being an attorney that is for me the greatest downside to PH my inability to focus for long periods of time like I used to. I can't function as well as an attorney because I don't have that clear thinking. I am not as bright as I used to be because there simply isn't as much oxygen in my brain consistently.

MS. GIAMBONE: Thank you so much Orna, thank you for sharing those comments. And I saw heads nodding especially when I heard the PH brain I saw some heads nodding there, so it sounds like it is a shared experience with the concentration or memory.

Great. Thank you so much. Now let's move on to our next polling question. So everybody get your clickers out again.

Let's see here. So the question is and again those of you on the web if you could also let us know what your responses are.

The question is what else are you doing to help reduce your symptoms of PAH? Check all that apply. A other drugs such as blood thinners; B supplemental oxygen; C surgery such as lung or heart transplantation or atrial septostomy; D lifestyle changes such as limited activity or changes in your home; E other therapies not mentioned; or F I am not doing or taking any therapies to treat symptoms.

So this is very interesting. We see that the majority of you have identified that there are other therapies not mentioned that you are doing to help reduce the symptoms of PAH. So we will definitely want to hear more about that followed by D lifestyle changes such as limit activity and changes in your home.

Let's check in with the web. Are the polling responses similar?

MS. VAIDYA: On the web we have a majority that say that are doing some type of lifestyle change and then an equal distribution in taking blood thinners and supplemental oxygen. So it is pretty high. And then some have mentioned other therapies.

MS. GIAMBONE: So slightly different.

Great. So let's cover the -- does anybody have anything more to add with the lifestyle changes because I'd like to spend some more time on some of the other therapies that haven't been mentioned. So are there any comments?

Yes. Sorry?

MS. COOPER: I pressed C but I see it says zero, but I pressed C.

MS. GIAMBONE: Oh, okay. I wonder why it did that. Thank you for telling us that you put that as an option. Thank you.

So to the lifestyle changes we heard everything from diet changes to you know planning your day, making some changes around your home. Are there any comments that anybody wants to share on some of the lifestyle changes you've made before we move to some of the other therapies?

Yes, Holly? We have Sara coming to you.

MS. TISSUE-THOMPSON: I am Holly. I talked earlier on the first panel. I think that the lifestyle changes I would probably do more diet and exercise if I had more energy to do them. I have a treadmill at home; however, I have passed out on it a few times. So I am afraid to do it when my husband is not home. So with his schedule with work and my schedule with work it is just not a feasible thing to do and probably if I had more time to make maybe healthier meals then I would probably do that as well as some of the other people have spoken about.

MS. GIAMBONE: Thank you Holly.

Anybody else?

Yes, Colleen.

MS. BRUNETTI: I had some pretty good luck with alternative therapies. I used a lot of acupuncture at the beginning. It helped relieve the chest pressure and some of the feelings of breathlessness and also for stress reduction around being pretty upset about such a diagnosis. And more recently Reiki therapy which is a form of energy healing has been very helpful.

MS. GIAMBONE: So alternative therapy.

Let's go here.

MS. COOPER: Hi, I'm Nicole Cooper and I had an open heart and lung surgery and because my PH was caused from a blood clot. So after I had the surgery going into my lifestyle because the bottom of my lungs wasn't getting any blood for like three years so after I had the surgery me and my doctor came up with things that I could do as far as exercises. So I decided to learn how to swim because she told me the swimming would help open my lungs. So I swim everyday all year except today I am here. But I swim so that -- and it really is -- the breathing part I have trouble with under the water. But as far as if I don't keep my lungs active then they have a chance to collapse.

MS. GIAMBONE: Thank you for sharing that.

And let me stick to Nicole's point quickly. It didn't seem like the polling question captured your response. So I am curious were there others that had also chosen the surgery as one of the treatments?

Thank you Nicole.

Yes we have a comment back here.

MS. MATTHEWS: Yes. I spoke earlier. I am Nicole. One of the things in terms of lifestyle that I changed was my diet from a regular carnivorous diet to a vegetarian diet that is largely vegan. I have eggs every now and then. And that helped me tremendously. And I am not sure if it -- I have Lupus as I said earlier and I am not sure if it helps by decreasing the inflammation in my system which when my Lupus is very inactive I find I feel better in terms of my PAH symptoms. But in addition to the medication the diet change really helped a lot.

MS. GIAMBONE: Okay. So we've heard quite a bit about diet changes, reducing sodium. Let's take one more comment.

MS. BROWN: I just wanted to say that

exercise has been a big factor that helps me. And I didn't realize it was helping until I -- I was doing the treadmill and I stopped for several months. And when I went to get my six minute walk it was not good. And my doctor knew right away; he said are you still doing the treadmill? And I was like no. So he said I can tell, so he said I needed to step it up. Now I am a PH patient, I was doing 30 minutes. I was like so step it up to what? But I am glad to say that I now can do one hour on the treadmill but I have my liter flow is only ten. But that is helping me a lot.

MS. GIAMBONE: Thank you.

How many of you by a show of hands if you are comfortable to do so also think that exercise is an important part of your treatment regime.

It looks like the majority of you. I see a lot of hands raised here.

Let's focus a moment on some of the other therapies we've heard acupuncture; we've heard alternative therapies, some energy healing therapy that you are doing. Anybody else want to share some experiences with other therapies?

Yes, Maratha?

MS. GONZALEZ: Hi. We do know that PH patients do not do well with congestion and my son in particular he has seasonal allergies and I know that living in the Garden State, I live in New Jersey, maybe there are some people here that live also in New Jersey, do suffer a lot of allergies. So we try to prevent that congestion on my son. So he is taking continuous medicine for allergies such as he started with Zyrtec and now he is in Claritin. It is something that he is on all the time, everyday. So it is something added to his treatment just to help to prevent the congestion.

MS. GIAMBONE: Thank you for sharing that, Martha.

Let's do another show of hands here because I do recall hearing some other panel members I believe share that they were also taking some allergy medications.

So who else takes allergy medications on some sort of daily basis or very frequent basis?

So we have one, two, three, four, five, six.

So I am seeing about six hands raised. Great.

FDA Panel do you have any questions, any follow up questions regarding some of these other therapies?

Great.

So let me ask now to get some input from you on what would you look for in an ideal treatment. We've heard everything from you know I wish the equipment or the management of all the equipment wasn't so cumbersome to perhaps rather than IV medications something oral. Any other thoughts that you want to share?

Yes, Holly?

MS. TISSUE-THOMPSON: If we could find something that is more specific to just the lung vessels instead of all vessels because the prostanoids they dilate all the vessels which in my case brings my regular blood pressure down very low. It runs about 90 over 58 on a routine basis which I think contributes to my fatigue as well because if you don't have the blood pressure behind you you are not able to keep up with your activities. So if there was some way to find a drug that is more specific just to the lung blood vessels instead or throughout the body that would be great.

MS. GIAMBONE: Thank you Holly.

Yes. We have a few more hands raised over there.

MS. MAXWELL: My name is Nancy Maxwell. I think ease of use and that is a relative term with PH but I am on Veletri and it takes a lot of planning just from when am I going to do the dose and where am I going to do it if I am away from home. You know do I have the proper sterile condition or close to sterile condition. You know if the weather is going to be bad, if we are going to get a snowstorm, if we think there is going to be electricity going out, what is going to be the plan for that. So any of the IV medications are hard to use. And we already do so much planning in our daily life just trying to live our daily life the medications just add to that planning and that high degree of difficulty. So it would be really great if we could have something that was easier to use. My dream is a pill. So just something that would be easier to use and that is it.

MS. GIAMBONE: Thank you Nancy.

Yes.

MS. FLIPSE: Hi, Alex again. I would say something with not so many side effects. Obviously medications are going to have side effects but when I was on Flolan I had everything, the jaw pain, the flushing, the leg pain, the nausea and the vomiting. I got the Flolan diet; I went from 180 pounds down to 92 pounds within a matter of months. I could not eat and breathe at the same time. It became a choice and I believe that might have been a side effect of the Flolan you know.

MS. GIAMBONE: Thank you Alex.

Anybody else? Yes, Lucille?

MS. MONKO: And of course this may not be the right forum but the cost of any of these medicines are just so astronomical and I do know that a few in the support groups I go to people were taken off the brand names and whether they have generic or something similar to but needless to say they do not provide the performance that the brand names. So I mean the cost is a great deal in sometimes the doctor selecting you know what treatment they can be given in relation.

MS. GIAMBONE: Thank you Lucille.

So that is probably a good lead in to some of the questions that I know some of the FDA panel received during the break earlier when we had the break. Ellis, would you mind rephrasing the question and answer the question that you received during the break.

MR. UNGER: Okay. We received a couple of questions about whether we could comment on any drugs that might be being developed to treat pulmonary hypertension. And the answer is that there are drugs being studied to treat pulmonary hypertension. And hopefully will bear fruit for people in this room at some point. But we are barred from discussing any kind of information about drugs that are under development because that is trade secret information. So we promise to keep that information confidential because it involves trade secrets and a lot of proprietary information. So we can't talk about it.

A point I would like to make though about generics. Generics are very strictly regulated by FDA. And they have to be -- they have to perform similarly to the name drugs. And there are many people who believe that generics don't work as well as the brand name because heck if you pay less for it, it can't be as good; right? But that is not true and we would love to dispel that way of thinking because it really isn't true because the standards are quite strict. They are tested. They have to meet certain performance standards. And I can guarantee you that any of us at the FDA who take drugs will always take a generic if it is available rather than a trade name because it is cheaper and it's just as good. So I would like to add that.

MS. GIAMBONE: Thank you very much Ellis.

So on that note let me recap everything we discussed in Topic 2; again a very, very rich conversation. We've learned so much from you and we are very thankful for that.

So we learned from you that most of you your current treatment regimen involves multiple medications, drug therapies. It sounds like many of you have had to change that treatment regime over time based on what is working for you and what is not working for you. It sounded like many of you have incorporated lifestyle changes, everything from modifying how you go about your day, planning your day to diet changes such as limiting your sugar or sodium. It sounds like you are also incorporating some alternative therapies that are helping you. And you have given us some really great feedback on what you are looking for in an ideal treatment.

Additionally I want to mention that you also brought up the downsides of the treatment that you are currently taking. We've heard nose bleeds, we've heard a nagging cough. Let's see we heard dehydration. So we've captured all of that and if there is something that we didn't capture today or that we couldn't get to today, I just want to remind everybody to again go to the public docket, visit the public docket and provide your comments there. They are very, very valuable to us. And they will all be part of the public record.

So yes, let's check in very quickly with the web.

MR. THOMPSON: Just to wrap up the discussion we had a lot of comments on the web about ideal therapies, people just wanting fewer side effects in general but specifically avoiding the external IV lines, drugs that target the lungs or heart specifically instead of all blood vessels. And for personal oxygen carriers things that what we said earlier, just making them more convenient. And just in general therapies that don't interfere with daily life as significantly.

MS. GAIMBONE: Thank you Graham.

And thank you to all of you on the web for continuing to provide your comments. We really, really appreciate that even though you weren't able to join us in person that you have been so actively participating via the web.

So on that note I am going to turn it over to Sara, my colleague Sara for the open public comment period.

MS. EGGERS: Good afternoon. My name is Sara Eggers. And I am going to do the open public comment. We had two comments come in today so we will let you each speak for three minutes because we let the facilitated discussion go longer today. The purpose of this open public comment period as Soujanya mentioned is to give people a chance to make a comment that might be outside the scope of the discussion today. Or make a comment by someone who is not a patient or a patient representative.

FDA won't be able to address the comments that are made. We are in listening mode but they are part of the transcript, they're part of the public record. And as a transparent process if you are supported or funded or associated with an organization and you want to make that public as well we encourage you to do so although you don't have to.

So we have Sally and then Rino I think. So we are going to let Sally go first. Yes. I am not going to use the timers but I will give you a gentle nudge if we need to move on. Thanks Sally.

MS. OKUN: My name is Sally Okun. I'm from Patients Like Me. I am representing about 350 to 400 patients on Patients Like Me who are suffering and living with the condition of pulmonary hypertension. I wanted to bring it to the attention of the group today because we actually have a relatively small number of patients on the site with this and I wanted to come today to learn from all of you and I've learned a lot. And I want to bring that information back to our patient population.

We are a patient powered research network that really is set up with the idea of being able to systematically collect information about your treatment experiences as well as you symptom experiences. And some of the things I heard today were consistent with some of the things our patients are already telling us.

However I think this teasing this issue out of energy and fatigue is important because many of the patients on our site are telling us that their fatigue is actually more severe and that their shortness of breath actually while severe it is moderate to severe and their fatigue seems to have a greater level of severity. So helping to understand that might be helpful.

But the other thing, there are a couple of other symptoms our patients are telling us about more frequently. Depression and anxiety and I heard today a few things that actually could be teased out too. Some was just the anxiety of sleeping at night. And so the insomnia associated with that might be significant. And so these are the sort of things real world and quality of life issues that I think we could begin to learn more about.

I finally wanted to say just a couple of things. One of the things we didn't hit on today much about are clinical end points and patient reported outcome measures. I would encourage us to really start thinking about the experiences that the people were telling us about today from the perspective beyond the six minute walk. What can we learn more from the patient reported outcome measures that would actually tell you a bit more about what their real world experiences are? In fact I would even challenge that the six minute walk is actually maybe not an accurate reflection of their real world walking because we know that the influence of weather, whether it is warm or cold or whatever, is actually influencing their ability to walk yet on a treadmill they are doing better. So we may not be getting a real accurate measure.

And then finally I just really wanted to mention just the significant burden on patients with the treatments that they have and encourage the FDA to find ways of really moving beyond the burdensome types of treatments with all of the equipment really the heavy load that people are carrying because frankly I think we also heard that it influences their ability to adhere appropriately to their regimes of their medications. So I think if we can really begin to look at some of these kinds of things and I encourage people to think about joining Patients Like Me in the patient powered research network to really start having a systematic way of collecting your data, to aggregate that and then share that appropriately not only with drug development but also with the FDA and we'd be happy to help you with that.

Thank you so much for the opportunity to comment. And I really want to thank all the patients. I will be bringing your voice back to our community.

Thank you.

MS. EGGERS: Thank you Sally.

And then we have Rino? Turn the mike on.

MR. ALDRIGHETTI: Hello. Yes. My name is Rino Aldrighetti. I am the president of the Pulmonary --

MS. EGGERS: Can you speak in a little bit more. Just take it off. You can take it off.

MR. ALDRIGHETTI: Okay. Thank you. My name is Rino Aldrighetti and I am the President of the Pulmonary Hypertension Association. First of all we really want to thank you for this program and the opportunity for you to hear from patients. It is as you know something that is unique, it's valuable and it's appreciated.

What I would like to do is speak a little more broadly about some of the issues that really may go beyond the scope of what the FDA does but are important in looking at comprehensive treatment of this disease.

First of all looking at data from the Reveal Registry which is the largest registry of pulmonary hypertension patients ever produced several physician began to produce papers about three years ago that demonstrated that during the past 20 years there has been little if any reduction in the onset of symptoms for the point of diagnosis to onset of symptoms for this disease. So basically 20 years ago it didn't matter. There were no treatments as you know.

Today it matters a great deal if patients don't get diagnosed. And so what we are doing is we have created about a year and a half ago an early diagnosis campaign. And that is based on doctors working together through three committees and an advanced public relations program to get information out to the general public.

But ultimately what is going to be very important is simplifying diagnosis for this disease. Many patients are still not seen in time to take advantage of the 12 treatments that are now available.

Another issue that is really important to understand is this field has grown from about 100 treating physicians in 2001 to over 10,000 today. And not all of those physicians and I would say most of those physicians are not connected to the rapidly developing research in this field. Consequently with most of those doctors seeing two or three patients it becomes very important to create some order in this field. You know if you are in France there is a clear system of treatment and French doctors will tell you that they don't have misdiagnosis issues. Here any doctor who wants to treat pulmonary hypertension can. So what working over the last two years with leading physicians in the field through four committees we have now created a system for the accreditation of PH centers. We are in the pilot stage of that project and completing that and following the evaluations. We will be launching that program within the next two months.

And third and finally it is important not only to get drugs approved but it is important to get drugs in the hands of patients. We all know that our health care system is changing. What we are seeing in terms of specialty pharmacies is mergers and what we are seeing is payers coming into the field with a control over how patients are getting their drugs often causing delays in patients getting their drugs. And consequently we working with Patients Family Members Medical Professionals, the specialty pharmacies themselves and the pharmaceutical companies have created a cooperative structure to begin to create feedback on how these systems are working. And that program is now entering phase 2 where we will be gathering a great deal of feedback on how these systems are working.

So those are a few of the things that --

MS EGGERS: Rino, we are going to have to ask you to wrap it up.

MR. ALDRIGHETTI: I will wrap it up right now.

MS. EGGERS: Great.

MR. ALDRIGHETTI: Simply to say thank you and just a word about what you did in terms of adjusting your position in terms of Sildenafil. We know that the pediatric PH physicians greatly appreciate what you did in listening to them.

Thank you.

MS. EGGERS: Thank you very much.

[Applause.]

MS. EGGERS: And with that I believe that Norman Stockbridge will be giving some closing remarks to end the meeting.

MR. STOCKBRIDGE: Yeah. I want to say that the division that I work in and Dr. Targum to my left works in manages a portfolio of drugs that try to prevent need for dialysis, prevent heart attacks, prevent strokes. But when we got polled maybe 18 months ago to name a patient group that we'd like to interface with and have some dialogue it took no time at all to decide it was you that we wanted to talk with. So I very much appreciate the effort that it took whether you came from inside the Capital Beltway or Connecticut or Texas the effort that you made coming and sharing your experiences with us is very much appreciated.

We I think got some useful interesting insights from you today; something we can carry into what remains a lively development area. And I am hopeful that in years to come you will get some better therapies and work some different mechanisms.

But mostly I want to say thank you very much for your efforts in coming today.

[Applause.]

MS. GIAMBONE: Thank you very much. So on behalf of all my FDA colleagues I just want to say again thank you. Thank you for making the trip to come here. I know that it is not easy. But we appreciate it. We've learned so much. And we thank you for that.

And just a reminder that if you haven't already completed your evaluation forms to please do so and you can leave them right on the table.

And last but not least if you could leave your clickers. They are not going to do much good once you leave campus. So thank you.

(WHEREUPON, the meeting ended.)

CERTIFICATE OF TRANSCRIPTION

I, CHERYL LaSELLE, hereby certify that I am not the Court Reporter who reported the following proceeding and that I have typed the transcript of this proceeding using the Court Reporter's notes and recordings. The foregoing/attached transcript is a true, correct, and complete transcription of said proceeding.

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