

Oklahoma Innovations Radio Show

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Guests: **Karen Waddell** and **Carlos Blanco**, Lynn Health Science Institute

>> From the OCAST Radio Network, this is *Oklahoma Innovations*, a weekly science and technology radio magazine, brought to you as a service of OCAST, the Oklahoma Center for the Advancement of Science and Technology. OCAST is the state's only agency whose sole focus is science and technology. The OCAST mission is to identify and fund promising research and technologies that allow Oklahoma to compete in a global market economy from our own backyard. This program features some of Oklahoma's most gifted scientists, inventors, entrepreneurs, manufacturers, educators and business leaders who all have one common goal: developing technology based economic growth for all Oklahomans. Now, here are your hosts Gary Owen and Tessa North.

[Music]

>> Welcome to this week's edition of *Oklahoma Innovations*. Tessa North and I are ready to bring you something really exciting of this. If you've always wondered about why is it--why is medicine so expensive? And what do they mean by clinical trials and how could I be a part of that? We've got the perfect show for you today, right?

>> Absolutely. I'm really interested in learning about being a part of clinical trial. I think that's something that we hear a lot about from our callers who listen to this show actually.

>> You know, that kind of scares me a little bit. I mean, how do I know what they're giving me and how is this going to work? And I'm getting placebo or am I actually getting the real drug? So, you know, there are a lot of interesting things when you talk about being involved in clinical trials but we have a wonderful organization based in Oklahoma City called the Lynn Institute. You know a little bit about this organization?

>> I am a little bit familiar with them through actually through clinical trials. So, I'd be interested to hear--

>> Really?

>> --a little bit about the other side of it today?

>> I didn't know that.

>> Yup.

>> Wow. And no wonder you're excited about it. OK. Well, we'll find out. We have to check that out late on. All right. Well, our guest--we have two guests today Karen Waddell who's President/CEO. Later in the program we're going to be visiting with one of the research scientist, Carlos Blanco and he is doing some phenomenal research in the areas of rheumatoid arthritis and also Alzheimer. So you're going to stick around and find about that. But first let's welcome to the microphone, Karen Waddell. Karen you have been doing some wonderful things at the Lynn Institute, but we'd like to learn a little bit about you. You've got quite an extensive background.

>> Oh, thank you. I'm just please to be here. I'm an Oklahoma girl, born and raised in Oklahoma. Went to the University of Oklahoma and had a great opportunity there to learn journalism and all about communication and marketing. And I found myself gravitating towards

healthcare work at the Heart Association and then served as 12 years vice president at Presbyterian Hospital.

>> Wow.

>> And then helps facilitate HCA, stayed with HCA and really learned the non-profit and for profit side of hospitals can either be both of those things and enjoyed that. Went out to Fresno California in the '90s and served as executive vice president of large health system there which is very different than Oklahoma health systems because of the--we have a such an incredible property group in that central valley of California. We kept 34 languages for staff interpretation if it tells you how complex it was.

>> Wow.

>> So you're seeing incidence of TB and that kind of thing in children that you--we don't normally in Oklahoma. And then I've left healthcare for a little and was really blessed to get to serve as a president and CEO at the Eckerd Drugstore families programs of troubled kids on the East Coast called Eckerd Youth Alternatives. And we primarily took care of kids with dual diagnoses. They had both a mental health disorder and probably felony conviction. But they acted out and presented themselves with children in great need. And the Eckerd family is a wonderful family. They're third generation now that are providing this great firm for about 10,000 kids on the East Coast.

>> So your challenge to come the Lynn Institute, what--how that become an attraction to you?

>> Well, coming back to Oklahoma was an attraction because I love Oklahoma and my children started giving me grandchildren, which is the best. Do you understand?

>> Yes.

>> It's the reason for making sure your children survived. So you can have a wonderful grandchildren. But the Lynn Institute I've known at Dr. Bill Orr was the original president and CEO and Tom Lynn was the former dean of the college of medicine and revered such admired chief of staff over at Baptist Integris for 25 years when retired. About that time Integris span off the entire sleep program they had at that time and the clinical trials programs and just went it off for free standing nonprofit. Dr. Orr and I have actually started working in sleep back in 1975. And in '77 Bill Orr opened the first of only eight sleep labs in the entire United States. It was up in here in Oklahoma. So we've quite background. And so the Lynn Institute through Dr. Bill Orr has done--has about 250 publications or presentation on sleep and GERD, gastro esophageal reflux disease. It's more serious than pizza at 11 o'clock at night. It's a serious disease.

>> Very serious disease.

>> Very serious disease. And so Bill did that. And so Bill was wanting to retire and he and the board asked me to come in and do the strategic plan and then to help lead this organization to its next level, so.

>> Wow.

>> It's exciting.

>> So what is the Lynn Institute?

>> The Lynn Institute actually were two organizations. Let's talk first about the Health Science Institute which is the one that does the clinical trial. We have offices in Oklahoma City, Norman, Little Rock, Arkansas, Colorado Spring, and Denver. And with the largest nonacademic-based clinical trials firm in Oklahoma. What we do is we're contracted by worldwide from pharmaceuticals and actually some pharmaceutical organizations here--based here the Research Park in Oklahoma to do clinical trials where we do--we'll take a medication and validate it's being--and at first it's safety; and then second, you test for how it affects people; and then third, you're testing for how to fix the bigger people. We do phase I, II, III and IV clinical trials. Medical research is complex. But if you go into the drug store, the way to think about it is if you're going to the drugstore, 95% of everything you see on the shelves had to go through a clinical trial to get on that shelf. The exception being, the herbal compounds are usually FDA--don't have to go through that rigorous training. But if you find something on the shelf, it has gone through phase I, phase II, and phase III, very long, very extensive, very, very difficult clinical trials. And you can feel very safe in taking those meds.

>> It also says a lot about why pharmaceuticals are so expensive. People go, "Why is this so expensive?" We're going to share some figures with you later in the program. And when you hear how long it takes and how much money it takes to developed pharmaceutical, you'll understand why is it's so expensive and investors, obviously, as well as pharmaceutical companies want to get their investment back, so they continue on to do further research for new drugs. And that's a constant, constant cycle.

>> Right.

>> And so there's a lot to talk about that.

>> Karen, I'm curious about how it is that the Lynn Institute actually gets involved with these pharmaceutical trials. Do you guys contact the big pharmaceutical companies? Do they contract you or you kind of always just out there looking for researches going on and kind of figure how you can get involved? How does that work?

>> Well, a little bit like that. But it's really the pharmaceuticals are aware worldwide of the strength of the principal investigators, the physician that work that, an organization has. And say a trial, a medication needs a trial in five sites. They are going to want ethnic diversity. They're going to want you geographic diversity. They're going to probably look all over the country. But they're going to--say if they're looking for someone, a dermatology study, we have one of the finest dermatologists in the country, Dr. Ray Cornelison who was chair over at the Department of Dermatology at the University of Oklahoma Health Science Center for years and was president of the American Dermatology Association, has impeccable credentials. So if they're for dermatology trial, they're first looking at the credentials of the physician and as strength of our organization. We are highly regulated by the FDA. We have impeccable reputation with the deans are not accepted that's something you would never, never let happen in the clinical trial, but has to be perfect. These are human we're working with and working on. So everything has to be perfect. So normally what happen is--and we go--we attend conferences with the pharmaceutical representatives. And Lynn has now--been around for 18 years as I know as well enough to know our strength. And they will help us identify the--they'll call us, those--we'll probably--we make it 20 faxes today asking are we interested in certain trials. And at any one time we will have as many--we have as many as 165 trials going on right now on our five sites. Yeah.

>> Wow.

>> Some of these trials will last for 10 years. Some will last of six months.

>> OK.

>> And so, it's very--it's varied.

>> And people who come into the trials, they don't--a lot of were not educated or informed enough to know before they come in that there's been a lot of animal model testing, a lot of laboratory testing before it's allowed to go into human trial.

>> Absolutely, all of the animal, all of that basic testing is done before you can begin phase I. And phase I is going to be the smallest population, perhaps maybe a population of only 40 subjects. And you're going to test for the safety. And then the next phase is going to on the effectiveness on 200 people or 300 people with this condition does this medication work and doesn't--and if there are any side effects. And so, it's very protected and we watch those patients like a hawk. Our job is to protect the patients. So when they come in--for example a flu vaccine, some people don't know you can--not only can you get a flu vaccine free but you'll get paid to come to get the flu shot. But when you come in, you have to pre-qualify, you cannot have some certain conditions, you probably--there's a variety of thing that you can't have. It's very strict criteria to be qualified for it. But say once you qualified for it and you come in, you get your shot. And if you have a sneeze in the next week, we want to know or the next period of time before your next visit. So when you get in--and if you do have, all of a sudden you spike of fever, you're going to get seen with an hour if we can--if you call us that quickly we're going to get you in that quickly because we're monitoring everything that might happen. So the patient is highly protected. That's our most important thing is to protect that patient and then we document everything that happens, of course, other pharmaceutical can have it. That depends whether or not people move on to phase III trials. And then FDA approves after phase III trials. And then phase IV trials are done after the drug is on the market.

>> I don't know whether--I know when I've gotten prescriptions particularly steroids and the things like that, do you ever get the little packet of paper that comes with those drugs? Most people don't read. And there's a reason why. They open it up and they go, I don't understand this, but there is really good information. And if you read that information it will tell you the history of during research trials, these were some of the side effects, these were the benefits, blah, blah and it's all in that content. You can go online before you take a drug if you know your doctor is going to prescribe something to you, before you take it, if you want to research that, look it up. All of that information is public domain now. And you'll find that information. That's what I love about the clinical research because you get all of the before you take, there's the risk factors there and of course we all know as we as humans, everybody react to medications differently, so all of this is a key factor.

>> Now you talked a little bit about the Health Science Institute. Let's touch a bit on the other aspect of the Lynn Institute which is the nonprofit portion?

>> The Lynn Healthcare Institute for Healthcare Research.

>> Yes

>> OK. That organization for about 18 years while Bill Orr was very active, we had up to six different doctors doing basic science research. What we did in 2012 is to revisit--Dr. Orr was

retiring. And as we revisited it, we decided that our commitment to the community should be to improve the health of the communities. And so in doing so people asked us to open clinics, people asked us to provide health fairs et cetera. What we really decided is our strength is in research and then the integrity of our work. And so what we decided to do is to improve the health of communities. So we developed healthy community plans for specific areas or population groups and our first target project program we're working on which is 10-year commitment is to Northeast Oklahoma City. Now anyone that has lived in Oklahoma, for any like the time knows it, Northeast Oklahoma City is one of the prettiest areas of our city, rolling hills and nice trees, but also has a population that is within miles of the greatest healthcare resources in the state, and yet the demographics, the health statistics for the people in that areas are terrible.

>> We're going to talk more about that after the break. When we come back, we're also going to talk about the average cost for drug. When you find this out, it will really surprise you. We'll be back with more on *Oklahoma Innovations*.

[Music]

>> Pancreatic cancer is the fourth leading cause of cancer deaths, with a median survival range of only six months. As an oncologist, I see far too many families suffer from the effects of this terrible disease. We need better treatment options for patients.

>> With the support of the Oklahoma Center for the Advancement of Science and Technology, the researchers at COARE Biotechnology have what they hope will eventually be a treatment, even a cure for pancreatic cancer. They have identified a protein that if blocked may prevent tumors or keep them from growing. With help from OCAST and i2E, the team at COARE was recently awarded an SBIR Research Grant to enable them to continue their research and move closer to a treatment for pancreatic cancer. If you're a researcher or a small business in Oklahoma and are considering applying for a federal SBIR funding, contact OCAST toll-free at 866-265-2215 or visit us on Facebook or our website at ocast.ok.gov.

>> Now in its 19th year, this is *Oklahoma Innovations* on the OCAST Radio Network.

[Music]

>> If you just joined us, Tess and I are talking with Karen Waddell, president, CEO of the Lynn Institute and we're going to get Carlos Blanco who is it Blanc or Blanco?

>> Blanco

>> Blanco, OK. He's a research scientist and chief operating officer with the Lynn Institute doing wonderful things in Oklahoma and surrounding states in terms of research clinical trials and so forth. Before the break you or Karen talking about this health--healthy community project that you have and I think that's a wonderful project. And in Oklahoma City you have one sector of town that I know you're working with.

>> There are--Northeast Oklahoma City has three primary zip codes 7311, 73117, and 73105, which basically takes from about Martin Luther King to I-35 in 63rd, I-40, almost down to I-40. But if you look those areas, we have a dense population. We have an area of, unfortunately, poor access to healthcare and they're less than a mile, you know, most of them to the health sciences center. And they have difficulty accessing healthcare. If there is--Unfortunately, there's a high incidence of crime, there is some--there is not--there's incidence of educational problems and

that we have a low education right over there. We have beautiful parks but some people aren't able to work, play in the midnight because of some of the lighting issues et cetera. But you have a group--a public that has for years, unfortunately, because of some of the different diseases that they're not able to do routine care on. We don't realize how as people and when we go to and get our primary care going on how that really helps us. But if we don't do that, then something that could be manageable all of a sudden is chronic and people have tendency to die from those. So therefore, you'll see a shorter life expectancy among some of those nice people over there. But we have obesity issues, diabetes issues. We have a high use--incidents of middle health usage over there, which probably relates to some times when people have some issues. There are some drug dependency, a lot drug dependency that goes on. So our goal is to work--we're working with the population and with some great people, the Alliance for Oklahoma Economic Development which includes Cathy O'Connor and that group of great people in Oklahoma City because it all relates together. The how--The health of the population, the physical health is related to the economic growth of the area as well. So we're working on all of that. We have young people who are presenting themselves with type 2 diabetes now pretty high incidents in that neighborhood which is not something we like. And we have a very high incidents of single households, not just single moms, just single households. So this is--And most of these things--all of these things are not new. I mean I knew when I was the vice president of Presbyterian, I know--may not have known those statistics but I knew that there was an area of need. And so if you look at our board, we're all--almost all of us group with the Health Science Center and we all want to make that Northeast quadrant the healthiest quadrant that we can in Oklahoma because they deserve it.

>> Well, the problem is growing. Now let's talk about other communities throughout the state. What about Tulsa, are you working with this program in Tulsa and areas of Tulsa?

>> We're going to in Tulsa. And Tulsa has a couple of areas that are--that you'd also want to highlight and segregate and try to work on. What we're doing is setting 10 year goals. Well, the community itself will set the goals in a collaborative. We'll finish the white paper this summer. And then--And we will hold ourselves accountable for 10 years to meet those goals to improve the health. We're going to work with some isolated populations or maybe some--we may work with obese children. We may do a population of Native Americans. They have the tendency to have a higher incidence of fetal alcohol syndrome and a higher incidence sometimes of diabetes and obesity as well. So we've been asked to look at those as well. So we're going to look at the health--first you measure the health and then you identify what you can do about it. And then you get a group to hold each other accountable for 10 years. It takes 10 years to make a health change. So it's a long-term project and we're excited.

>> So what sorts of things are going into this project in terms of actually--perhaps making some improvements? Are you, you know, starting community-wide efforts to get people moving or stop smoking or what sort of action plan I supposed as a part of this?

>> I am sure that will be part of the answers. But the white paper will be presented to the entire community collaborative and they will help decide what the answers are. But if we go back to--I just know obesity will be one of the things we want to measure every 10 years, the movement will be one of those. If we--Smoking is a terrible problem in Oklahoma. And I'm sure they're trying to reduce that will be. So we work--we'll work with workplaces. We'll work with shopping centers. We'll work with everyone to try to reduce the right of--you don't allow smoking here. You don't allow--there pretty soon it gets very uncomfortable and people stop

smoking as much. So we will measure that and I can--ask in me eighth months, I'll be able to tell you what those goals are. But we--the community has to set those because we have to help meet them.

>> Right.

>>Well, and, you know, when we see the research in the news and you see where we stand as a state in those high priority, unhealthy lifestyles, obesity and smoking are two of the biggest factors where Oklahoma ranks--you know, we're not the lowest ranker, we're the high ranker and that's not good. You don't want that, so. And it's all about a lot--I think a lot of things play into that, I think ethnics, I think lifestyle, all of that place into this, doesn't it?

>> It does. And it has to be convenient. If I'm going to eat healthier, I have to be able to find access to food. Until about a year and half ago there was only one grocery store in that area. There were fast-food stores, you know. But convenience stores but not where you could buy fresh fruits and vegetables. Well, if I'm a working mom, single working mom with three kids under nine, my option when I get off work after a long day is to drive thru a fast-food place or run into a convenience store or to go to the grocery store and buy food. And if--And they're now two stores over there which is great. But we have to make it convenient. We have to make it affordable. We have to make it fun. There's a great group over in Northeast Oklahoma City called "Sisters in Motion". This wonderful group of women that had to start as groundswell and they've got these women out walking and working together every Saturday morning. And they're allowing men to come in, too. So--

>> Awesome

>> But they're going to bring the children in. And so they're going to make it fun. And so we're going to--And we're working with the churches. For example, I grow and I still got a Wednesday Night Church and sometimes Wednesday Night Church Service when I was growing up was not the healthiest. There is all the mac and cheese and stuff. So you're working with all areas to try to everything we do, can we make this healthy, can we make it fun, can we walk to church on Sunday someday or can we all do something at the park, can we help clean up the parks? We're working with the police and the sheriff and everyone to try to help this come about. I think it's going to be exciting. And I think it can make Oklahoma--Northeast Oklahoma City the three zip codes to praise and rave about rather than knowing that there's some things that they just don't get to do that at the rest of the--take for granted.

>> Right

>> That we can walk comfortably, safely in our neighborhoods.

>> Well, you know, maybe you're starting something new to motivate rural communities. We have a lot of these issues.

>> Absolutely.

>>And maybe your fingers will extend out to those communities and help them. Give them some program guidelines that they can follow and stimulate or motivate them to do that. We go to take a break. We'll come back and talk more with Karen and then we're going to talk to Carlos as well to find out about the clinical trials and how drugs evolve and with a cost factor that will really blow your mind when we return at *Oklahoma Innovations*.

[Music]

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>> We appreciate you joining us on Oklahoma innovation this week. We're talking with Karen Waddell, President and CEO of the Lynn Institute and more we're going to be talking with Carlos Blanco who is our research scientist and chief operating officer for the institute. I know you have--but before we move on to the clinical trial aspect of our program, you wanted to make sure that our listeners understand something in particular about the Lynn Healthy Community Plan Structure in Northeast Oklahoma City.

>> Well, Northeast Oklahoma City is a great area, wonderful people, very proud and of the heritage and of the history of Northeast Oklahoma City and we believe that in helping to improve their health is going to help the whole area come back. But they are great people working to make it an even wonderful place. We just think it was time that we come along beside and provide some support and say we're all with you. We've got the health expertise to do it and they've got the desire. So wonderful people over there. We've had great time getting to know

more of the folks that live in Northeast Oklahoma City and then people throughout city and state they're interested in trying to help too, so [inaudible].

>> Well, I know those who are listening in the Tulsa area going to be excited about that too. And those of you who listened to us at in the rural areas, in Western, in Northwestern, and Southwest Oklahoma, I hope you're getting some ideas here too and maybe you should get in touch with the Lynn Institute and maybe you can collaborate a little bit. OK. Let's bring in our next guest, Carlos Blanco. Carlos, how long have you been with the institute?

>> Gary, I've been with the institute for 12 years, 12 wonderful years.

>> Wow, that's great. And your expertise in research is?

>> My background in research, I've been a researcher all my entire career after graduating from the University of Oklahoma. I went to work for the University, was there for 10 years learned a tremendous amount about how trials work, how to deal with folks, how to collect the data, and then eventually after 10 years I've moved on to the Lynn Institute where I've done much of the same. It's amazing when you think about clinical trials it's of this little niche that's here in Oklahoma and very few people know that it's here. So it--I was very interested to find both a career and subsequently get to go out and talk to people about how they can benefit from clinical trials.

>> OK. Let's talk about--because Tess mentioned a while ago you're involved in the clinical trial. We don't have to talk about what it was but as a--having the experience, what was it like for you?

>> Well, so I'm actually involved--

>> Was it ongoing? You're still ongoing?

>> It is still ongoing but it's not me. I am involved as a--from a family member standpoint.

>> OK.

>> So it's pretty interesting at least in our experience, there are--there's--not repayment--

>> Compensation?

>> Yes, compensation. Thank you. So there's compensation involved for all the appointments that my family member goes to. You know, we have to go as family members too to give some input as well about how the study is going. There's medication involved. It's a double blind study that I'm familiar with so we don't know if there is--if it's a simple CO or if it's an actual drug or what the dose maybe or whatever. So there's a lot of perhaps unknowns but it's a really awesome opportunity to be a part of something at least from the standpoint that I see. So I'm interested to hear a little bit about what you guys think, you know especially Carlos. I think you're involved and part of the--you're basically the oversight, right? You're managing all these 100 plus studies that need going on?

>> I do. I oversight all of our five sites across the US and try to keep a 150 to 160 studies going on all the time. And that's a tremendous challenge because we're dealing with a very diverse type studies, everything from rheumatoid arthritis to gout to diabetes all the way to some very important work in Alzheimer's disease. So it is a challenge. You know, it's always a challenge because for us we have to go out--the most important part of clinical trials is being able to find people who are willing to go into clinical trial to help this process along. If we don't have

volunteers, if we don't have people help us, we're not going to get new drugs in a very timely manner. We have some trials and I'll give you an example. We have several Alzheimer's trials and they're slated to enroll for three years. That means that that's a three-year delay before that medication gets to the next phase and the next phase and the next phase. So we need more folks to help us get through this process.

>> Well, and that's what we want to talk about is how do I become a part of the clinical trials?

>> Well, you know it's--there's multiple ways. We--People can always contact us for sure. We have a website, www.lhsi.net which is a great way of reaching us. We also have multiple phone numbers 405-447-8839. And the people who are interested in any of our trials can reach us at that number or through the web site. The website is very interactive. You can go on there. And if you're interested about any trial you can fill out the prescreening information and we'll contact you and let you know about the trials that we have going on. And volunteers are clearly, clearly, clearly the way to succeed. We need more folks to help us with these trials so we can get the drugs on the market.

>> I think that's really key what you mentioned there. For my--in our situation through which I'm familiar with the clinical trials, there was an understanding that, you know what, this trial is testing for, it may not help me right now but this is my opportunity to perhaps help my children or my children's children or my next door neighbor who may come up, you know, sick in the years in the future. So I think that that's really important to understand that this isn't probably going to be a cure free right now but--

>> It may and it may not be, it depends. We've seen some miraculous things in our trials. Clearly, within the last 10 years rheumatoid arthritis is a field that went from people being very, very disabled to now they are--because of the advent of the medications called biologic medications where folks went from being in walkers and very disabled to almost in the remissive state with their RA able to go back to work in fully functional. And that change went from--within a two year change. Medication was not available, two years it was available and we had folks who were able to go back to work and enjoy their lives much more.

>> And there are various types of therapies because different patients react to--my wife is a perfect candidate. She has rheumatoid and she's been on a lot of these therapies, ongoing therapies and some have worked, some have not, some have had really disastrous reactions, some have not. And it's--And the doctors even are only--can only go by the studies and the overview of the patient's reactions and the benefits and so forth. I have a question for you. Average cost per drug.

>> In development, the average drug will spend between 8 and 10 years in development just before it ever gets to the market. The average cost is between 800 million and two and a half billion dollars, some drugs will get up because they're in trials even longer up to \$6 billion for development.

>> Wow.

>> Wow.

>> Now, one of the things that as consumers we have to realize is that these drugs have a patent protection that only lasts for about 20 years and that starts for when the drug is developed. So if the drug spends 10 years in clinical trials, that manufacturer only has 10 years to recoup the amount of money that they invested in--on that drug. So that's what really drives the cost of our

medications when we go fill up prescription. That's why they're so expensive because they've only got a little bit of time to make money back on those products.

>> And less than 1 in 10 drugs in clinical trials progressed to phase III.

>> That's absolutely right. Most of the drugs that we see we'll see in phase I or phase II and they will fail. They won't have a very good safety profile. But what really gets them is they're not efficacious. They just don't work. Or they don't work as well as they should. The FDA requires now that a drug--especially a drug that's a second or third drug for a certain indication, it has to work as effective or better than something that's already on the market. And if it doesn't meet that basic threshold, then it won't ever make it to phase III and eventually to FDA approval.

>> And I guess Karen, you discussed this earlier the challenges getting--once the drug has been approved by the FDA, it looks like it's a promising therapy or cure that's just--that cost--we're not--we haven't even got to the point of getting it to market. That's a whole different animal, isn't it?

>> Absolutely not. And when you--here's a good way to think about it. In the 12 years between--or the years between '97 and 2012, the pharmaceutical industries spent about \$810 billion and that was only on 139 drugs.

>> Wow.

>> Wow.

>> So the average cost to get those to market was 5.8 billion per drug.

>> Oh my goodness.

>> And then what happens is then they tries--maybe they have five years to recoup that cost before someone in another country tries to do a generic and [inaudible]. And then all of a sudden they're trying to recoup that cost and then it goes off patent. And when it goes off patent, instead of selling their medication for \$200 a month, it sells for \$4 a month. So when that happens, when that patent clip happens then the next year what we have is a reduction in the amount of clinical research dollars available because the pharmaceuticals fund this from the prior sales. So this last year in 2013 and 2014, we saw Nexium go off patent--

>> I was just about to bring that up, yeah.

>> Nexium went off patent but what they did is they developed a way through the FDA to have it sold over the counter for \$25 which is better than \$4.

>> Wow. We got to stop you right there. We got one more segment to go. A lot of interesting information with Karen Waddell and Carlos Blanco from the Lynn Institute. More to come on *Oklahoma Innovations*. Stay with us.

[Music]

>> This is one of the longest running weekend radio talk shows in America, *Oklahoma Innovations* on the OCAST Radio Network.

>> As a police officer, one of the most dangerous parts of my job is arriving on a scene where an armed suspect has barricaded himself for where we suspect some type of booby trap. We're most vulnerable when we don't know what kind of explosives or weapons are on the other side. It can be deadly.

>> Tactical Electronics, an Oklahoma based company invents manufactures and sales tools such as under door cameras and video fiberscopes that are used by a law enforcement officers, military and counter-terrorism personnel around the globe. The tools allow areas and packages to be inspected from a safe distance which reduces the risk of injuries and death. With the support of OCAST, the company is developing image recognition software that scans packages and within milliseconds, identifies what's inside. OCAST is advancing science and technology that not only improves, but also saves lives. For more information, call OCAST toll-free at 866-265-2215. Or visit us on Facebook or our website at ocast.ok.gov.

[Music]

>> We hope you're learning a lot about the Lynn Institute. A fine organization based in the Oklahoma City, the Corporate Headquarters, but they're all over. They're in Denver. They're in Colorado Springs. They're in Little Rock, Arkansas. Did I miss one? Who else did I--

>> Norman.

>> Norman, OK. OK. All right. Let's go back. I want to close a segment here from the--before the break. You had a comment about--we're talking about the factors and how things come off of patent. Nexium, talk about that again because there's an interesting--some interesting data here you had about that.

>> Right. In 2012 the United States spent \$9 billion on GERD medications. Of that, 5.9 billion was Nexium.

>> Wow.

>> So now Nexium goes off patent in 2014. So all of a sudden their \$200 a month is \$4 dollars a month if it's listed on one--as one of the generics in place. So what Nexium did to counteract the \$4 was to get it approved for over the counter and they had to go back through FDA approval on that. But now it's \$25 which isn't great but it's better than 4.

>> Right.

>> So that's how the drug people try to maintain some presence and it's a different--a little bit--with a different formula than what you can buy--could bought--

[Multiple Speakers]

It's half the dose.

>> OK.

>> So it's safer for people to be buying over the counter.

>> I do notice though, Nexium can be an ongoing therapy. But I do notice with the over the counter, you're only allowed to take it so many--you don't--like you have one therapy treatment that you go through and then you have to wait a few months I guess before you take it again, I forgotten how it's kind of a weird. It seems to me like it was based on the package, you're only supposed to take this so long and then I don't recall, maybe I'm wrong about that but--

>> I don't remember seeing that. It is--The over the counter formulation is half the dose that prescription drug would be. You can take it for a prolong time. There's some research out there that shows that it tends to wear off--

>> Yeah. Yeah.

>> --after you've been on it for a certain amount of time. So I think you're right. I think that there's a recommendation that you get off of it if you can for a little bit then before you go back on it again.

>> Yeah. OK. Now Tessa was mentioning earlier her family member has a--is involved in a clinical trial. Compensation, Tessa, your family gets compensated for this?

>> Yup, yup. For her time and I believe for travel although we're not traveling very far. But, you know, even more important than that is that we've had access to things that we probably wouldn't have access through our PCP just being a part of the study. So that's pretty neat. You get some different health information that at least without paying some exorbitant fees to our insurance. We wouldn't be able to get without participating in this. So yet another benefit. So if, you know, that clinical trial is something that might be of interest to you or somebody in your family, I would encourage people to take a look at the Lynn Institute's website and see if there's something that might be a fit for them.

>> So there are various pay scales involved. I would assume depending on the research, talk about that.

>> Absolutely. Well, let me say something or the comment on something Tessa just said. We have an Alzheimer's trial that the patient gets both MRIs and PET scans just in the screening process before you even qualify for the study.

>> Wow.

>> And a PET scan is a very, very expensive procedure. And the patients are going to get it at no cost. Everything that we do on our clinical trials is at no cost. And beyond that, there is a compensation scale based on how much time they spend in the trial. Our average patient will receive anywhere between 50 and \$75 anytime they come into the office for their time and travel. Number one, if it's a trial where the patient is at our office for a much longer time or is inpatient at our facility that goes up dramatically. We have a Parkinson trial that will pay between 4 and \$6000 because the patient is at our facility for a long time. So the pay scale is really based on how much time you spent doing the trial.

>> And another thing that I wanted to point out is that when we were first taking a look at the trial it was made clear to us that if at any point, it ends up not being right for us or we need to back out that's an option. So these aren't--you're not signing away your life basically. You have to enroll with this. Yes.

>> Absolutely, that's a key.

>> Yup.

>> We want you to talk with your physician about it and keep your physician informed. And when the trials over, the lab results and all those things go back to your physician. So we can get the best care for you and your family.

>> Right.

>> And you've seen benefits from our case studies with the patients that where there have been significant improvements through the research in many cases and we--I've got so much information we're trying to cram in here. I want to say, "Hey, can you give us an example." But I want to jump onto another table here. You have right now patent on the table, something that is

looking promising for both GERD and insomnias. One drug, right, one therapy I guess we can say that is going to help both the disorders which ironically those two disorders really go together with a lot of patients. So talk about that.

>> They do. Dr. Orr, bless his heart determined this a number of years ago. It's a medication that has been on the market since 1977 approved by the FDA for a totally different spasticity drug. He was testing some things and--that relates to sleep and insomnia and GERD and determined that this is a phenomenal medication. So we filed patents in the United States, United Kingdom, Europe and Canada, and have great hopes that that will move forward. What it does is simultaneously, singularly treat both insomnia and GERD. And so our dilemma is getting it to market because it's not going to be a 5 million--\$5 billion drug. It's probably going to be maybe a 5 to 10 million a year drug which is difficult because the pharma's it's going to cost more to get it there than it might pay. So what we're doing right now and we tried for NIH SBIR Grant and we're hoping maybe next year. But we're committed and we have some wonderful people in the research part that given us some help and we've had some people of other corporations we're looking at to try to move it forward.

>> Now, let's talk a little bit about some of the other options that people have for clinical trials. You've mentioned some Alzheimer's, some Parkinson's, some GERD, you have a 160 somewhat trials going on, so really there's an option for just about everything and--

>> There really is. We do everything sans cancer trials which is we don't do cancer trials. We felt that oncology is an area that is best left to centers like OU or MD Anderson, you know, big facilities.

>> Right.

>> So we have chosen to do the other conditions. We do Alzheimer's, COPD, seizure studies, MS studies, osteoarthritis, Parkinson's disease, it's just a wide range of disorders. We do just a little bit of that of everything.

>> Your website probably has all these information--

>> It has everything, every study listed on there.

>> And I think maybe one thing to mention--Karen had mentioned briefly before that you guys have done this a study or you currently have one for vaccines. I could think that I saw studies for birth control. So these aren't necessary studies for people that have what one might call an ailment.

>> Oh, you're right.

>> There are lots of things that you can participate in.

>> You're absolutely right. We just completed a flu study where we provided the flu vaccine for folks and again when you do vaccine trials, very rarely is there a placebo. There's almost always a comparator. So you don't have to worry about getting flu shot versus not getting a flu shot. It's provided for you. We have done cholera studies interestingly enough in Oklahoma where we tested the cholera vaccine. And again, those provided--vaccine trials usually provide a great deal of compensation for one shot interestingly enough. It'll be between 200 and \$400 just to participate as a normal--

>> Plus the free shots?

>> --having nothing and then they get their free shots. So it's really a good deal from the perspective we have of, you know, college kids love these things again because they're easy. You have opportunity to get a shot, make a little money and they're--again, these are phase III trials. They've been through safety reviews. It just doesn't work at all.

>> You know, I wonder how many celebrations you have through the years when you see a breakthrough and you see a couple of patients on a particular research study and you see these patients improving and it's like this has got to be a major celebration among the scientists and the whole organization.

>> You know, it really is. I did a trial that I actually was actually the coordinator, the person who take care of the patient of a 10-year trial for one of these rheumatoid arthritis drugs. And I still have friendships with these folks even though that trial' has been over for years because again, we develop a closeness with the patient. They really mean a great deal to us. We realized that we are their advocate in the clinical trial process. And you mentioned earlier getting out of the trial if it's not--if you're not doing well, we're the first ones to take you out of the trial if you're not doing well.

>> Sure--

>> If you're not doing well, we're going to take you out of the trial and say, "Listen, let's look at something else."

>> Right.

>> "There's better options for you."

>> You know, on a bigger spectrum when you talk about the benefits of trials, polio was one of the most notable clinical trials ever and it dramatically changed the face of this nation who was fighting polio. I remember in grade school seeing kids that all of a sudden their chair was empty.

>> Right.

>> And when they came back--if they came back, they were in a wheelchair. What's happen in heart disease is because of that beautiful breakthroughs in leukemia, pediatric leukemia. The same leukemia that was killing 90% of the children in the '90s is now have almost a 90% of success rate. We got a lot of work to do. But clinical trials and people being willing to say, "I want to do this." If you have a condition, yes. But we need a healthy people who will step out and say, "We just did a pox vaccine trial." Everybody in--this is more before '72 has that but you know what? It may resurface while they're doing a vaccine.

>> I want to give the information here real quick before we close. Once again, no matter where you live in the state, make note of this number 405-447-8839. That's 405-447-8839. And the Lynn Institute website is lhsi.net. That's lhsi.net. That's lhsi.net. That's probably easy to remember. If nothing else, just type in Lynn Institute in your browser, it will take you to the website and you'll find all of the information that you need to know there about the research they're doing. If you want to be a--considered as a candidate for one of their clinical trials. Hey, we got to go. Thanks everybody. We'll talk to you next time on *Oklahoma Innovations*. Have a good week.

[Music]

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