>> It turns out it is a vegetable but it also is a group that was formed many years ago. When it was formed, it is a joint program. It was formed after we received a study that showed better control of diabetes that led to fewer complications. So when it started, we started getting all types of workgroups, healthcare providers, consumers people were old and young. We realize there were a number of providers, who would be the first one to see. As I said, a PPOD provider maybe the first person to having a problem. Often people will come into a pharmacy for instance. A person, will see a dentist, and will have severe periodontal disease. And may not even know if here she has a diabetes. Often they are not diagnosed for many years. Like 7 to 10 years before they have diabetes. Especially type II. So a PPOD provider and others may be the first person. It is important to keep it on the radar screen so that good communication among all providers is important. Diabetes is a systemic disease and can affect almost every organ in your body. That is why it is important for all of the people who take care of all of the different parts of the body to coordinate so that they care for person with diabetes.

>> smoking can increase, can increase the the blood vessels. And the large blood vessel disease, and anybody especially those with diabetes. We want people to control their ABCs. There is definitely benefits to patients because if we give them a specific message, they are more likely to change their behavior. Consistency, is very important. And the preventive care. The other thing is, we educate more and more providers, we increase the awareness. Most people know about eyes, and kidneys and perhaps feet. We are finding more and more, the people forget about the oral complications of diabetes. We are finding more and more there is hearing loss associated with diabetes. People do not know about and we have to increase the awareness for everybody to test. Kathy will talk about why it is important. Next light.

>> What we did, was we develop some materials, for providers and for consumers. And we have something called working together to manage diabetes. Currently we Often primary care providers will say it is a cavity. But if we will take a absence in attitudes and almost superimpose it. It would be huge. It is a complication the people forget about. That is very common, it is 2 to 3 times higher in diabetes. Another complication, when we talk about, the foot infections. So many people with a diabetes have nerve damage. They cannot feel, their balance sometimes is off. There position sensor is off. They sometimes might step on something and not feel it. That certainly can set off and infection. Diabetes is the leading cause of new cases of blindness among adults ages 27 to 24.

>> We are going to start with pharmacist. Many people do not take their medication properly. Certainly many people, may take one or two or three medicines for their diabetes. For their blood pressure or hyperlipidemia or whatever. It can get very confusing. They may need to take many medications or one medication. It is very difficult sometimes to keep everything straight, a pharmacist can help, next light.

>> We also have medication complications. Sometimes people are allergic to a medicine nor interaction with medicine. Or people are taking over counter medications that they do not realize could be harmful. The pharmacist may be the first person who can certainly look, if there are any interactions, and sometimes a person will come back to the pharmacy and say, it did not agree with me or whatever. The pharmacy may be the first people to know. The patient will see you there pharmacist seven times more likely than their doctor. That make sense for Mike because people will get they are back six times a year, where they may see their primary care person 3 to 4 times a year, at the person opportunity for education. A pharmacist, can also do some of the services like immunization. More are offering in training the pharmacist on how to have these. Everybody especially those with diabetes. Pharmacist have longer hours. Pharmacist play a big role in helping people with diabetes control. Next light.

>> [ Captioners Transitioning ]

>> Many pharmacists are giving years they can also play a role sometimes the people cannot medication, because of cost. And may be able to work with their primary care doctor. To suggest maybe a different medication that may be covered.

>> So these are some the questions, and their providers for patients with diabetes. You have dislike including herbal medicine. You know the reason why you take each medicine?

>> If people are depressed they may not take their medications correctly. So all these things continue to the person with diabetes.

>> I exams. Are very important. Dilated retinal exam. People are also using machines. These cameras that can be very very helpful. Because the screening mechanism. And we want to educate folks. How to get their eyes checked early with their problems because people district things are very treatable in the early stages.

>> So questions to ask. Of a person. Do you get a full eye exam the dilated pupils at least once a year? That depends of people already have come locations, it would be more often, but this is a baseline.

>> Do you don't have diabetes can affect your eyes, and you know what to do if you have vision changes? Those people have the field of vision cut. Where they see floaters or whatever. We want them to know that they need to call their eye doctor right away.

>> So an example -- a 45-year-old African-American his mother had an eye desperate all the comforts the circumference of eye exam. And as if they've ever considered the [ Indiscernible ] risk for diabetes. Because family history is a huge huge risk factor. So it's in the conversation and to be on people's radar screen.

>> The provider can educate and give a person some of these materials if they are at risk in the national program. And the provider might say okay, make up a desperate make a follow-up appointment. This is how every member of the team can help people with diabetes or people at risk.

>> So the last one for PPOD+A is oral health. One of the competitions that gets least recognized, and it's very important because it's a two-way street. Uncontrolled diabetes should be [ Indiscernible ] with inflammation and inflammation will implement dietary controlled diabetes. Where the glucose can go up. So it is a two-way street.

>> Once I chose that 85% of people with type II diabetes report they have no information about the association between diabetes or -- and oral health. And they say oh it's just a cavity, and we are finding out more more that there is this oral health systemic body connection with inflammation, possible heart disease, etc. So we also know that tobacco will increase come locations such as retinopathy -- bread and -- right off be.

>> So these things also play a role.

>> Oral health exams are really important. People needed at least once a year, sometimes twice of it depends on the person. Educate people that there is a link between diabetes and oral health. We want people to know that like for instance fresh may be a sign of diabetes and sometimes people don't know this. And if people have some early information, we want to prevent it from becoming more. Next slide.

>> And so the key question to ask a patient. Do you visit with the dental provider at least once a year because you know how to diabetes can affect your teeth and gums and most often the answer is I didn't know that. And did you know the early signs of tooth and mouth and come columns. Do have some information, do they have fresh, did have bleeding gums, do they have bad breath. Some very simple questions that can increase the awareness.

>> So example -- a dental patient is scheduled for a procedure. But she doesn't understand how to manage the timing of her insulin injections. Other should be a more in-depth procedure. It would just be a teeth cleaning or whatever. It probably would be more like oral surgery. But if the person is told not to eat and they take insulin, it is important that the person know how to adjust. So the dentist will call the pharmacist or the primary care person. And they will develop a regimen for this person to take the recommended dose of insulin [ Indiscernible ] event what time the treatment is scheduled, etc. But the point is that interaction and communication among all team members is really important.

>> So we also develop some resources for consumers. And we have a general fact sheet that says what do I need to know about oral health, dietary, [ Indiscernible ] etc. on one side and then the other side is like a checklist. The person can bring to all the providers to write things down.

>> We also develop some fact sheets called healthy teeth manner, healthy feet letter, healthy eyes matter, all medicines matter. And everything the CDC develops for consumers has to go through a simple language process. So that is people who have low literacy, they are able to understand it.

>> So and now Kathy is working on healthy hearing matters as well.

>> And all of this is in the public domain and you can download it. Now when you look at the altar disciplinary care check lease, -- checklist, we partner with providers. And they said they definitely put on the radar screen about collaborating among all members of the team. Over 70% said they are more likely to change the practice to a more team approach. They had thought about calling some of these providers, they realize how important it was.

>> So before I turn it over to Kathy, my point is we want folks to practice true multidisciplinary team care. Collaborate with other health providers including the podiatrist, the pharmacist, the optometrist and dentist. But don't forget about the primary care physicians, nurse practitioners, audiologist and more more, physical therapist and all kinds of people who touch the person with diabetes.

>> Network with your local Association and we did a program about 10 days ago with the national Academy of practice. All of these people have seen people with diabetes so it's really important. Consider looking and increasing their education about audiology for instance. Everything that CDC has is in the public domain, so as long as you don't change it, you're welcome to a logo or whatever on it.

>> So now I will turn it over and say how do we start involving the audiology world. Everything that CDC has to be evidence-based. And certainly there's evidence about diabetes and relation to hearing loss. So I will turn it over to Jesse right now.

>> Take you so much Dr. all right. And thanks for accepting the invitation to speak today. Your support for audiology and management of hearing loss and risk of falls is very important. And my presentation today is kind of a Milan's of the national Academy of practice presentation that we did two weeks ago. And then also your presentation that you did on PPOD+A at the stakeholders meeting, almost 2 years ago.

>> So from the national diabetes education program, and this is something that you put together. The evidence is there for hearing impairment and diabetes. As well as this fibular impairment diabetes. The study was a landmark for a better -- which is effective study on this and there's a definite connection for adults as well as the three decade change in the hearing impairment, and the association with diabetes.

>> So the take charge of your diabetes book is an entity P book, and from what I understand in the discussions with Pam, this is changing. Now they are going to be one page supplements for comorbid conditions like feet, eyes, pharmacy, skin, etc. Things you need to know if you do have diabetes, what you need to be concerned with and knowledgeable about. So what do audiologists -- one of the providers to know?

>> Obviously we need for physicians and other medical healthcare professionals to know that hearing loss is twice as common in people with diabetes as it is as those who don't have the disease. You're more likely to have a hearing loss, and it's an under recognized complication of diabetes.

>> And since 2011, I have been out talking about diabetes district with diabetes educators and physicians, and I can assure you that even after you go out in your community and start taking this message out, you will find that it is under recognized. But it is going to -- of the person with diabetes has a hearing loss, it is going to be more difficult for them to manage their diabetes when they go to diabetes education. Every person who is first diagnosed with diabetes can receive 10 hours, up to 10 hours of diabetes education. This is very important. So our patients that are coming in for hearing testing -- are they knowledgeable about the services from a diabetes educator, and can you link them up with the services?

>> Hearing loss makes depression worse. We know that. But then also if you have diabetes, you have a potential for depression. How are diabetes and hearing loss related? Over time the high pressure district blood pressure damages blood vessels in the body. So it affects every part of your body. Your eyes, your nerves, feet and hands, as though it is inescapable in the ears and the system. Because hearing depends on the small blood vessels in the cochlea and the eighth nerve to send the signal up to the brain to be understood. And those are affected by the high blood sugar level.

>> Symptoms of hearing loss -- what we want other professionals to know is that the family members are probably going to notice that person has a hearing problem before the person themselves notice it. It is interesting that you can say it takes 7 to 10 years for someone to be diagnosed with diabetes, because that is a very similar time frame for someone to be diagnosed with a hearing loss. But if you can't get the person with diabetes to answer these questions, do they have to ask you to repeat themselves? Does it sound like people are mumbling? Do they have to turn the TV up or the radio up to loud for others in the room? Now that's a tricky question, because they are tearing it up to where it sounds fine. So that's almost a question you need to ask the spouse or family member when they come in with the patient.

>> Do you feel like the TV is too loud?

>> So all of these diseases affect hearing and balance. Diabetes, chronic renal disease, cardiovascular disease, hypothyroidism, Alzheimer's disease, had just disease, Crohn's disease, as well as infections of diseases. We are only concentrating on diabetes right now, but I can assure you these other chronic diseases are not, do not have hearing and balance on the radar for the most part.

>> And what exactly happens with hearing loss? The research calls this disruption in the small blood vessels microangiopathic. So it's cochlea could be -- cochlear. So the they actually swell and revenue tenders or they swell and burst and a leak blood into the surrounding fluid of the cochlea. As well as neurodegeneration on the eighth nerve. When you go on to balance issues for diabetes, obviously the foot neuropathy, not being able to feel their feet, and know where they are in space, not having vision or limited vision to know if there's a rise or step in front of them or rug that they need to raise their foot above.

>> As well as the [ Indiscernible ] effects of diabetes. In addition to that, there is diabetic pain, and there is infection control with diabetes. It is very important for somebody with diabetes to get rid of infection. And so with knowing that, if someone gets an infection for example like custody and difficile or C. diff, the doctor more times often than not is going to recommend something that is ototoxicity or potentially distributor tops. And the less they know to refer for audiology ago medical management, that person who suddenly gets a hearing loss and nobody understands why, a hearing has changed.

>> So we know the consequences of hearing loss. We know the symptoms. Usually though with the doctors see his confusion. In the may actually associate the confusion with early Alzheimer's when in fact it's just not being able to hear and being depressed. There's a lot of stress with not being able to hear. How it affects medical management for the patient. If they miss verbal instructions, that leads to noncompliance for those instructions. How they are supposed to follow through on directions from the provider. And then that in turn leads to worse patient outcome. Again everyone is looking for the best patient outcomes possible. And so knowing whether the person can hear or not is very important. What we know about convocations with diabetes is according to the study, the prevalence is 30%. For hearing loss. Now diabetic retinopathy in North Carolina the province is 19.5%. So the study was done on time ago, and we are not tracking hearing loss right now. Which would be a good thing to have on our radar. When you move into a skilled nursing facility, 80% of the residents have a hearing problem. We test every single baby that's born. In the incidence is 1 to 2%. And we as audiologists know how important that is to find those children right at the get-go and get them involved in correcting hearing. And yet for diabetes, nothing is being done at this point. We are working on that. We are making that work. Skilled facility residents and everyone on admissions should be tested.

>> That fibular -- 39% of persons with diabetes have balance disorders, but obviously there is a small risk will be higher with diabetic retinopathy and peripheral neuropathy.

>> Cognitive issues with diabetes -- obviously are going to be comorbid with the auditory and fibular disorders. So whether it's disruption in the migraine and stop in the plane or just not been able to hear.

>> And this is life from Dr. Michael Twain from the American optometric Association that he sent me a long time, several years ago. He feels there is a one-to-one correlation between diabetic retinopathy and hearing loss. But you can see from his perspective and from diabetes care, every major system in the body is affected by this microangiopathic. This disruption, this neurodegeneration.

>> So we have to be aware of that when we are seeing a patient in our office for hearing test, if we know that they have diabetes, we need to be asking them questions about have you been to the dentist recently? Have you had your eyes checked in the last year? What is going on with your feet, do you see a podiatrist? Or does your physician check your feet once a year? In certain positions do that as part of a certification process they are involved in.

>> So from an audiological standpoint with the PPO D profession, we need to align with pharmacy for a photo and is to be load toxic monitoring of medications. Physicians I mean pharmacists do know this link. But again if they don't know you, they don't know who to refer to. Collaborate with podiatry for better balance and footcare. If someone comes into your office as Dr. Albright said, be aware of footcare. And ask the questions. A that an optometry evaluation has taken place and that is going to help lower the risk of falls. And counsel your patience to see the dentist several times a year. So it's going to be very important in each of your local areas and state areas to reach out to these professions plan to the medical world to educate them about audiological medical management.

>> So what should you do if you think you might have a hearing loss? He talked to doctor. While I think first audiologists need to approach the doctors and make sure they understand this link. Because just like back in 2011 when Dr. [ Indiscernible ] and I first spoke. CDC was unaware of this. And I think we have made great strides -- strides in making professionals aware. But I think for the most part, we have only moved the needle a little on that spectrum.

>> Definitely people need to get their hearing checked. Getting help from an audiologist or a doctor that specializes in hearing problems is important. Now the term for a hearing specialist sometimes refers to a hearing instrument specialist who I do not think does audiological medical management. So I think delineating to who the medical professional is is very important.

>> But as audiologists, we will cover many things about hearing loss. To make sure that they protect the ears from odd noises, being mindful of certain Medicaid -- medicines and they need to come see us more frequently. And then also smoking cessation.

>> We can establish elegant private partnerships, and I think this is already ongoing. We have 30 state cohorts within the audiology project. So we have audiologists who have stepped up in 30 states to say I want to do something to raise awareness and to advocate for audiological medical management of hearing loss and balance issues. We can reach out to these professional organizations, the American Association of diabetes educators, and you do have these in your states and in your local areas. The diabetes educators like you said I think our kind of a linchpin for diabetes care. The American diabetes Association a ACE and other Peapod professional organizations -- go to consumer groups. And there is a annotation for the healthy eyes matter. If you go to the next slide. Okay. And thanks to Dr. Tarver and and -- in South Carolina. She was instrumental in taking this on and actually starting with a format for the healthy ears matter. Handout. So it's a double-sided handout, we spoke with Dr. all-white about it. We have sent it to our audiological professional groups to look at and give us feedback. And so it basically is something to educate both the patients and the medical professionals. So it tells why diabetes is harming the ears. What diseases are associated with diabetes, what you're

diseases. Why should you visit your audiologist, when is important?

>> A to-do list for healthy ears. Get a baseline audiology exam for hearing and balance as soon as you're diagnosed with diabetes. And just as an aside, my husband and I yesterday for baseline hearing test. Here I am preaching that to audiologists and to patients, but really it is important to do this ourselves also.

>> The audiologist once they know your case, they will recommend with the next step is.

>> Based on what medicines you take, what other chronic diseases you have. They may recommend that you come in any year, but they may recommend that you come in three months based on certain medications. That need to be monitored.

>> And then it's important to contact the audiologist.

>> As well as for them to be aware of the ABCs that Dr. all-white's district Dr. all-white just one over.

>> So I think the national diabetes education program is a great support for us, a great resource for us to develop, and we are developing some educational materials. That we will run through the CDC and and DAC.

>> So at this point, I can turn it back to Cody Jones and you can work with any questions that people might have. Thank you so much for attending today.

>> Thank you Dr. Dowd and Dr. all-white, and as a reminder to attendees if you have any questions, please type it into the question queue now. We have roughly 10 minutes to do Q&A.

>> I do have one question as of now. He spoke of smoking as being leading towards diabetes or could help increase the risk. What about chewing tobacco? Is there a spec of the many studies in regards to that?

>> Well chewing tobacco -- definitely has increased with problems of oral health. With ulcers, information, etc. Smoking itself, we know as like a double-edged sword. People actually develop diabetes, people are looking at it, but that's regular smoking. But with a tobacco, snuff, etc., it would be more of the local effects and certainly people with type that you can be with diabetes when have inflammation of the gums, they are going to have and other soft-tissue areas, they will have more information. Because of chewing tobacco, etc.

>> I don't know of any evidence of chewing tobacco itself associated with increased blood sugars or increased incidents with diabetes, but certainly it is associated with more oral health problems which can exasperate what problems are already there.

>> Thank you. It appears that we do not have any more questions in the queue. Dr. Dowd and Dr. always, is anything you'd like to say closing?

>> Well the links to some of the materials are there. The healthy ears matter. We have to put it through the regular for prime time yet and were putting through [ Indiscernible ] Circus in the health process. But as soon as it is clear, we can stay tuned and it will be on that website. It takes about a month to six weeks. But we see the celebrator screen and CDC add to the study about hearing loss a while ago. But we have lots of different strategies and priorities, etc. And it is great when people are kind of developing the materials and we can kind of look at them, etc. But it is definitely hearing loss and it is an unrecognized complication and it can be associated with so many more complications.

>> And -- if you were questions, please feel free to email us.

>> I think it's very important that CDC has recognized this condition with hearing loss and balance. Because audiologist I think have done it for many many years, and we just assumed that everybody knew it. So reaching out and getting the stamp from CDC or from an DEP, validates to this edition that this is important to look at.

>> It is an invisible handicap. One-on-one in a patient exam room, in a quiet patient exam room face-to-face with a person can [ Indiscernible ] a goes undetected and the physician doesn't see it. So this is very important to have the recognition by CDC.

>> And your support, Pam.

>> While thank you very much Dr. Dowd and Dr. all-white's. Now a reminder for the attendees, you will receive an email immediately following this event which will have a link for the CE information. And also assessment and evaluation. In addition we lost is in the PDF version of the slides used today. A very questions for the presenters, please respond to the email from me, and I will send it on to the presenters. If you have any friends or colleagues that were unable to attend the webinar today, please let them know that it has been recorded and will be posted to the members only section of the 80 website next week.

>> For more information about future 88 initiatives, please visit audiologist.org. They can have a good rest your day.

>> -- Thank you and have a good rest of your day.

>> [ Event concluded ]