

Applying Indigenous Approaches to Reduce Diabetes Risk Factors

Terry Maresca, MD

Dr. Terry Maresca:

Thank you for joining us today. My name is Terry Maresca, member of the Kahnawake Mohawk Band in Canada, which is just south of Montreal.

I started off as a plant person before I became a physician. That was part of our first teachings in terms of women's responsibility to those plants, to the seeds, and to that form of life. It just seemed like a natural flow to go with the medicine.

The work that I do currently is, as a family physician. I also work as a teacher within two residency programs. So, one of them is at Seattle Indian Health Board with family medicine doctors there. The other one is at Tualip, which is a tribal program that's in Washington State, just south of Seattle near Tacoma, which had that osteopathic family medicine residency where we really try to reinforce these concepts with our trainees so that they can better serve our people.

My interests outside of medicine are a lot. Most of it is just relating to working with these seeds. I'm a seed digger. I garden. I go out and gather. I prepare medicines myself and I'm involved in some of the local work that's being done related to land restorations that tribes are doing and some of this work on indigenous group sovereignty. So, I believe that all of these things are related when it comes to our overall concepts of health.

I believe that Jan has mostly gone over with the objectives are, so I don't think I'll spend too much time on that today.

Normally, I spend too much time on this concept of traditional medicine. There are lots of definitions of this, but I think since we're talking about some indigenous concepts, I think it's important to note that there are a number of definitions and that the World Health Organization has a pretty nice one.

The piece that I really like to emphasize, especially to my trainees is that, sometimes they get into an over western mode of thinking about, "What is the science? What is the evidence for this? Is it written? How is that published?" And what I'm trying to reframe is that there are thousands of years of indigenous knowledge, and whether that's explicable or not in the scientific format such as we understand that today, does not mean that that's any less valid to our people. I think that this is an important concept as to how to work in the field of prevention.

Many people understand some of this holistic concept through a medicine wheel. I know that's not necessarily the case for many of our tribal communities in terms of just thinking about mind, body, spirit, emotional factors here. But I think that the other piece in terms of just why this is important, not just because of its relationship to Indian Health Service with Dr. Michael Trujillo in 1994 essentially codified this for Indian Health Service saying that this is an integral part of our system. But what's more important to me is that, as an indigenous person working in tribal health, this is something that's essential to our wellbeing and needs to be -- it's just part of life. We are adding expectations of our health systems being able to at least meet us part way with that need.

There are a number of traditional medicine practices. I'm just going to focus on just a few of them today, just the lightest touch. This is by no means comprehensive in terms of our languages. We're going to spend some time on food today and some on plants but there are a lot of other pieces of this. Some of the things we'll be talking about also relates specifically to thinking about who those people in the community are, who are the respected persons, who are the knowledge keepers and who could help you in terms of determining how much of this might be appropriate to be able to put out within the context of your programs or in the context of a one-on-one setting that you're working with clients.

The other piece is storytelling and I think a lot of us are just natural at that in terms of just who we are and how we remember information.

The concept I just wanted to talk about today is something that I just think of as the original instructions as an indigenous person. Some people call them "indigenous law". From my teaching, this is above the laws of man. This is kind of how we even came to be in terms of just what we were sent on the planet for. For some of us, it maybe tied to our creation story and I'll give you an example in a moment of how that works for both us in the Six Nation territories.

But these instructions have to do with how to live a balanced life. It's very much tied to a place. It's tied to our spirituality. It's just pretty much core to who we are as a people. But the piece I wanted to mention also with this is just beside this holistic nature is that, first, what I call first foods maybe mentioned as a piece of this. I found that to be a concept that has been very helpful working with patients of mine who may have those teachings and for some of them who may not have had those teachings or may have forgotten what some of those teachings are.

In our tribal communities in the northeast, which is Six Nation territories, we have something that's called Haudenosaunee, which is the word that comes before all else. Some people define that as kind of the thanksgiving address or a prayer and I suppose it is in a way. But for us, this is part of our core original instructions about how we as human beings were designed to be on earth, how we are to conduct ourselves, how we are to be respectful, and how we thank the individual elements of what really helps to give us a good life.

When I work with people who are sometimes struggling, again, maybe thinking that they may have diabetes, maybe some mental health issues, it could be any number of things. I call it just life crises. I think about that in terms of what grounds you? What brings you back to yourself? What are the things that actually support you instead of the things that bring you down?

Our prayer talks about this in terms of these specific elements, and a lot of it is relationship in terms of, "Do you have a relationship or are you respecting the relationship that you have with these various things?" For us, we start with the people. We start with the things on the earth and we move ourselves up to the sky world which is what that image actually is that you're looking at is essentially the sky-dome, the earth and the world beyond in terms of how we are, again, related and how we think specifically about some of these elements that give us life.

For us, fruit plants are specifically mentioned and are different than the medicine plants, different than trees, different than water because we acknowledge them all as being really important.

This other image that you're looking at is actually from one of the elders in Cayuga territory who has passed on now, who drew this, the sky woman's daughter which -- it's just part of our teachings. This is not just part of our origin stories. But when she passed and she was buried, for us, certain foods came from her body. They're very specific and tribes have a little different way of thinking about that in terms of which foods came from where, but corn, beans, and squash are there. In this representation, our chief has potatoes as her toes and tobacco as her head. So, we recognize those as being sacred. This isn't just food that's healthy for you, this is essential to life. It's essential to be respected because it's a gift directly from Creator.

As an indigenous person, I'm reminded, at least from my tribe that this something that I have to have a relationship to. That relationship needs to be a balanced one and a healthy one. What we're seeing -- to what I'm seeing today, especially in the Pacific Northwest is that there is a tremendous amount of work being done with these concepts with other tribes in this region and further north to our relatives up in Alaska to really work hard on regaining indigenous food sovereignty, how this current link is politically, how it links to water rights, to land rights, to treaty rights in terms of being able to gather, is really, really important.

I want to give acknowledgement to the Confederated Tribes of the Umatilla who are in Oregon, who have a very important way of thinking about, again, this linkage to health and this linkage to, again, sustaining life across the board. What they've done in their policies, which have trickled down to some level to the level of the health systems program, is really following -- they have their original laws, which are different than mine. Yet, at the same time, they really are recognizing, again, the power of balance between what these traditional foods and drinks are and how this relates to relationship between men and women because then, at least in their way, there are some differences between who's responsible for the caretaking of these things. What I really love about having heard a number of people from this community speak is their challenges with the traditional food pyramids of how many of us were trained to think about the food pyramid. They're thinking, "Well, I don't know. Are these for us? There was never really a pyramid as a traditional symbol. I don't know that we relate to that." But we relate to landscape. We relate to these relationships. We relate to this balance between men and women. And we relate to the fact that if we care for this landscape, this is going to support our way of life for everyone and that this is basically a wellness concept. I think that they've done a very good job of putting this throughout their tribal programs.

So, how might this even be a concept to use related to a patient's motivation for change? I know that this has been effective back in my home reservation in Canada, which you're looking at the symbol there, which is from the diabetes prevention project at Kahnawake. Our community didn't really have a medicine wheel concept per se with that but I see that there have been some modern adaptations of this. When I look at some of the graphics on this image, it's really powerful to me in terms of -- I think it's colorful and effective if you are knowing the stories here for what's being said.

For us, it has a number of elements in this that relate to these original teachings in terms of relationship to the foods, for example, the strawberry shrub, related to the original relationship between a mother and child in terms of birthing and breastfeeding. You see a lacrosse player on that image representing our traditional game of lacrosse, which was a very important way of resolving stress and conflict. It wasn't just a game to have fun, although it was that, but it could also be used to solve, not only individual conflicts but community conflict. And that is an important piece of stress reduction within our community.

Again, just this relationship to cycles, just looking at the sun, relationship to seasonality, and the fact that there are three feathers there, which for us again, just have specific traditional teachings related to how life and breath came to human beings.

So, what I'm just asking you to think about is, just for those of you who are serving tribal communities or urban communities is, do those communities also have first food concepts? I suspect that they do. How much awareness of this is there with the patients that you serve or are people relating to this?

So, these are questions that I could gently ask in a clinical interview in terms of just -- again, by sharing my own story with issues of prevention, people who are maybe struggling with their weight and just saying, is this something that you have in your community also in terms of how to balance some of these things in terms of stress reduction, activity, diet, what you drink, or relationships? How does that work for you? The holistic nature of this can actually help to address stress, depression, which we know are intimately linked with pre-diabetes and overt diabetes.

Unfortunately, I know, at least at the urban communities that I serve now that there are a lot of people who are struggling to reclaim this knowledge. So, they may be really in need of that support and resources to be able to do this.

Our tribe also has a tradition of documenting teachings within treaty belts. This is actually from the 1600s. This is a story that I sometimes will also share with my patients in terms of our concept of taking the best of what is our ancestral knowledge and how we can -- which is represented by the canoe on the top, which is the purple line of our indigenous canoe as opposed to the one that's just below it, which is another purple line of wampum shell, which represented the Dutch ship thing. That's a different culture. That's a different people. We want to respect one another but we need to avoid interference and we need to be able to take the best of what is within our societies and move in a good direction. It's a very positive way of thinking about choices that we make within life.

This is a small graphic of that. I know I see this in clinics fairly effective regularly, an effective tool. A tool that for some of my patients, they're not always resonating with especially with some of the issues of dairy, for example, or maybe with some of the examples are in terms of what is being shown here. Again, it is an effective tool. I'm just contrasting that with what I have been finding which for some of my patients who are very interested in indigenous eating in terms looking at a food wheel as what, again, just closer to what these first foods might really be. Not just healthy foods but what did our ancestors actually eat.

What I love about this is, again, the centrality of, again, a breastfeeding woman in the center in terms of just what is the core of life in terms of this connection to earth and to these cycles of life that have been going on for so long. What I also love about it is that, dairy is not there. I don't know that very many of our tribes have kind of a link to dairy if we're thinking of pre-contact here. But we do have a relationship to water in terms of teas, in terms of drinks, in terms of fruits or other substances being put into water as a drink. And so, I just ask you to give some consideration for that representation in terms of what resonates within your community related to our ancestral diet.

This is a little quiz related to just thinking for yourself about the kind of foods that you may have eaten in the last month. You can pick one of the five things here in terms of how many berries you've eaten. If you are not a vegetarian, if you've eaten any animals or birds or shellfish or even any root vegetables, just in the last month. Just pick one of those and just think about what you may have eaten in terms of variety.

(Pause)

My guess is that, it may not be as varied as you might want either in terms of just the breadth of those various things and granted there are other foods of course that are part of our diet in terms of nuts and vegetables, et cetera. But I just want to just bring up a concept that has been also proven to be interesting is within the Pacific Northwest. I'm not sure how much of that work is being done elsewhere in the country.

Related to using some of the contemporary science with elders to work towards diabetes prevention and some of this relates to archeology. This is a project that was done about eight years ago related to something called, "Midden." Midden is just a fancy term that means a pile of what might have been garbage or other products that were used and set aside that were known in the region around the Seattle area. These were between two and five thousand years old. What they found was a tremendous amount of variety of what the indigenous people of the Salish were eating. That's a lot. I'm just thinking of, again, just a variety of birds, the variety of berries, an incredible variety of shellfish, and both marine and land animals. The reference is there for those who are interested in that.

This isn't just science. This is an intellectual interesting piece of information. This is actually being used right now and the work is not fully published yet, related to some of the local tribes with Muckleshoot and Tulalip. Actually, thinking about this, in terms of this incredible variety of food as a preventive tool and how much of this is used and could be used more in terms of prevention and treatment of diabetes. So, health professionals are involved in some of this work, which I think is a fascinating collaboration and something that we don't see very often.

So my question, again, just with is, is there a role even for other forms of science done respectfully within our communities to be able to promote reclamation of our traditional ways to promote wellness? So granted that not all tribes desire this, they may not have the resources or collaborations for this. Some of these, the variety of foods, even that's mentioned in the previous slide for the Pacific Northwest, some of these are not readily available within the landscape or people have difficulty even in terms of accessing that even if they know what that is.

Clearly, what we're seeing in this region is a stimulation of curiosity about the wisdom of our ancestors and wanting to build relationships with groups now who are actually working towards, again, making sure that these animals and other life forms can still live and how we can use them respectfully and linking to projects that are actually, the rubber hitting the road in terms of how this works in clinical practice or public health practice.

I'd like to switch to just talking about indigenous diet specifically. Some of you may have done this or a part of this, this concept called, "An Indigenous Food Challenge." What this is is a technique that involves a person making a choice to restrict themselves to food and drink of their ancestors or indigenous ancestors generally that happens before Columbus contact. It could include foods from other parts of the Americas. So, it could be South America or Central America. Many of us have stories related to our relationship to those people. So, that's allowable if this is the very personal choice that people are making. If one is to do a challenge, it might be short, it might be a day, it may be a week, it could be longer than that. We have seen people who are actually doing this as part of their lifestyle. It could be, again, as little as a meal a day, it could be all meals. But it's not what I've heard commonly called "Native Paleo" for a variety of other reasons that we'll mention briefly. Although, there are many, many similarities between the two.

This challenge concept, I think has been around awhile. It's popular from several people. Two of who were indigenous professors at two different universities, one in Northern Michigan University and another, a woman who is at University of Kansas.

Martin Reinhardt, who's up in Michigan, worked on something that's called, "The Decolonizing Diet Project", which we'll talk about in a moment. Devon Mihesuah who's a Choctaw woman and working with more of a multi-tribal approach to health and diet and working with her students but also realizing the profound need for this information and how to get this out into more of the public sphere and more of a national sphere.

Some of the concepts when I'm talking to patients about this, as I mentioned, is this something that might resonate with you? And if so, just talking to them concretely about how they might do this. If you were to do this, would your ancestor recognize this as food, if you put this plate in front them? Which eliminates a lot of things, it eliminates Doritos. It eliminates energy drinks. It eliminates processed food. It also eliminates certain spices that some of us may have enjoyed, for example, let's say black pepper, which is not on the list. Certain herbs or other substances that came after contact, even if it's healthy, if you're doing the true challenge, are not actually in this.

At least in the Pacific Northwest, it's kind of a coffee culture here. One of the big struggles people have is the issue of caffeine for which there is very little indigenous caffeine only in the southeast part of the United States, and then certainly in South America that's true, but a lot of people are resistant to the idea of giving up their coffee or even black tea as an example.

But many participants are making strides with this because the concept resonates with them and they still choose to use healthy post-contact foods as just part of what they're able to do financially or even in terms of the information that they have available to them. It clearly requires preparation. This isn't something that most people have in their cupboards readily in terms of being able to do this, although some people do. So, it does require, again, relationship in terms of with your friends, with others to be able to either grow these things, gather them, hunt for them, trade for them, or purchase them from other tribes who are actually doing some of the work to preserve their foods.

So, this is a short quiz. We have resources that we give to patients because we don't expect them to necessarily know what all those foods -- we certainly can't speak to what their individual tribal foods would be. They're elders and they would know better. But there are some good resources that I'll show you shortly that can help with it. If we ask them to just get some ideas about some of the foods that may be more commonly out in -- more readily available, just to ask them, just what they think is indigenous or not just to get them started. I'll have you take a look at that list and it turns out that the last five are actually foods that really are from the western hemisphere. Again, this is for people who are not going strictly with their own tribe or with their own regions who are looking for foods that maybe from other regions.

But why might someone even think about doing an indigenous food challenge? Part of it could be related to these original instructions of respect for foods and what actually helps to reground us and keep us healthy. So, some of us are doing that because that's part of our teachings. Some of us do it because it's part of a seasonal cycle of what you do in the spring to wake your body up or what you do to prepare your body to slow down as you come into the fall and winter season. Some of us are doing it to just to see how this works with diets that we may be eating or regular, normal day-to-day diet versus what does the traditional one do to us?

I know that I personally tried this related to challenges with arthritis, to see how that would actually impact my energy and how I would do from a joint perspective. I've seen other patients choose it for similar reasons and not just for diabetes prevention.

Some of them are doing it for other life changes, just a phase of life that they're coming into. Some of them are doing it because they're in recovery from addictions and they want to replenish their body in a good way. Some of them are doing it because they're trying to jump start some kind of a fast that they may be on or coming off of that. But a lot of people are doing it because it's part of just our food legacy and it's kind of a community empowerment in terms of learning this and being willing to, not just learn what the legacy of other communities and the gifts that their foods have brought to us, but also, to kind of just learn about what are the treaty rights that we have, especially those that are in urban areas struggling with this in terms of access to these foods and working with communities that are doing this to strengthen that effort. It clearly works to strengthen community information about itself and respect for other native traditions as well.

This is just a picture of one of the food challenge weeks that we do. We try to do this at least in the group that's in the Seattle area. Many of whom are linked to the university, but some of them are not. They're just within the urban Indian community and other tribal communities. We do it seasonally. This is just one of the meals that we had that is part of the challenge week, where we're sitting down as a community and we're all just sitting down to be able to do the trades, so that there's no money exchange. We are trading foods that we have access to through our networks.

What looks like water on the left, by the way, actually isn't water, it's actually maple syrup sap. It's actually just the sap directly from the tree, which is part of the Spring Food Challenge and again, part of the traditional food for us in terms of purification.

What I've also seen though is that people are really interested in intertribal trade. We've always, as indigenous people, had trade. We have amazing trade routes that go hundreds, if not

thousands of miles. So, tepary bean, I was just using that as one example, but there are many others in terms of talking with people about foods that maybe coming from other territories. There tends to be some preference of course for foods that are much more familiar, but there is some openness amongst elders and others to say, "Well, if that worked for other communities and they're struggling with the same issues of pre-diabetes or weight or other things, we should consider that as well."

The tepary bean is a bean of the dry desert in Arizona and across the border into Mexico. An interesting bean on many, many levels that is higher in protein, higher in fiber. It has a different carbohydrate complex compared to even beans that we would routinely consider healthy such as, let's say, black beans or pinto beans. For those who are paying attention to glycemic index, it's very low. It's also very high in salts that are beneficial: calcium, magnesium, potassium as an example. What I like about it also is that, just knowing that for the communities that are reclaiming this in the desert southwest, that purchasing this through tribal cooperatives, for example, Ramona Farms or Tohono O'odham Action Community helps to support their economic growth.

A lot of our people are not asking about the science of this, although I find some of this kind of interesting or just wonder about it. Some of the teachings related to some ancestral diets which used organ meat as an example, much more heavily than what we may see today. For our tribes who had access to very dark greens that would be something that you would think of like a spinach or chard type of food, we know that those foods are also very, very high in an antioxidant that's called, "alpha-lipoic acid". This ingredient is something that when eaten or when supplemented, definitely increases insulin sensitivity in people with Type 2 diabetes and would ostensibly do the same thing for someone who didn't have that, but who may be at risk.

For those who are involved as clinicians, nurses, pharmacists, docs, one of the resources that many of you may be using called the "Natural Medicine Comprehensive Database" has listed this particular ingredient as something that has really strong scientific evidence for prevention and treatment of diabetes. If you were to try to look for this with some of our traditional greens, even in some of the nutrient databases, it would be hard to find alpha-lipoic acid specifically. But it's some of the things that I wonder about in terms of the teachings that had been passed down that these were healthy foods. This is a fascinating thing in terms of issues of people who are, again, just asking them to perhaps, could they supplement more with some of those foods because this is something that may be of benefit to their health even if the science isn't quite catching up with that just yet.

I want to go back to the study that Martin Reinhardt was doing, which what he called, "The Decolonizing Diet Project". With the project that he did, actually several years ago and it's still in the process of publishing all of those results. So it's kind of a partial publication right now. What he did with a group of relatively young people, maybe 25 college students and then including himself that were both native and nonnative, is that he essentially had a full research project that went through an institutional review board process that asked all of those participants to eat only foods from the Great Lakes. They had a choice about how much, what percentage they would include in their diet. Some of them went 100%. Some of them only did partial. So, in some ways, again, kind of like the Indigenous Diet Challenge, they did lots of labs including hemoglobin A1Cs, followed people's weight, followed lipid level, followed electrolytes, they followed -- they call it exercise pattern which they were asked to keep a reasonable level of physical activity during this process.

They also looked at them psychologically in terms of how did this work for them. I'm very anxious to see what the final outcomes of this are, even as small of a study as it is because I think there is very little data on this now within communities and there's a lot of interest in this. They definitely saw weight loss for some of their participants, but ironically gain for others, depending on the type of food that they ate. They definitely saw an overall improved lipid panel for those individuals who were on, again, any variation of these diets.

I'll refer you to some of the two references that are there because again, it's not published for all of us to be able to see just yet, but there have been couple of articles that have been done on that. Ironically, Al Jazeera did a terrific review of that particular project that some of you may find quite interesting. It may also remind some of you that some of the work that was done with the Pima Pride Project back in the late 1980s, related to cultural teachings and improvement in glycemic control amongst people with diabetes.

So, I just want to ask you to think about how this might be woven into elements of care for the people that you serve and how you may bring this up within the context of just motivational interviewing. For some of my patients, I may give the example again about places that I've worked or with something -- an example to say, "I know of this being used within this tribal community. Is this something that might resonate with you?" and just figuring out what the advantages or disadvantages would be for them in terms of their ability to follow through with that.

Asking very diplomatically about these traditional wellness teachings. Again, there's a lot of sensitivity around this area because I'm not out to ask people to divulge something that maybe very sacred to them, but I'm just asking them to say, if it's okay to share with that or what do they know or remember about those teachings and what might be applicable now, today and how could we make that into a very concrete treatment plan. I use a lot of bibliotherapy in these after visit summaries and overall required to use that if we're using electronic health records. But I want to give resources to people to think about and to play with, just to see if that helps them. Also, I'm very interested in the reciprocity for what they find that may be useful to other people in the community.

The partnerships are crucial with this in terms of working with other people who have this knowledge, working with elders, working with people in Departments of Natural Resources, working with tribal college people in terms of these community partnerships. Again, whether there are garden projects, other agricultural projects, hunting projects, whatever these pieces are in terms of how we can get these food discussions going. Some of the partnerships really are within our own health systems. For example, one of the ones that we've tried to do with graduation ceremonies, for example, is that when people want to bring things to a potluck, we ask them, again, as a teaching to say, "Well, we know we're all busy, but could you put that love and energy of something that you actually made? Could this be something that is from your specific tradition when we have this, as opposed to just picking something up at the local grocery store to bring to the potluck?"

There is another opportunity; the first week of November is called the "Week of Eating Indigenous Foods". Again, it's still a small movement of sorts. But again, at least in our region with a pretty strong cohort, we are consistent in terms of participating in that, but we do this again more on a quarterly cycle just as a reminder of how we work with this information. So that may be something that maybe interesting in your community that you may want to give consideration to.

There are resources I want to share with you. These are the links to Devon Mihesuah's work. The advantage of this site is that she has terrific lists of foods that are indigenous to the Americas. So if someone really doesn't know or if you have a student who wants to say, "I'm curious about that." This is a great site to be able to look at. She's also written her own book. There are many excellent reviews, cookbooks. Again, I realized that there are a lot of needs for regional specificity for some of us with this. This one is a good general book. I'm directing that especially for those in our urban communities who mainly have a need for multi-tribal approach for some of the work that she's done.

The one from Martin Reinhardt is probably a little harder but may be more appropriate for those people who are in the Great Lakes region from Anishinaabe territories who may be interested in that work.

The next one on this slide is a reference which is kind of a -- it's a book reference from Daniel Moerman who's a non-native person who did a lot of work on ethnobotany. The challenge with this reference is that it's basically a key off point for me for people who may be from smaller communities, who may not necessarily know some of those food traditions but who are curious about what has been documented about what some of the foods that they have tried, they have eaten that they may be curious about. This one may be a starting point, but still needs to be corroborated by people within the tribal community who are the experts on their own foods and medicines.

There are other resources for you. I use this next one, Agricultural Research Service a lot, which is something called the "National Nutrient Database". If you were to look -- what this does is you can plug in a food of any kind. In this case, for example, we can plug in nettles, which we are going to talk about shortly. And what it will come up with, actually, it turns out that it's on what's called the American Indian or Alaska Native subset. It will give the scientific analysis on how much nutrients is in that particular food, how many calories, the fat protein contents, salt contents. It can be very comprehensive or it might be more limited depending on the food.

So, I find this really interesting when people tell me, for example, "Nettle is similar to spinach." I'm thinking, "Well, I can actually compare that in this case and to see is that really true in terms of the nutrient content." So, some of you may have some fun playing with that resource. Another resource that again may be more related to the Pacific Northwest is the Muckleshoot Tribe Food Sovereignty Program with a beautiful woman named Valerie Segrest. She's a nutritionist from her own tribe who did a pretty terrific TED talk on this indigenous food sovereignty movement and reclamation of our foods and how this works in terms of overall health and how health systems can be partners in this effort.

Many of you are already familiar with the work that's going on in Alaska, with the Store Outside Your Door with Dr. Gary Ferguson and his colleagues. What I love about this resource again is the regionality of this in terms of just covering all of the territories in Alaska. Their videos are fantastic. They're very commonly available on YouTube. They're really doing a good job of interviewing elders, interviewing young people, interviewing people of all ages who are, again, continuing with food traditions and trying to bring them back into a real life scenario in the year 2015. So, they are very inspirational. So if you have someone who needs some inspiration, I really recommend checking out some of those videos there.

Mayo Clinic with the Native Programs Project there has an option for obtaining native cookbooks and other materials that are related to nutrition. You may already be familiar with that free resource, which may be appropriate to your community.

I want to switch a little bit in the last few minutes that we have to talk briefly about some of the plant medicine issues with working with pre-diabetes in particular or prevention. These are just some names of some plants that have commonly come up in the practice that I have, but there are many, many others. There are too many to list really. I'm grateful to those elders who shared that information and my patients who talked to me about the things that they're doing to take care of themselves. I'm going to focus on just a few today, and I realize that these may not be available in your area. But just to stimulate some thought about what people are doing in their area to work to prevent diabetes.

The huckleberry family is commonly used in the Pacific Northwest. It's also used to some degree in the Northeast too because blueberries are also included in this family, and primarily, at leaf medicines. So we're looking here at a picture of the bush with the berries. Of course, they're a delicious, very traditional food in both regions with specific teachings related to them. What I see people doing is using leaf, especially as a tea. So it is put typically into a hot tea and drunk with meals or without meals, but used several times a day. They're not necessarily strict related to issues of dosing. But this is certainly as an alternative to sugar sweetened or artificially sweetened beverages. This does have hypoglycemic effects. They are mild. They can reduce someone's

blood sugar. If we get this little information on adverse effect, and as a clinician, I have not seen that, but there's also very little that's been reported related to adverse effect of the blueberry or huckleberry leaf family medicines.

This is a different type of huckleberry that you're looking at. It's something called evergreen huckleberry. The first one was really more of a mountain plant. It turns out that some of the traditional teachings talk about the issues of the need to collect this early in the season so that the younger leaves have more of the active components of this. I found it interesting, there's actually a commercial product that I wasn't aware of. I haven't used this myself because there are medicines readily available by local harvesting. But there is a commercial product that has some solid research on it. There are people who are using that being able to reduce fasting glucose and C-reactive protein, from which we know the issues of inflammation are common in people who are pre-diabetic as well as those with diabetes.

The main precaution with this is, is that if someone is using other meds that maybe -- even metformin just to be able to do more monitoring to make sure that they don't become hypoglycemic as they recognize what those symptoms are. I ask my patients just to take more self-responsibility. Most of them are very willing to do that when they're working respectfully with these traditional medicines.

Another one that comes up mainly from the East, but this one gets exported to the West Coast here too, American ginseng, which is a root medicine. It is a plant of the beautiful, deep, hardwood forest. Unfortunately, there's also an endangered plant in the Southeast. People have been overusing and overharvesting this in those territories where there have been long tribal traditions of use. The biggest grower of this medicine now is actually Ontario, interestingly enough. So there are some, again, raw products as well as other extracts or more commercially made products. A few patients are using both of them. In this region, it's really more of the commercial products. Back East, it was more of the raw medicine. Again, reports in scientific literature related to the use with specifically in Type 2 diabetes, but not much related to what's happening for people who do not have diabetes.

It's interesting because there's a pretty wide range of what this -- the raw root of this medicine, is what's being primarily used. People are using it, again, before meals typically and with a wide range of safety with this. I find it interesting even as a clinician that even small amounts, it seems to be able to regulate people's blood sugars. There are definite drug interactions with this medicine. This medicine has some very interesting chemical pieces of this. It is a powerful medicine. It can actually interfere with immunosuppressant's, such as prednisone, other immune system meds. It can actually reduce coagulation. People who are on blood thinners have to have some precaution if they're using ginseng.

It's also interesting because pieces of American ginseng as a plant are estrogen like, and there are some conditions where women with breast cancer or other hormone sensitive conditions that may - they may not need to be on this medicine in terms of potentially promoting tumor growth. There have been some reports again of insomnia and I've certainly seen that. This medicine is typically as a balancer. It's a powerful one in terms of just balancing people who are very stressed. But in certain sensitive people, it can actually cause them to be agitated, particularly in sensitive people or people who already have kind of chronic mental illness.

This is a plant that's common in Alaska, and the Pacific Northwest, but it also grows in Michigan and points a little further to the East, which is also a member of the ginseng family. This is called "Devil's Club". It's got a very big leaf. I'm not sure in the picture, if you look at the stems on the bottom, it has lots of little prickly stems which is how it gets its name. No one really wants to walk through this very tall plant. The medicine that's used here is primarily coming from the roots and the stem bark. I get requests for this regularly among patients, especially elders in the clinical practice in terms of, "Can I get this for them? Do they know anyone who wants to trade for this?" Diabetes and pre-diabetes prevention is one of the big uses for this medicine, as well as arthritis.

They're probably the top two. There are other uses as well. It definitely has evidence to document some reduction of blood sugars in humans.

I also find it interesting that over 20 years ago, there were some research in Canada done on that that they thought was actually kind of a wash. They didn't think that that was effective in patients who were using both Devil's Club and other diabetes medicines, which hasn't been my experience with this, with a larger cohort. So I'm cautious with -- if people are using that, again, the issue to me is more monitoring related to their blood sugar control. I'm just referring you to some ethnobotanical reviews for those who may be interested in this. Again, the elders always taught that there were differences in the strength between roots and stem. That certainly was being -- again, science is only catching up with indigenous knowledge in this case that there really are differences in terms of potency here.

Related to safety, this is a tough one. There's no reliable data that is published. So I tell the patients that too, in some elders who maybe again -- people who are just taking the medicine, I just say, "Tell me how you do it." and we kind of go clinically. And the issue of dosing is variable depending on what parts are being used at a given time. This is not one that you can buy. Commercially, it just doesn't exist. There had been some reports of weight gain with this. That's been pretty rare in my practice in terms of what I've actually seen. I've seen people who really use small shavings of this bark. They're just putting it into water. It's something that flavors the water. It's very refreshing. Elders like it. We see that in some of the elders' gatherings in this area.

The last one that we're going to talk about is stinging nettle, which I made reference to related to the science portion of the agriculture research website. This one is a common wetland plant and it's an expensive one. It's a forest plant. It likes to be around wet zones, sometimes shady, sometimes sunny. It's very mineral rich, particularly in minerals that are known to be promoting cardiac health and lowering blood pressure.

So, in the Pacific Northwest again or in the East, this is used as kind of a drink. It's made as cold. It's made as a hot tea. We gather it early in the spring to be able to save it and either stir fry it or steam it or just make it into some of kind of pesto or just put it right into soups, which is what people in our tribal community would have done with these dark green foods, which is just to be able to add flavor and add nutrition. So people jokingly call this Indian Gatorade in our area. But I like that with our youth in terms of just getting them to understand the power of this medicine that without any sweetener, this actually has minerals that can actually replete them as athletes and encourage their athletic efforts that make them perhaps stronger with this and they don't have a need for an energy drink because this is our indigenous energy drink. We call this kind of one of our super foods, very delicious.

I found interestingly one tiny trial talking about whether it affects diabetes or not. They didn't think so. I see this very commonly used as a preventive medicine and preventive food for our people. I have seen changes related to blood pressure that have been very common because it also can function as a diuretic. So, I do watch people's blood pressure, warning them about potential dizziness and ask them to keep track of that if they can and same thing for hypoglycemic meds, just to see whether or not they're sensitive to that.

For those again in clinical practice, working with patients who need some resources, this is the one that I've been referring to, the National Medicine Comprehensive Database. There are others. This one seems to be the most readily accessible and the best updated one for workers in the hospitals and clinics. I like it because it has a patient handout section that maybe appropriate to the people you serve. What is challenging about it is that some of the information on some of our native plants is limited. In some ways, I wonder if that is just a protection for our medicines too. So, just because it's being used in the community, it doesn't mean you're going to find scientific information about it. That's okay, which brings me back to our traditional medicine concept that

I don't always need the science of that in terms of what's printed in the journal. I need the elders. I need the teaching. I need the full spectrum holistic look at this in terms of whether this is safe or not and letting people make those decisions for themselves in terms of whether this is going to work for them or not. Again, the opportunity for choice, the opportunity for being able to reconnect with information for our ancestors, I think is really important.

It brings us also back to the issues of community knowledge in terms of where the information may be. Within tribal colleges, nonprofits, resource departments and again, don't forget your elders, whoever they are.

I think I'll skip this, rather than just to say that again. Even in tribal practices, we've been using the use of gardens to be able to try to get more information out to the community about the uses of these medicines and of these foods to be able to use for prevention. Young people have been the first to step up and participate, which I've been really proud of. Clearly, there are many other approaches to diabetes prevention. This is actually a picture of the new journeys of our region, which includes so many of these elements in terms of traditional games, psychological preparation, stress reduction, how well you have to eat to be able to do this, to paddle long distances. The ceremonial aspects, intergenerational pieces are so powerful for us.

So, do consider if there are any actions that you can take that might support the work that you're doing in your communities. I personally thank you for serving the people everywhere you are, from North, South, East to West. Thank you very much.

Jan Frederick:

Dr. Maresca, thank you so much for all of these information. It really is inspiring. We did have a few questions and we'll put those up for you. We had a lot of discussion about community garden projects. I'm wondering if you have any comments or experience you want to share on that. And then there is one additional more specific question about one of the herbs that you talked about. Can you see the questions there?

Dr. Terry Maresca:

Yes. The question about community gardens is recruiting community members. Yeah, that's an issue. I think getting elders on board is probably the first order of business to me in terms of who supports that work. Then, the rest of it is again, just using the word of mouth in terms of, is it with interested groups of other adults, is it a link to a school project, is it a link if you have a tribal college available to you, is there a local business that may be related to this in some ways who may be interested in helping to support that kind of work. What I found even with the small gardens is sustaining the project. That's the most difficult piece. Usually, getting it going isn't the hardest part of the sustaining element. That is difficult. So, summer projects for youth. There's a financial resources in terms of like summer jobs to be able to help to keep and train volunteers. Don't forget our young ones. They're very interested in this. I've been so impressed in our area with them stepping forward to be able to help with the community gardens.

There is a question also about the Devil's Club. There is some information about the berries, and I'll work for you to the ethnobotanical reference that I gave related to that. So yes, there are people who do use the berries of this, but I see it more for prevention, for stem and root medicine. Then, the issue of seeds for the traditional medicines, some of these medicines don't have easy to come by seeds, but I would refer you to some of the -- there are several groups around the country that are tribal organizations that run nurseries, that run their own plant groups. Some of them are doing seed saving of our traditional seeds, and they may be able to trade with you. I also see this in certain urban communities. For example, Minneapolis is doing a pretty good job of that right now with that work.

It may require some contact with your natural resources people to see -- again, if your tribe or a related tribe has access to a nursery type of project that you may be able to get access directly to the plants or to the seeds. So, it depends on what kind of seeds you're looking for.

I'll just put a last plug-in. A lot of our traditional medicines and some of these foods are in the National Seed Bank. I have personally -- all of us have the opportunity to reclaim our seeds from the National Seed Bank, which is called the "USDA's Germplasm Bank". I've gotten some of my tribe's indigenous corn and beans out of that seed bank to be able to grow them properly. I think our seeds are waiting for us. So please, look at that resource because your tribe may also have seeds in that seed bank related to herbal medicines or foods and that could be something that you could use in your own garden. I wish you good luck with that.

Jan Frederick:

Thank you. I think you've covered all the questions. I want to invite Dr. Ann Bullock, the Acting Director of the Division of Diabetes and a colleague of yours, I know Dr. Maresca, to make some closing comments.

Dr. Ann Bullock:

Thank you, Jan. Thank you, Dr. Maresca. For those of you who have not had the opportunity to hear her before, Dr. Maresca was an honored and popular speaker when we had our National Advances in Indian Health Conferences. We've been trying to get on her calendar to have her do this great presentation for us today. So, we are honored that you had taken the time to be with us today, Dr. Maresca.

Certainly, this addresses a lot of issues, the spirituality of our people, the foods that are part of spirit as our -- it's true in many of our traditions. Also, this helps to address some of the food insecurity issues, the ability to provide truly nourishing in all meanings of the word nourishing foods to people, particularly the young children and the pregnant women. It's so important.

Remember that SDPI grantees out there, you are able to do these kinds of traditional food projects as part of your SDPI grants if you put it into your applications and budget proposals. So there are ways to help fund some of these things through SDPI.