Healthy Children Strong Families Diabetes Prevention Initiative

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Alex Adams:

Thank you to Jan Frederick and Ann Bullock for making this happen. My name is Alex Adams; I'm a family physician and Ph.D. in Nutrition. I work here at the University of Wisconsin and I've worked in partnership with tribal communities here in Wisconsin for over 14 years. A number of them will be mentioned during this presentation. I've also got Kate Cronin, our research coordinator here with me, who is an MPH, who has been working with me for many years on this as well. She's going to be answering questions at the end of the presentation, but I'll be doing the presentation.

We're going to start out talking about a program that we developed in conjunction with the Wisconsin tribes, and I'm going to do it through some background first. But the program is called "Healthy Children, Strong Families".

The outline of the talk today, I'm going to talk a little bit about timing of childhood overweight and what some of the risk factors are. I'm going to focus on American Indian children but really realize that these are factors that occur in all children. We're then going to talk about our first project called Healthy Children, Strong Families and that was sort of the first iteration of it, so I've got the one there. I'm going to go through some of the results of that and how that led to the second iteration, Healthy Children Strong Families 2, which we're currently working on. And then, I'm going to really give some closing thoughts, as well as a bunch of resources for people so that they can start to look at how they would work on some of these early childhood things within their own communities.

This is a slide called the "Fat Cycle". I developed this slide a number of years ago to help people understand how there are different critical periods in people's lives where obesity is really a problem and where we need to start thinking about when adiposity comes in, and insulin resistance. We've learned more about these periods, I think, as we go along and we'll be learning more about them in the next number of years.

The first period I want to talk about is this early prenatal period. This has to do with things that happen in utero such as smoking, high insulin from diabetic insulin-resistance during pregnancy, gestational diabetes, or overeating, et cetera, causing excess gestational weight gain. This really helps kind of set up the child to be more insulin-resistant and more prone to overweight later in life. Then there is the infant period, which has to do with post-birth influences such as timing and length of breastfeeding, timing of the introduction of solids. These are also critical in terms of setting the child up for later illness and issues.

The period that the majority of our work has focused on is this toddler/early childhood period. I've got some information in here where initially, what we saw and what we continue to see is that the BMI that really should slow down here, we should start to see a slowing of the usual sort of uptick in growth during the first year, it hasn't slowed down the way it should in many of our Native communities, in the children. The WIC data shows this kind of upward swing in these curves. Well, we don't know how

much activity level here is as important or how much more diet is important. I think that's still some controversy, but clearly they're both important pieces.

The next critical period would be the years between sort of five and seven. This is called the adiposity rebound period. This is when BMI does do an uptick normally, but whether that occurs late or that occurs early is very important. And what we're seeing in our communities is we're seeing that timing happening much earlier. And that again, predisposes to later ongoing weight gain and insulin-resistance.

Then of course, there's adolescence. And the earlier that occurs, the more risky that is for many factors. We're also seeing, of course, the increase in cardiovascular risk factors and early metabolic syndrome during that time period leading again, then, to higher rates of adult Type 2 diabetes and cardiovascular disease.

I want to show some data that we did between '01 and '03 with about 500 American Indian children or so, from ages, three to eight, this is the data from five to eight-year-olds. This is called the Wisconsin Nutrition and Growth Study or WINGS. We compared that to national NHANES data during that same timeframe. You can see the differences in much higher rates of overweight and obesity in those groups in the red and in the yellow respectively. This was the first data that we gathered with tribal communities in Wisconsin to try and help us understand the magnitude of the problem.

In that same cohort of children, we also looked at metabolic risk factors using fingerstick, total cholesterol and HDL levels, as well as a waist-hip ratio, and blood pressures. You can see that in the obese children, the majority of them had two or more risk factors for early cardiovascular disease and metabolic syndrome in those children. The overweight individual children, a lot of them also had two or three risk factors.

That was very important to understand that these risk factors happened very early prior to school age and were quite high in these children.

We then took a look back in time at the children's growth from the time that they had their BMI measured, which was done at ages of five to seven. We then looked at where they were in growth at that point and then looked back in their growth. So you can see there are two points at time which we've been talking about that are really critical. That first is that first year of life between birth and 12 months, where you see the divergence of the obese kids and the overweight kids from the normal-weight children. And then again, it happens again in that sort of 24 to 48 months period or so, where you see another big divergence. And so, these are critical periods of time.

What we did with this data is we took all of these data back to the communities that we worked with and we worked on what would be interventions that they would like to work on. How can we work together to design and develop these interventions? And so, our first Healthy Children, Strong Families project was based on their input and a lot of the wellness coordinators, et cetera, helped us develop this project.

The initial project was a family-based project, which it still is. It's designed to be done at the individual on a family level; it's designed for families with children ages two to five and a primary caregiver, usually mom, sometimes dad or grandma. Our first project had a home-visiting component to it, which we'll talk about later. The purpose of the project was to use what families already knew, and kind of what they've forgotten in some senses, and the approach of elders or mentors teaching life skills to the next generations.

We chose four typical CDC targets also based on work that we've done during the WINGS studies showing very high soda drinking and very high candy intake as well a lot of dental caries.

This initial study was a one-year long study with a second year of follow-up group visits. They got 12 lessons over the year, once a month. The home visiting group got a home visitor that came into the home and delivered the lessons. The no-home visiting group received these lessons in the mail. I'm going to show a picture of what those looked like in a minute.

The primary outcomes of the study, were looking at BMI for the children and the caregivers. We had a multiple secondary outcome as would be expected, including dietary recalls, looking at fruit and vegetable servings a day. We did accelerometry looking at physical activity, questionnaires looking at television watching. And then, we had a number of adult questionnaires looking at health behaviors.

This is one of the typical lessons. This is the first one, just introducing the targets. They're all designed to be very user-friendly, low reading level, lots of pictures, and fun to do with the kids and the parents. This kind of talks about goal-setting, setting smarter goals that are easy and measurable, and how to give yourself rewards that do not contain food; as we know that food is often used as a reward in many families, particularly when there's food scarcity.

This is a table that's got the initial intervention materials on it. These had been modified since, but I just wanted to give you a sense of what we're talking about for the first study. There were a number of books in that intervention. There are a number of different kinds of pieces of information for the parents as well as games, et cetera, recipes. It came in that toolkit box at the end, so that would be where they would store all the information.

Lesson Four is just an example lesson to show you. It came with a book called "Little Running Deer Meets Robert". This is an activity lesson. That's a nice book that was written by one of our home visitors about sort of a more traditional boy meeting a more modern Indian boy and sharing what's in their backpacks and comparing their energy levels after eating their snacks.

There's a poncho, there's all kinds of sidewalk chalk and DVD, "Rez Robics for the Adults." So there's always something in the packet for the child and for the adult, which I think is one of the really nice pieces that we had. It was designed to attract the entire family to it. This is a picture of some our group activities. These were held periodically throughout the first year and then there were monthly group activities during the second year that had variability in attendance depending on the tribe and depending on the seasonality.

This is just one of the examples. This is one of our Head Start families that's at the Diabetes Walk, and we used to have nice turnouts at those Diabetes Walks for our teams. This is the Winter Wonderland group session; this was one of our most popular sessions because all the kids got snowshoes that were shaped like bear claws and they really enjoyed learning how to use those snowshoes.

I'm just going to go over some results here. I want to show some baseline results. We had 149 families recruited into the study, 114 finished the study. We had high rates of adult obesity, you can see that over half were obese in the beginning and 36% had metabolic syndrome. It was about 95% female. I think we had three or four fathers in the first study. Primarily mothers, but again, some grandmas and aunties as primary care givers. The child prevalence of overweight was 17%, and obesity 30%, very similar to our WINGS data.

We did not discriminate in terms of who we entered into the study. They could be of any weight category, so we took all comers. We did find that multiple behaviors were correlated between adults and children including television watching times, sedentary activity, and multiple dietary indices. You can see that particularly sweetened beverage intake and sedentary activity time was very significantly related to child's BMI and adult BMI percentile. So those are particularly important targets for us.

In terms of the intervention, after the two years of intervention, we did find interesting results. One thing that I think was the most interesting piece for us overall was that we did not find significant differences between the home visiting group and what we thought would be the control group which was the group that just had the mailed intervention. So, we ended up pooling the results and I'm going to show you results here that are pooled and are sort of more pre-post intervention results because of that fact.

We think some of that has to do with the fact that the toolkits were very appealing, but also the fact that we had more people not complete the entire intervention in the mentored or home visiting group because of either difficulty scheduling those visits or not wanting to have someone in their home every month or other issues.

We see that child food and vegetable consumption increased in both groups significantly, about a third of a serving a day. We did have nice decreases in television watching as well in both children and adults. And in the home visiting group, we did have an increase in adult-reported self-efficacy for behavior changes and health-related quality of life. But that was the only significant difference between the two groups that we found.

I think overall we had very good reception by the communities. They really appreciated all of the materials and information. They loved getting the packets in the mail and talked a lot about that. So overall, this is kind of our sort of -- showing this, we did have, again, more fruit and vegetable consumption, nice TV decreasing, and then we've had decrease in rates of overweight and obesity and I'm going to over that in some detail here.

You can see for the adults, the first year, the very top bar. I don't know if I can show this little arrow thing. Here we go, let's see if I get to move. This top bar shows that the ones that were obese, lost more weight than the other groups but did have a rebound in the year two. Again, the obese category leveled off weight gain which was nice as did the overweight and normal-weight. In normal-weight, participants were able to just gain a much smaller amount of weight. All groups regained their losses during year two. So clearly, year two needs more of a booster. This is pretty typical findings in any kind of research study in adult weight loss.

For child weight, you can see here that we had the nicest decreases. I'm not getting the arrow to work. Well, anyway, the top line shows obese children and you can see they had nice decreases throughout the tiers of the study. In overweight kids, there was initially an increase and then a nice leveling off. And in the normal-weight children, an increase the first year and then starting to decrease, again, in year two. So interesting findings there, but I think we felt very positive about these, that by the second year, we're starting to see some really good changes.

We did focus groups with a number of the families both in the home visiting group as well as the non-home visiting group. So in yellow, you see here the quotes from the individual families. They did report being more physically active, although that was not found to be significant. But much more time spending together as a family, I think that was really important. The other pieces, this kind of mutual reinforcing behavior that we saw between a child and the adult, such as when they went into the grocery store, the child would point out that that was sort of what they learned that had high sugar in it, which I think was an important nice finding.

Again, family time increased, including reading together. Reading was one of the things we heard mentioned a lot, that they really enjoyed the books that we had put together. And we've taken that, many of these suggestions have been incorporated into the next iteration. The other piece is to try and get many more people eating family meals together and having the kids participate in some of the food preparation, which is one of the goals we had in our work. And in our cookbook we had talked a lot about how to get the kids involved and helping with these things, a lot of kind of playing with your food.

From that, we took all of those findings, what we learned from the communities and the focus groups and the families and turned it into what we're calling "Healthy Children, Strong Families Version Two." And that is a very similar program, but it is now in a number of communities nationally and we're rolling out to finish that. All of these projects have been NIH-funded and that continues. This is a similar program. It is family-based again, based on one child in the family and an adult in the family. Although as we said, the packages that come to the home are designed for everybody to use.

It consists of two separate journeys. One is called the Wellness Journey, which is really the healthy lifestyle behaviors we've been talking about. The control this time is a Safety Journey, which is a number of safety lessons. As we know, the number-one killer of children in this age group is accidents and injuries. So again, we encourage parents and children to eat healthy foods. We've also added a "manage stress" component and an "increasing and improving sleep habits" component, as well as the safety piece. They do get the wellness kits in the mail monthly, and monthly safety newsletters, and we'll talk about this in more detail.

The current partners we have are the Menominee Nation, White Earth Nation, First Nations Community HealthSource in Albuquerque, New Mexico, the Seneca Nation, and Blackfeet Nation. We currently have currently active projects at Menominee, White Earth, and at First Nations in Albuquerque. We're about to launch in Seneca and Blackfeet hopefully in the next three to six months.

The healthy lifestyle targets are very similar to our first lifestyle targets that we talked about. However, we have added the improving sleep habits, and improving stress management. One of the things we found in the first study, particularly in the 24-hour dietary recalls was that children were staying up super-late at night, up until, you know midnight, and they were eating that whole time, and so getting a lot of extra empty calories in late at night. And of course, if your three to five-year-old is up that late, you're probably stressed. So trying to improve sleep habits was an important goal for this time around.

The Wellness Journey Toolkit is quite similar, as I said, to the last set of lessons, but it has a book with each of the lessons. We've beefed up some of the content and we've added a text messaging component where families get positive text messaging that goes along with the wellness month theme on a weekly basis, so two text messages a week. They're also able to join a private Facebook group, that's invitation only at each of the sites. For example, Menominee has its own Facebook group that we post content to but that the Menominee coordinator will also post individual content about local happenings, local recipes and things like that on that Facebook site.

We've tried to maintain some of the same feel of the first one, but with a much more interactive piece through social networking instead of the home visitor as that was more expensive and problematic.

So here's an example of the lessons, and these are the names of each of the lessons. You can see that each of them has a theme. Sorry, my arrow again, yeah, not working. Okay.

Anyway, the recipes, games and stories go along with each of these. Many of them are fun things to do both inside and outside because of course, we now have no seasonality to this; because we have people in New Mexico versus up in Northern Wisconsin and Minnesota, so we try to make it, so you can do some of the things that are outside and some are inside.

Here's a picture of the revised stuff that people get. Some of the things you'll see here are divided plates for toddlers and preschoolers that show about portion sizes and emphasize water drinking. There's a "move cube" at the right of your screen, which is the fun thing that we used in the first study and people love. It's a foam cube that they can roll and they can put different panels in there that have activities or snacks, and that's been really well received. Each of the lessons contains a book about that theme. In the middle of the table there, you'll see a safety backpack with a number of safety items

in there, and books. And so, the safety group gets a lot of stuff, but not quite as much as the wellness group.

I will say that people are randomized into wellness or safety when they start the project, but everybody gets everything such that at one year, they switch into the other group. So if you started in safety, you will then end after two years in wellness. If you started in wellness, you'll end in safety. The only difference between the two groups is that the people that start in the wellness journey will get consistently two years of text messaging and Facebook access, so they have a booster year. Versus if they start in safety, they'll only get one year of that. And that was a nod to the experimental design needed to get statistical significance, but also to the importance of having everybody get everything for the tribal communities.

You can see that, that's a Head Start recruiting site, that's what it would like when we're recruiting. Here's a sample of Facebook and texting pages. The Facebook site, again, is closed. We monitor the site and it has positive messages in there, there are some things about setting your clock and getting to bed. Here are some sample text messages which we tested before we started them. Kate and I both get the text messages twice a week so we can track them, which has been useful for us to see when they come and how they affect us. We've tried to make these really positive, so these are not naggy messages about, "Did you do your exercise today?" But, "Here's what you could do that would make it fun." We can look at those, like "Grab the kids, turn up the radio, jump up and down, touch your toes, boogie until the cows come home." So it's kind of fun thing versus a naggy message about, did you do something. And a lot of quick recipe tips that we were told really have been helpful as well.

The safety newsletter was the really interesting piece of this. We had to have a control group, but we felt we wanted to use something that would be of use to people and deal with a problem that was also prevalent in our communities. Menominee actually was the impetus for safety as they really have an emphasis on this. And so, they helped us design some of this. We worked very hard on trying to find a safety curriculum but couldn't find anything that put everything in the same place. We worked to put this all together, and now this is a safety curriculum with lessons that they get every month; stickers, games, again safety items. We measure participants at the baseline when they first enter the study and every six months thereafter. So at the six months and 18-month visit, participants will also get a gift that helps them stay in the study.

Here's a typical safety newsletter, this has to do with household safety and looking around your house and trying to figure out where you would want to maybe make some changes and how those could be done. Again, we've put these together to make them colorful, easy to look at and easy to read. The local information about poison control centers and numbers would be placed on newsletters depending on each site.

Some of the benefits to the families, I think are-- some of them are very tangible in terms of cash. At the beginning of the study they get $50 in one year, $50 and at the end, $50 to have all the measurements taken and fill out surveys. But I think the more intangible benefits are trying to work together as a family on the different pieces as they come into the home. We do have incentive items in each of the boxes. One of the things that are really exciting is getting a present in the home you know, once a month I think is really exciting for children and families. And there are all kinds of fun stuff in there. Our office looks like Toys "R" Us because we ship the stuff out all the time. So it's kind been for us, but it's also interesting. I'm trying to think of anything else to say on there. It's really trying to build self-efficacy for maintaining and initiating behavior change in a positive way.

The reason that we chose to work really early in life obviously is some of that early data that I showed you earlier, but also because we know that food preferences and physical activity are set really early. So the earlier kids get to try new foods, and try new activities, and set up routines, the more likely they are going to be to maintain those into adulthood.

And of course, this is of course a chronic disease and diabetes prevention intervention, but as you've seen, I have not called it that throughout the study. We did a lot of work with the communities in the beginning really understanding how families defined health, and how families thought about overweight and obesity. And it was clear that there was no understanding of the connection between overweight and obesity and later health in children, or a desire to really prevent overweight obesity. In fact, lot of the WIC people would tell us that people had contests to see who had the biggest baby. So we thought really dealing with it from a strength standpoint of strength of families and health in families was going to be the way to go. And I think that has really paid off for us, and been a much more positive frame on it.

Here are some final thoughts from the first families in the study and I think just some nice quotes about trying to do new things, trying to break the cycle of how they've done things in the past and being more involved in these kinds of things with their families and as a group together.

I think I'm going to do some conclusions, so we have quite a bit of time for questions, I know we've got lots of people on the line that may have thoughts or questions or things that they are doing, and I did want to go over some resources. One of the things that we've found that is community-based data, local data really helps the communities think about change themselves, both with sending people their own data at the beginning of each of the projects so people get their own data that they can track and then also, having the communities have all of the data. Many of the communities have used our data to get additional diabetes money or other kinds of grants, and that's been really helpful.

The other piece I talked about is avoiding the stigmatization or worrying about the numbers and using evidence-based approaches to intervention. We knew that we needed to work early. We knew that school-based work didn't engage parents and that was really important. We also knew that working on something called obesity prevention or diabetes prevention wasn't necessarily of interest to these young families. And again, using how the community focuses on health, how the parents felt that a healthy child was a child that was a happy child, and so, really focusing on making that a goal.

And then of course, we worked very hard in my group about long-term partnering with the different communities to help them promote effective interventions. And we worked on a lot of community-based work as well in terms of changing the community environment, Head Start policies, et cetera. But I didn't go through that in the talk, I will be happy to talk about that in the questions if anybody has any questions.

I also want to thank all the kids and parents participating. We have probably over a thousand parents and families that have participated in the Healthy Children research so far, so that's been very exciting to us, and we're very grateful for them for working with us. This is our contact information. We do have a website, that website will take you to—it's a more academic website but it does have all of the newsletters that we gave out during the first Healthy Children project. Those newsletters are monthly and they're thematic. So for instance, Thanksgiving would have tips about healthy Thanksgiving eating and not overeating, and some games to play, et cetera. We don't use those newsletters anymore, but they were used in Healthy Children 1 and all of them are available on that website and can be downloaded and modified if you like.

I wanted to go through some of these internet resources because I think that's one of the things I see is it's often hard to figure out where this kind of information is and where a curriculum can be found. Our particular curriculum is not available just yet because we're still testing it. But I talked about the newsletters that you could get, the very first resource there is the White Earth Childcare Conference. White Earth, which we worked with, has a very strong emphasis on early childhood development and improvement of early childhood and prevention in that early childhood setting. They hold a really great

conference every year, and I'm just going to plug for that this year. It's this summer, I think, in July or August. Okay, it's August. Anyway, it's really, I think, well-attended and worth going to.

Myplate.gov, many of you probably use, but I think it's better than it was, it's better than the old pyramid and it has useful information on there for kids where you can plug in data as well. I put in brightfutures.org which is a general reference for pediatric guidelines, for pediatric health, just because some people don't know about it and it's nice. NCCOR is a national organization that's for childhood obesity prevention, it has a lot of good references, multiple links; and again, more research oriented, but a nice place to find evidence-based information.

Then the next two are ones that my fellow, Emily, suggested. The first one comes out of the University of North Carolina and it's North Carolina Tools for Healthy Tribes. That's more of how they looked at what was going on in the tribes with some suggestions. I don't think it has any evidence-based research in terms of what to do in there yet. Then there's, again, another RWJ report on American Indian food system challenges in New Mexico, and that's this following one, so they're both interesting references.

And then lastly, I've stuck up our Department of Health Services at Wisconsin website. This is I think one of the best state websites. We have worked very hard in this state on multiple different settings and what works in different settings from early childhood, to schools, to healthcare, to communities, to work sites. All of those documents are on there, they're all evidence-based and it also links to multiple other governmental sites so you can find the links on there as well as some of these links that are on our Healthy Children, Strong Families' site.

Two curricula that are free on that site that I wanted to point out. One is called Active Early and one is called Healthy Bites. The first one, Active Early, is an evidence-based curriculum for increasing physical activity in pre-school and early childhood settings. Healthy Bites is still being tested. But those are both free curricula, which are hard to find any free curricular anywhere, so I just want to point that out. Again, those are not individual family-based, those are more center or small childcare-based, but I think they're still very useful pieces to know.

With that, I think we're going to switch to questions now. I just want to make sure that I covered everything, so I think we're there. So let's maybe go.

Jan Frederick:

Okay with that, Dr. Adams, we've been capturing the questions. So if you would like, I can read those questions for you.

Alex Adams:

Okay.

Jan Frederick:

Okay. First of all, Monica from California says, "Thank you Dr. Adams." And then, "Would you provide a rough estimate of the annual costs for the Healthy Children, Strong Families program, including both the intervention and control groups for a specific number of families? We would like to see if we might be able to fund such a program with our SDPI grant funding."

Alex Adams:

It depends on whether we're talking about the Healthy Children program; I mean the wellness journey, or the safety journey. The safety journey is definitely cheaper. We're talking between $300 and $500 per family for all of the kits and information in this program. We also end up paying for a coordinator at the local site, but that could be a person who's already working at the tribal site if you were doing it internally.

Kate Cronin:

Keep in mind local mailing.

Alex Adams:

Yeah, and of course, we're shipping from Wisconsin, so if you were handing them out, it would be cheaper then because we do all the mailing centrally. So we have a high mailing cost.

Jan Frederick:

Okay, thank you. Then we have a guest, guest number two, who is asking, "Are there any plans to implement this program in other communities other than the ones discussed? For example, how can we here at the Miccosukee Tribe participate in such a program?"

Alex Adams:

Thank you. That's an excellent question, and I always get asked this question whenever I present this nationally. Ann Bullock and I have had discussions about this on several occasions, and one of the things that we're working to do is to see, does this project work in this new format, and if it does, then how we could potentially get it disseminated to tribes nationally. Hopefully, we'll know that in the next couple of years. In the meantime, Ann and I are working on hopefully IHS being able to distribute some of the products that we've already created, such as our cookbook and our games book, and one of our other books, a sleep book that we developed.

But right now, those are not available. As soon as those are, we will let everybody know. But that's something we've been working on. I think our goal has always been to try and create something that would be useful for tribes nationally because we know that this is a huge lack. There's really nothing in the diabetes prevention world for young children, particularly in these communities. And so, hopefully, that will be something that we can get done in the next few years.

Jan Frederick:

Thanks. Here's another question, this one is from Helen in California. "Maybe you could describe how many staff worked with you on creating the newsletters, sending out the gift boxes, providing the instructions, et cetera?"

Alex Adams:

I'm going to let Kate answer this one because she manages the army of undergraduates that are our small production company here.

Kate Cronin:

Right now, we are sending mailings to about 300 families, and by the end of the study we'll be sending mailings to close to 450 families. So it's certainly time and labor intensive. We do have several computer databases that help us to set up the scheduling and keeping track of who gets what and

when. But I am 100% FTE, we have another 50% FTE research coordinator, and we have probably at this point right now four students who work hourly throughout the week who help us with this. It is certainly an undertaking. And you know, Alex likes to say that we certainly have sort of the shipping and packaging and manufacturing.

In terms of who we had help us to develop these materials, we really did work with national experts on the safety prevention and we also got input from all of our sites on what are some of the safety issues that they would like to see addressed, which is why you'll notice that we have one of our safety newsletters is discussing ATV safety issues. But we definitely also went to the communities that we were working with to find out what some of the issues that they wanted to see in both the Safety and the Wellness Journey.

It really would be dependent on how many families you're expecting to reach, and how you would disseminate the information, whether that would be in conjunction with like a WIC pick up day where people are actually coming to you to get the information, versus whether those would be mailed to the families.

Alex Adams:

Yeah. I think that, also, our undergraduates, just to be clear about that, they work on all the data entry, which is a huge job because we have about an hour-and-a-half's worth of surveys that people do at the baseline and at the one-year visits. And so, that's quite time-consuming. So I think, again, part of what we're trying to do as we're turning this from a research project into a program, we'll have to look at some of those pieces and see what can be streamlined, what can be made cheaper, obviously, you're not accumulating the same kind of level of data collection we would be doing from our end.

Jan Frederick:

Thank you.

Alex Adams:

Next question, maybe.

Jan Frederick:

We have a couple of questions from Darien and I'll read them together. First is, "Are the education books available to schools and is there a cost?" And then along those same lines, "Will or could today's program be available to public schools to listen to? Many are interested in family education."

Alex Adams:

I'll probably address the first question and then see if anything else comes up. Most of the books that we chose were publicly available books, so we could make the booklist available to people if they would like that. We did use the four CDC Eagle Books, and those are very nice books and are available free from the CDC. Two of the books we wrote ourselves, and so those are not available. But all of the other books are available books like "Berenstein Bears - Too Much TV" you can get from Scholastic. And so, a number of these would be available fairly cheaply if you got them in bulk. Is that about right, Kate?

Kate Cronin:

Yeah. I mean the rest of the books are obviously children's books geared towards children and fit with the topic of the lessons. So we collected books like "The Very Hungry Caterpillar", "I Will Never Not Ever Eat a Tomato". There are a couple of Berenstein Bears books. One of them is safety-focused. We could certainly make that list of the books available, and we can also give you the resources from where we ordered them. There are several bulk books websites that you do get a significant discount; and if you are educational, you can get an even bigger discount.

Alex Adams:

Right, if that's helpful we'll make that available. The second question was, "Could today's program be available to public schools to listen to? Many are interested in family education." I guess if that was the case, Darien, I would probably want to modify it so that we could talk more about some of the family and stuff that we did in engaging the family. Obviously because I'm a family physician and I have a family physician frame, but also because we felt that when we started doing the work, we had families bringing their children to get screened and they also said, "But we also want to be screened." And so, we really realized that addressing both the parent and the child simultaneously was the best way to go.

And when we send out the letters to the parents about their own data, we send the kid's data with them. I think we try and have that framed as a family issue. So that's been an important piece of engaging everybody so that it doesn't feel that anybody is being selected out. I think that's been key.

Jan Frederick:

Thanks. I also wanted to let everybody know, we did put links up in the chat box there. We do have a My Native Plate and also the Eagle Books that you mentioned, that can be obtained from the Division of Diabetes website, the online catalog. We have the links for those up, and those are available to you all at no cost. So just go online and order those if those would be something you're interested in. We have a couple more questions so we'll move on to those. Charles is asking, "Could gardening, from containers to complex gardening, be an effective part of Healthy Children, Strong Families?"

Alex Adams:

We have one lesson that does actually give out seeds and talk about container gardening. So that has been something we've tried to emphasize as a potential, because I think that getting into gardening for children really helps them want to try this thing that they grow.

Beyond that, in our first Healthy Children, Strong Families, we had a significant component of the grant, was to work on helping communities set up their own interventions at the community level. And all three communities, Lac du Flambeau, Menominee, and Bad River have worked on community gardening as a part of that. I would say that the community advisory boards that we've worked on helping set up are all going strong now without research funding, particularly at Menominee. And they have worked very hard on their gardening initiatives. Menominee has a school orchard, a school garden, multiple community gardens.

What they found actually was that the community gardens did not work as well, they initially tried that in a very big way, they had about eight community gardens, that took a lot of effort to maintain. They found that actually helping people with individual gardens in their own backyards helped better. So now they go till for people and they give people seeds and small plants. That's been a very effective way of increasing fruit and vegetable consumption there. Obviously, each tribe is different on how they want to do that but that has worked really nicely in terms of availability. We also had a garden at Menominee right outside of the food distribution center so people could also kind of pick things as they went and got their commodities, which was a really nice piece as well.

Kate Cronin:

And the reason that we focused on container gardening for this intervention was also due to the fact that we're rolling this out nationwide, and we do have urban communities in Albuquerque that are participating who have less access, when they're apartment dwellers, to land that they can till. Mostly it was really, it sounds corny, but it was to plant the seeds, to get people interested, to get kids excited about it, and then hopefully they would take it from there. But in terms of having it be a realistic option, we thought that the container gardening was something that even if you had a windowsill or a small balcony, that you could do.

Alex Adams:

I think we give a tomato plant because it's the easiest thing to grow.

Kate Cronin:

And carrots.

Alex Adams:

And carrots, yeah.

Jan Frederick:

Thanks. We have another question. This is from Joseph. "Children are more likely to make healthy changes when they feel good about themselves, do you have any programs that help foster self-esteem?"

Alex Adams:

That's an excellent question and I think we have not directly addressed that in each lesson, but I believe that we indirectly address that in each lesson. And the reason is that the package is always addressed to the child. So it's like, "You're special. You're getting this package and you are special." The other piece of that is there are pieces in the package that are just for the child, like the book and some of the games. And then some of the pieces are just for the adults. So it really fosters that. Here are the pieces that are for you, these are things for you to do. Here are the things for you to do together with your parents, or your grandparents or whoever is in the household.

I feel like we have worked hard with the initial mentors that we had that were going into the homes, as well as trying to understand from the families what helps build a sort of family self-esteem, if you will, in terms of how does the family feel good about itself together. And I think you'll see from some of our quotes, that was some of the things that we did find, that families felt better about being together as a family whether it was a single mom and a kid or whether it was a multi-age family or in terms of a generational ages or what. So the self-esteem per se is not something that we discussed overtly, but I think it's definitely in there.

Kate Cronin:

And many of the activities really focus on getting the child involved. So, a game where they figure out by spooning out teaspoons of sugar, how much sugar is in drinks. What we have found, and Alex referred to this in her presentation, is that the kids remember this stuff. And so then, they really become the change agent when they're in the grocery store and they say, "No mom, that has a lot of sugar in it, we're supposed to be drinking water." And parents have commented on that that, they may

fall off the wayside but that their kids remember and really bring them back into focusing on healthy lifestyle behaviors. So even though it's not a directly-addressed component of the intervention, I do think that that it is there, and we certainly encourage that.

Alex Adams:

Right, because many of the activities are very hands-on and very designed to have the kids do the hands-on things. And there's a lot of playing with food involved, which I think helps kids get more engaged in what does food look like and how does it feel and then how does it taste? And so, that makes you have more stuff up to see that way, if that's a helpful comment. Are there any other questions?

Jan Frederick:

I think that was it on the questions. Dr. Ann Bullock, the Acting Director of the Division of Diabetes is with us. Dr. Bullock, I'm going to invite you to make any closing comments before we put up the link for the CE evaluation and the certificates.

Dr. Ann Bullock:

Thank you so much Dr. Adams, this is wonderful information. You can tell from all the questions in the chat that as we expected, once you start talking about it, people will want to be able to implement it in their communities. And as you pointed out very clearly, it's still a research project but we hope in the next couple of years to be able to have it be translatable both in pieces, as you said, with some of the books and other things becoming available, and maybe some of those even soon, like the cookbooks; but the whole package, perhaps, within the next year or two as the research allows.

I just want to reinforce that we are all trying to explore the new science that's coming out about how early in life the risk for obesity and diabetes takes place. By the time we have a heavy child who's in grade school, it's already a process that's been happening for a number of years and there are many things that factors into it; in the in utero, in the first couple of years of life, that graph that Alex showed at the beginning, just how fast the normal, obese, and overweight kids differentiate, really, within the first year of life is telling us that a lot of things are happening for better or for worse for children very, very early.

So how do we work with this new science? How do we do this? We wanted to bring you, even though it's not quite ready for dissemination yet, but to hear about this work that Dr. Adams and her colleagues have been doing. First of all, I want to say I met Dr. Adams a number of years ago at the Menominee Reservation. In terms of community-based participatory research, Alex and her crew had been doing a stellar job at truly partnering with communities and not just giving it lip service. And that, in it of itself is wonderful and worth mentioning.

The other thing is that as she was just talking about in that self-esteem answer, there are many things built into this besides just "behavior change." This is about parents and children engaging with each other. So in a sense, promoting parenting and teaching parenting interventions in a subtle and very positive reinforcing kind of way, and helping children to feel special with getting this wonderful package in the mail each month. But they're also now working on sleep. Sleep disruption and poor quality of sleep have been shown to be quite a risk factor for obesity in adults as well as children. So just helping to physiologically regulate ourselves, having children being able to get regular sleep is so important.

So into this seemingly simple intervention are so many things that have been worked in and built in. We wanted you all to hear about that today as we continue our exploration of this new model, what the science is telling us, about obesity and diabetes and how early that risk is built in.

I really want to thank Alex and her colleague for taking the time to be with us today. For those of you who want this program, as all of our Advancement Seminars, will be available on our website, the recording and the slides within a few weeks. So if you want others to be able to hear it and see it, they will be able to do so.

Anyway, I just wanted to close with those thoughts and comments. We'll continue our exploration of early life intervention for diabetes prevention in the months ahead. Thank you again, Alex, for a wonderful presentation.

Alex Adams:

Thank you so much. Good luck to everyone, and feel free to look up our stuff on the website.