- To be honest, it is a complete surprise. I always see the CDC as a big, big dream. Like, I cannot believe I'm here right now. I cannot believe. It's like, Oh, like I'm in the big leagues. Like I'm here, I'm where I'm supposed to be, and it's where I'm going to have more opportunities to go wherever I want. If I want to stay here, if I want to go to another city. I think this, it was the, it is the best opportunity that I had in my life.

- [Announcer] This is the, "ORISE Featurecast." Join host, Michael Holtz, for conversations with ORISE experts on STEM workforce development, scientific and technical reviews, and the evaluation of radiation exposure and environmental contamination. You'll also hear from ORISE research program participants and their mentors as they talk about their experiences and how they are helping shape the future of science. Welcome to the, "ORISE Featurecast."

- Well, welcome to the, "ORISE Featurecast." As ever, it's me, your host, Michael Holtz in the communications department at the Oak Ridge Institute for Science and Education. And I think for the first time on the, "ORISE Featurecast," I'm joined by my podcast co-host, Matthew Underwood. Matthew, welcome to the, "ORISE Featurecast," side of the house

- Thanks, yeah, I appreciate it. This is my first, "ORISE Featurecast." I'm really excited to kind of delve into some of the things that ORISE does and some of the topics that we talk about here. So, I'm really looking forward to it.

- I've gotten an opportunity to meet some really great ORISE research program participants, and we have another one of those amazing people with us today. Karen Valdez is at the CDC and we're gonna learn all about her background in science, how she got to where she is, what she's doing at the CDC, all of those great things. So, Karen Valdez, welcome to the, "ORISE Featurecast."

- Thank you.

- So, I know you're at the CDC. Talk about what your role is at the CDC.

- So, as an ORISE fellow, I work mostly in the laboratory and then I can also join conferences, I can also do scientific presentations and I can also attend some of these journal presentations.

- Awesome, so in the lab, Karen, what are you studying, what are you looking for?

- So we are working on next generation sequencing. We are trying to validate an assay to be able to test these tick-borne diseases, but in a more efficient way. Right now the testing methods are really specific and if you want to test something specific, you have to run an experiment and then after that you have to run another. And then if you want to test specifically for the diseases, it will take like several weeks.

- Okay.

- With this assay that we are trying to make work, we're trying to use one to be able to do, we are trying to use one experiment to test for all these pathogens. Also, another good benefit is that in case there is novel pathogen, we will be able to know to not to discover it, 'cause it may have been there already, but we'll be able to know that it is there.

- Okay, so basically you'll be able to determine that there's a pathogen and what hopefully what that pathogen is, right?

- Yes, because with the traditional methods, if you don't test for something, you will know if it is there.

- I would assume this is really important work given what the world's just been through with a pandemic so being able to determine diseases more quickly is a benefit to everybody.

- Yes, it'll be, and also the diagnostics methods that we have right now to test for tick-borne diseases. The tick-borne disease have really specific symptoms. And sometimes it's really, they're all really similar. Sometimes it's really hard to even know it is tick-borne disease. So, this will help with that.

- Gotcha, so you're looking at tick-borne diseases in particular?

- Yes.

- Okay, gotcha, that makes sense.

- How would you say coming into this, how have you grown? How has your ORISE appointment helped you grow as a scientist and as a researcher?

- It's been a long, oh, I'm sorry. Are you trying to ask how I started?

- Yeah, like how has this appointment at with ORISE helped you grow with the CDC and what have you learned since you've been there that you didn't maybe expect to learn along the way?

- Yes, well, so to begin that just the fact of being here at the CDC, it's been really as an opportunity and I never, in my life, I thought I was going to have this opportunity. Through my graduate studies, I was able to learn about tick-borne diseases and my project was related to diseases. However, I didn't have all this technology. I didn't have like all these people around me that I can go and ask them questions. Like just, I don't know, like every day I learn something new. And for me, this appointment, it changed my life. Like, it is been a year already here for me. And like, just looking back, I have learned what I was able to learn in four years maybe in the university.

- Gotcha.

- And also here it's like if I have to troubleshoot something when I was in the university, I would have to like research for days, research for months to be able to know why something was not working here without, like, if there is like a lot of amazing people that can also help me to think like, Hey, why are you doing this? I think I'm thinking more, not as a student anymore, I'm learning how to troubleshoot all these problems. Like, 'cause even though like there is someone here, my mentor is always there to tell me like, "Hey, like what if we do this?" He's always trying to push me and ask me like, "So, what will you do next?" And I think that is a really big change in my learning.

- Since you brought up the topic of your mentor, talk about the importance of mentorship. It sounds like you have a really great mentor at the CDC. Has that always been the case for you? Have you always had really good mentors to help guide your career?

- Yes, so it was really different for me when I was in graduate school. My mentor will not go to the lab. He will like tell me like, "So, what is your next plan?" And I will have to figure everything by myself in the lab. I had to learn from other graduate students, which was a really good opportunity too. But he was never there to tell me like, "Hey, no, you are doing this wrong, and you're not supposed to do this." And my mentor here, I have the opportunity that he, if something is not working, he will go with me and he will like be like, "Okay, let's do it again. Let's try to figure out what is not working." He has asked, like every week we have meetings. I can ask him about like in every meeting I can ask him if I have any question about related to tick-borne diseases or even about the issues that we are doing. We make a plan of the week and he told me like, "Okay, you have to do this and that." And then by the end of the week I go, I show him the results. And then like it's really productive and I think it's a really efficient way, 'cause I'm not here just waiting around on what to do. And also I think I have a lot of initiative of, okay, I want to do this. We have a journal club and I have been wanting to present and I'm finally going to present. And for me it's really exciting, 'cause it's really, it's something that I really enjoy to do as well. And for me to be able to talk publicly about science with people that have a lot of knowledge in the topic, it's a big deal because I know that I have to prepare well for the presentation. And even though it's something really informal, like I know it's going to help me and I have been reading about what I'm going to present and I can also ask my mentor about these questions like, "Hey, I didn't understand this part of the scientific paper. Will you explain me like what it is?" And it's like, it's been, I think, is that this mentor I have ever had.

- Okay, that's fair. And that sounds great. And it sounds like given that you are eyeing presenting and writing papers, that you're getting scratched as well, right? You're getting pushed to do more and things you've not done before, which is really exciting.

- Yeah.

- So talking about mentorship, have you had the chance at any point to mentor other people throughout your early scientific career?

- Yes, I was able, when I was in my master's program, like there were a lot of under undergrads that will want to go and learn. There were several programs in my university where they will pay the students and then they had the opportunity to go and learn.

- Okay.

- And like since there, during the university, there was no one working in tick-borne disease. And I was the only one, so I had to teach them whatever I had been taught.

- Gotcha, so you were definitely laying down some new knowledge for students who weren't working in your area.

- Yeah.

- Karen, has science always been an interest for you or did your interest in science come high school, college? Or was it like childhood curiosity that led to wanting to pursue a career as a scientist?

- As far as I remember all my life, I wanted to be a dentist.

- Okay.

- I was able to be in dentistry school in Mexico. It was kind of hard for me because my parents are Mexican and they were working in Mexico.

- Okay.

- So I couldn't go to school in the United States because of that. And we were living in the border city. A lot of people cross every day to school, but they never let me do this. They were always scared of me going by myself. And when I turned 18, I told them that I wanted to come to the United States to study. And they said, no. They told me to enroll in school in Mexico. And then I was like, "Okay, but I'm going to enroll at the same time in the United States because I want to learn English."

- Right.

- And I was going in the morning to dentistry school over there and in the afternoon I was taking ESL as English as a second language. But I think it was two years like that and I got really exhausted. And I finally told him that I didn't want to be in Mexico. I didn't want to study over there. And I just decided to just move forward in the United States. I asked a lot like how I can get a dentistry career in United States. And first I had to do my bachelor's and then I had to apply for dental school. Through this time, since I had already been working with patients in Mexico, I got kinda like, I used wanted to start working in that field.

- Okay.

- So, I got a dental assistant license and I started working over there in El Paso while I was still taking some basic classes because even though I had a dental assistant license, I wanted to keep studying, get a bachelor's, and after the dental degree. However, when I was over there working, I didn't like it. I didn't like the environment of a dental office. I got bored and then I was like, "Maybe this is not for me." But through this time I had the opportunity to apply. There was a program at that, it's called Bridges to the Baccalaureate. And they were going to pay me for the summer to go and do research at the university, 'cause I was in a community college and this will help students for the transition from college to university.

- Okay.

- And this is what changed my life because I started doing research in mosquitoes and then I did like it a lot. I was like, "Wow, this is really different." And then it was, I think for two months I was able to present. I really enjoyed to present. And to learn, like there were people there teaching me how to identify mosquitoes. For me it was like, "Oh, this is cool." But since I had never had the opportunity of something like that, I didn't know I liked it. And then I decided to quit my job as a dental assistant since I was not enjoying it. And then it was taking a lot of time of my school time. And then I applied for another program. And it was for Hispanic students.

- Okay.

- And they were able to pay me for another year to do research. And then I kept working in that same lab laboratory working on mosquitoes, which increased my desire to keep doing it. And then it was when I decided to become a scientist.

- Okay.

- That's awesome. So just take me through, how challenging was it, you know, that first migration to the United States and how to learn that different language and culture. Just take me through that experience. What was that like?

- Okay, in the border, I don't think it was a big challenge because most of the people in El Paso is Hispanic. Mostly everybody speak Spanish, which it wasn't too helpful either because it make harder for me to learn English. It was different, but I did enjoy it. I was never sad or because I really, I had a goal of like wanting to get my bachelor's and I wanted to demonstrate my family that I had took the right decision on like quitting school in Mexico. However, when I moved here to Atlanta, it was a big cultural challenge. I'm very happy and I really want to stay here. I want to make my life and I want to make here my career as a scientist. But I did find different cultural backgrounds here. However, it's different too. I like it because there is a lot of people with a lot of dreams, with a lot of goals. Like I can have like really good conversations with other fellows that, and we are like, Okay, yeah, let's do this. Like let's learn this. We need to get all the skills we can for now that we are fellows. It's not real work. We are here to learn.

- Right.

- And that mentality for me, it's making me grow a lot as a person. And I like to be around people that want to do great things.

- That's great. And it sounds like you found a really good group of people to hang around, be with, learn together. Basically do your career with, right?

- Yeah, also another like, I think important thing that helped me a lot is I met my husband in El Paso as well.

- Okay.

- While he was doing his PhD I was doing my master's, we graduated at the same time and we both applied for ORISE. We were both able to get positions around the same time in February. And I think this is what has been helping me the most because we are in this together.

- Right, right.

- Yeah, like we were frustrated like, hey, what if we, because first I got the fellowship and then he didn't have an offer yet. And we were about to move. We got married in November, we graduated in December. And we were worried because we were like, "What are we going to do if he didn't get an offer?" And also like that I consult with him about, so I have been learning this and that. It's really exciting.

- Right, that's great. And what are your long-term aspirations? Do you see yourself staying at the CDC? Is that what you want to do long term?

- Yes, definitely. I would love to work here as a full-time. I really enjoy the environment. I come happy to work. I go happy into the lab. Like the meetings 'cause it's always learning, learning, learning. Like I will really like to stay here.

- I know your parents, you said that your parents wanted you to stay in Mexico. How are they feeling now that you're at the CDC and you're in Atlanta? And are they supportive?

- Yeah, I think they're really proud of me. I guess they are sad. We are like so far away.

- Right.

- And then like the Mexican culture, it's always like been together.

- Right.

- Like, it's not something too normal for the kid to go far. But yeah, like they are proud and they are happy that I have been able to become some of my dreams true. Yeah. I think, yeah.

- Okay, great.

- That's awesome. It really interests me talking about all the people, wonderful people that you have to work with and that collaboration. What has that been like to, you said even talking to the other fellows about research, how has that helped you being able to talk to the people that are in the same position you are and learn from them and they can learn from you as well?

- Yeah, especially with a, well, Adrian Harris works with me and we would, we both got the job like, like around the same time. And we are working on the same project. I work in the lab part and he works in the bioinformatics. So like all the data that I do in the lab, it's sent to him, and then he has to analyze it. And I have been learning a lot from him too, 'cause I didn't have any background on bioinformatics. And it's something that I have never done. And it's been good to be able like to talk to him and he like really enjoys bioinformatics and he explains it to me over and over in like 20 times, 'cause it's like so hard for me to understand it. But yeah, like I think now, like if someone is talking about bioinformatics, I will probably know what they are talking about. And before I will be like, I don't know what they're saying.

- You talked a little bit about how you were raised in Mexico in that transition and just now being at the CDC. Is this what you imagined when you made that first step to kind of go to that community college and then go to university? Is this where you saw yourself being, or have you just been on the ride and this was a complete surprise of where you ended up?

- To be honest, it is a complete surprise. I always see the CDC as a big, big dream. Like, I cannot believe I'm here right now. I cannot believe. It's like, Oh, like I'm in the big leagues. Like, I'm here, I'm where I'm supposed to be and it's where I'm going to have more opportunities to go wherever I want. If I want to stay here, if I want to go to another city. I think this, it is the best opportunity that I had in my life. I can remember when I couldn't even order anything, like any food or anything. And now the, like, I can see years back and for me it's like, how did this happen? How did I do it? And sometimes I doubt of myself, which I know is bad. And if I'm here it's because I have the capability of being here and learn. But sometimes I just don't believe it. It is just like a dream for me.

- That's amazing. Karen, basically as a Mexican immigrant to the United States, how important is it from your perspective to one, see other Mexican Hispanic scientists and how important is it that you, you know, other young people who are interested in science, who live in Mexico or who live in El Paso or to see you achieving your dreams, being in a place that you never thought you would be, that you've achieved this huge goal of working for the CDC. How important is it for you to see that kind of representation and to be that representation for young women who might follow in your footsteps?

- Okay, so to start, for me it was like, it impacted me a lot that here there is not a lot of Hispanic people. And I think like, like in branch, like there is only another Mexican lady and me. And for me, it was impacting. But the only thing I can tell to people is that you can do it if you believe in yourself. And it's not going to be easy. It's hard, it's challenging, but everybody can do it. Like, and there are a lot of opportunities out there and we already have the, no. I think that if I will have not take those opportunities, I will not be here. Like there are a lot of programs and sometimes we hesitate to apply to them, but it's you just need to keep trying and trying and try to learn and get the most skills that you can. I will say that networking, it's really important too. And it is what has been helping me a lot too.

- So networking with other people, other scientists, other fellows in the CDC.

- Yeah, but also like, especially in school, in the community too.

- Okay.

- 'Cause like, it's like, "Oh, like I'm doing research." "What kind of research?" And it's like, "Oh, like it gets you your interest." Like, "Hey, if you want, you can come and learn about this or that." And then like, you need to try different things, 'cause in my mind, my mind was always said to be a dentist and then now that I'm a scientist and I really enjoyed this, I'm like, I'm so glad I had the opportunity to try new things and actually see what I really liked.

- Right, and took the chance to do the work and take the ESL class and do all the things that led to where you are, right? It's wonderful.

- So we've talked about your early childhood and how you got to where you are and your early education and how you got to where you are now. Is there anything else throughout your journey that we haven't talked about that you think, you want people to know about?

- Yeah, well just that, like, I just want to let people know that I didn't know any English. It's a complete different language.

- Right.

- And so if like I have noticed that a lot of people that know the language don't take the opportunities. And I will say to that, people like to not let those opportunities go. And I know there are a lot of programs for Hispanic people or for minorities. However, I think that everybody should have the same opportunities. Not just because you're Hispanic or not because you're a minority. Like everybody should have the same opportunities. And I know a lot of where I am right now, it's because of those opportunities. But I will say it's mostly because of who tries and who doesn't try. No, it's not about like about your background.

- It's about putting yourself out there.

- Yes, like no matter if you're a minority or not.

- Okay, that's fair.

- And how much does you know you talk about taking the opportunities when they're available. How much does just your love for the science, how much is that built into it? You had this goal and you just wanted to achieve that goal. How much has that driven you to where you are?

- Can you repeat the question?

- Yeah, when you get these opportunities, you talk about some people, they see the opportunities and they don't wanna take those opportunities. What kind of drove you to be the one to step out and take those chances and do what you're doing now?

- I think mostly because I wanted to show people that I could do it and I wanted to show my parents that I was going to be able to succeed and that the decisions that I took were the right ones. I think it was like at the beginning that. I also remember, like, I had a class, a government class and I failed it because I didn't even understand when they were talking about political parties. I was thinking they were doing parties. I was like, and then it was so hard for me to actually learn like government or history, 'cause I was never taught that since I was little. And then that really pushed me, like I guess whenever someone tells me that I cannot do something is whenever I get more push. And then it was when I was like, "Okay, I really need to learn this." And I will ask people like, Hey, I don't even understand what is a political party. And like, yeah. Like just, I guess it was me wanting to learn, me wanting to become different, me wanting like to become my dream true.

- Gotcha, that's awesome. Last question for you, Karen.

- Yes.

- What brings you joy?

- This like, to be able to work here, to be able to learn every day. To be able to understand what I was not able to understand years ago. I know that in this field I will always be learning. Not everybody knows everything. But for me, the fact of like not understanding something and then being able to understand later, like it for me is happiness. It brings me joy, 'cause I remember years ago I will be in scientific presentations where I was totally blank. Like in that government class where I was there for an hour sitting down not understanding what they were talking about. I was like that too. And now I'm actually able to understand like when they talk about the methods and not everything. Because for me there are like a lot of things that are still hard. I think the most that I have learned is been out of school. And yeah, I think that.

- Okay, awesome. I love that, great answer. Karen Valdez, thank you so much for spending this time with us and letting Matthew and I get to know you a little bit and learn about the science that you're doing. I really appreciate this opportunity.

- Thank you so much.

- Have a great day. And, Matthew, thank you.

- Thank you, Michael. It's always a pleasure being with you and chatting to interesting scientists and researchers.

- Absolutely, thank you.

- Thank you.

- Thank you, both so much. Have a great day.

- You too, bye-bye.

- [Announcer] Thank you for listening to the, "ORISE Featurecast." To learn more about the Oak Ridge Institute for Science and Education, visit orise.orau.gov, or find us on Facebook, Twitter, and Instagram, @OriseConnect. If you like the, "ORISE Featurecast," give us a review wherever you listen to podcasts.

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