



COVID-19 Testing Changes Trajectory for Doctoral Student

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Bianca Rendon finds “the joys in craziness” a key part of The Institute for Environmental and Human Health’s COVID-19 Testing.

Spring 2020 was supposed to be business as usual for Texas Tech University doctoral student Bianca Rendon. However, spring 2020 was easily the least “usual” semester in recent history as the novel coronavirus swept the planet. What used to be a clear path to a doctorate, was now anything but for Rendon.

She became a key part of The Institute for Environmental and Human Health (TIEHH) efforts to assist the Centers for Disease Control in testing for COVID-19 and the variants soon to follow as part of the Laboratory Response Network.

In my conversation with Rendon, I discovered she is one of four siblings in a close-knit family from McAllen, Texas. It is the drive and determination nurtured in her family that she would need to go from studying mosquitoes to being a key member of Steve Presley and Cynthia Reinoso Webb's team testing for COVID-19. Rendon worked day and night—learning, testing, practicing—and then there was the fire.

How did you end up at Texas Tech?

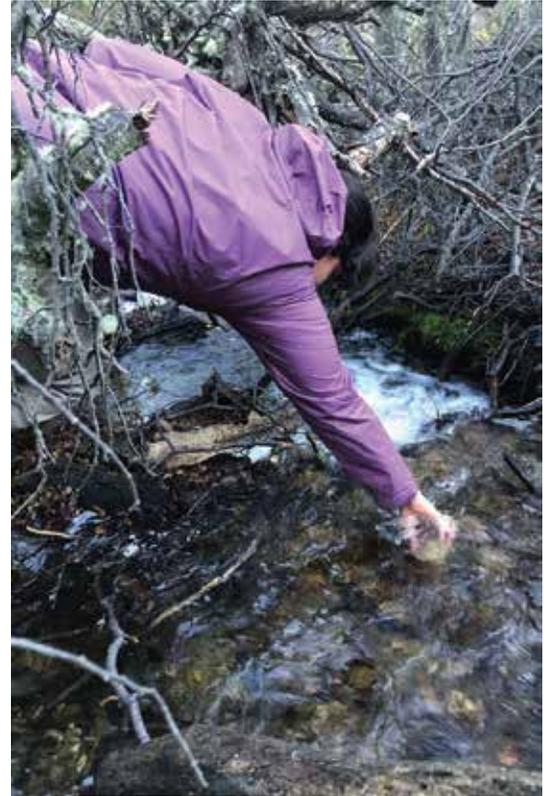
I started as an undergrad in wildlife biology and during that time, joined an undergrad lab where we did research on mosquitoes and frog-biting midges. I remember talking to my mom about it. My family would ask 'Why mosquitoes?' I told them I liked the idea of the disease aspect, but it still has a little bit of wildlife to it. When I graduated, I spent a summer in Colorado doing mosquito control, trying to get as much experience as possible.

I later met with my old adviser. She told me to meet with Scott Longing, who ended up being my master's adviser and told me about bee research through a grant they were doing, so I switched my focus.

I had started to look for doctoral programs when Dr. Presley put out a job announcement for part-time summer work. He said he would love to meet with me and see what I was looking for, and so I met with him and Cynthia. They told me I had a summer job, and, if I wanted it for a whole year, it was mine. I graduated in August 2018 and by September, I decided I'd do a Ph.D. under Dr. Presley.

You're in the middle of your doctoral program and this pandemic takes off. Steve and Cynthia told me they were in the middle of a conference when they found out about COVID-19. What were some of your initial thoughts as soon as everyone realized they were in the middle of it?

I don't remember there ever being a conversation about it. At that time, my daily involvement with Cynthia and



Dr. Presley wasn't much because my office is in another building, I'd work on mosquitoes in the insectary and meet with them once a week, but that was the only time I saw them.

The Monday of spring break, we had our lab meeting and it got real. Cynthia had validated the assay – made sure the testing method could be used – and needed volunteers to start running COVID-19 tests. They said we didn't have to be a part of it if we didn't want to. But I told them to sign me up. That's how it all began. I don't even know how soon after they had me in the lab, but I had never been in the Biosafety Level (BSL) 3 lab before that moment.

What was it like at first? You went from a few hundred tests to over 1,000 quickly, correct? What was that experience like? Any anxiety?

Not anxiety, but adrenaline. We hit the ground running and never looked back. It was just one of those things that had to get done. Again, I come from a field and ecology background; I didn't have that much lab experience when I started. Cynthia is a very good teacher, and it was a rush. Omicron kind of whooped us. The work was tiring, but it was good.

You're looking around in the lab, there are just a few of you doing most of the work. What was that like? You talked about adrenaline; how much of that factored into you being able to go these long hour stretches?

I don't even know how to describe it. Honestly. It went from learning to suddenly, being the one in charge. You have to lead these people. It's just learning on your feet.

I've heard you had some interesting ways people delivered some tests here and there. Can you give me some examples?

The weirdest one was from an outbreak in jail in a small town. They dropped off the samples in a toolbox. We still have the toolbox in one of our labs; it's a memento. I



remember we told them we need secondary containers if something happens, and this could be bad for you.

There was another one where lady dropped the test off in a lunchbox. She asked if she could get it back. "It's my daughter's and she's diabetic," she said. "It's where she keeps her insulin." We said, "Ma'am, you can't do that." She said she washed it and the samples are safe. We told her no, for her daughter's safety that's not a good thing. She didn't even think about it.

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You have the worrisome side and do what you can to help people understand. We had a ton of boxes that we would give people for samples and ice packs. We tried to teach them what to do, but at the end of the day, it brought humor into a not-so-humorous job at times. I always find a little comfort in it if that makes sense. It kind of sounds bad, but after long days of doing the same thing, sometimes you have to laugh at the little things. You just have to laugh because you had to find the joy in the craziness sometimes.



Cynthia talked about rearranging lives and what that looks like. For you, what did that look like, being in the position you're in as a doctoral student and trying to navigate your schoolwork in addition to the responsibilities you now have that you never anticipated?

That is still a work in progress.

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When COVID-19 hit in March 2020, it was my first spring semester. I was finishing up some hard courses, and I only had a few left. Luckily, as far as course load, I was on the downward side, but it was a lot of figuring out time management, which I'm very bad at. We would do testing, sneak off for an hour, hour-and-a-half to class, come back and test. Around the same time, we had a few people who couldn't help anymore. We were down to two testers and needed a third.



I'm very good at sacrificing my time. I'll stay up late to

study if other people are suffering because they're my teammates. It finally died down enough to where I can work on my dissertation. But at the same time, my responsibilities with sequencing were almost a full-time job. I am still figuring out how to cut back on that, because I do have one goal, and it's a doctoral degree.

One of the crazy things both Steve and Cynthia talked about during this whole ordeal was a fire in the building. How did that pose issues with COVID-19 testing?

I was taking the final exam for Dr. Presley's course in the theater. A maintenance crew was fixing up the pipes, resealing them or something because there were massive leaks. You have tiles open, and you can see them welding. I'm sitting near the front and there's a guy on the other end of me and he looks up and he says, "There's smoke. Is there supposed to be smoke coming out of there?" No. You could see actual flames coming out and again, we were in the middle of our final exam.

Earlier we had been testing the fire alarms. Every time the alarms would ring, in Lab 3, the locks would engage, so you would get locked in. Another lab mate and I were taking the final together and told them to not pull the alarm since Cynthia and another student were in there. They did pull the alarm, but thankfully the locks didn't engage, and they were able to get out.

We ended up taking our final outside while the fire was put out. I remember coming back and Dr. Presley said he couldn't grade us on having to deal with the fire, but we did well.

This was around the time when I realized I was getting more responsibility. Cynthia asked if I minded coming in the next day as she needed me in a meeting.

The administration of the department was there with our building manager, Dr. Presley, Cynthia, and me, the graduate student. We had the meeting and had accessioning – where we receive the samples and prepare them to go to one of the labs. We moved it to the build-



ing it's in now and by the afternoon, we were testing again. We were down not even 24 hours and had been hit the day before with 700 to 800 tests. We lost one sample in the entire thing. One sample.

What did you learn about yourself? Has it changed any of what you're looking to do once you've completed your Ph.D.?

It changed my life. COVID and all the people it killed is heart-breaking and horrible and I thank God it didn't have a huge impact on any of my family. But I know so many people were impacted. The experience changed my professional life for the better. I've learned how to lead; how to walk in a room and command respect essentially.

I used to be timid and not as open. I find myself not having those insecurities anymore. As far as my future, I went from my Ph.D. project in insecticide resistance with mosquitoes, to the possibility of doing vector control in a leadership role. If I want to go into military work, I can do military work. If I want to go do Biosafety Level 4 lab work, I can go to BSL-4 work. If I want to do sequencing, Dr. Presley has allowed me to learn that side of it. Essentially, the world is my oyster. Dr. Presley and Cynthia spent a lot of time teaching me and making sure I experienced as much as possible and not just everyday testing, because that's repetition. I can now do any polymerase chain reaction testing, even outside of COVID-19 testing.

What was your family's response to all of this?

They're so used to me doing mosquitoes. My mom is a nurse practitioner, so she was in the chaos down in the valley and they got hit hard. Long hours for her, long hours for me. There were a lot of times I couldn't talk to my family because I was still at work until 2 or 3 a.m.— especially around the holidays. I had always gone home for both Thanksgiving and Christmas and I missed them for the first time. That's when Cynthia and I started becoming good friends. She had me over to her house, so, I still had a little bit of family-like sentiment. But it got chaotic. My sisters and my mom connected every weekend through FaceTime. I would do that so we could catch up and stay linked. Instead of just asking mom COVID-19 questions, they would ask me COVID-19 questions because I saw it with the sequencing, too. With the sequencing, you learn a little bit more about how the virus is working. I wouldn't know anything on how to treat the virus because I'm not a doctor, but I do understand how it works.



What are you hoping to accomplish as you finish your time at Texas Tech?

Dr. Presley said if I don't want to continue doing what I'm doing, he's not going to keep me here. But when I'm done, I'm staying on. I bought a house in town. I'm staying on as long as Dr. Presley has funding and will keep me. There are funding sources and projects and so much more I can learn -- seeing how a team should work and learn from them not only on the science side, but on the personal and the career side as well. I think that's what this whole experience has been; not just learning but taking in as much as I can when I can. I don't know how I got this lucky. I very much believe you end up where you're supposed to end up at the right time, and things happen for a reason.

