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Researchers are like, "Okay, here's a student. We'll show them a couple of things and they'll graduate here." There's a mutual respect that a lot of research has done here, and ORISE are the backbone of it. So it's nice that it's a relationship that feeds positively that they know that ORISE are working hard and treat them with respect. And in turn, we all do this work and are able to present at conferences and disseminate the information out to who needs to hear.

Speaker 1:

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.

Michael Holtz :

Welcome to the ORISE Featurecast. As ever, it is me, your host, Michael Holtz in the Communications and Marketing Department at the Oak Ridge Institute for Science and Education. And as we love to do here on the podcast, I have the opportunity once again to talk to you in ORISE Research Program participant. And today I am having a conversation with Jake Janssen, who is Completing his or doing his ORISE research opportunity at the Medical Research Institute of Chemical Defense. Jake Janssen, welcome to the ORISE Featurecast. I'm so glad you're here.

Jake Janssen:

Yeah, thank you for having me.

Michael Holtz :

So Jake, if you would start out with, I guess, talking about your ORISE opportunity. What is it that you're researching and to the extent you can, what is the Medical Research Institute of Chemical Defense?

Jake Janssen:

So my team, like many others, does a lot of work. It's very interesting. It's very diverse. But the best way I would sum up what myself and my team does is we focus really on neuroscience, hazardous chemicals in trauma medicine. More specifically, we look at novel polytrauma scenarios involving organophosphates, and other pharmaceutical grade drugs, and traumatic brain injuries or TBIs. And we want to improve upon treatment guidelines and combat casualty care through new polypharmacy methods, and also identify and study chemicals of concern, so that the United States is more prepared for an impending chemical threat from any adversary we may see.

And The Institute in general just looks at all these types of chemical concerns. Doesn't have to be a warfare one. Could be an industrial related chemical. And just trying to prepare for these catastrophes and just improve upon treatments that are there or design new ones.

Michael Holtz :

Okay. So it sounds like massively important research and work that The Institute does in terms of the overall defense and preparedness of the nation.

Jake Janssen:

Yes. I think our institute and our sister institute, the Research Institute of Infectious Diseases, who they have done everything from anthrax to Ebola, both of these institutes are meant to help the warfighter and our military be best prepared for these scenarios, and including our emergency management responses, but also just in general for our civilian population, as much as this is geared towards our soldiers and our front lines, and people that are going to be involved in combat. This also transfers to the civilian side of things, and we work with academia and a range of other partners to make sure that the information is as up-to-date as possible, and that it helps as many people as it can.

Michael Holtz :

Very cool. Again, it sounds very important and very fulfilling work to be helping, be part of the defense infrastructure, and response infrastructure for the country. Jake, have you always been interested in science? Is that, I guess, how did that get fostered for you?

Jake Janssen:

I would say the earliest I could remember being interested in, "science," was when I was a little kid. I was one of those stereotypical why kids that anytime I saw something, I was like, "Why? Why is this happening?" And I'm sure if you ask my parents, they'd be like, "Yeah, he was annoying."

Michael Holtz :

So many questions.

Jake Janssen:

They did a great job at answering what they could. And I just really wanted to understand how the world worked around me. I'm about to go on a trip to Yellowstone in the Grand Tetons, and I'm sure you've been somewhere in nature where you just look around you and you're like, "How the heck is this possible? How did this come to be?"

Michael Holtz :

Yeah, yeah.

Jake Janssen:

So yeah, I just believe this inquisitiveness turned into a focused interest on science, where experiments in class were often fun and intriguing. And I think part of that was great teachers as well. And I just became more interested in the medical community when my mom was diagnosed with thyroid cancer, and my grandma had pretty severe dementia, and I dealt with my own health challenges. So all of that slowly started siphoning into truly being interested in the scientific community.

And then the final thing that really I think was the cornerstone for me was I got more involved in Penn State THON, because I did my bachelors at Penn State University. And Penn State THON is a 46-hour dance marathon that raises money for pediatric cancer care and research. And growing up, being surrounded by that and having friends that also had cancer, a couple of them didn't survive. I just really wanted to prevent that pain and suffering. And I think the scientific community, what it's really about is one, understanding what's happening around us, and two, being able to better the world with it.

Michael Holtz :

It's interesting, we have a little bit of a similar trajectory, I'm a cancer survivor myself, so that definitely has sparked my interest in understanding how cancer works. And we talk about a cure for cancer, but the reality is cancer is a whole host of diseases and every diagnosis almost is different from another one, even if you're diagnosed with the same disease at the same stage. And so understanding how all of that works just to me is fascinating. And then how you stop a protein from activating, or how you change how a signal moves, that sort of thing is really interesting to me.

Jake Janssen:

Well, I'm grateful for one that you beat it. And I get to meet you today because of that. So I'm very happy to hear that. And yeah, my mom with her thyroid cancer, they were looking into Three Mile Island because she grew up in Hershey, Pennsylvania. That's where I grew up as well.

Michael Holtz :

Okay. Right.

Jake Janssen:

And they attributed her thyroid cancer to the accident there.

Michael Holtz :

Okay.

Jake Janssen:

There's still debates over what amount of radiation was released, but you're right, there's so many molecular things that can cause cancer and shift how it works. And there's so many environmental things. And I tell friends, because I actually did cancer research at Penn State Hershey Medical Center for a little bit after I graduated with my bachelor's. And the best thing I would tell people, because some people think, "Oh, where's the cure to cancer? Where's that one cure?" Just emphasizing that, like you just said, cancer is really an umbrella term for many different types of diseases, and there is no one treatment that works for another, because you have one gene that affects it, and another gene, one protein. So just emphasizing that. Don't get me wrong, I wish there was a cure cancer.

Michael Holtz :

For sure.

Jake Janssen:

I think that would solve a lot of our problems. And I think to each of their own, I think there's some arrogance in those comments when people say that I think they think we're more powerful and knowledgeable as a species than we actually are.

Michael Holtz :

Right.

Jake Janssen:

But yes, I can tell you from doing that research and working on an amazing PI, his name was Vladimir Spiegelman at Hershey Medical Center and my postdoc Anna that they're actually posting a paper in nature or publishing in nature soon. One of the projects that I was involved with for a little bit there is finally wrapping up, and that's looking at melanoma. That it takes years. A project from the start to the end can take five to 10 years or more depending on what type of study you have. But I can tell you that these people are passionate and it's not like they're wasting money, it just takes money and time.

Michael Holtz :

Absolutely.

Jake Janssen:

But I'm thankful I got to see the true revolving door of how things go. And that's definitely helped refine my scientific expertise as well.

Michael Holtz :

Absolutely. And yeah, the researchers I've been able to meet over time have been incredibly dedicated. And also, I know we're talking about cancer specifically, but really all of the scientists like yourself that I've met, so passionate about the work that you do because you spend so much time trying to find answers, trying to figure out what it is you're after. Answering the question that you're researching. So I'm always honored to have these sorts of conversations with researchers like you, Jake, because of that underlying dedication and that commitment. So once again, thank you for what you do and for the opportunity to chat with you.

You've talked a little bit about teachers and mentors. Talk to me about a little bit more about who some of those folks are and how important they've been to your career trajectory at this point.

Jake Janssen:

So I would definitely start with we're talking about ORISE within my program, my mentor, Dr. Eric Johnson, has definitely been a solid rock for me here. And just helping me really build personally and professionally. So Dr. Johnson, he received his PhD from the University of Florida, and now during my time with him at ICD, which is our short acronym for The Institute because it's a long name.

Michael Holtz :

Right. Yep.

Jake Janssen:

He has focused on neuroscience, polytrauma and chemical threat prevention research. So what you heard earlier. He's become very proficient in his knowledge around that, and is very good at articulating it to officials that may come through countries. But yeah, through multiple external and internal grants and funding opportunities, Dr. Johnson has been an excellent principal investigator for ICD and continues to expand and improve upon the capabilities for the Army and just general clinical guidelines.

For me, on a more personal note, he's been an important figure in helping me improve my writing, my presentation quality and more. His focus on professional development through conferences and open door policy for questions and concerns have just allowed me to grow as a person, and scientist, and make work less of a I'm above you aspect, and more of a friendship. And every PI has their different ways and relationships of working with their students, but I'm very happy to be where I'm at now.

And yeah, another PI I work with here, Danielle Zimmerman, she's helped me become very proficient in many complex surgical techniques, which I was actually doing before coming up here. And the ability to improvise on the spot with medical complications and very complex equipment. Her attitude has always been friendly, not just as a mentor, but it makes me feel like I can comfortably excel with research and just be around her and be who I am. So I've had both of these ORISE PIs that are just easy to be around and treat you as an equal.

And obviously you know they've done so much research, they're well above and excel in everything they do, but to have that mutual respect goes a long way. And I've told you about Dr. Spiegelman from Hershey Med on as well, it was the same thing. Just come ask me a question and we can have a little chat. Having that personal and scientific side really ties in well and has allowed me to one, want to be personable with people, and two, just enjoy the research that I'm doing.

Michael Holtz :

That's wonderful. And it sounds like your mentors have treated you like a colleague as opposed to you a mentee. Even though that certainly is the point of that relationship, but it's more collegial than, as you said, he or she is higher up than I am. But you work really well together, it sounds like.

Jake Janssen:

Yes. And ICD as a whole. I like that. Within the US Army Institutes, how normal companies would have CEOs and stuff like that. We have a commander, so a colonel usually that will come in and lead The Institute for a couple years. Even they have respected the significance of ORISE at this institute. So it's nice coming from when you're getting your bachelor's or something, you're just moving around labs. Researchers are like, "Okay, here's a student. We'll show them a couple of things and they'll graduate here." There's a mutual respect that a lot of research has done here, and ORISE are the backbone of it.

Michael Holtz :

Awesome.

Jake Janssen:

So it's nice that it's a relationship that feeds positively that they know that ORISE are working hard and treat them with respect. And in turn, we all do this work and are able to present at conferences, and disseminate the information out to who needs to hear it.

Michael Holtz :

Right. And dissemination is very important in research, as you said, conferences and papers, and helping people understand what your research is about and why it's important is critical.

Jake Janssen:

Yes, without it, science couldn't move forward. You need to talk to the community because sometimes people are going to have ideas that butt heads. And all of us have learned about things growing up where people didn't agree. And it can get heated, but that's the whole point.

Michael Holtz :

Sure.

Jake Janssen:

You need debate, you need conversation, because without that, things don't get checked.

Michael Holtz :

Absolutely.

Jake Janssen:

And with that, we improve upon ourselves and our partners.

Michael Holtz :

Have you had the opportunity to mentor others, Jake, at this point?

Jake Janssen:

I would say I have. Between training new participants and other lab personnel on surgical, chemical exposure, or physiological techniques. I've actually more than not enjoyed being able to teach them how to perform these, and get people up to speed with our experiments. And this also could include writing techniques and other aspects of the participation ship.

Michael Holtz :

Awesome. You mentioned earlier your own health problems. Has health been a barrier? Have there been other barriers that you faced getting to where you are today?

Jake Janssen:

I would say the biggest one, and probably an obvious one was the COVID-19 pandemic. I would say it was difficult because during college, when I'm getting a bachelor's of science, there's a lot of lab work that I can't really do in person, because all the labs are shut down, they don't want to risk a transfer of the virus, which I understand from a liability perspective. So I think that was difficult and definitely set me back a little bit on the hands-on experience for science. And that moved to online learning.

But overall, I consider myself, even with my health challenges, a very resilient person. I try to use these events as a learning lesson. And after getting a bachelor's in infectious disease, looking at COVID-19, it was a really good learning strategy for myself and understanding what I really want to do in the field moving forward, and looking at public health in general. So I think actually some of these obstacles in the end just provided a greater scope at a faster time than I thought I would have to look at them.

Michael Holtz :

Right. And the ultimate lab experience, so to speak?

Jake Janssen:

Yes.

Michael Holtz :

The ultimate experience of learning, right?

Jake Janssen:

Yeah. For all of us.

Michael Holtz :

Absolutely. How about on the flip side, a particular success that you've had?

Jake Janssen:

I've definitely seen more success than I thought I would at ICD.

Michael Holtz :

Okay.

Jake Janssen:

It is obviously when you first come here, it's very, how should I say it? Intimidating because it's a military medical research institute. There's very well established people here, just like in academia.

Michael Holtz :

Right.

Jake Janssen:

But I would say being able to attend military training courses, one of them is called MCPC, or Medical Management of Chem and Bio Casualties. And then hospital management, I was able to work with academic and military personnel, both domestic and international, and learn how to critically think in a stressful environment. So we would actively practice triage and disaster response scenarios. These experiences and my background in infectious disease helped really guide what I wanted in the future, and make me feel comfortable, and what I could do myself. And I think that's actually what pushed me to finally apply for a master's. And now I'm getting a master's of Public Health in Disaster Management through Tulane University.

Michael Holtz :

Very cool. And such necessary and needed skills, the ability to think critically, but also think on your feet, especially when you're faced with a situation, whether it's a pandemic or a critical incident of some nature. So that sounds like an amazing course of study that you're on.

Jake Janssen:

It's been good. This year has been a trying time for education, so always figuring out a new approach, a new way to get things done. But I am thankful that my educators like to adapt and want to see their students succeed. And I'm just more than ever excited to really get out there and take my knowledge from the lab bench, and then also begin to apply it to real world scenarios, policy, medical guidelines. So yes, the successes I've had here have just made me more excited about my future.

Michael Holtz :

Excellent. And what does the future look like for Jake Janssen?

Jake Janssen:

I think my end goal for my career and personally is to reshape the ability for communities and systems to respond to these massive environmental catastrophes, in a way that we can do so by promoting proactive, equitable, and sustainable resilience strategies. So in turn, with all that, I aim to bridge science policy and practice to ensure that these vulnerable populations, whether you look at it based on income, race, ethnicity, are not only protected during disasters, but also empowered to recover and thrive in the aftermath.

Michael Holtz :

Oh, I love that. And yeah, so, so important to help communities be resilient and bounce back, so to speak, after a disaster, whether it's a flood or fire or whatever it may be. Strikes a community is such a critical need.

Jake Janssen:

And it's something that's always changing.

Michael Holtz :

Right.

Jake Janssen:

For both of us, I do not remember it. I was too young, and I'm sure that makes you shake a little when talking about 911.

Michael Holtz :

Oh, right.

Jake Janssen:

I've met people that weren't even born yet, and even I'm like, "Oh, that's weird." But 911, Katrina, were the big ones for changing that field and even for the military and the country as a whole. So it's interesting that it's a career field similar to many others that has the opportunity to keep changing and growing, so it's not very static. Similar to, let's say, with podcasts and whatnot. There's so many topics and options you can look at. And that's why I think careers like that are very interesting to me because I want my brain to keep moving. I like that the gears are spinning. I want to be able to do that as long as I can.

Michael Holtz :

Yeah. Yeah. Six years ago, I wouldn't have thought that I would be a podcast host, but here I am. And it was just as things evolve, as you said, became another important piece of a career puzzle. And you take advantage of what you can as it happens. And learn what you can and keep your brain, as you said, keep your brain moving, keep thinking about new ways to approach the world. So I love that. I think it's very exciting to see, even though 911 and Katrina were certainly horrible incidents, to be able to take what we've learned and use them to become more resilient, to become more prepared, to be better in the long run has been amazing to see.

Jake Janssen:

I totally agree.

Michael Holtz :

You've talked about ORISE a couple of times, so I know, I think the answer to this question is obvious, but you would recommend an ORISE Research Participation Program to other scientists who want the lab experience that you've had, I imagine?

Jake Janssen:

I certainly would. And again, I'm sure every ORISE has a different experience. I am grateful again for my mentors, my colleagues. But yes, even because I'm a part of the ORISE Community Leader Impact Program that has started up. And being able to meet other ORISE from other institutes, you get a gauge of what's going on there. And through websites like ORISE Connections, I think anyone that wants to join ORISE needs to understand that just because you're going to, let's say the FDA or the CDC, your scope of what you can learn about them is not limited to just those agencies. I have learned so much about the large amount of communication that goes between each agency and how people want even more. I think the science is very interesting, and compared to academia, government has its pros and cons as well for the research that you can do.

But coming out of college and a academic research position, financially and individually, being able to change and have more control over the scope of what I wanted to work on, again, it's what you want to make it. And ICD to me, it gives you so many opportunities to learn what you want, and expand on your career, and take the next steps in your life. So long story short, yes, I would fully recommend it, and I hope that people continue to look into ORISE as a future program.

Michael Holtz :

And Leslie Fox and our team might send you a check for mentioning ORISE Connections because I know that's a very important piece of keeping all ORISE program participants literally connected. And as you said, learning about other agencies. So I know she's going to love that you've mentioned that as a major highlight of your experience. Last question, Jake, what brings you joy?

Jake Janssen:

Well, regardless of what you think, even though I love my work, I don't find joy just in work.

Michael Holtz :

Okay.

Jake Janssen:

I have a lot of actually outside of work that I am definitely someone that does not know how to sit still for better or for worse.

Michael Holtz :

Right.

Jake Janssen:

Specifically, I play a lot of volleyball. I play sand-

Michael Holtz :

Nice.

Jake Janssen:

... grass and indoor. So I'll have some competitions here and there, either with USAV or other organizations. And beyond that, I love hiking and being outdoors. Nature, I guess, is my calling. And like I told you earlier, this Sunday actually flying out to out west and we'll see Yellowstone and the Grand Tidons here soon. So just nature brings me peace and joy, and just an ability to step away from, because I live in Baltimore, it's just get away from that city lifestyle and reset my mind.

Michael Holtz :

Love.

Jake Janssen:

Lastly, just grabbing food, hanging out with friends. The typical thing to do in your 20s onwards. Just meeting new people, staying busy, trying new things. Yeah, just living life brings me joy.

Michael Holtz :

Love it. I love that answer. And have a great time when you go out west this weekend. I've not been to Yellowstone and the Grand Tidons, but I've been to Glacier National Park. And it is one of my favorite places in the world.

Jake Janssen:

I need to go there. So I'm very jealous of that.

Michael Holtz :

Explore, everyone listening, explore those national parks. They are gorgeous. Jake Janssen, thank you so much for spending this time with me. It has been a pleasure getting to know more about you and about your research, and your ORISE experience, and ultimately what brings you joy. It has been an honor to have you on the show.

Jake Janssen:

Yeah, I can't thank you enough. Thank you for having me, and thank you for your time as well. I really enjoyed talking to you.

Michael Holtz :

Absolutely. My pleasure. Thank you. And thanks everyone for listening.

Speaker 1:

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