

Announcer: Welcome to the Vets First Podcast, a research-based conversation centered around the VA health care system, its services, and patients. From Iowa city, Iowa, here's your hosts: Dr. Levi Sowers and Brandon Rea.

Levi Sowers: Welcome to the first episode of the Vets First Podcast. My name is Levi Sowers, I'm a PhD at the VA center, Medical Center in Iowa City, Iowa and my co host is...

Brandon Rea: My name is Brandon Rea. I'm a technician for Dr. Sowers, appointed at the VA as well.

Levi Sowers: So the goal of our podcast, when we first set out on this adventure to create this recording for Veterans, was to really communicate research to the Veteran. We're sitting around thinking about how to better communicate what we do as researchers here at the VA and the University of Iowa, to the Veteran population, that may not know about it.

And oftentimes these things are difficult to communicate so we wanted to be able to take what we do and turn it into a conversation with the Veteran. So Brandon I came up with the idea of starting this podcast to do that very thing. So the goal that we have come to is to introduce researchers at the VA: what they work on, how they work on it, why they work on it, and why it matters to them to work for the VA, in addition to that, we think that it's often a problem the Veterans are not heard; that their problems are not heard in the greater community, and we want to be able to communicate their voices to a greater audience, specifically to the researchers that are involved in the VA. We're gonna discuss a multitude of different topics as we move through this podcast. We're gonna talk about headaches. Brandon's gonna talk about looking at pain in animals, and how this all relates back to the Veteran, and why it's important for the Veteran. So we're gonna start by introducing a little bit of what we do. I'm gonna let Brandon go first. Brandon is a technician in my laboratory. He went to the University of Iowa. What did you study?

Brandon Rea: Comprehensive biology.

Levi Sowers: Comprehensive biology...Nice. And so he did a four year degree here, and then started working in Andy Russo's laboratory, of which I am now part of as well. And he is gonna tell you a little bit about what he does, so you can get to know us a little bit. Brandon, where'd you actually grow up, and how did you even come to be in science?

Brandon Rea: Actually grew up just south of Dubuque Iowa in a small town called Bernard, Iowa. Only had a population of ninety one of the time. And so my last name is Rea, I lived on Rea Road. My grandfather was the mayor of the town for a short period of time, and my uncle runs one of the two bars. So it's safe to say you're about as rural as you can come.

Levi Sowers: All small towns have to have a bar right?

Brandon Rea: Yes.

Levi Sowers: If there's one thing in any small town Iowa, it's it's a bar.

Brandon Rea: Bars, church, and perhaps a stoplight if you are on the higher end of the population.

Levi Sowers: So where'd you go to high school at? Because I'm assuming the small towns a lot of times in Iowa, for those who don't know, these small towns don't have their own high school. They're often shared with multiple small towns.

Brandon Rea: Right, right. So I went to high school in the neighboring town of Cascade, Iowa. It's about ten miles from my house. I remember that I would have an hour and a half bus ride in the morning because you have to drive around the countryside picking up all the kids. It was not too bad. But in the wintertime, being first on the bus, warming up the seats was never very fun. But it's an experience I would not trade.

Levi Sowers: Nice! So then you went to high school where?

Brandon Rea: Cascade, Iowa.

Levi Sowers: Cascade, Iowa.

Levi Sowers: And so then so then you went on to the University of Iowa right?

Brandon Rea: Right. I went to the University of Iowa afterwards. I have always been interested in science and research. Growing up watching science fiction, reading science fiction, and then seeing that you could actually become a scientist and turn that fiction into reality, seemed pretty enticing. So I went to the University of Iowa for a bachelor's of science degree in Comprehensive Biology. I had trouble deciding on a specific track, whether it be evolutionary genetics... So with the comprehensive track, I got to sample in all methods that are biology.

Levi Sowers: Nice. When did you start in Andy's lab?

Brandon Rea: I started in Dr. Russo's lab in 2011 as a senior. After working for a few months I was given a project, or rather, felt I could take on a project, looking at blood vessel dilation in migraine models of mice, specifically the middle cerebral artery and basilar artery the brain of the mice. I was looking at different compounds that could help the dilation of blood vessels during migraine. So that's where I learned many of the surgical techniques that I employ today in terms of looking at anything related with vasculature or brain, in the mouse-animal model of migraine.

Levi Sowers: Yeah, and so continuing down that line of questioning here... it's like I'm interviewing you, even though we're going to be the ones interviewing people as we move forward here.

Brandon Rea: Pretty much.

Levi Sowers: What really drew you to research?

Brandon Rea: What really drew me to research? Being able to actively think on the job, working growing up, particularly on the farm, you would have to actively think of solutions to the problems that would arise, and it was never really a mundane task, even though some days felt like that, to figure out solutions to achieve a goal. And research, along with having an affinity towards science and that regard, allows you to actively think and actively solve problems. So going to work never seems like dull monotony. In a sense you're going in with a purpose and it's something that I thoroughly enjoy.

Levi Sowers: Yeah for sure. So a little bit about me. I grew up in Iowa as well in a town called Perry, Iowa in central Iowa. I grew up on a little farm just north of Perry. I spent my days running around in fields cutting down the thistles that I thought were enemies. It was a pretty good childhood. I got to use my imagination a lot. And from a very early age, my dad got me interested in how the world worked. I remember him buying me this little microscope when I was like ten. And I used it to look at everything I possibly could under it. I think my own spit, basically anything I could. I remember cutting open a worm and looking at the worm blood underneath it...

Brand Rea: (Laughs)

Levi Sowers: ...Just really random stuff like that, and so when I went to high school, I was kind of a drifter. You know, I just kind of drifted around a lot during high school, and I went to high school in Perry Iowa. Perry is big enough to have its own high school at the time unlike Cascade. And then what I did was, I became even more interested. I think the only classes that really interested me besides some of my English courses, were science courses. And so I was like, "Hey I'm gonna go to school for... well, when I started, originally I was gonna go to school for computer science but I ended up hating it. I cannot do programming.

And so I ended up going to school to be a lab tech in a hospital, drawing blood and things like that, running blood samples. And as I moved through college at the University of Iowa, I decided that that wasn't going to be for me as well. I spent five years here as an undergrad, and then when I finally decided to go to grad school to get my PhD in molecular and cellular biology, where I did my PhD at the University of Iowa with a doctor named Alex Bassuk, who's a pediatric neurologist. I studied epileptic seizures and autism at the time. And as I progressed in my first Postdoc, I was just having my first kid with my wife at the time. And we decided that we didn't want to move away from Iowa, so we ended up staying here and I joined George Richardson's laboratory who's the head of neurology here, and worked on sudden unexpected death in epilepsy for a couple years, and then I moved over to the VA Center for the Prevention and Treatment of Visual Loss. And there I study migraine headache and post-traumatic headache, under the tutelage of Dr. Andy Russo. And so I have a career development award through the VA, which allows me to be semi-independent from Andy Russo. I specifically study the neuroanatomy, or the underlying brain regions, that contribute to the

development of light aversion in headache, or photophobia. So people with migraines, when they get these really bad headaches, they often have an aversion to light...

Brandon Rea: (finishing Levi's sentence) To specifically normal levels of light, not just noxious levels of light.

Levi Sowers: Yeah that's a really good point. And so people might be like, "Well just put on some sunglasses or take a couple pills", but in reality, migraines are much more than just a headache. It's one of the most debilitating diseases in the world and people who suffer from migraine headaches, in the United States alone, are costing the economy about thirteen to fifteen billion dollars a year, just in time lost. So it's quite a burden and it's also really common in the Veteran population, where especially combat Veterans who served in Iraq and Afghanistan, get a significant amount of migraine headaches as well as post traumatic headaches. So those Veterans who suffer a TBI, or a traumatic brain injury event, during service can then get chronic headaches that can be life long thereafter and and it's actually quite a high percentage, I think it's upwards of fifty percent of Veterans who get TBI, will end up getting chronic post traumatic headache, which can also be quite debilitating.

What's interesting about the two diseases is that they're quite similar. So at least clinically, they're almost the same thing, whether or not what's going on underneath the surface of the brain is the same thing, I think is yet to be determined, but for now, this is what I'm working on.

As I said, Brandon and I are gonna do our best to communicate research in terms that we can understand, that you can understand, because a lot of these people / even talk to, sounds like a foreign language to me. I remember when I first started grad school, I would go to scientific talks and be like, "Oh my gosh. What did I get myself into? I can't understand anything that's going on". So I think it's really important that we as researchers, communicate what we do, in terms that people can understand, that normal people can understand, and also get the Veteran closer to *us*, and let them know what we're doing on a personal level: Who are we? What do we do? How do we communicate to you, to Veterans in a better way?.

Brandon Rea: Right! I think communication is really the key factor that I'm trying to address. Particularly people with migraines, being told that, "Take an Advil" or specifically by people who obviously don't get migraines, I'm sure can become very frustrating about just how debilitating that pain is. I myself do not get migraines, but my father gets cluster headaches and he is a former farmer and a machinist and probably one of the toughest guys I know. And to see him be completely taken out for days at a time when he gets a cluster headache, though different than migraine, just highlighting that amount of pain that someone can experience... and when you yourself don't have that experience, in particular if you're seeing a physician or therapist or somebody else who may not be experiencing the same type of ailment that you are, really trying to reach across and communicating that, and bridging both gaps, is very important.

Levi Sowers: Do you have any family members that have served in the military?

Brandon Rea: My cousin, Joey serves in the Navy...

Levi Sowers: Currently?

Brandon Rea: Currently. I honestly can't remember, I haven't been in contact in a while. I can't remember what his ranking is right now. I can feel the ears burning of my family members back in St. Donatus, where he's originally from. I should probably know this but...

Levi Sowers: You should, you should probably.

Brandon Rea: I should know this, he's my brother's godfather, but yeah he was on one of the carriers, I believe, during the Shock and Awe, years ago overseas. I haven't really had a chance to discuss with him about his service. But yeah, otherwise I am in that population naivety in the sense that I am fairly disconnected from what actually occurs in the military community. And acknowledging that I have that lack of knowledge, and trying to understand, rather than smile and nod along, I think will hopefully be beneficial as we delve ahead in these podcasts.

Levi Sowers: Yeah, of course! You know I had several family members that have served and both my grandfathers were in World War two. One was in the Air Force, and one was in the Coast Guard but he served alongside the Navy while he was over in Japan. And his ship was torpedoed twice, so he lived through two of those. I remember him telling me the stories and reading a little bit of his memoir that he wrote. My other grandpa Jim, he served. He was an Air Force airplane mechanic during World War two and both of them have passed away within the last five or six years. And then, most importantly to me, and why I really got interested in serving Veterans and doing research for problems concerning Veterans, is that my cousin Jesse, who is like my brother, was in the Marine corps for five years. When we were both leaving high school, he went off to Marine corps boot camp, and I went off to my cushy college to live in my dorm and have fun and party while he's busting his butt in boot camp. But as he went off to boot camp, I remember being like, "Hey this guy's gonna go serve our country and I'm just going to college to learn about things. How can I better serve my country through what I did?" And you know, it comes full circle now, where he's out of the military and his time in there was super good for him, it really put him on the correct path in life for him. And for me, it really gave me the sense of service to be able to take what I've done, get a PhD, and then give back to Veterans for what they've done for us. And so I think that's pretty cool that I've been given this opportunity to communicate what we do, and what researchers do for Veterans and so I'm pretty excited about this project. I think it could be successful, who knows, maybe no one will listen to us, maybe we're just talking into the void right now Brandon.

Brandon Rea: Maybe the first impression will be like, "I really don't like these guys." But hopefully it'll be our interviewees you're listening to more than us.

Levi Sowers: But this is going to be a team effort, and the people that we interview, it'll get better and better as we move along. It's a little awkward at first to be able to sit down with someone, interview them, and not feel strange. So we're trying to make it conversational in

nature. I tend to enjoy podcasts like that, and we'll do our best to make this a smooth process as we go forward.

Brandon Rea: Right! I think one of the things I learned growing up was, if you cannot explain something simply, you likely don't know it well enough. And I think that it's going to be important moving forward with this podcast, to really convey what's going on, research-wise here; how it actually affects, even when at face value, it doesn't really seem like this has anything, but whoever we're talking to, or whatever the topic is, might have anything to do with helping Veterans, but hopefully making those connections down the road, it will really highlight how really paying it back to our service men and women who have given their all to the country, doesn't ring hollow in a sense.

Levi Sowers: So I'd like to thank Brandon for being my co-host once again. I'm Levi Sowers.

Brandon Rea: This is Brandon Rea.

Levi Sowers: And thank you for listening to the Vets First Podcast.

Announcer: This concludes today's Vets First Podcast. For questions or comments relating to the program, please direct email correspondence to vetsfirstpodcast@gmail.com. Thanks for listening!