

# Ep.15 - Rebecca Cunningham\_mixdown

Fri, 6/11 1:32PM 20:58

## SUMMARY KEYWORDS

michigan, research, researchers, university, state, people, campus, helping, work, communities, ed, applied, public research university, opioid overdose, virus, knowledge, support, jobs, labs, ghana

## SPEAKERS

Announcer, Ed Clemente, Rebecca Cunningham

**A** Announcer 00:01  
Welcome to The Michigan Opportunity, an economic development podcast featuring candid conversations with business leaders across Michigan. You'll hear firsthand accounts from Michigan business leaders and innovators about how the state is driving job growth and business investment, supporting a thriving entrepreneurial ecosystem, building vibrant communities and helping to attract and retain one of the most diverse and significant workforces in the nation.

**E** Ed Clemente 00:28  
Welcome to The Michigan Opportunity brought to you by the Michigan Economic Development Corporation. Hello, my name is Ed Clemente. I'm your host today. And we're very fortunate to have Dr. Rebecca Cunningham. She's the Vice President for Research at the University of Michigan. Welcome to the show, doctor.

**R** Rebecca Cunningham 00:44  
Thank you for having me.

**E** Ed Clemente 00:45  
And I think I call you doctor, but I think you have a couple I I see on here, emergency

doctor, that's gonna be my first question. I l've never heard of just an emergency. Like, what does that mean? Sort of? And how did you get to that point?

**R** Rebecca Cunningham 01:01

Sure. So my first training and my foundational training was in emergency medicine, and I practiced emergency medicine here in Michigan for 25 years, before I moved on to my full time job now as Vice President of Research,

**E** Ed Clemente 01:14

I'm gonna even go further back, I looked this up, but I saw you did something with Ghana emergency medicine too?

**R** Rebecca Cunningham 01:21

I did, yeah. In addition to being a practicing emergency physician, and I practice emergency medicine, both here in Ann Arbor at the University of Michigan, as well as at the University of Michigan, Hurley Hospital's emergency department in Flint. In addition to that, I had an active research career, you know, studying everything from opioid overdose and prevention, to helping research fields in other countries, including work in Ghana, where our department was fortunate to help work with trainees there to start emergency medicine in Ghana as a training field.

**E** Ed Clemente 01:56

Did you get to go?

**R** Rebecca Cunningham 01:58

I did. I was there several times? Yeah.

**E** Ed Clemente 02:01

Oh, wow. It's pretty interesting. Um, so you, when you l'm sure a lot of people you run into and they meet you and say some casual event? And they go, what is the Vice President of Research at U of M kind of do? And I mean, everyone knows kind of what researcher is but they don't really know. So what do you tell people sort of when you first meet them?

R

Rebecca Cunningham 02:23

Yeah, that's a great question Ed, I mean, the University of Michigan is incredibly vast, both in knowledge and expertise, but also in the amount of research that we that we do. You know, we do training and education of students. And that's obviously primary, but we also produce a lot of new knowledge and information for the for the world. And so the our office oversees and coordinates a lot of the catalyzing and supporting and safeguarding of that research across the enterprise. So for a little bit of context, the University of Michigan ranks number one nationally and research volume across all the public universities. And again, we catalyze and support and safeguard all of that research across all the kinds of research that there are across the three campuses. And part of that job is fostering collaboration among our researchers and our key external partners so that we can work together to find solutions to important challenges. We also help our researchers develop innovative tools and resources to so that they can secure funding for their work, both internally and externally so that they can advance it. We also help faculty take their research and move it beyond just a journal article, or data on their computer out to be to the marketplace and to practice for so it can benefit our communities across Michigan and the nation, I feel really passionate about that part. And as a public university, our role is to not only help generate knowledge, but move it out into the field to the community to people where they can use it and also to our business partners in the marketplace. And we do this a lot of different ways. And one of the ways we also do this is helping with the formation of that taking that new knowledge to new startup companies that can help research discoveries, attract funding to bring them to the marketplace for new therapeutics, medical devices, technologies that contribute to the quality of all of our life and economic growth and diversification of the state.

E

Ed Clemente 04:20

Yeah, and you're in it's funny when you sort of mentioned that not funny Haha, but interesting that, you know, I know Ann Arbor, but you guys are all around the state, you sort of mentioned that you work projects everywhere, right? You're obviously associated with yeah, and not just like you said, globally as well. Right. So do you have any sort of anecdotes, stories that you maybe tie in being a public university that you think would be someone would understand like a project you did here in Michigan through one of your professors?

R

Rebecca Cunningham 04:53

Sure Ed, we have professors and and researchers and students and trainees working on projects in every county across Michigan, I mean, I think the opioid overdose epidemic is a is a good way to speak to that. And we have projects working on opioid overdose

prevention, for example, all all across every county in the state of Michigan. Including all through the UP we have researchers working on water quality across our great lakes. We have researchers working on developing therapeutics that impact people and go into communities all across the state. I think you know, another way when we think about that, and and also, you know, our work across three campuses, here and Flint and Dearborn campus as well. You know, there's some other examples of that are improving our driverless vehicle technology, enhancing the Great Lakes water quality, to exploring the rapidly changing COVID-19 pandemic and how that impacted people across our state. I think, you know, our researchers and our faculty are, are truly amazing and so passionate, and they don't shy away from tackling tough problems. By joining forces with our colleagues and industry, that collaborative work really results in positive change. It's also really important to recognize that that research across the state of Michigan strengthens the economy in Michigan by bringing new jobs and driving global competitiveness for us here in Michigan. You know, between 2002 and 2019. Ed, I'm thrilled to say that University (of Michigan) contributed almost \$6 billion to the national economy through vendor contracts and subcontracts. And that a lot of that work happens, it impacts locally here as well. So just this past year, the University of Michigan Research spurred 31, startup companies, and 522 new inventions, and a lot of those are headquartered in Michigan, and are truly innovative. Companies that design and operate networked fleets of autonomous robotic delivery vehicles, for example, really amazing stuff happening here in our community.

E

Ed Clemente 07:09

Well, I know, way back, when I was in the legislature, I did a presentation on when you guys just took over the Pfizer, but it's part of North Campus now. And we had Ora Paskowitz I think she's the President Oakland University now, but she led up the whole we had a public hearing for the committee that I chaired at the time, but it was just fascinating, because you guys were just starting to get, you know, developing that part and I know it's doing well now, right?

R

Rebecca Cunningham 07:42

Yes, the our North Campus Research Complex, or NCRC, as we call, it is an amazing collaborative space that many of our schools on campus are working side by side on growing interesting knowledge, sharing ideas, and working to have those move forward discoveries across across the ecosystem.

E

Ed Clemente 08:05

I imagine that, you know, hopefully, you guys got a system down. But even for an institution, your size, actually dealing with the remote work. And because a lot of your labs are obviously, you know, I don't know, wet labs or actual hands on labs, right? That must have been a real challenge for you to still be able to do research during this era, too.

R

Rebecca Cunningham 08:29

Yeah, we have, you know, as I mentioned, we have the largest public research university in the country, which also meant it was the largest one to ramp back down and the largest one to ramp back up again. So we have 1000s of researchers who last year pivoted quickly to you know, in March, when we all when we all went home to working their way back to the labs. Most of them were back in labs by last summer working in an innovative way, staggered across shifts, working socially distanced and masks, and I'm so proud of how our researchers pivoted and came back to work during that time. And a lot of our a lot of that work can't be done remotely and it's critical to advance science, including the COVID. You know, science and science that will help us forward towards this COVID path in the future was important that we couldn't just not come and come in for and our researchers did that they figured out how to do it new in a new and different way.

E

Ed Clemente 09:29

So I imagine, like I said, you you are unique, and and when we say public university, I think maybe the general public doesn't even know the difference sometimes. But I know like I said for funding I was I wasn't on the propes committee, but we know we had to work with a lot of you know, mechanisms. But it is tough for all the research you do because I mean, like, I don't think Michigan has a really big private university. Right? It's the most of the universities are public. It seems like aren't they?

R

Rebecca Cunningham 09:58

If they did, I wouldn't be talking about but we are by public, by public university by public university, right we have, we have our part of the state's funding. And with that we really we have a mission to serve the residents here of Michigan, both in training our children in Michigan, as well as in helping to make sure that some of the the research that we do lands directly back to help our communities here in Michigan. So, you know, some of the COVID work that was done even during that time last year, I just want to call out for a moment cuz even though it was such a complex time, and we were all learning to work in new and different ways, you know, our researchers during that time, you know, put together over 1200 articles of research papers on COVID, specifically, that helped the country find their way forward, they worked on new wastewater testing approaches to

detect viral infections in our communities. Also shed light on how the virus has caused blood clotting, which helped our physicians in treating the disease. So, you know, these are really critical things that when people think of university, they often think of simply the training and education part. But this is the research part of the university. And while the researchers are doing that work, we also have our students and trainees working side by side, then learning how they do that work so that they can go on to be the next generation of researchers and scientists in our country so that we can continue to be cutting edge in the world.

A

Announcer 11:29

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E

Ed Clemente 11:45

Can you give me and not to put you on the spot, but a definition a little bit between what is basic and what is applied research? Because I don't know if the general public always sees a distinction between those two.

R

Rebecca Cunningham 11:58

Sure. So in for our our basic research, we think of being in a lab and working on understanding the components of a virus, which we're all thinking a lot about right now, understanding, you know, the the interior parts of a virus and how it interacts with other cells, for example. You know, that's what we call basic foundational research. Whereas applied research would be more when we take a discovery, and then we want to understand, for example, we think we have this drug that may work on a particular infection, and then how does that work when we get it out into the world? How does it interact with people in their communities? What are the effects of it downstream. So that's a little bit more of an applied research effect. It's a little bit of the difference between, you know, the initial discovery of something and seeing how it gets moved out into the marketplace or into our communities or in a real world setting, which is different.

E

Ed Clemente 12:56

Yeah, well, I remember in my high school physics class, we, sometimes say, you know, etc, like deductive and inductive reasoning, you discovered something, you got to figure out what to do with it, inductive is you're very precise in what you got to find out about it.

Right?

R

Rebecca Cunningham 13:11

Yeah, that's a great example. I mean, I think our real world examples right now are, you know, basic science on on COVID was what how the virus acts in the air and how it how it moves around and how it infects people, for example, and, and then applied work is how, how are vaccines? You know, there's the development of the vaccine, that's foundational work, but then how the vaccines actually work out in the world. That's, that's more applied, how we get people to take them.

E

Ed Clemente 13:45

Well my old roommate's a public health epidemiologist from the U of M. And we played rugby together there but he would always tell me that, you know, the difference between these new vaccines like the RNA part of it, and how it's so much different than the way traditional vaccines were created prior, how both the Moderna one and the Pfizer, one sort of were almost like brand new, you know, applied research. He also was, was pretty interesting. Just just from a layman's person, I found it so. Um, yeah, so anyway, I was gonna ask you just a couple more things here. I, what do you see and I know you guys work with a lot of different people, doctor, but where do you see trends going? And I think you've made a good case as to why a public university is U of M is so important to the state's fabric, economic development fabric as well. But where do you see some trends, some disruptors you think that might be something we should be paying attention to in the near future, and if you can kind of tie that into a little bit if you're giving a mini commencement speech to some either high school kid or mid-career people nowadays, where they should be going ya think?

R

Rebecca Cunningham 15:04

Yeah, I mean, I think the best advice I give, you know, my teenagers that are in my house embarking on their college careers as well as, as well as other graduates is really about persistence and resilience. One has to be persistent, and it has to keep on swinging at whatever the whatever the goal is. And if you don't swing, and then you're not gonna hit the ball, and then resilience, it's all about resilience Things get hard along the way, and then you learn from them and then you move on, and you keep on going and do it better. And those are really like the keys for success I see for, for young people today across and research is very much both of those things as well. We don't find new discoveries, they take repetitive work over and over and over again, and a lot of hard lessons and learnings from those hard lessons along the way. I think in terms of trends, and research, they're ever

evolving, but really exciting. I think, you know, the one trend that we can keep thinking about, and it's not a scientific trend, but I really want to have to be tuned into is the impact of the economic impact of the university research enterprise. Having a strong public research university is a huge driver of economic growth across our state, we're incredibly proud of that contribution we make here at Michigan, and again, that our mission here at U of M is to serve the people of Michigan and the world through creating and communicating and preserving and applying knowledge and art and academic values. And that helps create leaders and citizens who will challenge and enrich our future across our state. So in terms of trends for our, for your future leaders. Part of being an academic enterprise, like we are well will is a way to give back to the state. So you know, I mentioned to you before that our research enterprise has contributed \$5.9 billion to the national economy, but \$1.8 billion of that has gone to support Michigan-based companies, which is incredibly important to us, especially as everyone comes out of this time of COVID. And, wow, what does that mean? How do we do that? Because we have so much research activity occurring across our three campuses, we're bringing in all this federal funding, which we then use to pay people for jobs and to support local businesses. To get that work done, those businesses often play a significant role in advancing our research enterprise, because they're the ones creating the tools and the resources that our faculty need everything from beakers to safety goggles, I can't tell you Ed how many, how many during the time of COVID shutdown, you know, how many supplies we realize we need in our research labs, and we get those from local vendors and from from folks and suppliers across the state and nation, but it's a big driver of economic growth, that we're generating this, this research, and then it also creates the scientific discovery that we need to find cool and interesting ways to work forward. Like, you know, working from home and talking remotely.

E

Ed Clemente 18:04

Yeah, I have about nine family members in the health industry. And in the very beginning, they were making their own shields, you know, they were cutting Plexiglas and, you know, trying to do that until we got, you know, caught up to speed through a lot of your work and a lot of the manufacturers, you know, working together to come up with solutions, that I think Michigan is a unique state, because we make a lot still that we could make those sort of pivot things that other states couldn't. So we're pretty fortunate.

R

Rebecca Cunningham 18:32

Yeah, that's right. And those employees that you mentioned, I, you know, they're the research that we have here as a large research university. We have over 16,000 employees here who are supported on our research grants, which are doing the work and those are



jobs and jobs for the economy locally and put into the local economy, and it drives and funnels money through and that's really exciting part of our work.

**E** Ed Clemente 18:58

Well, we're at the last question already. Um, the and I don't know if you told me but I don't know if you grew up in Michigan. It sounds like, no you didn't

**R** Rebecca Cunningham 19:07

i didn't grow up in Michigan. But I've been here over 25 years now. So

**E** Ed Clemente 19:10

Because I saw you got your degree from in Philly Medical. Yeah. Right. Are you from Philadelphia? (Yeah.) Oh, good. Very nice. So the question is more for you for your last 25 years. But what do you like best about living in Michigan or what have you found to be unique? You like event festival place?

**R** Rebecca Cunningham 19:33

Yeah. Well, Michigan in the summer, and this time of year is just awesome. So you know, I have to say I love the local Metro Park System. I spend a lot of time there biking and hiking and running and it's just beautiful and all the seasons actually, you know, on the U of M campus, I love pushing the cube around in the middle of campus. So we have to have a little Go Blue moment there to push gotta come and spin. I don't know why it's so amusing for me constantly. I never lose the thrill of pushing the Blue Cube around. So those are some great things. And then you know everything all the festivals and music and the University Musical Society that's here and our art fair and things in the summer. It's just an amazing cultural place.

**E** Ed Clemente 20:13

Yeah, the quality of life, It's pretty good here. I know that

**R** Rebecca Cunningham 20:16

It's phenomenal.



Ed Clemente 20:17

Yeah. Well, anyway, we're very fortunate today again, to have Dr. Rebecca Cunningham, the Vice President of Research at the University of Michigan. And I want to thank you, doctor for taking time. I know you're super busy and we really appreciate you taking this time to share with us today and give us your thoughts too.



Rebecca Cunningham 20:34

Ed thank you so much for having me today.



Ed Clemente 20:37

It's been a lot of fun, appreciate you taking the time.



Announcer 20:40

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