



## **Breast Cancer is a Drag**

### **Nerdin' About Podcast Transcript, Season 2 Episode 1**

#### **Michael**

Hey everyone, welcome to Nerdin' About, I'm Space Michael, and with me as always is someone who we've heard in previous episodes, loves to knit, and for my birthday knitted me a wonderful toque, and that would be the Rat Detective Dr. Kaylee Byers.

#### **Kaylee**

I did knit you a toque, is it fitting you? It's made of alpaca, and I'm worried that it's going to eventually just slouch down to your shoulders.

#### **Michael**

Well I'm generally very hot. So, the toque is going to wait until we get into winter months, but I'm ready to pull it out, and wear that alpaca with pride.

#### **Kaylee**

Well, you're going to be so fashion, and you know what else? Today we're also going to get into a little bit of fashion as we are joined by Shawn Hercules. Shawn is a PhD candidate at McMaster University where he studies breast cancer. In addition to that work, Shawn also transforms to Miss Rawbyn Diamonds in drag to challenge heteronormative stereotypes in science. Hi Shawn, how are you doing?

#### **Shawn**

Hey, I am great. How are you?

#### **Kaylee**

I'm doing pretty good. I had a bit of a hectic day, but starting to come down. So, Shawn, to start off, how did you come to work in breast cancer research for your PhD?

#### **Shawn**

So, before I started at McMaster, I was living in Barbados, and I spent most of my life there up until this point. I did my undergrad in biochemistry and chemistry, and then I pursued a Master's of Public Health. After my Master's of Public Health, I was doing research at the University, and I very randomly met my now supervisor, she was in Barbados collecting some data for her breast cancer project. I was recruited while she was in Barbados on that trip.

#### **Kaylee**

Maybe let's then talk a little bit about your project. So, you're specifically working on breast cancer research. So, for folks who aren't familiar can we get basic? How many people are affected by breast cancer?



### **Shawn**

Yeah, lots of people are affected by breast cancer. It really depends on which part of the world you're from, but incidence rates are increasing in developing countries compared to the developed world. One thing about breast cancer in general is that we started to see that mortality rates have declined, which is great, but what we do see is that there is a difference in how these breast cancer rates appear for different groups of people. So, in the US, specifically, incidence rates are higher in white women than Black women. However, mortality rates are higher in Black women compared to white women, which is surprising. If the incidence is higher in white women, why are more Black women dying? So, a lot of researchers are postulating that this could be due to social economic status, access to health care, all of these social factors, which do make sense, you know, if you don't have access to health care, your chances of dying from breast cancer or any disease would be higher. We do see this in the US, but even when we break down breast cancer by the types, the different subtypes of breast cancer, we see that the most aggressive subtype of breast cancer is actually more prevalent in Black women in the US, which can't be fully explained by social factors. So that's where my project comes in. I'm trying to investigate why this form of breast cancer is so prevalent in Black women, specifically women of African ancestry. So, if we look at the transatlantic slave trade, it's postulated that many of the slaves from West Africa would have been taken from West Africa, across the Caribbean, into North America. My project specifically has women from West Africa, and the Caribbean at the moment. What we're looking for is a list of genes, or some type of mutational profile of these women that could be predisposing them to this form of breast cancer called triple negative breast cancer.

### **Michael**

Let's dive into that, Shawn, because you did say that there are different types of breast cancer, and you focus on triple negative breast cancer, which does sound very scary. Could you maybe tell us a little bit more about this particular cancer, and what makes it so aggressive?

### **Shawn**

Yeah, so triple negative breast cancer is characterized by the lack of three receptors: estrogen receptor; progesterone receptor; and human epidermal growth factor receptor2, or her2. Right after a woman is diagnosed for cancer, the tumor is tested for these three key proteins the er/pr, and her2 and if the tumor is positive for er or her2, they can target these kinds of cells and effectively get rid of them, and kill them. With triple negative tumors, however, they don't have any of these receptors. So, there are no targeted therapies. Well, one recently got approved, actually, but there are no routine targeted therapies for triple negative breast cancer. So, at the moment, usually patients who are diagnosed with triple negative breast cancer had to be treated with standard chemotherapy, or they had to get a mastectomy, radiation therapy, or a combination of all three for some patients. As you can imagine, chemotherapy just targets any fastly dividing cells in the body. So that's why many patients who take chemotherapy have rapid hair loss, and nausea because these are where rapidly dividing cells are. So yes, they're great at taking the cancer cells out in some cases, but not the best option. So that's why triple negative breast cancer is one of the more aggressive subtypes because of lack of targeted therapies. We see that this type of breast cancer also has a high likelihood to metastasize, or



spread to other organs of the body. So, we typically see a lot of patients with triple negative breast cancer, they have metastasis to secondary sites, typically the brain, and the lungs, and the liver. That's why triple negative breast cancer is so aggressive, and that's why we're trying our best to understand why this form of breast cancer is so prevalent in Black women. So, in the US, it's about 22% prevalence in non-Hispanic Black women, but when you look at non-Hispanic white women, it's about 11%, which is quite concerning.

**Kaylee**

Just to go back a little bit, do we know why it can metastasize? Or why it can spread so easily?

**Shawn**

That's a great question. Cancer is generally so heterogeneous that you see different molecular profiles for these tumors. So, specifically for the triple negative tumors, they just have a higher likelihood to spread to those organs, triple negative, and her2 were the two main aggressive forms of breast cancer, because her2 positive breast cancers also have a high likelihood to spread to the brain, so it's just the molecular makeup of these tumors.

**Michael**

So, Shawn, this form of breast cancer disproportionately affects women of African ancestry. You published a paper in the journal Cancer looking at triple negative breast cancer among people in Barbados. Now, you're from Barbados, tell us about the connection of this study, and where Barbados comes into this paper?

**Shawn**

So, for this study I traveled to Barbados, and investigated all breast cancer cases. So, in Barbados, there's one sole hospital called the Queen Elizabeth Hospital. I looked through these big binders that included every single pathology report, not just breast cancer, so anything, whether it's someone's tonsils getting removed or something. I looked through all of these cases and flagged the breast cancer specific cases. and collected as much information for each case as possible so we can publish about the triple negative prevalence. We were interested in this because we know that there's a high prevalence in women of African ancestry, generally speaking, but no one has ever published this within the Barbadian context. I'm from Barbados, I wanted to also contribute to my country of origin, as my supervisor is as well. So, we were quite interested in investigating this. What we found is that compared to the US, the triple negative breast cancer prevalence is higher in the Barbadian population compared to non-Hispanic Black women in the US, and, of course, non-Hispanic white women in the US as well. It's really concerning that this aggressive form of breast cancer is so prevalent within the Barbadian community. So, 1 in 4 breast cancer cases were triple negative breast cancer in Barbados, it was approximately 25% for the cases that had hormone receptor status noted. So, we do know that triple negative breast cancers are more prevalent in premenopausal women. So, it's typically seen in younger women, which is also another phenomenon that we don't fully understand. One measure that the government could particularly be interested in is something



along the lines of earlier screening. So instead of waiting until a woman is 50, or whatever the age is, right now, they could potentially say, "Hey, we know we have these high rates of this aggressive form of cancer care, maybe we should lower the age so that they can capture as many cancer cases as early as possible." You know, which is really what I hope my research translates to, I just don't want it to be floating around on PubMed on the internet, I want it to be actionable, which is really my drive for doing what I do. I think of my Mom, my Aunt, like all of the women not just my family, but in my community, and even outside of Barbados, this work is also quite relevant to women of African ancestry across the diaspora.

**Kaylee**

I was curious, you're looking at these factors that are driving this concerning increased prevalence among Black women with triple negative breast cancer. What factors are you looking at, specifically, as potential contributors to that higher rate?

**Shawn**

My lab investigates a particular transcription factor called Kaiso. Kaiso was discovered by my supervisor Dr. Daniel twenty years ago. Now, multiple researchers across the globe are investigating this particular transcription factor, this protein called Kaiso, and how it relates to other cancers. So, there's a lot of evidence that shows that there's a lot more Kaiso in aggressive tumors, breast, colon, lung, prostate, and specifically in breast cancer, we found that when there's a lot of Kaiso in the cells, they also contribute to metastasis. So, we found that in breast cancer cells with depleted Kaiso, we injected them into the mammary fat pad of mice, the tumors actually didn't spread to the lungs, or the liver, compared to the mice that were injected with the breast cancer cells that had normal levels of Kaiso. So it spread to the lungs, and the liver.

**Kaylee**

Oh, interesting.

**Shawn**

We also found that there was a lot more this particular type of this transcription factor in Black women compared to white women, specifically in triple negative breast cancer. So that's one angle that the lab has been working on. My project is not that focused on Kaiso, my project is looking at the entire genome, well, exome, I'm doing a whole exome sequencing,

**Kaylee**

What's an exome?

**Shawn**

Exome is 1% of your entire genome. So, you can think of it like a very tiny apple slice of the entire apple. The exome is really important because it encodes for the protein coding regions of your genome. So, all of the functional parts of your genome. So, what I'm looking at are these



regions, specifically from breast cancer samples from Nigeria, and Barbados, and I'm looking for particular mutations that could be driving this aggressive form of breast cancer.

**Michael**

So, Shawn what treatment options are available to folks that have this particular form of cancer?

**Shawn**

So generally speaking, patients would just have to be treated with any standard form of chemotherapy. So, platinum-based chemotherapies are quite popular. That's generally what's given before the surgery, and/or after the surgery. So typically, patients would also be given a mastectomy to prevent these tumors from spreading. So even if there's a tiny, tiny, tiny, small bit of tumor, they would still do surgery. Another reason why this type of project is really important, is because we're finding a lot of health care providers are leaning more towards personalized medicine. That is where this project can potentially go, because it's going to identify a lot of somatic mutations, and other researchers have found that particular mutations in popular genes such as BRCA1, patients who have these particular somatic mutations within these genes do better with certain types of chemotherapy. So even though we do know that chemotherapy broadly, as I said earlier, can impact any fastly dividing cells in the body, certain types of these chemotherapies will do better with people with these particular mutations. That is so specific, right? That is where I hope this project will open avenues for these types of streamlined treatments.

**Kaylee**

Oh my gosh, that's so cool. The idea that you could get that level of personalized health care Yeah, that's really cool. I'm so excited to see where your work goes.

**Shawn**

Me too. I'm excited too.

**Kaylee**

So, Shawn, in addition to being a scientist, you are also a drag performer. Can you tell us a little bit about Miss Rawbyn Diamonds?

**Shawn**

Yeah, so I believe in bringing your true self to the table, wherever you go, like whatever avenue you're in. That was a huge challenge for me when I first moved to Canada, because in Barbados I couldn't always be my true self, I had to wear a mask, to fit into society's standards of a man, or society's standards of Shawn Hercules. I was pretty well known in Barbados, within the Christian community at least, because I was a radio DJ announcer for a gospel station. I loved encouraging people with gospel music, and loved spreading the good news over the airwaves. I loved the community of it, but at the same time, I knew I was not straight. So, I moved to Canada, and I thought "Okay, well, Canada's pretty accepting, I can take the mask



off." But that really did not happen instantaneously. I remember when I first moved here, I went to a drag show a few days after flying into Canada with one of my friends here. I was shocked, I was looking around "like, who are these people? Like, what is this?" It was so weird for me, I felt uncomfortable, literally uncomfortable. Even though I knew it was a space that I should have felt comfortable in. I just didn't because it was so foreign to me. Over time, I started to unlearn a lot about myself, about my identity, all of that, and still doing that. Over time, there was a lot more acknowledging that no one here cares that much about my life, as they do in Barbados, and I had to accept that, and just be myself, and slowly take the mask off. That was a really long explanation to say, last year, I met Sam, Dr. Samantha Yammine.

**Kaylee**

The good doctor.

**Shawn**

She was on the podcast last season, and we met at a drag show last year, and she was like "yeah, I want to do this Science is a Drag thing. I don't know how it's going to work out, but let's talk more" I was like "oh my god, yes, please. Let's do this." So, we met, we talked a little more, and so me, Sam, and Geith Maal-Bared, along with RCI science, we started Science is a Drag, and that was the first time I was ever in drag on stage wearing a body suit. A body suit, high heels, a full face of makeup, rhinestones all over my body in a room of 150 people. And I was there talking about my science in drag. It was such an amazing experience, and that's how Rawbyn Diamonds was born at Science is a Drag.

**Kaylee**

I love the origin story.

**Michael**

I'm really curious about this intersection, because at Nerd Nite, and on the podcast, we really love these intersections of two different disciplines. I'm curious about what you have learned in this process of taking this brand-new persona where you were learning about your own identity, and now bringing your science onto the stage, and what you have learned in that process of bringing those two disciplines together?

**Shawn**

I will say that I've learned it is the best feeling ever to bring more than one of your common interests to the table. I started off by saying I believe in being your true self, and doing Science is a Drag allowed me to do that. It allowed me to share about this research that I do, and allowed me to lip sync to Rihanna.

**Kaylee**

Yes!



**Shawn**

So, a quick point to note. We went to high school together in Barbados. We weren't in the same year, but we attended the same high school at the same time. I didn't particularly love her actually during high school, but I adore her now, I have so much respect for her. My drag name so you know, "Diamonds" by Rihanna was a big song. Her name is actually Robyn, that's her first name, but I put a spin on it by Rawbyn, it's just kind of raunchy. Rawbyn Diamonds sounds like I'm robbing diamonds, you know, it kind of speaks to the drag persona. That is who Rawbyn Diamonds is, she's classy, but a little raunchy. If you watched season 12 of RuPaul's Drag Race, I would say Jaida Essence Hall type-of-vibe, is who Rawbyn Diamonds is.

**Kaylee**

It's funny, I actually sign cards to some of my best friends, and end it with "shine bright like a diamond."

**Shawn**

Amazing.

**Michael**

So, this new persona that you have Miss Rawbyn Diamonds, is Miss Rawbyn Diamonds inside of what you do as a breast cancer researcher?

**Shawn**

Yeah, so Miss Rawbyn Diamonds has been there from the very beginning. I would say a little more so now, in terms, of gender which is just a thing that is so weird and complicated. I'm just more aware of that after moving to Canada, I should say just being more introspective of my own identity. So, like when I wrote the bio for this, I started off by saying Shawn is a researcher, his research is whatever, and Miss Rawbyn Diamonds, and she does whatever. I just think I love the gender bending, for lack of a better term of what drag does, and it really has made me more cognizant, it makes me notice these things a little more. So, when we look at breast cancer specifically, and how in science, people always use the terms gender or sex interchangeably. I've been a lot more aware of that I would say since Rawbyn Diamonds came around.

**Kaylee**

I imagine also working in breast cancer research, where things are framed very much as sex and gender being similar things, and how your identity is accounted for in that kind of research is generally a conversation that is only now getting the attention that it needs, and still not as much attention as it deserves.



**Shawn**

1,000% I recently heard of research being done on breast cancer specifically in the trans community as well. So, these are things that need to be talked about. These are very important points in research that need to be considered, and not so focused on this binary.

**Kaylee**

I think we're all in agreeance. Let's go beyond the binary. Hey, Michael?

**Michael**

Absolutely. Yeah, I'm excited to meet Miss Rawbyn Diamonds in person eventually. Science is a Drag is an event that I've been wanting to go to since it launched. So hopefully we can bring you guys out west one day. Should we get to some Nerd Herd questions?

**Kaylee**

Let's get to the Nerd Herd questions!

**Michael**

All right, if you want to get in on our Nerd Herd questions we will post when we are interviewing our guests on our socials @NerdNiteYVR on Instagram, Twitter, and Facebook. Our first question comes from Lisa who asks, "What impact do charitable organizations like the Canadian Cancer Society actually have on research?"

**Shawn**

That's a great question. Before starting my project, I was always very hesitant to take part in a lot of these big charity donation runs for cancer and breast cancer specifically, because I always heard people say, "oh, a lot of the money just goes to the admin, it doesn't actually go to the cancer blah blah blah blah blah." For some charities that's actually true, but what I do before I personally give to any particular charity, or before I donate I specifically look to see how their money translated to research. So, in Hamilton specifically, we have this really great Breast Cancer Run by the Juravinsky Centre, and I know that the money does go to labs in the Hamilton area, because our lab has applied for money before, and received money. Another big donation that I know actually goes towards research was the CBCF, Canadian Breast Cancer Fund, but that has amalgamated into the Cancer Society. I feel that you can just do your research about a particular charity to see how they are involved in research. Many of them actually are pretty transparent about where they give their money to, which labs they've donated to in the past. They can even show you how labs can register to get those funds, etc. But yeah, just have an open heart, because our lab has benefited from various charities.





**Kaylee**

That's very cool. Yeah, there aren't so many charities for rats, you know, where I've been getting my money, but that's pretty cool. We have one other question, Shawn, this one's from Pitre. Who asks, "Is there any effort being made to replace mammograms with something less painful?"

**Shawn**

I know researchers at McMaster that are coming up with particular tools that can detect breast cancer. It's actually really interesting. It's a physics PhD student I know that is working on that specifically, but it's for when the surgeon is actually doing the surgery so that they don't invade non-tumor areas. Specifically, for mammograms, an alternative that's not so painful, I really don't know. I just know that right now it's what is routinely used.

**Kaylee**

Here's hoping for a future without needing mammograms. So, Michael here we are nerding about mammograms, so you want to nerd out about some other things?

**Michael**

Yeah, let's do it.

**Michael**

So, if you want to get in on the nerd outs, you can let us know what you've been nerding out about again on our socials @NerdNiteYVR, but you can also email us as well Vancouver@nerdnite.com. Like Pramodh who is nerding out about kimchi, maybe making some kimchi, eating kimchi. Russ is nerding out about the second wave of bread making. Shawn, how's your cooking these days in the pandemic?

**Shawn**

So, in the past I used baking as like some type of stress reliever, usually banana bread. That's really the only thing I really mastered well, specifically chocolate chip. I did that quite a few times during quarantine. A few weeks ago, I had a very random craving for cornbread, and I was also very stressed, and so I baked chocolate chip banana bread, and a corn bread in the oven at the same time. So that was my recent baking exploits.

**Michael**

I love all the breads! Is there something else you want to nerd out about?

**Shawn**

Yeah, so when we did Science is a Drag last summer, I actually didn't do my own makeup, I was able to get a makeup artist. Thank you so much Rahnell. Oh my god, she's amazing. She did my makeup, because I knew nothing about drag makeup. So, what I really practiced during quarantine was doing a drag look, which is you know, very different to just doing a traditional makeup look. So, I did that during quarantine to help me cope. It really helps with my creativity. I



love it. I mean, the first few times were a little rough. Rawbyn didn't look her best [laughs], but it's a learning process. You know, it's not about the end result for me. Actually, it's more about the process in how to get there. It's like baking, all of these ingredients at the right proportions to get your bread. Doing the contouring, and the eye shadow at the right proportions, the right times, and all of that to get your desired outcome. So that's what I've been nerding out about getting my drag makeup to a point where I feel that Rawbyn Diamonds confidence.

**Kaylee**

I love that, you know, I've always been a very minimalist makeup person, in that I almost never wear any, and then I was like, "You know what? I'm going to spend the time on myself, and I'm going to learn how to do like a whole face of makeup".

**Shawn**

Oh my god.

**Kaylee**

I sent a picture to my friend, and they were like, "Are you doing Tim Curry's Rocky Horror Picture Show?" I was like, "Oh, no!" [laughs] I bought a very bold red. The practicing was obviously really important, but what I really valued was honestly just taking time where it was just me working on myself. I really enjoyed that.

**Shawn**

Yeah, that's what drag makeup does for me.

**Kaylee**

What about you, Michael?

**Michael**

Well, you may not know this yet Kaylee, and I don't know if I want to put this out there. I may actually be looking into putting some looks on.

**Kaylee**

Wait looks like "looks" or "lewks"?

**Michael**

Oh, you know, the "lewks". So, we're just going to leave that there, because I need to do some more research.

**Kaylee**

Okay. All right. Good tease.



### **Michael**

My nerd out is a bit sad, but is something that I have been thinking a lot about today. So, this is going to be released in Season Two, but in late October as we're recording, a person that I've always loved Joey Moss, died. Now for people who don't know who Joey Moss is, he is a man with down syndrome who has been the Edmonton Oilers locker room attendant. When I was growing up, my grandma lived in Edmonton, and in the 80s, they had the best team, I had the Wayne Gretzky doll. I idolized them, and Joey Moss was always there on the bench. He would scream the national anthem, with full force, just so full of love, and energy. He was always a staple there right behind the bench, So amazing. You know, I've been watching lots of tributes today, and something really struck me. They were interviewing the equipment manager, and the interviewer asked him, "Why did you take Joey on to be the attendant?" And they said, "well, because Wayne Gretzky told me to." Wayne Gretzky was dating this girl, and her brother was Joey Moss. So, Wayne Gretzky used his privilege to get Joey Moss, a job. The thing is why does it need to take somebody in power to put people in positions where people with disabilities can actually thrive. There is a huge percentage of folks with disabilities in society, and they deserve to have places where they can also thrive, as we saw that with Joey Moss. To me, he was a member of the Edmonton Oilers, like that's how integral he was to that team. So, I did a little bit of digging, because at my workplace, we have worked with lots of organizations, they actually will work with you, they'll pay wage subsidies to give experience for people in the workplace. So, if you are unsure about your workplace policies, you should definitely talk to whoever's in charge at human resources. There's lots of great organizations, the one that I worked with is called Strive. There's lots of other ones that are in BC, and in different provinces, but definitely do some research. look into how you can advocate for more people with disabilities in the workplace. Kaylee, what have you been nerding out about?

### **Kaylee**

Well, this will not surprise you. I've been nerding out about rats, but like in a little bit of a different way. So, a few months ago, I was interviewed for CBC's Ideas, and they just released a two-part series today about rats. I'm in the second part, but the first part was really interesting, because it went into a history around our relationship with rats. What I really appreciated about it was that they actually got into some of the areas that people don't talk about, but they should talk about. So, when we are like, "rats are disgusting creatures they're everywhere." It's like, "Yeah, well, they're everywhere, because you've colonized, and they followed you." Then they took a little bit of a turn to something that I wasn't expecting, and they talked about witches, and that was really interesting to me. So, Michael, you know, in a previous episode, I learned that my great, great, great, great, great, grandmother was executed as part of the Salem witch trials.

### **Shawn**

What!?



**Kaylee**

Her name was Rebecca Nurse, and she was quite a bit older, I think she was in her seventies when she was executed, so long enough to have kiddos. So, they were talking about this connection between rats and witches. So, in England, I think it was in the 1500s, 1587 and 1588, they were saying that there was an increase in persecution of witches, and there was also a lot of rats, and there was also an association between rats and witches. In that they thought witches had rats as their familiars, they could turn into rats, and they kind of say in the podcast, "there's no reason to say necessarily correlation isn't causation. It wasn't that there were more rats and so they killed more witches, but maybe?" So anyway, I was nerding out on the first part of this CBC Ideas, two-part about rats, and the complicated relationship we have with them.

**Michael**

Awesome. I actually, just watched *The Witch*, which is an amazing film that came out a few years ago, if you want to learn more about the precursor to the Salem Witch Trials. Shawn, where can people learn more about you, your research, and Miss Rawbyn Diamonds?

**Shawn**

People can follow me on my social media @ShawnHercules on Twitter and Instagram. Yeah, so that's where people can find me. I'm working on a website too. So that's going to be launched soon, so people can look out for that. Just follow me on Instagram and Twitter, Shawn Hercules, I'll be there being my true authentic self.

**Kaylee**

So, you should absolutely go, and follow Shawn, and see all of this amazing research, but also *Science Is a Drag* bringing those two loves together. If you want to hear more from us, you can follow us on our socials @NerdNiteYVR, you can like and subscribe to our podcast which helps get the word out. We're really excited to be here for Season Two, and we'll be back in a couple weeks, but until we meet again, shine bright like a diamond.