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In this episode, Taren Grom, Editor-in-Chief of PharmaVOICE magazine meets with Anne Heatherington, Ph.D., Senior Vice President, Head of Data Sciences Institute at Takeda.

Taren: Anne, welcome to the PharmaVOICE WoW podcast program.

Dr. Heatherington: Thank you, Taren. It's a pleasure to be here and to talk with you today.

Taren: It's our pleasure indeed. I have gone through your bio and done some research, and I love your career journey. Can you share some of the places you've gone, the things you've done, which ultimately led you to be named Senior VP and the Head of Data Sciences Institute at Takeda? I think that's a great title too, and we'll explore that a little bit later on.

Dr. Heatherington: Yeah, it is a great title and it makes me laugh every day I look at it, frankly. But it has been really interesting journey. It's interesting, when I started back at age 18 thinking about university never that I think I'd end up as head of an institute. But each step is kind of prepared me for the next role in some unexpected way.

But I would say in some ways a common theme across all my jobs have been data or analytics jobs. I'd say my career progressed fairly standardly with a couple of seismic shifts along the way. I grew up in Belfast in Northern Ireland and was really lucky to be part of an excellent public education system. Schools in Northern Ireland are very, very good.

But probably the bigger force was really my mother who really was a force to be reckoned with. Every day we'd come in from school. From as young as I can remember we would set up at the table and we would do our homework, and then we do mommy's work. We all progressed through school, and I actually really wanted to study applied math at university. But was convinced by my rather biased pharmacist father that

pharmacy was a much better option for me, and particularly for a girl as it was put to me. And there's truth to that as well.

I progressed and went into pharmacy. I stayed in Belfast. I went to Queen's University in Belfast. During that course one of our lecturers, Dr. Collier introduced this concept of pharmacokinetics to us, which really is the math of drugs. Everybody in my class hated it. I perked up. I loved the idea that you could study the math of drugs.

That led me, with the encouragement of a fellow trainee pharmacist led me to a PhD in pharmacokinetics. And quite unwittingly I signed up to do a PhD with one of the grandfathers of the discipline in Manchester in the UK. I embarked on my career from there having worked with some of the best people in this discipline.

And then from there and at that time I actually also met my to be husband. And so I embarked on a post doc in the Center for Bioengineering in the University of Washington in Seattle with my new husband. The two of us have spent most of our careers working in the same places together. And from there we both went on to Amgen in Thousand Oaks in California where we got thrown into the world of therapeutic proteins.

And we both worked on the data analytics, pharmacokinetic, pharmacodynamic modeling of therapeutic protein there. And to say it was baptism by fire would be an understatement. These are the head years of late 90's for Amgen where it was all hands on deck. And my boss at the time said I got about 20 years' worth of experience during my eight years there, literally thrown into the deep end, and was guided and nudged by kind people all around me to do the right thing.

The next big shift was then I went back to the UK and joined the Clinical Pharmacology Department at Pfizer. I stayed at Pfizer for 14 years and really, really enjoyed it. It gave me such a good grinding in drug development. In clinical pharmacology we are understanding how drugs work.

I was an individual contributor and then I became a manager. But I guess then came my first seismic shift in my career when I was encouraged to apply for a totally different position which was the head of clinical research for the UK.

I moved out of my discipline and then moved into a much more general, nearly manager or leader. I look at that as my first seismic shift. I really enjoyed that role. It was very, very different. I had good mentors, some people that helped me grow.

And then from there I actually moved back to the US, back to Cambridge, Massachusetts, and headed now a mixed discipline group back into my discipline, but this time statisticians and clinical pharmacologists. That role was just fabulous, the idea that you can bring different quantitative groups together really, really appealed to me.

But then my second seismic shift happened when I was encouraged to go to a tiny startup, a 40-person startup and be head of development there and become, throw myself into one of the rare disease programs I should say.

Those two years had a profound impact in me. I realized what you could do with so few. I realized what drug development in rare diseases looks like, and the importance of really good discipline and decision making.

Unfortunately that rare disease program field. However, they say when one door closes a window opens, and that opportunity allowed me to be ready for the knock when Andy Plump, the Head of R&D here at Takeda came knocking. And so in a longwinded way I should say I guess that's how I've ended up here.

Taren: That's fascinating. I love how you call those two intersections seismic shifts, because one, it was really kind of a leap of faith for you to go take on the head of development at Pfizer and then another one to take a risk and join a startup and enter that world of rare disease. And from each intersection you learn something along the way that brought you to your current role. What gave you the courage to make those leaps?

Dr. Heatherington: I surrounded myself and my entire career by people that help me, support me, guide me. I've been really fortunate I grew up in a really strong family. And I've always been guided and supported by my immediate siblings and parents. But in each of those career shifts my husband would be the one. And he would say to me, "Anne, why not?" Or his alternative question was, "If not you, who?" That's usually what he says to me.

Really it was support and encouragement from those around me as well as the ability to look ahead and to see that this was a real opportunity for growth and something very, very different that I could leap into.

Taren: It's excellent and I love that, "If not you, who?" It really does give you that sense of purpose in a way.

Dr. Heatherington: Yes.

Taren: And I love when you talked about your mom and sitting at the counter doing your homework, but you had homework and you had mommy work. And that's a lesson that I can tell that still stays with you today.

Dr. Heatherington: Without a shadow of a doubt. I have three kids and my kids would say exactly the same thing, they had homework and mommy's work.

Taren: I love it. Now let's talk about what the Data Sciences Institute at Takeda is doing, and how it plays into the overall role of Takeda's R&D strategy. What's the work you're currently doing now?

Dr. Heatherington: The data sciences institute was actually the brainchild of my predecessor. He proposed to bring many of the quantitative disciplines involved in clinical research under one roof, and that makes a lot of sense. In drug development we generate vast quantities of patient level data both during development and even after drugs are registered and on the market.

We gather data in from controlled clinical trials, and also from what we call observational research or real world data. And the vast majority of those data from patients flow through different parts or all of the members of DSI. And so members of DSI, so the Data Sciences Institute are involved in every regulatory submission we do no matter the country, every study we design, every clinical study report written. And really the reason for that data and our ability to analyze and interpret the data is really our currency.

That consequently means that we likely, I don't know this for a fact, but we're likely the largest data analytics group in Takeda. And so we do play a major role in R&D, but actually more recently we started stepping up to an enterprise level as well. Because Takeda has really looked around and recently embarked on a larger enterprise-wide digital effort to really support our position as a global R&D leader.

And so this effort includes enterprise-wide colleagues from areas as diverse as our IT group, or global business units, our commercial organizations, and ever manufacturing. And it's focused on creating an enterprise wide approach to data and digital. So actually I am the R&D representative on this digital advisory board we call it.

We're initially focusing on five key areas to help us really gather and mine our data effectively, and use digital technology to improve patient lives and development of our drugs. And so the Data Sciences Institute is instrumental from an R&D viewpoint to

really feeding into Takeda as a global biopharmaceutical R&D leader. And it's something I'm really proud of that the organization can really be such active players in this enterprise wide approach that we're taking.

Taren: It's fascinating. Let's talk about some of the data and then we're going to talk about the digital aspects of it. Some might argue that today because there is so much data being generated that it's swamping some organizations. There's just so much information coming in, and from so many different areas within an organization. You talked about real world data as drugs are approved, but also coming from the clinical protocols, as well as now when you talk about digital wearables. How can an organization harness that data and make it really actionable for patients?

Dr. Heatherington: In some ways those of us that have worked in data analytics for years, that's our bread and butter. That's what we do. That's how we live our lives essentially. That's our contribution to drug development. But as you say the array of data, the types of data, the quantities of data are getting more and more.

And so I think of it as we have a duty to bring the data in to store it, to catalogue it, to tie it, to govern it. All of that is really so we can find it again, reuse it, share it, and appropriately use those data for the future and for actionable decision making. And so we are attempting to do that. I'm not saying that we're perfect by any means, but we are attempting to do that. And we are taking that responsibility quite seriously actually and really trying to put platforms and governance structures in place that will enable us to do that.

We're also looking at collaborations in consortia where data sharing is possible so that we can reduce the burden on patients throughout the ecosystem. We're looking at how we can reuse data ourselves. There are many ways that we can... If we are able to harness data appropriately we can really make a huge difference to I would say the efficiency of drug development, as well as getting drugs to patients faster.

Taren: Which is obviously the ultimate goal. Let's talk about where are you finding talent to fill in these data and data analytics roles, data scientists, where are you looking for those folks who are going to feed into that next generation of your talent pipeline?

Dr. Heatherington: We will take them from wherever we can find them. I would look under a rock to find talent if I could. It's a very, very highly priced skill set. I go back to, I mentioned that I wanted to do mathematics when I was going to university. And I

clearly remember my parents saying to me, "But Anne, what would you do with a mathematics degree? All you could do is teach."

And I fast forward it now, only about two or three years of course, and I look now at youngsters coming out of university with mathematics degrees or PhD's in some branch of mathematics are some of the most highly sought after talent in the industry.

Talent is phenomenally important to us as you can imagine. We do need talent coming out of all those quantitative disciplines but we also need people are able to not just do the analytics, do the programming, we need people who can think of the strategy and how do we apply it.

We need people who can explain their analysis to people and help them understand what could be done if we were to take certain approaches. We need people who can stand up and give presentations frankly, and be a good face and representative for Takeda. We just don't want people that are data analytics or data scientists, we need very broad spectrums of people, either within an individual or across individuals.

In terms of where do we get talent from, as I said, we'd look under a rock at this stage. But we all have pretty good networks. We developed those networks and we build those networks. We also have quite extensive intern programs in the summer. From my organization this summer I think it's somewhere between 12 and 14, some are interns that we will bring in this summer. We actually have converted a couple of those into long-term employees as they've graduated from university.

We are starting collaborations up with some of the local universities in Massachusetts to both get some of our work done, but also to help develop talent and to really show undergraduates and postgraduates what the pharmaceutical industry could hold for them. We are looking very broadly at this approach and really think that we have a responsibility to help develop the talent, to give input through organizations such as MassBio to how that talent can be developed at the many universities that are here.

Taren: Sure. You're in an education-rich environment so that's an asset right there. Let's go back to a little bit some of the groups that you are overseeing within the DIS group. It's statistics, quantitative solutions, global health outcomes and epidemiology, data architecture and digital solutions, digital strategy group. Wow, that's a lot. How do you corral all that talent and keep them all motivated and focused on a common goal? And then I want to talk a little bit about some of the digital stuff you all are doing.

Dr. Heatherington: I think first of all people are very self-motivated. People are here because they want to be here. And I think the motivation comes from the opportunities that we have here to make a difference to patients.

Last week was our R&D investor day. The head of R&D, Andy Plump got up and talked about the possibility in the next five years we might be able to bring 12 new drugs to market. And if that doesn't motivate people I actually don't know what does, frankly. To me it's just incredible that we have that possibility in front of us.

But more specifically the folks in my group what do they do? One of the things that really excited me was really coming to this organization and overseeing such a group of talented individuals with very, very good leaders imbedded within the organization. One of the main reasons I took this job was I really do believe that, to borrow an old slogan, "We're better together."

Let me give you an example as to why I think that's the case, and it goes back to use of data as you might imagine in my case. In diseases that we work in particularly like rare diseases and oncology it's getting increasingly difficult to recruit patients into placebo arms or for clinical trials.

There is an alternative method, and that is to reuse data, and we call that an external control arm. And so in order to do that you really, really need to pay attention to many, many different factors to make that comparison valid. Things like are the data that you're going to use for this external control arm appropriate? Are they a suitable replacement for what would be a placebo arm? Do we understand the providence and quality of those data?

By using that are we introducing bias into the study? And how do we ensure that they really do look like those placebo subjects? Or how do we account for potentially missing data from that data set? And then of course what's the appropriate statistical methodology to do these comparisons?

And so interestingly the experts that you would call together to answer all of those questions actually all live within my organization. And so we believe that by, in this one example and there are many other ways we could look at it, that by these groups coming together that we really can deliver a robust data package to answer the key drug development questions regarding the performance of our drugs relative to a placebo arm.

And we actually are doing this for several ongoing programs, and we want to become better and better at this. That gives you maybe an example as to how these different disciplines enter, we influence each other to really make a difference for patients in our clinical trials.

Taren: Wow, and what a difference today this consortium of individuals, if I can use that word, as opposed to 5 even 10 years ago that it was all siloed. And now you really are taking a much more collaborative approach.

Dr. Heatherington: Without a shadow of a doubt we seek out ways that we can leverage the talent to be better.

Taren: That's excellent. Digital is everywhere. It's all the rage. Let's talk about some of the ways in which you all are embracing this digital movement either through the data or through some of your patient programs.

Dr. Heatherington: We absolutely are. Again, like many, many things that appear new on the outside we've probably been using many digital tools for a long time internally. I like to joke and say that I thought I'd gone digital at about age 9 when I got my first digital watch.

If digital tools are a way of capturing data, we have been using them in clinical trials and drug development for a very long time. But I think the evolution and the excitement is that we can use digital tools to capture really how patients are experiencing our drugs and their disease on an ongoing basis. Normally, when we observe patients at epoch moments, when they come and visit their doctor, when they fill in their diary, it's very much at epoch moments.

But what we're able to do now is to observe particular characteristics of them over time, in other words we gather we call it longitudinal data. That is extremely exciting for us because now we're able to think about what does that disease look like during the day at night time. How does that disease really bother the patients? How does it limit them? And therefore that gives us opportunities to think about how we can work with the patients to alleviate the disease.

We look at digital tools maybe in two ways. One is digital tools that we develop internally to help us be better at reviewing and analyzing data. And we actually have a menagerie of animals, of tools that are named after animals like platypus, stork, and panda that are really different analytical tools that we've developed to give us better

insights into data either to help clinicians of their safety data in real time as the study is progressing, or to help us think about how we use our data to look geographically where patients are located in the world. And so they're digital tools that we're developing internally with potentially a range of partners.

But additionally we're using digital tools that we've garnered from the external world coming into our clinical trials, so we can take measurements at home. And so of course what people think about are things like Fitbit and different type of watches and they could be part of the package, but we could also be monitoring more specialty grade events, cardiovascular events, or respiratory rate, or all other types of measures, or measuring what's happening inside the intestine, and really getting digital measures about disease and how patients are feeling.

And so what we have done more recently is brought in a couple of experts in the digital technology space to really help us implement these digital tools better, and to work with our teams to really realize the possibility that these digital tools can have for us in both drug development, but also in the commercialization of drugs and how our patients take drugs in the real world.

Taren: That's exciting stuff that's going on there. You brought up platypus, and I know it's a pretty visible project within Takeda. Can you talk to us a little bit about what project platypus is and what are some of the goals of that initiative?

Dr. Heatherington: Sure. It actually grew out of one of the groups within this organization, the data architecture group, and has been led for now a couple of years. And it grew out of a real need within the organization, and that is as you're conducting a clinical trial and you have multiple sites all over the world, how do you as a clinician review the data and make sure that you're staying on top of any safety events that are going on? How do you make sure that if something's happening inside A and something similar is happening at site B at the other side of the world, that you're connecting the dots and really doing what we should do for our patients? And so it really grew out of a need to conduct safety monitoring on our trials in a much more efficient way.

There are tools available externally for this, and many companies do use different tools to do this? But this particular one is special in so far as it was developed internally. And it also allows us to do a couple of other things which I'll come to in a minute.

A team set about and started working with across function of statisticians and clinicians and medical experts and safety experts to think in an ideal world what would you want?

And so really they designed around that ideal world. And so now we have a tool, and I think it's running right now in 17 clinical trials, maybe more.

What happens is the data get transferred from all of those different sites around the world, and the team can come together and review the data generally in a blinded fashion, because many of our trials are blinded. And they review those data to make sure they understand any patterns particularly around safety.

But it also has an added benefit that we can review data anomalies, and if there are any issues with our data collection that can be picked up at that point as well. But a kind of a downstream consequence of doing this work is we're now bringing data in and bringing it into a data hub that allows us to look at data across all those clinical trials in addition to just within a clinical trial. And so that gives us much more opportunities to work with our data further down the road because all the data are now in a single platform in an integrated state.

And so Project Platypus has really started off with quite humble beginnings in some ways and has really developed into a tool that most of our clinical teams wouldn't be without today.

Taren: In addition to the safety data, what are some of the other things that you all are looking at in terms of the data?

Dr. Heatherington: It's primarily the safety. There's also many other endpoints come in like we're looking at measures of pharmacology. We're looking at measures of efficacy. We're looking at all the labs and cardiovascular measures that come out of clinical trials.

What an individual team actually looks at depends on how that protocol has been set up. For instance if it's a phase 3 study where we're blinded we would likely not bring in the efficacy components of that trial so as we don't introduce the bias.

There's a real period before the set up where the team sits with the experts from our data architecture group and decide which data types are going to be visible and which are not. And then also which data types are going to remain blinded and which are not. And so there's a whole host of things that could be looked at but there's very clear plans laid out around what actually will be looked at depending on the design of the study.

Taren: This tool sounds like it's really providing terrific results for you all.

Dr. Heatherington: It really helps in our oversight of clinical trials, and that really helps us be much more comfortable with our data as studies progress, yes.

Taren: As an expert and data and analytics what do you see are some of the biggest trends? And I know that's kind of a funny word to use for your area of expertise. But what are some of the things you're seeing in terms of where data and analytics are going? We talked about digital. We talked about the huge amount of data that are coming in. What else is in your purview that you're looking at?

Dr. Heatherington: You're absolutely right, it's a fascinating world and it's great to be a part of it. I'd say there are a couple of things. We touched briefly on real world data. That has really gained traction at the minute primarily because the regulators are really recognizing the importance of real world data.

What's interesting is there are people within my organization that have 20 plus years experience in this field. And it's so great now that their expertise, their knowledge can be brought to bear in our regulatory interactions. And so we're able to leverage that at an enterprise level to really help us interact with the regulators via the FDA or EMA on the utility of real world data and how that can be used to help with drugs getting to patients.

We talked about some of the digital tools that we're using. The other big area is the evolution in different analytical methods that are being used. People talk a lot about machine learning and artificial intelligence. And again, for folks that are in this space it really is just that is an evolution really aided by the advances in computer science and technology that enable us to apply those technologies more widespread. But we're also doing that. And looking at collaborations that we can have mostly across academia to help us apply those tools most appropriately within our organization.

But I would say, one of the things that people don't talk about in this space, really when they talk about trends in data and digital is the importance of collaboration within the ecosystem. At Takeda we have over 200 partnerships into the ecosystem, and we're very proud of the fact that we're very externally focused.

And that applies not just to the drugs that we are developing but it also applies to our capabilities as well. We are very, very happy to collaborate either with other companies, smaller biotechs, with academics, with patient organizations, we are very happy to collaborate not just around drugs but around capabilities, so that we can access the best talent and the best capabilities within the ecosystem.

And I think that's something in this space that people tend to lose track of. That as things move so quickly we couldn't pretend to be the experts. So we believe in partnering with the experts so that we can continue to stay ahead.

Taren: I agree with you. I think that is a trend that is continuing to evolve. Ten to fifteen years ago all companies are very siloed, very proprietary about their information, about their data. But as companies start to address some of the bigger diseases out there they recognize that there is a real need for collaboration, and there's a tremendous benefit to that mindset. So kudos to you all.

To switch tracks here just a bit, I want to talk to you a little bit about some of the lessons you've learned along the way in terms of your career. What are some of the things that you could share with women who are coming up the ranks, who are following the same kind of path in terms of data analytics, and going a non-traditional route in terms of, let's just face it, gender? I bet you're one of few women in your organization who has this kind of expertise. Do you have any life lessons that you can share with our audience?

Dr. Heatherington: Absolutely. If I was interested I would have lots of things to say. I do think it's getting better regarding women. For many, many years I have been the only woman in many rooms I've been in, and frankly that's been okay with me. But it is getting better, and I'm delighted it's getting better.

But I guess I would offer three pieces of advice. The first one is get educated. Education is the doorway to opportunity. Just as a side note, a PhD is an international degree, and it travels everywhere with you. My first piece of advice is just get educated.

My second piece of advice is just say yes. So many times I've been offered opportunities that frankly would scare the bejeezus out of me if I thought too long and hard about it. But I kind of say yes, and it's sort of my husband's mantra, "Why not? And if not, who? Put your hand up."

I've been offered opportunities. I went to only a small molecule company when all I knew about was therapeutic proteins. I was asked to lead a clinical team that was focused on female sexual dysfunction and the team were all men and I was the only woman, and I was asked to lead it.

As I said, I was asked to lead a clinical organization when I came from a much narrower background. And then moving to a tiny biotech. So many, many times you're really tempted not to say yes but just say yes.

My third piece of advice is that solid foundation of family, friends, allies. And in all honesty, not just people that you like and get on well with but people that maybe you clash with, people who have a very different point of view with you. Go out of your way to spend time with them and understand their viewpoint. And really build up a whole support system around you that can give you advice, mentorship, fun.

I have been really, really fortunate my career to have that strong foundation to build from, and then build from it. It's actually very interesting. I was actually looking up my calendar the other day, and coming up next week I'm going out with a group of women who my husband affectionately calls the drug dames. And this is a group of women that kind of grew up through Pfizer together, and we're all now dispersed across different companies at pretty senior positions.

Normally I organize it, but we get together every so often, and we kind of download about who, what, where, when, and it's just magnificent. Actually next week we're going out for a Christmas cocktail, seven of us next week together.

Incidentally, one of those friends was instrumental in my being approached for this particular job here at Takeda, so it is just an indicator of the value of network in its purest sense.

Taren: Absolutely, it's that power of the collective, and about those who you come up with through the ranks sometimes and those that you meet along the way that can provide some of the biggest areas of opportunity. And I love that, the drug dames, that's great.

I think those are three excellent pieces of advice. And I can only imagine the stories you could tell as you sat around that table with all those men talking about that female...

Dr. Heatherington: Oh, let me tell you... Over a drink sometime I'll tell you some of those stories.

Taren: That would be very interesting. We can leave it at that. When you are thinking about your leadership style, and I can tell you have a very egalitarian approach to how you look at the world. But how would you describe yourself as a leader?

Dr. Heatherington: Interestingly I never said I like to be a leader. However, my siblings would tell you that I've always been very bossy. I've always been a hard worker. And I guess I've been blessed with a modicum brains, although I wouldn't classify myself as remotely clever. I have loved every job I've ever had, and I've been very, very fortunate to be given opportunities, and I've never wanted to disappoint those that have placed their trust in me.

And so I guess all of those lead me to be someone who leads both from the front and from the back. And when I say I lead from the front I see it as my job to be the advocate and the spokesperson for all the work and dedication that folks in the organization have. I definitely see that that is a rule that I must adhere to, to be the spokesperson, to be the advocate of the tables that I have a seat at and other people don't.

But I also believe in leading from the back. I believe in empowering people. I believe in giving people a scope around which they're absolutely empowered to make decisions, and I try very, very hard not to step into that decision making. And if I'm asked directly about something happening within one of the lines that report up to me I will refer them back to the head of the line and really try hard not to step in there.

By leading from the back, that's what I mean, I like to create space for people. I like to create opportunities, and I like people to have the opportunity to rise up and to fulfill their potential. And I like to get stuff done. And so if I'm given a task I just like to get it done. I quite frequently find myself doing things, kind of going, "How am I in the middle of all this?"

But I like to get stuff done and I like things to be done in a very simple manner. So if I see stuff happening that's too complicated I will very quickly try to strip it away to its simple elements and to figure out the simplest way to get stuff done. And if that entails me getting a bit more involved in that particular thing I will do that. But generally I see myself as I lead from the front, but generally pushing from the back.

Taren: How do you define success to yourself? There are a lot of different metrics out there that women employ but how do you define success for you?

Dr. Heatherington: Seriously? Very, very simply, success for me is I get home each day. And if I've come out on top of the juggle of my day, on top of it more days than not, and I retain my sense of perspective they're not a success for me. I have a very, very simple metric.

My sister died at age 42. That was a profound moment as you can imagine in all of our lives. And so we developed a mantra in my family that you live life. And so my passion at work is only met by my passion to live life. And so success is managing that juggle the best way I can.

Taren: Out of something very tragic very profound and very poignant. That's wonderful. And I do love that staying on top of the juggle. I think that is great. And it's such a great visual too, and we all do it all day long, right, in our lives, our careers, our everything. And just keeping all those plates spinning and all those balls in the air at the same time, and then not be drowned by them, that is a successful day. I couldn't agree with you more.

We've talked about the three pieces of advice that you can offer to other women, but is there a piece of advice or something you wish you knew then that you know now, something that you've thought about and said as I got to this point I wish I had known that when I was entering my career or mid-career.

Dr. Heatherington: I was thinking about that. I have three older teenage children. I have a 19, 18, and 16-year old. They're at that point. My advice to them is very simple. You want to find the intersection of what you're good at, what you really enjoy, and you can make a bit of money out of it.

Constantly they're my three things for them. And surround yourself with people that lie somewhere on the spectrum of funny and kind. And if you were to ask them that, they would repeat that back to you quite happily without me intervening at all these days.

But I think a really important piece of advice is to stand up to yourself and those around you and develop a backbone. We alluded to the fact that sometimes it's a little bit lonely being a woman in this world. It's getting much, much less lonely. And I think advocating for yourself and for others around you if you're slightly stronger is really important.

When I was young I wanted something at home, my dad used to make me stand on a particular tile in the kitchen floor and give three good reasons as to why I should get said item. And after I'd put forward my arguments he'd turn to my siblings and he would ask my siblings whether I should get that item. And let me tell you, he taught me more about self-advocacy and the need for peer alignment and working, getting people on side with you than I think any leadership course could ever have taught me.

Taren: That's great. Finally, I'd love to know if you can identify one wow moment out of your very illustrious and successful career. So one thing you can point to that you could say, wow, that either changed the trajectory of my career or that really was just a poignant moment that has stayed with me.

Dr. Heatherington: It was very, very early on in my career. I alluded to the fact that I discovered this discipline of pharmacokinetics. I decided, with a nudge from a colleague to pursue a PhD in it. And I hope to get funding from the government to pursue a PhD. But one morning I got a letter and it said that I haven't received the funding that I had been relying on. And I was both mortified and very, very disappointed, because that meant I couldn't afford to do a PhD otherwise.

And so I took the cautious approach and I picked up the phone and was planning to leave a message on the answering machine of my to-be professor. I phoned him, it must have been about 7 o'clock in the morning, and I phoned his office expecting to get the answering machine, and I nearly dropped the phone when he himself answered the phone.

I explained to him really haltingly that I haven't got the funding, that I'm sorry for wasting his time, that I wouldn't be able to pursue a PhD with him because I just couldn't afford it. He was silent for a while and then he said, "Leave it with me."

He phoned me back about two hours later and he said, "I've got you your three year funding and you're sorted. I'll see you next week." I think I've spent my entire career trying to live up to the potential that he saw with me and the trust that he placed in me.

Taren: That's an amazing question, and look, it goes back to your tile. You were there with your father in that kitchen tile, whether you knew it or not at the time, that's what got you that funding. That's an amazing story.

Thank you again for sharing that. That is fantastic. I'm so glad you got the funding and it was such a delight to speak with you. And I can't wait to hear how Platypus continues to evolve, and all the good things that happened at DIS at Takeda. I hope we'll be able to stay in touch.

Dr. Heatherington: Thank you Taren, it's been a real pleasure talking to you. I've really enjoyed it.

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