



00;00;11;05 - 00;00;35;05

Peter Ward

My name is Peter Ward and welcome to the Solutions to Go podcast. Your source for information on investing, insurance, banking, tax planning and healthy living. If you'd like to know more about anything discussed on this podcast, please visit my Solutions online.ca where you'll find a wide variety of articles and videos. Today we're talking with Sandra Hanna, a pharmacist with personalized prescribing. This company seeks to help people get back to living full, productive lives. The impact of poor mental health in the workplace is staggering. An estimated 30 out of every 1000 Canadian employees miss work each week because of mental health issues. This lost productivity is estimated at \$6.3 billion annually. When you factor in the strain it puts on the health care system, the annual economic impact of mental health in Canada rises to \$50 billion. A person's genetic makeup can affect how they respond to certain medication, as the services can drastically reduce the amount of time it takes to find the right medication and the right dose for a patient. The benefits, as I see them, are twofold. Most importantly, the time for a patient to find relief is reduced. And second, the patient can get back to living a full life, including returning to work or whatever makes them happy without the trial and error of multiple medications. Without further ado, let's bring in Sandra and talk more about personalized medicine. This is kind of this is all new to me, so I'm quite unaware about these new medical advancements, as I imagine a lot of our listeners are. Maybe just take the listeners through what personalized medicine is and what problem it's solving for patients.

00;01;57;24 - 00;02;17;16

Sandra Hanna

Sounds good. So personalized medicine is basically just tailoring medication to a patient's actual genetics, medical condition, circumstances, really just tailored care. In the case of personalized prescribing, it's a drug compatibility test that is based off of genetics.

00;02;18;07 - 00;02;23;08

Peter Ward

Can we dive a little deeper into the genetic mapping and how that all works?

00;02;23;18 - 00;02;50;10

Sandra Hanna

Yeah, absolutely. So, what we do at Personalized Prescribing is we test genetics specifically related to medication response. So, there's no predisposition testing. It's mainly genes that have to do with how a medication is metabolized, broken down in the body, cleared. But then also how it gets to its target area and then how it occupies or attaches to target receptors. And then the full effect of that.

00;02;53;15 - 00;03;06;14

Peter Ward

Okay. And so, will the with the patient come to you and say I've come with a prescription and say, I'm taking this medication, can you test me to see if this is the one or is it something that they do before?

00;03;07;10 - 00;03;30;27

Sandra Hanna

So, either or. So at personalized prescribing we work mainly with mental health and more specifically, depression and anxiety. Okay. And the reason that we've chosen to specialize in that, despite the fact that we did have other panels we were testing for like cardiovascular medications and gastrointestinal, is that the rate of failure for anti-depressants is so high. So there was a big trial called SARDI. It basically revealed that only about 30 to 50% of individuals will respond to an antidepressant trial on their first attempt.

00;03;40;18 - 00;03;40;25

Peter Ward

Okay.

00;03;40;26 - 00;04;02;09

Sandra Hanna

So, we are specialized in antidepressant testing. It is worth trying to just take a prescription. There's a 50% chance that might work for you. But our recommendation is always if you failed at least one SSRI or you failed one antidepressant trial. There's no use in trying another because you likely fit into that 50% cohort where you're going to have trouble. So, it's better to skip the trial and error and have it tailored.

00;04;05;07 - 00;04;21;21

Peter Ward

Okay. Okay. And so I find that interesting. And with these medications, is there a lot of different medications for anxiety and depression? Is it a or is it just like three different ones? And, you know, you got to try all three if you don't get the test. No.

00;04;21;21 - 00;04;39;11

Sandra Hanna

So that's the interesting thing. There's like eight first line medications. Okay. So, when a doctor prescribes the first medication, it's usually trial and error because there's eight that are appropriate or more as a first line therapy. So, it's really just based off of the doctor's anecdotal experience. Like a lot of my patients have had positive response on this drug. I'm going to prescribe this to you as well.

00;04;41;26 - 00;05;00;08

Peter Ward

Perfect. Got it. I was just curious, because I don't know what the scope of the medications are. Right. So, I think that was that's really interesting that, you know. And how long would you say it takes to adapt? Like so, if the doctor prescribes me one medication, how long do I have to wait before I know if it's working?

00;05;00;12 - 00;05;24;12

Sandra Hanna

So that's another great question when it comes to antidepressants. It could be it could take up to 8 to 12 weeks to see if the medication is fully effective. So, in the first two weeks, it's pretty common. Tough certain side effects like stomach upset, nausea, dry mouth, all those things. And then at 3 to 4 weeks, you should start to feel a little bit better and then closer to the 6 to 8 week mark, you should feel markedly better. But of course, that depends on so many factors. So, your doctor will give you a starting dose and that's just to get your body kind of used to the medication and it's not a maintenance dose. So, it depends on when you're able to see your doctor next and what maintenance dose you end up on. But usually, it's a three months trial before you really know.

00;05;43;29 - 00;05;52;23

Peter Ward

Okay. Okay. So, they did potential time saving here is massive if you know times that by a few different kinds of frontline medications.

00;05;52;28 - 00;06;12;13

Sandra Hanna

The people we see they failed medication so a lot of them have failed six medications. Eight medications. So, by that time, they have titrated on to the first. Right. And then you can't just stop it cold turkey. You also have to taper off of it, which takes another couple of weeks or more, depending on how long you've been taking that medication. And before you know it, you're a year in. You've lost hope that medications even work. You're kind of questioning the credibility of the process and you're feeling disillusioned and you just don't want to adhere to any medication.

00;06;25;28 - 00;06;38;29

Peter Ward

All right. So, this could be a significant time saver for the patient. Could you maybe just explain a little bit about the process and maybe why we're not all wired the same, like why one medication just doesn't work for everybody?

00;06;39;07 - 00;07;17;26

Sandra Hanna

Yeah, absolutely. So, we can start with how we clear these medications, because that's the simplest thing really to explain. But antidepressants are predominantly cleared by liver enzymes. And there's actually two and we have different levels of function, genetic function at these liver enzymes. So, for example, 17% of a Caucasian population have ultra-rapid function

for one of the liver enzymes that clears antidepressants, meaning that they inject the medication and their liver breaks it down so quickly and gets rid of so much of it that it likely doesn't reach the brain in a sufficient enough concentration to be effective. And that's 16% of the population. That's no small number. And then there's another 5% that are poor or have poor function for that liver enzyme, meaning they retain higher than normal blood levels and then they're at higher risk of side effects and they need dose adjustments. But if they don't know, they can't get the right dose adjustment. And the same goes for the second liver enzyme. There is around 7% of the population that has poor function, meaning again, very high side effect burden and they don't know. So they're not able to adjust the dose. They just assume these side effects aren't going to go away. This medication's just not right for me. And then the same goes for, of course, these medications have to cross, for example, into the brain. So, there's a blood brain barrier, a barrier that separates the brain from the peripheral system or from the bloodstream. And different people have varying levels of activity at this blood brain barrier, meaning some people are at higher risk of drug expulsion out of the brain than others. And that, of course, also causes side effects within the bloodstream and the peripheral body and then lack of effectiveness. So, you really, for those people, need to select a medication that's smaller molecule, crosses into the brain more easily. And then the same is true of the target receptors. I don't want to go into too much detail, but different people have some people have more of a receptor, some people have less. So, some people need higher doses to occupy a receptor and some people just need an alternate medication that addresses a problem that another medication doesn't.

00;08;49;14 - 00;09;05;02

Peter Ward

Right. Interesting. And then so in your experience, like with all of this testing, do you find that the majority of people that get it do fit into one of those like eight frontline medications that you mentioned? Or do you find it's more nuanced than that?

00;09;05;12 - 00;09;20;06

Sandra Hanna

I would say 70, 60 to 70% of people will fit into one of those eight medications. It's just which one, is it cleared by one of these two liver enzymes? Is it cleared by the kidney? It's just those small differences that distinguish them.

00;09;28;29 - 00;09;44;12

Peter Ward

So maybe just take us through like what the process for this would be. How would someone that's interested in this get started? And also, maybe we can touch on the different types of conditions that can benefit from this type of treatment. I know you mentioned it's mainly anxiety and depression, but if there's anything else.

00;09;44;16 - 00;10;08;11

Sandra Hanna

So, the process is really it's really simple, especially for those that have coverage. With Manulife, we have a portal, they just go on that portal, they order the test, they submit the test to Manulife for reimbursement, and then within almost instantaneously they'll get an introductory email from us, which will give them a link to a consent form and then invite them to schedule a phone appointment with the pharmacist. Once they've scheduled that appointment, the pharmacist reaches out and takes all of their medical conditions, relevant history, lifestyle factors so that pharmacist can better tailor the report not only to the genetic test results, but also sort out any existing drug interactions and really tailored to that patient's symptoms and concerns and past experiences on other medications. And within about 1 to 2 business days, they'll get a little saliva kit sent to them by Purolator. So it's a saliva sample, very easy to provide your sample. That kit comes with clear instructions, comes with a prepaid Purolator envelope as well as Purolator's numbers. So really all they have to do is call Purolator and so on.

00;10;50;24 - 00;10;52;04

Peter Ward

I don't even think I could mess that up.

00;10;52;08 - 00;11;19;03

Sandra Hanna

Yeah, it really is so simple. And then about 5 to 7 business days from the time a patient or a client sends the kit back to our lab, they'll get their medication report sent to them by email and of course, faxed straight to their doctor or emailed to their doctor if they've given consent. And the pharmacist is always available afterwards to walk the client through the medication report through the test results, counsel them on the new medication, and then follow up with them as needed.

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Peter Ward

It sounds like pharmacists are really a part of this process, But, you know, if I'm if I'm someone that goes to my doctor and I'm displaying, say, symptoms of depression or anxiety, how what's the uptake been with the doctor side of things? Are they saying, you know, there's this thing that may be available on your group benefits that you should try before we prescribe anything? Or do you think a doctor's more likely to say, hey, let's try this, That doesn't work, let's try that? And it's kind of on the patient to go and see if they have this service.

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Sandra Hanna

So, I would say the doctor will always try it. You know, let's try one first line prescription. And we say that, too. Maybe you'll fall into that 50% cohort who will be a responder, but the doctors tend not to be against it. So, once they do get the medication report, there usually isn't a problem with adopting the recommendation so long as it falls within the appropriate population guidelines. At that point. Again, most people we see have tried five or six medications.

00;12;17;02 - 00;12;17;17

Peter Ward
Right, Exactly.

00;12;17;17 - 00;12;19;09
Sandra Hanna
Doctor has nothing to lose.

00;12;19;13 - 00;12;38;22
Peter Ward
Yeah. Yeah, for sure. Interesting. That's great. Can we run through a case that illustrates the time this could save and some of the other considerations that the process may expose?

00;12;39;10 - 00;12;58;16
Sandra Hanna
Okay, so just one example case and we come across this all the time is, for example, when an individual is taking a medication that is cleared by a liver enzyme where they have a problem. So, either they clear too slowly, so they have such a high side effect burden, it's not so much that they don't feel better, but they just can't tolerate the medication. So it becomes kind of a risk.

00;13;00;06 - 00;13;06;09
Peter Ward
The risks are sort of like the slower that the liver clears that, the more side effects it causes essentially.

00;13;06;09 - 00;13;08;26
Sandra Hanna
Well, because yeah, the more drug they have in their bloodstream.

00;13;08;26 - 00;13;09;15
Peter Ward
Right. Okay.

00;13;09;15 - 00;13;18;05
Sandra Hanna
Yeah. And also, in their brain. So sometimes you get the medication interacting with unintended receptors just because there's too much of it in the system.

00;13;18;17 - 00;13;20;03
Peter Ward
I've learned something new today. So that's great.

00;13;21;17 - 00;13;45;19
Sandra Hanna

So. So yeah, sometimes it's just a simple case of, okay, if you have problems with one liver enzyme, let's try a drug that's cleared by the other. All your brain receptors are pretty amenable to these drugs. You really don't have a problem. It's so simple. Or sometimes it's okay. You have a problem with both liver enzymes. Let's select a drug that's cleared by directly by the kidneys or has no liver enzyme not affected by liver enzymes.

00;13;45;20 - 00;13;53;00

Peter Ward

Okay. Okay. So just essentially figuring out how you metabolize that medication is a huge time saver.

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Sandra Hanna

Yeah. And the same goes for brain receptors where we have people, they just have an overexpression of one receptor and there are two or three medications that block that specific receptor and the others don't. And at this point, the person has tried four or five medications. And if they'd just started with the test, they would have saved all this time and all this trouble. These medications cause withdrawal. That's a long, tedious process as well.

00;14;16;04 - 00;14;40;11

Peter Ward

Yeah. With all these speed bumps, you know, to getting better, it just makes it seems like almost a no brainer to do the test. You know, like I'm like, I can't believe this didn't exist before. So maybe, just maybe if you just want to touch on that. Like, how new is this research? How long have we or people known about this kind of test and testing and, you know, the way the body works with regard to this medication.

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Sandra Hanna

Interest in this area has been going on for the past couple of years since almost like 2017, 2018. CMH. Did this study called the Impact Study with an American pharmacogenetic testing company, and they just wanted to see the value or how we could fit this into our health care system. And unfortunately, because at the time it was strictly liver enzyme testing, the results weren't bad. They were just slightly better than treatment as usual, but slightly better than treatment as usual didn't really justify the cost of a service like this. But since the research has expanded so much into not only determining clearance and safe doses, but also efficacy, so brain entry and then the target receptor is so now we're actually able to determine if medication is likely to be effective in an individual or not. There's no such thing as perfection. Yeah, of course. Definitely much better than treatment as usual now. So yeah, it's been a couple of years, but adoption has been slow. There's a lot of apprehension about genetics, so I've been working with personalized prescribing for four years and it's interesting to see how much less frequently we see. We hear the question of what are you going to do with my genetics, right? And so on. So yeah, there's more comfort now. And of course, again, there's no predisposition testing, testing. It's strictly medication response. And we have all the right security protocols in

place. We're actually certified by ISO 27,001 and no one has access to your information except for your assigned pharmacist. So even once you get your kit, you'll see that it's barcoded and no one can match the barcode to the name except for your assigned pharmacist.

00;16;22;23 - 00;16;34;15

Peter Ward

Actually, that's funny that you bring up that the genetic testing stuff. I feel like now not as many people talk about it, like it kind of faded into the background and it's sort of been science has evolved a little bit in the use of it, you know.

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Sandra Hanna

A Lot more mainstream adoption.

00;16;36;14 - 00;16;43;25

Peter Ward

Right? Exactly. Yeah, that's great. And then yeah, and then you see the home kits where you can get all your, you know, ancestry and. Yeah, exactly. All those things.

00;16;43;29 - 00;16;46;05

Sandra Hanna

At this point if you need help, I mean you've already done the test

00;16;46;10 - 00;16;55;19

Peter Ward

Yeah. Yeah, for sure. For sure. So, so what are you hearing from some of your patients? Do you have any positive or feedback that you can share?

00;16;55;29 - 00;17;24;02

Sandra Hanna

Oh absolutely. I mean, anyone listening to this podcast, I would encourage them to check out our Google reviews. Almost all of them are five stars. We have over 50 and people just are so comfortable sharing their story, believe it or not, where people have said, you know, this has saved me years of my life. Had I only had access to this sooner, I wish my insurance company had told me about it, or especially the people that ordered the test just direct to consumer, they always say, and they don't necessarily have coverage with Manulife. So they say, I wish my insurer was covering this or a lot of we got a lot of people ordering the tests for their dependents as well. Okay. Mental health and adolescence is huge. So just having access to a service like this takes away so much of the apprehension that people have, especially about starting a mental health medication.

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Sandra Hanna

For some people, there's stigma associated and thankfully we've gotten a long way with that. But just reading side effects online can be daunting. So just knowing that you're taking a medication that's most likely to work with a minimal risk of side effects, that's just been people are just so thankful for that.

00;18;02;11 - 00;18;15;11

Peter Ward

Yeah. You know, you mentioned the costs and being covered under some benefit plans. Is there a large cost to this if someone was not to be insured but was, you know, believed in it or wanted to do it to save themselves so much time.

00;18;15;18 - 00;18;23;14

Sandra Hanna

Yes. So the direct to consumer cost is \$599 plus HST. And the tests can be ordered on our website.

00;18;23;14 - 00;18;53;11

Peter Ward

Okay, perfect. I just want to make sure that even if people are listening to this, that on you know, that there is an option potentially. So. Okay. So we mentioned at the top of the episode how much this is costing Canadian employers with absenteeism and things like that. Are you hearing anything from employers? This has to be an exciting game changer, helping to get people back to work successfully. Are you getting any initial feedback or any case studies, anything like that from employers?

00;18;59;10 - 00;19;13;13

Sandra Hanna

Absolutely. So, we did one, I believe it was a case control study with Manulife, one of their plan sponsors and one of their employers. And I believe that the reduction in disability was actually 17%.

00;19;13;14 - 00;19;13;21

Peter Ward

Wow.

00;19;14;04 - 00;19;34;19

Sandra Hanna

Yeah. So, it was huge. And the tests show the test had an 82% success rate, which if you're looking at treatment as usual, you have that 30 to 50% and then the other 50 to 70 that don't respond. Like I said, no such thing as perfection. Right. But being able to improve that margin by close to 20% is big. And there is also a big ROI in terms of health and dental. I don't remember the exact figure.

00;19;39;00 - 00;19;39;13

Peter Ward
Right, Right.

00;19;39;16 - 00;20;21;22

Sandra Hanna

But all of the feedback from employers has been so positive. And speaking of just providing value, one other thing I wanted to touch on and mention in terms of client feedback about the service is just really the value of a pharmacist. So managing expectations at the beginning of the process, having someone to walk you through the process, but then also just the value of someone pointing out small interactions in your existing medication regimen, like one big case we had is we had a client order the test for a dependent and it was her son and he was taking two medications that were one for ADHD and one, I believe, anxiety. And together they were causing, I think, psychotic symptoms or delusional symptoms. And it was just assumed that both of these medications were causing a problem and that they should be avoided. But when we did the testing, the pharmacist was able to quickly recognize that these two medications have a similar profile and maybe doing similar things in the brain and that it was just too much. And we actually got her son back on just the one medication. And he's been doing fantastic on it ever since. So sometimes it's just about identifying duplicate therapies or two medications or do similar things, but they're part of different classes and it could just it could easily be dismissed in a busy health care system.

00;21;05;12 - 00;21;12;27

Peter Ward

Right. Right. And, you know, that would be the first thing they would jump to is this combination of two medications is not good. But when really it was, you know.

00;21;13;02 - 00;21;14;02

Sandra Hanna

Both of them individually.

00;21;14;02 - 00;21;35;22

Peter Ward

Yeah, exactly. Just one. Yeah. For sure. That's really interesting because if you have two conditions, you're probably going to be prescribed two different things. Right? And like you said, they could have a double effect almost. So how do you see personalized medicine evolving? Is this going to be the new way to manage health care and prescriptions, or are we going to start becoming more proactive than reactive? Like, do you see it gaining momentum and becoming more mainstream?

00;21;40;14 - 00;22;05;05

Sandra Hanna

Absolutely. Right now, we're being reactive and it is a new service. But I hope in the future and what I see in the future is a more proactive approach where someone's tested before even trying a medication just to save the time and cost. When you look at the statistics and the

likelihood of it being a 50/50, just having access to this right off the bat because again, there's no such thing as perfection. This service doesn't provide, you know, 100%. You're not going to have any issues. There's always that small margin of failure. So having access to something like this, knowing, you know, these not just this one medication, but these three medications are best. So let's try this. Let's see how you respond. And having personalized care, again, not just the genetics, but the pharmacist identifying issues in your medication regimen and walking you through the service, just it's so valuable.

00;22;32;28 - 00;22;38;04

Peter Ward

Absolutely. I couldn't agree more. Is there anything else you want to add? Any final thoughts?

00;22;38;17 - 00;22;52;27

Sandra Hanna

The last thing I'd want to add is if you if you were a loved one or struggling with response to antidepressants, mental health related medications, this service is available, it can help you. We've helped so many patients and we can also help you.

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Peter Ward

That's amazing. I think that is a great thought to leave this on. So, thank you so much for being on Solutions to go. Sandra.

00;22;58;13 - 00;22;58;29

Sandra Hanna

Thank you, Peter.

00;23;08;20 - 00;23;36;14

Peter Ward

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