

# We need more advocates.

**Candice Coghlan:** [00:00:00] Welcome to Living Transplant, the podcast that takes you behind the scenes of the transplant program at Toronto General Hospital and brings you open and honest conversations about the transplant experience. My name is Candice and I'm the Education and Outreach Coordinator for the Center for Living for Organ Donation. I'm also a kidney transplant recipient. This is where I developed my passion to support others in their journey to navigate the world of transplant.

Full disclosure, I'm not a physician and I'm not here to give you medical advice. Think of me as your guide through the world of transplant. To educate, inspire, peak your curiosity, and fuel your passion. Living Transplant will show you the world of transplant like you've seen it before.

Welcome back to the Living Transplant Podcast. Today I'm joined by the wonderfully creative Chris [00:01:00] Smith, who is an organ donor advocate, and later today will be joined by Dr. Marcus Selzner. Thank you so much for co-hosting this episode with me, Chris.

**Chris Smith:** Absolutely, Candice. Thanks for inviting me.

**Candice Coghlan:** Can you tell the listeners a little bit about yourself?

**Chris Smith:** Yeah, absolutely. For sure. So like you were saying, my name is Christopher last name Smith. I am the son of a former police officer, brother to a superstar in CBO basketball league. Amazing.

A photographer. Videographer. I immigrated to Canada back in the early nineties. So if you do your math really quickly, you can figure out how old I am. I came here when I was about 10 years old. I have an interest in videography. I've been doing it for over a decade or so. So yeah, and that's that's me in a nutshell.

**Candice Coghlan:** Amazing. Thank you. I'm wondering how did you get connected with the Centre? What's your connection to living organ [00:02:00] donation?

**Chris Smith:** Yeah, so my connection is through Sonia.. We made a video in celebration, I believe at the time. It was a two year celebration of her donation to her father that helped save his life.

And we sent it into the hospital and they really, liked it. So much so that we ended up connecting and talking about other opportunities and things that we can do to further the cause.

**Candice Coghlan:** That's incredible. And so you mentioned Sonia Yes. Sonia is your partner. How did you two meet?

**Chris Smith:** Yeah. We actually met at work at the time we were both working at the Budweiser stage in downtown Toronto. The year that we met was a couple of months, right after she had just done her donation to her father.

**Candice Coghlan:** Incredible. And you talk about Sonia's donation to her father, that was a liver donation, correct? Correct. And how did their surgery go and how are they doing [00:03:00] today?

**Chris Smith:** He's doing really well, actually. He's in better shape than I am. That's awesome. No, it's every, journey has its ups and downs.

But the end result for their journey is he's, doing really well. He's, really happy and they've added on years to his life that he otherwise would, wouldn't have had. That's amazing.

**Candice Coghlan:** And so if people want to watch that video that you made Yes. Way back when where can we find that?

**Chris Smith:** You can actually find that on the uhn YouTube page.

**Candice Coghlan:** You're, somewhat of a little bit of a realm outside of, living donation. You started dating the amazing Sonia when she was past that donation process I'm wondering what piqued your curiosity about that. What made you interested and, wanna become passionate about living donation? Because since I've met you, I only know the Chris that is [00:04:00] this remarkable advocate.

**Chris Smith:** For sure. Through Sonia, through education and through I, literally didn't know anything about organ donation prior to meeting her. And it opened up my eyes and it showed me that there's not only an entire world, but there's an entire community of people who are going through transplant or looking for a donor.

And it's remarkable the stories and the resiliency of both donors and recipients. And the more and more I interact with people and I hear their stories, everyone's journey is different, but everyone's journey is the same. And it's really

empowering and inspiring at the same time. So that's what piqued my curiosity and it hasn't gone away since

And it's turning me into an advocate because somebody that you know for sure will need an organ donation at some point in their life and providing the information to the community is really important. [00:05:00]

**Candice Coghlan:** Awesome. When I first met you was back in April or March as we were promoting the National Organ and Tissue Donation Awareness Week.

Yeah. And thinking about registering your consent to be a deceased organ donor and at that point, back then, you were not a register, I was not organ donor. Yeah. And so talk to me a little bit about that. Like what, changed your mind and what, did you learn in that process?

**Chris Smith:** So I think at that time, like a lot of people think you sign your registration card and it automatically makes you the donor.

When it, in reality it doesn't. You need to be registered for the beadonor.ca and I, thought, why not? The best example of showing what to do is to do it yourself. So I thought why, not? I wanted to be registered and I wasn't registered. So the opportunity to register came up and I [00:06:00] thought I should use myself as an example on what to do.

Some of the things you might think about when you go to register and some of those questions that are in your mind. So that is why I used myself as the example because I wanted to share that information with as many people as I could.

**Candice Coghlan:** That's fantastic. And watching that video, you made it so simple for people to be able to watch that and then hop on the website, I feel and just grab a health card and just do it. Yeah. And we always say it's, as simple as two minutes and I don't know if people actually clue in and think, Oh, it really is, it's actually two minutes. Yeah. But you showed everyone that it actually is two minutes. Yeah. So I'm wondering for some of those people who might be on the fence about registering their consent, are there any issues that maybe came up for you in the process or like you have heard about from our [00:07:00] committees of any kind of fears that.

For sure. That may have come up.

**Chris Smith:** Yeah. The, one that sticks out the most is you won't receive the level of care to save your life because they wanna harness your organ to give it to someone else. And we know that's just, simply just not true. There's a lot of skepticism that goes along with certain communities about organ donation.

But it on the website there's actually a section dedicated to frequently asked questions, and it's actually pretty intensive. There's at least 50 to 75 questions, I believe. So a lot of your concerns are handled right there, and it's all before you accept so. Go through the list, read it educate yourself, and then make that decision. And it only takes two minutes.

**Candice Coghlan:** And the other thing that I was shocked with when I got into this world is You think [00:08:00] that once you register as well, that's the end of it and that I'm registered to donate. So it's just gonna happen. But your family has the final say in whether or not that happens.

We're having the conversation today. I've had the conversation with my family. Yeah. I'm sure you've had your, the conversation with your friends and family as well, and I think it's so important for people to know that at the end of the day let those people around you know that you are interested in being a donor Yeah.

So that they know when, you pass that, that is one of your wishes. And what an incredible way to leave a legacy then to potentially save eight people's lives.

**Chris Smith:** Absolutely. And I think we need to normalize talking about it. Yeah. Because that's what, that's the part that we don't. And even myself until I registered, I actually didn't have that conversation with my family.

Cause it's not something that had been brought up before. So normalizing that conversation so that we can [00:09:00] have those early talks will allow your family to know your wishes and maybe even spur someone else to be a donor as well.

**Candice Coghlan:** When I was diagnosed, When I was 24, it we went through the whirlwind of everything and when things started to settle, we started to learn more about deceased donation.

And so across my family, everybody started to register and we started a campaign on be a donor.ca to get other people registered. And I think at the beginning my goal was a hundred, and then I hit that a hundred people

registering through my profile really quick. And so now my goal is a thousand people registered and I think I'm just over 600 now.

That's amazing. People who have clicked my profile. So that's another cool thing that I learned is you, can make your own campaign. That's amazing to have people read your story and then click to register. And for us, it's very common talk now in our family. And even at the time I think my nephew would've [00:10:00] been probably about five. We had this organ donation float in Cambridge for the Christmas parade that was happening. And so all of us had made these giant cardboard signs of I received a kidney, I received a liver, register your consent. And so there was all these people on the float and he was so excited to be on the float.

And he made this adorable little sign that is still in my closet today. And it had this big green ribbon and this big green heart in it. It says something along the lines of my aunt is alive because of an organ donor, and then he put register under and it's all in like marker and his little five year old hands writing. Yeah. And I remember driving to the parade and he was so proud of his sign and so excited to be on the organ donor float. And he talked about it with people and this is just this little five year old kid who was so passionate about sharing my story.

[00:11:00] The, and you're never too young or too old to learn about something new.

**Chris Smith:** Yeah. As well as you're never too young or too old to either be a donor or receive donation. Absolutely.

**Candice Coghlan:** I'm wondering if you could talk a little bit about the ACB Organ Health YouTube channel, because I know you do so much work on that channel with the videos and it's super close to your heart.

**Chris Smith:** Yeah, absolutely. So the ACB Organ Health Channel is a channel that dedicated to produce content directly aimed at members of the ACB community, being African, Caribbean and Black.

We know that there are inequities both in the actual receiving of healthcare, but also inequities in receiving the information surround the healthcare. So the channel is geared at providing content that is geared at our demographic and shows representation of people from our demographic giving the information.

The idea is [00:12:00] to create a level of comfort in the community so that this information can be shared because we know that's one of the barriers, is the non-trust of the existing healthcare system. So my role there is to produce content that's in the form of videos, documentaries, podcast. Anything that we can to share the information.

The channel is going in its second year now. And we're really proud of the work that we've done so far, and we're really proud of what we have coming up for the future as well. That's fantastic.

**Candice Coghlan:** And do you have any specific videos or episodes that you're super, super proud about or that you felt like you really hit the nail on the head for that one?

**Chris Smith:** Right out the gate, I think the, very first video with Charles. Charles is an, outstanding person. A bigger than life personality. I think that's one of my favorite videos that [00:13:00] we've created. And yeah the, again the, remarkable I think for the channel is how many stories there are to tell.

Were, if Covid had not been in the way we had, would have produced so many more stories because there are that many more stories to produce. So as soon as we get an opportunity, we're going to and I'm really proud of what, we've done Amazing.

**Candice Coghlan:** I've gone back and watched a bunch of the episodes because there's so many incredible Green Table Talk episodes and then also just informative videos that are on that channel.

**Chris Smith:** And I should, point out, it's not just me the, ACB committee comprises of several members. Who have been through transplant, going through transplant have been a part of the journey and are sharing their stories with the community.

There's, over 15 of us for sure. And our community is growing all the time and we're definitely welcoming [00:14:00] new faces. Amazing.

**Candice Coghlan:** And if somebody wants to join that committee they can email us at [livingorgandonation@uhn.ca](mailto:livingorgandonation@uhn.ca). One of my favorite episodes that, I've watched is the Men Who Care episodes of the Green Table Talk. It was so touching. It, my husband was my, my boyfriend at the time when I was diagnosed and on dialysis . Dealing with somebody who is going through organ

failure and on dialysis and all of these things that you don't expect a 20 something year old to go through.

It's remarkable to hear him talk about our journey together, but then to listen to, the men who Care episode, hearing some of that, that again through their lens, it's just so, touching and, heartwarming to hear the perspective of, men who are caregivers because it's not a perspective that we [00:15:00] hear often all the time.

Yeah. Yeah. And it's also, I feel like it, it helped me as a recipient to feel less guilt about. What I put my, partner through as, as a recipient, as somebody on dialysis. Hearing those men talk lovingly about their partners and how they would, absolutely do it over again.

Do it again. And how a lot of them were even honored to be the person that was able to care for, their partners.

**Chris Smith:** And, in most cases it was a crash course. They had no prior information, no prior knowledge about it. And it was, here's the book. Go. Yeah. Yeah. And like they said that the pressure, but I mean they stood by their partners.

And they helped them through those rough. Yeah. Yeah. [00:16:00] Really, touching. Incredible. And like you said, there's so many other stories on that channel that are, so impactful. Again, if you haven't been to the channel, please go and, watch, there's so many videos on there, ACB Organ Health.

**Candice Coghlan:** What advice do you have for somebody who is interested in learning more or interested in joining this crew of people who are advocates for, those of us who are dealing with this?

**Chris Smith:** I would say don't wait join. The information is definitely at your fingertips. We need more advocates and we need people to continue being advocates. There's more that we can do we can donate blood, right? There's, other things that we can do collectively to help each other to live a healthier life.

So I would say, yeah. Don't hesitate. Reach out to someone. You can reach out to us ACB [00:17:00] Organ Health. Reach out to Candice and let's, bridge a bigger community and show this information.

**Candice Coghlan:** That's incredible. Thank you so much, Chris. Absolutely. Thanks for sharing your story today. And I know anyone listening who is not

yet part of our crew, I think your, passion and your advocacy will definitely inspire so many people to, learn more and, move that needle on organ donation.

So thank you so much for being one of our champions. We really appreciate. Absolutely. Couldn't be happier .

All right. It is now my pleasure to introduce Dr. Markus Selzner. Dr. Selzner is currently the surgical director of the Ajmera Liver Transplant Program at the University of Toronto and co-director of the Toronto Abdominal Organ Transplant Fellowship.

His research is focused on abdominal organ preservation and [00:18:00] perfusion. Welcome, Dr. Selzner. Thank you so much for having me today. Thank you for joining us. I'm wondering if you can take us back to where you began your education in, medicine and general surgery and Germany. I'm wondering if you can tell us a little bit about what made you go into that field and, what was it like going through that education in medicine?

**Dr. Markus Selzner:** So, I did my, training initially in Germany. I started in Germany and I was inspired by surgery very early on in my career by. The fact you can do something with your hands and have a direct impact on a patient's life. And when I started my career in Germany during the training, I realized there is more to surgery than operating.

It also is, has an aspect of pushing the boundaries, thinking about new things, and [00:19:00] inventing new treatments. There's so much more to do. So I was fortunate enough to get a scholarship from the German government to allow me to do research abroad. So I went to Purdue University in North Carolina in the US.

We did a three year research fellowship, which was focused on developing new strategies of treatment in the field of organ preservation, organ transplantation over there. And my, my boss in the lab in in Duke became chair of surgery in Switzerland while I was there. So basically he moved to Switzerland and I went with him to Switzerland where I finished my, clinical training.

I did a fellowship in liver surgery in, Zurich. And he sent me then to Canada to get further training in in liver transplantation. And so I moved here [00:20:00] and then I stayed on and I'm still here on staff now doing liver, kidney, and pancreas transplantation. Incredible. That's amazing.

**Chris Smith:** Yeah, so why, specifically hepatology?



**Dr. Markus Selzner:** I would say I'm a liver, kidney pancreas transplant surgeon, so abdominal organ transplantation. I think in it's a passion of course, because we have dramatic impact on patient's life. It's many things in medicine, surgery are important and equal important.

I would say I personally like the transplant field so much. Because we have people who are very sick and organ is failing in liver disease, you may die if the organ fails and we can replace the organ and we make this patient better again. So we have a very direct impact, immediate impact on patients life where we operate.

Patients who are really, sick sometimes [00:21:00] and re reverses by replacing the sick organ, the patient becomes again, back to his normal life. And this is the same also for pancreas transplant. These are patients, diabetics with diabetes. So patients have decades of diabetes and we replace the pancreas and the patient's not diabetic anymore.

It can even drink anything he likes. And renal failure, very similar. You and dialyzers is a terrible situation in your life. You have to go to dialysis three times a week for hours and hours. And you get a new kidney and things are different. You have normal care function you can go on with your life. So this is from a physician point of view very satisfying procedures because we direct impact on the patient's life and patients much better.

And it's a, you see what you're doing and it's really, rewarding.

**Candice Coghlan:** There's not much else there in the medical field that [00:22:00] has that like immediate change in people. I've talked about it before, but I, remember waking up from my, surgery from my kidney transplant. Immediately acknowledging that, yes, I was in a lot of pain, but I felt different than I had potentially ever felt in my life and that I had so much energy, which some people might say was also the prednisone.

But I had so much energy that I was wondering if this was how normal people felt because it just was so new.

**Dr. Markus Selzner:** Yeah. And, many patients have been long time patients and sick, and you may forget what life is supposed to be. People who dialyzing for a long time or people are diabetics for decades.

And it is nice to make this go away and make better again. And today people can live with the new grafts for a long time, this good function [00:23:00] and enjoy a normal quality of life with little restrictions. I, would say.

**Candice Coghlan:** So, speaking of normal life, we, just posted recently a, wonderful picture of you with your dog on social media.

And in, in your normal life you have two physicians in, in the same home.

**Dr. Markus Selzner:** Yeah. My wife was as a liver physician and she is also specialized in liver transplantation.

And we met actually at Duke during our research foundation. So we both came, she came from France, from Paris, I came from Germany and we met actually doing liver research and that also then our path continued. We were both passionate about liver disease and we continued our training together. We got, married, we have children and, the dog.

And we are working together. So Nazia is the medical director of the live Liver transplant [00:24:00] program in Toronto. And it just actually commonly we share patients. We go rounds together sometimes. Of course it's a team there, many other people involved. It's a larger group, but within the group, our path crosses actually also in hospital many, times.

And of course we, even discuss at home sometimes between us things to how to make things better and how to improve strategies. Amazing. That's amazing.

**Chris Smith:** Dr. Selzner, what are some of the symptoms of liver failure and when would someone need a liver transplant? Like what are some of the things that someone could look out for that are happening to them that could give them an idea that their body is changing?

**Dr. Markus Selzner:** So I would say there are two different reasons why you would need a liver transplant. One could be liver failures cirrhosis, liver disease. And this is usually patients who get unwell over a prolong period of [00:25:00] time.

They get maybe yellow in the color of their skin. They may acquire water in their belly. They're clotting. The clotting factors in the blood changes. They have bruising. If it advances, they make it confused. They may have abnormal bleed, bleeding tendencies, and these patients have a shrunken scar liver and can become very, sick needing a transplant urgently.

The other group is patients with liver cancer that cannot be operated. These patients may have normal liver tests and they do not have any signs of liver failure disease, but they have a cancer and the liver that can be taken out. And then the only treatment is taking the whole liver out and replacing it so that the cancer goes away with with the liver.

And these two groups basically are both, of course, equally important and needed transplants. But they present very differently. One is [00:26:00] present with liver failure. The other one comes to us with a cancer.

**Candice Coghlan:** And so for people who have cancer does that often remove the, problem if you remove the liver with the cancer and, replace it, that's often a Yeah.

**Dr. Markus Selzner:** Cause need in all cases with liver cancer, the liver is, has inflammation. So they do have actually a liver problem that just didn't result it in liver failure. But they have a inflammation of the liver because of a virus infection, for example. And the liver is making new cancers, right? Often it's better take the whole liver out and replace it with a new liver because the reason the cancer came in the first place is also taken care of.

So the so in patients who have liver cancers even if it could be taken out, it might be still better to replace the liver because [00:27:00] these livers often tend to produce new cancers over time. And then it's the balance about about what is more meaningful in each individual patients. Is the rejection better or is the transplant better?

But this is a discussion we have in a team and we, look at each patient separately at this.

**Candice Coghlan:** One thing that I've learned in being in part of this world is the world of acronyms. I'm wondering if you can explain what that MELD score is and how that relates to transplant.

**Dr. Markus Selzner:** So the MELD score is made up of blood tests, which gives a number and the number characterizes how likely is the patient to die waiting with how the transplant, Okay. So basically it, it characterize the urgency of the of transplant. And according to med score, patients get ranked on the waiting list because we want to transplant the sickest [00:28:00] patients first.

So the patients who are at highest risk of dying will get the liver of a. Earlier or, first. So the, principle is sickest patients first because liver disease, we can't bridge in renal failure can dialyze in liver disease. We cannot. So the MELD score is made of, is a blood test derived score, therefore it's actually quite objective.

And it it helps us to, rank the patients, making sure the one in highest needs gets a transplant first.

**Chris Smith:** Wow. Wow. So during, liver surgery what, is the difference between the surgery for a living donor and for a recipient?

**Dr. Markus Selzner:** So basically it's very different. So in liver we have a fortunate liver can regrow. It's the only solid organ in the body that can actually regrow to full size. So in liver transplant you do not need a full liver, not normally. You can also [00:29:00] do with a half liver. So in liver transplant we can offer living donation.

That means family members, friends, but even coworkers. Strangers can offer to donate half of the liver to someone in need and the liver will regrow in the donor and in the recipient. So after four weeks about the liver has regrown to its full size and the donor and recipient will have a full liver then going forward, The operation is very different, of course, because in the donor the highest or the most important aspect is safety.

So we do a very careful, very thoughtful evaluation process and we want to take enough liver out that the recipient can live with this, but not too much that we have no risks or minimal risk for the donor. So we have a very specialized team that would that would decide where we divide the liver [00:30:00] into two pieces. That one stays behind with a donor and the other piece come out with the recipient. Then there's a second team that will implant the liver after removal of the recipient liver and connect this half liver we call it. Then into recipient and then it will grow subsequently in the full size.

And we in Toronto, the biggest living donor liver transplant program in the Western hemisphere I would say. So we have a large experience of this and we and the outcome is really excellent.

**Candice Coghlan:** Incredible. And with that, liver regrowth, how long does it generally take for that liver to regrow to a full organ.

**Dr. Markus Selzner:** So in about four weeks it regrows to 90%. Wow. The liver. And then the last 10% will need a bit more time. But the, grows is really fast. So within four weeks, the majority of this liver has, regrown. The missing part doesn't regrow, the remaining part [00:31:00] gets bigger. So it's not that what is it has missed, will come back.

The piece you give to the patient or which keeps enlarges so that the amount of liver you have in the end is the same. So the, volume of liver you will have is the same. It will look a bit different in shape wise afterwards.

**Candice Coghlan:** Oh, interesting. Okay. I didn't know that. I, for some reason I thought it was different amphibians that regrow a limb that that the liver then regrows its, its other piece that it's missing, but.

**Dr. Markus Selzner:** Oh, it does not but it's for some reason it knows how much liver you need. So we actually, it's an interesting thing. We don't understand it completely. The liver knows how big it's supposed to be for a certain body, so if the liver is too small, it gets bigger.

And if we give a big liver to a small person, it would shrink a bit. So the liver adjusts its size to the to the optimal size, but it does not regrow the missing part. It enlarges the [00:32:00] part it has.

**Chris Smith:** I was gonna say similar to a turtle inside of its Yeah, I'm not, I know much about turtles.

**Dr. Markus Selzner:** I dunno about turtles much, but it's actually true. So if you give a piece of a liver to, someone, every single liver cell will start dividing. It's actually amazing that it's like a signal to the whole liver. They all pick up the slack and every liver cell in this graft starts multiplying until the the optimal liver mass has been reached.

And then they all stop. It's like the whole team picks up and they all chip in. It's actually amazing. That is amazing.

**Candice Coghlan:** And so for somebody who donated a piece of their liver for a child, would that liver continue to grow as the child did until it reached its adult size?

**Dr. Markus Selzner:** Absolutely. Yeah. So that's, it's actually for a child is even nicer because a child of needs only very [00:33:00] small piece. So often it's right parents or if giving to a baby, often it's babies and they need a very

small piece. So we can actually take a very small piece off into the child and as the child grows to adult becomes a full size grown adult deliver piece will grow, properly and always stops when, it's supposed to be.

So they the adult later on. If, you, if a baby of couple hundred grams and later on is a man of 90 kilograms, the liver will enlarge as it should be and will have always the right amount of liver volume.

**Candice Coghlan:** So now I totally understand why liver. Is is a fascinating organ for, hepatologists or anyone involved in the liver world because that's just so unique and so interesting to have an organ works together to build the optimum size, I guess that's so incredible.

**Dr. Markus Selzner:** But I would say, all organs are fascinating. [00:34:00] Kidneys are equally amazing. We all say kidneys, make urine, but they make so much more actually. So kidneys are complex organs. They don't just filter urine either.

They have a very integrated mechanism to filter the right amount and reabsorb other things. So we have hundreds of liters of fluid coming through the kidney every day, and they make two liters of urine of the right composition. It's a, it's feedback mechanism involving hormones and neurons to, to make it happen.

So it's other organs, there is a world behind it. And and the pancreas very similar. Making insulin and hormones is not just a pump. You switch on. They have to know how much and when and how to respond and when, how to stop. It's, amazing to learn about the organs and, what is involved in the place together.

And it never fails. [00:35:00] You cannot have an organ that. It's sometimes right. They have a doing it right every day, all day long. All the time. All the time. Yeah. Wow, that's incredible.

**Candice Coghlan:** Thinking about some of the new advances that have been happening at uhn we've spoken in two of our podcasts about the remarkable Ex Vivo machine.

And I know some of your research you've done in regards to optimizing those organs. Thinking about when an organ is donated from a deceased donor in the movies or in TV shows you see them rush them out of the hospital and run them down the halls because they only have minutes to transplant it.

But I'm wondering what that optimum time that an organ could live outside of the body before it starts to deteriorate, and how that ex vivo machine has changed that for us? [00:36:00]

**Dr. Markus Selzner:** Traditionally organs were cooled down after transplant, after donation. In order to keep them alive until transplant and cooling down is basically slowing down your, metabolism.

It, reduces a need for oxygen, but it does not actually take it off. You. You still need extra oxygen. And a little bit. And organs don't like to be on call. It's like holding your breath, how long can you hold your breath? For a while. But does, it doesn't mean you're getting better.

It does not. The the time between donation and transplant was always a critical time because organs were called, we had no oxygen. It was an unnatural kind of situation. And it's just like slowing down the process of iteration, but not stopping it. So any organ will get worse over time on the cold.

If you have a very good organ to start with [00:37:00] it, it can reach a bit longer. If you have a organ that was not perfect in the beginning it, can stop shorter. Different organs had different flexibility. The heart was always the one with the most shortest time. Then lung was a bit better. And then liver, kidney, pancreas have a bit more, but it was never good.

Okay. And and the longer it goes, the worse it will get. So we always had to rush and we still do of course call storage and we have to time it and we have to keep going. And we have a plane waiting, we have ambulance waiting. So it's really work through that. When the donor comes, donor retrieval is done, the ambulance is waiting.

If it's far away, we drive to the airport. There's a plane way to go. We fly to Toronto. The OR in, in Toronto is already booked. And then we get started no matter what time of the day or the night. And we will not, we work around the clock to make this all happen. And if we respect the timeline, we will organize and we select the [00:38:00] organs very carefully.

It works obviously, and we can do it, but it was never be supposed to be this way. It was always a, b choice because we had no other option. So that was the only thing we can do is like a camping cooler with ice. A figo if, you have food, you keep it cooled cold. As we all know, it will last longer, but it will not last forever.

So the the new technology, which we are developing and which we are also pioneering. In Toronto, the lung team was first and liver and kidney pancreas now are on different stages of development, changes everything for us because now we are not cooling organs down anymore. We don't slowing down the process.

We keep the organs warm, perfused and we give the organs that it needs. During this time, oxygen nutrition remove toxins. So we put everything around instead of slowing it down, we now trying to pretend the organ is still in the body. We give [00:39:00] it oxygen, it has flow. We give him albumin. So the, we try to fool, we try to fool the organ thinking it's still in the body.

It still works outside the body. The liver, middle, neck, bile, it produces clotting factors. The kidney might make urine. The pancreas is making insulin. So we are trying to make the organ happy. And actually what we learned is we can achieve several things. First of all, we can preserve organs longer because it's not holding its breath, it's getting oxygen, it's getting nutrition so it can actually make it do things.

Second we, learn more about the organ, so when it's outta the body working, we can study it and see. Okay. How good is the organ? Because organs come in all different size and shapes and ages. Some are from older. The donors, younger donors, we often don't know really what happened with a donor sometimes.

So having the organ on an ex vivo, a perfusion setting makes us understand how good is it [00:40:00] working and how's functioning. It's like test driving a car. You wouldn't buy a car that you just heard about. You like to turn around the block a couple of times and see how does it feel? How does it drive?

Same with the organ. It's much better to see is the liver making bile? What is the plotting factors? Is it using glucose? What are the, how is the flow in the organ? You learn so much about the organ that my prediction of how it will work in the recipient gets so much better. So if I talk the recipient and I know the liver has worked in the box, I'm very confident this liver is gonna work also.

After transplantation, so my level of confidence gets better. The other thing is we can actually modify the graft. What we are also learning now is a graph that is outside the body in a machine. We can manipulate it, we can repair it, we can try to change things. We can prepare it for the transplant so we can make we can improve the organ actually in preparation of the transplant and [00:41:00] get the patients better grafts.



**Chris Smith:** Wow. We've been doing paired kidney donations since two, 2004, which doesn't seem that long ago, but it was 18 years ago. Where are we in regards to a paired liver exchange program?

**Dr. Markus Selzner:** So we do, we did paired liver exchange, but not as many in kidney as routine. This is now well established with a national system, so we fly kidneys around the country as we need it.

For liver, it's more, more, difficult. It's a bigger operation. There's not expertise everywhere to do this. So the expertise is not equally distributed. It needs specialized surgeons with this experience. So this isn't as easy. But it has been done and we're offering it. But it's not as common. It's the liver living donation is a bigger deal for many aspects.

Surgery, blood bank and logistics than the kidney transplant, [00:42:00] which more, hospitals can offer and and patients are distributed also differently.

**Candice Coghlan:** There's such an organ shortage across the world. And kidney paired exchange, I feel like that was a, huge jump in the right direction. I'm wondering if there's, other liver care or liver transplant innovations that you can speak to that, that are going to help bring us in that direction to bring more organs into the, pool for potential recipients.

**Dr. Markus Selzner:** Yeah, so basically for research point of view, we have of course we're working on different new things which are different stage of development. And it's always hard to predict when it will reach the clinical stage, but it's in part of our mission in Toronto's particularly, not just do the operation, but also.

Develop the therapy for tomorrow. And the lung team, Dr. Cypel, for [00:43:00] example, is working on removing the blood type in, Lux. So he has a wow, he has a model to to, make the blood type becoming less important, that maybe we can then exchange organs better independent of the blood type. Wow. In the research lab, we also investigate how we could induce tolerance, how we make livers or any organ less immunogenic.

Maybe we can reduce antirejection drugs in the future or, maybe avoid them even, which would make the organs last much longer. Which also if, we, if the organs last much longer, we, they don't have to re-transplant patients. And that would give us also organs we are also working on, novel things, which are in the early development, but could be built organ.

So one thing is could we from stem cells create kidneys or other organs? That be made organs customize for, spec specific recipients. This is something I would say you're working on. It's research. It's how [00:44:00] to say when it will come and great and how develop, but this is how you dream about something new.

This is how it starts. You have a have an idea, you have a vision. You maybe look crazy at the moment, . And, but then you push it along the way and maybe the next person will pick it up and bring it further and one day it'll be there and we can make organs or make organs that are not requiring antirejection drugs.

So this is a continuous process what we are, doing and developing. And that's also the nice thing about it. That's a passion. Not repeating the same operation every single day, but also thinking about how can it look like in 10 years, What will be different? How can we improve it? How will make it better for our patients and, what will be the change coming up?

**Candice Coghlan:** And for a person who takes anti rejection medication every day, that is music to my ears right? I take three anti-rejection medications. But even 10, 15 years ago it [00:45:00] was such a big fear for patients of what is that anti-rejection medication gonna do to, to my life compared to what dialysis is gonna do. And I say it time and time again, but for me, even the, worst day with my kidney transplant is far better than my best day that I had on dialysis, even with the antirejection medication.

Wow. I think a lot of people to hear that we're moving in the direction of, less medication. Even with the medication, I always tell people that my life transplanted is just so much more beautiful than, what it was when I had to do, treatment in dialysis.

**Dr. Markus Selzner:** I'm not a, I've never been on dialysis myself, of course, but I hear it many times from the patients. And clearly I would say the data also suggests, despite the operation and the most oppression, at least your life [00:46:00] expectancy and your health, it's so much better with a transplant. The kidneys working for you 24 hours a day, seven days a week, you can imagine that no dialysis machine can, match that by being three times a week for four hours, five hours.

So having someone on your side works for you all day long is always much better. Yeah, absolutely.

**Candice Coghlan:** I was reading about some of the research that's been done in deceased donor liver transplants and saw an article about, or publication about women who were at a disadvantage with respect to access to deceased donor liver transplants.

Could talk a little bit about that and does living donation offset that in any way?

**Dr. Markus Selzner:** Women are disadvantaged for two reasons, because often they're a bit smaller. Okay. Just naturally the overall I would say many women are a bit smaller in size and smaller people have a general disadvantage because they can only [00:47:00] get smaller audits.

Okay. So we can't put a big liver into a small person. So if you're a one meter 95 man with with a hundred kilograms, you have a big belly. So any liver I can put in there, if you're a 50 kilo woman, suddenly I have to find a much smaller liver to go into it. It's a space problem. Okay. So it's a space problem.

It is one thing that smaller people in general need a smaller graft and bigger people can take any graft. I can take a, smaller liver into a big person, but I can't pick a big per big liver into a small person. And in general, I would say on a population base I I, would say that that smaller people in general have a problem with this. Live donation is a great option because we only have half a graft to deal with. So suddenly the liver's only half the size. So actually for women in this regard, that is very good because we, [00:48:00] we have the live donor graft is smaller by, so that would help this this scenario. Interesting. The other thing is that the, second disadvantaged for women is that the, MELD score we talked about in the ranking includes includes a creatinine as one of the values and the creatine is made is depending on the muscle mass. If you have more muscle mass, the value tends to be a bit higher. It's not gender specific, but you, I would say on the population base you could see that muscle mass tends to be a bit bigger in, men than a woman.

So there is a tendency of men having this value a bit higher by nature. So the MELD score is a little bit shifted in, in them in this regard. The severity of liver disease will override this at some point. If you get sick this will become unimportant. But on a population base, on a larger pool, there is a slight shift.

That men [00:49:00] tend to have a slightly higher creatinine and, is a, have a better starting point in this regard. So live donation will, help with both because first of all, if you have a live donor, family member, friend, whoever, it's your liver. So it doesn't matter really where you stand on the list.

If you have a donor, it's your liver independent from your position. If a list, you will get this organ. So the live donation is a very good tool to get the liver at the right time point because you don't want to wait until you're really sick. In our system where the sick gets the liver first, the problem is you have to get very sick first to get the liver organ.

But of course you don't want to have a major surgery when you're really sick. You like to have it earlier when you are sick enough to need transplant, but not really debilitated sick, that you are really, in bad shape. So the live donation is perfect for this scenario. You get the liver at the right time.

The MELD score will, not be [00:50:00] relevant because it's your organ. Your, friend gives you a liver, you will look at the organ. And since it's part partially in organ, it will also, the size is less important because we have a bigger chance putting a half liver into smaller person than into than a full liver.

**Chris Smith:** Wow. Interesting. So speaking of donations, there's a large anonymous liver donation community at what is it that's unique about this program, you think that's generating these results?

**Dr. Markus Selzner:** We are probably the largest, anonymous liver donation community in the world in, Toronto. And and it's all started with, a child needing liver donor very urgently.

And none of the parents could donate for medical reasons. And they reached out to the public and it was a huge response. People want to help this child. And that's, and we did. Stranger gave his liver part [00:51:00] to this child and the child survived. And with this actually the whole life, a numerous program started and we actually became aware that there are many people out there who want to do something good for altruistic reasons, for no benefit for themselves.

People want to give back to the community. People may have been fortunate themselves in many different ways, and now they want to pay back to the group. And in Toronto, we have fostered this spirit. We have a live donation centre in Toronto, which is also unique, which is facilitating reaching out to the community, speaking to people interested and make information sessions, having a presence online and in social media and and facilitating this.

And it might be also a Canadian thing. I could see that Canadians are nice, people, very nice. And. And maybe the amount of nice people here who want to [00:52:00] reach out and help people is is bigger. It's, amazing. People, I would

say the people who give liver or kidneys, which is I would say also happens who want to give back to the pool.

You can also give one kidney and to help patient on dialyzers. They are amazing people, they do something selfless. They are heroes. They take a risk for themselves to help someone else. It's like jumping in the water to pull out someone who drowns, you don't think about yourself. You think about the other person and you do something that you don't have to do, but you do it anyway and you save someone else's life or make someone life much, better.

**Candice Coghlan:** I've met a handful of people now through working at, the Centre who have been double anonymous donors, so donated a kidney at one point, and then felt that it was such an amazing process that then they've gone back and donated a, piece of their liver and all anonymously and all just from the goodness of their [00:53:00] heart.

And it's amazing to see these people who step forward to do something like this, both as an anonymous donor and then of course the donors who know the, people as well are, just as remarkable. And I'm, a person who probably wouldn't be here without my living donor. So it's, amazing that we have these people in the world who do larger acts of kindness.

I, sometimes will pat myself on the back when I do my little acts of kindness, but there's people out there who are, donating organs to save lives. It's amazing.

**Dr. Markus Selzner:** No they're, true heroes. It's also, it is a special group of people. And what they do is in incredible, in, in this regard.

And of course, they are actually saving people's lives. Now this is what they do, right?

**Candice Coghlan:** And there's an interesting study as well that I believe it was a Ted talk about the, brain of the altruistic [00:54:00] organ donor. And that the hippocampus is actually larger in those altruistic donors.

And it's a whole Ted talk about the brain of these altruistic donors in a profile about who they are. And it's really fascinating. So if anybody's interested in, looking that up, you can find it. But the other thing that they found often is donors are also pet owners, so they and, rescue pet owners too.

So it's, a really fascinating research study about donors.

**Chris Smith:** Is there any particular surgery or patient or story that has a unique uniqueness that has stood out to you in your journey so far?

**Dr. Markus Selzner:** In the liver field we have what we call full and liver failure. It's, a rare condition where people out of the blue, they were totally healthy before suddenly liver stops working. Wow. And and these people needed a liver transplant [00:55:00] super urgently within days, otherwise they will die of this. And that's probably the most dramatic the dramatic situation in, in transplant when when someone gets sick suddenly who was totally fine days before then you have only a short, very short time to find an organ offer.

And in this kind, this cases, we get a Canadian wide access. So we, these people get preference on the national level and we get liver wherever it comes from. And so this, I would say is probably this sticks out the most. Where and what's that called? What do you refer to that as? Formula liver failure.

Where, basically but definition the liver was not diseased. It was healthy and suddenly it it, tough. It's, rare, but it happens a few times a year. And we have these patients in Toronto and then you are really waiting for the organ to come [00:56:00] and, then you go to operating room right away and, try to turn it around in time.

This, I would say, the times it sticks out really nailed well, where you are sitting on the edge waiting for this phone call, get your organ offer, and then you, and you go, and something that was sorry to cut you off, Is this something that was sitting dormant, waiting to happen or. No, it can be is numerous different things can cause it can be a poisoning of it can be can be medication.

You talk and you acted on sometimes it could be a sudden virus infection, which is which, happened so that different things can cause it, it's not one, one thing, but by the, but it's defined for patients who have no chronic liver disease. But for any, given reason the liver stops working suddenly.

**Candice Coghlan:** We have our new campaign the Great Actions Leave a Mark campaign all [00:57:00] about living donors and recipients and showcasing their scars. And one of the people who's involved in that, is a young mother whose four year old son went into liver failure very abruptly.

And she, talks very openly about what, that process was like. She said she went from not even really knowing that her son was sick to then being at Sick Kids and then with a couple days she says, hearing the T word that transplant was going to be, what was going to have to happen.

And she, says that it was so shocking. She was working on writing a will and didn't even know that living donation was a thing, but just thought I need to save my son and however way I can and within under basically a week, she said she was [00:58:00] worked up running back and forth between UHN and Sick Kids.

He's thriving now. I, don't know what it would be like to be in one of those scenarios and you, have to go through this, is your day to day of saving people's lives. How do you deal with that as well with all of these, people that at the end of the day it, it is a life or death situation.

**Dr. Markus Selzner:** It's, difficult. It's a lot of responsibility. It's, really The burden you take for the better and worse. You deal with it by being a team. You don't want to be alone and just doing your own decision. So it's important you work in a team with other surgeons and liver doctors, hepatologists to share this, discuss cases, discuss patients and often it's not as clear what is the best path forward. So you have to get input from other [00:59:00] people. It's not a field for people who are who are only lonely wolves want to work on their own. It's a field for people who, want to work in a team, get other opinions and, try to find contents and and to thrive.

Because usually it goes well and, patients get better and you really get rewarded for everything. But you also have days when it doesn't go well, It happens. Yeah. And you have to know this working in this field. But you keep going because usually it's, it dominance is a good outcome and you, that's why you can take occasion also the, failure and the the, setback.

So you live and you get going because of the majority of patients who do well and you help and you improve. Incredible.

I, do have one last question for both of you that is not transplant related. And if you [01:00:00] listen to the podcast this question is coming, but I'm wondering, I'll start with you Chris. If you were a tree, what kind of tree would you be?

**Chris Smith:** Okay. If I was a tree, I think I would be a banana tree. Okay. Yeah. I grew up in Jamaica and there was always been banana trees everywhere. So I think I would be a banana tree and sprout many fruits.

**Candice Coghlan:** Amazing. Thank you. And what about you, Dr. Selzner?

**Dr. Markus Selzner:** I probably envision myself more like a palm tree because it's, I see myself at the coastline, close to the ocean.

You're facing the storm and you try to, weather the storm and still keep standing.

**Candice Coghlan:** Amazing. That's fantastic. Thank you both. That's fantastic. So I want to thank you so much Chris, for joining me [01:01:00] as the co-host and for sharing your personal journey with advocacy and, organ donation.

And thank you so much for being a champion to, those of us who are recipients and donors, and to you, Dr. Selzner, for all of the remarkable work that you do every day and for continuing to push those barriers and and find new, innovative ways to, create care for, those of us in in need.

So thank you both so much for being here today.

**Dr. Markus Selzner:** Was a pleasure.

**Chris Smith:** Thank you for having us.

**Candice Coghlan:** Thank you so much.