iGEM 2019- Addictions Counselor Outpatient Center Montreal

Interviewed by Lancia Lefebvre and Pamela Yataco

Our project is an international competition for genetic engineering. We would like to ask a few questions about our project and your views on it and synthetic biology. The opioid crisis as well. First question would be what do you know about synthetic biology?

I hear about genetic modification in foods and how that affects food and that industry. That's where I would have heard something about it, but other than that I don't know a lot.

In your line of work do you often work with opioid users?

It's an addiction outpatient center and so we treat all people suffering with substance abuse disorder. I was just saying opiates tends to be the least common form of drug that we treat that we see. But even statistically in Canada, Quebec has, as far as the crisis is concerned the lowest crisis rate around opiate and opiate use disorder including overdoses. It's not that it makes sense that we do. I don't see that a lot. It's not to say that it's not a problem, it definitely exists but people seeking treatment one, wouldn't seek it out through this counselling center, they would go to a higher level of care. They might need some sort of medically supervised detox and or treatment which we don't provide here.

Or it's stigmatized, there is such a big stigma with opiate use and the opiate crisis that a lot of people are seeking alternative forms of help.

What would that be an alternative kind of help?

There are places that are much more anonymous and or they're going to safe injection sites, like Cactus is a big one. That's probably the one that you would hear about the most. They're seeking help. What I've heard is they're also seeking help internally within their own communities for support and/or their families. And/ or a medically supervised treatment somewhere where they can go and speak to a doctor. They're not seeking counselling, they're not seeking community support, which is something that we have here. They're really looking for a medical intervention and if we think about the way opiate use affects the body, I think that makes a lot of sense.

For the people that you have treated here, what group would they be?

Mostly men between the ages I would say 35 to 55 years old, maybe now even getting a little older than that. Statistically that's the pocket for people with a substance use disorder. Especially in the people who seek it out the most who are people with alcohol use disorder. Alcohol use disorder has this lifespan where it takes a little bit longer for the person suffering with it to come to a realization that they have a problem. We see them coming into treatment a little bit later than younger people today who are abusing harder narcotics and the effects are much more severe, a lot quicker. We have that group who are like 25 year olds who are coming in 25 to 30 saying oh you know what, "this is really affecting my life and I think there are a lot of consequences and I need help."

But I would say men 35 to 55 is the sociodemographic that we see the most. More and more women coming into treatment, which is good because there's also a stigma against women in use.

What are they coming for is, in my experience it's mostly alcohol and stimulants like cocaine.

I've worked not only in the center of what I've been doing it for about 15 years. I worked in public health too. That was what I would say we saw the most of, as far as the demographic. But opiates, especially the injection like I.V. users. I don't see a lot.

What do you think contributes to the fact that Quebec has a lower opioid crisis? That there are fewer people that overdose?

I went to the naloxone training yesterday. They asked that question. And I always had some theories about as my theory was proven wrong yesterday. A port city is very important. Accessibility to opiates. And so Vancouver the West Coast being a port city… but then somebody said well what about Halifax what about you know here even. Then they said closer to Asian countries where synthetic opiates are being developed and shipped from. There's a greater access since that's coming in from Asia that the West Coast has a greater access to. Again I think demographics play a little bit into it. I think that you know maybe the population that lives on the West Coast, like users are attracted to it, I think they go that way. I think the weather is related. There's the you know you can you can basically I hate saying it but like you could be homeless and or live on the streets in those in those on the West Coast year round. So it lends to an ability to you know to that kind of dynamic. I've also said weather but I've been made fun of that I think the weather is related to a lot of the problems. But I think that whether had the climate and demographic I think people are attracted to the west coast.

The lifestyle there is a little bit more laid back and because there's just it's easy accessibility and opportunity will always be the reason people will use their drugs of choice If there's a greater accessibility and opportunity to do it there and an ability to do it on the West Coast then people will move that way.

What was your theory before?

Weather.

If you think about it our climate it's cold, it would be it's damp it would mean really uncomfortable for people who were living on the streets or suffering with it.

And unfortunately there isn't associated there's a lot of the opiate use and the lifestyle is that there's a lot of homelessness there's a lot of you know problems with your environment and you're living environment related to the opiate epidemic.

These other arguments and reasons to they make a lot of sense too. But again accessibility and opportunity I think that's what it is. I think there's just more accessibility, the opportunity it's cheaper.

The other thing that we saw was that because and related to this synthetic opiate problem was that doctors are prescribing less so now users who are dependent are still looking for it. And they need it. They're looking for alternative forms of not prescribed pills now they're looking to heroin, fentanyl, carfentanil you know in these types of things and much more available, on the West Coast than it is in over here.

I don't know. We have a big drinking culture out east. I mean we're drinking community and kind of partying laissez-faire, that's our that's the vibe on the East Coast you know the Maritimes, Quebec...

That's what it is, it's it doesn't really it's not the same headspace for me.

What about policy or resources? Does that come into play at all?

Did we speak about policy and resources… we didn't get there wasn't that conversation to be honest yesterday. They definitely there was a list of the availability of naloxone and the training around Narcan and stuff it is becoming a little bit more mainstream. It isn't taboo to carry a kit. I mean to have one in your car and they're saying, look if you're a parent even if your kid doesn't use maybe that's a good thing to have in your house for now and and to keep around and to be educated on. As a Good Samaritan, to be trained on that because you want to be able to save a life. There was a list of resources, I didn't go through the list. Cactus came up. There was a couple of other ones that I recognized. The CRAN (Centre de recherche et d'Aide pour Narcomane) is another one.

What's the resource that I use the most is it's escaping me. L'Hôpital Saint-Luc.

A lot of people go there because they have methadone treatment program there and you can see a doctor. They're known as the specialists if someone is struggling with an opiate addiction. We didn't really talk much about policy. I know that they're changing…I think part of this Good Samaritan law is that if you're involved in an overdose or somebody around you with an overdose you can call the police and you can't be held, charged the person who's overdosing can't be charged. They won't question you about where you got your drugs. I think that's good and more people need to know that because if they are found in a situation, they just want to wipe their hands clean of it. I think there should be more education. In view of the fact that it is becoming a crisis, and cocaine, being one of the most abused drugs in the city, that there's fentanyl in cocaine and now carfentanil, it's good that people be educated. Like I said, I've been doing this a long time, and it's my own fault, but it's the first time I've gone to a Naloxone training. That's on me, I should have done that a long time ago.
Thank god for Facebook. There was an event, it just popped up, they do it regularly, it was 90 minutes, I've gotta go to this. I met Richard Davie who is running this from McGill School of Social Science, and they're doing it of their own free time, they're not funded or anything so I had a conversation with him about it afterwards… I think it's great what they're doing and how they're using social media to advertise. What I actually like about it is that it says it's for non-professionals. They're basically saying, mother, daughter, aunt, brother, uncle, anyone come down, we'll give you a kit, show you how to use it, make you aware of the crisis and what's happening and make you aware.

The patients that come here with opiate addiction, how do you go about treating it?

The first thing to do is an assessment to understand what severity their experiencing in their substance use disorder. We have a new measurement of substance use disorder, in the past we were a diagnostic tool it would just be abuse and dependence and now we are measuring it as mild, moderate or severe. One of the best things to do- your intervention and treatment are only as good as the assessment- and the assessment is important to find out where that client is at. Then we will make a recommendation depending where that client is at. Whether they can benefit from individual counseling and motivational

interviewing to help them in their stage of change, if they're coming here, they're recognizing, maybe not admitting that they have a problem, but recognizing that maybe something is going on here. We want to help them move through a stage of change that helps keep them motivated to change that behavior.

Through individual counseling, helping them get connected to a community of support would be low level intervention, helping them change habits in their own personal lifestyle or at home, change the people they're hanging around with, maybe work, maybe home environment, look at personal stressors. If the severity goes up, so does the level of intervention, the highest level of intervention would be a recommendation to a higher level of treatment. Residential treatment can be anywhere from 21 days, it could be 14 days- which is a stabilization, to 21 days to 6 months. I use what is called a stepped care approach, which is to meet the client where they are at and go up if I have to. I don't want to provide an intervention that is over the top and can backfire and then they leave that treatment episode saying, 'that was a waste, that didn't work,' and then they typically turn back toward the problem behavior and I'm at a loss, I don't have anywhere to go from there.

So I'd rather keep the person at home, keep the person at work, keep the person with their family and try and see if they can self-correct. A lot of people can self-correct. I like to see if they can self-correct by seeing if they can connect to themselves, and healing with themselves and getting the support of people around them. Even that can be hard. A lot of people don't want to come out and go to a group, I've run groups here 3-4 times a week, people don't want to go out and say, 'Hi I'm Pete and I'm a drug addict or an alcoholic,' but once they get there it can be pretty cool to see what happens. Whether it's in a private group, a support group or an AA meeting or narcotics anonymous in this case for an opiate user. It's powerful, it's really powerful that support and community to know that other people have gone through what you are going through and that there's a way out.

It's really good that you are addressing the social aspect for, as you said, people that are more organized and able to fix their own lifestyles. We think a lot of the medical approach and most cases we think of rehabilitation, but really it depends on the patient.

It's a strength space approach, you are a human being that has abilities and strengths. What are those abilities and strengths, how do we harness that and help you live your best life in an effective way without judging?

In your experience, what is usually the cause of people's opiate addiction?

Not having a lot of experience or clients in that area… from what I understand it really develops from over prescribing, people become introduced to it in the medical system. They talked about overprescribing, it goes back maybe ten years ago, and now there are class action suits that are actually bankrupting Purdue and some of these guys that were pushing doctors, it's not addictive, it's a safe way to address pain management and it was just getting stronger and stronger and stronger and getting people addicted.

From my understanding, that's where the epidemic came from, overprescribing. But heroin has been around for a really, really long time. People have been using heroin and getting addicted to heroin for a long time. This epidemic might be coming out of that. Because it's almost like this life imitates art, or art imitates life, in the real world now younger people are hearing about opiates and passing around family's prescriptions, kids don't even know

what they're taking a lot of the time. They'll go to a party and someone has something and that's it.
Like taking a Vicodin, they're feeling amazing, pain free. Physically pain free, emotionally pain free. I can see why an addictive personality would say, 'Ya, I want to hit that again.' You're not nodded out, you're talkative, you have energy, you're clear. It makes sense why somebody using it recreationally would want to use it again. That's how addictive behavior starts, 'I want to chase that', you want to do it again, it feels good. Then you start using it regularly, more often and then higher doses, it gets its hooks into you. And opiates are very effective in those pathways, so it gets its hooks into you faster, deeper and harder to shake.

It's one of the drugs that has a complicated system of withdrawal.

You haven't dealt a lot with overdoses in your work here then?

I have never, in 18 years, I have never witnessed an overdose personally and professionally. I've seen people have seizures and withdrawal, with alcohol dependence and things like that, but I've never witnessed an overdose.

With regards to Naloxone, someone had mentioned because people are overdosing, but that the overdosing is delayed, that people are coming out with adverse effects, such as brain damage. Are you familiar with this at all?

From the Naloxone training that I did yesterday, what I understand is it takes about 3-4 minutes for Naloxone to kick in, but if the brain doesn't get oxygen in 3-4 minutes, it can start to create side effects and damage. If you're not onsite quick enough, then of course the person overdosing is at risk of, I don't if that's an acquired brain injury, but there are going to be consequences for sure. Also what I understand was that, sometimes someone in overdose needs more than the 1mg per shot to reduce the overdose, so if you're doing it in 1mg doses and it's not working and they're not breathing, then you administer a second shot and that could take another 3-4 minutes. What they were doing, it wasn't a recommendation, it was more of a, 'this is what I would do,' is give the average, which is 1-4, so to give two right away. Especially with the more powerful opiates being around now. That it's better off to just go with the two, that would be more effective.

In response to your question, yes, that's reasonable. Regardless, that level of drug use is also going to have it's effect on the brain and its functioning. We know that from MRI scans and things like that.
Who says it isn't from the drug use, is that from Naloxone or from me banging heroin for a couple of years. My brain isn't gonna work the same, I'm not going to be the same person.

The brain recovery- what we know from the CAMH (Center for Addictions and Mental Health) and from some of the studies is that it could take at least five years for there to be some healing and re-adaptation in the brain to some sort of normalcy. Where the brain and the wiring and all the functioning is actually working at a normal level again, but it'll never go back to - I don't know what the book says- It'll never go back to the way it was. You're reward system has been hijacked and the way that you think and feel about things will never be the same.

Have you ever had somebody here that came in after an overdose or that's had overdose experiences.

Yes, I worked at a place briefly I did. I worked at a clinic where they treat a lot of people with opiate addiction, fentanyl addiction and overdoses. So I had seen some people there but this was in their aftercare almost. They had already gone through the medical treatment, they've overdosed. And I've had people who've told me they've overdosed.

I had some feedback from another doctor that mentioned how after an overdose, that users like they tend to go back to the drugs.

It's less likely for them to recover if they've had an overdose… I don't know if that's true. I can't comment on that. It's likely that a drug user will go back to using drugs. I don't know that it has anything to do with overdose or not. The rates of relapse are so high, recidivism in that behavior is really high. It's again that statistic that 35 to 55 year old demographic that I was talking about, five to six treatment episodes before they have any sort of long term sobriety in that ten year period.

So somebody can enter treatment for the first time at 35 years old but won't get sober until they're 55 years old. They will have gone through five to six treatment episodes whether it be seeking help with a professional going to fellowship meetings or going through a residential treatment program and being hospitalized. That's the number.

It's not right you know. So we're missing something somewhere I think in the bigger treatment process.

I.V. injection users, what I do know about them which is unique to the other users, is that there is something about the ritual of the needle in the arm that they talk about. Which I found really interesting, in my experience, was to actually see the blood go into the needle before they would inject. I even get like uncomfortable thinking about it cause I don't like the whole process, but it does bring up feelings. If you think about it and you try to live what that's like putting a needle into your arm. It creates something in you. And that feeling is something that the I.V. injection user is really connected to; in a way that somebody who's not an I.V. user could never understand.

And it's like that with other drugs. I mean the ritual of things but there's something specific to the injection users that they tell you it's not even the drug it's the ritual. That's what they talk about, the setting up to inject, that injecting… there's something about it to them that's unmeasurable. And that's why they go back. That's why they say they would go back. Opiates are a powerful, powerful, powerful drug.

I'll quickly tell you about our project and then see what you think about it. We're building a patch in the form a temporary tattoo. You put on the patch, go out you do your drugs your sweat goes into the patch and if there's fentanyl in your sweat it is detected genetically, sending a signal to a Fitbit. It'll notify you on your cell phone. How do you feel this could be of use or your opinion on the design or who it would be useful for.

So it's like a test strip but you don't need the test strip right…

Post consumption

And so why not. Why not encourage something that's pre-consumption, just out of curiosity, prevention instead of reaction.

Because most people don't do it. They are not testing their drugs anyways. From what we had read a lot of the stats, a lot of overdoses were accidental overdoses. Almost all of them.

You're also narrowing your test population then so the people who would be using it are people who could, one, afford one. And somewhat stay organized… how many times when you're drunk do you lose your phone…

There's something about that… I'm just going to look at those. I think it's a very cool idea.

I think it's a great way to use technology. If I think about the population that would use it, especially in the private therapy community, these are people that can afford and are walking around with cell phones and smart watches and things like that. They're abusing drugs that they don't really know what they're using. And hanging around with people that are. So I think that there's definitely something there that would be really interesting. But I also know of a subgroup of those people who, in active use, lose their phone, who are disoriented. If you are using and your in active use and high, are you going to be paying attention?

How fast is it detected? I imagine you could detect it fast enough before it causes an overdose. How do you pay attention to that if you're in active use. There's just elements of how does it… You're almost better shocking them, a different type of signal.
Versus to the phone level, which I don't even keep my phone on me or some other type of signal. Like if you are talking about a Fitbit that's on your wrist well maybe it like a green like yeah alarm comes you know green lights or strobe light or maybe something like that could be interesting if that's even possible, the tech part of it.

We were interested in maybe having a signal that would send it to people either around you or to emergency services.

Those who could come and help you or somebody who is in charge for example of a bar they know that this person has taken fentanyl and they can try to help them.

…like an accountability partner…

Or a group such as PLURI who works at festivals like MUTEK to assure safe partying. PLURI carries around Naloxone. You put the tattoos on the festival goers as they go in. and PLURI could be notified…

OK is that where this came from, where the idea came from.

It definitely started for recreational users. Someone had mentioned in interviews that some people have family members that are users. Our patch could help to monitor the safety of their loved ones. You would be notified in time as well.

We have devices in alcohol monitoring where an accountability partner is notified if they breather into the breathalyzer and test positive. And then that that accountability partner is

notified. But we do that to help deter the use of alcohol because know you're gonna breathe into the device.

But that concept of notifying somebody it's interesting…

I like the idea of like something on me. That's going to like raddle me enough to say holy shit something's wrong.

If somebody is gonna go and actually put that tattoo on then they're in touch, they're aware and they're concerned about the risks. It makes sense that somebody like that even might even have a phone with them that night. There's a group of users who are not going to be into it you know. I mean they're not. Just because they're maybe more disorganized as an individual. Right now you're relying on people who are a little bit more organized versus disorganized which is fine because it'll help though. That group of people.

The part about it being on a phone is what, that's the only part of it.

I don't even know that you would notice shock like again if you're in. If you're using like I get a batch and I'm using the batch at the batch is clean. So I'm on my way I'm on a day and I'm having a day and I'm partying and whatever and I'm loose, I'm out drank alcohol I've done the drugs you know but then I go and score later that day. I'm already a bit disorganized I'm not necessarily thinking about this tattoo anymore. So what do we do with that group of people.. You know what I mean. Instead of the person that's like okay I'm going out to meet with my friends they're buying cocaine and I'm worried about it.
Is this something that you guys have actually created and tested at this point or not.

And the thing that you're putting on the right like some of the side effects of these drugs are sweat right. Which you know. So again if somebody is having a day and or at a festival and they're sweating. Is there a risk of this thing getting loose or falling off.

Now you've got to think about how that's really going to stand adhere.

Do you think this actually would promote the usage of opioids?

No. I don't think so. If I were to put myself into the shoes of a user I don't think like. You know I don't know. The thing is, as a cocaine user with the risk of not being out there I know that like we talk about that and people and people are concerned. Like some of them I like to think I don't do cocaine anymore because like I would you know I'm so worried about it right. So I don't think it would encourage people to use. I think people are going to use if they want to use. I think it'll really help the user feel safer about using now, which I think is what you're going for anyway right. It is to prevent. Right. Like you're going to use that's your personal choice. That's you're gonna do it, at least do it this the most safe way possible and to find out you know whatever. There's no way I would do drugs today without a test strip or do it like it's just knowing that like there's no way I would do… but I'm organized right.

Get me three days into a bender. I'm not testing my cocaine anymore. Yeah you know what I mean. I'm like you have Coke. I'm doing I'm doing coke. You know what I mean. That would be helpful to me to have it if it could stay on my arm and help me through a party.

It could even be useful for rehabilitation such as centers for people that are a bit more disorganized for example. For people they're helping. It would be part of their rehab center.

You know the interesting thing too is if they are if people are going through a detox and they're not necessarily motivated to change there's a risk of a relapse and that's on them. While it does create a safer place for them to do if they are going to sneak and use or whatever it's good for the for the hospital or for that center to know that that person is used that there's a detection of fentanyl and that they could be helped.

Thank you. Very helpful.

You bet. Thanks for coming by. Thanks for meeting me here. Take care. Nice to meet you. Good luck with all this.