



## Appendix C



Talking Stick Presentation Slides

Talking Stick is an anonymous chat platform that connects First Nations individuals to culture-based peer support and confidential conversations.

#### Highlights from this edition:

- Investing in our youth – Talking Stick reaches students in the classroom
- Talking Stick gets a new website
- Alyse's story: Dialysis patient earns university credit via Talking Stick

## Walking the Talking Stick App Into Classrooms



*Students try out Talking Stick app at Leask Community School.*

Regional Managers have been working hard to introduce the Talking Stick chat app to First Nations youth and students across the province. By providing in-person teaching and live chat experiences to kids, they have seen the app at work; and most have had a chance to connect directly with a Peer Advocate. We know that the best way to get news into the wind is by word of mouth, and these presentations are helping Talking Stick grow.

Through the initiative of visiting classrooms and presenting to schools, utilization of this uniquely First Nations chat service has not only increased but has also resulted in the creation of new relationships that will help to amplify our message.

***Chat usage has increased significantly – we saw an increase of over 500% between September and October.***

In-person visits have been made to more than 20 schools this month. School and classroom presentations have been made to both large and small groups, to students from grade 6 to grade 12. The experience has been that going to classrooms is the most effective approach, to offer more individualized attention. While many of the students have not heard of Talking Stick, they are quickly able to relate to the app, and see its benefits.

In most cases, the presentations are done where students have access to Chromebooks and can access the Talking Stick website to explore the site– this exercise builds trust and can help to remove any fear or uncertainty students may have about using a chat app. Students can see that the Peer Advocates are ‘real people’; they may even recognize the faces as Elders, influencers, teachers, aunts, uncles, and neighbours.

Students and school staff are very enthusiastic about the app, and plan to use it. Students were impressed with the fact that it can be accessed in Cree languages. Those with lower literacy are encouraged to use the “talk-to-text” function on their devices to get their messages across. One barrier that has been identified consistently is the lack of connectivity in many communities, meaning that access to internet-based solutions is limited.

Through the school visits, the Regional Team has connected with RCMP and Saskatoon police liaison officers and have been offered opportunities to co-present, when police are in schools. We look forward to continuing this approach through the winter months, meeting youth where they are and showing up to prove our message. Talking Stick is here to stay.

## The Faces and Voices of Talking Stick Reflected

On October 26th, we launched a newly designed, dedicated website for Talking Stick. The new site serves as a “one-stop-shop” for information and access to all things Talking Stick. We are proud to include not only the voices of Talking Stick users and guests, but also the faces that power this program.

The website site features genuine photos of real people, all from Saskatchewan, all First Nations.

Community leaders, schools, and youth-led organizations can visit the site to download our poster, request an in-person presentation, or connect with us via email. Guests can start a chat from the site, as well as learn about how it works, building trust and validating our core values: anonymous, confidential, and judgement-free. Visit the new site here: <https://my.talkingstick.app>



## Alyse's Story: Seeking Mino-pimatisiwin (ᑭᑦ ᐱᑲᑲᑦᐱᑦᑲᑦ)

For Alyse Custer, *Mino-pimatisiwin* "living the good life" – has not always come easy; but her determination and resilience are evident in every word she speaks. Alyse credits her mom, now a Cree professor at the University of Regina as being her most influential role model.

Alyse was born in Prince Albert, Saskatchewan, and began to learn the Cree language from her Nohkom, starting at the early age of three years old. In 2010, during the week of her twelfth birthday, Alyse was diagnosed with end-stage renal failure and was placed in an induced coma for two weeks. A very rare autoimmune disease called Vasculitis had attacked her organs, causing them to fail. This condition strikes about one in one million people. After she woke from the coma, Alyse was told that her heart had stopped several times, underscoring the seriousness of her situation. Her family was forced to relocate to Edmonton, Alberta, so Alyse could receive treatment, and Alyse finally received a kidney transplant at the age of fourteen.

In 2018 Alyse enrolled in the Bachelor of Social Work Program at the First Nations University of Canada. She is interested in a career that involves counselling youth, feeling that they

represent the future and that they need supports and positive role models to be successful. In April 2019, as she was gaining momentum in her studies, Alyse received the discouraging news that her donated kidney was failing, signaling that a dramatic change in her life was imminent. Losing herself in art has been important for Alyse in managing her anxiety and overall mental health, which has been challenging as she has dealt with her illness.

Dialysis treatments require Alyse to attend hospital appointments three times a week for four hours per visit. In spite of this, she has continued with her studies and is now in the third year of her program. The treatments can be uncomfortable, yet she does not complain – a true warrior! Alyse is looking ahead to being able to advocate for herself and hopefully find a kidney donor, sooner than later.

As a full-time student at First Nations University, Alyse is working hard to achieve a Bachelor's in Social Work. One requirement is to complete a field placement for her studies. Unfortunately, due to her treatment schedule, Alyse was finding it very difficult to secure a placement that would fit her needs. not able to complete, due to her treatment schedule. A friend of Alyse, who serves as a Youth Counsellor at the Central Urban Métis Federation (CUMFI) shared how proud she was to work as a Peer Advocate with Talking Stick. She suggested that Alyse explore this path as an option for her university placement.

*With the support of her professor, Alyse will begin her work as a Talking Stick Peer Advocate starting in January 2023. For this, she will receive the academic credit she needs.*

She is confident that the Talking Stick team will offer a chance to learn more about good communication, to be an open listener – to learn what it is like to listen. "It is not our place to judge; it is our place to listen" to promote mental, emotional, physical, and spiritual health. Alyse hopes that her story will also help inspire people who have faced great challenges in their lives.

Thank you to Alyse for sharing. We are proud of you and what you have accomplished, despite some real challenges.



*Alyse's art captures her passion for her culture.*

## Feedback from Anonymous Guests

**"I always had a fear of talking to 'professionals.' U download the app and are instantly connected to people who just wanna listen. You have the freedom to say exactly how you're feeling in a safe place"**

-Anonymous guest

**"As a student counsellor I am grateful to have a resource such as the talking stick app to recommend to students. This app provides a much-needed peer connection that provides a safe place to express oneself."**

-Angela Silva (Saskatchewan Indian Institute of Technologies)

**We had a good laugh 😊 it felt like talking with an old friend. Definitely helped me feel lighter on the inside.**

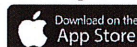
-Anonymous guest

### Need to chat? You Talk. We Listen.

- First Nations Peer Advocates are available now.
- Always Anonymous.
- Confidential. Safe. Secure.
- 1 on 1 private conversations.



Download our free app:  
**Talking Stick-Indigenous**



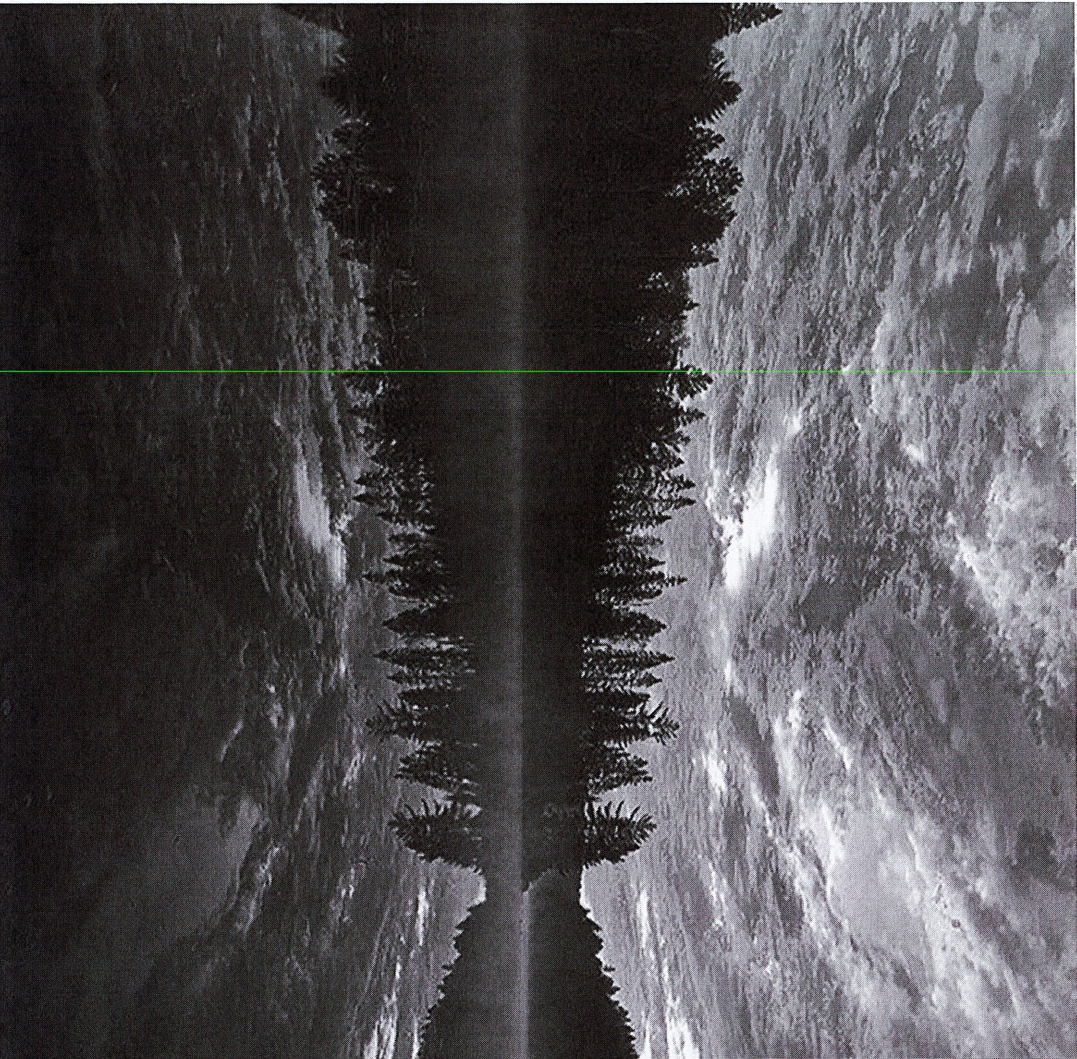
Or go to our website:  
[my.talkingstick.app](http://my.talkingstick.app)

### Thank you to our partners

Talking Stick was created in partnership with Saskatchewan's Federation of Sovereign Indigenous Nations (FSIN), Indigenous Services Canada (ISC), and TryCycle Data Systems.

[info@talkingstick.app](mailto:info@talkingstick.app)





# TryCycle

## Culture-Based Community Care Platform

June 2022



**We're in the  
business of  
connection.**

**TryCycle Data Systems is a  
built in Canada digital health solutions  
company, established in 2017.**



# About Us

*We develop human-powered technologies that increase compassion, connection, and trust between clients, health teams and peers.*



# Customer and Partners

Yale

UCONN



National Institutes of Health  
*Turning Discovery into Health*

The Le  
Royal

Mental Health - Care & Research  
Santé mentale - Soins et recherche

Hartford  
HealthCare



JOHNS HOPKINS  
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Substance Abuse and Mental Health  
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ASSOCIATION



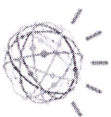
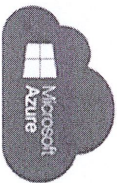
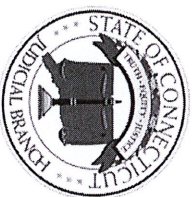
BLUE  
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Veterans Affairs  
Canada



Indigenous Services  
Canada

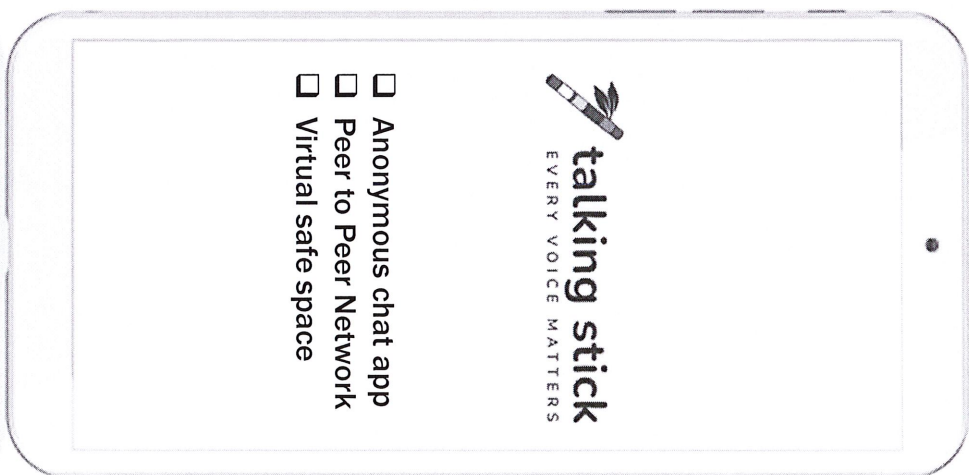
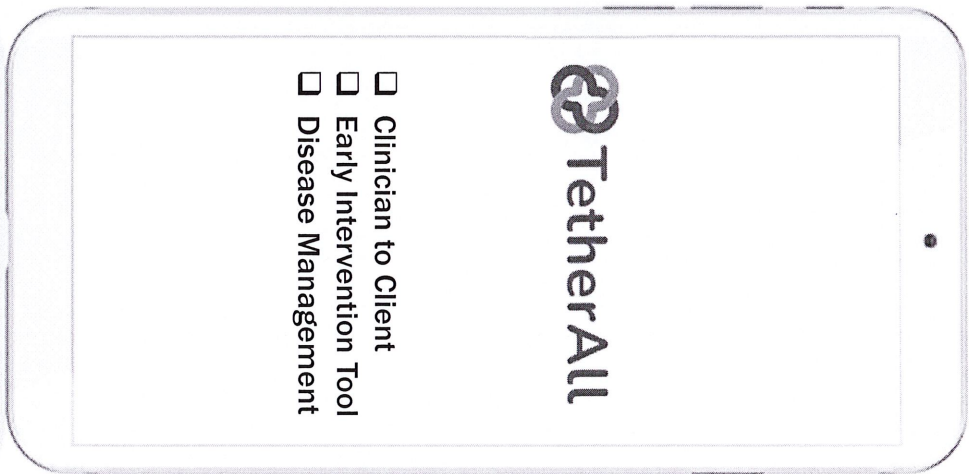


IBM Watson

ASAM

American Society of  
Addiction Medicine

# Our Products

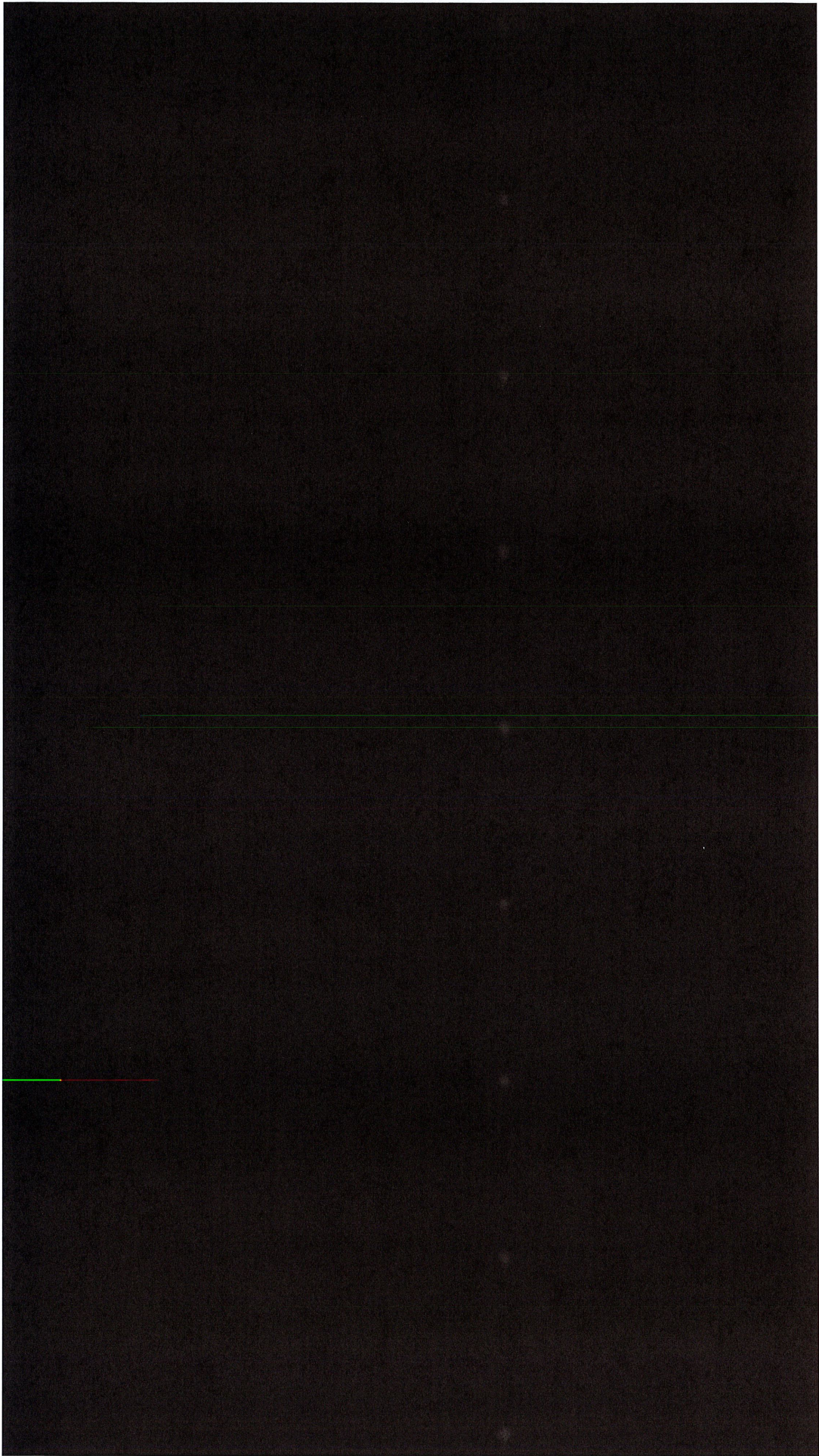




## We Turn Data Into Dialogue

Losing touch with someone when they are most vulnerable, can be deadly.

TryCycle can help to reach more people who may be struggling with addiction, depression, or mental health.



# Digital Compassionate Tether

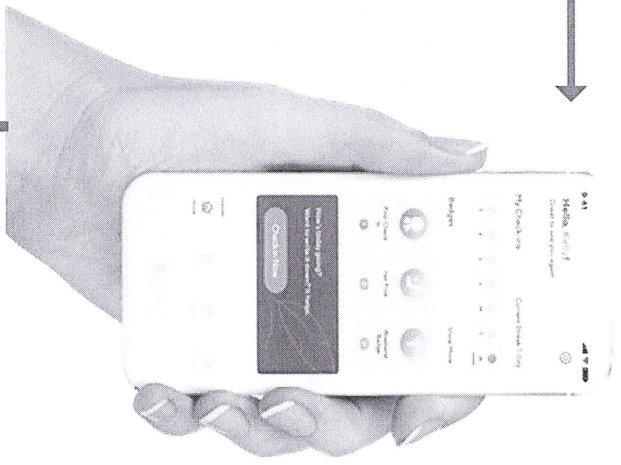


Current Time: 10:49 AM 10/20/2016

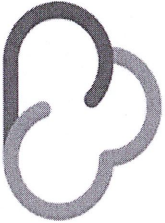
Last updated: 10/19/2016 11:27 AM

Area	Count	Available Staff	Current Staff	Last Update
Nursing - Nurse	2	100%	2	10/19/2016 11:27 AM
Nursing - Aide	2	100%	3	10/19/2016 11:27 AM
Nursing - Therapist	3	100%	13	10/19/2016 11:27 AM
Nursing - Tech	0	0%	0	10/19/2016 11:27 AM
Nursing - Other	0	0%	0	10/19/2016 11:27 AM

Showing 1 of 1 of 20 columns



IBM CLOUD



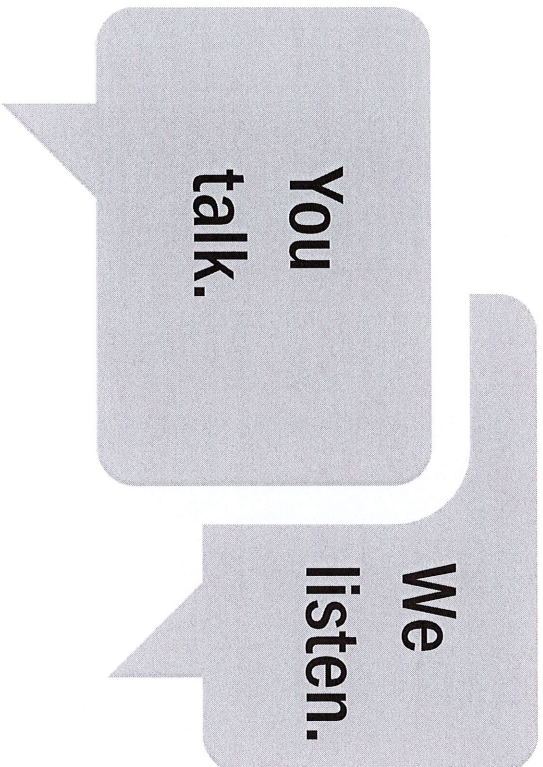
MICROSOFT CLOUD / AZURE





**talking stick**  
EVERY VOICE MATTERS

## Anonymous Peer to Peer

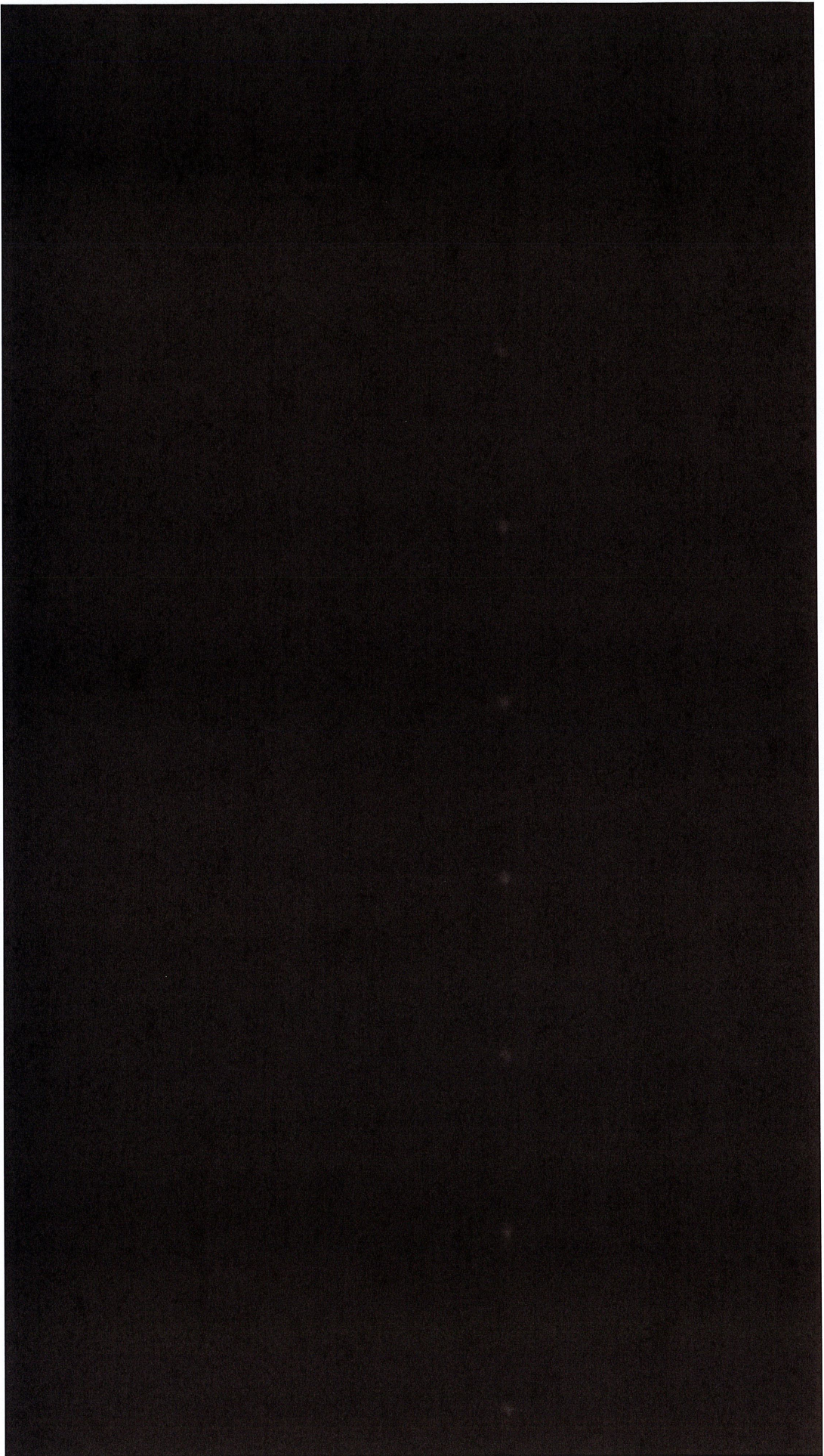


### **Anonymous Guest**

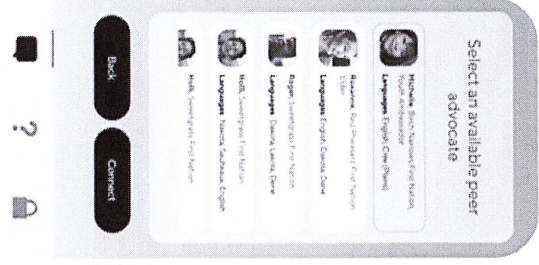
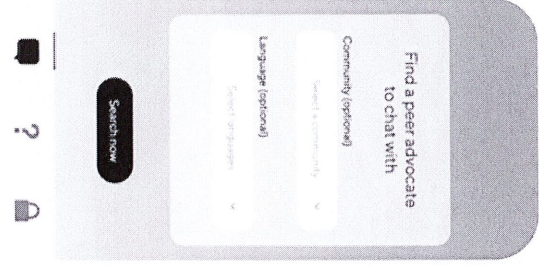
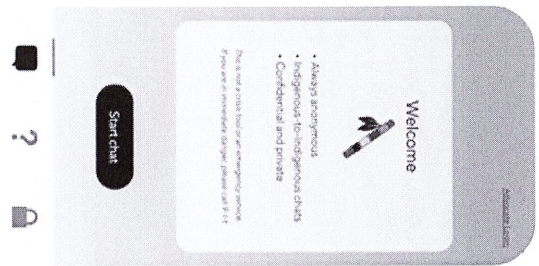
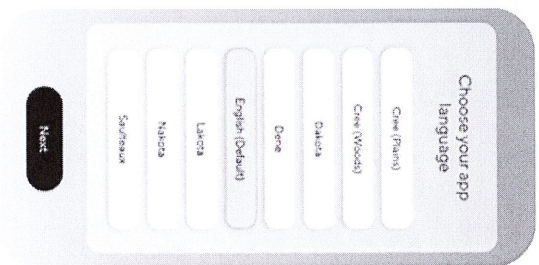
Angry, Curious, Emotional, Confused, Alone

### **First Nations Peer Advocates**

Trusted Peers, Persons with Lived Experience



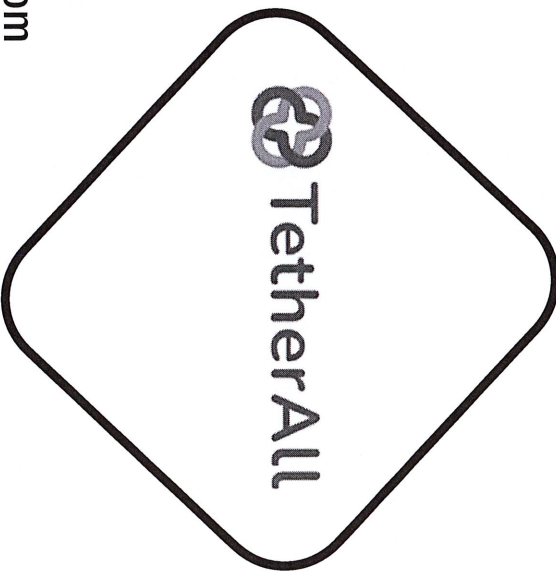
# Talking Stick App



# Working Together



Warm Handoff



- Referral to services
- Referral to programs
- Shifts the individual from anonymous to Tethered client

## Products (Side by Side)



**talking stick**  
EVERY VOICE MATTERS

An anonymous peer-to-peer digital network to encourage confidential conversations, listening and support.



**TetherAll**

A confidential “digital tether” between clients and their health team, to increase engagement in care (before, during and after treatment).



Thank you

## Why Do You Want to Be a Peer Advocate?



“I truly believe that at times this may be the only safe space that First Nation people are able to express themselves”.



“Support is something that youth think they are lacking. I want to show them that the support they need is within arm’s reach, and to never let the struggles hold them back”.



“We all need someone to talk to and feel 100 percent safe sharing about what you’re going through on a daily basis”.



“I believe there is great potential for the Talking Stick App, and I cannot wait to witness the degree of the positive impact it will have as it rolls out and refines. It is a tool to bring Action to Hope.”



“One little chat can save a life”



“Most people don’t talk about what’s going on within themselves; there’s fear of judgement and the stigma of being labelled is always out there.”

## Why Do You Want to Be a Peer Advocate?



**"If we had this tool available when I needed the help it would have made a huge difference.**



**"The fact that this is Anonymous, judgement free, peer to peer and a safe space to share your thoughts and be heard makes it one-of-a-kind."**



**"I know how it feels to not have anyone to talk to so having an app that can help people feel comfortable because it is confidential and anonymous."**



**"I've been in a place where I couldn't talk to anyone. I was only able to talk to one other person and after he passed away, I was lost. As an advocate I want others to feel comfortable talking about what they are going through".**



**"I think it's a great way to make a difference. All these (young) people want is to be listened to. It's also amazing that it's other Indigenous people as well; we're the ones that know our culture/way of life the best".**



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# CANADIAN Healthcare Technology

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#### EDI spots price disparities

Using Electronic Data Interchange, an e-commerce provider has noticed that different healthcare facilities pay a wide range of prices for the same medical goods.

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#### AI centres of excellence

Canada's AI think-tanks, including Vancouver's Digital Technology Supercluster and Edmonton's AMII, are collaborating with large and small companies alike to create solutions to real-world healthcare problems.

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#### Talking Stick

A new app, called Talking Stick, is being rolled out to Indigenous peoples across Saskatchewan. The app provides a secure chat platform that connects a guest in need of mental-health support with a trained peer advocate.

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PHOTO: BC MINISTRY OF HEALTH

## BC announces plan to strengthen healthcare HR

British Columbia is launching a program of investments to shore up the province's healthcare workforce. The strategy, said Health Minister Adrian Dix, (pictured) includes training more doctors, nurses and health sciences professionals, and supports the creation of a new medical school in Surrey. As well, the province is expanding the services that can be provided by pharmacists and paramedics. **SEE STORY ON PAGE 12.**

## Healthcare supply chain needs a re-think, observers say

BY JERRY ZEIDENBERG

Product shortages and disruptions during the COVID pandemic have highlighted the dire need for Canada's healthcare system to collaborate more effectively when it comes to procurement and the supply chain. What's required is a task force consisting of private-sector suppliers, hospitals and other providers, and governments to share information and smooth the flow of shipments when supply disruptions occur.

Moreover, healthcare providers need to invest much more in informatics and data analytics to be able to track supplies across provinces and to predict the availability of products on a local and worldwide scale.

These were two of the key recommenda-

tions of high-level healthcare executives at a recent conference on the state of the supply chain in healthcare, given by Supply Chain Management Association Ontario (SCMAO) in September.

"Data is key, but it will only be useful if we

**A taskforce for the healthcare supply chain, to share information, is recommended by stakeholders.**

can share the data as a country," said Kendra Frey, VP of Materials Management at Health-Pro Canada. "If healthcare providers only work with their own suppliers, we'll be spinning our wheels."

Frey said a committee or task force made

up of stakeholders across the board is needed to coordinate demand and supply throughout the healthcare system.

And to do this effectively, data sharing and trust will be needed among the players. "We know it's not going to work without sharing the information that we have," she said that by collaborating with each other, healthcare providers and product suppliers can demonstrate what's available and when shortages occur, they can discuss what substitutions can be made.

She noted that at the start of the pandemic, a task force of this kind was organized for the drug industry by Health Canada, with great success. This could serve as a model for the healthcare-product sup-

CONTINUED ON PAGE 2

# Canada's healthcare supply chain in need of a re-think, observers say

CONTINUED FROM PAGE 1

ply chain, she said. Everything from diagnostic imaging to personal protective equipment (PPE) would be included.

Frey asserted that national planning of this sort would help with stockpiles, too, so that shortages would be reduced the next time a pandemic occurs.

However, she said that governments and the public should be ready and willing to accept that there will be waste – products expire over time and new stock must be purchased and stockpiled.

Greg Chow, VP of Finance at Women's College Hospital, in Toronto, observed that shortages and disruptions in the healthcare system are far from over. He said hospitals continue to operate at over-capacity and are severely rattled when they can't get the products they need.

(At Women's College) "we're running at a level where there isn't any excess capacity," he said. "It's going to be difficult to address a further spike in demand."

He noted the hospital has already been adversely affected by recent shortages of contrast media for diagnostic imaging ex-

ams and by difficulties in obtaining epidural catheters and tubing for pain management.

What would happen, he asked, if the hospital needed to flex up to 120 percent of capacity? It might face shortages in other areas, as well.

Scott MacNair, EVP of Business Operations at the Provincial Health Services Authority in British Columbia, noted that the hospital supply chain in BC is much more centralized than in other provinces like Ontario. Nevertheless, BC has been experiencing its share of problems.

MacNair said that before the pandemic, "we'd deal with 100 (supply chain) disruptions a month. In the last 18 months, that's climbed to 250 a month."

What really needs upgrading in BC is the informatics infrastructure, he said, as the lack of good computer software is impeding the collection, analysis and sharing of data.

Some parts of the supply chain system in BC are still working on Excel spreadsheets, he said. "We shouldn't be doing that," he asserted. "We're very archaic."

He observed that Alberta has invested in analytics "and has done a fabulous job on tracking and tracing inventory."

Mark Walton, SVP with Ontario Health, agreed that "we have poor supply-chain data," especially in areas like D1 and surgery that are flashpoints for the public.

Moreover, he said that additional pressure on the system is coming. "There's la-

change in China will have an impact on Canada."

"We have to gain a better understanding of who our external suppliers are," he said.

Walton agreed with his colleagues on the panel that the healthcare system suffers from a shortage of data about supply chain issues, and that more work should be put into building the relationships and resources needed to obtain and analyze critical information.

"We really don't have baseline data, and there's no single source of truth," he said. "Finding the data can be a challenge in itself."

Walton said the capacity for hospitals to collaborate with each other was proven during the early days of the pandemic, when they shared information and transferred patients to each other's facilities – even out of province.

Sharing data among private-sector suppliers, and with hospitals and governments, may be more difficult, he said, as private companies have little incentive to do this and may fear they have much to lose. "They're reluctant to share information about their volumes and prices," said Walton.

That and more may need to be done, however, to avert another supply chain crisis if and when another pandemic strikes.

"We need to make sure this isn't another SARS that comes and goes, where we don't learn anything from it," said Walton.

The panelists agreed that shortages also extend to human resources, and that a centralized task force could help alleviate these scarcities.

Greg Chow, of Women's College Hospital, said that when it comes to human resources, "there's cannibalization going on," explaining that to fill gaps, providers are often poaching nurses and other staff members from each other – leaving new gaps in the system.

"If we all collaborated, we could (jointly, and more powerfully) create asks for government and policy makers," said Chow. He said the system needs more education programs and the fast-tracking of foreign credentials to fill HR vacancies – a nagging problem in the healthcare sector.

Session moderator Angela Ma, Health Partner with PwC Canada, noted that hospital supply chains, traditionally have been crafted to run as "lean" as possible. However, when a crisis like a pandemic occurs, they're unable to accommodate the surge in demand for medical products. How could they be made more effective, she asked.

Chow answered that there must be a re-thinking of this approach. To plan for the future, governments and policy makers must realize that "challenges will cost," he said.

"We'll need to have 'risk premium' to invest in ourselves," said Chow.

**Hospital supply chains have been crafted to run as "lean" as possible. But that causes huge problems when a crisis occurs.**

tent illness (in the public) that's out there and hasn't yet been diagnosed. We expect to see a huge bolus coming."

This will put tremendous strain on healthcare providers and may also use up the available supplies of medical products.

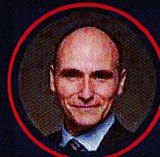
Walton said Ontario hospitals have already been running at 110 percent to 120 percent of their surgical volumes. Awareness of supply chain issues has grown enormously during the pandemic, he said, with a greater sensitivity to international issues.

"We've become acutely aware of our vulnerabilities. We've come to see that a

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**The Honourable Jean-Yves Duclos**  
Minister of Health,  
Government of Canada



**Dr. Stephen Lucas**  
Deputy Minister of  
Health Canada



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## Healthcare Technology

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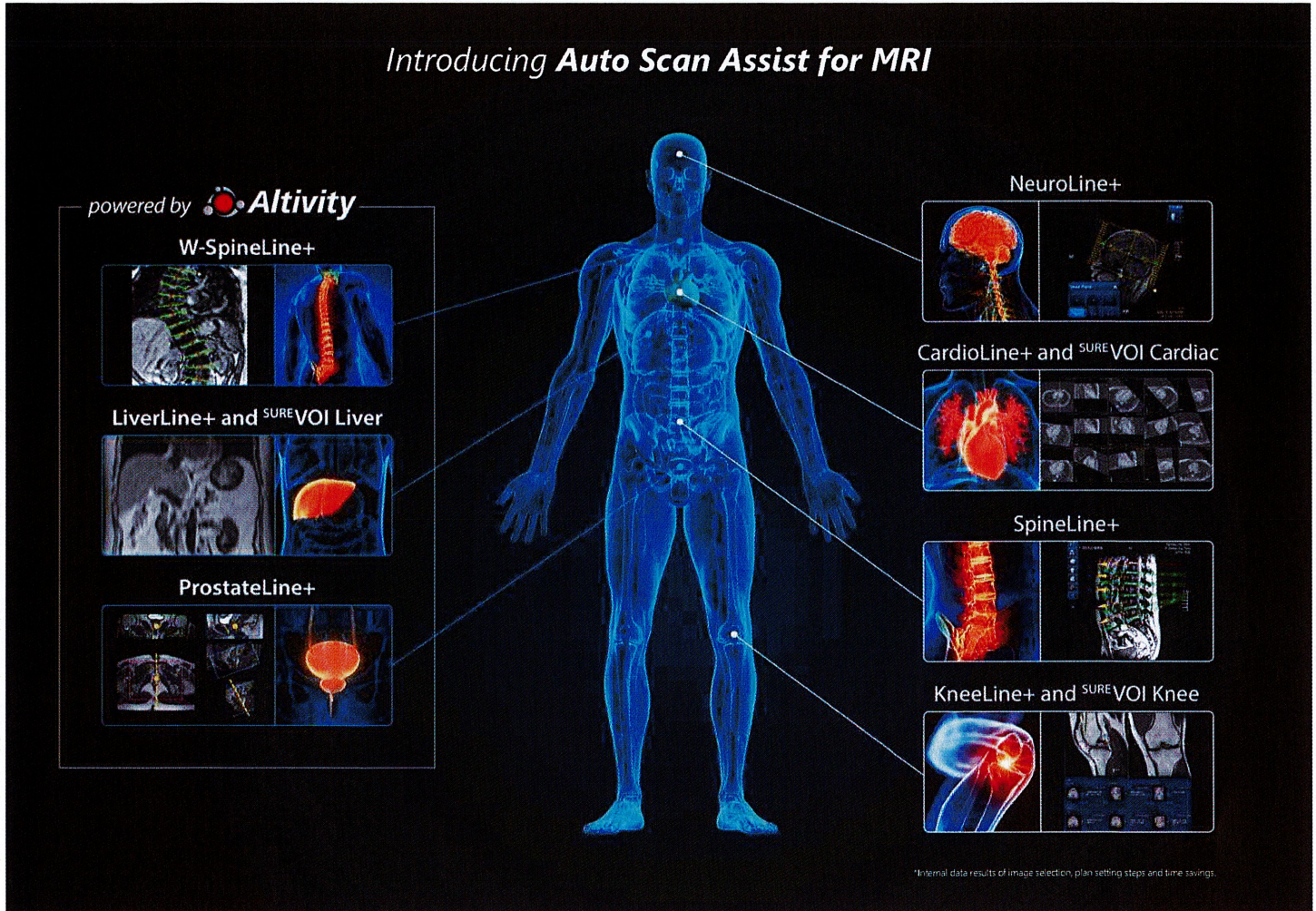
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## RACE streamlines patient journey through improved communication

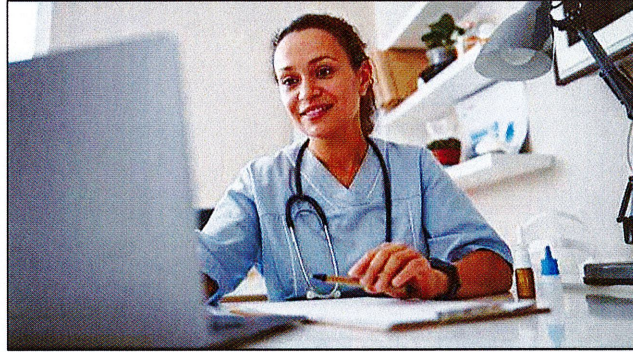
BY MIRANDA DEFER

The RACEApp+, which was created in 2015, underwent significant updates in 2022. Managed provincially by Providence Health Care, and with more than 85,000 calls to date, RACE streamlines the patient journey through improved communication between family doctors, nurse practitioners and specialists. Committed to keeping up with the telephone advice needs of primary care providers, RACE will continue to add specialty services based on feedback from primary care.

This summer, RACEApp+ rolled out a number of improvements in keeping with the program's commitment to improving the quality of patient care. Upgrades include:

- The ability to connect to local specialists when available (if they're not available, you can still easily connect with a specialist in another region).
- Accessibility and ease-of-use upgrades, including consistent formatting for patient demographics, and badge notifications to indicate new requests.
- The ability to facilitate an integrated provincial service.
- Two-factor authentication for improved security and ease-of-use for providers.

The updates will make RACEApp+ easier to use, improving the sharing of patient



information between specialists, family physicians and nurse practitioners, while creating a better app experience.

"I find it to be very user-friendly, and a great way to gather the patient data in a confidential but efficient manner," said Dr. Nawaaz Nathoo, a Vancouver-based ophthalmologist and frequent RACEApp+ user.

The Rapid Access to Consultative Expertise (RACE) advice line was launched by Providence Health Care in June 2010. The RACE model allows physicians, medical residents, nurse practitioners and midwives to go to one online application, the

RACEApp+, or call one number and speak directly to specialists. A collegial and educational interaction is encouraged when the specialist answers the call. The service provides an opportunity for in-time learning, often when the patient is still in the primary care office.

Dr. Yazdan Mirzanejad, a Surrey-based infectious disease specialist with over 25 years of experience, frequently uses RACE and rotates along with his colleagues in providing consultative expertise to other physicians.

"My availability to my medical commu-

nity practitioners and their patients is clearly owed to RACE ... who work to fill the existing gaps for timely access to expert advice," commented Dr. Mirzanejad.

RACE was launched with five specialty services. And, as of 2022, there are 80+ services available, with plans to increase the specialty service offerings. Family physicians and specialists are remunerated for telephone interaction. RACE is funded in part by the Shared Care Committee, a joint collaborative committee representing a partnership between Doctors of BC and the BC government. The service currently has over 1,500 calls per month, and services more than 4,300 primary care providers and 800 specialists.

The RACEApp+ allows users to easily request the specialty of their choice in one easy step – no more listening to the list of specialties on the telephone and writing down billing information.

It allows physicians to pre-enter patient demographics while requesting advice, ensuring the phone conversation is focused solely on the patient. Specialists can make a note and choose how they would like to be notified of requests either by phone, text, email or pager. Although the request is placed through the app, the interaction is still voice-to-voice when the specialist returns the telephone call. The app is accessi-

CONTINUED ON PAGE 8

## EDI spots pricing anomalies in Ontario's healthcare supply chain

BY TIM WILSON

As orders for medical equipment flow through Electronic Data Interchange (EDI) systems, giving a view of the purchasing patterns of hospitals across the country, it's become apparent that different facilities are paying a wide range of prices for the same goods. Those disparities are especially noticeable in Ontario.

"We have identified hundreds of medical products in Ontario with significant price differentials," says Dave Ralph, president and CEO of Commport Communications International, an e-commerce provider in Toronto. "Sometimes the difference is small, but the ordered quantities are large, or very large."

Commport acquired its EDI business from Telus in 2012. It now serves over 700 hospitals in British Columbia, Manitoba, Ontario, New Brunswick and Newfoundland, with between 800 and 850 healthcare vendors as customers.

"In Ontario, as we grew the database, we recognized that these pricing irregularities were rampant. We don't see problems to this extent in the other provinces where we operate."

Back in November, 2020, Ontario announced that it was launching a new agency, Supply Ontario, to centralize government procurement. The idea was to enable a whole-of-government approach to purchasing goods and services. One specific goal was to save taxpayers

money by "delivering the best value by sourcing high-quality goods at scale to serve the public interest in a financially responsible way."

However, the process to bring about transformative change in the medical supply chain in Ontario has been slow.

"I thought with Supply Ontario we would see a single price for a product across the province, but that hasn't happened," says Ralph. "The potential savings are staggering. It would be possible to go to the Commport database, find the lowest price, and to tell vendors that we will buy province-wide at that price."

Ralph has presented to the Deputy Minister of Health in the former Liberal government, and twice to the Ministry of Health in the present Conservative government. However, he has not presented to Supply Ontario.

When contacted by Canadian Healthcare Technology, Supply Ontario was unable to reference any specific initiatives to address price harmonization – or even to acknowledge pricing inconsistencies – other than to say it is "currently focused on building up its operational capacity to drive its mandate to leverage Ontario's buying power."

With EDI, it is possible to have a system in which pricing is consistent, even when there is diverse geography and differing volume requirements.

"In British Columbia, when a contract is signed with a vendor, there is one price for all hospitals and health authorities," says Kanwar Hayer, provin-

cial manager with the Health Services Authority of BC. "It is all done under one umbrella. It doesn't matter if the hospital is in Kelowna or Vancouver – it's the same price for the same item across the province."

This is not the case in Ontario, where the system is more fragmented. For example, two purchasing organizations, Plexxus and Mohawk Medbuy Corporation (MMC), which collaborate for joint strategic sourcing initiatives, represent over 60 percent of healthcare spend in Ontario hospitals. Plexxus was unable to

but with a big pricing differential."

Though purchasing methods can differ depending on the type of product – basic PPE, for example, will not be bid on in the same way as a pacemaker – once a price is established, there is no reason it cannot be consistent.

"There is an opportunity to save hundreds of millions of dollars," says Ralph. "Even if you used this data to set a baseline catalogue price, I estimate that you could immediately save \$32 million."

British Columbia is already a fine example where a single price model is succeeding.

"In BC, we consider ourselves to be a leader in terms of how we approach supply chain in Healthcare," says Hayer of BC's Health Services Authority. "Our executives have made presentations to many jurisdictions explaining how we approach purchasing, contracts, warehousing and logistics, and how it can scale."

Given that Commport's clients are the vendors themselves, it might seem odd that Ralph is eager to harmonize pricing. At the end of the day, it is the inefficiency and unfairness of the present situation that is forcing his hand.

"We would love more business from more hospitals, or the new Supply Ontario organization," he says. "However, with all the talk about costs and ways to save, it would be good for the government to actually do something."

Tim Wilson is a Peterborough-based freelance writer and researcher.

**"We have identified hundreds of medical products in Ontario with significant price differentials," says Dave Ralph.**

confirm that, based on its own data, pricing anomalies are a problem in Ontario.

However, using only the data available to Commport, it is possible to see many areas where significant savings could come into play.

"I can see where a vendor will sell a gown to one hospital for \$14, and then to another for \$8," says Ralph. "This is repeated across the province, with almost every hospital paying a different price. And it is not all about geography or volume – sometimes a smaller rural hospital is getting a better price than a major hospital in a big city. We have some hospitals in Ontario that are only 25 miles apart,



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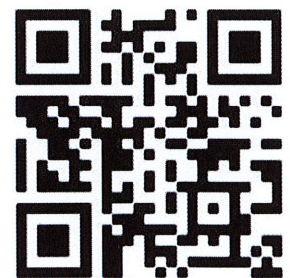
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# AI centres of excellence and companies collaborate to produce apps

BY NORM TOLLINSKY

Artificial intelligence and machine learning are playing an increasingly important role in virtually every sector of the economy, including healthcare. AI algorithms and machine learning models are now used to optimize resource scheduling, flag abnormal chest X-rays and predict the deterioration of patients in intensive care units.

Together, the Montreal Institute for Learning Algorithms (Mila), the Vector Institute in Toronto, the Alberta Machine Intelligence Institute (AMII) and the Vancouver-based Digital Technology Supercluster are positioning Canada as an AI superpower. All four organizations are partnering with hospitals and private-sector businesses to create innovative solutions that improve efficiency and patient care.

Progress is being made, “but there are a number of challenges we’re dealing with in healthcare,” said Azra Dhalla, the Vector Institute’s director of health AI implementation. “We work in a lot of data silos, so the quality and interoperability of the data is an issue. We also need to ensure there is a balance between privacy protection and making sure we can create solutions that have public benefit.”

Then there’s the issue of dataset shift and its impact on mission critical applications. “Just last summer,” said Dhalla, “we were in discussions with some of our healthcare partners about some of the models they’re developing, and it dawned on us to ask what mechanisms are in place for monitoring and evaluating machine learning prediction models because once a model goes into production its performance has the ability to change and, in some cases, even deteriorate.”

It was this realization that led to the Vector Institute’s CyclOps project, which has as its goal the development of a framework for “rigorous evaluation of machine learning models across time, hospital sites and diverse patient cohorts.”

“If I build a machine learning model that shows me a pair of socks and I don’t buy it, nothing happens,” said Deval Pandya, the Vector Institute’s director of AI engineering. In healthcare, however, an incorrect treatment recommendation from a machine learning model can have fatal consequences due to dataset shift.

“What happens a month after you deploy the model?” asks Pandya. “What happens when you take the model from hospital A to hospital B? And what happens when there’s a pandemic like COVID? To establish trust in the model, you have to do very rigorous evaluation, not just from the mathematical perspective, but also by bringing in the domain expertise of physicians and front-line workers who use the model.”

Pandya is aiming for a first release of the CyclOps framework on an open-source basis in the next few months and believes it will go a long way toward realiz-

ing the potential for machine learning in healthcare.

In addition to research projects like CyclOps, the Vector Institute and other AI-focused institutions across the country are engaged in the development of AI talent and the deployment of AI solutions. “Research isn’t enough,” remarked Dhalla. “We have to be a bridge to translate it into something tangible that can be used in a clinical setting.”

One recent application of AI co-funded by the Vancouver-based Digital Technology Supercluster and Synthesis Health is making a huge impact on access to health-

care in several remote Indigenous communities in Saskatchewan.

Just this summer, Dr. Deepak Kaura, a pediatric interventional radiologist and chief medical officer of Synthesis Health, delivered an integrated AI-powered diagnostic imaging solution to several Peter Ballantyne Cree Nation communities whose residents were previously required to travel up to six hours to Prince Albert for a simple chest X-ray. The solution includes an algorithm trained to flag abnormal chest X-rays, a cloud-based clinical management platform called Synth.OS and ultra-portable X-ray machines from Fuji that can be used in a nursing station or easily carried on a snowmobile to someone’s home.

The algorithm developed by Synthesis Health was trained on a million cases from the Saskatchewan Health Authority, and

hundreds of thousands of dollars, noted Dr. Kaura. “We can do the X-ray machine, the AI algorithm and a cloud-based PACS system with a reporting solution all for \$2,100 per month. That’s in stark contrast to the cost of sending a few patients away every month for X-rays. We are now at the point where we have a lot of interest expressed by health systems from across the country and overseas.”

Synthesis Health is also leading the Digital Technology Supercluster-funded Iris project to develop an AI-based platform or “co-pilot for diagnostic imaging analysis and course-of-treatment planning and monitoring.” Announced in July, the \$13.5 million project is being carried out in partnership with GE Healthcare, Konica Minolta Healthcare, the University of British Columbia, the Vancouver Coastal Health Research Institute and BC Cancer.

Iris is being developed to increase the speed and accuracy of front-line course-of-treatment decisions and improve the ability of radiologists to consistently find abnormalities in diagnostic images. The algorithms will be trained on more than 10 years of imaging data from Canadian health authority partners with the objective of seamlessly integrating them into PACS and radiology information systems.

Funding for the Iris project will also go toward the establishment of a National Advisory Council on AI in

Healthcare. A healthcare specific council was thought necessary to bring together stakeholders from across the country. “There is a huge opportunity for Canada to lead the rest of the world in artificial intelligence, but we need to have a more intelligent and wholesome dialogue around how that happens and work toward overcoming the challenges we face,” said Dr. Kaura.

The Digital Technology Supercluster has also co-invested in several other AI-related projects, one of which uses AI technology to detect fragments of DNA shed by cancer tumors, said supercluster CEO Sue Paish. Another project uses AI to expedite the generation and validation of novel compounds with desirable properties for the development of new drugs to combat the SARS-CoV-2 virus.

The Alberta Machine Intelligence Institute (AMII) is also helping healthcare organizations harness the power of AI. In 2019, AMII received funding from PrairiesCan, the federal government’s economic diversification agency for the three Prairie provinces, to work with nine healthcare organizations on AI adoption, said Mara Cairo, product owner of AMII’s advanced technology team.

The Cross Cancer Institute in Edmonton and CardIAI, a Calgary-based medical device R&D company, were among the organizations with the most impressive results, said Mehadi Sayed, president and CEO of Clinisys, one of several companies hired to provide the nine companies with AI consulting services.

CardIAI, for example, applied AI technology to more efficiently and accurately analyze Holter monitor data for abnormal

heartbeats. Current methods of analyzing Holter monitor data can be time consuming and error prone, according to Sayed, creating an opportunity for CardIAI to patent and license an AI-based solution. Clinisys used the University of Alberta’s new AI supercomputing hub to process and find patterns in the data.

AMII’s work with these and other organizations is consistent with its focus on “taking machine learning out of academia and applying it to real world problems,” said Cairo. “We’re producing more and more data and there’s so much we can do with it.”

There’s no doubt that AI is having a positive impact on healthcare in Canada, and no better example of that is the availability of AI-powered diagnostic imaging in some of the country’s most remote Indigenous communities. All too often, residents of remote Indigenous communities in need of diagnostic imaging won’t bother making the journey to a distant hospital.

“Many Indigenous people in remote communities end up getting treated with a presumptive diagnosis or no diagnosis at all,” said Dr. Kaura. “As a physician, I’m deeply moved by the capacity to actually help change lives beyond what I’m able to touch with my own hands.”

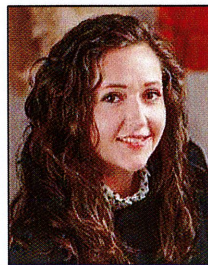
**“The thing that’s pretty amazing ... is that it changes the economics of healthcare delivery,” says Dr. Kaura.**

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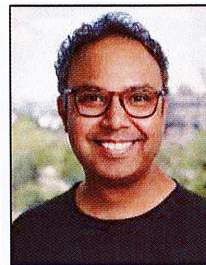
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Mara Cairo, product owner, advanced technology team, AMII.



Deval Pandya, director of AI engineering, Vector Institute.



Azra Dhalla, director, health AI implementation, Vector Institute.



A cloud-based, AI-powered diagnostic imaging solution using ultra-portable Fuji X-ray machines was delivered to the Peter Ballantyne Cree Nation community of Southend, 460 kilometres north of Prince Albert, Saskatchewan, in July. The solution provides nursing staff with near real-time reports of abnormal results.



# Simplifying patient support programs through digital innovation

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## PatientTrak now available in emergency departments in Nova Scotia

BY LAUREN MACDOUGALL

**H**ALIFAX – It is now faster and easier for physicians and other authorized care team members to access the latest patient census and health data at emergency departments across Nova Scotia.

A new software solution – PatientTrak – is now available in emergency departments at Nova Scotia Health's eight regional hospitals as well as IWK Health in Halifax, which serves women, children, youth and families across the Maritimes.

The solution provides clinical teams with an overview of the number of patients in the various areas of the emergency department – for example, triage, registration, waiting room – and informs clinical-care decisions in real-time. Access to this new technology has the potential to positively impact the experience of clinical teams and patients and lead to improved patient health outcomes.

As patients arrive at an emergency department, they are entered into the PatientTrak system, immediately recording wait time, health concern and status. As data is entered at various stages of a patient's visit, it is available on a centrally located digital whiteboard, which can also be accessed from any emergency department computer. For example, details about treatments already received by a patient and what is pending – such as tests.

The digital whiteboard has replaced traditional physical whiteboards that would have previously been the hub for patient information in the emergency department. In the past, to access current patient informa-



tion, clinical staff would have had to check a whiteboard or log into the clinical information system to access patient information.

"Compared to a traditional whiteboard, the digital whiteboard gives us a better sense of where the patient is in their progression through the emergency department," said Dr. Everett Fuller, Emergency Department Site Lead, Cape Breton Regional Hospital. "It also raises awareness about the patient's status and supports better communication within the care team."

PatientTrak offers custom clinical alerts relevant to the patient, such as allergies, interpreter or education required, and pending tests. For hospitals that have a pharmacy on site, an alert can be created to notify emergency department pharmacists that there is a patient medication requisition pending, the room where the patient is located and the attending physician. This re-

moves manual processes that previously may have taken longer and allows the physician to focus more on the patient rather than following up on requested treatments.

For patients, PatientTrak offers improved privacy. With traditional whiteboards, more patient identifiable information would be displayed, which could be seen by other patients. With the digital whiteboard, only the first three characters of the patient's name is shown on the large screen; however, a patient's full details can be accessed on emergency department computers by authorized healthcare team members.

PatientTrak further advances Nova Scotia's Action for Health Strategic Plan to improve healthcare across the province by exploring and implementing innovative solutions to optimize resources and capacity while ensuring quality and safety. And, by implementing IT solutions to improve pa-

tient care, access and flow across the system.

"This is an important step forward in supporting clinicians and improving the experience of Nova Scotians that come to us for care," said Derek Spinney, vice president Corporate Services, Infrastructure and chief financial officer for Nova Scotia Health. "Most importantly, there is also an opportunity to realize improved patient health outcomes as the result of physicians having faster access to information needed for clinical care decisions."

Improved access to timely patient information increases awareness of patient wait-times at the various levels of care, potentially streamlining patient flow through emergency departments and improving the experience of both clinical care teams and patients are some of the possible benefits that are on the horizon because of the PatientTrak technology.

"We are excited to see the improvement in workflow visibility and reduced wait-time Nova Scotia Health has experienced while using our system. Emergencies require fast response and real-time information and PatientTrak delivers this for staff and patients," said PatientTrak CEO James Hermann.

### Streamlining the patient journey with RACE

CONTINUED FROM PAGE 4

ble via web browser at [www.raceapp.ca](http://www.raceapp.ca) or for free on Apple and Android devices.

Specialist advice lines exist in other provinces outside of BC. For example, Nova Scotia, Alberta and Saskatchewan all have telephone advice lines. While these programs are similar to RACE, they have different approaches for providing primary care support.

The success stories around RACE are heard across BC. Dr. Christina Thompson, a family physician working in Bella Bella and other rural communities, uses the RACE app on a regular basis. Being in communities where specialists are scarce, Dr. Thompson sees RACE as a valuable resource to her everyday practice.

"I have found RACE specialists are often very understanding of our rural context and limitation," she said. "I often do not have the lab tests or imaging resources easily accessible that would be at a larger centre."

And the range of specialists she consults with, especially given her location, is vast. In fact, over the past three months, she's used the app to connect with cardiologists, obstetricians and gynecologists, orthopedic surgeons, neurologists, pediatricians, rheumatologists, and more.

"As a rural physician, it makes my work easier knowing I have the support of my specialist colleagues in a timely and collegial nature. As a patient, it helps provide treatment options and access to care more on par with what urban communities experience," she added.

For more information, visit [raceconnect.ca](http://raceconnect.ca) or contact our administrative team at [RACE@providencehealth.bc.ca](mailto:RACE@providencehealth.bc.ca).

Miranda Defer is Project Leader, Virtual Health and Shared Care, with Providence Health Care.

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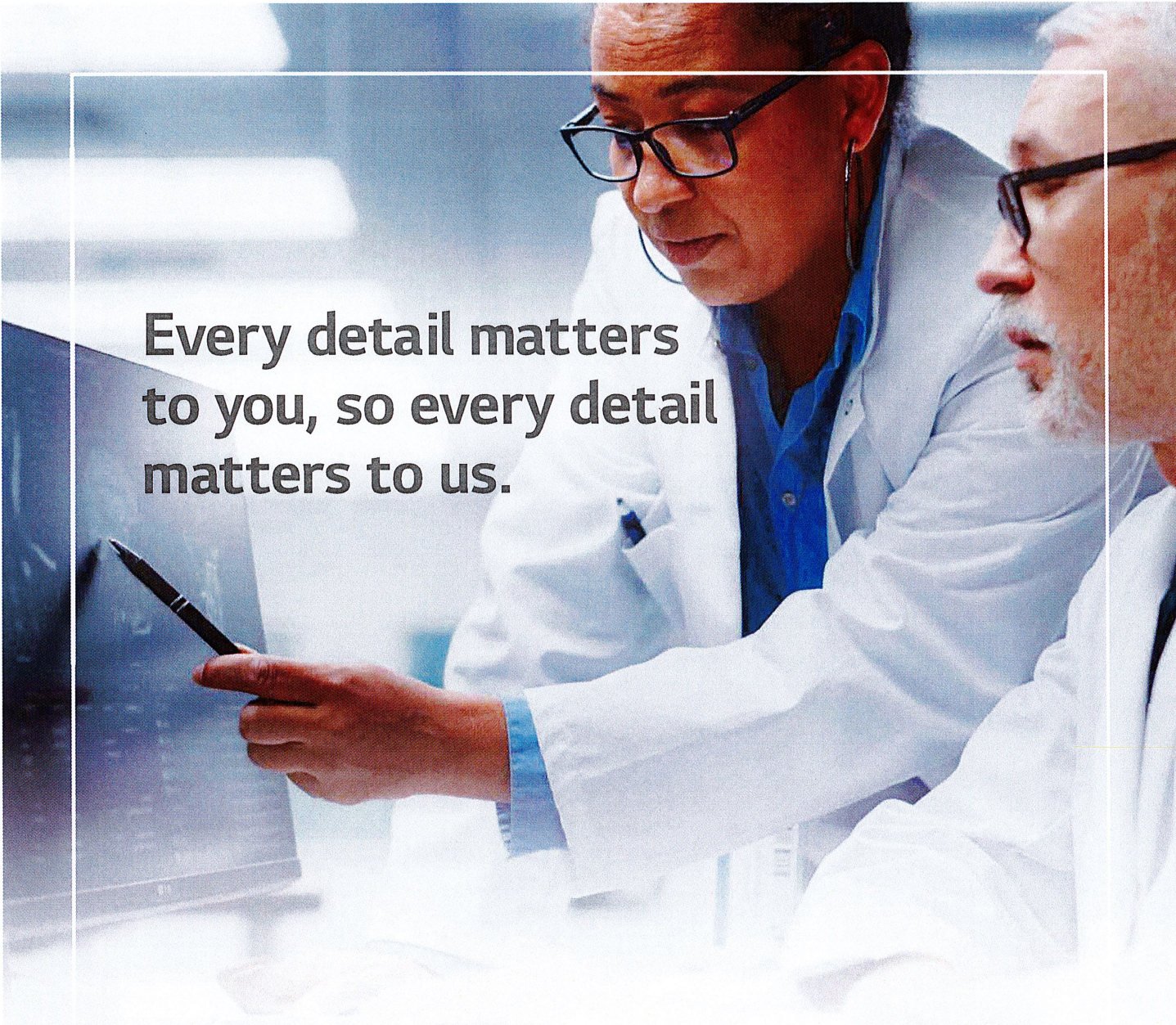
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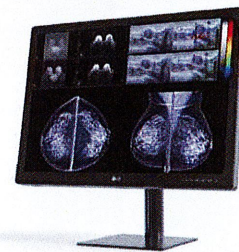
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## New hope for Indigenous mental healthcare: Talking Stick platform

**H**ow does one build hope? TryCycle Data Systems would argue that a fundamental part of the answer is in building connections – facilitating meaningful connections with real people in real-time.

Nowhere has hope been more sought after than in Canada's Indigenous communities. It is no secret that these often isolated and under-served populations have consistently been pushed to society's margins. The social determinants of health play a dominant role in influencing health outcomes, often restricting access to critical services. These are exacerbated by historical inequities that have led to intergenerational trauma and the related consequences – substance use and mental health disorders, and a pervasive lack of hope.

In February 2022, the Federation of Sovereign Indigenous Nations in Saskatchewan approached TryCycle Data Systems to leverage its technology and build an application to facilitate grassroots connections. The Government of Canada, through Indigenous Services Canada listened, recognized the opportunity to work with its partners, and answered the call, investing in a community-based, culturally safe initiative that would have an immediate impact.

Out of this commitment, Talking Stick was conceived – a First Nations-to-First Nations digital chat platform. Every chat is entirely anonymous, which provides the foundation for safe, judgement-free conversations to fill gaps that have persistently sustained the feelings of isolation and hopelessness among Indigenous peoples.

"Talking Stick is not just an app; it's a campaign," explains John MacBeth, Founder

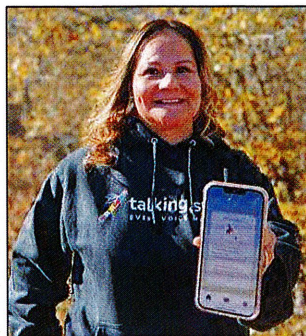
and CEO of TryCycle. "It's about human beings; how we identify and look after people at risk."

Talking Stick is providing options to people who are seeking support, in an environment where there has been a seemingly insurmountable chasm between need and help. Connection is key. The solution provides a secure connection between a Guest and a trained Peer Advocate, using a completely anonymous chat platform. It is free, accessible, and provides a destination that was never there before.

The program aims to hire 200 Indigenous Peer Advocates, with 80 Peers already mobilized across the province. The Peers themselves are screened, trained, and supported by a team of Regional Managers who provide coaching and guidance to the group of cultural resources. The main role of the Talking Stick Peer Advocates is to listen without judgement, creating a safe environment for anonymous Guests to share feelings ranging from loneliness to anxiety, emotions related to home life, school, relationships, or struggles with mental health.

James Smith Cree Nation is one of the many communities that has adopted Talking Stick. A small community which, on September 4, 2022, was devastated by one of the worst mass killings in Canadian history. The horrific events left ten people dead, while eighteen more suffered physical injuries. The community and surrounding areas continue to deal with unimaginable grief and loss that will take generations to heal.

Formal systems are often paralyzed in circumstances like this, where the appropriate response is not clear. Investments are made in perceived solutions, satisfying the expectation that "something has to be



Charlene Gardiner, Provincial Director, Talking Stick

done." Unfortunately, once the acute phase of these events has passed, the tendency is to return to "business as usual."

Nothing is left behind to support the ongoing emotions and grief. That is, until now. Talking Stick Peer Advocates were ready, and still are today ensuring that someone is available to listen and support their healing journey.

"Talking Stick is a means of communication, and to some, it may be their only lifeline. People use this as a safe place to unload

their feelings and emotions, without judgement," said Charlene Gardiner, TryCycle's provincial director for Saskatchewan.

One such example occurred in June 2022, when a Talking Stick Peer Advocate maintained a text-based chat for over four hours, listening to and comforting a Guest who was contemplating suicide. This event provided the Guest the space they needed to process their feelings and allowed the Peer Advocate to offer phone numbers to professional health resources. After this chat, the Guest connected with the same Peer Advocate, to let them know they were okay. Mostly, this person wanted to say thank you for listening.

The challenges being faced by Canada's Indigenous peoples are longstanding, and consequently they are complex. There are layers of trauma that have transcended generations and will continue to fester until hope is established in a sustained and consistent way. Further, the importance of Indigenous ownership of and participation in solutions like the Talking Stick app, cannot be understated.

TryCycle is proud and honoured to be a trusted partner in the campaign to bring hope and increase cultural connections between real people, offering real support, to real problems.

## Plakk leverages AI for stroke prevention

BY KATHERINE O'BRIEN

MONTREAL – Dr. Karina Gasbarrino, a graduate from McGill University's Experimental Medicine program, has a big goal:

improve current medical prediction and prevention methods for strokes. Her family history of cardiovascular disease adds a personal motivation to focus her research on the early detection of unstable plaques, potentially harmful fatty deposits located in the arteries of the neck, the rupturing of which is the number one determinant of strokes.

What sets Plakk's innovative technology apart from current approaches used in stroke prevention is that it goes beyond simply assessing artery blockage. SonoPlaque, the first artificial intelligence-powered ultrasound image analysis software, uses deep learning technology to not only automatically detect the mere presence of a plaque in the neck artery, but goes a step further and performs an in-depth analysis on that plaque, quantifying crucial parameters not yet being measured in standard care, such as the area and the composition of the plaque.

"What we're trying to do with our technology is provide more information to the clinician about what the plaque is made up of," says Dr. Gasbarrino. "The research shows that this provides more accuracy in determining the risk of a stroke."

Currently in the validation phase, Plakk has recruited radiologists and two deep learning engineers to annotate ultrasound images – sometimes referred to as AI image tagging or AI data labelling – in order to create training data for the SonoPlaque model so that it is subsequently able to identify key parameters of a plaque.

"All the training is done on those annotations," she explains. "But once this phase is done and we're meeting clinical standards in terms of accuracy, the model will be able to work on its own."

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