RESEARCH AND INNOVATION 2019/2020

# ANNUAL REPORT


## Improving healthcare through evidence

Alberta Health Services

## Enhancing healthcare for Albertans

Research is about gathering evidence to solve a problem or answer a question.

Innovation may be a new idea or a better way to solve an existing problem.

Together, research and innovation work to improve healthcare practices and patient outcomes.

## The importance of researchers and innovators

They help keep Albertans healthy and independent

They improve the quality and safety of care for Albertans

They provide access to potentially life-changing treatments

They update or replace outdated treatments and technologies

They take good ideas and turn them into something even better

They shorten the pathways to diagnosis and treatment

They achieve more with the same or fewer resources

They improve conditions for the AHS workforce and other Albertans

They encourage highly qualified professionals to join AHS


Thank you to the advisory team who worked with the Health Evidence and Innovation department, as well as the contributors: Kathryn Ambler, Eliza Barlow, Sharon Basaraba, Jessica Bernat, Sara Blake, Shelley Boettcher, Emma Brooks, Michael Brown, Patrick Burles, Shauna Coffyne, Cooper & O'Hara Photography, Remare Ettarh, Jeremy Fokkens, Vanessa Gomez, Greg Harris, Leah Hennel, Sharman Hnatiuk, Evan Isbister, Trina Johnson, Tracy Kennedy, Gail Kostiw, Erin Lawrence, Marc Leduc, Jacqueline Louie, Tammy Mah-Fraser, Christie McLeod, Sabine Moritz, Chris Normandeau, Kit Poole, Amelia Schofield, Francis Silvaggio, Suzy Thompson, Nicole Tjepkema, Dr. Kathryn Todd, David Veitch, Patty Wickson, Becky Wong.

Cover photo: Cooper and O'Hara Photography


Alberta Health Services

Dr. Kathryn Todd is Vice President, Provincial Clinical Excellence, Alberta Health Services.

Photo supplied

Marc Leduc is Senior Provincial Director, Health Evidence and Innovation, Provincial Clinical Excellence, Alberta Health Services.

Photo by Evan Isbister

# Responding to a global pandemic with research, innovation and evidence

WRITTEN BY DR. KATHRYN TODD AND MARC LEDUC

It goes without saying that 2020 was a challenging year.

Since early March 2020, the COVID-19 pandemic has changed the way we live—across Alberta and around the world. And it has underscored, as have few events in our lifetime, the undeniable importance of evidence in providing direction during a crisis.

As they respond to the virus, healthcare providers everywhere are looking for the best ways to optimize existing resources, maximize lab testing, find treatments, and better understand public health trends.

To make those advances, they need to find or create knowledge.

In simple terms, research is the process of asking good questions, collecting evidence and transforming it into new information. That information is then further refined into knowledge that can be shared with healthcare providers and the public. As more information is discovered, our knowledge and understanding expands.

And knowledge is the foundation on which quality healthcare—the kind we strive to offer at Alberta Health Services (AHS)—is based. That knowledge is used to innovate and bring improvements to the healthcare system. Examples of innovation vary, but may include new treatments, devices, enhanced patient safety practices, or other process improvements.

This year's annual report provides many examples of the diverse efforts across AHS to innovate and improve the care we deliver today and tomorrow.

We are an innovative organization with highly motivated staff who are dedicated to responding to the many healthcare issues that Albertans face: kidney care, hearing loss, cancer in young adults, and mental health, to name but a few.

Yet ongoing research and innovation are how we respond to many healthcare issues faced in the province.

At AHS, research and innovation are only possible thanks to our patients, partners, educational institutions and foundations.

They inspire us to greater feats and provide funding, as well as generate new ideas and evidence to help our teams make real improvements to our healthcare system and meet the challenges of 2020 and beyond. ■

# Generating and sharing evidence

## AHS teams collaborate to tackle present and future challenges of COVID-19

WRITTEN BY SHELLEY BOETTCHER AND GREG HARRIS

When the COVID-19 pandemic reached Alberta in March 2020, the province's healthcare workers were ready.

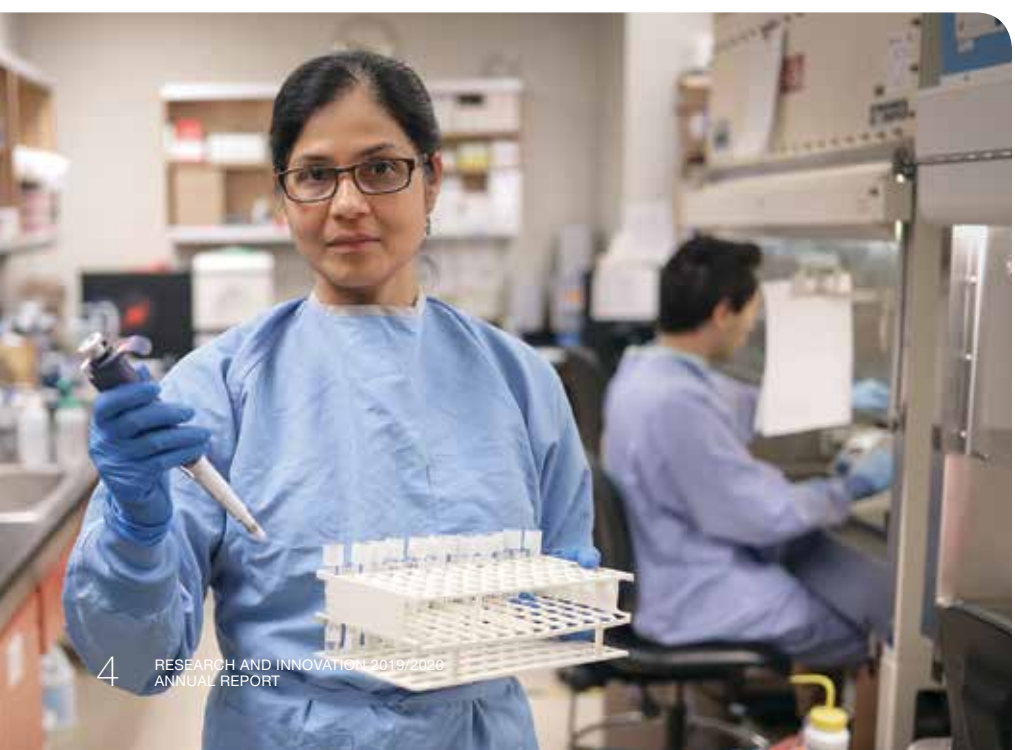
And almost as quickly as front-line care was being set up, so were the questions—and the studies and projects to ask those questions, so that people could find out more about how the virus would affect Albertans, and beyond.

Throughout the pandemic, Alberta Health Services (AHS) teams have mobilized quickly to support the start of many different projects. An impressive array of roughly 160 research studies related to COVID-19 are currently underway or have been recently completed in Alberta.

"These studies put Alberta at the forefront in the global search for treatments for COVID-19, and give our patients access to some of the latest advances medicine has to offer," says Dr. Kathryn Todd, Vice President Provincial Clinical Excellence. "They help AHS staff generate answers to critical questions that will inform how we provide care in the future."

Specific areas of study vary, but they

> These studies put Alberta at the forefront in the global search for treatments for COVID-19



Kanti Pabbaraju, lab scientist, at Alberta Provincial Laboratories in Calgary.

Photo by Leah Hennel

Staff on the intensive care unit at the Peter Lougheed Centre in Calgary.

Photo by Leah Hennel

all work toward the assessment and treatment of COVID-19 patients in the province, with a view to understanding the pandemic's impact on patients, families, staff, physicians and, indeed, Albertans as a whole.

Some are drug trials, while some are looking at personal protective equipment. Others are observational, focusing on the various impacts of COVID-19 on patients and their families.

Still others are crunching data that the health system and researchers are gathering. Throughout the process, AHS' Health System Access (HSA) team has worked with university and Alberta research teams to get their studies up and running and matched to the right patient opportunity. In Spring 2020, HSA developed an approval dashboard to enable quicker approvals and review by the various study review boards. ■



At left, a series of COVID-19 samples gets packaged for testing.
Above, Tiru Desalegne, a registered nurse at Calgary's Stampede fast track COVID-19 assessment site.

Photos by Leah Hennel

## Studying COVID-19

Here is a list of 10 other studies taking place throughout the province this past year:

1. The SOLIDARITY Trial, (also known as CATCO), a clinical trial carried out in collaboration with countries around the world and organized by the World Health Organization. The study aims to look at the effectiveness of Remdesivir, an antiviral medication; Interferon-beta-1a, an anti-inflammatory medication; and extensive supportive care.
2. The risk of premature delivery for pregnant mothers during the COVID-19 lockdown.
3. Clinical characteristics of emergency department patients with suspected COVID-19 infection and the risk to emergency care providers.
4. The healthcare services required when patients have chronic liver disease and COVID-19, and how they do long-term.
5. COVID-19 and Caregivers of Assisted Living Residents: Their Experiences and Support Needs.
6. Patient outcomes of elective cancer surgery during the pandemic.
7. Respiratory viral co-infections in those with acute COVID-19.
8. Emergency providers' experiences during the COVID-19 pandemic: A qualitative study of Canadian pediatric emergency departments.
9. Gynecologic oncology care during the COVID-19 pandemic: A provider perspective.
10. Impact of restricted visitation policies on parents of critically ill children during the pandemic.

> We are not just digging up interesting information. We are answering questions that are important

Dr. Braden Manns is the Associate Chief Medical Officer and co-chair of the Scientific Advisory Group, which connects with experts around the world to review and interpret the most current COVID-19 evidence.

Photo supplied

# Scientific evaluation sets best course for COVID-19 pandemic response

Personal protective equipment. Suggested quarantine times. Emerging treatments and new uses for existing treatments. Every imaginable topic related to the pandemic requires evaluation to determine the best course of action.

At Alberta Health Services (AHS), using the best possible evidence to make informed decisions is key to the pandemic response. And, with the ever-changing nature of this pandemic, we often need that information quickly.

That's where the Scientific Advisory Group (SAG) comes in. Librarians in AHS Knowledge Resource Services conduct thorough literature searches before turning over the results to writers from Strategic Clinical Networks, universities, or the Health Evidence and Innovation portfolio. These writers comb through hundreds of published and pre-print articles to summarize the emerging evidence. Next, the SAG panel of experts discusses, revises, and approves the recommendations and guidance to ensure only the best information is shared with AHS and Alberta Health.

SAG regularly connects with provincial programs, clinician leaders, operational leaders, researchers and other experts around the world to review and interpret the most current COVID-19 evidence from both national and international healthcare organizations.

"The focus of these reviews is to proactively support staff and patients during COVID-19, and to support best practices in healthcare settings across Alberta," says AHS President and CEO Dr. Verna Yiu.

The subjects are many and varied: quarantine times; viral transmission in condominiums and apartments; determining best strategies for controlling COVID-19 outbreaks.

"Scientists love it when they get to answer questions that are of relevance," says Dr. Braden Manns, Associate Chief Medical Officer and SAG co-chair. "We are not just digging up interesting information. We are answering questions that are important at this particular moment in time."

Because available evidence changes quickly during the pandemic, it is important to have a wide range of experts contribute to SAG, he adds.

"The response to COVID-19 has been multidisciplinary. And similarly, SAG reviews are not just done by physicians. Reviews include the perspectives and input of operations, allied health, pharmacy, emergency medicine, critical care, internal medicine, respiratory, public health, workplace health and safety, and infection prevention and control," Manns says. "It's important to have representatives from all those groups."

The SAG committee and writers dedicated about 5,000 hours in the first four months and 72 reviews were completed. SAG then provided its research-informed reviews to those involved in the pandemic response at all levels, including AHS physicians, staff, patients and families.

Research is ongoing and reports are updated frequently, based on emerging evidence. Post-pandemic, SAG may continue, since the need for linking evidence into care will continue to be important, though the reviews would focus on other areas of healthcare within the province.

"The group has proved to be a nimble and very efficient way of streamlining how we do things at AHS," says Dr. Lynora Saxinger, physician and Medical Lead, AHS Antimicrobial Stewardship, North Zone and SAG co-chair. "It has become a way for teams to come forward with their questions and get evidence-based answers."

Albertans can find scientific reviews that answer some of their most burning questions including, 'What risk factors (such as age, medical conditions, or lifestyle factors) are associated with the development of severe outcomes in COVID-19?' and, 'What role might children play in community SARS-COV-2 transmission?' as well as others in the link below. ■

**FOR MORE INFORMATION**, visit https://www.albertahealthservices.ca/topics/Page17074.aspx and filter for "Info for Albertans."

## Research probes links between hearing, behaviour and memory

WRITTEN BY PATRICK BURLES

It started with little things. A search for the TV remote to boost the volume. Leaning in to follow a conversation.

It was enough for Anne Miller to take notice. The retired nurse, 73, has seen hearing loss in loved ones and witnessed the toll it can take.

When she learned of a research study that aims to measure and examine connections between hearing loss, behaviour and cognitive decline, choosing to participate was easy.

"My mother had a lot of hearing issues and, toward the end of her life she started losing her memory as well, so I'm more conscious of it," says Miller.

Alberta Health Services (AHS) audiologist Penny Gosselin is leading the research study. Preliminary results from testing 35 participants between ages 60 and 93 have already appeared in a paper—Effect of Hearing Ability and Mild Behavioural Impairment on MoCA (Montreal Cognitive Assessment) and Memory Index Scores—published in the *Canadian Geriatrics Journal*, September 2019.

Research is ongoing, with changes to protect participants during the COVID-19 pandemic, including continuous masking in-person and a recommendation that memory tests be conducted over the phone. Additional questions have been added, recognizing social and physical distancing's impact.

Gosselin and her team have found a correlation between hearing ability and impaired cognitive function, as well as greater behavioural burdens for people with hearing loss. These conclusions are supported by the Public Health Agency of Canada's Dementia Strategy.

"About 40 per cent of people will have hearing loss that's significant enough to affect their day-to-day function when they reach retirement," says Gosselin.

Tests focus on hearing sensitivity and differentiating between sounds. Two involve listening to a woman's voice in a crowded room—then trying to repeat what she said. Another involves hearing different numbers in each ear at the same time, then reporting all of them.

Behavioural testing is conducted with a questionnaire. Occupational therapists administer cognitive tests.

As for potential applications for this research, Gosselin believes that while we still have a long way to go to fully understand the links, anything that gives people an early warning sign for potential health issues is important. "Identifying and addressing hearing loss at earlier ages, like 50 instead of 75, could give older adults a head start on handling possible cognition problems—and preventing apathy, social isolation and withdrawal."

Miller knows this research isn't likely to benefit her directly. She's OK with that.

"I have children and grandchildren," she says. "If my contribution can improve their health and well-being, that's all I need." ■

## Combating kidney failure in the critically ill

WRITTEN BY TRACY KENNEDY

In the intensive care unit (ICU), healthcare teams perform miracles every day. In the ICU at Red Deer Regional Hospital Centre (RDRHC), they're also looking to perform miracles in the future.

The ICU is participating in its first major international clinical trial, aiming to address the best ways to treat kidney failure and reduce mortality rates among patients. It's led by Dr. Sean Bagshaw, chair of the University of Alberta's department of Critical Care Medicine and scientific director of AHS' Critical Care Strategic Clinical Network.

The study is known as the STARRT-AKI (Standard vs. Accelerated Renal Replacement Therapy in Critically Ill Patients with Acute Kidney Injury) trial. It investigates whether an early start to renal replacement therapy (RRT)—also called dialysis—in critically ill patients is the best time to use the therapy. RRT replaces the normal blood-filtering function of the kidneys, and is used when a patient experiences renal failure due to acute kidney injury or chronic kidney disease.

Thirty-four patients are participating in the trial at the RDRHC ICU. The Red Deer team is led by Dr. Michael Russell and Acute Care Manager Gillian Brown. "Acute kidney injury is one of the things we struggle with and, if we can help turn that around earlier for patients, they'll have better outcomes," says Brown.

In total, 168 sites in 15 countries are participating with more than 3,000 patients. ■

# How innovation helps

## Connect Care overcomes pandemic challenges to launch Wave 2

WRITTEN BY SHELLEY BOETTCHER

Despite being in the midst of a global pandemic, Alberta Health Services (AHS) continued to roll out Wave 2 of the healthcare system's electronic health record project, Connect Care, in 2020.

Connect Care is a new way of using and sharing health information to improve patient care in Alberta. It gives healthcare providers and research teams at AHS a central access point for more complete, up-to-date patient information and best practices. Patients will have better access to their own information, and it will be easier for healthcare providers at AHS to follow a patient's care through AHS, including their participation in research studies.

The whole healthcare team, including patients, will have the best information throughout the care journey.

"Our patients have been our focus every step of the way," says Dr. Francois Belanger, Medical Director, AHS. "Connect Care will transform how patient information flows between patients and their healthcare providers, eventually creating a central access point for current and accurate patient information across AHS."

The Wave 2 launch built on the initial Edmonton Zone launch in 2019. Wave 2 took place on Oct. 24, 2020, and included acute care, long-term care, hospice, post-acute units plus related pharmacies, diagnostic imaging and Alberta Precision Laboratory sites.

Roughly 4,875 staff, and 1,100 physicians, nurse practitioners, physician assistants and dentists were part of the Wave 2 launch.

With input from the Wave 1 launch in Nov. 2019, the new wave included more virtual and remote support for end-users, with constant attention on continuing to provide safe, high-quality care to patients. In addition, this wave represented the first time research participation became a part of the patient health record at these sites.

"Implementing Connect Care is a major undertaking under normal circumstances and this is magnified during the pandemic," says Carol Anderson, Chief Zone Officer, Edmonton Zone.

"As always, the Edmonton Zone teams have risen to meet challenges while keeping the focus on our patients, clients, residents and families."

The full Connect Care launch will continue into 2023, with nine implementation waves in total. ■

### AHS SET 'SITES' ON GETTING WAVE 2 UP AND RUNNING

Facilities that were part of the Connect Care Wave 2 launch:

- Devon General Hospital
- Fort Saskatchewan Community Hospital
- Leduc Community Hospital
- Redwater Health Centre (lab only)
- Strathcona Community Hospital (Sherwood Park)
- Sturgeon Community Hospital (St. Albert)
- WestView Health Centre (Stony Plain)
- North East Community Health Centre (Edmonton)
- Continuing Care Access
- Palliative Community Consult Team
- Northern Alberta Renal Program

Jody Napora, Manager of Perioperative Services at Fort Saskatchewan Community Hospital, joins surgeon Dr. Deng Mapiour during the Wave 2 launch of Connect Care.

Photo by Francis Silvaggio

Virtual care fills in the gaps when the patient and healthcare provider cannot be in the same location

# Connect Care and Virtual Health link patients and care providers

WRITTEN BY SHELLEY BOETTCHER

While the pandemic brought much of the world to a standstill in early 2020, medical emergencies still occurred. People needed to receive care for health conditions other than COVID-19.

That's why, when the pandemic hit, the Alberta Health Services (AHS) Virtual Health team was quick to react.

Within days, they had created a plan to connect patients with their care providers through video conferencing and secure messaging. Any necessary innovations were fast-tracked to serve patient needs.

"The lockdown, combined with physical-distancing limitations, significantly decreased in-person clinical visits," says Shy Amlani, Provincial Director, AHS Virtual Health.

"Virtual care was able to fill in the gaps: supporting individuals who are self-isolating; those patients living in rural and remote areas; and situations when the patient and healthcare provider cannot be in the same location."

Long before the pandemic began, AHS already had a solid foundation in virtual care: providing and receiving healthcare through virtual means.

"In addition to already-existing teleconferencing and telehealth services, AHS added Internet-based solutions such as Zoom, something all AHS physicians, nurses, allied health professionals and clinical support staff could use to support virtual meetings with patients located outside AHS facilities," Amlani says.

"Zoom video conferencing is an easy-to-use platform that's accessible on most computers and mobile devices, and extends access to many patients' homes."

The virtual hospitals programs—including Calgary's Complex Care Hub and the Edmonton Zone Virtual Hospital—were also expanded in early 2020.

"Both use Remote Patient Monitoring (RPM)," Amlani says. "RPM is new, allowing patients with complex health conditions and those recovering from surgery to safely receive acute care at home rather than in hospital."

Other online tools that were developed include ones dealing with privacy, security, consent and patient identification and verification.

Clinicians from the Health Professions Strategy Portfolio, the Chief Medical Information Officer, AHS Privacy/Security, and Legal, as well as patient and family advisors, all contributed to the tools.

Now, a year later, those online tools are being integrated into Connect Care province-wide, making communications between care providers and patients easier and faster than ever before.

AHS Virtual Health has also supported other clinical areas including Addictions & Mental Health, chronic disease management, infectious diseases, and home hospitals, all designed to keep patients closer to home and to minimize risk of exposure to COVID-19. ■

## TRACING THE TRACKS OF COVID-19

Contact tracers are the private investigators of AHS. It's their job to determine who has been in close contact with a positive case of COVID-19.

Veronica Curlew is a case investigator, part of the AHS hospital case investigation and contact tracing team. A licensed practical nurse, she was working in AHS Addiction & Mental Health before being redeployed to help with contact tracing in August 2020. "A typical work day involves managing investigations for new COVID-19 hospitalizations, discharges, changes in hospitalization status, and more," she says. "Our goal is to help stop the spread of COVID-19." By April 5, 2021, the plan is to be completing up to 3,000 COVID-19 case investigations per day.

AHS uses the Communicable Disease and Outbreak Management (CDOM) system, which tracks and records information about cases of notifiable disease as well as outbreaks. The team also uses various IT systems including the close contact web portal, which can be found on ahs.ca, as well as support tools such as SMS text messaging services to track the spread of COVID-19.

### CONTACT TRACING BY THE NUMBERS (as of Jan. 2021)

- Average staff working per day: **629**.
- Average number of case investigations completed each day: **479**.
- Percentage of cases contacted within 12 hours of a positive result: **79 per cent**.

# Dashboard data reassures the front-line on the safety of their workplaces

WRITTEN BY SHELLEY BOETTCHER

> A dashboard is a centralized online location for users to access reports, metrics, common activities and links to useful information

As soon as the COVID-19 pandemic began, many at Alberta Health Services (AHS) began to look at trends across the world.

In the pandemic's early days, numbers from other countries indicated healthcare workers faced a high risk of infection. And when healthcare workers are at risk, so are the patients who rely on those workers, especially during the pandemic.

With that in mind, Dr. Robyn Harrison and others from across AHS, including members of Workplace Health and Safety and IT, joined together to create the AHS Healthcare Worker COVID-19 Testing Dashboard. They planned to capture, analyze and share valuable data that would help keep provincial healthcare workers safe on the job.

What they found is that, since testing began, most AHS staff who have tested positive for COVID-19 are deemed to have been exposed outside the workplace.

The first confirmed COVID-19 case in Alberta came on Mar. 5, 2020. As of Feb. 24, 2021, 77,256 AHS, Alberta Precision Laboratories and Covenant healthcare workers have been tested. Of those tested, 4,656 (6.03 per cent) have tested positive. Of the 1,718 employees who have tested positive and whose source of infection has been determined, 428 (24.9 per cent) acquired their infection at work.

"AHS workplaces are safer than many may have expected," says Harrison, an AHS physician in Edmonton specializing in infectious diseases.

The dashboard is just one way AHS helps front-line workers feel comfortable going to work during the pandemic, says Dr. Stephen Tsekrekos, the Medical Director for AHS Workplace Health and Safety. "It's about sharing open, transparent and accurate information about the risks to staff, and how they can stay safe."

One advantage for AHS is that it's a provincial system, which "gives us great potential to harness large amounts of data and then to link that data," says Tsekrekos.

Both doctors are quick to acknowledge that there are many others involved in the project.

"This is a team effort," Harrison says. "This project reflects partnerships that have been carefully built over the past decade in Alberta."

The dashboard will be regularly updated for the duration of the pandemic. ■

Dr. Robyn Harrison is an AHS physician in Edmonton who specializes in infectious disease.

Photo by Evan Isbister

Dr. Stephen Tsekrekos is the Medical Director for AHS Workplace Health and Safety.

Photo by Leah Hennel

Lorraine Wigston says she feels in control of her health, thanks to the MyAHS Connect app, which allows her to see her medical test results on her cellphone.

Photo supplied

# Access to health information makes patient feel 'powerful'

Lorraine Wigston feels in control of her health. She credits MyAHS Connect.

"It makes me feel powerful," says Wigston, about the app that enables her to contact her healthcare teams and see her medical results as soon as they're available.

MyAHS Connect, formerly known as MyChart, is part of Alberta Health Services' (AHS) Connect Care project. MyAHS Connect is currently available to patients at Edmonton's Walter C. Mackenzie campus, the East Edmonton Health Clinic, and Edmonton-area outpatient clinics. It is expected to be available to all Albertans in late 2022.

"It may have saved my life," she says of MyAHS Connect. "I don't really know because I don't want to rewind the tape."

Three years ago, Wigston—a part-time fitness instructor—had surgery and radiation to remove a cancerous tumour in her neck. She would later be diagnosed with a blood disorder and an autoimmune disease, both of which require regular blood tests and monitoring.

She opted to see her test results through the MyAHS Connect app on her cell phone. "I was able to follow my own progress, see what my results are, see what my norms were, so I knew when things were not right," Wigston says.

Last year, something didn't look right.

When a blood test result showed up on the app, Wigston noticed her blood platelets were dangerously low, lower than they had ever been. She immediately went to the hospital.

"I knew that I couldn't hesitate because people can die from this disease and, obviously, I don't want to die," she says. "It had huge impact on me to have that access."

Wigston says she can't imagine managing her health conditions without MyAHS Connect.

"It makes me feel like I have control," she says. "Don't be afraid to have this knowledge." ■

# Portals put records in patients' hands

It's easier than ever in Alberta to access your personal health records online and take charge of your health. The following guide defines terms that relate to Electronic Health Records (EHR), a digital version of a patient's records.

**Connect Care:** This province-wide initiative will change how patient information flows between patients and their healthcare providers. With Connect Care, your AHS health records will be accessible from any AHS location in Alberta. Your information will securely move through your care journey, giving your care teams a more complete picture of your health. Connect Care is scheduled to be fully implemented by 2023.

**Netcare:** A secure, confidential EHR used by healthcare providers in Alberta. Netcare collects information from AHS and non-AHS sites, including family physicians, hospitals, labs, community pharmacies, diagnostic imaging facilities, primary care clinics, public health units, and allied professional clinics.

**MyHealth Records:** Lets Albertans 14 years old or older see some of their health information, including most lab test results, medications, and immunizations. MyHealth Records also provides access to health and wellness tools.

**MyAHS Connect:** A secure, online, interactive tool provided by AHS, it gives patients access to their health information (see adjacent story). This tool allows you to see your health information, including test results and medications, track appointments, communicate with your healthcare team, and take a more active role in your healthcare. ■

# Applying evidence

## Provincial lab turns science into solutions in fight against pandemic viruses

WRITTEN BY VANESSA GOMEZ

Alberta Precision Laboratories (APL) has led the way in COVID-19 testing in Canada, with more than two million tests completed for Albertans since March 2020.

At its peak, APL performed more than 20,000 tests per day—a stark contrast to the number of tests completed for flu and other respiratory viruses in non-pandemic years. In a regular year during peak respiratory virus season, the lab does about 2,000 respiratory virus tests weekly.

Insights into COVID-19 emerged in December 2019, with APL already monitoring the developing situation internationally.

"A big part of our job is keeping an eye on emerging diseases," says Dr. Graham Tipples, Medical Scientific Director of Public Health, APL. "You never know when something is going to go from a local outbreak to what we are seeing now around the world."

In the past, APL Public Health has been involved in the early detection and testing for emerging diseases and disease outbreaks of international concerns, such as pandemic influenza H1N1, MERS (Middle East respiratory syndrome), Ebola virus and Zika virus. By early January 2020, Alberta labs were able to quickly adjust their own molecular testing to pick up the novel coronavirus.

Testing for respiratory viruses, including the virus that causes COVID-19, is typically done using polymerase chain reaction testing (PCR), whereby a biological sample, such as a throat or nasal swab, is collected and examined for the virus.

Reliable testing remains an important part of Alberta's response to COVID-19, with every step of the process analyzed. Standard test validation processes are required to document the performance characteristics of any test used.

"We are constantly working to validate tests and ensure they work with different supplies and variables," says Tipples. "This is a critical component to the lab quality system which underpins all activities in the lab. We are always working to mitigate any risk factors and continuously work on accuracy. It's a constant work in progress."

The work done around effective testing also informed the APL-led work in validating rapid point-of-care testing systems provided by the federal government. The rapid point-of-care tests aim to improve access to COVID-19 testing and decrease turnaround times, in particular by decreasing the time to detect positive cases. By early 2021, the APL team plans to have rapid point-of-care testing in place at 48 assessment centres, 27 hospital labs and four homeless shelters in Calgary and Edmonton.

While accurate testing has been an important part of the COVID-19 battle, innovative solutions were needed to keep up with the mass volume of testing being done. Partnerships with private sectors proved to be integral, with APL collaborating with DynaLife

Registered nurse Lana Vanden Dungen takes a COVID-19 swab from Kenley Vissers at a Lethbridge assessment site.

Photo by Leah Hennel


Christina Milton studies a microscopic test sample at the Diagnostic and Scientific Centre in Calgary.

Photo by Leah Hennel

to develop fee-for-service testing for travellers and with the provincial and federal governments on the border crossing testing for incoming travellers (a program that has been concluded). These initiatives provided a path forward for travel and economic recovery, while keeping Albertans safe. In addition, it allowed for Alberta Health Services to remain focused on providing testing to symptomatic individuals—reducing wait times for testing and turnaround times for results.

As APL continues to focus on helping Albertans through this pandemic, it is also looking to the future with new research and developments in serology testing, which detects COVID-19 antibodies, and the development of a biorepository.

"Different people in the organization have to be focused on different things," Tipples says. "Innovation comes from trying to figure out how we can get to the next level. How can we make things more efficient? What can we be doing differently? We assess the value in moving in certain directions and pull the teams together to get the work done."

While COVID-19 continues to be a global challenge, Tipples credits APL staff for the work they've done toward the overall healthcare system response to COVID. Staff remained committed to the response, often working long hours. Additional staff were hired at both the public health labs and other APL labs set up to help with COVID testing, and, when necessary, some sites have operated 24 hours a day to speed up testing results.

"There have been many challenges that we've had to overcome, but the staff have been extraordinary," Tipples says. "Nothing would be possible without excellent people stepping up and going above and beyond." ■

## Uncovering exposure to COVID-19 using antibodies

In June 2020, Alberta Health and Alberta Health Services announced a $10-million investment in serology testing—a study to help detect antibodies in a person's blood, indicating they have been exposed to COVID-19 in the past.

"We are working to understand the antibody response and evaluate several serology tests on the market," says Dr. Graham Tipples, Medical Scientific Director of Public Health, Alberta Precision Laboratories. "This work is important in understanding how many people have been exposed. With good geographical representation, we can see the hot spots over time and how they've changed."

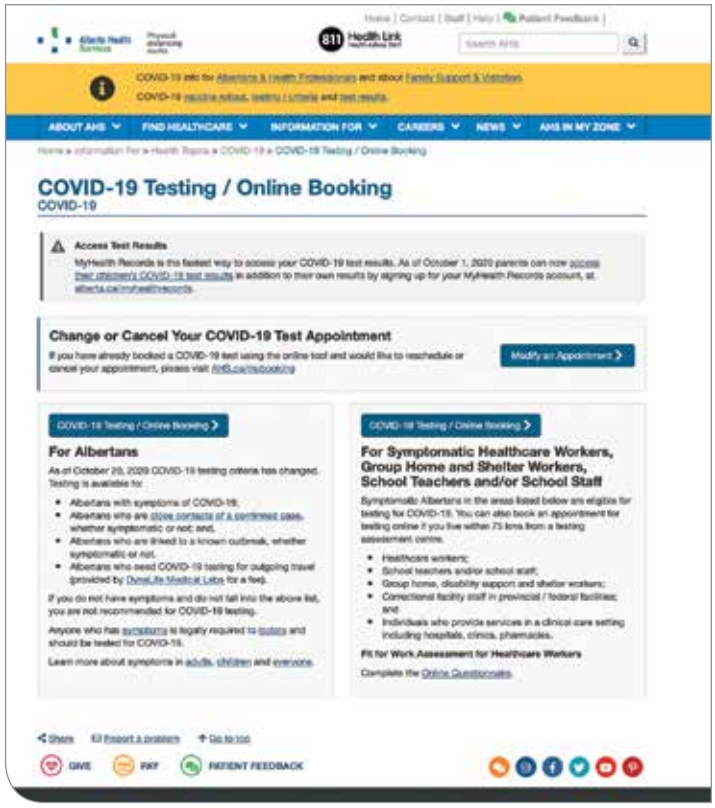
Numerous studies are underway including two in Edmonton and Calgary—Alberta Childhood COVID-19 Cohort (AB3C) and CHILD Edmonton—which will measure COVID-19 antibodies in pediatric populations (18 years and under) until 2022. The third will test blood samples from across the province. A fourth will test select Albertans over the age of 45.

## Understanding the virus and developing new tests

Thanks to a partnership between six health foundations, Alberta has a biorepository in Edmonton and Calgary to store human COVID-19 positive samples.

Blood, tissue and stool samples are collected with patient consent during diagnosis and treatment, then frozen to -80 C. The preservation of these anonymized samples provides researchers with access to materials needed to develop and evaluate new tests, and better understand the virus.

The support came from the Calgary Health Foundation, University Hospital Foundation, Alberta Cancer Foundation, Stollery Children's Hospital Foundation, Alberta Children's Hospital Foundation and the Royal Alexandra Hospital Foundation.




Alberta Health Services developed a simple online screening tool that helps people determine if they need to be tested for COVID-19, then helps them book a test.

# Online screening tool a game changer for Albertans worried about COVID-19

WRITTEN BY SHELLEY BOETTCHER

Within weeks of the COVID-19 pandemic hitting Alberta, Alberta Health Services (AHS) had launched a simple online screening tool to help people decide if they need to be tested for COVID-19.

The tool asks questions about symptoms and then takes users through steps to help determine if they should book an appointment for testing.

AHS Innovation and Digital Solutions team member Ammneh Azeim came up with the idea after noticing that, a couple of days after the virus hit the province, Albertans were asking many of the same questions on social media about healthcare and testing.

She brought it up in a meeting with her team, wondering if they could develop an online tool that would help answer the most common questions. "I thought, why don't we digitize their questions?" she says. "Then they could just click online to get their answers."

The team then worked hand-in-hand with AHS Senior Medical Officer of Health Dr. Laura McDougall and AHS Health Link to develop the tool, which is based on the most common questions to Health Link around COVID-19 and testing.

As of Jan. 29, 2021, the COVID-19 online assessment tool has been accessed more than eight million times by Albertans. A similar tool was also developed for healthcare workers and was expanded to include other essential workers. It has been accessed nearly one million times.

"AHS teams have come together to ensure we are protecting each other and keeping Albertans healthy and safe," says AHS President and CEO Dr. Verna Yiu. "This tool has helped us reduce call volumes, keep the lines open for those with serious symptoms and reassure those Albertans who don't need testing right now."

The initial online testing tool helped people determine whether they needed to go for testing. The tool continued to grow and evolve and, starting in June 2020, Albertans could also book appointments for their COVID-19 tests through the tool.

As public health guidance changes, so does the online assessment tool, ensuring AHS continues to provide the latest information to all Albertans.

"This was an incredible opportunity for all involved to help Albertans in a time when there were a lot of unknowns," says Kass Rafih, Senior Provincial Director, Innovation and Digital Solutions. "The online tool has given Albertans some of the information they need to protect themselves and their loved ones."

In addition to helping Albertans, AHS worked with other health jurisdictions to help them develop similar tools. AHS also shared the tool with healthcare systems in Saskatchewan, Yukon, Nunavut, P.E.I., Ontario and the Canadian Armed Forces. AHS has also shared the tool with health jurisdictions looking to use it in other parts of the world. ■


Catherine de Beaudrap stands in front of the entry door to Access 24/7 at Edmonton's Royal Alexandra Hospital. De Beaudrap, who advocates for the service, struggled with depression and anxiety as a teen.

Photo by Sharman Hnatiuk

# Access 24/7 streamlines services for addiction and mental health care

WRITTEN BY VANESSA GOMEZ

Catherine de Beaudrap has struggled with anxiety and depression that started in her early teens.

"Anyone who goes through mental health or addiction issues is going to have a story that is individual to them," says de Beaudrap. "But what is universal among so many of our stories is the struggle to get help."

De Beaudrap is now a mental health advocate and ambassador for Access 24/7, a new service for adults looking for centralized addictions and mental health services in the Edmonton area.

The service aims to help patients, families and staff navigate the complex system of addiction and mental health resources.

Located in Edmonton's Royal Alexandra Hospital, Access 24/7 provides round-the-clock in-person assessment, crisis outreach and stabilization services, tailored to individual needs. The team is supported by mental health therapists, nurses, addiction counsellors, social workers, peer support workers, family peer support workers, psychiatrists, pharmacists, support staff, protective services and EMS, as well as community supports from the Edmonton Police Service and the RCMP.

"We believe this is a big step toward us becoming the coordinated and integrated addiction and mental health system that Albertans deserve," says Mark Snaterse, Executive Director of Addiction and Mental Health with Alberta Health Services (AHS).

Access 24/7 is made possible with the support of the Government of Alberta, which contributed $1.325 million; AHS, which committed $2.8 million for operational and staffing costs; and the Royal Alexandra Hospital Foundation, the Mental Health Foundation and community donors, who provided an additional $1.1 million toward renovations, equipment, and peer and family support workers.

## Break the silence and isolation

"We couldn't be more grateful for the support of our donors and are thrilled to see their donations in action here," says Sharlene Rutherford, President and CEO of the Royal Alexandra Hospital Foundation.

Now, as a teacher and mother, de Beaudrap says she expects Access 24/7 to provide an easier journey for people struggling with addictions or mental health concerns.

"What this facility is going to do is give hope," she says.

"This is going to help break the silence and isolation that so many of us go through when we're dealing with a mental health issue or addiction issue. We're going to get access to the care we deserve." ■

Dr. Vincent Agyapong, Clinical Section Chief for Community Mental Health in AHS Edmonton Zone, checks out a message from Text4Hope, a program he helped spearhead.

Photo by Evan Isbister

# Helping Albertans

## Text4Hope supports mental health right at one's fingertips

The COVID-19 pandemic hasn't just affected the physical health of many Albertans. It's affected their mental health, too.

That is why, early on in Alberta's COVID-19 response, Alberta Health Services (AHS) and a group of foundations, led by the Mental Health Foundation, banded together to launch Text4Hope.

The free program provides subscribers with three months of cognitive behavioural therapy-based text messages written by mental health therapists.

The program is an evidence-based tool that helps people identify and adjust negative thoughts, feelings and behaviours through free, short, daily text messages containing advice and encouragement to help develop resiliency and healthy personal coping skills.

"One of the biggest benefits to Text4Hope is that it offers immediate support when experiencing stress and anxiety," says Dr. Vincent Agyapong, Clinical Section Chief for Community Mental Health in AHS Edmonton Zone, who developed the program in partnership with the AHS Addiction and Mental Health department.

"The program isn't intended to replace therapies or interventions, but is rather another added support to someone's overall care plan."

The program was made possible through a first-of-its-kind partnership between AHS Addiction and Mental Health and the Mental Health Foundation, Calgary Health Foundation, University Hospital Foundation, Royal Alexandra Hospital Foundation, Alberta Cancer Foundation and Alberta Children's Hospital Foundation.

"Adapting to lifestyle changes, stress and isolation during this time has challenged the mental health of our community," says Mary Pat Barry, Board Chair of the Mental Health Foundation, Text4Hope's lead sponsor. "A virtual option for additional support was clearly essential."

Since its launch, more than 50,700 Albertans have subscribed to the program, which can be joined by texting COVID19HOPE to 393939.

Text4Hope has expanded to include Text4Hope-Addiction Support and Text4Hope-Cancer Care. They are designed to help Albertans dealing with psychological issues related to addiction and cancer. The expanded services are funded by the Mental Health Foundation. ■

**SUBSCRIBE:** Albertans can text COVID19HOPE at 393939; text Open2Change to 393939 to subscribe to the addiction program; or text CancerCare to 393939 to subscribe to the cancer program.

Coronation resident Chris Goodbrand shows the remote monitoring device he uses that transmits information to his cardiac care team in Calgary.

Photo supplied

# Remote monitoring brings cardiac care to the patient

WRITTEN BY GREG HARRIS

If Chris Goodbrand wakes up in the middle of the night worried he might be having ticker trouble, he has a straightforward process to find out for sure.

The 48-year-old resident of Coronation, about 300 km northeast of Calgary, calls the Cardiac Implantable Electrical Device (CIED) Clinic at Foothills Medical Centre and lets his remote monitoring device transmit data to the team there. They tell him right away if there's an issue.

"It's the best unit ever," he says of his implanted pacemaker/defibrillator, and its accompanying monitoring unit. "I'm three and a half hours away from Foothills, so if I feel like my heart is racing, or the defibrillator has given me a jolt, they can just check the data and say, 'Yeah. Actually, you're doing fine.'"

Dr. Derek Exner, Calgary heart rhythm specialist.

The team can remotely assess his device, recommend changes to his medications and, most importantly, determine if emergency medical attention is warranted.

Goodbrand is one of thousands of Albertans with remotely monitored CIEDs who have access to 24-hour support and care—regardless of where they live.

That province-wide innovation is now a standard of care that grew out of the PERFORM program—Performance Evaluation and Rhythm Follow Up Optimization through Remote Monitoring.

"It's all about the patients," says Dr. Derek Exner, Calgary heart rhythm specialist and the principal lead for PERFORM. "This approach brings the care to the patient, instead of requiring that they come to us."

By monitoring patients remotely, care teams can handle unscheduled concerns and routine checkups, monitor implanted devices' batteries and other functions.

"In this age of COVID-19, it's also a huge advantage that patients don't have to come in for a face-to-face visit. We can provide the same care remotely, minimizing risk and inconvenience," Exner says.

The PERFORM project started in 2014 with a grant from PRIHS (Partnership for Research and Innovation in the Health System), which is overseen by Alberta Innovates and Alberta Health Services.

"This project has truly been a team effort with government, clinicians and administrative leaders, as well as patients, making huge contributions," Exner adds.

In 2020 the Health Quality Council of Alberta recognized PERFORM with a Patient Experience Award.

"Alberta is ahead of the pack and is seen as a leader in this area," says Exner. "The level of care we're able to provide is second to none." ■

# New procedure gives hope to provincial amputees

WRITTEN BY ELIZA BARLOW

Seven years after losing her leg, Angelena Dolezar is getting back on her feet again.

She is the first person to receive osseointegration in Alberta and one of two patients who have undergone the surgery since the program launched at the University of Alberta Hospital in 2020.

"I can create an identity that's me again, with my leg having just been something that happened to me—not the focus and the central component of my life," she says.

Funding for the program came from the University Hospital Foundation's Festival of Trees, a long-standing source of community generosity that has generated more than $22 million for nearly every corner of care at the hospital.

Defined as the fusion of bone into a titanium implant, osseointegration has been around for many years. It's used in procedures such as dental implants. Titanium has special properties that allow bone to grow in and around it. But this new application of osseointegration is groundbreaking in the way it allows amputees to use prosthetic limbs.

"The traditional way of attaching a regular prosthesis to the limb is by putting a hard plastic shell around the limb and squeezing the soft tissue," says rehabilitation physician Dr. Jacqueline Hebert.

The beauty of osseointegration, however, is that it puts the connection back between the ground and the patient's skeleton.

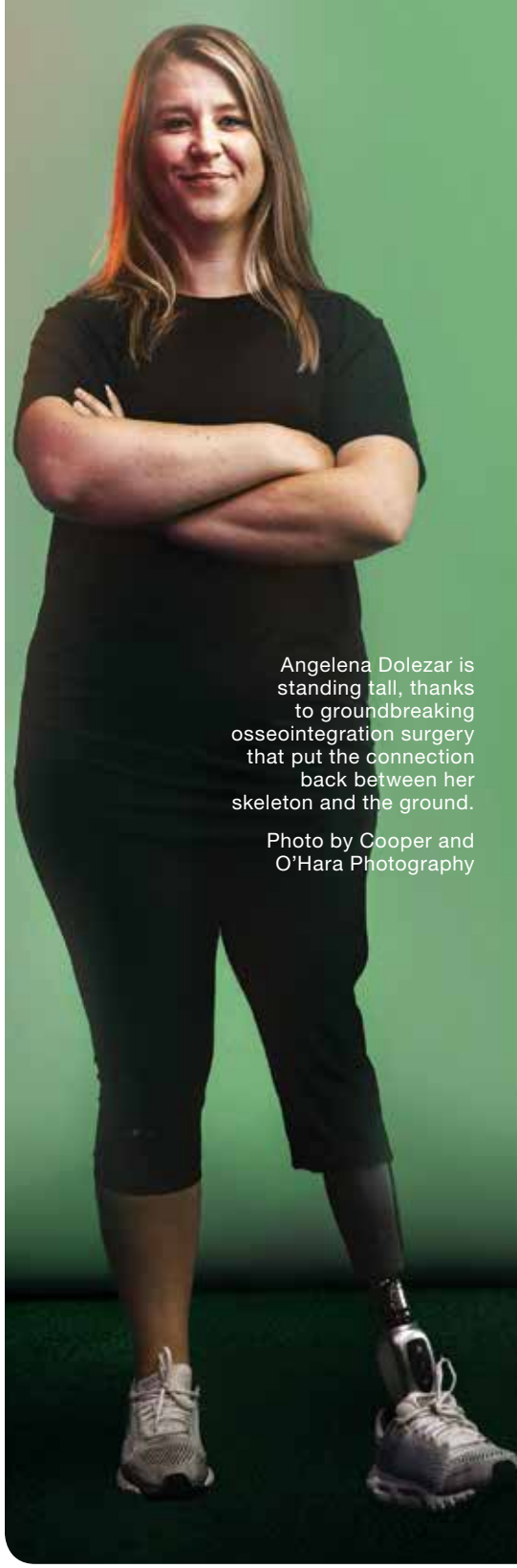
"It's like they're stepping on their own foot again," Hebert says. "They say, 'I feel like it's coming right through my bone now; I can feel my foot, I can feel when I hit the ground, I can feel the vibration when I swing my leg.'"

> I'm excited to have a life where my leg isn't the focus of my life

Hebert and Dr. Robert Stiegelmar, an orthopedic surgeon at the University of Alberta Hospital, worked for five years to bring the surgery to Edmonton.

Hebert and her team see about 100 new amputees every year from the Edmonton area and northern Alberta. About 30 per cent of them have had leg amputations above the knee. But only a portion of those—Hebert estimates five new patients per year—are suitable candidates for osseointegration.

As for Dolezar, she is thankful she could receive this surgery in Alberta. "I'm grateful for the future," she says. "I'm excited to live a life where my leg isn't the focus of my life." ■



Angelena Dolezar is standing tall, thanks to groundbreaking osseointegration surgery that put the connection back between her skeleton and the ground.

Photo by Cooper and O'Hara Photography

**READ THE FULL STORY** in the third edition of the University Hospital Foundation's *HERE Magazine*: https://givetouhf.ca/rise-up.

Cindy Park, Community Engagement Director with Seven Generations Energy (7G), videochats with seniors on her laptop. The program, a partnership with 7G, AHS, and the Grande Prairie Regional Hospital Foundation, helps ease the loneliness of seniors who are having to isolate themselves during the COVID-19 pandemic.

Photo supplied by Seven Generations Energy

# Chats brighten the day for continuing care residents

WRITTEN BY SARA BLAKE

Doreen Wilson has lived at the Mackenzie Place Continuing Care Centre for almost two years. Like many who live in continuing care settings, Wilson hasn't had much face-to-face company since the pandemic began.

"It's been a little lonesome," Wilson says. "I have a daughter. She has little ones and her husband is ill, so it's hard for her to come here to visit."

Visitor restrictions at continuing care facilities, while necessary to protect residents from COVID-19, have made it challenging to stay socially connected.

And so the 7G Seniors Chat program began. A partnership between Alberta Health Services (AHS), Seven Generations Energy (7G) and the Grande Prairie Regional Hospital Foundation, the program connects continuing care residents with Seven Generations employee volunteers for regular video chats. Seniors Chat tackles social isolation, fosters new connections and forges friendships.

"We know loneliness can have a negative impact on both mental and physical well-being," says Stacy Greening, AHS Senior Operating Officer for Grande Prairie's Queen Elizabeth II Hospital.

"When Seven Generations reached out with the idea for the Seniors Chat program, it was clear that this was something we wanted to support."

Cindy Park, 7G's Community Engagement Director, says staff are volunteers who were looking for ways to contribute, despite the pandemic.

"Social isolation can lead to health issues for seniors, particularly during these challenging times," she says. "Through the 7G Seniors Chat program, our volunteers connect with a senior on a tablet to have a conversation, brighten their day and let them know they are not alone."

AHS recreation therapy staff help participants connect with volunteers on tablets. Seven Generations donated several tablets through the foundation to help ensure seniors could connect.

"We've worked with Seven Generations on several projects and it is always a pleasure to be able to help them achieve their vision," says Dawn Miller of the Grande Prairie Regional Hospital Foundation.

7G volunteer Kim Olness says the program has also brought her benefits she hadn't anticipated.

"Especially during this time, it's easy to get isolated and worry only about what's going on in your day-to-day life and forget about other people," Olness says. "Doreen was a complete stranger to me before COVID and now she means a lot to me."

Plans are underway to continue the program post-pandemic, possibly expanding it throughout the province. ■

## MORE VIRTUAL VISITS

Several Alberta foundations also funded tablets and other electronic devices so patients and continuing care residents can virtually visit with their loved ones while COVID-19 visitation restrictions are in effect. Just one example:

The Taber & District Health Foundation recently donated nine tablet computers to the Taber Health Centre, Taber & District Housing Foundation and Good Samaritan Linden View. The foundation received the tablets after requesting donations on social media.

Ian Buchanan, far left, is the VP of Technical Services at Exergy Solutions in Calgary. With his team, pictured above and on the next page, he helped create a ventilator that could provide short-term respiratory support.

Photos by Leah Hennel

# Homegrown innovations

## Power of partnerships breathes creative life into innovative ventilator design project

WRITTEN BY GREG HARRIS

When Billy Rideout saw how a shortage of ventilators caused a crisis in Italy in March, he thought about what his advanced technology firm, Exergy Solutions, might do to prevent a similar situation in Alberta.

Six weeks later, following a cross-industry collaboration led by project manager Ian Buchanan, Exergy was poised to donate 200 ventilators it designed and built as a response to the pandemic.

"We're an agile organization, capable of moving fast," Rideout says. "It's something we've always been very proud of and, during the last few months, it has proven to be very helpful."

Named Alberta E-Vent and nicknamed "Bertie," the ventilators were created in part through 3D printing technology. They are intended to provide short-term respiratory support, monitoring and treatment of adult patients for use if and when a conventional ventilator is unavailable.

Suncor Energy, a long-term partner

## Named Alberta E-Vent and nicknamed ‘Bertie,’ the ventilators were created in part through 3D printing

of Exergy, provided financial support to the Exergy team to make the donation of the first 200 units possible. The Calgary Health Trust—now the Calgary Health Foundation—also contributed funds to the project.

When Exergy first approached Alberta Health Services (AHS) with its idea, it led to the creation of a multidisciplinary group called the Ventilator Collaborative, co-led by Dr. Braden Manns, AHS Associate Chief Medical Officer, and Patty Wickson, Executive Director of the AHS Innovation, Evidence, Evaluation and Impact team.

The COVID-19 Pandemic Ventilator Manufacturing Collaborative brought together clinicians and industry representatives and involved a cross-provincial team of volunteers and collaborators.

“Exergy has some incredibly smart engineers and people who are willing to work 12 hours a day, seven days a week, but they needed some help to understand, ‘Which type of ventilator prototype should we be working on? How do we know if it’s going to be acceptable to the intensive care unit physicians and respiratory therapists who are going to be using them?’ and many other questions,” Manns says.

The collaborative eventually included university faculty from biomedical engineering and other disciplines, industry representatives, AHS intensive care physicians, a respiratory therapist, as well as clinicians with biomedical engineering experience.

“With industry stepping up to try to solve a problem in healthcare, our task at AHS was to provide whatever information and feedback from clinicians and users to help ensure they succeeded,” Wickson says. Weekly meetings covered technical topics related to the clinical use of the ventilators, and also dealt with testing, legal and regulatory matters.

Alberta E-Vents have been deployed in rural hospitals to care for COVID-19 patients until they can be transported to a larger hospital. They may allow hospitals to expand their patient-care capacity and may reallocate conventional ventilators to patients with more complex needs.

Exergy’s lab is located in the Life Sciences Innovation Hub, operated by Innovate Calgary. Teams from the University of Calgary, including the Advanced Technical Skills Simulation Laboratory and the Schulich School of Engineering, offered support and resources for the mechanical design and testing of the project.

Many other companies played pivotal roles in the collaboration, including Logican Technologies, Catch Engineering, PLC Electronic Solutions from Vancouver, Global Power Technologies and Laser Equation. ■

# AHS leads nation in evolution of safer ambulance design

WRITTEN BY ERIN LAWRENCE

Ian Blanchard remembers his final shift working in the back of an ambulance. It was the day his career caring one-on-one for patients came to an early unplanned end.

"I was stepping over some cables that ran from the stretcher to a monitor on the side counter, and I grabbed onto the stretcher for support, but the mechanism broke," Blanchard recalls. "I landed on the floor."

The fall left him unable to perform the physically demanding duties of a paramedic.

But with experience and a passion for research, he forged a new path. Blanchard is now the Alberta Health Services Emergency Medical Services' (AHS EMS) Provincial Research Lead, attached to the Office of the Chief Paramedic.

He works with EMS and University of Calgary colleagues, including Dr. Bill Ghali and Dr. Jeff Caird, as well as Canadian ambulance manufacturers, redesigning ambulance interiors to make them safer for paramedics and patients.

"Ambulances that are safer for paramedics are safer for patients," says EMS Chief Paramedic Darren Sandbeck.

For more than 18 months, the team observed about 50 paramedic teams and ran simulated scenarios in the back of a moving ambulance. They equipped the ambulance with video technology, including eye-gaze tracking goggles.

It is one of the first studies focused on how paramedics use ambulances when providing active care, and the first Canadian ambulance design study of its kind. The findings are being shared across North America.

Design changes to ambulances come at no additional cost to AHS EMS. New ambulances already feature recommended changes.

"This study is an important example of how research and knowledge translation can inform tangible changes. I believe that AHS EMS is leading the way with these proactive upgrades," says Blanchard.

Funded by the AUTO21 Network of Centres of Excellence, the U of C W21C Research and Innovation Centre and AHS EMS, their study—The evaluation of an ambulance rear compartment using patient simulation: Issues of safety and efficiency during the delivery of patient care—was published in *Applied Ergonomics* in 2020. ■


Ian Blanchard, a former paramedic and now AHS EMS Provincial Research Lead, helped spearhead a two-year study that observed paramedics at work in a moving ambulance to help design a safer interior for both patient and caregiver.

Photo by Leah Hennel

### SAFETY-ORIENTED DESIGN CHANGES:

- Improved layout to encourage seatbelt use and allow paramedics to work seated
- Rounded corners on interior surfaces to prevent injuries
- Lips added to counters to prevent falling objects
- Placing most-used tools and equipment within easy reach of the primary caregiver seat
- Placing garbage and sharps containers closer to the most-used seat
- Additional grab handle for stability
- Hydraulic lift for main oxygen tank
- More work surfaces
- A ceiling oxygen port to reduce the possibility of tripping over tubing.

# Therapists bridge the distance to deliver personal services

WRITTEN BY GREG HARRIS

Healthcare providers across AHS came up with creative solutions to continue delivering needed services during the pandemic. Observing social distancing requirements keeps everyone safe, while leveraging existing tools in innovative new ways keeps everyone connected.

## Rehabilitation Advice Line

The Rehabilitation Advice Line started May 12, 2020, and gives callers guidance on activities and exercises to support physical functioning and strategies to manage daily activities. It also provides links to rehabilitation services available for in-person or virtual access, and to supportive community organizations and resources.

"Alberta Health Services is the first health organization in Canada to offer a service like the Rehabilitation Advice Line," says Katie Churchill, Senior Practice Lead with Health Professions Strategy and Practice, and a co-lead on the project.

"Having a virtual service like this really improves access to rehabilitation. So far it has been very well received."

## Go The Distance: virtual adult day program

When an adult day program for more than 80 seniors in Didsbury, Strathmore and Airdrie had to close its doors to visitors in the early days of the pandemic, recreation therapist Brandee Elliott knew its loss would be keenly felt.

"I quickly realized that we needed to provide more for our clients during this time, particularly those who are isolated with limited family support," Elliott says.

She came up with the idea for a virtual program called Go the Distance, which lets seniors socialize and stay cognitively sharp with activities like trivia games, Name that Tune, and reminiscing exercises—all delivered by Elliott and her team of six therapy assistants by phone or through Zoom calls. ■

Recreation therapist Brandee Elliott went online to start the virtual Go the Distance program after the in-person adult day program closed its doors in March.

Photo by Leah Hennel

# Families take on front-line role in newborn units

WRITTEN BY JACQUELINE LOUIE

Following the preterm birth of her son seven years ago, Red Deer parent Kristi Wagar signed up to become a peer support mentor in Red Deer.

She and the families she mentored were part of the Alberta Family Integrated Care (FICare) study.

The goal of Alberta FICare is change in culture and practice that involves and supports parents in their role while their infant is receiving care in a level II neonatal intensive care unit (NICU).

As partners in the healthcare team, parents are encouraged, as they are ready and willing, to introduce and share information about their infant during bedside rounds, and empowered to participate in decision-making and care planning.

"Letting parents take a front-line role is very, very important," says Wagar. "It helps parents know they are capable."

The results of that study, Reducing NICU Length of Stay in Alberta: Scale and Spread of Alberta Family Integrated Care (FICare), have been published in the international journal, *BMC Pediatrics*.

"AHS recognized the positive results and asked us to immediately implement it in all 14 neonatal intensive care units in the province in collaboration with Alberta's Maternal Newborn Child & Youth Strategic Clinical Network," says project co-lead Karen Benzies, Associate Dean, Faculty of Nursing at U of C, PhD and registered nurse. She notes that the 765 preterm babies in the study went home from the hospital an average of 2.5 days sooner than other preterm babies.

"The important thing about FICare is that it's the right thing to do for preterm babies and their families," Benzies says. "The bonus is that it also benefits the healthcare system." ■

# *Hey Google... Alexa...*

*Ask Alberta Health Services for:*


*wait times*

*latest news*

*flu shot information*

*wellness tips*

# Together, we do amazing things every day

Research and innovation are at the heart of improving healthcare for Albertans. Learn more about us at ahs.ca/research.

Alberta Health Services

Healthy Albertans.
Healthy Communities.
**Together.**

# Improving lives

## Clinical trial holds promise for elbow-surgery patients

WRITTEN BY GREG HARRIS

In the early phase of her recovery from elbow surgery, Michelle Archibald followed the advice she was given to promote healing by staying active.

Today, Archibald is enjoying a near-full recovery, something she attributes partly to the clinical trial she's participating in that's testing whether an asthma medication (Ketotifen) can prevent stiffness and motion loss in elbow surgery patients.

Dr. Kevin Hildebrand, Calgary orthopedic surgeon and principal investigator for the multi-centre clinical trial, believes Ketotifen may hold promise for healing elbow injuries that have been surgically repaired.

He began testing it in patients in a 2013 clinical trial after studies in animals showed it could be effective. His latest research is part of a large North American trial.

"Based on the results of the study that wrapped up in 2016, we have refined our recruitment to focus just on patients with the really severe elbow injuries: the ones who have required surgical repairs. Our theory is that those patients might benefit the most from Ketotifen," Hildebrand says.

Archibald slipped on ice and broke her elbow and wrist—both of which required surgery. The research team at Peter Lougheed Centre invited her to join the study, which she agreed to after being assured of Ketotifen's safety.

In the latest clinical trial, researchers will recruit 700 participants from 17 different sites in the United States and Canada, including Foothills Medical Centre, Peter Lougheed Centre and South Health Campus in Calgary, and the Sturgeon Community Hospital in St. Albert. Clinical trials are a critical part of the healthcare system, giving clinicians the evidence they need to make decisions around care.

"We're grateful for people like Michelle who participate in studies like these," says Hildebrand. "Whether or not they benefit from the medication being investigated, they are still making an important contribution toward our understanding, which may help patients who come after them." ■

**FOR MORE INFORMATION**
on participating in research studies in Alberta, visit bethecure.ca, ahs.ca/participateresearch or albertacancerclinicaltrials.ca.

### Clinical trials by the numbers

In 2020, Alberta Health Services received:

**1,352**

requests to initiate clinical studies (including surveys, physical tests and highly regulated clinical trials)

AHS also initiated Connect Care Wave 1 studies that included:

**1,120**

University of Alberta Hospital patients involved in drug or device studies

Research study participant Michelle Archibald hangs some homemade wind chimes while enjoying full range of motion in her left arm after recovering from elbow surgery.

Photo supplied

Heart transplant recipient Mason Thomas, 8, shows off a 3D model of his old heart, complete with *Star Wars* TIE fighter wings. The model allowed Mason to see what had been wrong with his heart.

Photo by Emma Brooks

# Young patient's 'toy' far more than child's play

WRITTEN BY VANESSA GOMEZ

The adage is 'seeing is believing,' but for Mason Thomas, eight, and members of his heathcare team, a three-dimensional model of his heart means 'seeing is understanding.'

Mason had been asking questions about the heart transplant he received at age six. Born with hypoplastic left heart syndrome, he had been on a feeding tube and oxygen, and waited on the transplant list for more than three years.

"He's gotten through this very well," says Brandie Thomas, Mason's mom. "But he struggled a lot with, 'Why? Why me and what was wrong with my heart?' "

Now, thanks to a detailed 3D model created using computed tomography (CT) scans, Mason is able to see what was wrong with his old heart and why he needed a new one. The visualization aid is a collaboration between the Stollery Children's Hospital, Academic Technologies in the Faculty of Medicine and Dentistry at the University of Alberta, the University of Alberta's Elko Engineering Garage, and the Mazankowski Alberta Heart Institute's Servier Virtual Cardiac Centre.

Mason was given two 3D models—one depicting how his old heart functioned and another that added *Star Wars* TIE fighter wings to the first model—reflecting his fighting spirit and love of the epic space soap-opera series.

> With 3D modelling, parents will feel more involved and 'expert' in their child's care

Creating a 3D model of a damaged heart is more than just child's play—doctors say it will be a game-changer in the treatment of heart conditions.

"3D modelling will revolutionize healthcare in the sense that it breaks down barriers to create a shared model of care," says Dr. Charles Larson, pediatric cardiac intensivist at the Stollery Children's Hospital.

In the past, the best illustration doctors could provide before surgery was a sketch of the heart for patients, families and members of the care team. Now, 3D models reveal the heart's anatomy and physiology using a variety of colours and textures.

"Because the heart is inside the body, it's hard to get a good grasp of congenital heart defects and it can be tricky to explain to people why they need a surgery or a certain medication," says Larson.

"With 3D modelling, parents will feel more involved and 'expert' in their child's care."

Brandie says understanding medical care and the procedures involved are important in making patients and families feel part of the healthcare team.

"If you know exactly what doctors are doing and why they're doing it, it makes you feel that it's being done with you instead of to you and gives you back that sense of control," she says.

These days, Mason enjoys swimming, running and building Lego—especially Star Wars Lego. ■

The system can offer more support for people like me through diagnosis, treatment and beyond

# Exploring cancer's impact on younger patients

WRITTEN BY SHARON BASARABA

Twelve years ago, Mike Lang's dream life was just getting started. Newly married, he was working toward becoming a full-time ski patroller at Whistler Mountain in B.C., and working as an adventure guide with teens in the summer. Young and fit, a cancer diagnosis was not on his radar.

"Life had suddenly hit a very big road bump," he recalls. "I'd lost the job I always wanted. We had to leave our friends on the coast and move back into my parents' basement since we had no savings to support us."

Mike's story is very familiar to epidemiologist Dr. Miranda Fidler-Benaoudia. As leader of the Alberta Adolescent and Young Adult Cancer Survivor Study, she's following almost 25,000 young cancer survivors diagnosed between the ages of 15-39, to assess their long-term healthcare needs and outcomes.

"Cancer is traumatic at any age," she notes. "But young people are going through key developmental stages. These are relationship years—with friends and partners—and they're establishing themselves professionally without having developed the coping skills we have later in life. That's why we see they tend to get less education, have more financial challenges, and a greater burden of health issues later on."

Cancers diagnosed before the age of 40 are far outweighed by those among older people. Fidler-Benaoudia says that's meant younger cancer patients are under-researched and therefore not well understood.

"Someone who's diagnosed in their 20s could have another 60 years ahead of them. By studying this younger group, we can learn their unique challenges, and tease out the misconceptions about cancer. So many young people didn't see it coming. We don't want them to be scared of it, just to be aware that cancer affects all age groups."

The good news, she says, is that broader screening programs and a drop in smoking has led to reduced cervical and lung cancer rates in younger adults.

Now a health researcher himself, and a father of two young children, Lang is happy his cancer history is part of the huge database Fidler-Benaoudia is studying.

"Her research is powerful because the group is so large and comprehensive. Thanks to more awareness about emotional aspects like depression and anxiety among young cancer patients, I know that the system can offer more support for people like me through diagnosis, treatment, and beyond." ■

Mike Lang is a health researcher with personal experience with cancer who is part of a cancer survivor study.

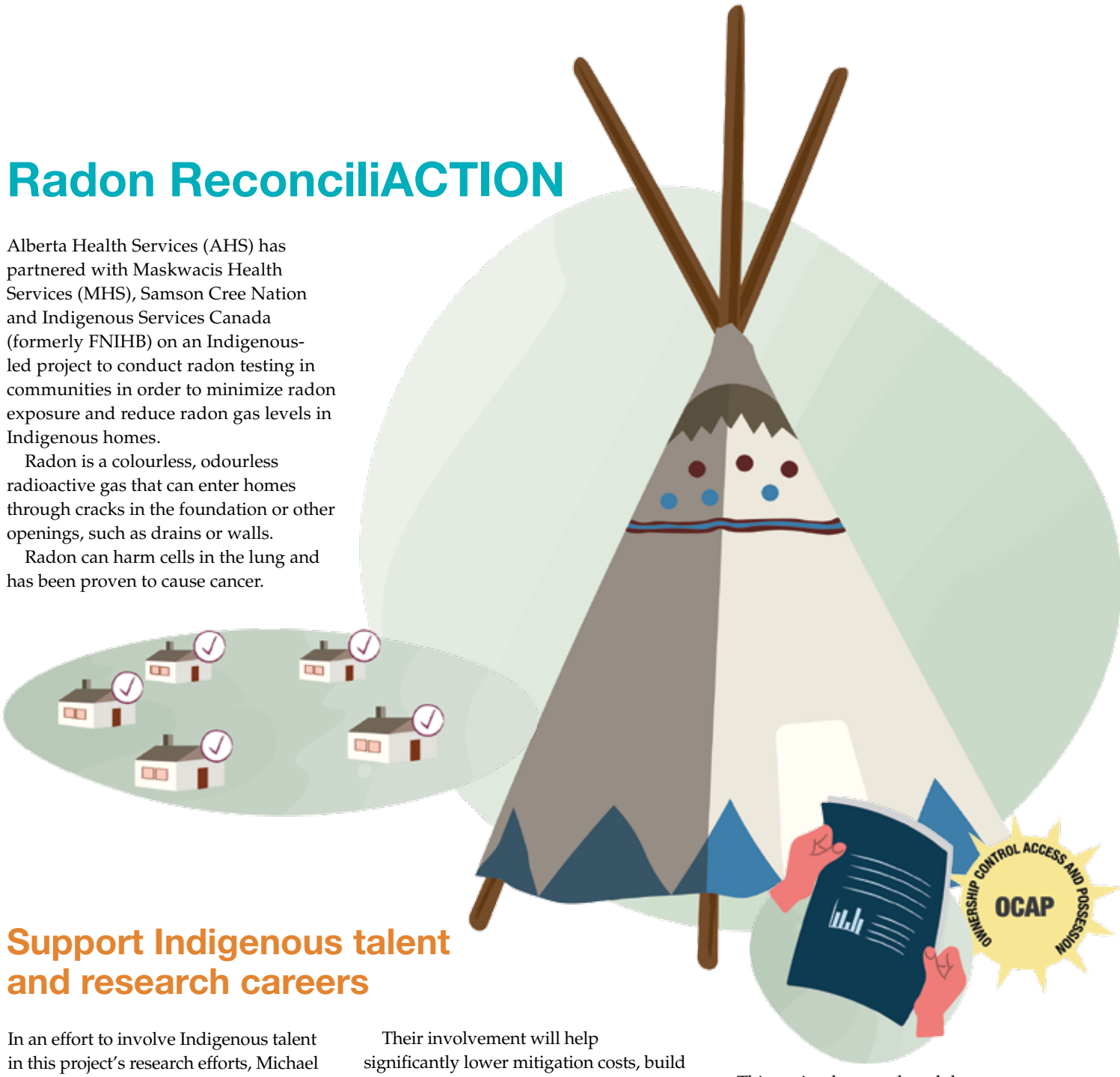
Photo by Jeremy Fokkens

# Radon ReconciliACTION

Alberta Health Services (AHS) has partnered with Maskwacis Health Services (MHS), Samson Cree Nation and Indigenous Services Canada (formerly FNIHB) on an Indigenous-led project to conduct radon testing in communities in order to minimize radon exposure and reduce radon gas levels in Indigenous homes.

Radon is a colourless, odourless radioactive gas that can enter homes through cracks in the foundation or other openings, such as drains or walls.

Radon can harm cells in the lung and has been proven to cause cancer.




## Support Indigenous talent and research careers

In an effort to involve Indigenous talent in this project's research efforts, Michael McKnight, Environmental Health Officer with MHS, and Twain Buffalo, who provides project support for Samson Cree Nation, have both completed the Canadian-National Radon Proficiency Program measurement course. They are key partners in community engagement and research.

Their involvement will help significantly lower mitigation costs, build capacity for future testing, and ensure sustainability of the project.

MHS and Samson Cree Nation will become leaders in radon testing and mitigation and will serve as an encouraging example that a small community can help change conversations.

This project has employed the Indigenous Ownership Control Access and Possession (OCAP®) principles to support a community-led research process to involve tradespeople as important partners in research initiatives, and to culminate in a subject matter expertise and knowledge mobilization.

## Engage Indigenous knowledge in the community and partnerships for reconciliation

Conversations on radon have taken place at various community engagement events, including:

- Community health fairs
- Pow-wows
- Interview with Hawk Radio
- Facebook live

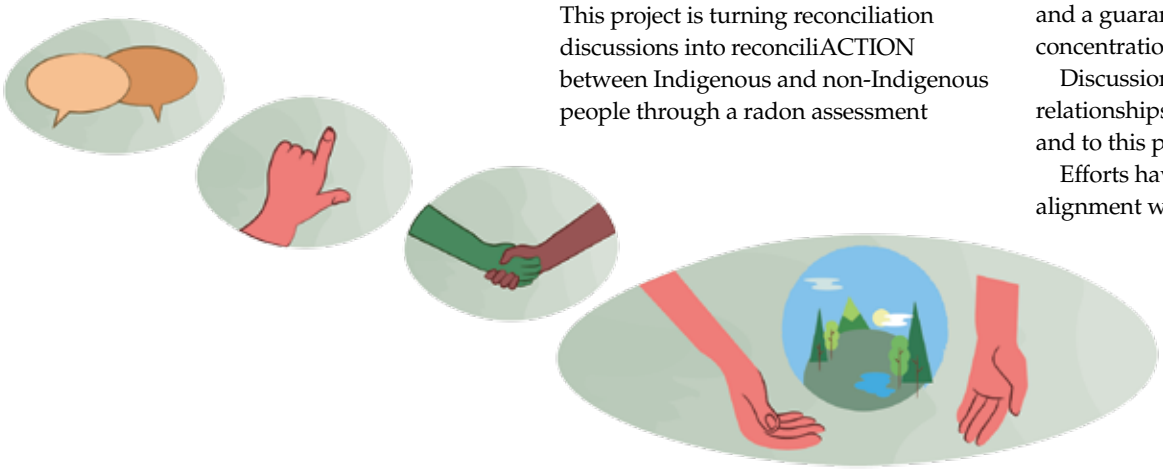
The number of homes to be tested has increased. Partnerships with Samson Housing (Twain Buffalo) have have resulted in radon detectors in 70 homes. Samson Cree Nation and MHS conducted the engagement, education and deployment in the homes.

MHS and Samson Cree Nation will become leaders in radon testing and mitigation and will serve as an encouraging example that a small community can help change conversations.

This project presents a clear and measurable benefit to First Nation community members' housing (a key determinant of health): reduction in radon concentrations and a decreased risk of developing lung cancer for the community.

It is bringing hope by addressing one deficiency in on-reserve government-funded housing.

## Foster mutual respectful relationships with First Nations, federal and provincial health counterparts



This project is turning reconciliation discussions into reconciliACTION between Indigenous and non-Indigenous people through a radon assessment and a guarantee to reduce unsafe radon concentrations.

Discussion, action and respectful relationships are essential to reconciliation and to this project's success.

Efforts have been made to strengthen alignment with the AHS Strategy for Clinical Health Research, Innovation and Analytics.

Maskwacis community leaders (MHS and Samson Cree Nation), federal research agencies and AHS worked together to make this project a reality. ■

Alberta Health
Services