

ANNUAL REPORT

Research
and innovation:
changing lives
and improving
healthcare





Research and innovation are related—and distinct

Innovation can be a new idea, or an existing idea used in a new way. Or it can be a different or better way to solve an old problem.

Research is about systematically gathering evidence to tackle a problem.

Together, research and innovation improve and advance healthcare practices and patient outcomes.

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The importance of research and innovation



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They update or replace outdated treatments and technologies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: Kathryn Ambler, Judi Bahl, Jessica Bernat, Shelley Boettcher, Remare Ettarh, Faye Furdyk, Greg Harris, Trina Johnson, Carol Ladner-Keay, Marc Leduc, Christie McLeod, Sabine Moritz, Kit Poole, Leora Rabatach, Amelia Schofield, Suzy Thompson, Nicole Tjepkema, Dr. Kathryn Todd, Angela Unsworth and Becky Wong



Illustration: ezdez

Research and innovation improve quality and advance healthcare

WRITTEN BY DR. KATHRYN TODD

Making both research and innovation a priority translates to better healthcare for all.

Alberta Health Services staff and physicians understand that. And that's why, in every corner of the province, they're at the forefront, working on exciting new opportunities to improve the health of all Albertans, this year and beyond.

In November 2019, one such initiative—the first wave of Connect Care—was launched in Edmonton, with subsequent waves to follow.

With Connect Care, AHS health records are accessed through a single system from any AHS location. They move with patients through their care journey, and they give AHS healthcare teams a more complete picture of patients' health histories.

Through Connect Care, research is

even more integrated into care. It alerts clinicians of patients who are enrolled in clinical research studies. And it gives our clinicians the best tools and opportunities to do research that benefits not only Albertans, but people around the world.

However, Connect Care is just one innovation going on at AHS. Many other AHS research projects and innovations are underway, too, all aimed at improving the lives of Albertans. Teams are developing projects that improve the health and quality of life for newborns. Others are assisting patients with chronic disease management. Still others are looking at the different care needs of Alberta's rural populations. These examples are just a few of the ways that we at AHS are aiming to improve care throughout the province.

These advances are only possible

thanks to our many partners, patients, educational institutions and foundations. They contribute funds, inspiration and ideas that drive our teams forward to make real, concrete advances to our healthcare system. ■



Dr. Kathryn Todd is the AHS Vice President of System Innovations & Programs. She is also a researcher, professor of psychiatry and neuroscience, and adjunct professor in the Department of Pediatrics and Medicine at the University of Alberta.

Getting better together

Connect Care improves healthcare by offering digital health records accessible throughout Alberta

When she was a teenager, Julia Nimilowich was diagnosed with an immune disorder that keeps her blood from clotting normally. Then in 2003, she was diagnosed with multiple sclerosis.

To stay on top of her treatments, she began using MyAHS Connect to access her blood tests and other medical records.

MyAHS Connect is one part of Alberta Health Services' Connect Care. It is

Connect Care's patient portal.

Connect Care is one new, seamless health information network that all Albertans will be part of by 2022. It gives AHS healthcare providers and their partners one central access point for more complete, up-to-date patient information.

Patients will have better access to their own information, and it will be easier for healthcare providers to communicate

with patients and each other.

Connect Care replaces paper charts, lab requisitions and results with digital health records accessible throughout the province.

Wave One of Connect Care launched Nov. 3, 2019, in Edmonton. Connect Care will continue to be implemented in waves across Alberta, with the ninth and final wave launching in late 2022/early 2023.

"Wave One is the first step toward bringing Albertans together on one digital system from birth to death," says Dr. David Zygun, AHS' Edmonton Zone Medical Director. "It's about modernizing and improving patient care."

For instance, system-wide barcoding will keep track of equipment, medication, specimen collection and even patient identification. (Read more about Connect Care barcoding on page 10.)

Part of a patient's care journey is the ability to participate in research studies and clinical trials. When study participation affects a person's care journey, it will be reflected in their health record.

Continued on page 6





I really believe this patient portal will help Albertans advocate for their own healthcare

Julia Nihilowich says MyAHS Connect helps her track her own medical tests and let her be a participating member of her healthcare team.

Photo by Evan Isbister

All the information
is in one place
and is so easy to
access

The clinical care team and everyone else working with that patient will see that the patient is part of a study and the details of that study—something that will enhance patient safety.

And patients will no longer have to keep repeating their healthcare history every time they visit their doctor or hospital.

That's partly why Kelsey Tolsma is a Connect Care supporter. A therapy assistant at the Mazankowski Alberta Heart Institute, she says she likes the fact that Connect Care helps healthcare providers access each patient's previous hospital admissions, medical history and therapy notes. "All the information is in one place and is so easy to access," she says. "This will have amazing payoffs for

patients in the long-term."

Nimilowich can already see the benefits that Connect Care will bring to Albertans across the province. MyAHS Connect has allowed her to access her health information, including test results, and to contact her healthcare providers through her mobile device.

While it is currently only available to patients of the University of Alberta Hospital in Edmonton, it is expected to be available to all Albertans by 2023.

"It's allowed me to be an advocate for myself in the healthcare system and to advocate for my own health," says Nimilowich, a busy mom of two young children in Edmonton.

"I can see the results of my various tests—not just blood tests, but sometimes

MRIs, sometimes whatever other test is going on."

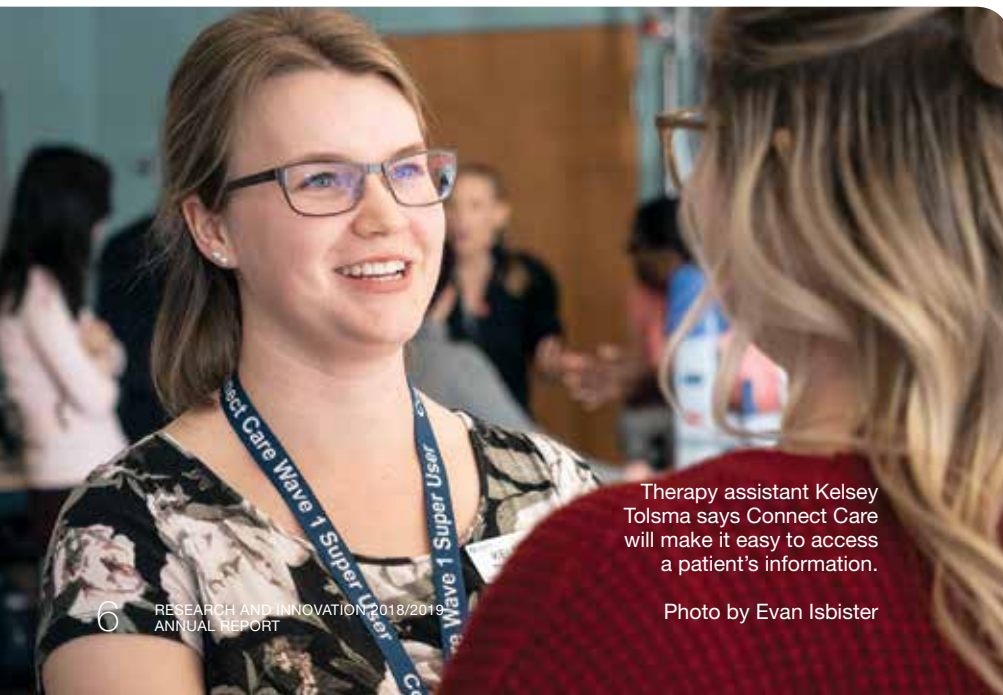
Clinical nurse educator Karen Hiebert is also excited about Connect Care's potential. One of the Connect Care trainers at Edmonton's Glenrose Rehabilitation Hospital, she says she appreciates the fact that one province-wide digital system will streamline communication for Albertans.

"It's an amazing opportunity to see real-time information about your patient," as they go through their healthcare journey, she says. "We don't have to search for things anymore. Connect Care is going to increase and improve the one-on-one time we have with our patients."

And from a patient perspective, Nimilowich says she believes it's important for all Albertans to have access to their health information so they can be involved in their own care.

"Being diagnosed with a chronic illness has really changed my whole life, and living with a chronic illness makes you more aware of everything that's going on with your healthcare and with your body," she says.

"You have to really be diligent about looking after it and seeing what's going on. I believe this patient portal will help Albertans to advocate for themselves—for their own healthcare. You can see your results and be more educated. And I think that's really important." ■



Therapy assistant Kelsey Tolsma says Connect Care will make it easy to access a patient's information.

Photo by Evan Isbister



What is Connect Care?

- Connect Care is a provincewide initiative that transforms how information flows between patients and their healthcare providers. Supported by a common clinical information system, Connect Care will create a seamless digital health network across AHS and beyond.
- Connect Care's Wave One launched on Nov. 3, 2019, at 4 a.m. in the Edmonton Zone.
- More than 500 clinics were part of Wave One, including the Walter C. Mackenzie Campus (which includes sites such as the University of Alberta Hospital and the Stollery Children's Hospital), the East Edmonton Health Centre, as well as pharmacy and diagnostic imaging sites, Alberta Precision Labs in Edmonton and all DynaLIFE sites in Alberta.

Connect Care by the numbers

- Connect Care replaces more than **1,300** independent healthcare information systems that have been used in the past in Alberta.
- **36,922**—the number of hospital, continuing care, addiction and mental health beds that are part of Connect Care.
- More than **28,000** people—including **3,000** physicians—have now been trained on Connect Care.
- Connect Care will include **nine** waves as it is launched across Alberta.
- Wave One involved more than **22,000** people.
- The last wave will launch in **late 2022/early 2023**.

Award-winning innovation

Three years ago, Alberta Health Services' Public Health zones used several systems for managing clinical care.

They realized that a single system would allow them to share and report patient information safely and securely across all AHS zones.

The Provincial Public Health IT System Consolidation was created.

To make the consolidation reality, the team retired outdated systems and brought all five zones into one system: Meditech.

The consolidation required moving more than 2.7 million patient records—including 30 million immunization records—and it is now part of the patient information database for Connect Care.

In recognition of the work behind the project, the Provincial Public Health IT System Consolidation received a 2019 AHS President's Excellence Award for Outstanding Achievement in Service Excellence. ■

How technology can help

AHS app helps relieve stress of medical appointments

WRITTEN BY SHELLEY BOETTCHER

Christina den Haan was diagnosed with thyroid cancer 18 years ago. For the first 16 or so years after her diagnosis, she took notes every time she was at a medical appointment, so that she could understand and track her treatments at the Tom Baker Cancer Centre in Calgary.

Then, about a year and a half ago, she heard about Alberta Health Services' My Care Conversations app. She immediately downloaded it onto her phone and she has used it ever since.

"You can be so overwhelmed as a patient, or as a family member, by the information that you're getting," she says. "The app means I'm free to simply focus on the appointment, ask questions and listen to what I'm being told."

Then she can play back the recording later, to clarify anything she's forgotten. She can also send it to her family when they ask how her appointment went. "It's made a huge difference for us," she says. "I really recommend it."

The idea for the app developed after research found that patients may forget up to 80 per cent of the information discussed during visits with their care providers. Having a recording of their clinical conversation helped patients

with recall and decision-making, and it decreased their anxiety.

"They often receive a lot of complicated information and hear words that they don't understand," says Dr. Linda Watson, Scientific Director for Applied Research and Patient Experience, Cancer Research and Analytics, CancerControl Alberta. "Patients don't know if it is OK to ask to record the conversation and that in itself can cause more anxiety."

App is free to download

That is why AHS teamed up with the Alberta Cancer Foundation to create the My Care Conversations smartphone app. The app is free to download and is designed to reduce stress and improve information recall, as well as improve communication between the healthcare team and patients.

The app allows patients to record conversations with their healthcare providers. Patients can re-listen to conversations so they can better understand their treatments. They can then share those recordings with trusted family members or friends.

"The app provides an easy way to ensure total recall of complicated

information shared in medical appointments," says Watson. "And it allows for easy sharing of that information with family members who could not attend the appointment in person."

A built-in tutorial helps people learn how to use the app. The app also reminds patients to tell their clinician that they would like to record their consultation.

The files are not saved or stored by AHS. Once the patient has deleted a file, it is gone for good. The app also lets users take notes while recording. The notes are saved with the audio file and can be edited later. "While helping the patient to make a safe recording, the app also has built-in security features to protect the professionals, so any edits or changes to the audio file can be easily detected," Watson says.

"In this way, the app provides a safe recording environment for both the patient and the provider."

Since the app was released in 2018, more than 5,100 people have downloaded it in Alberta.

Download the My Care Conversations app on the Apple App Store and Google Play for Android. ■

The app means I'm free to simply focus on the appointment, ask questions and listen to what I'm being told



Christina den Haan shows AHS' My Care Conversations app, which records her medical conversations so that she can review the information later.

Photo by Leah Hennel



Technology brings moms closer to ill newborns

WRITTEN BY ANGELA UNSWORTH

When medical issues separate mothers from their newborns, technology is helping to bridge the emotional gap at Edmonton's Misericordia Community Hospital NICU through its award-winning NowICU program.

"When mothers go through long pregnancies and complicated deliveries, they expect they will be able to hold their babies afterwards, but when their baby is in the intensive care unit, they can't," says Dr. Sharif Shaik, Faculty Chief of Child Health in Misericordia Pediatrics and Neonatology. "They're missing a big part of the delivery process; they want to see their child. I wanted to fill that gap for them."

With support from Virtual Health clinical facilitator Laurie Schick and the Unified Communications team—in collaboration with Covenant Health—Shaik created a secure process that uses technology to connect mothers to infants. It is quick to set up and easy to use.

The NowICU project uses an iPad and virtual technology to connect mothers to their infants when they become separated at birth due to medical issues. It also creates an opportunity for the neonatal intensive care unit (NICU) medical team to connect with the mother and her family to offer updates about the

infant's condition and progress.

"When Dr. Shaik first came to me with the idea for the bedside iPad technology, I knew implementation would create a tremendous opportunity for the families in the NICU and enhance family-centred care," says Schick. "The resulting program bridges the communication between the families, their infant and the medical team in the NICU. The families are now able to see and speak to their infant, and discuss the infant's condition with the medical staff on a secure, confidential connection."

Shaik and his team have heard wonderful feedback about NowICU—with some parents happily crying as they use it, seeing their baby for the first time.

For his work on the NowICU project, Shaik was recognized with a 2019 Health Quality Council of Alberta Patient Experience Award.

A similar program is also being offered in the NICU at Edmonton's Royal Alexandra Hospital. NICView cameras are available for every patient in the neonatal intensive care units.

The cameras offer parents and families the chance to view their newborns from anywhere in the world on any device with Internet access, 24 hours a day, seven days a week. ■

Barcoding tracks Connect Care

WRITTEN BY AHS STAFF

We've seen barcodes at grocery stores and retailers for decades.

Now Alberta Health Services is starting to use barcoding as part of Connect Care.

Barcoding will help ensure the right patient is receiving the right treatment. It will help track products from ordering through to administration. And it will help ensure products are all part of inventory control.

How does it work? An electronic scanner will "read" the alphanumeric information attached to each item. That information is then sent to a computer attached to the scanner.

Each barcode contains specific information, depending on the item being scanned. For example, one type of barcode will be encoded with an AHS-specific Global Trade Identification Number, a lot number and expiry date.

Even the colour of the barcode reveals something about the product it's on. For example, AHS Pharmacy will have pink barcodes on all pharmacy-supplied products, typically beside the lot number and expiry date.

See p. 4 for more information on Connect Care. ■

➤ AHS uses barcoding for:

- Patient identification
- Medications
- Specimen collection
- Blood products
- Human breast milk
- Diagnostic imaging
- Equipment and supplies.

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.



Healthy Albertans.
Healthy Communities.
Together.

Stronger starts

EMBRACE helps newborns ease into life after opioid exposure

WRITTEN BY TRACY KENNEDY

There's nothing more joyful to a new mother than to hear the healthy cry of her newborn.

When those cries are symptoms of opioid withdrawal, it's even more important that mom is empowered to be a confident caregiver for her baby, supported by community.

A program based at Red Deer Regional Hospital Centre (RDRHC) brings together community partners and a multidisciplinary healthcare team to teach new moms who have used opioids during pregnancy how to care for their newborns—free of stigma and shame.

EMBRACE stands for Empower mothers and families, Mentorship, Building healthy relationships, Respect, Actively listen and learn, Collaboration and Engagement. It launched at the hospital in April 2019 with the goal to

partner with new moms so they can be the primary source of comfort and care for their babies.

Giving moms confidence

"Research suggests skin-to-skin cuddling and swaddling, and breastfeeding work to settle the baby," says Sandi Sebastian, the hospital's director of Women's & Children's Health Services. "They decrease the likelihood the newborn will need morphine in the neonatal intensive care unit, which leads to longer separation between mom and baby. In the meantime, mom gains confidence in her abilities."

Partnering starts by connecting with doctors' offices and walk-in clinics, methadone programs, and the Virtual Opioid Dependency Program. Once a pregnant mother comes into the program,

she learns what to expect in hospital.

"Moms have a private room and family members are encouraged to stay and support them," says Michelle McCutcheon, manager of Women's & Children's Health Services at RDRHC.

EMBRACE moms and babies are kept in hospital for three to five days, longer than is typical, in order to observe for symptoms of Neonatal Abstinence Syndrome. After becoming dependent on the drug in the womb, a newborn may show withdrawal symptoms including irritability, diarrhea or vomiting, tremors and sleeping issues.

Physicians and nurses monitor and assess the baby using plans developed specially for the EMBRACE program. Baby-cuddler volunteers are trained specifically to soothe NAS infants and give mom some relief. A care plan is made for mom and baby to smooth the transition home, which includes visits with their primary care provider, public health staff and a social worker.

It's these partnerships that will ultimately lead to success, says Sebastian.

"In the past, moms may have felt they didn't want to admit they've used opioids during pregnancy. This is about empowering mothers, teaching them the techniques to make them successful, and making them equal partners in care."

Adds McCutcheon: "These moms will do what it takes to keep their babies with them." ■

The EMBRACE program helps moms care for newborns who have been exposed to opioids.





Caffeine helps premature babies

WRITTEN BY MELANIE VERIOTES

Kyle and Avril Strachan's baby, Anna, was born prematurely at 27 weeks at the Foothills Medical Centre in Calgary.

For those first few weeks, Anna "would slow down or even forget to breathe," says Avril. "This would cause her heart to slow and for her to not get enough oxygen."

That's when the medical team at Foothills stepped in to give the baby caffeine. It helped her breathe and it boosted her lung function.

Whether in coffee or tea, caffeine is something most of us use to wake up. It turns out that a daily dose of caffeine in the neonatal intensive care unit (NICU) also helps premature babies born under 29 weeks get the best possible start to life.

In fact, a new study conducted by Alberta Health Services and University of Calgary researchers shows the earlier the dose of caffeine is given, the better.

"Caffeine is the most commonly used drug in the NICU after antibiotics," says Dr. Abhay Lodha, an AHS neonatologist and associate professor in the departments of Pediatrics and Community Health Sciences at the Cumming School of Medicine.

Lodha's study shows starting caffeine therapy within two days after birth shortened the amount of time babies

needed to use ventilators.

It also reduced the risk of bronchopulmonary dysplasia, a form of chronic lung disease.

"Caffeine may also improve lung expansion, cardiac output and blood pressure in premature infants, which improves oxygen supply throughout the body and brain," Lodha says. "But it's important that we understand the long-term effects of caffeine as a treatment."

Lodha collaborated with researchers from the Universities of British Columbia, Montreal, Toronto and Mount Sinai Hospital in Toronto to analyze data from 26 NICUs across Canada. The team examined data from followup assessments conducted at age 18 to 24 months. During these followups, children were assessed for cognitive, language and motor development.

The researchers found early caffeine treatment has no long-term negative effects on neurodevelopment and is actually associated with better cognitive scores and reduced odds of cerebral palsy and hearing impairment.

Now age three, Anna is participating in dance classes and gymnastics lessons, says Avril. "It's wonderful to know the caffeine treatment has no adverse effects." ■

Putting maternal safety first

WRITTEN BY ANDREA JUAREZ

Blood loss after giving birth is the leading cause of maternal death worldwide.

A new initiative at Foothills Medical Centre in Calgary aims to improve those odds through early recognition and management of postpartum bleeding.

A screening tool was developed by nursing staff, physicians and a quality-improvement consultant. It ensures timely diagnosis and appropriate management of postpartum hemorrhages, particularly right after birth, when the risk to mothers is higher.

"There's an increase in women dying around the world from this preventable cause," says Alberta Health Services obstetrician Dr. Stephanie Cooper. "This seems to be predominantly due to the failure of the uterus to contract sufficiently after childbirth."

Data from the Canadian Institute for Health Information examined almost 2.2 million hospital deliveries between 2003 and 2011 in Canada, finding 122,676 cases of postpartum hemorrhage.

Knowing how much blood a woman has lost is crucial, says Cooper. Staff measure blood loss, and women presenting for delivery have risk assessments. Patient interviews, risk-factor screening tools and hemorrhage classification all improve the response for women with postpartum bleeding. ■

Making a difference

Hybrid operating room makes life-saving feats possible

WRITTEN BY GREG HARRIS

No one has to persuade Sylvan Lake resident Kolton Dushanek of the value of the Interventional Trauma Operating Room (ITOR) at Foothills Medical Centre (FMC) in Calgary.

In April 2019, the 30-year-old wound up in the specialized surgical suite with two critical injuries after he lost control of his motorcycle on loose gravel.

Either of those injuries—a torn aorta or a shredded liver—could have been fatal. But because of ITOR's capabilities, teams of surgeons were able to repair both at the same time, in the same location.

"If I had this accident anywhere else, I don't know if I would have survived," Dushanek says. "I'm super-thankful for it. What a great thing to have in Calgary."

Research shows that about 80 people like Dushanek owe their lives to the existence of the ITOR, which opened more than six years ago at FMC. Funded by the Calgary Health Trust and Alberta government, the \$6-million facility brings together in one suite the capacity for traditional surgery, diagnostic imaging and angiography, a technique that enables surgeons to make repairs via blood vessels.

"Not to sound dramatic, but Kolton would not be alive if not for this room," says Dr. Chad Ball, a trauma surgeon and senior author of a paper that compares patient outcomes before and after the facility opened. "He had two competing problems: his liver smash and a torn thoracic aorta. Both had to be fixed in the same location at the same time."

For Dushanek, that meant one

surgical team was able to perform a traditional surgery to work on his liver, while another used angiography and specialized catheters to work on his aorta.

Hospitals have in the past created separate spaces for traditional surgery, angiography and diagnostic imaging, meaning that trauma surgeons dealing with multiple injuries have had to choose which to tackle first—while the clock is ticking.

Ball says the standard death rate for severely injured patients arriving at trauma centres with ongoing bleeding is about 50 per cent. "With the use of the ITOR, the death rate has gone down to 16 per cent." That improvement is roughly the equivalent of saving one additional life a month.

Mike Meldrum, president and CEO of the Calgary Health Trust, says the foundation's investment in ITOR has been a great success story.

"It's impressive, just the number of lives that have been saved—how do you put a price on a life?"

"This really is a beautiful example of the partnership between donors and the health system," Meldrum adds. "Donors really get out of it the satisfaction of knowing they're innovating the health system, and healthcare providers get the opportunity to work on exceptional technology and equipment."

The ITOR was one of the first facilities of its kind anywhere when it opened in March 2013. It remains the only hybrid OR in the province dedicated to trauma. (A hybrid OR at the Mazankowski Alberta Heart Institute in Edmonton is not used for trauma.)

Since the ITOR at FMC opened, the Calgary Health Trust has funded hybrid ORs at both FMC (for cardiac surgery) and Peter Lougheed Centre (for vascular surgery). ■



Calgary Health Trust President and CEO Mike Meldrum, left, patient Kolton Dushanek and his son Pryce, and trauma surgeon Dr. Chad Ball, share a moment in the Interventional Trauma Operating Room where Kolton underwent life-saving surgery.

Photo by Leah Hennel

Edmonton doctors develop life-saving machine to keep donor lungs breathing

WRITTEN BY JACQUELINE LOUIE

Gwen Livingston was given a second chance at life, thanks to a groundbreaking new technology developed at the University of Alberta Hospital in Edmonton.

Livingston was dying of chronic lung disease before receiving a double lung transplant last February. Her first deep breath after surgery felt “like a miracle,” says the 63-year-old Airdrie resident.

She has since watched her youngest grandson being born. She paddled Moraine Lake with friends she had never expected to see again. She climbed 60 metres to a mountain viewpoint.

And she is able to live a normal life again. “I’m so grateful to everybody who helped me—I felt like I was in the best hands possible—and to my donor and my donor’s kids.”

Livingston is one of 12 lung transplant patients who participated in a U of A Hospital clinical trial in the past year. She received lungs that would otherwise not have been used, after researchers created a machine that keeps lungs breathing for up to 24 hours before transplantation.

Surgeon-scientists Dr. Darren Freed and Dr. Jayan Nagendran developed the Ex-Vivo Organ Support System (EVOSS)—a portable machine that ventilates donor lungs similarly to how

they function in the human body—at the U of A Hospital’s Karen Jane Hamilton Ex-Vivo Organ Perfusion Research Laboratory.

“The donation of organs for transplantation is challenging, but we are devising technologies to make that easier,” says Freed. He is a cardiac surgeon at the Mazankowski Alberta Heart Institute, a world leader in complex cardiac care and surgery.

More donor organs

The device means that physicians can get and transplant more donor organs. That then improves the long-term outcomes for transplant patients. It also increases the likelihood that patients waiting for a transplant will actually receive one, Freed explains.

Under the current technique of preservation on ice, only about one in every four donated organs can be used.

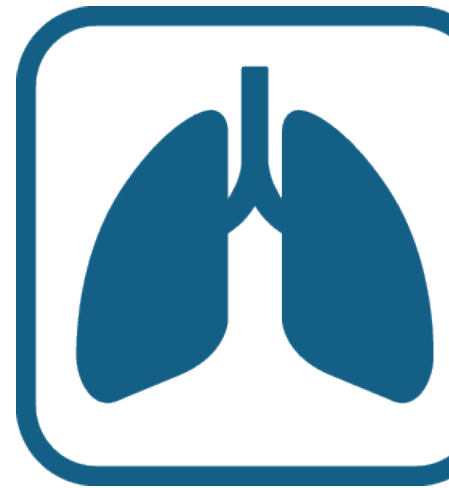
EVOSS, however, has the potential to increase that number to two out of every four.

“It’s a game-changer,” says Nagendran. He is the Surgical Director of Lung Transplantation at the U of A Hospital and Director of Research at the Mazankowski Alberta Heart Institute’s Cardiac Surgery Division.

The researchers’ next step is to use the device in a U.S.-based multicentre clinical trial, with the goal of putting it into use across North America and around the world. They are working with the University Hospital Foundation and AHS to make the units smaller so they can replace the cooler transport method currently used. They also plan to adapt the device for use in heart and liver transplants.

The University Hospital Foundation—the fundraising arm of the University of Alberta Hospital, Mazankowski Alberta Heart Institute and Kaye Edmonton Clinic—is a major funder of the Ex-Vivo Organ Perfusion Research Laboratory. The Ex-Vivo lab has been supported by more than \$1 million from Alberta Health Services, the University Hospital Foundation, the U of A Transplant Institute and other partners, including government.

“Our primary role is to help push the innovation, care and research that allows these kinds of innovations to be possible,” says Jamie Bliss. He is the University Hospital Foundation’s Vice President, Marketing and Communications. “And devices such as the Ex-Vivo will ultimately save millions of lives around the world.” ■





HiMARC gave me hope that I'm not stuck in the same rut for the rest of my life

Sgt. Ryan Perry cuddles his daughter, Sam.

Photo by Jennifer Griffiths

Improving mental health

Virtual tool helps military personnel face and defeat their trauma

WRITTEN BY DOUG FIRBY

Sgt. Ryan Perry is feeling better than he has in years. His motivation is back. He is working part-time. Most importantly, he says, “I can get out of bed in the morning.”

The road to recovery has been long and agonizing for Perry, 41, who developed post-traumatic stress disorder (PTSD) after being exposed to years of death and danger in the Canadian Armed Forces. He served three missions in Afghanistan, two in Ukraine and, as a young soldier, spent six weeks picking up plane and body parts on the shores of Peggy’s Cove after the Swissair disaster in 1998 took 229 lives.

“It wore on me,” he says. “It was depressing.”

Typical of PTSD sufferers, he buried the horrible images.

He tried “piles of treatment,” but none really stuck, until he was recruited for a pilot project testing a technique developed about 10 years ago by Col. Eric Vermetten, of the Dutch Ministry of Defense.

It is called Multi-modular Motion-assisted Memory Desensitization and Reconsolidation—or 3MDR, for short—and it is designed to treat combat-related PTSD.

It’s being used as part of a research project conducted under the leadership of Suzette Brémault-Phillips, PhD, at the Glenrose Rehabilitation Hospital in Edmonton and Director of HiMARC

(Heroes in Mind Advocacy and Research Consortium).

What sets this treatment apart is the active approach. The subjects, Canadian Armed Forces services staff, are put into a virtual reality re-creation of the incidents that caused the trauma. As they walk on a treadmill, doors open to reveal video images chosen by the subjects, which recall their worst experiences.

The treatment has changed Ryan’s life

“With PTSD, there’s a lot of numbing,” Brémault-Phillips says.

Walking helps them connect with their feelings and also gives them a sense of being in control.

The Canadian team measures biomarkers, such as heart rate and eye-tracking, throughout the three- to five-minute experience, and a therapist stands nearby to monitor and support. As the subject relives the experience, they describe what they feel, and report other sensory reactions, such as smell.

“They are going into the trauma with someone who is supportive,” says Brémault-Phillips.

The work began in May 2019 and involves a sample size of 45 subjects: 30 using this technique and a control group of 15 who are receiving other therapies.

The team is gathering information to see how effective the treatment is, and to see how long any benefits last.

Although subjects typically receive eight weekly treatments, Perry says he was given a total of 12. While he’s not “100 per cent,” he says the treatment has changed his life.

“There was no trauma anymore,” says Perry. “It’s just a memory.”

The team has observed a range of changes in patients, including improvements in cognition, engagement, productivity, reduction in emotional pain, and the ability to sleep. Brémault-Phillips says the treatment may have value for non-military victims of trauma, as well.

“We don’t know what the active ingredient is,” says Brémault-Phillips. “What I have seen is that it’s working.”

These days Perry spends his time at his home in Fort Saskatchewan with his partner Jennifer Griffiths, and their young daughter Sam. Griffiths says the change in Perry has been “incredible.”

“It’s hard seeing someone you love not having the motivation to get out of bed,” says Griffiths.

Perry credits treatment for his renewed energy and optimism: “HiMARC gave me hope that I’m not stuck in the same rut for the rest of my life.”

And Griffiths says her partner can now enjoy all the pleasures of his family. “Ryan just wants to live a normal life,” she says. “A happy, simple, normal life.” ■

Doctors trained through CanREACH making a difference for troubled youth

WRITTEN BY JACQUELINE LOUIE

Christina Reesor's nine-year-old daughter Madelynn was recently diagnosed with anxiety and attention deficit hyperactivity disorder (ADHD).

Because her doctor had received training through CanREACH, Madelynn received timely and appropriate help.

CanREACH (Canadian Research and Education for the Advancement of Child Health) is a six-month mental health literacy program that trains primary care providers to assess and treat pediatric mental health conditions. Although part of the program is licensed from The

REACH Institute in the U.S., the program is modified for Canada and is managed and operated by Alberta Health Services staff. Any primary care provider in Alberta can take the training.

Transforming healthcare systems

"The mission of CanREACH is to transform healthcare systems by educating and empowering primary care providers," according to the CanREACH website. It's about creating changes in practice that include "the most up-to-date evidence-based information in child mental health, for the benefit of future generations."

A generous anonymous donation to the Alberta Children's Hospital Foundation funded a five-year pilot of CanREACH. That then brought funding from Alberta's Health Innovation Implementation and Spread program to create a provincewide CanREACH strategy.

Thanks to her participation in CanREACH, Dr. Roxanne Swiegers, a family physician in Medicine Hat, is helping families like the Reesors navigate mental health challenges.

"I've always been passionate about child and adolescent mental health,"

Swiegers says, "If we treat children and adolescents properly, then we can prevent further debilitating mental illness later in life."

CanREACH facilitator Dr. Eden McCaffrey says the program means patients don't have to wait for specialists and referrals, and they don't have to go outside their communities.

"What's so unique about this program is we're seeing a change for healthcare providers, their patients and the system as a whole," McCaffrey says. "Patients get their medical needs met. Doctors feel empowered to assess and treat, and the healthcare system saves money by decreasing unnecessary hospitalizations and visits."

As for the Reesors, they can't say enough about what a difference the program—and their doctor—has made in their lives. "Dr. Swiegers really helped me shift my expectations," Christina says. "It's made a huge difference in being able to cope with an ADHD child."

CanREACH won a 2018 College of Family Physicians of Canada Program Award and in 2019, it received an AHS President's Excellence Award for Outstanding Achievement in Innovation and Research Excellence. ■

➤ FIND OUT MORE

For more information, visit <https://wp.hmhc.ca/canreach>



The Reesor family, from left: Christina, James, Kyle and Madelynn.

Photo by Christina Reesor

Mike Mach, Alberta Hospital Edmonton's day hospital unit manager, and former patient Lawna Anderson.

Photo by Sam Fitzner



Day hospitals provide timely access to mental health supports

WRITTEN BY SHELLEY BOETTCHER

Lawna Anderson says she is alive today because of the day hospital at the Alberta Hospital in Edmonton. She was there in 2019, dealing with depression and grief over the death of her fiancé; her mother died only a few months later.

The program helped Anderson realize she wasn't alone in her pain.

"I was so scared, walking through those doors the first day," she says.

"But everyone in that room was experiencing the same kind of things I was experiencing."

That's why Alberta Health Services offers hospital day programs at the Peter Lougheed Centre in Calgary and at the Alberta Hospital in Edmonton.

The Peter Lougheed Mental Health Hospital Day Program started as a six-week program four years ago to help people experiencing acute mental health concerns transition back into their community. It operates five days a week, Monday to Friday.

Offerings include skill development to deal with addiction and mental health, as well as individual therapy and group education.

Each program is constantly adjusted to ensure it is reflecting the newest research and that every patient's needs are met. "We alter our group content every six months, based on the latest evidence-based research, our clients' opinions and the successes noted by

the group facilitators," says Bradley Curtola, the Calgary day program's lead clinician.

Both programs continue to grow. The Edmonton program—which also includes psychiatry and pharmacy services—launched in January 2019 and has already seen more than 400 patients walk through its doors.

I am alive because of the day hospital

The program is complementary to services already offered, supporting patients in individual and group settings seven days a week. The day hospital also provides timely access to supports from emergency departments for patients who would otherwise be admitted if this program didn't exist. It helps prevent unnecessary hospitalizations.

Funded partly by the Canadian Mental Health Foundation, the Edmonton clinic is also the first in Alberta to offer publicly funded rTMS (repetitive transcranial magnetic stimulation) to clients. It is also the first part of Alberta Hospital Edmonton's Ambition 2023 strategy, which seeks to promote innovation to improve care.

Seven days a week for three weeks, Anderson attended the Edmonton program.

Then at the end of each day, she went home.

"That's really important," says Mike Mach, Alberta Hospital Edmonton's day hospital unit manager. "Our patients come in and learn new skills. They go home at night to practise those skills. Then they come back the next day to work with the team again."

In May 2017, the Calgary program expanded from six to 23 clients at a time. In 2016, 102 people in total were helped. By 2018, that number had grown to 276. "When we realized we were on the right track, expansion was the only option," Curtola says.

"More than 80 per cent of all clients who complete our program don't return to the hospital for mental health issues. Fewer than 10 former patients have returned so far. But if they need to return, they will find a place."

Anderson likes knowing that she could find help there again if she needed it. "I am alive because of the day hospital," she says.

"It gives me hope and I want other people to realize that there is hope."

The Calgary program received the AHS President's Excellence Award in 2019 for Outstanding Achievement in People Excellence. ■

Homegrown innovations

One-stop-shop simplifies care for children with chronic blood disorders

WRITTEN BY SHELLEY BOETTCHER

If you're a parent of young children, you know how busy life can be.

Imagine adding in a rare chronic illness and all that it may entail: multiple appointments with multiple specialists, all assisting with different aspects of treatment.

That's why Dr. Michael Leaker and his team at the Alberta Children's Hospital in Calgary have created a pediatric Hemoglobinopathy Clinic.

The day clinic specializes in treating rare blood disorders such as sickle cell disease and thalassemia in children.

The clinic's team aims to offer a "one-stop shop" for these patients, who may need to regularly see several specialty care providers. The idea is that, as often as possible, patients and their families can access all the services they need in

a single day, so that they don't have to go to multiple locations for multiple appointments. The clinic brings together hematologists, respirologists, registered nurses, dietitians, pharmacists, social workers, neuropsychologists and other healthcare workers twice a month, all under one roof at the hospital.

More than 150 families are now part of the clinic, which receives 15 to 20 new patients each year.

"We can get as many specialists that need to see the patient and as many tests as we can get done at one stop," says Leaker, a physician specializing in hematology and pediatrics. "It's very beneficial for the families."

Some patients have relatively few medical needs. Other children, however, develop problems that affect many parts of their body, Leaker says.

"The number of children we care for has increased dramatically over the years," he says. "To develop a centre of excellence to look after them properly and to minimize the burden on families is very important."

"These are lifelong illnesses, genetic illnesses that these children are born with and that they'll live with their entire lives," he adds. "They're going to be part of our family at the hospital."

For his work developing the multidisciplinary clinic, Leaker won a 2019 AHS President's Excellence Award for Outstanding Achievement in Patient- and Family-Centred Care. ■

We can get as many specialists that need to see the patient ... at one stop



Dr. Michael Leaker, an AHS physician specializing in hematology and pediatrics, has helped create a day clinic in Calgary for children with chronic blood disorders.

Photo by Chantelle Cini



Navigating a better way to improve Indigenous health

WRITTEN BY PATRICK BURLLES

Alberta Health Services South Zone has started a program to improve care for local Indigenous patients and families.

The Four Winds Initiative will focus on addressing health inequities experienced by Indigenous people by improving communication and transitions in care.

The initiative began with engagement sessions held with the two First Nations and the urban Indigenous community living in the South Zone. Results revealed that patients and families were unaware or overwhelmed by the range of services. They did not know how to access the services, and they were frustrated.

Indigenous people in Alberta are more likely to experience health inequities

than non-Indigenous people. They are twice as likely to suffer from liver cancer and diabetes. They are three times as likely to attempt suicide as non-Indigenous people.

Patient navigation was identified as a way to address the challenges.

Blood Tribe Department of Health CEO Kevin Cowan expressed optimism for the project.

“Patient navigation services are vital—even those of us who know the health system well sometimes have difficulty navigating its complexities,” says Cowan. “This program will provide a sensitive approach to assisting Indigenous patients to overcome the challenges and break



through barriers often associated with obtaining appropriate healthcare.”

The Four Winds Initiative was named by Elders Morris Little Wolf (Piikani), Winston Wadsworth (Kainai), Alice Zwart (Inuit), Alice Bissonette (Métis) and Beatrice Little Moustache (Piikani) for the significance of wind in their cultures. The initiative is led by Katherine Chubbs, Chief Zone Officer, South Zone, and Dr. Melissa Potestio, Scientific Director, Population, Public and Indigenous Health Strategic Clinical Network.

It will build upon the strong working relationships South Zone has maintained with local Indigenous communities, including the departments of health on the Kainai and Piikani First Nations and the urban Indigenous population.

“No one can speak to the challenges faced by Alberta’s Indigenous peoples better than they can,” says Chubbs. “Together, we will design truly workable and effective solutions.”

The project is funded by a \$1.4-million grant from the Partnership for Research and Innovation in the Health System program between Alberta Innovates and AHS. ■

Katherine Chubbs, South Zone’s Chief Zone Officer, left, and Dr. Melissa Potestio, Scientific Director, Population, Public and Indigenous Health Strategic Clinical Network, are leading the Four Winds Initiative.

Photo by Gwen Wirth



Josh McQuillin, right, became the first Canadian to receive gene replacement therapy by a direct intravenous injection to treat a urea cycle disease.

Photo by Blain Fairbairn



Revolutionary gene therapy gives new lease on life

WRITTEN BY BLAIN FAIRBAIRN

In early 2019, Josh McQuillin became the first Canadian in history to receive gene replacement therapy by a direct intravenous injection to treat a urea cycle disease.

The treatment is part of a clinical trial and Calgary is the only Canadian centre offering it. McQuillin is the second person in the world to show an improvement.

“I lived a normal life up until I was 12 and then got really, really sick,” says the 30-year-old. “The doctors had no idea what was wrong with me, but they say I almost died.”

Groundbreaking research is offering new hope to McQuillin and others living

with serious illness, thanks to a joint Alberta Health Services and University of Calgary Cumming School of Medicine initiative at Foothills Medical Centre.

The first study participant in Canada, McQuillin was diagnosed with a urea cycle disorder (UCD), a genetic disease that causes ammonia to build up in the body. It can lead to brain damage or death. Ammonia is naturally produced as the body metabolizes protein, but for those with a UCD, the process of converting ammonia to urea (the harmless substance giving urine its yellow colour) doesn't work properly.

The condition required McQuillin to take up to 36 pills a day, adhere to a strict diet, and limit travel and activities so he was always close to a hospital. Simple things like missing a meal or eating too much protein could result in a life-threatening scenario and lengthy hospital stays.

Working copy of the gene needed

McQuillin received experimental gene replacement therapy at Foothills Medical Centre in Calgary. It gave him a working copy of the gene he needed, sending it directly to his liver via intravenous injection. His liver can now process ammonia effectively, which has given

McQuillin a new lease on life.

“It's like night and day,” he says. “My exercise has changed, my sleep patterns have changed, my diet has changed—it's really incredible.”

Dr. Aneal Khan, the study lead and a professor in the departments of Medical Genetics and Pediatrics at the university, says gene therapy holds tremendous promise for patients. “This is highly personalized, precision medicine that can drastically improve the quality of life for people born with many types of genetic diseases,” says Khan, who's also a member of the Alberta Children's Hospital Research Institute.

Many patients with genetic disorders like McQuillin must take expensive medications every day for the rest of their lives and require frequent hospitalization with numerous complications, Khan adds. The estimated cost of treating UCD is about \$1 million per year per patient.

Following his treatment, McQuillin has been off his medication. He no longer needs to think about what, or when, he has to eat—or where he can go to ensure a hospital is nearby.

“Even camping for a couple days was an issue because I might be too far from a hospital,” he says.

“Now I feel like I'm back to normal.” ■





Freeing up time at three northern Alberta clinics

WRITTEN BY DOUG FIRBY

Northern Albertans were travelling to Edmonton for colonoscopies and other scope procedures even though local healthcare centres were equipped to do them.

Manoj Sharma was put on the case to figure out why.

Sharma, a senior process improvement consultant with Alberta Health Services, discovered that wait times at the local clinics were months-long and frustrated staff were struggling to keep up. He studied clinics one to two hours north of Edmonton—in Barrhead, Lac La Biche and St. Paul—and found each had unique problems.



Manoj Sharma and his team were awarded an AHS President's Excellence Award for their work streamlining care at clinics in northern Alberta.

“When I started out, the problems seemed very complex,” says Sharma. “There were a lot of unexpected things that I found out.”

For example, he discovered endoscopies were only done in Lac La Biche from 8 a.m. until noon, so the room could be freed up for unscheduled stress tests. When he checked, the room sat idle most afternoons. He also found that 25 per cent of the patients on the scope wait list didn't need them, according to provincial guidelines.

In St. Paul, he found patients were scheduled to arrive in clusters, increasing the length of time at the clinic. And the procedures were scheduled too far apart, leaving the room idle.

Sharma prescribed a range of tactics, including staggering patient arrival times to even out the flow, reducing

administrative activities, cutting idle time in the scope room, and scheduling the procedures more closely together.

As a result, the number of daily procedures at St. Paul went from nine to 12, and wait times were reduced from four months to six weeks.

The average time a patient spent at the centre was reduced by more than 20 per cent—from four hours, 45 minutes to 3.5 hours. At Lac La Biche, wait times went from six months to two weeks.

And the Barrhead facility received a major layout design to improve staff and patient flow. Overall average wait times dropped from four-plus months to 1.5 months.

Sharma and his team were awarded an AHS President's Excellence Award for Outstanding Achievement in Quality Improvement in 2019. ■

Moving past illness

Research study changes life of migraine sufferer

WRITTEN BY GREG HARRIS

To try to stop a debilitating migraine from coming on, Calgarian Greg Smith has learned to avoid triggers such as the strong fragrances in the grocery store detergent aisle. Even the smell of red wine, hard liquor or perfume can be enough to set him off.

Participating in a research study, however, has given Smith his life back.

Thanks to a special exemption, Smith has been receiving a new drug that's still awaiting Health Canada approval. It's the same drug he received when he participated in a research trial in Calgary in 2017 that looked at the effectiveness of different doses of the drug.

"I've tried numerous medications

before and this is the only thing that comes close to keeping the headaches in check," Smith says.

Every day, research participants in Alberta help advance patient care. Some—like Smith—may benefit directly, but all help advance treatments for the patients who come after them.

Alberta Health Services supports thousands of new and ongoing studies that use its facilities and systems and utilize robust data. Whether it's related to cancer or cardiovascular health, mental health or nephrology, AHS enables world-class researchers to translate discoveries that will improve patient outcomes and health system performance.

"Research studies give us the evidence we need to make decisions around patient care," says Dr. Farnaz Amoozegar, an AHS neurologist and the migraine researcher who was the site lead for the study Smith was involved in.

There are more than 3,500 active clinical research studies across the province; last year alone, more than 1,300 studies approved by research ethics boards in Alberta required involvement by AHS.

Marc Leduc, AHS Senior Provincial Director, Health Evidence and Innovation, notes that clinical research increases AHS' ability to attract and retain talented clinicians who are keen to ask difficult questions that will improve the well-being of Albertans.

"Another advantage to research activity and innovative thinking," says Dr. Kathryn Todd, Vice President System Innovations and Programs, "is that all our patients and clients benefit, even those who did not directly enrol in a study. Health systems with active programs of clinical research are known to achieve better outcomes for all."

For Smith, participating in a research study has reduced the number of migraines he has in a month from 10 to 12 down to only one or two.

"The medication I'm on now is revolutionary and has given me a new lease on life," Smith says. "It wouldn't have been possible without research." ■



Migraine sufferer Greg Smith speaks with Dr. Farnaz Amoozegar.

Photo by Janelle Anderson

Dr. Keith Aronyk is a neurosurgeon and co-director of the Gamma Knife unit at the University of Alberta Hospital in Edmonton.

Photo by Evan Isbister



Gamma Knife puts end to years of headaches

WRITTEN BY SHARMAN HNATIUK

For years, Mona Nashman-Smith suffered through debilitating headaches. Since undergoing Gamma Knife radiosurgery a year ago at the University of Alberta Hospital (UAH) to treat a dime-sized benign brain tumour, she's been headache-free and filled with abundant energy to work out at the gym and play with her three grandchildren.

For more than a decade, Nashman resisted having traditional brain surgery to remove her tumour, fearing its proximity to her facial nerve could leave her with nerve damage and hearing loss.

Unlike open surgery, Gamma Knife neurosurgery is non-invasive. It replaces a scalpel with beams of gamma rays that are guided with surgical precision, minimizing the impact on nearby healthy brain tissues.

"When I was offered the minimally invasive Gamma Knife treatment, I said yes immediately," says Nashman, 61.

"My radiosurgery took place in the morning and I was able to walk out on my own that afternoon without any pain. I haven't had a migraine since the treatment. For me, it is nothing short of a miracle."

About 15 per cent of all patients requiring brain surgery at the UAH over the past year were able to undergo the painless, scalpel-free procedure in the

facility's state-of-the-art Gamma Knife suite.

To date, about 450 patients from across Alberta and western and northern Canada have benefited from the Scott & Brown Families Advanced Imaging and Gamma Knife Centre, which opened in December 2017.

Each Gamma Knife patient receives a tailored treatment plan developed by a team that includes a neurosurgeon, a radiation oncologist and a medical physicist.

The plan is carried out with the support of radiologists, diagnostic imaging technologists, radiation therapists and nurses from the UAH and Cross Cancer Institute.

"We have patients with lesions or malformations in the brain that may have previously required open surgery and in-hospital stays, but now many patients are able to walk in for Gamma Knife treatment and be home the same day in time for dinner with their families," says Dr. Keith Aronyk, neurosurgeon and co-director of the Gamma Knife Unit at the UAH.

Roughly half of the referrals in the Gamma Knife's first year of operation have been for cancer patients in treatment at the Cross Cancer Institute for brain metastasis, a cancer that's

travelled to the brain from elsewhere in the body.

"Gamma Knife treatment is a more precise alternative to whole brain radiation therapy for cancer that has travelled to the brain from elsewhere in the body," says Dr. Samir Patel, radiation oncologist and co-director of the Gamma Knife Unit.

"Access to Gamma Knife treatment has been a game-changer for our care team and has dramatically improved the care our team can provide as well as the experience for many of our patients."

Donors to the University Hospital Foundation's Brain Centre Campaign funded the \$17.2-million Scott & Brown Families Advanced Imaging and Gamma Knife Centre. ■

Care starts at home

Farming family grateful for integrated approach to care

WRITTEN BY KIT POOLE

As André Therriault lay in hospital two years ago after having a stroke, he thought, “Will I be in a bed for the rest of my life?”

Just five days later, he was home at his 6,800-acre grain farm in Donnelly, south of Peace River. He credits the streamlined care Alberta Health Services has in place for rural stroke patients.

“It was phenomenal, the care that I got,” says the 59-year-old father of four. “I don’t quite have the energy and I have a bit of memory loss. But 95 per cent of it is back to normal.”

Therriault’s story began in 2017 at the beginning of harvest season, when he became dizzy while working in his garage. His son could see his father’s face had begun to droop and suspected he was having a stroke. He called an ambulance to transport his father to the Peace River Health Centre, 65 km away.

That set in motion AHS’ stroke program, whereby emergency department doctors are linked via teleconferencing for immediate consultation with a stroke neurologist. The neurologist—in this case, Dr. Brian Buck—was able to see the computed tomography (CT) scan remotely from Edmonton’s University of Alberta Hospital (UAH).

“From the CT and CT angiogram, I was able to see that one of the main arteries from the back part of his brain was almost entirely blocked off,” Buck says.

Therriault had an ischemic stroke, which is caused by a sudden blockage of an artery to the brain, depriving it of

critical nutrients, such as glucose and oxygen. This can cause brain cells to die, affecting parts of the body controlled by that area of the brain. If the damage is severe, it can cause death.

Buck ordered that Therriault be given the clot-busting drug tPA (tissue Plasminogen Activator). His symptoms soon began to abate, and he was medevaced from Peace River to the UAH for further observation.

Buck says the speed of treatment was key to Therriault’s recovery. He credits the initiatives created through AHS’ Cardiovascular Health and Stroke Strategic Clinical Network.

“We’ve worked on creating an integrated network right from the pre-hospital stage to the emergency room and beyond,” he says.

It’s about ensuring “that rural stroke patients have as close as possible access to the same care as someone who is having their stroke across the road from a hospital.”

It has also meant the average time between stroke diagnosis and treatment with the clot-busting drug has been reduced by almost half from 70 minutes to 40 minutes.

Therriault has recovered and life with his family has changed—for the better.

“I take care of my health,” he says. “I take more weekends and we spend more time together.”

Adds his wife Diane: “It’s nice to know there are protocols in place for us who live so far from major centres.” ■

By the numbers

AHS is advancing care, increasing access, and improving outcomes for stroke patients across Alberta.

OUR CHALLENGES:

- Stroke affects **5,000** Albertans each year
- **1 in 6** victims die and **90 per cent** of survivors have a disability
- **\$370 million** is spent caring for stroke patients in Alberta in the first year alone.

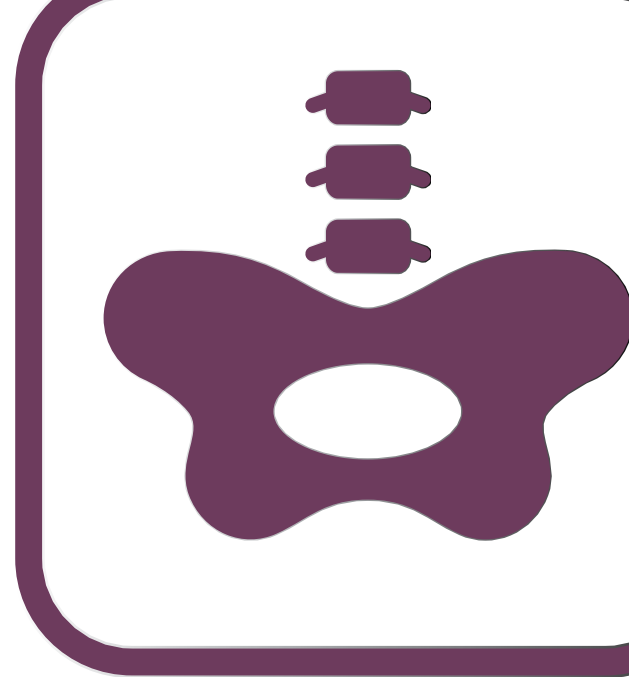
OUR SUCCESSES:

- Reduced door-to-needle time from **70 minutes to 40 minutes** in urban and rural sites
- **28 per cent** fewer patients are admitted to long-term care
- Length of hospital stay reduced from **6 days to 5 days**. Estimated savings of **3,377 bed days**, equalling **\$3.3 million**.



André Therriault hugs his wife Diane as he recovers from a stroke.

Photo supplied by Therriault family



Catch a Break bone health initiative

Osteoporosis causes 70 to 90 per cent of hip fractures in Canada, and hip fractures can be deadly for the frail and elderly.

When someone breaks a bone because of osteoporosis, it's important they receive followup care to prevent another fracture. Until recently, less than 20 per cent of Albertans treated for a fracture related to poor bone health received the followup osteoporosis care they needed to prevent a future fracture.

The Catch a Break program began in 2014 as a way to address this gap in care and prevent hip fractures and other common fractures (i.e., wrist, arm, rib or pelvis) in at-risk patients. The program identifies people who have experienced a fragility-related fracture and helps them improve bone health and prevent future fractures, including hip fractures.

Catch a Break focuses on improving communication between individuals and their family doctors about osteoporosis and available treatment options. It uses existing resources to initiate followup communication with patients and provides important information about bone health, osteoporosis, diet, calcium and vitamin D, and other beneficial supplements and medications.

Catch a Break is a partnership between the Bone and Joint Health Strategic Clinical Network and Health Link. It's also supported by the STOP-Fracture research team and the Alberta Bone and Joint Health Institute. ■

Preventing fractures by helping at-risk Albertans improve bone health

Our challenge

1 in 3 women
and
1 in 5 men

will suffer an osteoporotic fracture in their lifetime

Osteoporosis causes

70% to 90%
of the
30,000

hip fractures each year in Canada



Results to date

3,000 hip fractures

each year in Alberta

By 2030, the number of hip fractures is expected to

↑↑ quadruple ↑↑

28% of women
and **37% of men**

who suffer a hip fracture die within one year

For every 10,000 patients screened, the program is estimated to have helped **prevent 14 fractures** including **4 hip fractures**

Each hip fracture that's avoided saves nearly

\$38,000

in health system costs

Frail renal patients now have gentler treatment option

WRITTEN BY DOUG FIRBY

Rosaire Tessier had a difficult decision to make. His kidneys were failing, and the typical treatment would be three-times-a-week dialysis to clean his blood.

His general health was not good, and the treatment seemed tough.

"I didn't want to go on dialysis," says the northern Alberta resident. "It's not a life, really."

Then Tessier was invited to join a pilot program called conservative kidney management, or CKM. It's for patients with end-stage kidney disease who also have other serious health problems. CKM doesn't include dialysis but it does

include all other parts of kidney care and support. The goal is to live well without dialysis, so each patient will be as comfortable as possible and have a good quality of life.

Since the program launched in September 2016, 254 patients have signed up in northern Alberta, says Dr. Sara Davison, a nephrologist and founder and director of the Kidney Supportive Care Research Group.

Davison says the drive for conservative care came from front-line workers who saw frail elderly patients doing "abysmally" on dialysis. Using an

online guide, patients and their families review each patient's prognosis and general state of health. Then they choose the treatment and care plan that best fits with how patients want to live the rest of their lives. These frail patients will die, says Davison, but "not necessarily of kidney failure."

"There was a real lack of understanding that patients could live longer and with way better quality of life," Davison says.

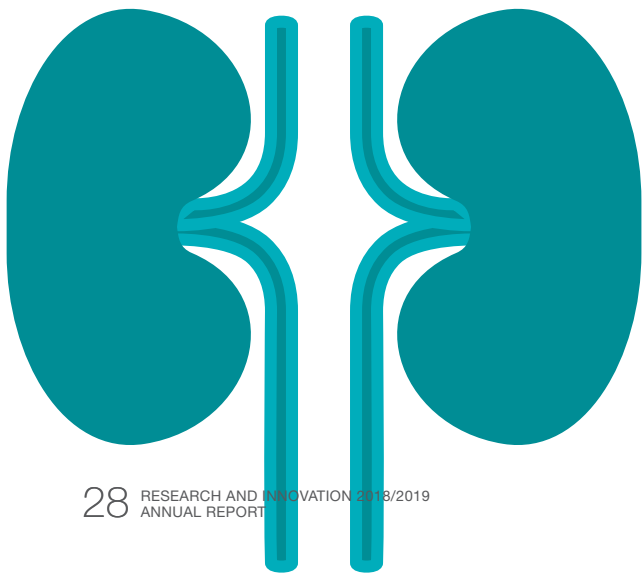
Since the program's inception, the number of patients in the area choosing conservative kidney management has grown from eight per cent to 26 per cent.

Davison says this is the first pathway of its type, and healthcare providers are reaching out from around the world to learn more. The pathway, she says, is being expanded to include a broad range of chronic diseases, including advanced cancer.

As for Tessier, he says he is glad he made the choice he did.

"The way I'm living is good, actually," he says. "I don't think with dialysis I'd feel any better, so why go on it?"

The Chronic Kidney Disease Clinic won an AHS President's Excellence Award in 2019 for Outstanding Achievement in Innovation and Research Excellence. ■





Diabetes foot care pathway

Diabetes involves much more than blood sugar. People with diabetes have a greater risk of foot problems, such as numbness, cramps, sores and foot ulcers. Foot ulcers are a serious condition and account for 70 per cent of lower limb amputations in Alberta.

That's why AHS' Diabetes, Obesity and Nutrition strategic clinical network created an integrated Diabetes Foot Care Pathway—a streamlined care system to prevent severe foot ulcers and amputations through early detection.

Recognizing a gap in current practice, the team developed a toolkit with easy-to-follow instructions on how to perform a thorough foot screen, assess patient risk, and refer patients for further care. The kit also includes information for patients about how to care for their feet and a list of foot care providers (i.e., nurses, podiatrists and footwear vendors).

It has led to a decrease in diabetic foot ulcers and lower limb amputations, and better health outcomes for people with diabetes. When an ulcer leads to an amputation, the patient has to spend an average of 86 days in hospital, emergency departments and clinics. When a diabetic foot ulcer heals properly, the patient spends five days in hospital, emergency departments and clinics. As of 2017, the Diabetes Foot Care Pathway had saved \$4 million in hospital stays. ■

Preventing severe foot ulcers and amputations through early intervention and integrated care

Our challenge

>1,000
lower limb amputations
each year in Alberta
70%
are due to diabetic
foot ulcers

.....
85%
of diabetes-related
amputations
are preventable

Results to date

Total bed days for amputations

↓ **reduced** ↓
by 1/2

in zones implementing
the pathway, and providing
integrated care and
limb-preserving approaches

Healthcare begins with research

Rising to the Challenge

WRITTEN BY GREG HARRIS

At Alberta Health Services it's not just clinician-scientists who conduct research.

Since 2016, the AHS Research Challenge has provided front-line healthcare providers an opportunity to increase their knowledge and skills to access, conduct and apply practice-based research.

That means nurses, allied healthcare providers like occupational and physical therapists, and others can apply a research lens to issues they see in their daily practices.

Selected teams receive education, mentorship from an experienced researcher and a \$5,000 grant.

The Research Challenge first ran in 2016, then 2017 and 2019. To date, more than 1,000 AHS employees have applied to participate.

A number of teams from the first cohort have even had their results published in academic journals. Here is a sampling of just some of the 45 projects undertaken to date:

- Enhancing patient symptom management and quality of life through acupressure
- Health texts from school nurses: Will adolescents get the message?

Dr. Ouida Antle, left, Ashley Kenny and Julie Meyer compared patient outcomes when anti-nausea medication is provided around the clock after surgery versus on-demand.

Photo by Leah Hennel

- Physiotherapist identification of psychosocial factors for delayed recovery in low back pain
- Do patients with multiple sclerosis benefit from using a powered exoskeleton?
- Accuracy of motor assessment in the diagnosis of fetal alcohol spectrum disorder (published)
- The Co-Occurrence of possible Developmental Coordination Disorder and Suspected Childhood Apraxia of Speech (published)
- Antiemetics for postoperative nausea and vomiting in patients undergoing elective arthroplasty: scheduled or as needed? (published). ■

▶ FOR MORE INFORMATION, visit:

- Accuracy of motor assessment in the diagnosis of fetal alcohol spectrum disorder—<https://bmcpediatr.biomedcentral.com/articles/10.1186/s12887-019-1542-3>
- The Co-Occurrence of possible Developmental Coordination Disorder and Suspected Childhood Apraxia of Speech—<https://www.cjslpa.ca/detail.php?ID=1241&lang=en>
- Antiemetics for postoperative nausea and vomiting in patients undergoing elective arthroplasty: scheduled or as needed?—<https://www.cjhp-online.ca/index.php/cjhp/article/view/2884/3936>



Getting involved

Patients make a difference

Alberta Health Services teams across the province are always testing new treatments, pathways and technologies.

They also work on new research studies that will help prevent and cure illnesses and disease.

You may be asked to participate in a research study when you visit an AHS facility.

If you choose to participate, you become part of a team that's working to improve healthcare for all Albertans. Whether you participate or not, you will always receive the best possible care.

Find a study that's right for you at bethecure.ca or get more information at ahs.ca/ParticipateResearch. ■

The benefits of research

- Research can directly benefit the patient.
- Patients can take an active role in their healthcare and generate new knowledge to improve care.
- Patients help find new treatments or technologies and better ways to deliver healthcare.

Protecting privacy

If you're part of a study, your personal health information will remain protected and confidential. All AHS research projects must meet strict privacy regulations and ethics requirements.

Alberta hospitals hit Top 40—again

WRITTEN BY GREG HARRIS

Alberta Health Services research hospitals in Edmonton and Calgary have for the fourth consecutive year ranked among the top 40 research hospitals in the country.

Edmonton Zone hospitals and Calgary Zone hospitals ranked 16th and 23rd, respectively—the same placement as last year. Overall, the research spending at AHS facilities is just over \$84 million for the 2018 fiscal year, up slightly from about \$83 million in fiscal year 2017. This figure represents the external funding AHS holds on behalf of researchers.

The rankings were released by Research Infosource, a consulting, research and publishing firm.

"Research and innovation are at the heart of how AHS provides healthcare," says Dr. Kathryn Todd, Vice President, System Innovations and Programs. "Using the best evidence to provide high-quality care is the lifeblood of any high-performing health delivery system."

Nationally, year-over-year growth in research spending was modest at 2.9 per cent, according to Research Infosource.

Last year alone, more than 1,300 studies approved by research ethics boards in Alberta required involvement by AHS.

Edmonton's research hospitals include the University of Alberta Hospital, the Stollery Children's Hospital, the Royal Alexandra Hospital, the Glenrose Rehabilitation Hospital, the Cross Cancer Institute and the Mazankowski Alberta Heart Institute.

Calgary's research hospitals include the Foothills Medical Centre, the Alberta Children's Hospital and the Tom Baker Cancer Centre. Research also takes place at the Peter Lougheed Centre, the South Health Campus and the Rockyview General Hospital. ■

Clinical trials by the numbers

Last year, Alberta Health Services supported:

1,300

Clinical studies (including surveys, physical tests or highly regulated clinical trials)



91

New cancer clinical trials

965

Patients enrolled in cancer trials



**Alberta Health
Services**