FOCUS ON Mental Health RESEARCH

Canada Raises the Bar for Mental Health Research

What if a simple saliva test could tell a doctor precisely the right meds your body needed to fight depression? What if science could prove how dogs are able make breakthroughs in mental health treatment where other approaches have failed? And, what if we, as Canadians, stopped blaming and shaming people with mental illness?

These questions are not hypothetical. They represent some of the leading-edge research happening at institutions across Canada – research that, in many cases, signals a major shift in how mental health is both studied and put into practice.

THE RIGHT DRUG FOR THE RIGHT PERSON

The **Centre for Addiction and Mental Health** (CAMH) is bringing the promise of personalized medicine closer to reality with a major study involving nearly 20,000 patients that could replace the long and frustrating trial-and-error approach to prescribing drugs with a scientifically proven diagnostic test.

At one test site north of Toronto, doctors at the Thornhill Medical Centre are using a saliva-based test with 150 patients to predict which of 19 commonly prescribed psychiatric medications work best, based on each person's unique genetic make-up. Medications that work well get a green light to prescribe as directed. Those with a red light are flagged for their poor efficacy or side effects, while meds that fall in the yellow zone may indicate that a dosage is too low or too high.

"There are no biological markers to tell us how sick a person with depression or schizophrenia is, unlike there is for diseases like cancer, heart disease and diabetes," says CAMH's Dr. James Kennedy, who is leading the IMPACT (Individualized Medicine: Pharmacogenetic Assessment and Clinical Treatment) study. "These tests will enable doctors – for the first time – to choose a medication based on biochemical evidence specific to that patient."

Since 80% of psychiatric meds are prescribed in primary care by family doctors, and not psychiatrists, Kennedy says it's essential to have a test that is easy to use.

"The real breakthrough part of this project is being able to deliver all this genetic information widely to doctors in family practice. In a couple of years we hope to have it available to hundreds of doctors. This has never been done before," says Kennedy.

In addition to improving patient satisfaction and safety, the IMPACT study could also help reduce healthcare costs. One of the drawbacks to trial and error prescribing is that patients may have to try several different drugs and dosages to find one that works, and that can take several weeks or months.

"That first medication won't work well in thirty-five to fifty percent of cases," says Kennedy. "That leaves patients frustrated and at increased risk of suicide. It also drives up health care costs."

REDUCING THE STIGMA OF MENTAL ILLNESS

Coming up with more effective treatments for mental illness is only half the solution. The bigger challenge, contends Dr. Heather Stuart at **Queen's University**, is reducing the stigma that deters two-thirds of Canadians with a mental illness from seeking help.

The consequences of such stigmatization are well known: trouble staying in school, finding and keeping a job and maintaining or establishing relationships. While there are awareness programs to address this issue, Stuart says most are based on strongly held beliefs as opposed to hard evidence. To fill this gap, she is collecting scientific data on how often such discrimination occurs, its psycho-social effects and the best ways to reduce discrimination in homes, schools, workplaces and even the health care system.

> "Mental illness is a serious, pervasive, underfunded, highly stigmatized and common health issue. What has changed is that the conversation is no longer taking place in the shadows. It is now talked about at the dinner table, classroom and boardroom."
>
> **Mary Deacon, Chair**
> *Bell Let's Talk*

Her efforts received a major boost last year when Bell Canada donated $1 million to create the Bell Mental Health and Anti-Stigma Research Chair – the first academic position of its kind in the world. Stuart is the inaugural chair holder.

"My research looks at the prevalence and frequency of stigma from the perspective of people who have a mental illness and how that results in prejudice, discrimination and unequal life chances," she says.

The end goal is to come up with best practices and toolkits that parents, schools and other organizations can use to fight the stigma surrounding mental health.

"We now know that for these programs to work the people who have the illness and their family members have to be front and centre in both planning and delivering these programs," says Stuart.

CORPORATE DONATIONS INCREASING

One of the biggest changes in Canadian mental health research over the past decade has been the unprecedented level of support from corporate donors. **Bell Let's Talk** is a $50 million, multi-year program that promotes mental health across Canada based on four action pillars: anti-stigma, care and access, research and workplace best practices.

Bell's investments on the research side have included a $10 million donation to the Centre for Addiction and Mental Health (CAMH), $2 million to the Douglas Mental Health University Institute for the Douglas-Bell Canada Brain Bank, and $1 million to Queen's University to establish the Bell Mental Health and Anti-Stigma Research Chair.

Mary Deacon, Chair of the Bell Let's Talk mental health initiative, says mental health was not high on the list of priorities for corporate Canada a decade ago. The big change, she believes, has been in Canadians' perceptions of mental health. The result has been less stigma and a better understanding that mental illness is a brain disease where investments and treatments can have a profound effect.

"Mental illness is a serious, pervasive, underfunded, highly stigmatized and common health issue. What has changed is that the conversation is no longer taking place in the shadows. It is now talked about at the dinner table, classroom and boardroom," says Deacon, who worked as a fundraiser for 10 years at the CAMH Foundation.

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> **Dr. James Kennedy**
> *Centre for Addiction and Mental Health*

HOW KIDS SUFFER FROM A PARENT'S TRAUMA

Reducing the stigma and discrimination too often associated with mental illness begins with understanding its underlying causes. Several studies have shown how personal trauma can contribute to depression, substance abuse and other mental and physical illnesses. Yet, until recently, there were few studies that examined the effects of psychological trauma on the children and grandchildren of the person initially victimized.

A team of neuroscientists at **Carleton University** examined this issue in the context of First Nations adults forced to attend Canada's residential schools. For second generation Aboriginals, they found these traumatic events had lasting neurochemical and hormonal effects that inhibited their ability to cope with stress later in life, increasing their vulnerability to depression, post-traumatic stress disorder and substance abuse, as well as chronic conditions such as heart disease, high blood pressure, stroke and diabetes.

"Too often we end up blaming the victim because these events happened so long ago," says Dr. Kimberly Matheson who collaborated on the study with Dr. Hymie Anisman and Dr. Amy Bombay. "But what this research demonstrates is that early life experiences can sensitize the brain so that when you encounter stressors later in life, you are much more reactive."

WORKING WITH ABORIGINAL COMMUNITIES

There is no one-size-fits-all intervention when it comes to treating mental illnesses. Yet, in too many

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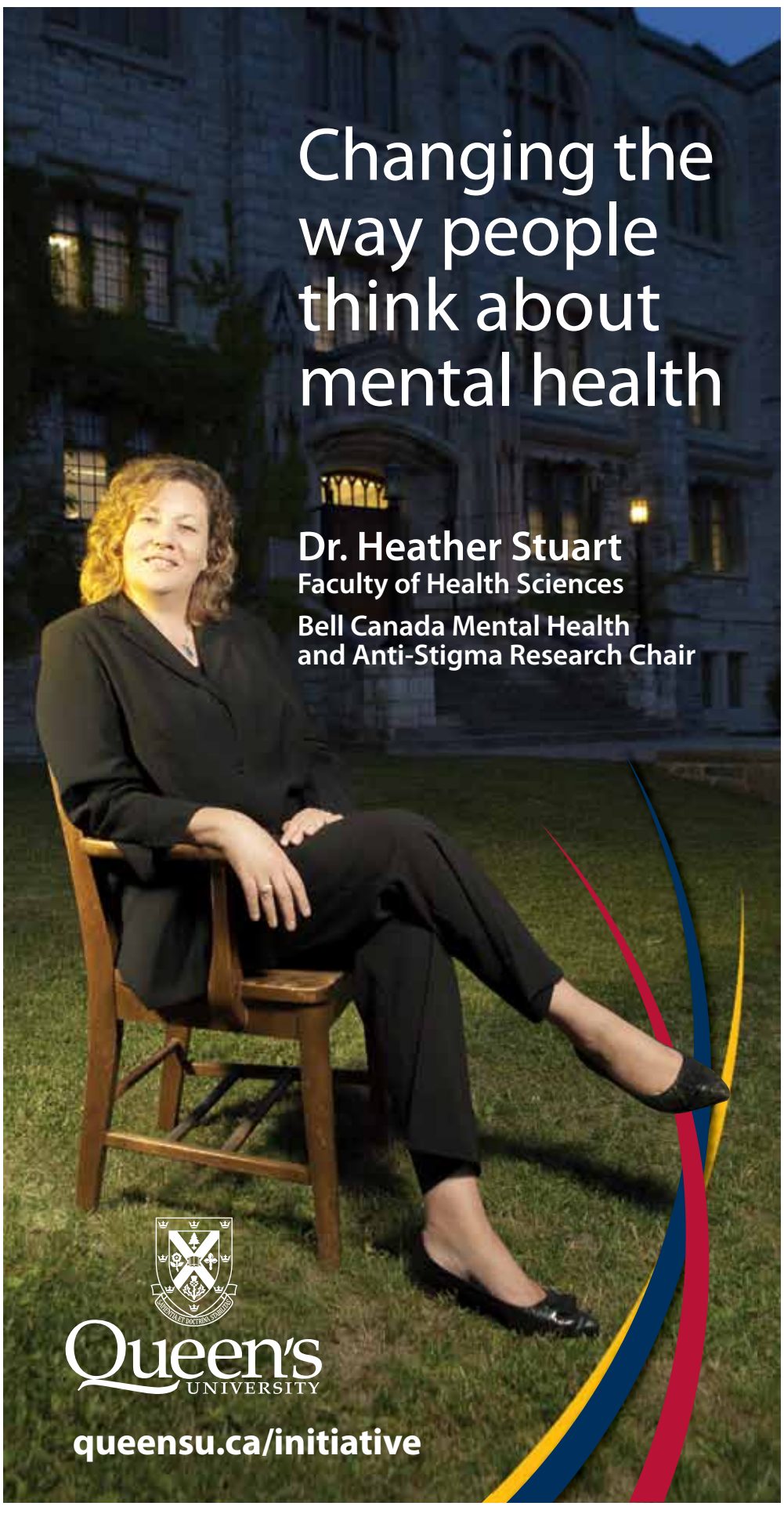


Fresh thinking, new approaches and collaboration are hallmarks of the Carleton experience.

The research advances in Neuroscience and Mental Health at Carleton are changing lives – one person, one family and one community at a time.

Learn more at neuroscience.carleton.ca

Carleton UNIVERSITY

FOCUS ON Mental Health RESEARCH

CAMH's Research Already Helping Patients Today

Bruce G. Pollock, MD, PhD, FRCPC
Vice-President, Research, Centre for Addiction and Mental Health (CAMH), Toronto
Director, Campbell Family Mental Health Research Institute, CAMH

At CAMH, we're enormously proud of our Campbell Family Mental Health Research Institute, Canada's largest group of researchers dedicated solely to mental health.

As we celebrate its first anniversary, we have good reason to be proud. With its focus on understanding the brain – from the genetic and molecular levels to the circuits and systems that shape our moods and behaviour – the institute is moving mental health research into the forefront of global science. Where will the next breakthroughs come in unraveling the complexities of the brain? How quickly can we translate those discoveries into better treatments? Can we prevent mental illness before it starts? These are the urgent questions that preoccupy us at CAMH.

We know that the earlier we can intervene, the better the outcome – and research is taking us there.

But what does research really do for those living with mental illness today? Isn't a research institute just white lab coats, glass beakers and distant dreams of treatments that might someday exist? What we need is real care today, some might suggest, not a focus on 50 years down the road.

In fact, actual care is embedded into so much of our work at the Campbell Institute. It is an essential part of what we do. As Canada's leading hospital for mental health, CAMH knows this approach is the best way to ensure patients benefit from research, and that research benefits from patients.

The Temerty Centre for Therapeutic Brain Intervention – a thriving clinical research lab under the umbrella of the Campbell Institute – is pioneering the use of several non-invasive brain stimulation techniques to treat a range of mental illnesses. Our experts are the first in Canada to test magnetic seizure therapy, which uses magnetic pulses to stimulate targeted areas of the brain. As well, the Temerty Centre is perfecting the use of repetitive transcranial magnetic stimulation (rTMS), providing better outcomes and fewer side-effects than traditional brain stimulation methods. This technique shows promise in up to 50 per cent of patients, particularly those with treatment-resistant illnesses.

The technique is already revolutionizing care for many patients – patients like Jane. As part of our ongoing research, Jane underwent rTMS treatments for the depression she's lived with for more than 20 years. The treatment helped her replace feelings of shame and loneliness with an overwhelming sense of hope. Jane is a real patient with a real story of a life transformed today – a story only written because of the Campbell Institute.

Finding the right medication for the right patient is a common challenge when treating mental illness. At the Tanenbaum Centre for Pharmacogenetics, scientists are actively working to lessen the chances that treatment won't work or that unpleasant side-effects will lead to a patient quitting his or her psychiatric medications. Dr. James Kennedy is using genetic testing to identify the optimal medications for a particular patient without the frustrating trial and error. The test looks at a person's specific genetic profile for breaking down particular medications and indicates – in a simple red-yellow-green-light format – which ones are most suitable.

This is a mental health game-changer. So, when will this research begin reaching actual patients? It already is. Almost 400 CAMH patients have taken the test. Early results suggest patients are reporting better outcomes from their medications with fewer side-effects.

This project was initiated by seed funding by visionary business leader Lawrence Tanenbaum, which then led to substantial funding from Ontario's Ministry of Research and Innovation.

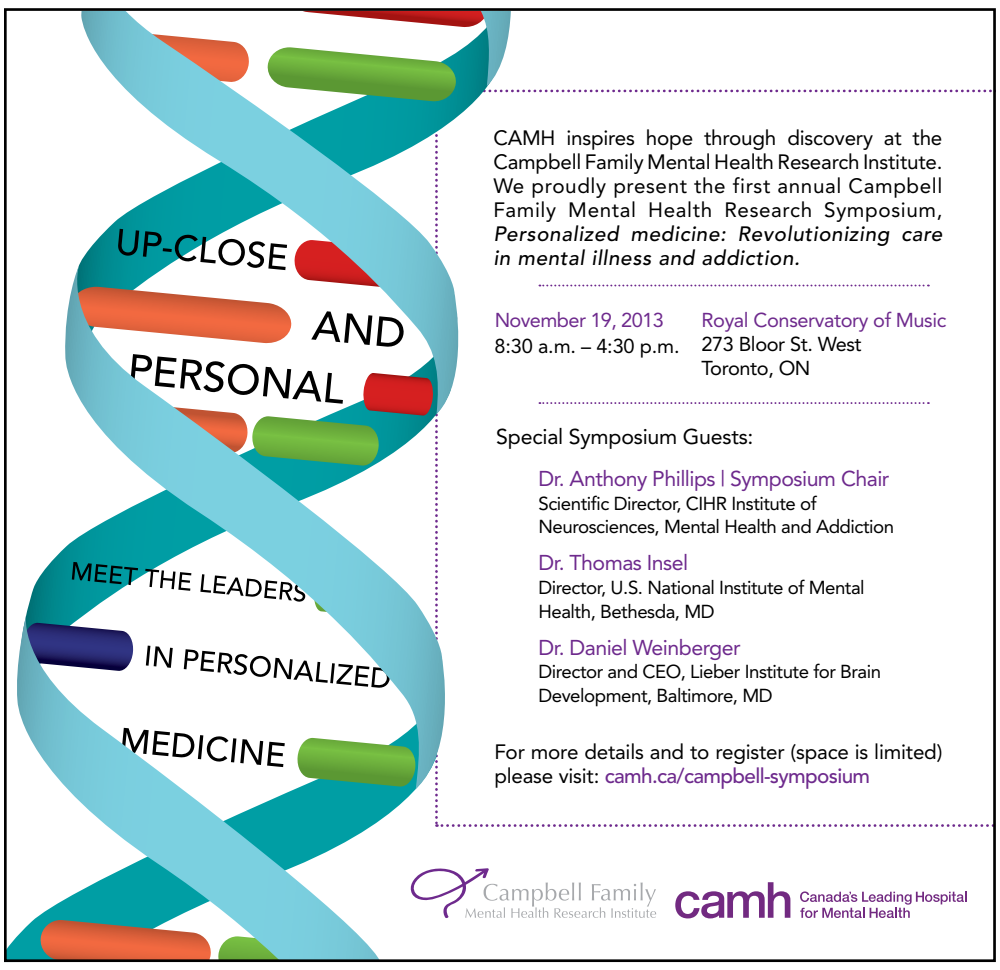
Recently, the study was expanded into the broader community; the test is now being offered to patients at the Thornhill Medical Centre, the Village Family Health team, and other centres. Through these partnerships, Dr. Kennedy and his team will see how this system works when used by frontline family physicians, the ones who prescribe 80 per cent of psychiatric medications. In all, nearly 1,000 patients have taken the test.

Reaching patients is always our goal – and we continue to build upon our past successes. For example, CAMH's Dr. Jeff Meyer's advanced brain imaging research provides a clearer understanding of brain chemistry in major depression, which is needed to create more targeted and effective treatments. Dr. Meyer is now focused on developing a preventive approach to postpartum depression and other serious major depressive disorders, with few if any side-effects. His team is examining whether a dietary supplement can provide the nutrients removed by high levels of an enzyme that breaks down important brain chemicals like serotonin, norepinephrine and dopamine.

The Campbell Family Mental Health Research Institute is truly advancing research into uncharted territories, but it is also building on a track record that is well-established at CAMH.

Yes, there are white lab coats and beakers to be found within this Institute, as well as treatments in very early stages of development. But there are also real patients receiving real care, and that is something to be truly proud of.

> "We know that the earlier we can intervene, the better the outcome – and research is taking us there."



CAMH inspires hope through discovery at the Campbell Family Mental Health Research Institute. We proudly present the first annual Campbell Family Mental Health Research Symposium, *Personalized medicine: Revolutionizing care in mental illness and addiction.*

November 19, 2013
8:30 a.m. – 4:30 p.m.

Royal Conservatory of Music
273 Bloor St. West
Toronto, ON

Special Symposium Guests:

Dr. Anthony Phillips | Symposium Chair
Scientific Director, CIHR Institute of Neurosciences, Mental Health and Addiction

Dr. Thomas Insel
Director, U.S. National Institute of Mental Health, Bethesda, MD

Dr. Daniel Weinberger
Director and CEO, Lieber Institute for Brain Development, Baltimore, MD

For more details and to register (space is limited) please visit: camh.ca/campbell-symposium

Campbell Family Mental Health Research Institute
camh Canada's Leading Hospital for Mental Health

HEALTH AND WELL-BEING FOR ALL

By Kathleen Powderley

A new research project, led by Sepali Guruge, a professor in Ryerson's Daphne Cockwell School of Nursing, explores ways to reduce the stigma of mental illness among men and boys in Asian communities across Canada.

Providing equal access is one of the fundamental challenges facing health-care planners and providers. Socioeconomic status, gender, race, language and sexuality all too often – even in Canada – affect people's health outcomes and access to health care. These factors have a profound impact on diagnosis and treatment of mental illness, which is stigmatized in so many cultures.

A new research project at Ryerson University explores ways to reduce the stigma of mental illness among men and boys in Asian communities across Canada, thanks to a $3-million research grant from the Movember Foundation.

Solving this problem is essential in major cities like Toronto where almost 50 per cent residents were born outside of Canada.

Led by principal investigator Sepali Guruge, a professor in Ryerson's Daphne Cockwell School of Nursing, this project examines the effectiveness of two pilot anti-stigma interventions with 2,160 men living in Toronto, Vancouver and Calgary. Using innovative approaches to reduce internalized stigma and to support knowledge and skills building, it will have enormous impact. Community leaders from faith-based, media, arts and advocacy sectors will help to build mental health supports within their communities.

This project builds on two strengths of Ryerson research – diversity and health. Other related Ryerson projects include the work of Morton Beiser, professor of distinction in psychology, which examines equality of mental health care for refugees and Donna Kollar, professor in the School of Early Childhood Studies, who helps health-care professionals decrease children's stress levels and allows them to take an active role in their care.

Ryerson also leads the Ontario Multicultural Health Applied Research Network initiative in partnership with York University and Markham Stouffville Hospital, which examines and affects change of health inequities among ethno-cultural and racialized groups. Another project led by Judy Finlay, professor in Ryerson's School of Child and Youth Care, examines the social determinants of health including youth suicide prevention in Northern Ontario First Nations communities.

These research projects are just a few examples of how Ryerson is making a real difference through research and innovation. More information about these and other research is available at www.ryerson.ca/research.

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cases, programs developed for mainstream communities in urban centres are simply transplanted into First Nations communities – with limited or no success.

For example, research by Dr. Christopher Mushquash, an Assistant Professor at **Lakehead University** and the **Northern Ontario School of Medicine**, has shown that community programs are more effective when both cultural and contextual differences are taken into account.

"There are big differences between large urban centres and remote communities and northern rural communities," he says. "You're also dealing with young people with very different experiences."

Mushquash, who is also a member of Pays Plat First Nation in Northern Ontario, says he's not trying to come up with a blanket approach that works for every community. Rather, he is identifying best practices from community-developed approaches, and western-based science and adapting them in a way that respects the unique cultures and contexts of each community.

The research results have been encouraging. In one project, youth from two Mi'kmaq communities in Nova Scotia who participated in a collaboratively-designed intervention program drank less frequently, engaged in less binge drinking, had lower levels of alcohol-related problems and were more likely to abstain from alcohol use.

THE HEALING TOUCH OF ANIMALS

Any scientist will tell you that knowing something works isn't the same as proving it works. A case in point is animal-assisted therapy – a growing field that uses dogs or other animals to help people recover from or better cope with health problems, such as heart disease, cancer and mental health disorders.

Saskatoon Health Region (SHR) has no shortage of anecdotal evidence that its dog and horse therapy programs are having a therapeutic impact with troubled children and youth. What it needs is hard evidence to support the case for expanding these programs. That's where Dr. Colleen Dell is helping.

> "Developing a science-based evaluation will enable Saskatoon Health Research to implement more of these animal therapy programs."
>
> **Dr. Colleen Dell**
> *University of Saskatchewan*

The Research Chair in Substance Abuse at the **University of Saskatchewan** works with teams of veterinarians, animal handlers, social workers and human health practitioners to evaluate the results on children and youth of animal-assisted therapy.

"In one project we had many kids who had experienced high rates of sexual abuse. Our research found that handling a horse helped them learn what healthy touch was," says Dell.

Others learned how to trust by developing a bond with their favorite horse. "For some, it is much easier to learn to trust with a non-judgemental animal than a human".

SHR and Dell have since applied for a Canadian Institutes of Health Research grant to further evaluate the therapeutic effects of the region's horse and dog therapy programs.

"Developing a science-based evaluation will enable Saskatoon Health Research to implement more of these animal therapy programs," says Dell.

PUTTING RESEARCH INTO PRACTICE

One of the toughest jobs in mental health research is ensuring the results are used by those who need them most. That's where **Healthy Minds Canada** helps. The national charitable organization funds research, hosts workshops and symposia, and translates the outcomes of mental health and addiction research into practical resources and tools that help families, teachers, workplaces and communities.

Its handbooks are used by companies and organizations across Canada, including Canada Post, Ontario Power Generation, government departments and school boards.

Healthy Minds Canada is posting more of this material online so that even more Canadians can access it. It is also funding research that incorporates this knowledge into a game app for smartphones where players are rewarded each time they make the right choice to help someone with a mental illness or themselves.

"It helps with behavioural choices and improves their empathy to better deal with these kinds of situations," says Katie Robinette, Executive Director, Healthy Minds Canada.

January 28 is Bell Let's Talk Day. We're working hard to ensure its impact is felt for generations. Bell Let's Talk supports mental health research taking place across the country through research chairs, fellowships, and project grants like:

$2 million to Montréal's Douglas Mental Health University Institute for the Douglas-Bell Canada Brain Bank, the only world-class brain centre of its kind in Canada.

$1 million to Queen's University to establish the world's first chair in anti-stigma research.

$1 million to the University of British Columbia to establish the Bell Youth Mental Health IMPACT Project.

$500,000 in additional funding for the Bell Mental Health Training Awards, supporting the next generation of young Canadian researchers in partnership with Brain Canada.

Visit bell.ca/letstalk

Bell Let's Talk