#### BRAIN AND MENTAL HEALTH



How are we understanding the most complex system in the universe?

# Together.

We are making incredible new discoveries leading to breakthroughs in the prevention, detection and treatment of brain disorders and mental health issues spanning the life cycle, from the developing brains of newborns, children and youth to adults and the aging population.

The University of Calgary has grown into a vital community of thought leaders and visionaries. **Energize: The Campaign for Eyes High**, is our drive to positively charge our campus community, our city and beyond, to unleash the power of the University of Calgary to cure disorders of the brain. And this power can only be unleashed together.

# We are unlocking mysteries that will improve the lives of millions.

#### Welcome to the most complex system in the universe - your brain.

Even with thousands of years of study, the complexity of the billions of connections in the brain and throughout the nervous system are not fully understood. Brain disorders are surpassing both cardiovascular disease and cancer with respect to the global burden of disease. It is estimated that one in three Canadians will be affected by a brain or nervous system disorder or injury in their lifetime. Conditions such as stroke, multiple sclerosis, dementia, depression, concussion and epilepsy are just a few of the familiar afflictions that can have a devastating impact.

At the University of Calgary, we are making a difference with our research. In the following pages, you will see some of the amazing breakthroughs we have made in the prevention, diagnosis, and treatment in brain and mental health.

### Healthy brains are top of mind at the Hotchkiss Brain Institute.

The complexity of brain disorders calls for an equally distinguished team to prevent, diagnose and treat them. Led by the Hotchkiss Brain Institute (HBI) at the Cumming School of Medicine, the University of Calgary's Brain and Mental Health research strategy provides a roadmap for hundreds of researchers engaged across multiple institutes and faculties.

Founded by a gift from leading philanthropist, Harley N. Hotchkiss, the HBI was officially launched in 2004 under the leadership of its director, Samuel Weiss. At the HBI, a collaborative network of basic, clinical and population health scientists has been translating discoveries into innovative health care solutions for more than a decade.

The HBI's membership has grown significantly with nearly 50 researchers directly recruited since 2007. There are more than 130 full members and 60 associate members across 16 departments and nine faculties working within the Institute's collaborative framework. Together with members, trainees, research and professional staff, the HBI includes approximately 750 people working together toward a shared vision of healthy brains for better lives.

### Student Experiences

### Developing the next generation of leaders in brain and mental health.

The brain is the least understood organ in the body, and the enormous breakthroughs at the University of Calgary are vital to brain and mental health research and related care. This foundation of excellence provides the ideal environment for students to succeed.

To give our students every advantage possible, we have assembled experts across a wide spectrum of fields to work in our faculties and collaborate across disciplines. The opportunity for students to grow in this environment of knowledge and expertise is unmatched. We also expose students to international leaders in the brain and mental health field through programs like the HBI Rebecca Hotchkiss International Scholarship Exchange (RHISE). The RHISE program includes international trainee exchanges, visits from global experts in neurosciences and mental health, academic conferences and other initiatives that advance research and care through worldwide collaboration.

Our global profile as an international centre of excellence in brain and mental health research and education is enhanced by recruiting and supporting world-class students.



of major mental illnesses such as depression and addiction begin before the age of 24.

# Together, we will help our students grow strong.

# Putting smart mental health ideas into practice on campus.

One of the most comprehensive programs of its kind at a Canadian university, UCalgaryStrong brings together elements of personal wellness, leadership and engagement during the students' time on campus. The initiative builds resiliency against the stressors of loneliness and isolation that can happen in a student's post-secondary experience. Building compassion and caring in students will help them through the post-secondary years, and for the rest of their lives.

TION 2014

survisione

# Together, we are ensuring no child is left behind.

Creating a faster track to help children overcome learning difficulties.

When a child is struggling in school with learning disabilities and difficulties, parents want solutions fast. While the school system offers assessments, the waiting list can be extremely long. So the Werklund School of Education developed a program to provide high-quality, low-cost psychoeducational assessments for school-aged students in the greater Calgary area. University of Calgary students get to work hand-in-hand with experienced psychologists to prepare for their futures, while providing critical answers to parents and helping to create a plan for the child that will leverage their strengths and overcome any challenges.

Students from the Werklund School of Education discuss an assessment with psychologist Gabrielle Wilcox. Their program offers children with learning challenges hope for a brighter future.

### **Research Outcomes**

### Great minds in brain and mental health are making important discoveries right here.

Few institutions can match the University of Calgary's breadth and depth of research expertise, and we are putting it to good use. Collaboration between experts across the spectrum of research results in answers to issues that impact the lives of Albertans, Canadians and people around the globe. Hundreds of researchers across campus, including geneticists, psychiatrists, imaging scientists and more, are engaged in brain and mental health studies. Teams focused on specific areas within the Brain and Mental Health research themes have been organized to achieve specific goals.

Our research on understanding how the brain controls behaviour, how thoughts are turned into actions and how memories are gained and lost is leading to breakthroughs in mental health, epilepsy, stress and neurodevelopment. We are developing approaches to speed up recovery and rehabilitate those who have multiple sclerosis, spinal cord and nerve injury, and traumatic brain injury.

We are exploring new and improved treatments for neurological and mental health conditions affecting the aging brain such as vascular dementia and Alzheimer's disease. Our deep understanding of fundamental causes of these conditions is leading to early identification of and intervention for disorders like Parkinson's disease.

neuroArm

The achievements are shared by the people like you who support our programs to attract the best researchers, clinicians and educators to Calgary.

Children in Canada is estimated to suffer a concussion or mild traumatic brain injury, resulting in 65,000 emergency room visits and 120 deaths annually.

CASE FOR SUPPORT 1

# Together, we will keep our children healthy.

### Prioritizing treatment of mental health conditions in children and youth.

Nearly 20 per cent of Canadian children and youth are living with a psychiatric disorder. Whether youth mental illness is on the rise, or we're simply more aware of it, Paul Arnold believes it is important for parents to know of the prevalence, treatment options, and the need for better coping strategies for kids. Arnold has established Calgary's first neurogenetics laboratory to study the role of genetics in mental health. As director of the Mathison Centre for Mental Health Research & Education, Arnold's research has the potential to predict risk factors and target treatment for childhood mental illness, offering support and new hope to families in Calgary, across Alberta and around the world.

OUR WORK AT THE MATHISON CENTRE IS FOCUSED ON UNDERSTANDING THE CAUSES OF MENTAL ILLNESS, WITH SPECIAL EMPHASIS ON YOUTH POPULATIONS. WE'RE BRINGING BRILLIANT MINDS TOGETHER TO FIND SOLUTIONS FOR PREVENTION, EARLY IDENTIFICATION AND TREATMENT.

J PAUL ARNOLD

# Together, we are finding new ways to protect the brain.

We're gaining a clearer picture of concussion.

A group of researchers from multiple faculties and institutes across the University of Calgary formed the Integrated Concussion Research Program to determine how best to treat concussion. Led by the Faculty of Arts, the program examines all aspects of the condition, from prevention to diagnosis and prognosis, to

treatment and rehabilitation. Through our research, we can decrease the number of concussions, develop tools to diagnose injury and help predict who will have future problems. We will reduce the long-term effects of concussion and improve the quality of life for those who experience the injury.

Adam Kirton, a member of both the Alberta Children's Hospital Research Institute and the Hotchkiss Brain Institute, uses a new technology called transcranial magnetic stimulation (TMS), which has provided University of Calgary researchers a clearer picture of concussion. The tool is leading to new treatments for concussion as well as those designed to help children with cerebral palsy improve their motor control, help treat teenagers with depression, assist those with neuromuscular fatigue and treat the cognitive symptoms in people with Parkinson's disease.

### Together, we are replacing fear with hope.

#### "

WE KNOW THAT ONE IN FOUR CANADIANS WILL HAVE A STROKE IN THEIR LIFETIME, AND THAT NUMBER IS ONLY INCREASING AS OUR POPULATION AGES. THIS PROCEDURE CAN GIVE REAL HOPE TO THOSE WHO HAVE A STROKE, BOTH IN TERMS OF REDUCING MORTALITY AND DISABILITY.

JJ MICHAEL HILL, STROKE NEUROLOGIST

# New stroke treatment cuts mortality by 50 per cent.

Basma Kholoussi remembers very little from the night she suffered a stroke. Her husband Bassem recognized the warning signs: Basma's face drooped, she slurred words and couldn't use the right side of her body. At the Foothills Medical Centre, she was given treatment as part of the ESCAPE trial studying ischemic stroke — an international study wherein a clot is removed using cutting-edge imaging. The ESCAPE study has resulted in a new global standard for stroke treatment, reducing mortality rates by 50 per cent, with the potential to improve the lives of hundreds of thousands of people worldwide who suffer strokes each year. Not only did the treatment save her life, Basma has been able to return to her normal life, free of disability.

### **Community Connections**

### We are addressing the burden that brain and mental health issues place on us all.

Brain and mental health issues have a devastating impact on families, the community and the health care system. They strike our children as their brains develop. In our aging population, Alzheimer's, Parkinson's, multiple sclerosis and stroke are increasingly becoming household names. The toll has emotional, physical and financial impacts. For example, dementia-related health care has become the largest financial burden on the Canadian health care system.

The Brain and Mental Health strategy at the University of Calgary tackles these issues head on, making new breakthroughs while working toward a healthier community. We are fully integrating with the City of Calgary in the area of brain and mental health, setting up clinics in the city and creating living laboratories. We have established the university's first research chair in the community at the Wood's Homes Children's Mental Health Centre. Going forward we will continue to depend on members of the public for participation in clinical trials and studies that advance research and save lives.

of Canadian families are affected by diseases or disorders of the brain.

## Together, we are protecting the most vulnerable.

1

Teaming up to conquer dementia, the most expensive condition in our health care system.

Researchers at the University of Calgary have joined forces to create the Dementia and Cognitive Disorders NeuroTeam. The team is exploring early identification and interventions for dementia across the spectrum of medicine, nursing, social work, kinesiology and psychology. One of the challenges for research in dementia treatment and care is that people living with dementia are often older adults

who may be vulnerable, marginalized or "voiceless." The research is led by the Faculty of Nursing's Lorraine Venturato, whose work with people who have dementia is helping to give those in the community a voice. Together, we are enhancing quality of life and quality of care for people living with dementia in Alberta and beyond.

The Faculty of Nursing's Lorraine Venturato works as a clinician, educator and researcher across the full spectrum of care for older people. She gives a voice to our community members living with dementia.

### Together, we will build a community of caring.

# for the front lines of care.

#### With one in three Canadians

experiencing a mental health issue in their lifetime, we're working with local organizations to get more help on the front lines. Partnerships with community organizations provide students with vital practicum placements. One organization is the Calgary Counselling Centre, where Faculty of Social Work students work one-on-one with members of the community in their mental health needs, preparing our students to become the next generation of social workers. In turn, the community acts as a living laboratory to help advance practices for care and treatment, improving the lives of all Canadians.

#### "

EDUCATION HAS BEEN A PILLAR OF OUR WORK SINCE THE CALGARY COUNSELLING CENTRE OPENED ITS DOORS MORE THAN 50 YEARS AGO. PROVIDING SOCIAL WORK STUDENTS WITH OPPORTUNITIES TO GAIN KNOWLEDGE AND REAL-TIME COUNSELLING EXPERIENCE IS INTEGRAL TO THEIR LEARNING, AND WILL BENEFIT THE NEEDS OF THEIR CLIENTS IN THE FUTURE.

J ROBBIE BABINS-WAGNER | CEO, CALGARY COUNSELLING CENTRE

Student Experiences \$35 million Connections \$55 million

### Research Outcomes \$160 million

YOU

### \$250 million

# Take your place among the leading philanthropists of your time.

You will help us attract the rising stars and emerging leaders who will explore innovative new ideas for better brain and mental health. You will help us continue the vital research that has already benefited millions of patients, and could benefit billions. You will elevate Calgary in prominence as a world leader in the development of solutions for some of the most pressing health problems facing society.

### Together, we will energize the future of brain and mental health.

The University of Calgary is at the forefront of trailblazing brain and mental health research. Your support will fuel our potential to achieve excellence in key areas:

#### Student Experiences - \$35 million

- Provide scholarships, bursaries and awards to fund, train and educate tomorrow's medical and research leaders today
- Program funding to ensure campus and student mental health and wellness
- Attract the best and brightest educators, clinicians and researchers, who are a critical component of our ability to advance health outcomes

#### **Community Connections - \$55 million**

Research is no longer confined to the laboratory. It lives in the community where our efforts can have an immediate impact. Your support will facilitate:

- Community outreach clinics and programs: Researchers and students will provide support to the public and use information gathered from their efforts to work on improving outcomes
- Collaborations: We will work with partner agencies in the Calgary community to deliver training and education - together our shared knowledge will advance the delivery of new programs

#### Research Outcomes - \$160 million

Philanthropic support of research will lead to new discoveries in prevention, treatment and care. Support is needed for:

- NeuroTeams: Networks of researchers will foster innovation through collaboration. Their efforts will be directed to solve the most pressing brain and mental health challenges including depression, epilepsy, multiple sclerosis, stroke, dementia, and Parkinson's disease
- NeuroTechnologies: Tools and technologies are required to facilitate new understanding and treatments.
  From imaging, to TransCranial Magnetic Stimulation, to "big data" analysis, our teams will be equipped to understand the nature of brain and mental illness and identify novel solutions

If you want to make a difference and create a legacy that will endure, this is your opportunity to spark meaningful change in the world. **JOIN US.**  Join us, and together we will comprehend the most complex system in the universe.

#### Cumming School of Medicine, University of Calgary

3330 Hospital Drive NW Calgary, AB T2N 4N1 403.210.3964 Fdmed@ucalgary.ca

ucalgary.ca/campaign