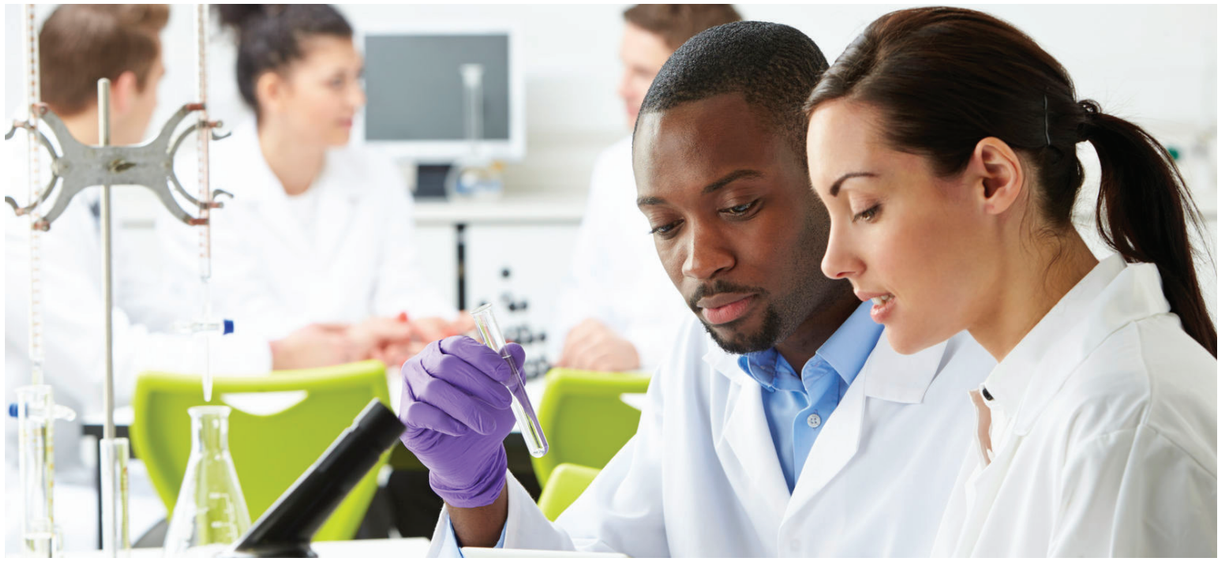

DISTINCTIONS

Dr. Pasquier Honoured by the Fonds de Recherche du Québec – Santé (FRQS)

The FRQS has awarded **Dr. Jean-Charles Pasquier** with the *Statut d'excellence scientifique de chercheur-clinicien chevronné*. This honour highlights his commitment to maintaining high quality research activities.

International Honour in Pharmacology

Pedro D'Orléans-Juste was inducted as a Fellow of the British Pharmacological Society, becoming the first Quebecer to receive this prestigious designation. This distinction was awarded to him for his contribution to research, resulting in numerous publications and for his participation in the Society's scientific meetings.

First Woman to Head the Canadian Association of Gastroenterology (CAG)

Nathalie Perreault has been appointed President of the CAG, making her the first woman to hold this title since its creation in 1962. Her new role means she will be developing research in Gastroenterology across the country as well as organizing the Association's annual scientific conference.

OUTREACH

Our Experts on *Les aventures du Pharmachien*

The *Pharmachien* (show's host) returned to the CRCHUS to take stock of popular beliefs in health. This time, he discussed statins and the effects of the cold on our health with **Dr. André Carpentier**, as well as hormone therapy with **Dr. Sophie Desindes**.

A Material with Antibacterial Powers

Many pathogenic viruses and bacteria are transmitted largely through contaminated surfaces. **Louis-Charles Fortier** has demonstrated the antibacterial properties of anodized aluminum, which would make it possible to stem epidemics, including COVID-19. His study was featured on the show *Découverte*.

Recognition for His Scientific Writing

Timothy Dubé was one of the best authors of the Canadian Medical Education Journal. Entitled *It takes a community to train a future physician: social support experienced by medical students during a community-engaged longitudinal integrated clerkship*, his article describes the importance of the relationships that medical students develop by living, learning and working in rural communities.

Contact Us

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Our partners:

Centre intégré universitaire de santé et de services sociaux de l'Estrie – Centre hospitalier universitaire de Sherbrooke
Québec

Fonds de recherche Santé
Québec

Fondation du CHUS

UdS Université de Sherbrooke

CENTRE DE RECHERCHE | CHUS

The Centre de recherche du Centre hospitalier universitaire de Sherbrooke (CRCHUS) plays a leadership role in the creation of knowledge and its translation towards improving health.

To this end, the CRCHUS fosters the excellence of its researchers by building on its strengths and setting while providing a collaborative environment conducive to creativity and partnerships. The research activities supported by the CRCHUS, contribute to the creation of innovative treatments and improved health care services.

VISION

EXCELLENCE - BOLDNESS - CREATIVITY

The CRCHUS is a world-class environment for research, innovation, and knowledge transfer that is dynamically integrated into its clinical and university setting. The collective achievements of the CRCHUS have a tangible impact on improving health.

DEDICATED PEOPLE

290 RESEARCHERS

158 RESEARCH PROFESSIONALS

793 STUDENTS

RESEARCH IN NUMBERS

$44 million annual budget

6 RESEARCH AXES

4 NEW RESEARCH CHAIRS

8 TECHNOLOGICAL PLATFORMS CONDUCIVE TO NATIONAL AND INTERNATIONAL COOPERATION

853 SCIENTIFIC PUBLICATIONS

1 114 ACTIVE RESEARCH PROJECTS

PATIENT PARTNER STRATEGIC COMMITTEE

Over **3000 hours** of volunteer commitment, representing **85 weeks of full-time work**.

20 PATIENT PARTNERS, AGED 9 TO 94 YEARS OLD

7 CLINICAL INVESTIGATORS

3 STAFF MEMBERS

3 PATIENT PARTNER COMMITTEES: STRATEGIC - CHILDREN - BREAST CANCER

Our KNOWLEDGE brings HOPE

SINCE 1980

DISCOVERIES OF THE YEAR

CANCER: BIOLOGY, PROGNOSIS AND DIAGNOSIS AXIS

A Revolutionary Vaccine to Fight an Aggressive Form of Breast Cancer

Lee-Hwa Tai's team is conducting a *study* that aims to design a therapeutic vaccine to treat triple-negative breast cancer, one of the most difficult cancers to treat due to its rapid progression. In addition, the majority of patients do not respond to chemotherapy or surgery. Her technique consists in using breast cancer cells harvested from a woman at the time of her surgery, and infecting them with an oncolytic virus, a type of virus that destroys cancer cells and will be detected by the patient's immune system. The cancer cells are then injected back into the woman, which stimulates her immune system.

DIABETES, OBESITY AND CARDIOVASCULAR COMPLICATIONS AXIS

Using Adipose Tissue to Fight Type 2 Diabetes and Obesity

Denis Blondin and **Dr. André Carpentier**, in collaboration with Dr. Camilla Schéele from the University of Copenhagen, have developed an unprecedented method to activate the tissue responsible for burning excess sugar and fat in the human body. They have shed light on the cell receptor responsible for this activation. Their *study* demonstrates that when activated by exposure to cold, brown adipose tissue burns fat. This scientific breakthrough could eventually improve the treatment of type 2 diabetes and obesity as well as prevent related complications by stimulating brown fat with the help of a drug.

MEDICAL IMAGING AXIS

Breaking the Blood-Brain Barrier in the Treatment of Neurological Diseases

Fernand Gobeil *is studying* the role of B1 and B2 receptors molecular structures that react to neurotransmitters in connection with the blood-brain barrier. This barrier represents the main obstacle to brain drug delivery. In collaboration with **Dr. David Fortin** and **Martin Lepage**, the researcher demonstrated innovativeness by combining both classic and innovative magnetic resonance imaging technologies. The latter involving a contrast agent targeting the B2R receptor. The team managed to determine when and where these receptors are present, enabling specialists to target them for brain drug delivery.

INFLAMMATION-PAIN AXIS

Towards Pain Relief Without Side Effects

Although they are effective in pain reduction, opioid treatments cause various side effects, such as addiction. **Louis Gendron** is focusing on the Delta receptor, a therapeutic target that causes fewer side effects and induces analgesic effects to alleviate inflammatory, neuropathic, cancer and migraine-related pain. He has *identified* several proteins that interact with the Delta receptor in the brain. The identification of these proteins represents a crucial step in the development of analgesics to treat chronic pain with little or no side effects.

MOTHER-CHILD AXIS

GESTE: A Cohort Generating Interesting Leads

Analyses of the data collected by the GESTE birth cohort, created by **Larissa Takser**, have made it possible to establish a link between prenatal acetaminophen exposure and a child's brain development. The researcher has *identified* an association between the presence of acetaminophen, measured in the first feces of the newborn, and an indirect effect on increased hyperactivity in the child. This finding underlines the relevance of conducting more specific analyses, in order to conclude whether the drug should be contraindicated during pregnancy.

HEALTH: POPULATIONS, ORGANIZATION, PRACTICES AXIS

Loss of Taste and Smell Associated with COVID-19

Dr. Alex Carignan, Dr. Jacques Pépin and **Dr. Louis Valiquette** were the first to *study* anosmia and dysgeusia associated with the novel coronavirus SARS-CoV-2. The objective: To confirm whether these symptoms were characteristics associated with people who tested positive for the virus. The researchers observed that nearly 70% of people with the disease presented with partial or complete loss of taste and smell. Their findings were published in the Canadian Medical Association Journal. In the article, the team specified that these symptoms should be used as an indication to test for COVID-19, and that this test should be repeated in people presenting with these clinical manifestations and for whom the first test was negative.

HIGHLIGHTS

A New Scientific Director to Lead the CRCHUS

Dr. André Carpentier has succeeded **Dr. William D. Fraser** as Scientific Director of the CRCHUS. Recognized for his vast knowledge in the fields of diabetes and endocrinology, in recent years, Dr. Carpentier has contributed to several type 2 diabetes-related discoveries that offer hope for more effective treatments for this disease. His wealth of experience will enable Dr. Carpentier to successfully lead the Centre into the future. Congratulations!

The CRCHUS, Offering HOPE for 40 Years!

The year 2020 marked the CRCHUS's 40th anniversary. For the occasion, the Centre showcased its researchers, their partnerships and the health-related discoveries that have emerged over the past four decades. A museum exhibit is in the works to explain in a simple and insightful way how the CRCHUS relies on collaboration and innovation to better understand and resolve health and social services issues. A series of capsules, featuring spokesperson Jean-Luc Mongrain, were also produced to highlight the importance of research in people's lives. The capsules were broadcast on the RDI channel.

A source of hope for patients, researchers' knowledge has contributed to the evolution of health-related research across Québec and around the world since 1980.

THE NEXT GENERATION IS ACTIVELY INVOLVED

Committees that Are Making Things Happen!

The Health: Populations, Organization, Practices research axis saw the emergence of its first student committee. A great initiative by the next generation, the committee's mandate is to represent the students of the axis and to encourage their participation and involvement in the scientific community.

Nothing can stop the Diabetes, Obesity and Cardiovascular Complications research axis student committee. In spite of the COVID-19 pandemic, committee members organized several networking, learning and training activities.

When Art Meets Science

The new *Exprime-toi pour la santé!* (Express yourself for health!) event, set up by the Health: Populations, Organization, Practices axis combined art and science in a show intended for the general public. The show featured the stories of people living or having lived with a physical or psychological health disorder, using various means of artistic and scientific expression, such as visual arts, poetry and dance. Congratulations to **Alexandra Chapdelaine** who orchestrated the whole thing!

PATIENT PARTNERSHIP

For the Advancement of Knowledge

At the CRCHUS, patient partners are actively involved in research. In conjunction with the researchers and their teams, they contribute to the future of research. Several of them sit on the Patient Partner Strategic Committee, which oversees the implementation and coherent supervision of the patient partnership. Others work with research teams in order to share and make the most of their experience with a physical, psychological or psychosocial health condition. They are true experts of what it is like to live with a disease.

Firmly believing in the value of research and in the resulting social responsibility, patient partners want to ensure that users' needs are heard. Together, they wish to demystify research in the population's mind, transforming it into a widespread and accessible culture. To fulfil their mission, over the past year:

- They helped define research priorities by taking part in the conceptualization of the research question, the methods used, the measuring instruments and the recruitment strategies;
- They took part in discussions with the research teams to ensure that research efforts result in concrete applications based on fundamental knowledge;
- They discussed the keys to success that will increase the studies' feasibility;
- They contributed to the public outreach of research.