

Clinical, Health Services and **Population Health**

A Research Platform Strategy May 2016 The World Health Organization defines health as the "complete state of physical, mental and social well-being, and not merely the absence of disease or infirmity."

Health is fundamental to a good quality of life, and a healthy society is essential for economic development and prosperity. Healthy societies require a strong health care system, but health care is only one component of good health.

Vision for a healthy Alberta

Our vision is for an Alberta where evidence-informed policies promote healthy choices and prevent illness and injury; where health care is of high quality and its delivery is efficient, sustainable, personalized and equitable; and where novel, locally developed products and services capture health and economic benefits for citizens.

The University of Calgary has a strong track record of achievement in interdisciplinary health research and training and has made substantial investments in basic research. This document presents our *Clinical*, *Health* Services and Population Health Research Strategy. This research strategy complements the university's four health-relevant strategic research themes – Brain and Mental Health; Engineering Solutions for Health: Biomedical Engineering; Human Dynamics in a Changing World; and Inflammation, Infection and Chronic Disease – all of which identify content-specific areas for future research. This strategy specifically concerns research that will cross-cut the strategic themes clinical research, research on health services and systems, and research on the social, cultural and environmental factors that affect health populations – focusing on content areas identified within the four themes and leveraging our strengths in basic research.

The strategy identifies key enablers and critical partnerships that will propel our university to achieve its *Eyes High* goals and to realize

our vision for a healthy Alberta. Key enablers include infrastructure and human capacity that will support clinical, health services and population health research. Key infrastructure includes a world-class unit for the design and conduct of clinical trials; a coordinated campus-wide investment in state-of-the-art bioinformatics and visualization; and capacity for driving health-related behaviour change and evidence-informed practice for clinicians, patients and the public. The Office of the Vice-President (Research) will lead and coordinate the implementation of the strategy.

The University of Calgary has a long and successful history of health research collaborations within and outside the institution. The *Clinical, Health Services and Population Health Research Strategy* will leverage and strengthen our **confederation of scholars** to deliver cross-cutting studies that carry ground-breaking discoveries from the bench to society — achieving our vision for a healthy Alberta.









Research focus

The Clinical, Health Services and Population Health Research Strategy focuses on clinical research, research on health services and systems, and research on the social, cultural and environmental factors that affect the health of populations as defined by the Canadian Institutes for Health Research (CIHR).

CIHR classifies health research into the following four pillars:

- 1. Biomedical research
- 2. Clinical research
- 3. Health services research
- 4. Social, cultural, environmental and population health research

Pillars 2-4 are the focus of our Clinical, Health Services and Population Health Research Strategy, and are described in more detail in the figure on the following page.

Although the *Clinical, Health Services and Population Health Research Strategy* focuses on the needs of pillar 2-4 scientists, its success is critically dependent on new discoveries from biomedical scientists. Similarly, the success of biomedical scientists depends on linkages to pillar 2-4 scientists who can translate their basic discoveries into clinical and public health practice. By strengthening such linkages, the *Clinical, Health Services and Population Health Research Strategy* will benefit researchers in all four pillars and across all four of the University of Calgary's health-relevant strategic research themes. The University of Calgary is uniquely positioned to make an impact in these three research pillars. We benefit from a strong community of clinical trial researchers, access to world-class health data from a universal health care system, an outstanding cadre of population and public health scientists, and a diverse range of multidisciplinary researchers across campus with health-related expertise. The *Clinical, Health Services and Population Health Research Strategy* will enhance the capacity of pillar 2-4 scientists at the University of Calgary to capitalize on the pipeline of pillar 1 discovery from Calgarybased basic scientists.

The University of Calgary's recent strong performance in national granting competitions reflects our momentum across all four pillars. In the 2015 Canadian Institutes for Health Research Foundation Scheme competition, our scholars received 10 grants for a total of \$19.7M, tying for second place nationally for the number of principal investigators who received Foundation grants. Our performance in the Natural Sciences and Engineering Research Council's competitions has been similarly strong, with the overall success rates doubling over the past five years.

Clinical research	Research with the goal of improving the diagnosis, and treatment (including rehabilitation and palliation), of disease and injury; and improving the health and quality of life of individuals as they pass through normal life stages.
Health services research	Health systems and services research aims to streamline delivery of care by improving the organization, regulation, management, and cost-effectiveness of systems in order to enhance health and quality of life of all Canadians.
Population health research	Population health research studies factors that are external to (and often upstream of) the health care system, especially "determinants of health" such as income, socioeconomic status, education, working conditions, early development, physical environments, nutrition physical exercise, and culture.

Calgary's entrepreneurial spirit, together with the city's tremendous sense of community, offers new opportunities to align health system structure and function with the priorities of patients and citizens, and for innovative partnerships that address the root causes of illness and injury. The University of Calgary has unparalleled opportunities to integrate the clinical and research enterprises through our strong partnership with Alberta Health Services and Alberta's Strategic Clinical Networks, and to link basic and clinical scientists in iterative feedback loops that maximize impact. This competitive advantage will put the University of Calgary at the forefront of personalized patient-, familyand community-centred care, and the community we serve on the path to health in its broadest sense.

Health researchers working in pillars 2-4 may use a variety of methods to answer their research questions.

Clinical trial: The gold standard for assessing the effect of a biomedical intervention (e.g. drug, device, process, cognitive-

behavioural therapy, diagnostic test, etc.), ideally using a randomized or quasirandomized design. Clinical trials are important drivers of economic prosperity and allow Albertans early access to cutting-edge treatments. In addition to studying treatments of established disease, clinical trials can also be used to assess the impact of population and public health interventions that implement preventive measures or target the social determinants of health.

Pragmatic trial: Clinical or community-based studies that examine the effectiveness of an intervention under real-world conditions.

Qualitative study: Research using qualitative methodology to direct the data collection and analysis plan. Methods include ethnographic, naturalistic, anthropological, field, focus groups, or participant observer research. This research emphasizes the importance of studying phenomena or processes in a naturalistic setting, providing critical insight into contextual factors that underpin health and disease. Qualitative research will address the gap between evidence-informed practice and clinical decision-making by informing

the implementation context. Qualitative research can also improve our understanding of organizational and managerial choices and their impact on the sustainability and effectiveness of health care delivery and health system performance.

Cohort study: An observational study where a group of individuals is followed over time to determine an association between one or more exposure variables and an outcome of interest. Cohort studies are essential in identifying risk factors for injury/illness that can be targeted with a prevention strategy to reduce the risk of injury/illness.

Systematic review: Considered the highest form of evidence, systematic reviews synthesize what is already known on a specific topic. By methodically searching the published literature, identifying all relevant publications and synthesizing across these publications, systematic reviews summarize current knowledge and highlights where gaps remain. Meta-analyses can be done where studies are adequately homogeneous to combine all available data.

Economic analysis: Economic evaluation weighs the costs against the benefits of different approaches to treatment, intervention or care for a specific population. Applications include documenting the costs of treatments, measuring the expected benefits, and combining the two to provide a measure of value for money for decision-makers.

Modeling: Mathematical and simulation models of the health care system allow the exploration of innovative alternative managerial policies and procedures that can improve access to care. Tools such as queueing theory, discreteevent simulation and system dynamics modeling are used to analyze the causes of backlogs and bottlenecks in care delivery, resulting in greater efficiency without a reduction in quality.



Research enablers: Infrastructure and human capacity

The university's strategic research platform "Research Enablers" is characterized by a commitment to invest in infrastructure and to engage our academy to advance research.

The *Clinical, Health Services and Population Health Research Strategy* will focus on developing three types of infrastructure that are required for the success of pillar 2-4 research: enhanced supports for the design and conduct of clinical trials; a coordinated campus-wide investment in bioinformatics and visualization; and a focus on building capacity for changing health-related behaviours of practitioners, patients and the public (see figure on facing page). These critical research enablers are a high priority for further investment to propel the University of Calgary towards its *Eyes High* goals.

Other infrastructure will require a more modest financial investment than these essential facilities, but will be important ingredients for achieving our vision. Examples of such infrastructure include support for qualitative researchers (including automated transcription equipment and visualization software for analyses of text and images) and common space to conduct research studies in busy clinical areas, including simple equipment like barcode readers and centrifuges. Our outstanding faculty and staff are the key to success in the implementation of the *Clinical, Health Services and Population Health Research Strategy.* We will leverage the breadth and depth of expertise from our scholars across campus to build human capacity for increased impact in pillar 2-4 research.

Education and capacity-building

Excellence in interdisciplinary mentorship, collaboration, and trainee activities across faculties and institutes is essential to achieving a strong training environment in clinical, health services and population health research.

We will capitalize on the rich opportunities for undergraduate and graduate education and postdoctoral training at the University of Calgary to deliver outstanding interdisciplinary programs that train the researchers of the future.

Clinical trials infrastructure

Designing, conducting, and leading clinical trials requires methodological and biostatistical support and an efficient database infrastructure. We will invest in enhanced support for investigators, focusing on trial methodology and biostatistics, as well as further improving processes for legal and ethical review. The resulting performance gains will lead to additional peerreviewed funding, overhead revenues and new opportunities for commercialization — and ensure that Albertans have access to the latest innovative treatments.

Bioinformatics and data visualization It is estimated that 90 per cent of the data in the world has been created in the last five years. To capitalize on the "big data" revolution, clinical, health services, and population health researchers all need access to cutting edge platforms that collect, store, analyze and manage complex datasets as well as help them to understand and communicate their findings. Our investment in these systems will create new knowledge and increase productivity for health researchers across campus, and will be synergistic with our investment in enhanced clinical trials infrastructure.

Tools for behaviour change Changing the behaviour of individuals, practitioners, and populations is an increasingly important element of health research. We will invest in facilities and tools that help researchers to design interventions that promote healthy behaviours in individuals and populations as well as optimal health care. Examples include information and communication technologies, as well as other clinical decision support systems. This investment will increase the likelihood of capturing the health benefits of behaviour change, whether in the clinic or in the community.

Strategic recruitment

In keeping with the Strategic Research Plan's principle of "Matching our strengths with opportunities", we will explicitly link our recruitment efforts of health-relevant faculty and expert staff to focus on the strategic priorities outlined in this document. This focus on synergies, priorities and excellence will drive recruitment of outstanding pillar 2-4 scientists to the University of Calgary.

Nurturing interdisciplinary and interfaculty collaborations

Capitalizing on the skills and expertise of University of Calgary researchers to address important health challenges will require initiatives that foster novel collaborations. By providing new incentives (e.g. funding for graduate students co-supervised by researchers from different faculties), removing barriers (e.g. ensuring appropriate academic credit for participating in large interdisciplinary team grants, access to state-of-the-art research support services) and facilitating collaboration (e.g. holding special events that showcase opportunities for cross-faculty collaboration), the *Clinical, Health Services and Population Health Research Strategy* will support the academy to achieve this critical objective. This will build additional capacity for pillar 2-4 research by leveraging the expertise of scholars who have not traditionally participated in health research, but who have the skills needed for progress towards our *Eyes High* goals.

Focusing on "virtuous cycles" that link innovation to implementation

A healthy society requires that innovative ideas and discoveries are promptly identified and evaluated in rigorous pillar 2-4 studies, and that those with promising results are rapidly adapted and implemented by endusers. Success often requires several cycles of innovation, evaluation and implementation, and requires a deliberate focus on linking basic scientists, pillar 2-4 researchers and end-users throughout the process. Alberta's Strategic Clinical Networks offer an ideal mechanism to achieve this objective. The proposed phase 1 clinical trials facility (see facing page) is another example of a mechanism for facilitating the rapid evaluation and implementation of made-in-Calgary discoveries.

Policy, processes, and training

The University of Calgary is an attractive place to do health research with human subjects, benefiting from a highly skilled workforce and cost-efficient system. Although research policies and processes have improved substantially in recent years, further improvement will lead to increased productivity and clinical trials revenue. We will leverage these improvements in policy and processes by providing state-of-theart training for faculty and research staff, including partnership with policymakers from governmental and international organizations.

Supporting our leading researchers with strategic funding competitions

To be competitive for peer-reviewed funding, researchers must demonstrate institutional support and a track record of successfully completing clinical trials and other evaluation research designs, and provide pilot data to support the intervention that they plan to test. Industry sponsors are often willing to partner with investigators to generate such data, provided that co-funding is available. We will use funds from the recently established Clinical Research Fund to support pilot grants (up to \$50,000), and major grants (up to \$250,000) emphasizing those with a higher chance of attracting industry partnerships and ultimately successfully competing for peerreviewed funding and/or changing clinical practice. Smaller seed grants (up to \$10,000) will also be available, focusing on support for promising junior investigators, or those with high-risk, high-reward proposals.

Fostering community engagement

The University of Calgary already has considerable capacity for research in pillars 2-4. We will deliberately grow and consolidate the critical mass of scholars responsible for this enterprise, leading to further engagement of the University of Calgary community and increased productivity. Research in the identified strategic research themes cannot succeed without full and active participation from individuals, families and the broader community. Our community will ensure the relevance and value of such research by serving as essential research partners, with a voice that informs the questions to be studied and the methods that should be

Clinical trials: the gold standard for evidence on interventions that can provide a lifeline for Albertans

Clinical trials are research studies designed to test interventions in humans (e.g. vaccines, drugs, devices, models of care, preventive interventions). Clinical trials achieve a range of objectives: early assessment of toxicity and safety (phases I and II), testing interventions in large populations to gain regulatory approval (phase III) and assessing longer-term safety (phase IV). Clinical trials can also be used to test the impact of interventions aimed at preventing disease, enhancing health service delivery or improving public health, including changes to policy.

Leading and participating in clinical trials directly benefits the University of Calgary by furthering its educational and academic mission — and also by attracting funding from industry sponsors and peer-reviewed agencies that in turn increases institutional overhead and the university's revenue from federal contributions.

Clinical trials benefit the community we serve by allowing Alberta patients early access to new treatments, often years in advance of federal regulatory approval. These experimental treatments can represent a lifeline for patients who have exhausted conventional health options, and will help to increase the profile of our health care system.

used. Calgary's residents are highly engaged with the University of Calgary's mission and share our goal of a healthy and prosperous community. We will support novel partnerships across sectors of society, leverage opportunities to work with public institutions such as schools, and foster community engagement through outreach campaigns, public events, and an online portal. Key goals Clinical trials are also a key economic engine that drive investment and employment in Alberta. Finally, once a trial is complete and benefits have been shown, University of Calgary investigators can champion knowledge translation and help to expedite the approvals and funding process — ensuring that our patients have timely access to cutting-edge therapies.

The Clinical, Health Services and Population Health Research Strategy will focus on supporting investigators, enhancing clinical trials learning and scholarship, and fostering engagement between researchers and the Calgary community. It is vital that we expand our scope of clinical trials to include ways to optimize health for young Albertans as improving health starts long before the development of disease. We will also explore the feasibility of a phase I trials facility to expedite first-in-human evaluations of new discoveries from University of Calgary scientists.

The resulting gains in clinical trial performance will lead to return on investment in terms of peer-reviewed funding, additional overhead revenues and new opportunities for commercialization — as well as benefiting our educational mission and building stronger connections to the community we serve.

of this engagement will be to ensure that the research is patient-, family- and communitycentred (maximizing potential health benefits), communicate the benefits of pillar 2-4 research to Albertans, enhance recruitment by linking potential participants with ongoing studies, and support fundraising initiatives to further build capacity for this research.

A cross-cutting research strategy

Unique among Canadian universities, the University of Calgary has invested considerable effort in developing, resourcing and implementing strategies for six university-wide research themes.

Of these research themes, four include a significant component of health-relevant research: Brain and Mental Health; Engineering Solutions for Health: Biomedical Engineering; Human Dynamics in a Changing World; and Inflammation, Infection and Chronic Disease. These four university-wide strategies each include three to five grand challenges on which the university focuses its research efforts, including recruitment, strategic investments and infrastructure support.

The *Clinical, Health Services and Population Health Research Strategy* identifies the areas of intersection between these health-relevant priority themes, and research done in pillars 2-4 — whether in the clinical, health services or population health domain and regardless of the specific research design used. This strategy cross-cuts the four health-relevant strategic research themes to identify the priority investments, enablers and partnerships to address these critical and challenging health issues, which in turn are consistent with the Alberta Health and Research Innovation Strategy (AHRIS).

The Clinical, Health Services and Population Health Research Strategy also aligns with the Cumming School of Medicine's Precision Medicine Strategy, which focuses on ensuring that each patient receives the right treatment at the right time and in the right setting — all key goals of pillar 2-4 research. The Clinical, Health Services and Population Health Research Strategy supports — and is supported by — five of the university's six strategic research platforms: Analytics and Visualization, Commercialization, Knowledge Translation, Research Enablers, and Policy Creation.

This continued emphasis on matching our strengths with opportunities will leverage the important work already done by the confederation of scholars and drive continued progress towards the University of Calgary's vision.

Strategic research strategies



Desired outcomes

Achieving our vision for a healthy Alberta will require a sustained effort from our scholars. We must keep the ultimate goals in sight, but we will also require intermediate goals to gauge our progress and adjust our course. Our ultimate goals are to improve health, health equity, health system efficiency, and the quality of the patient experience for Albertans, while reaping the benefits of good health and new health-related products and services. To assess progress, we will focus on intermediate outcomes such as traditional academic metrics (publications, competitive research funding, number of graduate students and postdoctoral scholars trained but also clinical trial revenue (a proxy for research competitiveness and the key to giving Albertans access to cuttingedge prevention strategies and treatments). We will also measure progress by the number of successfully commercialized products and services, progressive policies that improve the upstream determinants of health, and new and growing interdisciplinary collaborations that will drive the discoveries of the future.



Confederation of scholars

Researchers at the University of Calgary have a broad range of expertise that is relevant for clinical, health services and population health research.

The Cumming School of Medicine is an important contributor to this effort, with more than 200 researchers working in these disciplines, 60 endowed chairs/professorships, and more than 500 postdoctoral scholars and graduate students. However, the Cumming School of Medicine accounts for only a portion of the University of Calgary's potential for impact in pillar 2-4 research. Improving health is a complex endeavour that requires multidisciplinary teams for success.

The University of Calgary has considerable strength across diverse faculties with healthrelevant expertise — including the faculties of Arts, Environmental Design, Kinesiology, Nursing, Science, Social Work, and Veterinary Medicine, the School of Public Policy, the Schulich School of Engineering, the Haskayne School of Business, and the Werklund School of Education. The breadth of expertise within the confederation of scholars will allow us to design, implement and evaluate novel solutions that improve the health of Albertans.

A key goal of the *Clinical, Health Services and Population Health Research Strategy* is to capitalize on the creativity, knowledge and skills of scientists who may not see themselves as health researchers, but who have the expertise to make important contributions. The enablers section (see page 8) describes initiatives that will facilitate this critical objective.

Leveraging prior investments

Achieving our vision for a healthy Alberta will require leveraging all available resources and capitalizing on our strong partnerships capitalizing on our strong partnerships both inside and outside the province.

The University of Calgary has made considerable investments to support pillar 1 science, and multiple faculties have made considerable investments in cutting-edge infrastructure that enables fundamental scientific discoveries. In addition to our demonstrated strength in pillar 1, several of the University of Calgary's faculties provide infrastructure that supports research across pillars 2-4, such as the Cumming School of Medicine's research institutes. In addition to these faculty resources, the university provides multiple facilities and resources to support clinical, health services and population health research. These include:

The **Clinical Research Unit (CRU)** supports data acquisition, data management and analytics for all types of study designs involving primary and secondary health data, de-identified and identifiable data elements in highly secure informatics environments, and Health Canada compliance for registered clinical trials. The CRU team includes data scientists, programmers, analysts, project managers and data research assistants. Data platforms supported include REDCap, iDataFax, and customized solutions for visualization and clinical decision support. The Calgary Centre for Clinical Research (CCCR) is a clinical trials and epidemiology coordination facility, providing multifaceted support for clinical trials. In conjunction with the physical infrastructure of the Heritage Medical Centre for Clinical Research (HMRC), Calgary researchers are able to conduct large national and international clinical trials at the University of Calgary.

The Health Technology Assessment Unit is comprised of a multidisciplinary research team committed to supporting evidenceinformed policy provincially, nationally and internationally. The team critically appraises clinical, economic, patient, provider and system evidence and provides policy options that are feasible, rational and reasonable for health decision-makers.

The **Research Pharmacy** is a secure, temperature-monitored pharmacy handling clinical trial medications exclusively and supports industry- and investigator-initiated research with dedicated pharmacy personnel experienced in the conduct of clinical trials across Calgary.



The Roger Jackson Centre for Health and Wellness Research has advanced the science of human movement, sport injury prevention, health and wellness through true interdisciplinary studies in nutrition, exercise physiology, epidemiology, rehabilitation, motor control, psychology and sport medicine. Partnership with the University of Calgary's Sport Medicine Centre and multiple community stakeholders facilitates the capacity for studies evaluating health and wellness interventions in a wide range of populations.

University of Calgary researchers also lead or co-lead multiple organizations that do cutting-edge research in pillars 2-4, including the following:

The Interdisciplinary Chronic Disease Collaboration (ICDC — icdc.ca) and its sister organization the Alberta Kidney Disease Network (AKDN — akdn.ca) do internationally recognized research on models of care for chronic kidney disease, diabetes, and cardiovascular disease.

The Alberta Provincial Program for Outcome Assessment in Coronary Heart Disease (APPROACH — approach.org) is an internationally leading cardiac outcome database system and health outcomes research team. The International Methodology Consortium for Coded Health Information (IMECCHI – imecchi.org) is led by the University of Calgary.

A newly-awarded WHO Collaborating Centre in Health Informatics and Disease Classification.

The **W21C Research Program** (w21c.org) drives multifaceted research and innovation for health system safety and quality, including support and tools for better clinical decision-making.

The **PACER program** is engaging patients in the health research and innovation enterprise.

Partnership with Citizens Impacting Healthcare in Alberta is a citizen group that co-led the planning of the recent IMAGINE Project (imagineproject.net) for patient- and family-centered care.

The Calgary Diabetes Research Working Group and Calgary-based collaborators in the Alliance for Canadian Health Outcomes Research in Diabetes (ACHORD – achord.ca).

The Alberta Bone and Joint Institute (albertaboneandjoint.com) focuses on novel models of arthroplasty care and outcomes monitoring across Alberta.



Key Partners

This is an exciting time for health research in Alberta. Alberta was the first province to establish a federally funded Strategy for Patient Oriented Research (SPOR) Support Unit, and Alberta researchers benefit from the growing momentum behind Strategic Clinical Networks within Alberta Health Services, harmonized provincial research ethics processes, and a strong relationship with Alberta Innovates-Health Solutions. The strategy capitalizes on strong links to these and other key external partners.

Alberta Health Services (AHS) is the primary health services provider in Alberta and a critical partner for pillars 2-4 research. AHS provides researchers with timely access to health data, patients, specialized facilities, medical tests, training and recruitment opportunities, and guidance on the critical health issues facing the Alberta health system. In addition, AHS established and serves as the home for Alberta's 13 Strategic Clinical Networks.

Alberta Strategic Clinical Networks (SCNs) are composed of researchers, physicians, patients and managers and focus on specific clinical areas, and are now responsible for the delivery of the majority of health care in Alberta. SCNs offer tremendous opportunities for researchers in pillar 3 to develop, implement and evaluate evidence-informed health improvement strategies in partnership with clinicians. SCNs also have considerable potential to support novel studies in pillars 2 and 4, which has not been fully utilized to date. University of Calgary scientists already serve as the research directors for several SCNs and this strong partnership will be critical for success of the strategy.

Alberta Health (AH) is the provincial health ministry, and a critical source of worldclass health data from the universal health care system. AH is a valuable partner for researchers doing policy-relevant research and studies on health services or population health, and AH staff have broad expertise in the analysis and linkage of administrative health data. University of Calgary researchers also collaborate with other Alberta government ministries. Alberta Innovates-Health Solutions (AIHS) is a publicly funded, board-governed corporation that funds and supports health research and innovation activities across the province.

Alberta SPOR Support Unit is a specialized, multidisciplinary research service centre led by AIHS that provides key infrastructure needed to do work in pillars 2-4, including support for data access, research methods, training, and knowledge translation. University of Calgary scientists lead or co-lead three of the seven platforms within the unit, and the enablers in the *Clinical, Health Services and Population Health Research Strategy* have been carefully chosen to be synergistic with the provincial infrastructure.

Alberta Clinical Research Consortium (ACRC) is a collaboration between researchers and administrators from academic institutions and Alberta's health care systems. Its goal is to reduce barriers and streamline processes for conducting pillar 2-4 research in Alberta. University of Calgary researchers play a leadership role in ACRC, which will help to ensure continued progress towards improving our own policies and procedures. University of Alberta and University of Lethbridge: University of Calgary researchers benefit from close collaborations with colleagues at the two other research-intensive universities in the province.

The City of Calgary: The Urban Alliance (UA) is a strategic research partnership between The City of Calgary and University of Calgary to facilitate collaborative, crossdisciplinary research and knowledge transfer that addresses major issues facing Calgary. University of Calgary researchers collaborate with City practitioners, gain access to City data to carry out research on the health and well-being of Calgarians, and engage with numerous community-based partner organizations (community associations, service organizations, NGOs, etc.).

Innovate Calgary is a full-service organization that fosters the advancement of technology business for researchers, entrepreneurs, technology companies and investors. Innovate Calgary is the technology transfer and business incubation centre for the University of Calgary.



The University of Calgary is a leading Canadian university located in the natio

The University of Calgary is a leading Canadian university located in the nation's most enterprising city.

The university is making tremendous progress in our journey to become one of Canada's top five research universities, where research and innovative teaching go hand in hand, and where we fully engage the communities we both serve and lead. This strategy is called *Eyes High*, inspired by the university's Gaelic motto, which translates as 'I will lift up my eyes.'

As part of the roadmap to achieve these goals, the university's Strategic Research Plan identifies six research themes that will leverage our distinct capabilities while addressing the unmet needs and challenges of our society as a whole:

- Energy innovations for today and tomorrow
- Engineering solutions for health: biomedical engineering
- Brain and mental health
- Infections, inflammation and chronic diseases in the changing environment
- New Earth-space technologies
- Human dynamics in a changing world: smart and secure cities, societies, and cultures

The Clinical, Health Services and Population Health Research Platform Strategy directly supports the implementation of these research themes.

Learn more about the University of Calgary's research initiatives by contacting the Office of the Vice-President (Research) at vpr@ucalgary.ca



ucalgary.ca/research