Dr. Amir Ravandi

Research to Provide Better Quality of Life and Heart Function After a Heart Attack

Proudly Supported by Manitoba Blue Cross
MISSION
To promote and fund scientific, educational and other activities to improve the health and well-being of Manitobans, focusing on support of new researchers.

VISION
To continue to be an important source of support for health research and education, in collaboration with other Manitoba organizations.

VALUES
The values of the MMSF are rooted in its history of the Manitoba Medical Service (MMS) which was created in 1943 to provide medical coverage for all Manitobans at reasonable fee rates and was a precursor to Medicare. When Medicare was established in Manitoba, the MMS was no longer needed. Dedicated Manitoba Medical Service Members generously donated their investment in the MMS to create a legacy through the Manitoba Medical Service Foundation in 1971, with a mandate to fund and promote health research and education in Manitoba.

Today, because of the ongoing and generous funding and support from Manitoba Blue Cross, the MMSF continues to provide funding for the advancement of scientific, educational and other activities, to improve the health and well-being of Manitobans.

The MMSF endeavors to follow its roots by:

• Being committed to community through inviting both members of the lay public and health professionals to be volunteer members of the Board, and to engage their wisdom in selecting award recipients
• Providing mentorship and feedback through direct engagement of applicants, by participating in the Foundation’s unique grant review process
• Selecting the highest caliber of new researchers for promotion and grant support
• Developing collaborative partnerships with other organizations
• Providing funding to advance health-related research projects for the benefit of Manitobans and the world
• Ensuring our processes are effective and accountable, to sustain our mission for future generations

Since 1971, the Manitoba Medical Service Foundation has provided over $18 MILLION towards furthering health-related research and education in Manitoba.
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Cover Images: R-L: Dr. Amir Ravandi (Principal Investigator); Dr. Rakesh Chaudhary; David Chan; Stephanie Caligiuri; Devin Hasanally.

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List of Abbreviations

CCMB — CancerCare Manitoba  
MBC — Manitoba Blue Cross  
MICB — Manitoba Institute of Cell Biology  
MICH — Manitoba Institute of Child Health  
MHRC — Manitoba Health Research Council  
PHAC — Public Health Agency of Canada  
SBRC — St. Boniface Hospital Research Centre  
U of MB — University of Manitoba  
U of WPG — University of Winnipeg  
WF — The Winnipeg Foundation  
WRHA — Winnipeg Regional Health Authority
Executive Committee

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Dr. Peter Cattini
Vice-Chair

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Dr. John Wade
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Mr. Andrew Yorke
Mr. Mike Mager
Citizen-at-Large
New Chair Announced:
Dr. Lindsay Du Val

The Board of Directors of the Manitoba Medical Service Foundation (MMSF) is excited to announce the appointment of Dr. Lindsay Du Val as our new Chair of the Board. She comes to us as a long-time medical professional specializing in Otolaryngology, as a friend of the research field, and most recently, as our Board Vice-Chair. Dr. Du Val has served the Manitoba Medical Service Foundation as a Director since 2003 and as Vice-Chair since 2010. She has extensive knowledge of MMSF standards and granting procedures. She has demonstrated her capacity to effectively manage organizational growth and to provide leadership to our team.

Message from the MMSF Board Chair
Dr. Lindsay Du Val

The Manitoba Medical Service Foundation (MMSF) was able to fund 64 per cent of the applications that were submitted. The MMSF acknowledges the generous support of Manitoba Blue Cross, which not only annually finances all administrative costs, but also made a significant donation towards the 2012 funds available for granting. This allowed us to continue to apply 100 per cent of our revenue towards grants.

The unique process of in-person interviews and presentations has again enabled us to give priority to new investigators starting a health-related research career in the Province of Manitoba. The MMSF also proudly supports research through the Bachelor of Science in the Faculty of Medicine and Faculty of Dentistry summer student programs, as well as providing multiple undergraduate and graduate student research awards.

The year 2012 brought about many changes to the Manitoba Medical Service Foundation Board. Mr. Allen Rouse retired after serving 41 years on the Board – 36 of these as Board Chair. The year also marked the retirement of several long-serving Board Members – Dr. Nick Anthonisen, Mrs. Isabel Auld, Mr. Gordon Holland and Ms. Patricia McCallum. The MMSF thanks each of them for their years of dedicated service. We also mourn the sudden passing of Board Member Mr. Jerry Kruk and extend our sincere sympathy to his family.

Five new Board Members have joined us. They include Dr. Glen Bergeron, Dr. Jerry Gray, Canon Tony Harwood-Jones, Dr. Klaus Wrogemann and Mr. Michael Mager. We welcome their collective expertise.

We respectfully acknowledge the past and current collaborative arrangements with The Winnipeg Foundation, the Manitoba Medical College Foundation, the Health Sciences Centre Foundation, the Manitoba Institute of Child Health, the Manitoba Health Research Council, the University of Manitoba, the St. Boniface Hospital Research Centre and, of course, Manitoba Blue Cross.

Thank you to Executive Director Dr. Greg Hammond, Assistant Executive Director Dr. John Wade and all members of the Board of Directors for their dedication, service and commitment to the MMSF.
Mr. Allen Rouse
MMSF Chairman Retires
After 36 Years

Mr. Allen Rouse, one of the original founding members of the Foundation, is retiring after 41 years of diligently and faithfully serving the MMSF as a volunteer Board Member. For 36 of those years he served as its respected Chairman. His guidance, leadership, and dedication to volunteerism carried the foundation forward from inception in 1971 into the 21st Century.

Allen worked diligently to lead and serve the Foundation, for the benefits of all of Manitobans, through the development of the MMSF, which funds health research and education. Even though Allen is retiring from the MMSF, he will continue to volunteer in the community at large.

Allen’s dedication to the community at large extends far beyond the MMSF. Allen was a volunteer member of several organizations including the YMCA, and is a member of the Legion and Kiwanis.

In 1986, he received The Martin Bergen Award which recognizes notable individuals for longstanding contributions to society and the community. He has also received the following awards: Canadian Centennial Medal, Kiwanis International Presidents Award, City of Winnipeg Community Award, Order of the Buffalo Hunt and the Sports Excellence Award from the Province of Manitoba. On June 14, 2012, the University of Manitoba presented Allen with the Outstanding Contribution to Research Award in recognition of his commitment and support to promoting health-related research in Manitoba.

It is with great gratitude for his vision and service that we say a fond farewell to Allen and wish him all the best in his future endeavours and retirement.
For almost 40 years, Manitoba Blue Cross has been dedicated to ensuring that Manitobans and their families are well taken care of both at home and out of province through the provision of health and wellness benefits and travel health coverage. As a homegrown company, we take great pride in Manitoba and one of our core values is our commitment to being an involved and supportive member of our community. Through our Colour of Caring program, we have provided financial and volunteer support on both an employee and corporate level to a wide variety of local organizations and programs as a way of giving back to our province and its people. The Manitoba Medical Service Foundation (MMSF) is one of the many organizations that we are proud to support.

Manitoba Blue Cross and the MMSF have grown alongside one another and have a shared history of working together to help improve the health and wellness of Manitobans through the funding of new researchers. By supporting the innovative and diverse health care research happening in our community today, we are opening the door to significant advancements and discoveries for treatment and cure tomorrow. While the seeds may be planted within our borders, the roots of these research projects run deep and can have a substantial global impact.

The MMSF has funded remarkable researchers over the last four decades whose work we are benefiting from today. By continuing to support this wonderful organization, Manitoba Blue Cross is confident that even more significant breakthroughs will be made in health care research that will lead to improved treatments and outcomes. The work of these dedicated researchers provides us with the hope that even the most impenetrable walls can be torn down.

On behalf of Manitoba Blue Cross, I wish to congratulate the recipients of this year’s grants and awards. Thank you for the significant contributions you are making to the health and wellness of Manitobans and those around us.

Andrew Yorke
President & CEO
Dr. Kristine Cowley
Research to Improve Functional Recovery After Spinal Cord Injury
Multiple sclerosis (MS) is a common disease that can cause permanent disability in young adults. The prevalence of MS in Manitoba is among the highest in the world. Currently, magnetic resonance imaging (MRI) is used for diagnosis of MS. However, it is not readily available in all health centres and it is not helpful in determining the future progression of the disease.

Optic neuritis (ON), inflammation of the optic nerve, is the presenting manifestation of multiple sclerosis (MS) in 20% of the patients. ON will show itself in overt attacks with painful progressive visual loss in one eye. Visual recovery can be complete or partial after the attack, but even patients with complete recovery of eyesight report that colours may appear washed out or desaturated.

Given the provided background, it is possible that determining the green-red colour vision testing in apparently healthy eyes of MS patients (that have never suffered from ON), might help with early diagnosis and also have predictive significance.

This study is proposed to test the hypothesis that colour contrast sensitivity is impaired in eyes of MS patients who are not clinically affected by ON. It can be the initial step to discover a novel tool for early diagnosis of MS and future prognostication.
**Targeting Nicotinamide Adenine Dinucleotide (NAD) in Chronic Lymphocytic Leukemia (CLL)**

Chronic lymphocytic leukemia (CLL) is an incurable disease with the exception of bone marrow transplantation. Most patients requiring treatment do not meet the criteria for transplantation.

To date, conventional modalities used in CLL therapy include nucleoside analogues and alkylating agents and are therefore rather non-specific. Although monoclonal antibodies are currently being used, patients continue to relapse with treatment.

Hence, the development of novel-targeted therapeutic approaches remains a critical goal of CLL research. A novel approach targeting the metabolic enzyme, nicotinamide-phosphoribosyl-transferase (NAPRT), which impedes nicotinamide adenine dinucleotide (NAD) synthesis, may serve as an alternative to conventional therapy in isolation or in combination in the context of CLL.
Novel Strategy Improving the Proportion of Inactive Older Adults Who Reach the Canadian Physical Activity Guidelines to Improve Health and Physical Capacity

Physical inactivity is a leading cause of mortality in the world, and has a significant impact on overall health. Although many older adults are aware of the health benefits related to physical activity, they still fail to exercise regularly. The Canadian Physical Activity Guidelines (CPAG) recommends a minimum of 150 minutes of accumulated aerobic activity per week at a moderate to vigorous intensity. The duration of these guidelines is simple, but when it comes to identifying what moderate to vigorous intensity is even regular exercisers struggle.

The main objective of this study is to determine if learning how to use a pedometer to monitor walking intensity can improve the ability of older adults to identify what is considered moderate to vigorous intensity, and therefore increase the number of older adults that reach the CPAG. Fifty inactive adults 65 years and older will be recruited for this study. Health and functional outcomes, like changes in vital signs and physical capacity, will also be measured.

If our hypotheses are confirmed, this simple intervention could immediately be used on a community level to help older adults reach the CPAG. At a broader level, the information gathered in this study can be used to form strategies that will increase the number of Canadians reaching the CPAG.

$20,000
(MMSF $10,000 / WF $10,000)
Stance and Stand-training for Therapeutic Benefit and Functional Recovery After Spinal Cord Injury

Traumatic spinal cord injury is a life-altering event for over 1,700 persons per year in Canada. In the absence of successful regeneration strategies, research is needed to prevent or minimize the development of secondary complications of living with spinal cord injury, including osteoporosis and the increased risk of leg and hip bone breakage, that are largely thought to be due to the absence of normal weight-bearing activities.

Our lab is interested in investigating the neural basis, and therapeutic benefit of, stance and balance. Keeping those with spinal cord injury above the ‘fracture threshold’ for bone breakage would represent a significant improvement in quality of life, and would also translate into reduced health care and social costs.

This project will develop an adult animal model for stance and stand training after spinal cord injury, and find out whether matched doses of body-weight-supported standing have similar protective effects on bone mineral density and muscle mass as body-weight-supported stepping. This new knowledge can be used to inform rehabilitation strategies during the early stages of spinal injury. Information gathered from this project will also provide the basis for future research to find better ways to maintain stance and preserve musculoskeletal health after spinal cord injury.
Endotracheal intubation is an intricate and critically important clinical skill that medical professionals, respiratory therapists and emergency medical technicians must learn to master. Despite its importance, the assessment of technical skill in performing this procedure is largely informal and non-standardized. The lack of well-developed, reliable and valid measures of technical skill may compromise the ability of clinicians and medical educators to set standards, follow trainee’s progress, and provide functional feedback. Moreover, without reliable and valid measures, it is difficult for educators to assess the effects of any teaching interventions. This project aims to develop feasible, objective and valid measures of laryngoscopy and intubation skill.

In order to meet this aim, we have developed a laryngoscope handle equipped with a 6-directional force-torque sensor that will be used to capture forces and torques applied during repeated attempts of laryngoscopy and endotracheal intubation by participants on an airway simulator. By comparing the data from junior participants to more experienced participants, we hope to observe statistically significant differences that may serve as valid measures of skill.
How Often Are Antibiotics Prescriptions Filled After Children Are Discharged From Hospital?

Bacterial infections like pneumonia, urinary tract infections, and skin infections are a common reason children are admitted to the hospital. Most children admitted with one of these infections stay for only a couple of days. They usually receive antibiotics through an intravenous line (IV) and are then prescribed antibiotics to take orally at home. We know that many people do not take, or give to children, all of the medication prescribed. We therefore plan to look at how often antibiotic prescriptions are filled after children are discharged from hospital with a bacterial infection.

This study may impact care in a couple of ways. If we find out that some children are not receiving antibiotics after discharge, we can try to find ways to improve our discharge instructions explaining why it is important for them to continue to receive antibiotics at home. If we identify certain groups of children who are less likely to get antibiotics after discharge, we may be able to focus our efforts on making sure we help them get their prescriptions filled before discharge. Filling a prescription is only the first step in taking all the prescribed medication. In the future, we hope to do more studies to look at how much medicine children get after their prescriptions are filled.

$20,000
(MMSF $10,000 / MICH $10,000)
The Transcriptional Regulation of Human Endogenous Retrovirus-K in Neurodegenerative Disease

Integrated into human DNA resides thousands of retrovirus-like sequences which comprise nearly 8% of the human genome. Not all human endogenous retroviruses (HERVs) remain silent passengers within our genomes; re-activation of HERVs is associated with many inflammatory diseases. Our research initially highlighted that there is active HERV-K in neurons of patients with amyotrophic lateral sclerosis (ALS). As retroviruses can cause central nervous system damage before the onset of diagnosable symptoms, it is important to understand what cell signals can turn HERVs on and off. Human cells can actively counteract retrovirus replication when aided by inflammatory transcription factors, proteins that are up-regulated by the innate immune response.

We plan to evaluate whether inflammatory transcription factors drive or repress HERV-K levels in human cortical neurons and cell lines chronically expressing the virus. We will also determine whether these inflammatory transcription factors are over-expressed in the HERV-K positive cortical neurons of patients with ALS using advanced tissue imaging techniques. Our findings will provide insight into therapeutic antiviral regimens which could prevent the onset of central nervous system damage and symptoms triggered by endogenous retrovirus activity in ALS.
Role of Cateslytin in the Context of Inflammatory Bowel Disease

Inflammatory bowel diseases (IBD) are chronic, recurrent intestinal disorders, which include Crohn’s disease and ulcerative colitis. The estimated prevalence in Canada is around 500/100,000 persons. These diseases often present in adolescence or young adulthood resulting in a long burden of disease with significant psychosocial, physical and economic impacts. In Canada, IBD represents a public health issue with an estimated cost of $1.7 billion.

The etiopathogenesis of IBD is multifactorial, involving an aberrant immune response in genetically predisposed individuals. However, some patients are resistant to current drugs and all of these agents have adverse side effects, so new agents are in need.

Changes in a protein called chromogranin-A (CgA) are observed in patients with IBD. Due to the strategic location of CgA, that protein may play an important role in immune activation in relation to IBD. This study aims to elucidate a new immunoendocrine pathway, which could ultimately serve as a safe therapeutic target. Our studies will use physiological and molecular tools to identify CgA changes as well as changes in macrophages, a type of immune cell present in the colon that has an important role in inflammation. In summary, we will explore new pathways implicating the CgA during intestinal inflammation that will provide a basis for possible new treatments of IBD.

Dr. Jean-Eric Ghia

- Assistant Professor, Immunology, University of MB
- Assistant Professor, Internal Medicine, University of MB
- Research Scientist, IBD Clinical Research Centre, University of MB

$20,000
Molecular Regulation of Insulin Sensitivity During Skeletal Muscle Differentiation

During skeletal muscle development, precursor cells called myoblasts fuse to form multinucleated myotubes while simultaneously increasing the expression of muscle-specific genes. This process of specialization is largely regulated by the myocyte enhancer factor-2 (MEF2) and serum response factor (SRF) families of transcription factors. Although much has been learned regarding the role of MEF2 and SRF in regulating the expression of muscle contractile genes, the role of MEF2 and SRF proteins in the regulation of muscle insulin sensitivity during development and in post-natal life remains unknown. However, this particular aspect of embryonic and post-natal muscle development may be a critical factor in determining the risk of type II diabetes.

Therefore, the objective of this proposal is to test the central hypothesis that MEF2 and SRF regulate skeletal muscle insulin sensitivity during development and that this molecular pathway becomes dysregulated during states of insulin resistance and type II diabetes. Completion of these studies will uncover new molecular insights into the regulation of insulin-regulated glucose uptake and the dysregulation of these molecular pathways during states of obesity and type II diabetes. Successful completion of these objectives will bring us closer to identifying molecular targets for small molecule drug discovery aimed at treating or preventing type II diabetes.
Investigation of the Impact of Low-Abundance Drug Resistant HIV-1 Variants on Antiretroviral Therapy Outcome by Tagged Pooled Pyrosequencing in HIV-1 Infected Children

Human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) has claimed more than 30 million lives and another 33 million are living with the virus. Since 1996, the use of antiretroviral therapy (ART) has resulted in a dramatic reduction in AIDS-related sicknesses and deaths. However, the emergence and spread of drug resistant HIV viruses to people who have not been exposed to ART treatments threatens to reverse the gains so far made in controlling the epidemic.

In an effort to increase treatment success in the presence of transmitted drug resistance, national guidelines now recommend drug resistance testing for HIV-infected individuals before commencing therapy. However, current major drug resistance testing techniques, Sanger sequencing, cannot consistently detect transmitted drug resistant viruses comprising greater than 20% of the viral population. Advance of more sensitive assays makes it possible to detect low abundance HIV drug resistant viruses. Nevertheless, the role of these variants on ART failure is largely unknown.

We propose to carry out a preliminary investigation using a new sensitive technique, called ultra deep pyrosequencing, on blood samples from 40 HIV infected patients who have developed HIV drug resistance to determine if low abundance HIV drug resistant viruses are correlated to ART treatment failure.
The Role of NIMA-Related Kinase Nek9 in Cancer, Cell Cycle Regulation and Control of Cellular Differentiation

Cancer is the leading cause of death among the Canadian population accounting for 30% of all deaths. Viruses are thought to cause approximately 15% of human cancers so they are useful tools to study cancer development in that they allow those molecular pathways deregulated during cancer formation to be uniquely identified.

We have recently identified Nek9 as a cellular target of the adenoviral oncoprotein E1A. E1A is the immediate early gene expressed following viral infection and its primary role is to activate the expression of other viral genes as well as to initiate the cell growth and division of the infected cell for viral replication to occur.

We hypothesize that Nek9 is important for the regulation of cellular differentiation and E1A interferes with this function of the kinase. The goal of this project is to understand how an oncogene (E1A) modulates the function of the cellular kinase Nek9 and how this relates to cancer and cellular transformation.

The anticipated results will shed an important light on our understanding of how Nek9 and E1A are involved in regulation and deregulation of the cell cycle and cellular differentiation. Because Nek9 is a kinase, it also represents a very attractive therapeutic target and could be an important treatment option for people with a variety of cancers.

$20,000
Effects of Innovative, Technology-Assisted Circuit Training for Dynamic Balance and Mobility; A Community-Based Group Training Program as an Alternate to Out-Patient Rehabilitation Post Stroke: Phase 2 Randomized Controlled Trial

With the aging of the population and the significant decline in mortality and morbidity post-stroke, the absolute number of stroke survivors living in the community will increase in the next 20-30 years. It is therefore reasonable to assume there will be a corresponding increase in the need for various forms of rehabilitation and health care. The activity with the greatest impact on daily living independency is walking, a skill initially lost by as many as 70% of stroke survivors. Stroke patients clearly benefit from intensive and coordinated rehabilitation programs. Adequate well-resourced out-patient therapy, which is relatively inexpensive, is essential to ensure rapid and timely discharge from costly inpatient programs.

This is a proof-of-principle pilot RCT to test the efficiency and effectiveness of treating adults who have suffered a single stroke using the following essential treatment components: community setting, group activity program, flexible, task-specific, interactive computer-based exercise regime. A control group will receive conventional out-patient rehabilitation.

If effective, this will help in making better choices for maximizing restorative therapies, development of cost-effective community resources, secondary prevention, and lifestyle decisions. Clients would be encouraged and motivated to take an active role in their personal health management, which is a cost-effective way of providing rehabilitation services to the growing number of people with chronic disabilities.

$12,000
Role of Oxidized Phospholipids in Myocardial Ischemia and Reperfusion Injury

A heart attack occurs when there is sudden blockage to one of the arteries that feeds the heart. We have had great advancements in health care that allow for therapies that can rapidly open the artery. Even with the flow of blood restored to the heart, muscle damage continues to occur due to a powerful tissue reaction. We call this phenomenon ischemia-reperfusion injury and it is thought to involve novel lipid molecules that are released from the heart cells. It has been very difficult in the past to identify these molecules in heart muscles since they are present in very small amounts. We have now developed sophisticated technology that allows us to identify and measure these compounds in a very sensitive way.

We propose a study that will identify and quantify new oxidized lipids in an animal model of ischemia-reperfusion injury. To show the mechanism of heart damage, we will study how these novel molecules trigger healthy heart cells to die and how we can inhibit that process. By inhibiting the action of compounds that lead to cell death, we can improve the function of the heart and improve quality of life after a heart attack. Our findings can be used as a novel therapy in preventing heart damage.
The Efficacy of rTMS in Treatment of Obsessive Compulsive Disorder, a Double Blind Randomized Clinical Trial

Despite the disabling nature and burden of obsessive compulsive disorder (OCD), only one third of OCD patients show complete remission of their symptoms with conventional interventions. A new non-invasive method called repetitive transcranial magnetic stimulation (rTMS) has been used for investigation of brain functions. rTMS allows easy and painless central nervous system (CNS) stimulation by inducing magnetic pulses to the brain.

In a preliminary pilot study, we tested the efficacy of rTMS in symptom profiles of OCD patients. All participants were evaluated with Yale-Brown Obsessive Compulsive Scale (Y-BOCS). The average improvement in the Y-BOCS score was 44%. In the current proposal, through a randomized clinical trial, we aim to further evaluate the efficacy of rTMS in OCD in a larger sample for a longer period. In our pilot study, we applied rTMS for two weeks. We hypothesize that longer duration of rTMS treatment will have greater benefit in OCD symptom reduction.

By replicating the results of our pilot study within a double blind controlled design, we will have taken another step forward towards improving the quality of life of OCD patients. To our knowledge, we are the first group who found a promising improvement in OCD symptoms using rTMS.
Youth violent injuries are a source of personal, social, and health care costs. Understanding the risk and protective factors amongst the violent injury patient population is vital to developing health system and social policy interventions aimed at reducing and preventing violent injuries. Canadian studies on youth homicide and violence are far fewer than the United States and no one in North America has used population-based data to study this problem. The Manitoba Centre for Health Policy (MCHP) houses the Population Health Research Data Repository, which can link health care data with a multitude of social databases such as education, child welfare, housing, justice, and registries like vital statistics. This provides the opportunity to use a population-based data approach and determine risk and protective factors that have not yet been examined.

The objective of this study is to determine the individual and community-level risk and protective factors for homicide and violent injury hospitalization amongst youth in Winnipeg, with an emphasis on socio-economic status. This will enable evidence-based emergency department care for the prevention of youth violence in Winnipeg, supporting a future clinical intervention program. Moreover, the results will support future policy recommendations targeting both individual and social risk factors to reduce the burden of youth violent injury and homicide in Winnipeg.

$20,000
(MMSF $10,000 / WF $10,000)
Chronic kidney disease (CKD) is a major public health problem. Manitoba’s aboriginal population suffers from high rates of CKD and also has the highest rates of kidney failure (KF) requiring dialysis in Canada.

We have previously developed a risk equation (Kidney Failure Risk Equation- KFRE) that predicts the risk of KF in patients with CKD. The KFRE was developed in CKD patients from Ontario, and has proven to be accurate in patients from British Columbia. However, the accuracy of the KFRE in Manitoba’s aboriginal CKD population remains unknown.

In this study, we will test the performance of the KFRE in predicting the need for dialysis in Manitoba’s aboriginal population. If the equation is proven accurate, we can then use it in our clinics and help optimize the treatment of patients with CKD.
The aim of this study is to establish a lifetime incidence of various forms of liver disease in originally healthy men and to determine the association between metabolic syndrome and non-alcoholic fatty liver disease (NAFLD).

The Manitoba Follow-up Study (MFUS) is a truly unique resource, consisting of prospectively collected health data on 3,983 air force men followed for the duration of their lifetime. This data is well-suited to determine the lifetime risk of NAFLD and other liver diseases, liver disease-related mortality, prevalence of various clinical features of metabolic syndrome, and the relationship to hepatic diseases.

The evaluation of these findings together with clinical features (morbidity, related conditions and complications) is essential for designing specific public health programs, which is particularly important now as population obesity reaches epidemic proportions.
Strokes result from the sudden stoppage of blood supply to a brain region, resulting in the death of neurons and other cells. When patients arrive to the hospital with symptoms of a stroke, they undergo computerized axial tomography scanning (CAT scan). In many cases, it is not possible to view changes in the brain from the stroke. This makes it difficult to differentiate a stroke from conditions that can cause similar symptoms. As a result, clinicians often make a reasonable assumption that a stroke has taken place and begin treatment. The identification of a stroke marker from blood samples could complement appropriate management of these patients. Moreover, identification of a blood test would enable us to study the progression of the stroke-induced changes in the brain tissue over time.

A molecular marker has been identified from blood samples of stroke patients at both the Health Sciences Centre and St. Boniface Hospital. Tests were developed to report the results within 15 minutes of blood collection. The next step is to optimize these test protocols using small volumes of blood in automatic machines (auto-analyzers) close to the emergency department. The results from nearly 100 stroke and the same number of control patients will be analyzed to further verify the practical use of the test.
For many years, the McLaughlin Foundation has funded senior medical residents or completing residents with research fellowships to facilitate their advancement of research skills. Being appointed a McLaughlin Fellow has become a very prestigious recognition. In 2000, the McLaughlin Foundation decided to discontinue its continuing program and, in doing so, granted Canada’s medical schools a lump sum payment intended to continue a program of clinical research development for senior/graduating residents. The University of Manitoba was granted a one-time $500,000 payment.

This endowment would allow an award of $25,000 annually, which is half of a senior resident’s salary. The Manitoba Medical Service Foundation (MMSF) made the decision in May 2002 to match this award, upon annual MMSF Board approval, to allow an award of $50,000 each year to a deserving resident showing promise of an academic career with research activity.

In 2012, Dr. Christine Fedorow, Department of Anesthesia & Perioperative Medicine at the University of Manitoba, was awarded the fellowship for the study of “Fibrinogen and Bleeding in the Cardiac Surgery Patient”.

$50,000
(MMSF $25,000 / U of MB $25,000)
Richard Hoeschen Memorial Award

Sponsored by the Manitoba Medical Service Foundation and St. Boniface Hospital Research Centre

$4,000
(MMSF $2,000 / SBRC $2,000)

This award was divided between the following four candidates:

Dr. Benedict Albensi
Department of Pharmacology & Therapeutics in the amount of $1,000 to support Ryan Dale’s B.Sc. (Med.) project entitled “Use of diffusion MRI technique as a Tool in the Early Detection of Alzheimer’s Disease.”

Dr. Paul Komenda
Department of Internal Medicine in the amount of $1,000 to support Yiyang Zhang’s B.Sc. (Med.) project entitled “Accurate Bedside Clinical Assessment of Hypersensitive and ‘Symptomatic’ Hypotensive Patient’s Intravascular Volume Status With Hand-Carried Ultrasound Devises in Hemodialysis and Peritoneal Dialysis Clinics.”

Dr. Andrew McKay
Department of Surgery in the amount of $1,000 to support Jonathon Broughton’s B.Sc. (Med.) project entitled “Determining the Natural History of Cystic Pancreatic Neoplasm.”

Dr. Claudio Rigatto
Department of Internal Medicine in the amount of $1,000 to support Ethan Bohn’s B.Sc. (Med.) project entitled “Predicting Risk of Mortality in Dialysis Patients: Prognostic Value of Simple Chest X-ray.”
The B.Sc. (Med) program was formally introduced in 1948 under the direction of Dr. Joe Doupe. It’s a two year course designed to give medical students an opportunity to engage in original research, either basic or clinical, under the supervision of a member of the Faculty. The specific aim is to develop skills in experimental design, hypothesis testing, critical evaluation of data, and the effective communication of results. The program runs for 13 weeks during the summer break after years one and two of medical school. All students receive stipendiary support, presently $5,000. The MMSF is a major contributor to the support of these students in the amount of $45,000 annually which equates to stipendiary support of nine students. Since 1974 the MMSF has contributed over $1,322,000.

Stipend support, from all donors, is distributed evenly between the students enrolled in the program. The B.Sc. Medicine Summer Student Program is supported by many organizations, including the Manitoba Medical Service Foundation, Manitoba Institute of Child Health, Health Sciences Centre Research Foundation, Heart and Stroke Foundation of Manitoba, Canadian Institutes of Health Research, St. Boniface Hospital Research Foundation, The Dr. Paul H.T. Thorlakson Foundation Fund, Manitoba Health Research Council, Leukemia & Lymphoma Society of Canada Studentship, Dean of Medicine and University Manitoba Scholarships, and The Kidney Foundation of Canada Manitoba Branch.

The MMSF is proud of their ongoing support of the program and commends each student on expanding their research skills and knowledge.

2012 STUDENTS SUPPORTED BY THE MMSF
Students are listed in alphabetical order, not as they appear in the photo.
The Bachelor of Science in Dentistry Summer Student Program in the Faculty of Dentistry introduces interested dental students to undertake research during their undergraduate careers. The MMSF is a major contributor of funding for this program.

The specific aim is for students to acquire knowledge and skills in research design and methodology, including experimental design, hypothesis testing, critical evaluation of data, and effective communication of results. Through active participation in a research program, the students are given the opportunity to develop the skills necessary to apply scientific knowledge to dental practices and to develop an interest in dental research. The student carries out research in either the basic sciences or in a clinical area under the direction of a faculty supervisor.

The program lasts for two summer terms, and runs during the summer recess between years one and two and years two and three. All students receive stipendiary support, presently $4,500.

The MMSF currently provides stipendiary support to five students in this program in the amount of $22,500 annually, $4,500 per student. Since 1994 the MMSF has contributed over $340,000.

After the second summer term and completion of his/her research, the student is required to make an oral presentation and to submit a final report. In addition, the program provides an additional qualification to facilitate entry by the graduate into various advanced degree and specialty programs.

2012 Students Supported by the MMSF

Manon Foidart
Rolland Gillies
Carly Hamilton
Victor Le
Lindsay Robertson
Undergraduate and Graduate Student Research Awards
Faculty of Medicine, University of Manitoba
$9,000

The MMSF currently provides eight undergraduate awards to B.Sc. Medicine students and up to four Basic Health Science Awards in Excellence. For details visit www.mmsf.ca

Lara Gushulak
MMSF Basic Health Sciences MSc Award $1,000

Paul Szelemej
Morris Neaman Award $1,000

Blair Peters
Morris Neaman Award $1,000

Daniel Palitsky
Dr. Norman & Margaret Corne Award $1,000

Lauren Garbutt
MMSF/Justice J. Wilson Award $1,000

Stephanie Villeneuve
MMSF/Dr. William D. Bowman Award $1,000

Chris Aiken
MMSF/Dr. Lyonel Israels Award $1,000

Tyler Burnside
MMSF/Dr. F. W. DuVal Award $1,000

Melina Zylberman
MMSF/Dr. Jack C. Wilt Award $1,000
2012 Poster Awards

Canadian Student Health Research Forum

Hesam Movassagh
Rouyang Shi
Carolyn Weiss

Ju-Yoon Yoon
Forough Khadem
Brent Guppy
Research Team Photos

Dr. Neda Anssari (Principal Investigator); Dr. Reza Vosoughi
Diagnostic and Prognostic Significance of Colour Contrast Sensitivity Testing in Patients With Clinically Isolated Syndrome, Multiple Sclerosis Compared to Normal Population

Dr. Allison Dart; Tracey Levesque; Dr. Chelsea Ruth; Dr. Carrie Daymont (Principal Investigator)
How Often Are Antibiotics Prescriptions Filled After Children Are Discharged From Hospital?

R-L: Dr. Amir Ravandi (Principal Investigator); Dr. Rakesh Chaudhary; David Chan; Stephanie Caligiuri; Devin Hasanally.
Role of Oxidized Phospholipids in Myocardial Ischemia and Reperfusion Injury

Dave La, Azra Tasneem, Eric Enns, Dr. Binhua Liang (Principal Investigator);
Investigation of the Impact of Low-Abundance Drug Resistant HIV-1 Variants on Antiretroviral Therapy Outcome by Tagged Pooled Pyrosequencing in HIV-1 Infected Children

Dr. Kunjumon Vadakkan (Principal Investigator)
Identification of Biomarkers From Blood Samples of Patients With Acute Stroke

Dr. Carolyn Snider (Principal Investigator); Dr. Brenda Elais; Dr. Marni Brownell
A Multilevel Analysis of Risk and Protective Factors for Youth Homicide and Severe Intentional Injury in Winnipeg

Dr. Peter Pelka (Principal Investigator);
The Role of NIMA-Related Kinase Nek9 in Cancer, Cell Cycle Regulation and Control of Cellular Differentiation

Dennis Bayomi; Dr. Julia Uhanova (Principal Investigator); Dr. Meaghan O’Brien; Dr. Robert Tate
Prospective Study of Metabolic Syndrome and Liver Disease in a Healthy Male Cohort: The Manitoba Follow-up Study
Mr. Donald Chapman;  
Dr. Joseph Gordon (Principal Investigator)  
Molecular Regulation of Insulin Sensitivity During Skeletal Muscle Differentiation

Dr. Sepideh Pooyania (Principal Investigator); Dr. Tony Szturm; Treadmill - Graduate Student Akshata Nayak (M.Sc. Medical Rehab)  
Effects of Innovative, Technology-Assisted Circuit Training for Dynamic Balance and Mobility: A Community-Based Group Training Program as an Alternate to out-Patient Rehabilitation Post Stroke: Phase 2 Randomized Controlled Trial

Dr. Kristine Cowley (Principal Investigator)  
Stance and Stand-Training for Therapeutic Benefit and Functional Recovery After Spinal Cord Injury

Standing: L-R - Dr. Claudio Rigatto; Dr. Krista Ryz; Anna Xu; Ethan Bohn (BSc Med); Stephanie Ophey (DIP); Thomas Ferguson; Yiyang Zhang (BSc Med); Jordyn Lerner; Dr. Navdeep Tangri (Principal Investigator);  
Sitting: L-R - Dr. Paul Komenda; Ranveer Brar;  
Applying the Kidney Failure Risk Equation in Manitoba

Dr. Versha Banerji (Principal Investigator); Background - Rebecca Lang (Medical Student); Armando Poeppl (Technician); Irisi Gehrke (Post Doctoral Fellow)  
Targeting Nicotinamide Adeninde Dinucleotide (NAD) in Chronic Lymphocytic Leukemia (CLL)

Dr. Danielle Bouchard (Principal Investigator)  
Novel Strategy Improving the Proportion of Inactive Older Adults who Reach the Canadian Physical Activity Guidelines to Improve Health and Physical Capacity

Matthew Turnbull (Graduate Student); Mamneet (Sheena) Manghera (Undergraduate Student); Samah AlSaadi (Graduate Student); Dr. Renee Douville (Principal Investigator);  
The Transcriptional Regulation of Human Endogenous Retrovirus-K in Neurodegenerative Disease

Dr. Jean-Eric Ghia (Principal Investigator); Dr Hong Ji, Mr Fazle Rabbi, Ms Peris Munyaka, Ms Viridiana Urena  
Role of Cateslytin in the Context of Inflammatory Bowel Disease
Partnerships
The Manitoba Medical Service Foundation is proud to recognize cooperative funding partners. See websites for details

www.mmsf.ca

www.mb.bluecross.ca

Hôpital St-Boniface Hospital

www.sbrc.ca

www.mich.ca

The Manitoba Institute of Child Health

www.wpgfdn.org

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