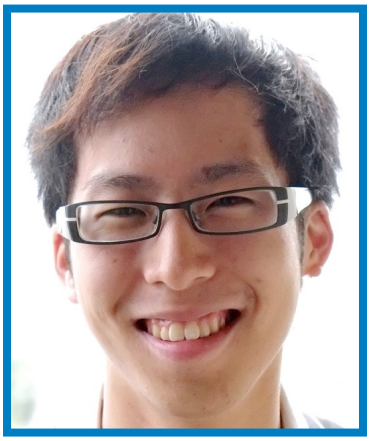
women & children's
health research institute



2013 Summer Student Program Booklet

We thank...

The Women & Children's Health Research Institute (WCHRI) is a partnership between the University of Alberta and Alberta Health Services, with the generous support of the Stollery Children's Hospital Foundation and the Royal Alexandra Hospital Foundation. Also, the Faculty of Medicine & Dentistry provides operating and in-kind support.

The University of Alberta and the Faculty of Medicine & Dentistry

The University of Alberta strives to create and support an environment of research excellence across the university to fuel knowledge advancement, discovery and innovation; all of which provide significant contributions to society provincially, nationally and globally. It is through the continued support of the University of Alberta's Faculty of Medicine & Dentistry (FoMD), that WCHRI can house many of its core groups and its entire administrative staff. FoMD also provides partial funding for WCHRI's operating expenses, without which WCHRI would not be able to manage its many grants programs and research support initiatives.

Alberta Health Services

Alberta Health Services is a strong and active supporter of WCHRI and their guidance has been invaluable in ensuring that women's health and Alberta Health Services' standards in the delivery of clinical care, wellness and prevention in Alberta remain a focus of WCHRI's mandate.

The Stollery Children's Hospital Foundation

The Stollery Children's Hospital Foundation is dedicated to raising funds for specialized equipment, sub-specialty medical education to train the best of the best, research to pave the way to the discovery of new treatments or cures for child health issues and specialized programs that improve patient and family outcomes at the Stollery Children's Hospital.

The Royal Alexandra Hospital Foundation

The Royal Alexandra Hospital Foundation inspires community support for their healthcare facilities. The Foundation empowers compassionate, leading-edge patient care through education, research, technology and facility enhancements. They provide support for the Lois Hole Hospital for Women and a growing number of specialized centres of healthcare located at the Royal Alexandra Campus.

...for making this program possible!

WCHRI's Summer Studentship & Science Shop Programs

The WCHRI Summer Studentship & Science Shop Programs provide academically gifted students with a competitive opportunity to participate in women and/or children's health research during the summer months. This exposure to and engagement in research is often a first experience in the laboratory for a student and can become the real jumping off point in developing an interest in a research career. What could be more exciting?!

In the following pages, we invite you to learn about the WCHRI summer students funded in the 2013 competition. We are proud of our commitment to these new researchers and look forward to the products of their work.

WCHRI is grateful for the support received from the Stollery Children's Hospital Foundation and the Royal Alexandra Hospital Foundation. Their ongoing financial commitment to this grant program makes this research opportunity possible.

Sincerely,

Dr. Sandra Davidge
Director
Women & Children's Health Research Institute

Our Summer Studentship Program

The WCHRI Summer Studentship program assists students working on specific projects under the supervision of WCHRI researchers. The projects that WCHRI supports through this program span disciplines, research pillars and methodologies, and provide program awardees with outstanding learning opportunities under the guidance of leading experts. WCHRI first offered the summer studentship grant program in the summer 2009. Now in its 5th year, this program truly does exemplify the breadth of areas of investigation that advance research in women and children's health.

Our Science Shop Program

WCHRI has partnered with the Community-University Partnership for the Study of Children, Youth and Families to develop a Science Shop program, originally created in the Netherlands in 1989, here at the University of Alberta. This program provides an opportunity for students from all departments and disciplines to become involved in a community-based research project in the areas of women and/or children's health. This unique training opportunity brings together U of A students, researchers and community organizations in pursuing summer research projects that encompass multiple perspectives on the issue of women and children's health. The outcomes of these projects often lead to impacts on policy, and directly to the communities involved.

2013 Successful Awardees

Summer Studentship Program

Student	Supervisor	Project Title	Faculty-Department
Kirsten Arnold	Sarah Hughes	Merlin regulation of proliferation via post-transcriptional regulation	FoMD Medical Genetics
Ross Ballantyne	Andrew Mackie Colleen Norris	Adults helping children: descriptive study of quality of life for adults with CHD to inform care of children with CHD	FoMD Pediatrics
Heather Bronson	David Olson	Leukocyte recruitment to the uterus at parturition	FoMD Obstetrics & Gynecology
Nathan Chu	Gregory Funk	Defining the signaling pathways through which ATP stimulates breathing	FoMD Physiology
Alex Cojocaru	Thomas Churchill	Developing a continuous perfusion system for clinical intestinal preservation	FoMD Surgery
Emma Hjartarson	Sandra Davidge	Mechanisms for impaired cardiovascular adaptations to pregnancy at an advanced maternal age	FoMD Obstetrics & Gynecology
Joshua Kim	Toshifumi Yokota	Exons 45-55 multi-exon-skipping for Duchenne muscular dystrophy	FoMD Medical Genetics
Christen Klinger	Joel Dacks	Characterization of the AP5 complex in apicomplexan parasites	FoMD Cell Biology
Andrew McCutcheon	Gina Higginbottom	Immigrant women's experiences in maternity care services in Canada: training in narrative synthesis	Nursing
Qaasim Mian	Po-Yin Cheung Georg Schmolzer	Does positive pressure ventilation in preterm babies ventilated at birth cause brain injury?	FoMD Pediatrics
Chris Novak	Lonnie Zwaigenbaum	Prospective analysis of parent concern in infant siblings with and without ASD	FoMD Pediatrics
Jeffrey Odenbach	Sarah Curtis	Systematic review of post-traumatic stress disorder screening in the pediatric emergency department	FoMD Pediatrics
Zhiyuan (Joe) Ou	Shairaz Baksh	Targeted inhibition of breast cancer proliferation and metastasis	FoMD Pediatrics
Todd Radostits	Lesley Mitchell	Identifying genetic markers for risk of thrombosis in pediatric cancer patients: multicentre Canadian study	FoMD Pediatrics
Fahim Rahman	Lori West	Inducing tolerance to T-independent antigens using nanoparticles	FoMD Pediatrics

Summer Studentship Program

Student	Supervisor	Project Title	Faculty-Department
Ian Rodger	Eytan Wine	Microbes in pediatric inflammatory bowel diseases (IBD): a key to unravelling disease pathogenesis	FoMD Pediatrics
Conrad Tsang	Amanda (Mandi) Newton	Suicide-related behaviours in children and youth: tracking emergency department visits in Alberta	FoMD Pediatrics
Megan Ure	Todd Alexander	Deciphering the role of claudin-14 in the pathophysiology of kidney stone formation	FoMD Pediatrics

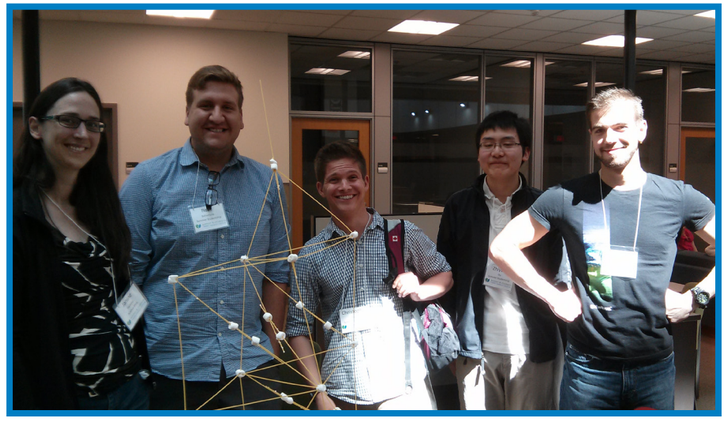
Science Shop Program

Student	Supervisor	Community Partner	Project Title	Faculty-Department
Kareema Batal	Kim Raine	Alberta Policy Coalition for Chronic Disease Prevention	Protecting children from the harmful effects of unhealthy food and beverage marketing: engaging parents in change	School of Public Health - Centre for Health Promotion Studies (CHAPS)
Janine Halayko	Joyce Magill-Evans	Edmonton Bicycle Commuters Society	Teaching two-wheeled cycling to children with a mild cognitive disability	Rehabilitation Medicine-Physical Therapy
Stephanie Kowal	Cindy Jardine Tania Bubela	Multi-Cultural Health Brokers Co-Operative	Risk communication and vaccination uptake by recent immigrant mothers of Edmonton	School of Public Health - Centre for Health Promotion Studies (CHAPS)
Megan Lefebvre	Maria Mayan	Northern Alberta HIV Program	Adherence amongst chaos: a community-based research study to explore HIV-positive women's adherence to HIV medication	Extension
Tristan Robinson	Rebecca Gokiert	First Nation communities and Yellowhead Tribal College	First Nation Child Development (FNCD) knowledge translation activities	Extension

Our Summer Student Lunch & Shares

WCHRI was very pleased to host two Lunch and Shares for the 2013 summer student programs. Held in May and again in August, these Lunch and Shares provided awardees with the opportunity to meet their peers and learn about the great diversity of WCHRI-funded research being done across campus during the summer months. The lunches were also a forum in which WCHRI could share very practical information and tips to help the students in their programs.

WCHRI is proud to host these events and feels that the Lunch and Shares are an excellent opportunity for us to engage directly with the students and actively participate in their research experience.



Our Summer Studentship Awardees

Name: Kirsten Arnold
Supervisor: Sarah Hughes
Project Title: Merlin regulation of proliferation via post-transcriptional regulation
Motivation: “I have been interested in medical research since high school.”
Career Aspirations: “I would like to pursue a Master of Science program.”
What I learned: “During my summer studentship I learned to use the technique of immunofluorescence to observe protein expression in tissues.”

“Neurofibromatosis Type 2 (NF2) is a hereditary and spontaneously occurring disease characterized by tumours of the eighth cranial nerve and central nervous system. NF2 is caused by a mutation of the NF2 gene, causing the loss of its protein product Merlin. The protein Merlin is a tumour suppressor and acts to inhibit cellular growth, but how it works is not well understood. Developing knowledge of Merlin’s activities can lead to new therapeutic approaches for NF2. Using fruit flies as a model, the Hughes lab has identified proteins that interact with and assist Merlin in its role as a tumour suppressor, including protein eIF4E-3. eIF4E-3 belongs to a group of proteins that are involved in translation of messenger RNA (mRNA) molecules into proteins. mRNAs that interact with eIF4E-3 and Merlin have also been identified. The goals of this project are to investigate whether Merlin and eIF4E-3 are co-expressed in the nervous system of fruit flies at different developmental stages, examine the effects of their loss or overexpression on nervous system development and identify other proteins interacting with Merlin and eIF4E-3 to target specific mRNAs. This research will lead to an understanding of the role of mRNA regulation in NF2, which allows for research into treatments for NF2 by RNA targeting.”

Name: Ross Ballantyne
Supervisor: Andrew Mackie and Colleen Norris
Project Title: Adults helping children: descriptive study of quality of life for adults with CHD to inform care of children with CHD
Motivation: "I want to gain undergraduate experience in both congenital heart disease, the focus of my BScN-Honors program, and in the role of a nurse researcher."
Career Aspirations: "I hope to become a nurse practitioner in the area of congenital heart disease."
What I learned: "Due to the fact my summer project was part of a multinational study, I was able to gain experience in large scale data collection, storage and analysis."

"This project is part of a larger international study that uses medical charts and mailed questionnaires to gain more information about the well-being of adults living with congenital heart disease (CHD). While considering the severity of CHD, this project will focus on determining the relationship between the well-being of the participant and how he or she perceives their illness. This type of information will be valuable in determining the types of interventions that are required in caring for adolescents with CHD in their transition from pediatric to adult care.

Gaining experience in research as an undergraduate nurse is rare and will be integral to a future nursing career in a rapidly changing healthcare system. A major motivating factor for participating in the WCHRI summer studentship was my experience of the discrepancy between practice and research in my clinical rotations. Nurse scientists and researchers, advanced practice nurses and registered nurses firmly rooted in research will be integral to addressing difficulty in the translation of knowledge from research to practice.

A career as a nurse practitioner requires clinical expertise and research experience; I will gain both these attributes during the studentship. The WCHRI studentship has allowed me to continue my participation in research over the summer. Extending my research experience over the summer has helped to cement the skills and connections that will be needed in pursuing a master's degree in nursing. Due to the fact that I have been able to work with many different researchers for this project, I have also been exposed to the many facets of research methodology utilized by healthcare professionals. I have also had the opportunity to learn more about congenital heart disease and work beside cardiologists and nurses who have made this a great learning experience. I have increased my knowledge of specific areas of nursing practice that many nurses do not gain exposure to until well into their careers. My work as part of an interdisciplinary team will be valuable to me in my work as a nurse in hospital and research settings. The international nature of the research I have been involved with has allowed me to work with world renowned researchers and make connections in hospitals and research institutions around the world that will be beneficial as I advance in my career."

Name: Heather Bronson
Supervisor: David Olson
Project Title: Leukocyte recruitment to the uterus at parturition
Motivation: "Knowing how research is conducted will help me to better assess and understand the results and conclusions of studies that I am presented with, allowing me to have a better grasp of developments in the field."
Career Aspirations: "I am interested in going into medicine and am particularly interested in obstetrics and gynecology."
What I learned: "When results don't turn out as you expected, ask new questions and look at new possibilities."

"The process of giving birth (parturition) is a complex process involving a number of interacting signals and effectors. The level of expression of these signalers and effectors changes near the onset of labour and is involved in the initiation of labour. For my project, I am specifically studying the involvement of a specific family of proteins (IL-1 ligands and receptors) in late gestation.

Previous studies suggest that preterm labour, in the absence of infection, is a result of changes in signal and effector expression occurring too early. Although health outcomes for prematurely born babies have improved substantially over the last few decades, premature babies are still at greater risk for physical and mental health problems compared to babies born at term. We hope that our investigation of the mechanisms of parturition will lead to the development of a method for predicting which expectant mothers are at risk of premature delivery. We then hope to determine a means of treating these women so that they will deliver at term rather than prematurely, so as to improve health outcomes for their babies.

I became involved in this project in September 2012 for a physiology research course. I found the project interesting and wanted to continue being involved after the course finished. Dr. Olson knew of WCHRI and thought that this project connected well to WCHRI's vision for improving women and children's health. I am very grateful for the opportunity to be involved in this project. I hope that, in some way, my time in this lab this summer will help further the understanding of the mechanisms of parturition and that this will eventually lead to better health outcomes for women and their babies."

Name: Nathan Chu
Supervisor: Gregory Funk
Project Title: Defining the signaling pathways through which ATP stimulates breathing
Motivation: "I want to learn and gain the skills necessary for success in basic research in preparation for my 4th year Honours project."
Career Aspirations: "I am considering a career as a clinician/scientist."
What I learned: "I learned how to establish electrical control over individual neurons via whole cell patch clamping."

"My project is broken into two distinct parts. In part one, I am looking to define the signaling pathways through which ATP stimulates breathing.

The generation of inspiratory rhythm is mediated in the brainstem by the preBötzinger complex (preBötC). The ventilatory response during hypoxia (low oxygen) is characterized by an initial increase in breathing rate which is then followed by a secondary decrease. In adults during the secondary fall, ventilation remains above baseline levels; in newborn and premature animals, ventilation is depressed below baseline which can be life-threatening. We have recently shown that during hypoxia ATP is released in the preBötC and that this stimulates breathing and attenuates the magnitude of the respiratory depression. My pharmacological data has helped establish that ATP acts through receptors that signal through protein kinase C (PKC). The next goal of this project is to identify the specific PKC isoform(s) that contribute to the effects of ATP on preBötC inspiratory networks. However, progress has been hindered by the lack of isoform selective drugs that are adequately soluble. I have moved on to whole-cell patch clamp recordings to assess changes at the single cell level where solubility issues can be addressed because drugs can be added inside the cell.

In part two, I will be looking at the role of adenosine during the hypoxic ventilatory response.

During the secondary fall of the hypoxic ventilatory response as described above, adenosine (a metabolite of ATP) is also released and is hypothesized to be responsible for the decrease in ventilation. This study utilizes ENT1 and ENT2 knockout mice that lack the transporters that allow movement of adenosine into the extracellular space. If adenosine is responsible for the decrease in ventilation, then this decrease should be very different in the ENT knockout mice. The purpose of this project is to test the hypothesis that adenosine underlies the secondary hypoxic ventilatory depression.

As I mentioned previously, I participated in summer research last year and this current project is on a related topic, so I wanted to continue from what I had learned last summer. Also, I will continue active research this fall as part of my Honours project and this current project is a great opportunity to set a solid foundation for further research topics I could explore. I will be applying to medical school this fall and I believe any experience and training in research is beneficial for my career aspirations. This is especially true as all basic biomedical research has the potential for application and transition to translational research."

Name: Alex Cojocaru
Supervisor: Thomas Churchill
Project Title: Developing a continuous perfusion system for clinical intestinal preservation
Motivation: "As a medical student, I have a number of medical specialties in mind for the future. Organ transplantation is one of the more thrilling subspecialties where technical skill and expertise are critical."
Career Aspirations: "My goal is to become a surgeon."
What I learned: "I had never actually written scientifically before despite reading many papers and doing bench work. This summer taught me how to organize my thoughts and craft my writing to appeal to a scientific audience. I also improved my literature searching skills and data retrieval."

"My project is about intestinal transplantation and how we can improve its outcomes. The demographic receiving the largest fraction of intestinal transplants per year is children 1 to 5 years old. Unfortunately, intestinal transplantation has poorer survival and success rates than any other organ transplant, largely because of the acute rejection and infections that intestinal tissue is prone to. One avenue to improving transplant outcomes is researching the options we have for preservation of these tissues while they are transported between donor and recipient. Better preservation protocols can minimize ischemic injury (which occurs when the blood supply to an area of tissue is cut off) or post-transplant rejection, and result in a more successful transplant. The current practice is to place the intestine in a solution developed at the University of Wisconsin (UW solution) and keep it on ice. Our lab has developed and experimented with a different solution (AA solution) that is tailored to the intestinal lining's metabolic needs and is fortified with amino acids. AA solution is also used to flush out the organ after procurement thereby washing out bacteria, digestive enzymes and other damaging solutes from the intestine and keeping the lining supplied with nutrients. Experiments with flushes have yielded promising results in previous research, showing superior energetics, decreased inflammation and improved histological appearance when compared with current preservation protocols. My project aims to further investigate the benefits of AA solution so it may be adapted and integrated into existing transplantation protocols."

Name: Emma Hjartarson
Supervisor: Sandra Davidge
Project Title: Mechanisms for impaired cardiovascular adaptations to pregnancy at an advanced maternal age
Motivation: "I have been curious about research for as long as I can remember. I wanted to determine whether research is something I may want to pursue further, perhaps as a career."
Career Aspirations: "I want to pursue a career somewhere in the medical sciences."
What I learned: "One of the techniques I learned this summer was pressure myography, which is used to investigate the physiological properties of small blood vessels."

"Dr. Sandra Davidge's lab's interest in studying possible implications of advanced maternal age stems from epidemiological data showing that the age at which women deliver their first child is steadily increasing in Western societies, including Canada. Such pregnancies are accompanied by a higher rate of obstetric complications as well as maternal and fetal morbidity and mortality. These complications include preeclampsia (potentially fatal high blood pressure in pregnancy), growth restriction (babies born small) and pre-term labour. These complications arise partly from conditions associated with aging. Despite the growing trend of women delivering their first child at an advanced maternal age (35 years and older), only a small number of studies have been done in this area. This is an important area of research because pregnancy complications can impact the future health of both the mother and the child.

My project investigates novel vascular function pathways that have important roles in maternal vascular adaptations necessary for healthy pregnancy, and also in vascular complications associated with aging. Whether these pathways are impaired in women of advanced maternal age is currently unclear. My project aims to enhance our understanding of these pathways, which will ultimately enable the development of therapeutic or preventative strategies to improve pregnancy outcomes for women choosing to have children later in life.

Having the opportunity to undertake a summer research project has given me insight into what a career in research may entail. I have enjoyed my time spent in the lab, and I hope to become involved in more research projects in the future."

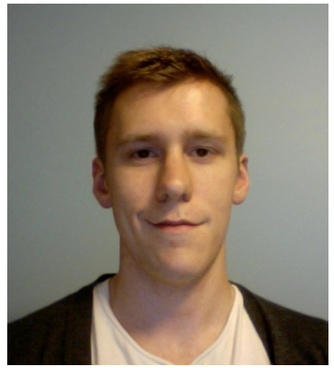
Name: Joshua Kim
Supervisor: Toshifumi Yokota
Project Title: Exons 45-55 multi-exon-skipping for Duchenne muscular dystrophy
Motivation: "My primary motivation for participating in this project arose from my great interest in sports and fitness as well as an opportunity to apply my knowledge taught by the university in real life."
Career Aspirations: "Although I am not 100 per cent certain of my career goals, with this research experience I believe I am opening new doors for my future career path."
What I learned: "Through this opportunity, I have learned many techniques as well as an ability to plan ahead for my research."

"With the help of a graduate student, I am currently working on a genetic therapy for Duchenne muscular dystrophy (DMD). The overall objective of our research program is to identify the optimal strategy for treatment of DMD using a molecular therapy called exon skipping. Exon skipping delivers drugs targeting a specific segment of a mutated gene and produces a truncated but functional protein. Exon skipping as a genetic therapy is currently under phase 3 clinical trial and is one of the most promising approaches to treat DMD. Remaining challenges include limited applicability (only 10 per cent of DMD population are covered) and uncertain function/stability of resulting protein.

The therapy we are working on would address both challenges. First, exons 45-55 cover 60 per cent of deletion mutations of the gene (mutation hot spot), thus this approach is applicable to a majority of DMD patients. Second, this specific type of deletion is known to lead to exceptionally mild symptoms or often asymptomatic individuals.

I would truly want to thank WCHRI and Dr. Yokota's research lab for providing me with the opportunity and assistance."

Name: Christen Klinger
Supervisor: Joel Dacks
Project Title: Characterization of the AP5 complex in apicomplexan parasites
Motivation: “Apicomplexa are important pathogens on a global scale. Often, the disease burden is compounded by economic hardship in the form of lost work hours or death of commercial livestock. Developing effective treatments and control methods is absolutely essential; my wish is to contribute to the requisite knowledge base for these.”
Career Aspirations: “I hope to continue to work with WCHRI as I move forward into a graduate program focused on apicomplexan membrane trafficking and evolution.”
What I learned: “This summer I expanded my repertoire of research techniques to include more molecular biology, such as vector construction, cloning and immunofluorescence microscopy.”



“Though the term Apicomplexa is likely unfamiliar, the diseases that members of this class of eukaryotic parasites cause are surely not; malaria, toxoplasmosis and cryptosporidiosis are just a few. These organisms live a privileged life inside host cells, safe from the ravages of the immune system. As this intracellular state is so key to their devastating effects, so too is its establishment. For this, these parasites utilize several specialized organelles, distinct from any of those found in host cells. Biogenesis and maintenance of these organelles requires precise trafficking mechanisms, but despite increased research in the last decade, these processes remain poorly understood.

My summer project has involved the identification and classification of the genes associated with specific portions of these parasites using homology searching algorithms and phylogenetic analysis. During a six week period in the lab of our collaborator, Dr. Markus Meissner, I also performed in vitro and in vivo characterization of specific aspects of the casuative agent of toxoplasmosis. We hope this work will lead to uncovering distinct ways in which the cells move proteins between and to the organelles. This may help with therapeutic intervention.

These organisms hit especially hard in third world countries, where the disease burden is only compounded by the poverty they induce due to lost working hours and damage to livestock. Malaria is particularly insidious, as it primarily kills children of age five years or younger. Even at home in North America, cases of congenital toxoplasmosis are responsible for lifelong neurological problems or stillbirths. Clearly, understanding these parasites is of vast global importance, as understanding often leads to treatment. I am simply attempting to contribute to that understanding.

WCHRI was kind enough to award me with a summer studentship last summer as well, when I learned of it through my supervisor, who is a WCHRI member. I am very glad to have received this support for my work.”

Name: Andrew McCutcheon
Supervisor: Gina Higginbottom
Project Title: Immigrant women’s experiences in maternity care services in Canada: training in narrative synthesis
Motivation: “This research is a reflection of the overarching reason I entered nursing—it is an opportunity to make the world a little bit better and to live my ethics of equity and social justice in my work life, not just my private life.”
Career Aspirations: “I intend to begin my career as a Registered Nurse in an acute care environment, eventually moving on to complete a masters in Nursing with the aim of becoming a Nurse Practitioner and becoming involved in healthcare policy formulation.”
What I learned: “Over the past several months, thanks to WCHRI and to my supervisor Dr. Gina Higginbottom, I was introduced to the emerging methodology of narrative synthesis review which provides an exciting opportunity to synthesize disparate data. A technique I can’t wait to utilize in my future work.”

“The project we were awarded funding for this summer is the completion of a narrative synthesis detailing the experiences of immigrant women in Canada in relation to their maternity care experiences in the Canadian healthcare system. Our aim with this project is to elucidate the experiences of this important and growing part of Canadian society so that the maternity care environment can be made more effective in working with these women in a way that makes them feel safe and understood. Immigration is an increasingly important phenomenon in the Canadian health system and we must keep up with changing demographics as we move forward with system change. Dr. Higginbottom is the director of the Collaborative Research in Ethnicity and Cultural Health and as such she is an amazing resource and mentor in this field of study. Gina is also a recognized expert in qualitative research methodology, and has much to offer as I move forward as a novice researcher.

This review in particular is exciting for me as it has the potential to be an important reference for clinicians and policymakers who are looking to improve care for immigrant women. Narrative synthesis is an emerging research methodology that integrates qualitative and quantitative research in ways that have been difficult using previous modalities.

As an honours student within the Faculty of Nursing at the U of A, I work on an ongoing honours project which is also supervised by Dr. Higginbottom. Through this partnership, I am constantly being exposed to new and interesting research opportunities, which is how I learned of the summer studentships available through WCHRI. Success for me is making a difference and research is one of the many modalities that I have come to know in my efforts to improve the healthcare environment for patients, and in my efforts to reducing inequity and challenge colonized and ethnocentric worldviews.”

Name: Qaasim Mian
Supervisor: Georg Schmölzer and Po-Yin Cheung
Project Title: Does positive pressure ventilation in preterm babies ventilated at birth cause brain injury?
Motivation: "This project directly aligns with my pursuit of a career as a physician as I will enter my first year of medical school at the U of A later this year, and gives me valuable experience that will be useful to me in the future."
Career Aspirations: "My goal is to become a physician."
What I learned: "One approach I have learned is how to assess quantitative data from a physiological perspective to come up with a plausible explanation for any trends I've observed."

"Most premature babies have difficulty breathing at birth and need respiratory assistance, referred to as resuscitation. This treatment consists of gently inflating their lungs with a resuscitation device and a facemask. The clinical team puts a facemask around the baby's mouth and nose and blows air into a baby's lungs, each repetition of which is referred to as a puff. However, there is a lack of real-time clinical information regarding how effective the clinical team is in helping babies breathe. Ineffective small puffs can delay oxygen delivery to the brain and oversized puffs can damage the lung and reduce blood flow to the brain. Both under-ventilation (not delivering enough volume) and over-ventilation (delivering too much volume) can be harmful to the lung and brain. At the delivery room of the Lois Hole Hospital for Women, we use a state-of-the-art recording system to monitor oxygen levels and volume delivered to premature babies, as well as the brain function, during the first minutes after birth.

My research project aims to study the relation between over- and under-ventilation and how this might affect brain injury in premature babies. By examining the effectiveness of the clinical team in administering breathing support and comparing it to brain function data routinely collected from the newborn infants, I can examine the relationship between these two factors. This information will help us better understand support to help babies breathe and how we can use this information to improve the care for this babies immediately after birth.

This research project is particularly interesting for me because it gives me the opportunity to work in a hospital environment, where I have the opportunity to learn from physicians treating premature infants. Second, the results of my project can be translated to improve care for premature babies requiring breathing support, and finally, it allows me to work within the field of neonatology, which is of specific interest to myself and may be a path I pursue further in the future.

These aspects makes this project very different from the lab-based research I have done in the past. I read about this research project in the U of A Summer Student Research Position Database. After an interview process at the Neonatal Research Unit I was selected to be a summer student and my supervisors informed me about the WCHRI Summer Studentship Award.

This research project gives me an opportunity to work in a hospital environment, interact with numerous health care professionals including physicians, nurses and support staff, and learn more about the practice of medicine and the research behind it."

Name: Chris Novak
Supervisor: Lonnie Zwaigenbaum
Project Title: Prospective analysis of parent concern in infant siblings with and without ASD
Motivation: "I am interested in this research as I wish to gain a deeper understanding of the developmental roots of autism."
Career Aspirations: "My goal is to become a pediatrician."
What I learned: "I gained a new understanding of qualitative research methods."

"I have been interested in Autism Spectrum Disorder (ASD) for several years having previously worked with several children with ASD in other settings. As a medical student interested in pediatrics I contacted Dr. Zwaigenbaum and was offered a summer student position. This studentship has given me the opportunity to learn about life as a researcher and a pediatrician and has done a lot to prepare me for my future career.

An understanding of the development of children later diagnosed with ASD during the first three years of life is essential when identifying early risk markers. One method of identifying early differences in the development of ASD and non-ASD infants is by examining parent concerns. Parent reports of concerns can be gathered using past memories (retrospective) or current events as they unfold (prospective). Retrospective studies can be influenced by parental biases when reporting memories of their child's development. To counter this, prospective reports of parent concerns can be gathered at set time-points as the child develops.

This research project aims to examine any differences in parent concerns reported by parents of child at low-risk of developing ASD (no sibling with ASD) and high-risk of developing ASD (an older sibling with ASD). These two groups of infants will be tracked from 6 months to 3 years of age using structured parent concern forms. At each assessment age (6, 9, 12, 15, 18, 24 and 36 months), parent reports will be collected concerning their child's development of social skills, language, motor behaviour, sleep, diet and behavioural temperament. At three years of age, parent concerns will be compared based on their child's diagnostic outcomes; low-risk non-ASD, high-risk non-ASD and high-risk ASD. This research has the potential to elucidate early markers for identifying children at risk of developing ASD, thereby identifying and treating at-risk children early in development.

I am very grateful for this opportunity and the support that has been given to me by the WCHRI Summer Studentship Award."

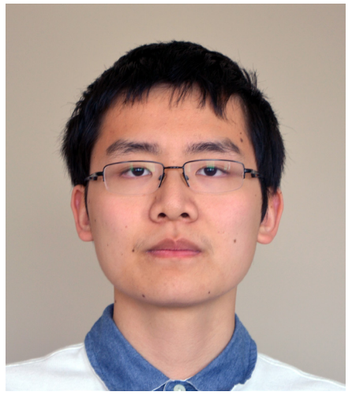
Name: Jeff Odenbach
Supervisor: Sarah Curtis
Project Title: Post-traumatic stress disorder screening in the pediatric emergency department—A systematic review
Motivation: "I want to learn more about emergency medicine, meet people in the field and determine if this area of medicine is where I would like to practice in the future."
Career Aspirations: "I would like to become a physician specializing in emergency medicine."
What I learned: "This summer my project was to complete a systematic review on stress disorder screening in the emergency department. Specifically, I learned how to design a study protocol, conduct a literature search, screen articles for inclusion, extract and analyze data, and draft a manuscript for publication."

"My research project (ongoing) is to conduct a systematic review on stress disorder screening of children presenting to the emergency department with traumatic injuries. Children presenting to the emergency department with traumatic injuries, whether minor or severe, is an everyday occurance at most emergency departments. Although the treatment of physical injury in this setting is very good, little emphasis is placed on the psychological aspects of their traumatic experience. Recent evidence has shown that the development of stress disorders (such as post-traumatic stress disorder (PTSD)) is common in children, even after seemingly minor trauma. Despite severe long-term consequences of childhood PTSD, including increased risk of depression, adult mental illness, aggression and poor school performance, there are currently no guidelines in place to direct screening for children at-risk of developing post-traumatic stress disorder in the pediatric emergency department. This review aims to address this issue by identifying, describing and evaluating screening tools that could be of practical use in the emergency department in efforts to minimize the long-term psychological consequences of children with traumatic injuries.

I was intrigued by this project in particular because I have had very little experience with systematic reviews and wanted to learn more about the process of conducting one of these important research studies.

This opportunity came to my attention via my supervisor who recommended I apply for the studentship after agreeing to have me work with her on this project. This project has afforded me the opportunity to learn more about the field of pediatric emergency medicine, network with several emergency medicine residents and physicians and learn more about other research going on in the field. This opportunity has further sparked my interest in emergency medicine and validated my aspirations of specializing in emergency medicine after medical school."

Name: Zhiyuan (Joe) Ou
Supervisor: Shairaz Baksh
Project Title: Targeted inhibition of breast cancer proliferation and metastasis
Motivation: "I want to gain lab experience and contribute meaningfully to finding a cure for cancer."
Career Aspirations: "I want to pursue a career in medicine, possibly completing a MD/PhD."
What I learned: "Over the summer, I learned how to use MTT proliferation assays, in which living cells convert a yellow compound into a purple one, to measure the anti-proliferative effects of novel compounds on breast cancer cells."



"Abnormal or excessive growth of cells is normally controlled in the body by cell death. Tumor cells usually remove or mutate elements involved in cell death in order to promote their survival, leading to uncontrolled cell growth and division. RASSF1A is a tumor suppressor gene that normally functions to kill abnormal cells. It is often silenced in cancer cells, resulting in the impaired ability to kill these abnormal cells. Its molecular partner, MOAP-1, can also promote the killing of abnormal cells. Expression levels of MOAP-1 are also reduced or absent in numerous forms of cancer, including triple negative breast cancer (TNBC).

This project will explore the role of MOAP-1 in inhibiting tumor formation and movement (or metastasis) of breast cancer cells. It will also explore the use of novel drugs to inhibit the growth and metastasis of breast cancer cells, namely resveratrol, a prominent ingredient of red wine known to have anti-inflammatory and protective cardiac effects, and its derivatives. Metastasis is a major concern in TNBC patients as this form of breast cancer has a very poor 5-year survival. The loss of function of MOAP-1 may be important in determining how TNBC arises and how breast cancer cells migrate. Our work may aid in detecting the appearance of TNBC and the migration of breast cancer cells.

I discovered Dr. Baksh's posting regarding a breast cancer research project on the Faculty of Medicine & Dentistry's summer job database. Finding that this position aligned with my interests, I contacted him to discuss the project. I learned of the WCHRI Summer Studentship when Dr. Baksh recommended that I apply for it to receive funding.

Lecture and lab courses are interesting and certainly informative, but working on a research project teaches perseverance, organization and problem solving skills far more effectively. Additionally, cancer affects millions of people directly and many more indirectly. I am excited to be directly involved in finding a cure for a disease with such a large impact."

Name: Todd Radostits
Supervisor: Lesley Mitchell
Project Title: Identifying genetic markers for risk of thrombosis in pediatric cancer patients
Motivation: “I was motivated to participate in this research due to my special interest in human cardiovascular science, an interest that holds even stronger to this day.”
Career Aspirations: “Health Sciences. I’m starting medicine at the University of Alberta this fall, and I believe that this research experience has helped prepare me to tackle the academic challenges that lay ahead of me.”
What I learned: “Participating in this research has improved my understanding and appreciation for both the clinical and basic science components of health research.”

“Many children with cancer experience blood clots due in part to their cancer treatment. Blood clots can lead to immediate complications such as stroke and heart attack, or cause permanent vascular damage and an increased mortality risk later in life. Blood clots in children with cancer can be prevented using blood-thinning drugs. However, we do not want to put children on these drugs if they aren’t at risk for a blood clot because blood-thinning drugs increase the risk of bleeding. Our research team is working to construct a blood test that can identify children who are at risk for blood clots. To do so, we are examining the genetic differences between children with cancer who experience a clot during treatment and those that do not in order to identify a set of genetic markers that indicate increased risk of thrombosis. A blood test that examines these genetic markers will enable targeted preventative treatment for at-risk children with cancer using blood-thinning drugs.

As a student, my involvement with this project began last summer. I learned of the opportunity through a job posting that my supervisor made through the Faculty of Medicine and Dentistry’s Summer Student Research Program. It is important to me that our research project has a direct clinical application and promises to cause real improvements in the health of children with cancer. I’ve come to appreciate the importance of interdisciplinary collaboration between clinicians and basic science researchers in order to tackle the issues of modern medicine in a goal-oriented manner.”

Name: Fahim Rahman
Supervisor: Lori West
Project Title: Inducing tolerance to T-independent antigens using nanoparticles
Motivation: “I was motivated to do this project by my curiosity and the support of inspiring researchers.”
Career Aspirations: “After wonderful experiences in chemistry and pediatrics, the first step in deciding on a career may be finalizing my degree plans!”
What I learned: “I learned how to do a hemagglutination assay, which is quite often carried out in a hospital. It’s a simple test to determine antibody titres and levels.”

“My project looked at inducing tolerance of foreign blood groups. This was a primary research goal since blood groups are a significant barrier when it comes to organ transplantation. Increasing the body’s ability to accept mismatched organs would greatly open up the available donor transplant pool. My project revolved around increasing tolerance induction for cross-blood type organ transplantation.

This project is the second summer I’ve spent doing research; last summer I was involved on a similar project in the Department of Chemistry. I’ve really enjoyed my experience in research so far, which all stemmed from a brief presentation my CHEM 101 professor gave on getting involved in research. I followed up with her after her presentation in class, and was accepted as a summer student in her (Dr. Jillian Buriak’s) lab. I decided to do research on a different project this summer, which lead me to the Department of Pediatrics in Dr. Lori West’s lab.

As a Science undergraduate, I’ve learned a number of different techniques and skills in lab components. I know that research uses a number of these techniques, which may be one reason why I’ve enjoyed my research experiences and also considered a career in a research setting.”

Name: Ian Rodger
Supervisor: Eytan Wine
Project Title: Microbes in pediatric inflammatory bowel diseases (IBD): a key to unravelling disease pathogenesis
Motivation: “I was motivated to pursue gastrointestinal research by the possibility of making discoveries that could one day improve patient care.”
Career Aspirations: “I hope to become a clinician scientist.”
What I learned: “I learned a number of laboratory skills including western blotting, fluorescence in situ hybridization and microscopy techniques. I also learned how to ask good scientific questions that have the potential to generate useful information.”

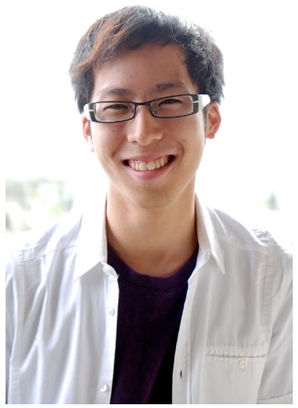
“The first goal of this project was to confirm the presence of IgA and IgG antibodies in endoscopy samples taken from pediatric Inflammatory Bowel Disease (IBD) patients using Western Blotting. The second goal was to analyze the microbial composition of the endoscopy samples from IBD patients and compare them to healthy controls.

I am optimistic that understanding the relationship between the immune system and gut microbes will lead to novel treatments for diseases such as IBD.

I learned of this research opportunity via the medical school’s summer job postings and I learned of the WCHRI funding program via my supervisor, Dr. Wine.

Medical school has taught me a great deal about the clinical side of medicine, but there is little focus on scientific discovery in our curriculum. This summer opportunity has allowed me to participate in scientific discovery and helped me understand the scientific underpinnings of medicine. As I move forward with my career, I will draw on the lessons of this summer experience as I attempt to conduct scientific research in the clinical setting.”

Name: Conrad Tsang
Supervisor: Amanda (Mandi) Newton
Project Title: Suicide-related behaviours in children and youth: tracking emergency department visits in Alberta
Motivation: “I am inspired by my friends and colleagues that I have seen struggle through depression and suicide ideation.”
Career Aspirations: “I would like to pursue a Master of Public Health degree and incorporate population-based work with my clinical and teaching responsibilities as a physician and possibly a clinician-scientist.”
What I learned: “I learned how to critically analyze population-level data and assess how these results could potentially be mobilized to affect clinical resource allocation.”



“Suicide-related behaviours (SRB) are defined as self-inflicted injuries or poisonings with undetermined, suicidal or no suicidal intent. SRB are the second leading cause of death in Canadian youth, making it a very relevant public health concern in Alberta. An emergency department visit for SRB is a major risk factor for suicide and SRB repetition is common. Within one year of a hospital presentation for SRB, about 16 per cent will repeat and about 2 per cent will die by suicide. In this project, I will use statistical surveillance techniques, called cluster detection and recurrent event models, to pattern emergency health services use by children and youth for SRB over a 9-year period in Alberta.

This surveillance is important because it can provide an accurate and comprehensive perspective of pediatric emergency mental health services across Alberta. For example, our results may identify areas in Alberta where children and youth have a greater severity of illness and require more emergency department care, or that more crisis care has been sought by children and youth because there is less availability of mental health services. Based on our study findings, we will work with key Alberta health care decision-makers and policy-makers to develop recommendations for SRB and mental health resources, and how they are allocated in this province.

I will be entering the 3rd year of the MD with Special Training in Research (MD-STIR) program at the U of A. I completed my undergraduate studies at McMaster University’s Bachelor of Health Sciences program, where I unexpectedly discovered a passion for public health. After exploring various basic science research opportunities over the past four years, this summer studentship allows me to contribute to a project while utilizing the skills I learned in my undergraduate epidemiology courses. With experience from past projects, I found the WCHRI Summer Studentship and was encouraged to apply by my medical preceptors. In addition to gaining more clinical research experience, this project has given me the opportunity to present my research findings at national conferences, to draft manuscripts for publication, and to meet mentors who are also clinician-scientists, including Dr. Newton.

Because my interests span a variety of medical fields, I am currently drawn to several residency programs including Pediatrics, Public Health & Preventative Medicine with Family Medicine and Psychiatry. With more clinical exposure in the final two years of medical school, I look forward to selecting the training program that best suits my career aspirations.”

Name: Megan Ure
Supervisor: Todd Alexander
Project Title: Deciphering the role of claudin-14 in the pathophysiology of kidney stone formation
Motivation: “My main motivation to participate in research is that it provides us with an understanding of the underlying physiological mechanisms of disease.”
Career Aspirations: “My goal is to become a physician in a pediatric specialization such as cardiology or nephrology.”
What I learned: “One of the coolest things I learned how to do through research was isolate DNA and use it to sequence our target gene.”

“Kidney stones are painful, expensive to treat and are associated with a number of negative health outcomes such as heart disease and end stage renal disease. The number of children with kidney stones is increasing, however the available treaments are lacking, making research in this area even more important. A central risk factor in the development of kidney stones is elevated levels of calcium in the urine. Through our research, we have identified an abnormality in a calcium handling gene in a population of children with kidney stones. This gene, which is located in the kidney, has been shown to prevent calcium reabsorption back into the blood. Based on our previous work we’ve hypothesized that this mutation is causing too much of the protein, claudin-14, to be made, which in turn results in less calcium being reabsorbed back into the blood. This eventually leads to the the development of calcium precipitates and kidney stones. It is the aim of my summer research to determine whether this genetic abnormality is causing increased urinary calcium levels. It is the hope that this research will provide an insight into the mechanisms that are causing increased calcium levels in the urine, so that novel therapies can be developed to treat children with kidney stones.

It is the hope that by using this information, treatments can be developed to help improve patient care. I feel a tremendous amount of satisfaction knowing that I could contribute to this process and potentially increase one’s quality of life. I’m also a believer that it is better to treat the underlying cause of the problem and not just mask the symptoms. Although this is not always possible, the only way to get closer to this goal is to understand what is causing the problem.

I learned of this opportunity through my supervisor as he is a member of WCHRI. As both a clinician and principle investigator, he is able to see both sides (the bench and the bedside), and understands the importance of basic research in improving patient care. WCHRI has provided me with the chance to be an active participant in this research process.

Doing basic research has opened my eyes to a whole new aspect of patient care. My curiosity surrounding the understanding of what causes disease, why it happens and how we can use this knowledge to help treat people has increased tremendously. I have a new appreciation for the mechanisms by which drugs and other therapies are able to help patients.

In addition, with having an interest in pediatrics and being supported by an organization that is directed towards the health of women and children, I get a large amount of satisfaction knowing that I can potentially help these populations prior to hopefully one day becoming a physician.”

Our Science Shop Awardees

Name: Kareema Batal
Supervisor: Kim Raine
Project Title: Protecting children from the harmful effects of unhealthy food and beverage marketing: engaging parents in change
Community Partner: Alberta Policy Coalition for Chronic Disease Prevention
Motivation: “I personally and professionally believe that marketing unhealthy foods and beverages to children is a huge problem and our system needs to change to mitigate the negative consequences of these manipulative messages.”
Career Aspirations: “I am still searching for a way to combine my research interests with practical application.”
What I learned: “I learned that research, especially research of qualitative nature, is a difficult task and is unpredictable. People have different views and opinions and it is a challenge trying to decipher what it all means. This project has put policy-level changes into perspective for me; it is nearly impossible to formulate a solution that will cover all the angles of an issue. True holistic solutions may not exist. I am glad I learned that now. Hearing from all the parents has shown me how different people think and how complex issues are. I find that qualitative research is a great tool to understand complex societal issues, like this one and should be done more often.”

“I am going into my 6th of year of studies at the U of A in Nutrition and Food Science. I elected a minor in Food Policy because I am interested in the behind-the-scenes events surrounding food and the overall picture beyond health and nutrition. After volunteering with the Alberta Policy Coalition for Chronic Disease Prevention (APCCP), I became fascinated and very connected with all the work the coalition does on policy-level changes around health and nutrition.

The coalition is highly involved with food marketing issues, and aims to mobilize policy changes in this matter through research done by some of their graduate students. Past research by the coalition has shown that a large number of parents feel in control of their children’s food choices and don’t believe unhealthy food and beverage marketing affects their kids or, subsequently, their households. I was really intrigued by this and found it hard to believe. What parent can deny their kids’ nagging?

I wanted to understand why parents feel they have such control and see what coping strategies they use to deal with junk food marketing to their children. Changes at the policy level (say a ban or restriction on unhealthy food and beverage marketing to children) may not be the only solution. Parents need to be engaged in this change as well. The purpose of this project is to understand how parents feel about unhealthy food and beverage marketing to children, how they perceive its effects on their children and their households and what coping strategies they use to mitigate these effects. We will be exploring these issues through focus group discussions with parents/caregivers with children under 18 years of age.

The WCHRI-CUP Science Shop Program seemed like the perfect fit for this project given how this project aims to protect the health of children and their future well being. My supervisor, Dr. Kim Raine, is an active member of WCHRI and strongly supports their work, as do I. I think this project needs support in order to make an impact and having that initial push from WCHRI is a great accomplishment. WCHRI has provided me with an opportunity to start on such an ambitious and exciting project. This opportunity has not only connected me further with the coalition but has also provided me with an exceptional learning experience. I know I am very interested in food policy research as it relates to health and social welfare. I think this project is a perfect example of the career I am searching for and I am very thankful for being able to participate this year.”

Name: Janine Halayko
Supervisor: Joyce Magill-Evans
Project Title: Teaching two-wheeled cycling to children with a mild cognitive disability
Community Partner: Edmonton Bicycle Commuters Society
Motivation: "My ultimate goal is helping more children and youth to participate in cycling—one of the most inclusive community based activities of summer. I hope to do this through partnerships with community agencies and careful evaluation of the effectiveness of the You Can Ride Two cycling program using skills learned through my summer studentship."
Career Aspirations: "I will be continuing to work as a pediatric physiotherapist and will be applying what I have learned about teaching cycling as a volunteer with You Can Ride Two."
What I learned: "In my Science Shop experience I have learned how to use the Cognitive Orientation to Occupational Performance (CO OP) approach when teaching children with mild cognitive delays to ride a bike."

"I have worked as a pediatric physiotherapist since 1999. In 2003, I helped to create a free learn to ride program for children with special needs. The program is called You Can Ride Two. It is run by volunteers and is a partnership between therapists and cyclists from the Edmonton Bicycle Commuters Society. While many children learn to ride during the program, some do not. In the fall of 2012, I returned to the university to complete my Masters in Rehabilitation Science. My goal is to determine if there is a method of teaching cycling that works well for children with cognitive disabilities. The method has I have chosen has been widely used to teach cycling and other motor skills to children with coordination challenges but it has rarely been used for children with cognitive delays. If successful, this technique may also be used to help children with cognitive disabilities learn a variety of other sports and motor skills. I will share the study's results with parents and therapists through our website (www.youcanridetwo.ca).

I learned about the Summer Studentship Program from Veronica Smith, a WCHRI member. We worked together writing a chapter on cycling for her book; Smith & Patterson (2012), Getting into the game: Sports programs for kids with Autism. She also taught me a course on single subject research design that I am using in my study. I am grateful for the support and ideas provided through the Science Shop workshops as I am new to community based research. I am looking forward to incorporating more evidence-based practice into my work as a physiotherapist and a volunteer."

Name: Stephanie Kowal
Supervisor: Cindy Jardine and Tania Bubela
Project Title: Risk communication and vaccination uptake by recent immigrant mothers of Edmonton
Community Partner: Multicultural Health Brokers Co-operative
Motivation: "This research is important to the immigrant community, represented by the Multicultural Health Brokers Co-operative and to Maternal Child Health in Alberta Health Services."
Career Aspirations: "Locally developed research is important to me and I wish to continue my career as a community-based health researcher after I complete my MSc."
What I learned: "During my Science Shop Summer Studentship I learned to apply snowballing techniques, often used for participant recruitment, to knowledge translation development, giving me the opportunity to speak to many community members interested in or essential to health information delivery."

"Effective communication about health risks such as those posed by the H1N1 virus or other vaccine-preventable illnesses is important to ensure that parents feel informed about the risk and consequences of immunization, and to help them make good decisions about childhood vaccination. Right now immigrant populations in Canada have lower vaccination rates than non-immigrants. This suggests a difference in health information access and understanding between the two groups.

This study will look at how immigrant populations access, understand and react to vaccine information in their decisions of emergency vaccine programs (such as H1N1), childhood vaccination in general, and vaccination during pregnancy; and how/if immigrants interact with anti-vaccination sentiments found online and through social networks. In turn, we will better understand if immigrant families have lower vaccination rates because they are less informed of their vaccine choices or if the health information targeted towards immigrant populations is less persuasive/available/culturally appropriate than that of non-immigrant information.

This project will consist of two parts. In the first part we will conduct interviews with immigrant mothers who were pregnant or had children in the last eight years, which includes the H1N1 outbreak and vaccination period (May 1, 2009 to January31, 2010). Second, we will perform an analysis of vaccination information accessed by immigrant families. The results of this study will help public health agencies understand why the disparity of vaccination rates between immigrant and non-immigrant populations exist. From this knowledge they can improve vaccine information communication, increasing informed immunization practices for childhood and adult vaccination.

My supervisors at the School of Public Health and I approached the government and the community to establish a question that was relevant to the community, service providers and policy-makers. I am very proud of my role in facilitating our partnership and conducting research that is important to Edmontonians. Our research will inform a communication strategy that is evidence-based and developed and endorsed by immigrant health services providers along with government representatives. In turn, we can trust that our strategy is meaningful, feasible and resilient.

I learned about the WCHRI/CUP Science Shop through CUP and School of Public Health e-mail digests."

Name: Megan Lefebvre
Supervisor: Maria Mayan
Project Title: Adherence amongst chaos: a community-based research study to explore HIV-positive women's adherence to HIV medication
Community Partner: Northern Alberta HIV Program (NAHIVP)
Motivation: "As HIV/AIDS and adherence to HIV medication are my primary research interests, my motivation was the opportunity to work directly with HIV-positive women to understand the phenomenon of adherence from their perspective."
Career Aspirations: "I hope to pursue post-doctoral studies which involve working with the HIV-positive women and NAHIVP clinicians to develop a knowledge translation plan for sharing our findings."
What I learned: "Over the summer working with HIV-positive women who have 'chaotic' lifestyles has taught me the value of listening; I look at learning and education with a different perspective and understand that you can learn from everyone."

"My research aims to understand how HIV-positive individuals who have chaotic lifestyles (e.g., experience unstable housing, addiction and/or cultural barriers to care) are able to achieve consistent adherence to their HIV medication. This research was identified as a need from the clinicians at the Northern Alberta HIV Program (NAHIVP) and university partners. The NAHIVP is an interdisciplinary team of infectious disease physicians, nurses, pharmacists, dieticians and social workers who care for HIV-positive individuals in the northern half of Alberta.

I will utilize qualitative methods, specifically focused ethnography, to interview HIV-positive individuals to understand, from their point of view, how they are able to adhere to their HIV medication. I will work alongside clinic staff, and if possible, the women themselves, to interpret the data. When I start meeting with the participants, I will explore the possibility of working with them to analyze the data. Analysis will be a qualitative content analysis, meaning explanations of the data are derived from systematically identifying, coding and categorizing patterns in the data. A critical step in improving adherence is the ability to know what adherence strategies work locally. Currently, the most important source of information, the HIV-positive individual who maintains consistent adherence amongst challenging situations, has rarely been taken into consideration. This research will shed light on individual, social and cultural specific facilitators to HIV medication adherence among individuals seeking care at the NAHIVP and will build a stronger relationship among the program's patients and clinicians.

In fall 2012, I participated in Dr. Mayan's Introduction to Qualitative Inquiry course. I learned of the WCHRI Summer Studentship opportunity from a guest speaker, Ms. Tatjana Alvadj, who gave a presentation on community-based research (CBR) methods. At the time I had some experience with CBR, however, I knew the Summer Studentship opportunity could provide me with additional skills to become a leading researcher in CBR. The WCHRI Summer Studentship provided me with the tools to strengthen the university -community partnership between the U of A and the NAHIVP.

As the successful uptake of research findings involves engaging in partnerships, the Science Shop helped to strengthen the partnership between the NAHIVP and the U of A. This ongoing partnership, therefore, will allow us to develop appropriate knowledge exchange and widespread dissemination strategies that help HIV-positive individuals attending the NAHIVP, NAHIVP staff and HIV community organizations understand adherence to HIV medication."

Name: Tristan Robinson
Supervisor: Rebecca Gokiert
Project Title: First Nation Child Development (FNCD) knowledge translation activities
Community Partner: First Nation communities and Yellowhead Tribal College
Motivation: "The goal of my WCHRI studentship is to continue to develop my CBR and knowledge translation (KT) skills."
Career Aspirations: "My career aspirations are to work with First Nation communities on strengthening programs that promote health and wellness."
What I learned: "My WCHRI research grant has allowed me the opportunity to further my understanding of an indigenous and culturally competent approach to knowledge mobilization."

"The First Nation Child Development Project (FNCD) is a partnership between four First Nation communities, the Yellowhead Tribal College and the Community-University Partnership for the Study of Children, Youth and Families at the U of A.The project objectives are to understand child development from a community perspective, to identify community strengths that support healthy development and to enhance early childhood development programming within the community.

The Early Development Instrument (EDI) is used across Alberta to assess how kindergarten children are developing. The EDI is based on Euro-Western views of what is considered to be healthy childhood development and does not take into account the spirituality, traditional language and cultural knowledge that First Nations communities value in raising their children. The FNCD project aimed to develop a supplement to the EDI that the four partnering First Nation communities could use to identify the needs and strengths of their children. Each community has a unique community research committee (CRC) that guides the project in their community.

The knowledge translation portion of this project will be completed in two separate phases. The first phase is reporting the data back to the CRCs and I will support the development of a knowledge translation plan and process for the CRC meetings. After the data has been presented back to the CRCs, the second phase will be to develop a community specific knowledge translation plan with each CRC to guide how the data will be shared with various stakeholders and community members. While the second phase is out of the scope of the WCHRI summer studentship, the work over the summer months will support my preparation to support these efforts in the fall.

My role during the proposed research project is to work towards developing my CBR and knowledge translation (KT) skills. The KT portion of this project will focus on understanding the needs of the communities and how the data that has been collected can be the most beneficial to the many stakeholders in and outside their community."

WCHRI would like to thank all the participants, supervisors, mentors and community partners who participated in this year's program!

To find out more about the Summer Studentship and Science Shop programs, please visit the WCHRI website at http://wchri.srv.ualberta.ca/summerStudentGrants or http://wchri.srv.ualberta.ca/ScienceShop.