

# Department of Pediatrics Innovation Award

## List of prior successful applications

### Competition year: 2015

1. Drs. Cora Constantinescu, Joseph Vayalumkal, Mireille Lemay, Simon Parsons, Theresa Wu and Laura Davies, Deonne Dersch-Mills, Aliya Kassam and Clara Tsang. *“Developing an Antimicrobial Stewardship Educational Curriculum: A Practice Needs, Learner-Centered Approach”* (Primary Project Type – Education, Secondary Project Type – Research)

**Project Summary:** Our team will develop an Antimicrobial Stewardship (AS) education curriculum for pediatric residents, hospital pediatricians and Pediatric Intensive Care (PICU) physicians at the Alberta Children’s Hospital (ACH). A two-phase needs assessment based on the AS concerns our physicians face in everyday practice, will inform the curriculum content and format. In phase1, pharmacists working with Clinical Teaching Unit (CTU) and PICU teams will fill AS concerns feedback cards during daily rounds outlining the appropriateness of antimicrobial utilization and opportunities for AS education. In phase 2, team-based group interviews will inform the optimal educational strategies and help develop this curriculum. The curriculum will be developed using the Kern Model<sup>1</sup> and Competency Based Medical Education<sup>2</sup>. This application is for the two-phase needs assessment and the curriculum development. Curriculum implementation and evaluation will be a future project and not included in this application.

2. Drs. Deborah Dewey, Jeff Buchhalter, Carly McMorris and Kim Smyth. *“Autism Spectrum Disorder and Epilepsy: Outcomes of children and families in the Autism Epilepsy Clinic”* (Primary Project Type – Clinical care, Secondary Project Type – Research)

**Project Summary:** Epilepsy is common in children with Autistic Spectrum Disorder (ASD), affecting 21% to 35% of these individuals. The ASD and Epilepsy Clinic at the Alberta Children’s Hospital (ACH) provides specialized care and seizure management to these complex patients. Despite the high prevalence of children with ASD and epilepsy, little is known about this population’s neurocognitive, behavioural, and social-emotional development and the impact these comorbid conditions have on the quality of life of affected children and families. No study has examined caregivers’ satisfaction with this specialized service, and most importantly, factors that aid in improving quality of life for affected individuals and families. The proposed project will describe this population, the experiences of caregivers, and investigate how specialized services can help to reduce stress and improve outcomes. This innovative project has the potential to advance clinical practice, improve resource utilization, and address significant gaps in the research literature for this vulnerable population.

3. Drs. Brent Hagel, Andrew Howard, Brian Rowe, Alberto Nettel-Aguirre, and Tania Embree. *“A New Approach for Determining the Cause of Motor Vehicle Related Paediatric Bicycling Injuries”* (Primary Project Type – Research, Secondary Project Type – Education)

**Project Summary:** Bicycling improves physical and mental health, reduces the risk of diabetes and obesity and does not cause air pollution. Bicycling injuries are one of the most common causes of injury in children and adolescents. A significant portion of bicycling fatalities occur in children and adolescents with the majority due to bicyclist-motor vehicle (MV) collisions. Focusing on children and adolescents who cycle is particularly important as they have more cognitive and physical

challenges navigating the roadway and thus a higher risk for injury than older cyclists. We therefore maintain motorists and the build environment should be the focus of bicycling injury prevention strategies. We proposed a unique methodology, using police traffic collision reports, to student the relationship between motorist and build environment characteristics and the risk of colliding with a child bicyclist.

4. Drs. Alixe Howlett, Sumesh Thomas, Michael Esser, Matt Hicks, Sheri Madigan, Kumar Kumaran, Amber Reichert, Melanie Noel, Brian Brooks, Leonora Hendson and Stacey Holbrook. *“NICU Design: Impact on Parent and Infant Outcomes” (Primary Project Type – Research, Secondary Project Type – Clinical care)*

**Project Summary:** Single family rooms (SFR) have been suggested as an optimal care setting for newborns and their families and have been enthusiastically adopted. However, several studies suggest an increased risk of developmental delay as well as increased stress in the parents. This prospective observational cohort study compares parent, newborn and staff experience in a SFR NICU (Alberta Children’s Hospital) with 3 level III Open Bay (OB) NICUs in Calgary and Edmonton. Parent outcomes will be compared using validated scales for parent stress and competence as well as parent visiting and involvement in care. Outcomes at discharge, adverse event occurrence and developmental outcomes at 18-24 months in eligible infants will be compared. A questionnaire measuring perception of work environment and parental involvement will be given to staff. This study will describe the effects of NICU design on parental stress and PTSD development which will guide the implementation of interventions for parents and infants.

5. Drs. Adam Kirton, Ephrem Zewdie, Carolyn Emery, Laura Brunton and Ion Robu, Kim Beckers, Conny Betuzzi, Jacquie Hodge. *“Emancipation of Children with Severe Quadriplegic Cerebral Palsy Using Brain-Computer Interfaces (EQUIP)” (Primary Project Type – Research, Secondary Project Type – Clinical care)*

**Project Summary:** Some children with quadriplegic cerebral palsy have intact cognition despite being unable to move their limbs. They may be normal kids trapped in a completely disabled body. Modern brain computer interfaces (BCI) can non-invasively read brainwaves using simple headsets, wirelessly relay the information to smart software which can in turn control effector devices. This potentially allows the user to control useful tools – a wheelchair, a videogame, or a computer cursor – with just the power of their mind.

We propose the initiation of a clinical research program to develop BCI applications in school-aged children with severe quadriplegia. An initial case-control study will establish proof of principle in normal children while allowing selected children with CP and their families the opportunity to try BCI applications. We will work with institutional experts in applied neurotechnologies, biomedical engineering, pediatric physiatry and rehabilitation, and families to establish a platform for future program growth. The effort brings real potential to liberate locked-in children and provide them with new opportunities to succeed in the world.

6. Drs. Rebecca Perry, Adam Cheng, Vincent Grant and Eileen Pyra, Wendy Schwarz, Traci Robinson, Helen Catena. *“A Simulation-based Intervention Teaching Illness Management Skills to Caregivers of Children with Adrenal Insufficiency: a Randomised Controlled Study.” (Primary Project Type – Research, Secondary Project Type – Clinical care)*

**Project Summary:** Permanent adrenal insufficiency (not due to chronic glucocorticoid usage) is an uncommon but potentially life-threatening condition in children. Etiology is varied but all children require daily glucocorticoid replacement therapy. They are particularly at risk of adrenal insufficiency

during times of stress, when the body's requirement for glucocorticoid is increased, for example during intercurrent illness. Thus, caregivers should have good illness management skills, including recognition of intercurrent illness, recognition of signs of adrenal insufficiency as well as decision making e.g. when to give glucocorticoid by intramuscular injection. Currently caregivers are taught illness management by Endocrine Nurses as standard of care, at diagnosis and at each clinic visit every 4-6 months with full review of illness management including intramuscular injection annually. We hypothesize that simulation-based education will lead to a higher level of demonstrated competence and reported confidence in caregivers' management of illness in children with adrenal insufficiency.

7. Drs. Tony Truong, Aisha Bruce, Aru Narendran, Iwona Auer, Gary Sinclair, Vistor Lewis, Grey Guilcher and Joanna Luidier. *"A Simulation-based Intervention Teaching Illness Management Skills to Caregivers of Children with Adrenal Insufficiency: a Randomised Controlled Study."* (Primary Project Type – Research, Secondary Project Type – Clinical care)

**Project Summary:** Sickle cell disease (SCD) is a debilitating chronic blood disorder with multi-system end organ damage that leads to morbidity and early mortality. The only cure for SCD is hematopoietic stem cell transplantation (HSCT), which is only an option for a minority of patients who have a matched sibling donor. In the field of HSCT, blood group ABO incompatibility between donor and recipient is not a contraindication and does not compromise outcomes. However, in the context of reduced intensity conditioning (RIC) and major ABO incompatibility, when the recipient has existing antibodies to donor red blood cells, pure red cell aplasia (PRCA) may occur in up to 29% of patients. Currently, these patients are not eligible for RIC-HSCT. Finding ways to accurately monitor red cell engraftment and prevent PRCA among major ABO incompatible RIC-HSCT will open doors to more SCD patients who need this life saving therapy.

#### Competition year: 2016

1. Drs. Adam Cheng, Helen Levin & Vince Grant *"The use of rapid-cycle deliberate practice in crisis resource management skill acquisition: a prospective pre-post interventional study"* (Primary Project Type – Education, Secondary Project Type – Clinical, awarded \$12,600).

**Project Summary:** Simulation based healthcare education (SBHE) has been shown to be effective. However, given its' resource-intensive nature, it is imperative to find the optimal method of delivery. Rapid cycle deliberate practice (RCDP), is a form of SBHE which capitalizes on mastery learning. Mastery learning aims to have all learners achieve an objective level of satisfactory performance. The variation lies in the amount of time for individual learners to achieve this standard. RCDP allows learners the opportunity to cycle between deliberate practice and directed feedback, with multiple opportunities to "rewind" to correct errors to achieve mastery. We propose comparing the use of RCDP with standard debriefing technique in undergraduate medical and nursing students. Prior study has found RCDP to be superior in teaching resuscitative skills to pediatric residents. Here we endeavor to evaluate if this same benefit is seen in the acquisition of crisis resource management (CRM) skills.

2. Drs. Paul Doughty, Christopher Grant, Michael Esser and Kirsten Fiest, Kat Grant, Laurie Lee & Wendy Bissett *"The Road to Recovery – Assessing Functional Outcomes of Pediatric Critical Care Survivors"* (Primary Project Type – Clinical Care, Secondary Project Type – Research, awarded \$20,000).

**Project Summary:** With advances in the management of critically ill children, the number of patients surviving to hospital discharge is increasingly high. Unfortunately, there is a paucity of literature examining the unique challenges experienced by survivors of pediatric critical illness and

their family members. We do know that survivors of pediatric critical illness have increased school absences and persistent functional impairments as compared with their peers, but the extent of these underlying impairments is not fully understood. As such, there is an urgent need to measure the extent of cognitive and functional impairments amongst survivors of pediatric critical illness. Only if the full extents of these impairments amongst survivors of pediatric critical illness are understood can we develop targeted treatment and follow-up programs and required to improve the quality of function and quality of life for survivors of pediatric critical illness and their family.

3. Drs. Taryn Fay-McClymont, Susa Benseler, Keith Yeates, Marinka Twilt & Brian Brooks, Anastasia Dropol & Kristen Deschamps *“Focus on Innovative Rehabilitation for autoimmune Encephalitis: Putting out the FIRE through clinical phenotyping” Project Type: Research* (Primary Project Type – Research, Secondary Project Type – Clinical Care, awarded \$21,036.83).

**Project summary:** The identification of clinical phenotypes in children with primary inflammatory brain diseases over the past 10 years has led to astonishing changes in survival. Prior to 2001, over half of children with inflammatory cerebral vasculitis died. Since 2006, with the development of the SickKids Childhood CNS Vasculitis program and the international BrainWorks database, survival is nearly 100%. Despite this remarkable progress, the clinical cognitive phenotypes of children with inflammatory brain diseases remain uncharacterized. This is a critical and important gap. These children now survive, but how do we ensure they return to full and productive lives? By delineating the clinical cognitive phenotypes, we can discover why some children's cognitive abilities recover quickly and why some fail to recover. Furthermore, by targeting children experiencing a poor recovery trajectory with innovative methods to 'put out the fire' using cognitive rehabilitation and personalized medicine, we can return them to a normal developmental trajectory.

4. Drs. Stephen Freedman, Otto Vanderkooi, Byron Berenger, Angelo Mikrogianakis, Silviu Grisaru, Susan Samuel, Dan Gregson, Linda Chui, Gillian Currie, Brent Hagel, and Karen Lowerison *“Clinical Improvements Through the Use of a Rapid Multiplex PCR Enteric Pathogen Detection Kit in Children with Hematochezia” (Primary Project Type – Research, Secondary Project Type – Clinical Care, awarded \$24,997).*

**Project Summary:** Children presenting for emergency department (ED) care with bloody diarrhea (i.e. hematochezia) represent a diagnostic challenge. Infectious enteric pathogens – *Salmonella*, *Shigella* and Shiga toxin-producing *Escherichia coli* (STEC) – are at the top of the differential diagnosis list. STEC is of greatest concern because ~15% of infected children develop the Hemolytic Uremic Syndrome (HUS). Our team has demonstrated that antibiotic administration to STEC-infected children increases the risk of developing HUS while dehydration is associated with mortality. Rapidly identifying children with STEC infection can reduce unnecessary resource use in uninfected children while providing them to those with confirmed STEC infection. We will conduct a prospective ED-based study that will randomly allocate 60 children to either standard care as dictated by the treating physician or to the use of a 22-pathogen, nucleic acid based, 1-hour run time diagnostic test. We will evaluate the impact of testing on clinical resource use, clinical outcomes, costs and patient satisfaction.

5. Drs. Josephine Ho, Silviu Grisaru, Michelle Jackman, Paola Luca, Erika Vorhies & Alexander Leung *“Pediatric Obesity and Nocturnal Dipping of Blood Pressure (POND-BP Study): A Prospective Cohort Study” (Primary Project Type – Research, Secondary Project Type – Clinical Care, awarded \$24,960).*

**Project Summary:** Obesity and hypertension synergistically increase risk for cardiovascular morbidity and mortality in adults. In children, the consequences of these are more difficult to evaluate as cardiovascular outcomes occur later in life. Office blood pressure (BP) measurements

may over or under estimate hypertension and do not show the *pattern* of BP. Physiologic *dipping* of BP during sleep is normal in 24-hour ambulatory blood pressure monitoring (ABPM). In adults, *non-dipping* is associated with increased cardiovascular risk and chronic kidney disease. In children, small observational studies show *non-dipping* to be associated with higher left ventricular mass. BP circadian rhythm has also been shown to be affected by obesity in children even in the absence of established hypertension. The aim of this study is to determine the prevalence of *non-dipping* by APBM in pediatric patients with obesity and to assess if *non-dipping* is associated with higher left ventricular mass and markers of metabolic syndrome.

6. Drs. Lucie Lafay-Cousin, Fiona Schulte, Melanie Finkbeiner, and Melanie Khu “*Delivering intravenous hydration after chemotherapy at home: A comparative prospective evaluation of patient's quality of life and health economy impact*” (Primary Project Type – Research, Secondary Project Type – Clinical Care, awarded \$19,887.89).

**Project Summary:** Traditionally, children with cancer needing fluid hydration after chemotherapy receive it via central venous access in the hospital for 1-5 days. Under the Pediatric Oncology Hospital at Home (H@H) program, we recently began treating children requiring post-chemotherapy hydration at home, reducing hospital admission time for these children. This method of delivery of care has not previously been extensively described in the literature and therefore, medical and psychosocial outcomes remain unknown. We plan to do a prospective cohort study comparing children treated via the H@H program and those receiving traditional care. Medical outcomes include symptom control (specifically nausea, vomiting and pain), sleep quality and rate of complications such as unexpected admission to hospital and central line issues. The psychosocial outcomes are patient quality of life, caregiver stress and family impact. We will also perform a cost-effectiveness analysis to better describe the health care savings associated with this approach.

7. Dr. Suzanne Tough, Erin Hetherington, Sheila McDonald, Muci Wu, Nikki Stephenson, and Niya Hurley “*What factors protect children with developmental problems against poor self-regulation at school entry*” (Primary Project Type – Research, Secondary Project Type – Education, awarded \$17,400).

**Project Summary:** The World Health Organization and the Public Health Agency of Canada list child development, including school readiness, as a determinant of health and identify early childhood as a critical period for improving health equity across the life course. Alberta has the lowest levels of school readiness in the country, with 29% of children being screened as having great difficulty in at least one area of development. Self-regulation is an essential part of child development and predicts school readiness and in relationships with others. The goal of this project is to examine which factors promote selfregulation at age 5 among children with socio-demographic, familial or child risk factors, and to disseminate these findings among health care providers and early education experts.

8. Drs. Theresa Wu, Susan Bannister, Leanna McKenzie and Michael Paget “*An assessment of the UofC undergraduate pediatric curriculum, and development of a set of recommendations of how the pre-clerkship teaching could be improved, using the national curriculum, canuc-paeds, as a standard*” (Primary Project Type – Education, awarded \$22,400).

**Project Summary:** Our team will produce a comprehensive *on-line* Paediatric learning portal for undergraduate medical students. This proposed website will be a novel tool which will aid our students in pediatric knowledge acquisition, organization, integration, and retrieval. This tool will also be of assistance to faculty as they will be better able to see the broad organization of curriculum content. The paediatric undergraduate curriculum content will be compared to a nationally recognized standard (canuc paeds) to identify gaps and redundancies in pediatric teaching. A needs

assessment will be conducted to identify perceived limitations in the delivery of pediatric undergraduate education at the CSM. We will then work with a multidisciplinary team to build an innovative on-line pediatric portal, which will house clinical presentations, paediatric-specific schemes, key conditions, peer-reviewed resources, a video learning resource, as well as Cards (on-line cases with questions that promote clinical reasoning).

### Competition year: 2017

1. Drs. Belal Alshaikh and Kamran Yusuf, and Jannette Festival, Christel Major, and Hope Boychuk. *“Effect of Hindmilk on growth and velocity of very preterm infants”* (Primary Project Type – Research, Secondary Project Type – Clinical Care. Awarded \$20,999).

**Project Summary:** Extra-uterine growth restriction (EUGR) is one of the most common findings among very preterm infants at discharge from neonatal intensive care units. EUGR is associated with major morbidities such as bronchopulmonary dysplasia (BPD), retinopathy of prematurity (ROP) and impaired neurodevelopment. EUGR is caused by slow postnatal growth and largely results from energy and protein deficits. These deficits occur despite the current fortifications of human milk. Hindmilk, the milk at the end of a breast pumping session, has higher fat and energy content compared to the composite milk. Feeding hindmilk can be a natural and innovative way to provide additional calories for very preterm infant. Hindmilk is rich in some fatty acids that are currently under investigation to prevent BPD and ROP and improve neurodevelopment. The aim of this study is to assess growth benefits of feeding hindmilk and to explore whether it can improve fatty acids profile in very preterm infants.

2. Drs. Jennifer deBruyn, Kerri Novak, Jocelyn Jeong, Iwona Wrobel. *“Novel methods of non-invasive evaluation of disease activity in pediatric inflammatory bowel disease: Exploring the utility of bowel ultrasound and fecal calprotectin”* (Primary Project Type – Research, Secondary Project Type – Clinical care. Awarded \$22,000).

**Project Summary:** The inflammatory bowel disease (IBD) [Crohn’s disease and ulcerative colitis] are lifelong conditions of gastrointestinal inflammation. Therapeutic goals in IBD have evolved beyond symptoms to mucosal healing with the aim of preventing structural damage. In this study, we will assess novel techniques of evaluating bowel inflammation. Bowel ultrasound is a real-time, safe, well-tolerated, inexpensive, and noninvasive imaging modality. Fecal calprotectin is a biomarker of intestinal inflammation. Given limited literature on these tests in pediatric IBD, this prospective study will evaluate the utility of bedside bowel ultrasound and fecal calprotectin in assessment of disease activity and change in response to therapy in 60 children with active IBD at the Alberta Children’s Hospital. We will perform assessments at baseline, 3 months, and 12 months and correlate ultrasound and fecal calprotectin to clinical, endoscopic, radiologic, and biochemical indices of disease activity and evaluate changes in ultrasound and fecal calprotectin in response to therapy.

3. Drs. April Elliott, Gina Dimitropoulos, Stephanie Borgland, Paul Arnold, Frank MacMaster, Pardis Pedram. *“Alterations in fronto-striatal circuits underlying compulsivity associated with Anorexia Nervosa”* (Primary Project Type – Research. Awarded \$22,000).

**Project Summary:** Anorexia nervosa (AN) is characterized by an intense fear of weight gain, despite significantly low body weight. The characteristic behaviors seen in AN to achieve weight loss, like extreme dietary restriction and/or exercise (restricting subtype) with periods of binge-

eating/compensatory behaviors (binge-eating/purging subtype) are described as evidence of compulsivity. Compulsivity (behaviors that are persistently repeated despite adverse consequences) is most characteristic of obsessive-compulsive disorder (OCD). Adolescence is the period of onset for AN and a critical time for brain development in circuits that control compulsions. Therefore, our aims are to evaluate the similarities of compulsivity and inflexibility in circuits between AN and OCD and the association of these factors with severity of AN in adolescents. This information may lead to early identification and novel treatments. Therefore, 160 female adolescents (12-18 year-old) in three groups of AN, OCD and healthy controls will be evaluated for compulsive behaviors by standardized interviews and self-report measures.

4. **Drs. Vince Grant, Adam Cheng, Elaine Guilfoyle, Jeff Caird, Yiqun Lin, Thomas O'Neill, Tyler Williamson.** *“Patterns of Inattentive Blindness during Cardiac Arrest Care: Do Healthcare Providers See and Correct Critical Errors?” (Primary Project Type – Research. Awarded \$25,000).*

**Project Summary:** Each year, more than 15,000 infants and children in Canada and the United States receive cardiopulmonary resuscitation (CPR) as a treatment of cardiac arrest. Survival rates from pediatric cardiac arrest are very poor. Providing effective care involves effective team function, dynamic leadership and situational awareness amongst all team members. In order to improve the quality of care provided to cardiac arrest patients, it is imperative to have a better understanding of the types of errors that are missed during cardiac arrest. Inattentive blindness is a phenomenon defined as the failure to see things that are in plain sight on account of being unexpected. The notion of inattentive blindness has been largely unexplored in healthcare, and specifically, in the context of resuscitation. In our study we propose to describe patterns of inattentive blindness by identifying the types of mistakes that are missed by team leaders and members during cardiac arrest.

5. **Drs. Greg Guilcher, Nicolas Prud'homme, Steven Greenway, Faisal Khan, Jennifer Chan, Tony Truong, Ravi Shah, Michael Leaker, Nicola Wright, Doan Le, MacGregor Steele, Victor Lewis.** *“Methylation Patterns of cell-free DNA as a Biomarker of Erythroid Engraftment Post-Hematopoietic Stem Cell Transplantation for Sickle Cell Anemia” (Primary Project Type – Research. Awarded \$24,750).*

**Project summary:** Sickle cell anemia (SCA) is a chronic red blood cell (RBC) disorder which can result in decreased quality of life and reduced life expectancy. The only established cure for SCA is hematopoietic stem cell transplantation (HSCT). Engraftment of donor blood cells post-HSCT is currently assessed by determining donor myeloid and T-cell engraftment by analyzing specific DNA pattern differences between the HSCT donor and recipient in white blood cells from the peripheral blood. While useful for most malignant diseases, the current assay cannot determine the engraftment of anuclear RBCs post-HSCT. This standard method therefore has significant limitations in following recipients of HSCT for SCA. The aim of this study is to find different DNA methylation patterns of nucleated red blood cells in SCA patients. We will then determine if the differences in DNA methylation patterns in circulating cell-free DNA can be used to accurately quantify RBC chimerism for SCA patients post-HSCT.

6. **Drs. Maria-Jose Santana, David Johnson, Mary Noseworthy, Peter Faris.** *“Integration of Patient-reported Outcomes in Pediatric Care: the KidsPRO” (Primary Project Type – Clinical care, Secondary Project Type – Research. Awarded \$24,250).*

**Project Summary:** We plan to use Patient-reported Outcomes (PROs) in routine clinical care. Despite the evidence for PROs to improve health and healthcare, collection and reporting of PROs are not routinely integrated into pediatric care anywhere in Canada. This study will be the first to inform the PRO integration in pediatric care. Specifically, this proposal will support a pilot project to integrate PROs in asthma care. Asthma is the most common chronic disease in children, and we hypothesize that the integration of PROs in routine clinical care of asthmatic children will improve patient outcomes (e.g., asthma control) and healthcare utilization (e.g., reducing emergency department visits). *Study outcomes* include: 1) Gaining an understanding into the development and integration of PROs into asthma care, provided in out-patient clinics in the Alberta Children's Hospital; 2) informing further integration into pediatric care in Alberta. Future provincial implementation of PROs will improve health and healthcare for children in Alberta.

### Competition year: 2018

1. Dr. Kerri Landry and Jenny Chatfield "ImPACTS-Improving Pediatric Acute Care Through Simulation" (*Primary Project Type – Education, Secondary Project Type – Clinical Care. Awarded \$24,750*).

**Project Summary:** Emergency Departments are disparate in their readiness to provide care to sick children. The majority of Pediatric Academic Medical centers have high levels of pediatric readiness as they are designed and operated solely to care for children whereas smaller/general centers, due to the lack of specific equipment, personnel or protocols, aren't as ready to deal with pediatric emergencies. The majority of children in Canada and the U.S. however are cared for in these types of centers. This project aims to improve the pediatric readiness and structure and process of pediatric care at non-pediatric centers through the creation of relationships between Hubs (Alberta Children's Hospital) and Spokes (general medical centers-TBD). Using pediatric readiness scores, clinical team work scores and simulation, the Hub center will help the Spoke center identify action items directly related to improving their pediatric readiness and work with them over 6 months to implement these changes.

2. Dr. Kara Murias "Complex Attention and Executive Function Clinic Evaluation Project" (*Primary Project Type – Clinical care, Secondary Project Type – Research. Awarded \$18,677*).

**Project Summary:** Across multiple conditions, many children with disease or injury affecting the central nervous system have difficulty with attention, behavioural regulation, and executive function. Deficits cause disability for the child in academics, social relationships, and other areas of quality of life affecting the entire family. While there is emerging support for possible treatments in some neurological conditions (e.g. stimulants in epilepsy), overall there is limited evidence regarding treatment. Within Developmental Pediatrics, a specialized clinic to assess and treat children with neurodevelopmental, neurologic, or complex systemic disease that have clinically significant impairments in attention and behavioural regulation is under development. This project will assess the effectiveness of a protocol-based treatment approach on both medical outcomes (change in symptoms, medication, health status) and patient-centred outcomes (patient quality of life, parental stress levels). These data will be used to better define best practices and design future intervention studies.

3. Drs. Alberto Nettel-Aguirre, Katie Chaput, Suzanne Tough, Amy Metcalf and Natalie Scime "Breastfeeding intentions, outcomes, and perceptions of support in women with pre-existing



conditions: the Motherhood and Chronic Illness (MaCI) mixed methods cohort study” (*Primary Project Type – Research. Awarded \$25,000*).

**Project Summary:** Mothers with chronic illness (e.g., diabetes, epilepsy) are less likely to exclusively breastfeed their infants to 6 months in accordance with World Health Organization recommendations compared to healthy counterparts. The reasons for this disparity are unknown. Using a prospective, mixed-methods cohort study, we will investigate what factors and support experiences are associated with breastfeeding intentions and achieving breastfeeding goals among perinatal women with chronic illness in Calgary. We will collect data via questionnaires and qualitative breastfeeding logbooks in late pregnancy and 6-weeks postpartum, measuring breastfeeding intentions and outcomes and various maternal, obstetric/neonatal, and illness-related factors. Journal entries on feeding support experiences will undergo thematic analysis. We will use dimension reduction strategies and logistic regression modelling to identify variables that are significantly associated with each outcome. Findings may inform support interventions, hospital policies, and community programs that are sensitive and responsive to the breastfeeding needs of women with chronic illness.

4. Drs. Susan Samuel, Kyleigh Schraeder, Jeff Bakal, Gina Dimitropoulos, Andrew Mackie, Kerry McBrien, Alberto Nettel-Aguirre, Daniele Pacaud, Scott Patten, Cathie Scott, Judy Seidel and Jennifer Zwicker “Evaluating the Impact of Primary Care Patient-Provider Relationships on Emergency Department Utilization by Adolescents and Young Adults with Chronic Conditions” (*Primary Project Type – Research. Awarded \$22,000*).

**Project Summary:** Continuity of care for adolescents and young adults with chronic conditions is essential. Without continuity of care, these individuals may require costly emergency care when medical or mental health-related crises arise. This is especially concerning when transferring from specialized pediatric to adult services. Ongoing relationships in primary care (between a patient and a single provider or clinic) might be one solution to improve care during this critical transition period. Yet, research on primary care utilization by adolescents and young adults with chronic conditions is very limited. Our team will address this gap by creating a population-based longitudinal cohort of adolescents who have received care within specialist clinics at pediatric hospitals in Alberta (i.e., diabetes, nephrology, rheumatology, cardiology, mental health). This project will evaluate whether having an ongoing relationship with a family physician, before and after transfer from specialized pediatric services, impacts Emergency Department use by adolescents and young adults with chronic conditions.