

JANEWAY PEDIATRIC RESEARCH UNIT

ADVANCING PEDIATRIC RESEARCH IN NEWFOUNDLAND AND LABRADOR



MAY 2019

A MESSAGE FROM THE DIRECTOR OF PEDIATRIC RESEARCH

Welcome to the Janeway Pediatric Research Unit's Research Report 2019. Our cover, "Curiosity Blooms" is a mural featured in our research unit's foyer, located on the 4th floor of the Janeway Hostel. "Curiosity Blooms" depicts a beautiful and magical woodland forest, which welcomes visitors to explore, observe and ponder the magic and possibility it has to offer. Prominent throughout the image is a rainbow, created by the reflection, refraction and dispersion of light. A

rainbow also represents fresh beginnings, peace, hope, inclusivity, and promises new prosperity and renewed energy. These themes resonate with the creativity required and generated through research.

We have big plans—to advance pediatric research in Newfoundland and Labrador. Research is a powerful tool that allows us to document, quantify, communicate, and address health problems and improve population health. We have achieved substantial progress in child health over the past 10 years, but many problems remain ... and increasing our research capacity is going to be important on so many levels, especially for the children and families we care for.

We welcome you to explore the stories throughout this report, hoping it will give you insight into some of the exciting work happening at the Janeway Child Health Centre and Memorial University, Faculty of Medicine. "Curiosity Blooms" is the artistic creation of J.J. Allwood (who also happens to be my incredibly talented sister). Special thank you to Danielle Seviour, Steph Porter, Catherine Barrett, Jennifer Armstrong, and Dr. Rana Aslanova for making this publication possible!

Leigh Anne Allwood Newhook MD



A MESSAGE FROM THE JANEWAY FOUNDATION

Without funding for ongoing research, advances in the diagnosis and treatment of illness and injury would not be possible.

Children are constantly changing and growing. So are their medical needs, as they relate to medications, types of therapy required, and devices that are used in their care.

Pediatric research will help us meet these most important requirements and ensure that our province's children receive the best care possible.

Lynn Sparkes, President & CEO
Janeway Children's Hospital Foundation



A MESSAGE FROM THE CHAIR OF PEDIATRICS

Dr. Kevin Chan, Chair of Pediatrics, has broad research interests including primary health care, global health, pediatric emergency, and transitions of care. Recently, he has also focused on climate change and children: he co-authored an article for *Pediatrics*, which received international media coverage, and delivered a keynote speech to Cambridge University on the topic.

Dr. Chan is one of three leads from the province for the pan-Canadian SPOR Network in Primary and Integrated Health Care Innovation, which aims to develop, evaluate, and expand new approaches to the delivery of health care services. His team holds a \$1 million supporting grant from this initiative; Dr. Chan, along with Dean of Medicine Dr. Margaret Steele, and Chair of Psychiatry Dr. Kim St. John have applied for funding to work on a study on acute children's mental health services.

As part of his continuing work with the International Child Health Section of the American Academy of Pediatrics, Dr. Chan worked with a team on a series of papers outlining guidelines for pediatrician involvement in global health issues; he has also collaborated on several papers examining changes in global health participation by pediatricians.

In the area of emergency medicine, Dr. Chan, in collaboration with residents, wrote five chapters in an emergency pediatrics textbook, released in 2018. With Dr. Robert Porter, Dr. Chan published a paper on the risk of scaphoid fractures in children and ways to reduce the need for X-rays in these cases.

Dr. Chan also works with the acute care committee of the Canadian Pediatrics Society to set national guidelines for how pediatricians and emergency and ICU doctors deal with children in acute situations.

Dr. Chan looks forward to the next phase of research development at the Janeway Pediatric Research Unit, and the opportunity to participate in and lead additional national collaborations, particularly those relevant to addressing the needs of Newfoundland and Labrador's children.



PEDIATRIC INFECTIOUS DISEASE

As Dr. Natalie Bridger says, being a pediatric infectious disease specialist means there's always something new and interesting to study—or old and interesting, in the case of resurgent vaccine-preventable diseases. Her main research interests are emerging infectious diseases, antimicrobial stewardship, prevention of hospital acquired infections, and vaccine-preventable diseases.

Dr. Bridger is the Clinical Chief of Infection Prevention and Control for Eastern Health, and site investigator for two national studies: IMPACT and Canadian Nosocomial Infection Surveillance Program (CNSIP). IMPACT is an active surveillance program of pediatric hospitals in Canada for adverse events following vaccination, vaccine failures, and vaccine preventable diseases. The study started in 1993 and data are used nationally for vaccine development and advocacy, and internationally for comparison of epidemiology between countries. A nurse monitor performs the data collection and reporting at each site; at the Janeway this is expertly done by research nurse Debbie Harnum. In 2018, Dr. Cheryl Foo joined the team as co-investigator.



CNSIP, another multi-site Canadian study, provides rates and trends of health care-associated infections in Canadian facilities with the purpose of establishing national benchmarks. Dr. Bridger works with the epidemiologist for Eastern Health and the infection control practitioners who are responsible for collecting and reporting the data for this study.

Dr. Bridger is lead author on two Canadian Paediatrics Society statements (one published in 2018 and one in press). The first is an update on rational exclusion policies for school, daycare, and camps for chickenpox. The second, "Safe-living Strategies for the Immune Compromised Child," was written with Dr. Upton Allen from SickKids. Dr. Bridger is also part of a team (with Dr. Joan Robinson in Edmonton, and two librarian colleagues) that recently completed a systematic review of outbreaks associated with consumption of unpasteurized and pasteurized dairy products in Canada and the United States. Dr. Bridger also supervises the work of multiple medical students and residents, many of whom have presented nationally.

PEDIATRIC INTENSIVE CARE: RURAL VERSUS URBAN OUTCOMES FOR CRITICALLY ILL CHILDREN

Pediatric intensivist Dr. Megan (Sample) Carey is exploring the differences between outcomes for critically ill children from rural areas and those who are able present directly to tertiary care centers. Her research is relevant in Newfoundland and Labrador, and across Canada, due to the expansive geography and spread-out populations. When children from rural areas become critically ill, they often require a medical transport to a pediatric intensive care unit (PICU).

Dr. Carey began research on this topic during her pediatric critical care fellowship in Ottawa. Focusing on patients from the Children's Hospital of Eastern Ontario's PICU, she examined outcomes for children that required a transport to access pediatric critical care as compared to those that did not. Her study, published in *Pediatric Critical Care Medicine* in 2017, showed differences in hospital and PICU length of stay as well as increased likelihood of mortality in transported critically ill children.

Currently, Dr. Carey is developing a Master's thesis proposal to determine how to capture the illness severity of critically ill pediatric patients outside of tertiary care settings. By creating an objective method to describe degree of illness of pediatric patients in rural areas, she hopes to assist clinical management and facilitate further research into the reasons why children presenting outside tertiary care centers often have inferior outcomes. Dr. Carey also hopes to retrospectively examine outcomes for the critically ill children of Newfoundland and Labrador when transport to the Janeway Children's Health and Rehabilitation Centre's PICU has been required. Dr. Carey received a Janeway Research Grant for the project, which will be supervised by Dr. Kusum Menon, University of Ottawa and Dr. Roger Chafe, Janeway Pediatric Research Unit.



HEALTH SERVICES, POLICY AND RESIDENT RESEARCH

Understanding the broader context of policy development and health service delivery is crucial to improving our overall health care system. Dr. Roger Chafe's research contributes to this understanding, focusing mainly on children's health.

Specifically, Dr. Chafe has worked on issues related to type 1 diabetes, pediatric oncology, pediatric emergency medicine, pediatric mental health, children in protective care, autism, and other topics.

As an associate professor in the Division of Pediatrics and Director for Pediatric Resident Research at Memorial, Dr. Chafe has mentored over 30 pediatric residents through their research projects. He was also recently involved in establishing national standards for pediatric resident research. Dr. Chafe has been leading a provincial research program to study patient transition from pediatrics into adult care. This transition period often brings an increase in adverse health outcomes and a heightened risk that young adult patients will be disconnected from their health supports.

As part of this program, Dr. Chafe collaborated with the Janeway, SickKids, and Markham-Stouffville hospitals to examine the transition of patients with diabetes. The research team compared the rates of hospitalization for young adult diabetes patients in Newfoundland and Labrador with those from Ontario. They also surveyed the 36 diabetes centers in Ontario and interviewed providers across Newfoundland and Labrador to better understand variation in care delivery. In partnership with Dr. Paul Moorhead and PhD candidate Devonne Ryan, Dr. Chafe is using the World Health Organization's Quality Care Framework to implement interventions for improving the transition and aftercare for survivors of childhood cancer in our province. Dr. Chafe is also currently writing a book on patient and providers' experiences of the transition to adult care.

Dr. Chafe has served as an executive member of the Council of Canadian Child Health Research and a board member of the Maternal, Infant, Child and Youth Research Network (MICYRN). He is currently a member of the Canadian Pediatric Program Directors for Resident Research and an executive member of the Canadian Child Health Clinician Scientist Program.

His work has been funded by the Canadian Institutes of Health Research (CIHR), SickKids Foundation, Glenn's Helping Hand Foundation, and the Janeway Foundation. Dr. Chafe is co-editor of CIHR's Public Engagement in Health Casebook and author of the book *Allocating Health Care Resources in Canada*.



THE HISTORY OF CHILDREN'S HEALTH IN NL

In Dr. Rick Cooper's 40-plus-year career as a pediatrician at the Janeway he has studied, worked, and taught in many areas, including microbiology, neonatology, oncology, and infectious diseases. For the past 30 years, Dr. Cooper's primary research interest has been in medical history, and he has presented a significant amount of information to the St. John's Medical Historical Society.

In 2017, Dr. Cooper published *The Janeway: 50 Years of Caring for Children*, a history of the Janeway, through Boulder Books. He is donating all royalties to The Janeway Children's Hospital Foundation.

Dr. Cooper is currently working on a book on the history of child health and welfare in Newfoundland and Labrador. The book includes both historical content and collected anecdotes, and will be divided into sections focusing on St John's, the outports, orphans, and the education of children. Dr. Cooper spends significant time on archival research, and is continuously looking for stories to add to the manuscript—he admits he has been known to spend an entire afternoon in the archives and resurface with only one piece of information. Dr. Cooper still works part-time as a pediatrician.



CHILD DEVELOPMENT CLINIC

Developmental physicians Dr. Sandra Luscombe and Dr. Vicki Crosbie are involved in several applied clinical research initiatives surrounding child development.

Dr. Luscombe, physician lead of the child protection team, focuses on research involving child maltreatment and children in foster or out-of-home care. Dr. Crosbie is interested in the social determinants of health and how the pediatric practice could be infused with these social determinants to create a healthier population.

Dr. Luscombe is involved in a variety of research projects with medical students and residents. Most recently, she supervised master's student Laura Hurley as she followed the journey of families and health professionals through the diagnosis and treatment of autism. Dr. Luscombe is also working with: medical student Jillian McCarthy on phase projects looking at Child and Youth Advocacy Centres across Canada; medical student Amanda Brett's study of resources based on the social determinants of health; and pediatric resident Allison Lamond as she explores whether family physicians are hesitant about diagnosing ADHD and if there are ways to help them in this area. Lamond will survey family physicians and create an online module to help them in diagnosing and following children with ADHD.



The Child Development Clinic is exploring research with Memorial psychology professor Dr. Ashlyn Swift-Gallant to examine different biomarkers in autism. The clinic continues to work with Dr. Bridget Fernandez, who is involved in a large genomic study with a group in Toronto to examine genetic markers and autism.

Dr. Luscombe and Dr. Crosbie, in collaboration with a multi-stakeholder group, have been approved for funding to start a Child and Youth Advocacy Centre. The centre will provide co-located services and a safe space for interviewing children who have experienced abuse.

In collaboration with Dr. Leigh Anne Allwood Newhook, Dr. Luscombe and Dr. Crosbie plan to start a Children and Youth in Care clinic in September 2019. Too often, children and youth in care get lost in the health care system, and are vulnerable to struggles in the justice system, and negative long-term mental and physical health outcomes. The Children and Youth in Care clinic will have a large research component to track patients and measure the effectiveness of the clinic's programs.

Recently, the Child Development Clinic has started working with Chief Joe Boland and the Royal Newfoundland Constabulary to implement Kids in the Know, an education program from the Canadian Centre for Child Protection. Embedding this program in the school curriculum, from kindergarten to Grade 9, will give small children information about what is appropriate and what is not. Outcome measures implemented at the outset of the program will track its effectiveness.

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As a pediatric rheumatologist, Dr. Paul Dancey is interested in research surrounding juvenile arthritis and other rare diseases such as vasculitis and autoinflammatory disease.

Since he started working with the Janeway in 2003, Dr. Dancey has been a member of the Canadian Alliance of Pediatric Rheumatology Investigators (CAPRI), serving on the executive for many years. As part of this national research group, he frequently collaborates with other physicians to increase the knowledge base in pediatric rheumatology research. In the past year, Dr. Dancey has been involved in at least five publications stemming from his work with CAPRI. Small centres such as Newfoundland and Labrador make important contributions to these national studies, Dancey says, as the diseases that CAPRI examines are rare and their study relies upon work from across the country.

Through their research, Dr. Dancey and his CAPRI colleagues have helped patients, and helped physicians help their patients, in several ways. For example, they have designed tools to help predict outcomes based on a patient's initial presentation. All new patients with juvenile arthritis are enrolled in a registry they established, to follow these patients and their outcomes. Using this registry, a scoring system has been designed to help communicate to patients which course of treatment is most appropriate for them. Applied to clinical practice, this research helps physicians make treatment decisions.

Dr. Dancey is currently recruiting patients for a study on uveitis, a condition that causes eye inflammation and is common in children with arthritis. Uveitis can be a devastating manifestation of pediatric arthritis, but there is little robust research surrounding treatment. The goal of this study is to examine the causes of uveitis and to guide effective treatment. Dr. Dancey is also part of a vasculitis research group looking at rare forms of vasculitis, of which there have been some cases in Newfoundland and Labrador. A publication on this topic is pending.

Sharon Smith, RN, MN is the Research Coordinator of all national projects by Dr. Paul Dancey and Dr. Jeff Critch.



NEONATAL INTENSIVE CARE

Dr. Julie Emberley's main areas of research include neonatology, ethics and breastfeeding. Recently, she has focused on issues around donor milk for critically ill newborns in the Neonatal Intensive Care Unit (NICU).

Dr. Emberley and her research team launched a qualitative research project to gauge the knowledge and attitudes of NICU nurses and parents of preterm babies surrounding donor milk. This study, done in collaboration with the Baby-Friendly Research Group, contributed to the successful implementation of donor milk in the Janeway's NICU in 2018. The research team will conduct a post-implementation study in 2019: they plan to speak with nurses and parents again, to see if knowledge of and attitudes towards donor breast milk have changed.



As the site investigator for the Canadian Neonatal Network (CNN), Dr. Emberley is part of a national group of neonatologists and researchers whose goal is to advance neonatal care in Canada. In collaboration with this network, she participated in a family integrated care trial, which demonstrated the importance of integrating the families of preterm infants with the care team. Dr. Emberley places high importance on collaborating with national and international research networks, especially as a researcher at the Janeway, a relatively small health centre.

In early 2018, Dr. Emberley presented on local improvement in decreasing rates of serious conditions such as necrotizing enterocolitis and nosocomial infection in high risk newborns at the CNN annual conference. As a result, she was chosen to lead a delegation to Norway in September 2018 to help gather information on differences in empirical antibiotic use in Norway compared to Canada. Dr. Emberley is currently pursuing a pilot study in this area.

Dr. Emberley frequently works with undergraduate medical students and pediatric residents. Currently, she and undergraduate medical student Aanchal Ralhan are developing a 3D model of the neonatal thorax as a teaching tool, with the aid of Dr. Adam Dubrowski and engineers in the 3D printing lab.

Dr. Emberley is grateful for the grants she has received from the Janeway Foundation and Canadian Institutes of Health Research, and strives to ensure all of her work leads to meaningful change.

GENETIC TESTING: INSIGHT INTO AUTISM SPECTRUM DISORDERS

One in 68 children are affected by autism spectrum disorders (ASD), making it a major public health concern. Dr. Bridget Fernandez has been working with the Janeway's developmental pediatricians since 2005 to recruit and meticulously characterize children in the province with ASD, helping to improve therapies and rate of diagnosis.

In collaboration with Toronto's SickKids hospital, Dr. Fernandez has offered cutting-edge genetic testing to more than 800 Newfoundland and Labrador families, helping to pinpoint the cause of their child's autism.

The team started with high-resolution microarrays. These tests identified ASD-associated copy number changes—deletions and duplications of segments of the genome—in up to 10 per cent of ASD-affected children. Exome sequencing, a test that screens exons (the most important 1 per cent of the human genome) in all 22,000 genes, was also conducted. This technology helped identify mutations within approximately 80 ASD-risk genes.

In 2015, using 258 Newfoundland children with an ASD, Dr. Fernandez was able to definitively show that the diagnostic rate for an ASD-associated genome change when both tests are applied is 15.8 per cent. This rose to 37.5 per cent for ASD children with minor anomalies on careful physical examination. In 2018, a group of 350 Newfoundland children were tested with whole genome sequencing (sequencing of nearly all 6 billion base pairs that comprise a human genome). Preliminary results suggest that this analysis will show a further increase in the diagnostic rate.

Dr. Fernandez believes that genetic testing will allow individuals to be clustered into better treatment groups based on their molecularly defined ASD syndrome. In combination with clinical characteristics defined by developmental pediatricians and child psychiatrists, this will help to better target therapies.





IMPROVING HEALTHCARE DELIVERY AND INFECTIOUS DISEASE SURVEILLANCE

With a low population density spread over a large area, Newfoundland and Labrador is an ideal place for Dr. Cheryl Foo to pursue her two main research interests: the improvement of healthcare delivery to underserved populations; and surveillance and preparedness for emerging infectious diseases.

Dr. Foo aims to use her clinical and research skills to address healthcare service disparities, and to use novel technologies to provide infectious disease services across the province.

Her passion for improving healthcare service delivery started in medical school (University of Toronto) when she published a needs assessment of helicopter emergency medical services in Ontario. Most recently, Dr. Foo helped plan the 2019 Refugee Health Symposium at Memorial University. As a clinician, she uses telemedicine to reach patients in rural Newfoundland and Labrador. She hopes to improve access to infectious disease treatment for underserved communities and vulnerable populations such as homeless youth, youth living in remote communities, and new immigrants and refugees.

As part of her Master's in Public Health (completed in May 2019), Dr. Foo developed a proposal for a centralized research ethics board, to be called upon during public health emergencies involving infectious diseases. In addition, she studied the growing geographic range of *Ixodes scapularis* ticks and the prevalence of the diseases this species transmits in Manitoba.

She is also involved in several national surveillance programs, including a national study on antimicrobial usage in pediatric hospitals. This work, a national collaboration with the Pediatric Investigators Collaborative Network on Infections in Canada (PICNIC), was presented as a poster at the Association of Medical Microbiology and Infectious Diseases Canada 2019 conference. This project was her second study with PICNIC; the first examined Respiratory Syncytial Virus-associated pediatric deaths in Canadian pediatric hospitals.

Dr. Foo is also collaborating with Dr. Julie Emberley and pediatric resident Dr. Marika Hirtle-Lewis, to determine the impact of the Neonatal Intensive Care Unit's antimicrobial stewardship program on neonatal outcomes. She is also a site co-investigator for the Canadian Perinatal HIV Surveillance Program and the Canadian Immunization Monitoring Program.

Dr. Foo has also conducted clinical studies. During her residency at Western University, she published an analysis of the utility of systemic inflammatory response syndrome criteria for early detection of pediatric sepsis. In addition, she published a case report on Enterovirus A71 during her fellowship at the University of Manitoba.

ENABLING GOLD-STANDARD PEDIATRIC CANCER CARE, RIGHT HERE AT HOME

The Children's Oncology Group was formed to pool resources and knowledge in order to develop the gold standard of care for the treatment of children with cancer. The group has over 20 centers across Canada, the United States, New Zealand, and Australia.

Pediatric oncologist Lisa Goodyear is the principal investigator at the Janeway for the group. In most centers across Canada, including at the Janeway, a number of clinical trials are ongoing.

Eligible patients can choose to enroll in these open studies as a treatment option. This allows oncologists like Dr. Goodyear to continually offer state-of-the-art treatment to patients, the same treatment that other children are receiving elsewhere across North America. Being involved with the Children's Oncology Group also gives Dr. Goodyear and her colleagues access to experts in the field, who can assist with unique cases. Thanks to this relationship, Dr. Goodyear says the outcomes for children with cancer have been steadily improving every year, and that in certain areas have even reached plateaus, where the oncologists feel they have found the best possible treatment for their patients. The research behind these clinical trials helps to find the best combination of treatments for each patient.

Dr. Goodyear collaborates with other physicians, including Dr. Lynette Bowes and Dr. Paul Moorehead, clinical research nurse Bev Mitchell, and oncology nurse Gail Roberts, as well as pharmacists, pediatric surgeons, orthopedic surgeons, radiation oncologists, and others.

Dr. Goodyear and her research team are planning to increase their portfolio of open studies and aim to have between 15 to 25 open clinical trials at the Janeway. Having a base of studies open will allow the team to offer patients the best available treatment, close to home.

Dr. Goodyear also participates in research areas outside of oncology. She is involved in a national bone marrow failure registry, looking at bone marrow failure patients and their different oncology or hematological diagnoses.



PEDIATRIC IMMUNOLOGY AND ALLERGY

Dr. Alison Haynes, a practicing immunologist and allergist since 2014, recently built on her interest in medical education by completing a Medical Education certificate. Dr. Haynes is currently the Faculty Curriculum Lead for the Undergraduate Curriculum Review project team in Memorial's Faculty of Medicine, where she has been involved with the ongoing development, review and revision of the MD curriculum. She helped develop and coordinate an elective in Allergy, Immunology and Infectious Diseases, and exam review sessions for pediatric residents.

Dr. Haynes completed her pediatric residency at Memorial University and a Fellowship in Clinical Immunology and Allergy at the University of Toronto. Her research interests include primary immunodeficiency, and she is involved with the Choosing Wisely campaign to reduce unnecessary allergy testing.



PEDIATRIC BLEEDING DISORDERS

Dr. Paul Moorehead, Janeway pediatric hematologist/oncologist and clinical assistant professor of pediatrics, is involved in a number of national and international clinical trials and research investigations. His research generally focuses on the care of newborns with bleeding disorders, factor VIII inhibitors in hemophilia A, and laboratory testing of the hemostatic system.

Dr. Moorehead is national principal investigator for the Canadian Hemophilia Management in the Perinatal Setting (CHiMPS) study funded by the Canadian Hemophilia Society. The goal of CHiMPS is to determine what care is being provided to women and babies with hemophilia and other bleeding disorders before, during, and after delivery. This information will be used to develop standardized care.

In collaboration with McMaster University, Dr. Moorehead is an investigator with the Hemophilia Obstetric Parental Preferences (HOPPE) study. This qualitative study is examining the attitudes and preferences for medical care of parents who have had a baby at risk of hemophilia.

Closer to home, Dr. Moorehead is working with Memorial University computer scientist Dr. Sharene Bungay to determine whether a computer model can predict the results of thrombin generation, an advanced blood clotting test. A successful model could be used to perform virtual “experiments” about the hemostatic effects of treatments in patients with bleeding disorders.

The Janeway is a member of the Children’s Oncology Group (COG), an international organization of childhood cancer experts, which allows the hospital to provide cutting-edge cancer treatment and to participate in clinical trials, which Dr. Moorehead is involved in.

Dr. Moorehead is also principal investigator for a number of in clinical trials outside of COG, including: PRecision Oncology for Young peoPLE (PROFYLE), a study funded by the Terry Fox Foundation attempting to identify targetable genetic lesions for children with hard-to-treat cancers; Neuroblastoma Maintenance Therapy Trial Using Difluoromethylornithine, sponsored by the Beat Childhood Cancer consortium; LCH-IV, an international study of treatment for Langerhans Cell Histiocytosis; TOPAZ, a Canadian trial of experimental chemotherapy for relapsed childhood cancers; and a number of industry-sponsored clinical trials in bleeding disorders.



TAKING CARE OF THEIR OWN: IMPROVING RESIDENT WELLNESS

The wellness of residents is important, not just to the residents themselves, but to their colleagues and patients. Pediatrician Jennifer O’Dea has made the issue a focus of her research.

Dr. O’Dea’s work has acknowledged a gap in wellness awareness among residents and has helped bridge that gap by helping residents identify what they need to practice self-care.

In 2017 a survey was distributed to pediatric residents to determine their awareness of available wellness resources. The survey revealed that 47 to 53 per cent of residents did not know that they had a wellness counsellor, and of those that did, many didn’t know the counsellor’s phone number or hours. The survey also asked for specific suggestions from residents about what they would like to see in an academic half day. Evaluations were positive yet reflected a desire for systemic change in the form of dedicated time for wellness and self-care. As a result, the next wellness academic half day included dedicated time for resident wellness.

Also in 2017, Dr. O'Dea partnered with Dr. Vernon Curran and the department of internal medicine and surgery. They worked together to design a half day to teach interprofessional competencies to PGY1 residents. They presented the results of this research in 2017.

In 2016 Dr. O'Dea presented on medical education in complex care at the Canadian Council of Medical Education meeting in Montreal. Her poster presentation outlined an interprofessional learning module that she designed for a pediatric resident academic half day.

Dr. O'Dea has also worked with students hired through the Faculty of Science Undergraduate Research Award (SURA). These students have updated databases in complex care-oriented research, specifically for patients with spina bifida. In summer 2018, a SURA student working with Dr. O'Dea reviewed the most common diagnoses presenting to clinic and searched the literature for updated care plans and guidelines for them. This information was compiled for use by students and residents. In fall 2018, another student designed an interprofessional care plan for complex care patients in clinic. Overall, this research aims to increase communication and improve the efficiency of care for these patients.

Dr. O'Dea is currently a research mentor for two Phase 1 students; their projects are "Parental Perceptions of Support for Feeding Difficulties Associated with Cleft Lip"; and "Examining the Impact of Family Structure on Behavioral Referral Wait Times in a Pediatric Clinic" (collaboration with Dr. Sarah Gander and Karen Campbell in Saint John, NB).



PEDIATRIC NEONATOLOGY

Dr. Anne Drover is a pediatrician who works on the Janeway's postpartum unit with new mothers and babies. She has extensive experience in this clinical area and is the Division Chief for Newborn Care. Dr. Drover's research interests span from clinical questions such as the Opioid exposed Newborn to Medical Education and Simulation research.

Dr. Drover completed a Masters of Education and Certificate in Medical Education from Cincinnati Children's Hospital in 2014. This has led to numerous educational research projects and presentations at National and International Medical Education conferences. Examples include Faculty Development for Competency Based Medical Education, Defining objectives for a high-stakes general pediatric simulation curriculum and Evaluation of a multisource feedback for Pediatric Residents. Dr. Drover has been on the Scientific Planning committee

for the Canadian Conference of Medical Education (CCME) since 2014 and the Chair of the Research Awards sub-committee for CCME since 2018. Dr. Drover also served on the Board of Directors for the Canadian Association of Medical Education from 2011-2017. An Associate Editor for CMEJ since 2016; a Course Instructor for the Med 6100: Certificate in Medical Teaching course and past experience as Pediatric Clerkship Director and Pediatric Program Director rounds out a robust Education portfolio.

Dr. Drover's research is primarily related to areas of health and well-being of the newborn. Extensive involvement with breastfeeding research and local conference planning; in addition funded research on hospital compliance with the Ten Steps of the Baby Friendly Hospital Initiative in NL, Ankyloglossia and Breastfeeding, Management of the Opioid-Exposed Newborn, and Maternal Mental Health.

Dr. Drover combines her medical education background with her advocacy interests. She obtained the qualifications as an International Board Certified Lactation Consultant in 2015 and has been using these skills to teach other health care professionals. She spearheaded a very successful staff awareness and education campaign; BFI -Starting a Movement in 2019. She worked with a multidisciplinary committee on the creation, dissemination and evaluation of "Breastfeeding Management: A Physicians' Tool Kit" which has been used worldwide. She has presented on these initiatives nationally and internationally. As Division Chief and a

member of the Perinatal Leadership committee; ongoing Quality Improvement Initiatives include Imaging of Hips in the Newborn; At-risk Mothers; What are we missing?; Compliance with BFI in the Case room and Breastfeeding in the first 24 hours.

Dr. Drover wishes to thank the JPRU and the Janeway Foundation for their ongoing support.



PEDIATRIC IMMUNOLOGY AND ALLERGY

Dr. Andrew O'Keefe thought his fellowship in Allergy and Clinical Immunology at McGill University would be the final step in his medical training—but it was just the start of his interest in medical research.

Throughout Dr. O'Keefe's fellowship, he was encouraged by physician Dr. Moshe Ben-Shoshan to engage in research. The first case study the pair collaborated on was accepted for publication on first submission, inspiring Dr. O'Keefe to delve into more research. He became involved in the ongoing Cross-Canada Anaphylaxis Registry (C-CARE), a national registry examining anaphylaxis in the emergency room, which he worked on throughout the remainder of his fellowship. Dr. O'Keefe also published other case studies and systematic and narrative review articles, and experienced the joys and frustrations of the peer review process.

Upon completing his fellowship, Dr. O'Keefe established a clinical practice in Allergy and Clinical Immunology in St. John's. He began to recognize many unanswered questions and gaps in the collective knowledge of his field. In response, Dr. O'Keefe established Memorial University as a site for two national registries: C-CARE and the Canadian Primary Immunodeficiency Evaluation Study (C-PRIMES). Dr. O'Keefe and his collaborators recently published an original article on recurrence rates of anaphylaxis in children.

Dr. O'Keefe is currently pursuing a Master's degree in Public Health at the Harvard School of Public Health in order to advance his involvement in these and other initiatives.

NEONATAL BIOETHICS

Dr. Alisha Montes (nee Gabriel) spent two years completing her masters degree at Oxford University as a Rhodes Scholar and conducted qualitative research in the area of neonatal bioethics. Dr. Montes has a specific interest in the ethical issues surrounding resuscitation decision making in critically ill extremely preterm infants. The main aim of her research was to explore the reasons for the 'differential treatment' of extremely preterm infants in the context of resuscitation. Dr. Montes built upon research done by Dr. Annie Janvier, a neonatologist at McGill University. Dr. Janvier's research sheds light on an inconsistency in the application of the best interest principle when resuscitation decisions are made for extremely preterm infants compared with older infants with similar prognoses. This phenomenon has been coined the 'differential treatment' and points to an implicit bias towards extremely preterm infants despite their prognosis. Dr. Montes designed a qualitative study using clinical vignettes and semi-structured interview techniques to explore the potential reasons for this inconsistency. She interviewed thirteen neonatologists working in tertiary NICUs in the UK and analysed over 300 pages of transcript and 16 hours of audio recordings. Dr. Montes is currently in the process of publishing her research with the Associate Dean of the MUN School of Pharmacy, Dr. Erin Davis. Dr. Montes hopes to continue her research by doing a similar study here in Canada as well as conducting an ethical analysis on the reasons for the 'differential treatment' which came from her masters project.



ADVANCING PAIN MANAGEMENT IN PEDIATRIC EMERGENCIES

Inadequate pain management is an issue in many emergency departments—especially in pediatrics. According to Dr. Robert Porter, many professionals are reluctant to treat children's pain due to discomfort or unfamiliarity with available options. He hopes his research will help change this situation by educating health care professionals and encouraging them to treat children's pain properly.

Dr. Porter has been working in pediatric emergency for 18 years; his interest in pain management led him to complete a Masters in Clinical Epidemiology in 2012, during which his research focused on managing pain in children with supracondylar elbow fractures. Since then, Dr. Porter has designed interventions for students, nurses, and physicians aimed at improving pain management in the emergency department. He has published a series of quality improvement studies exploring the successes and challenges during and after the implementation of pain management interventions.

Dr. Porter is actively involved in research projects with a number of medical students, including a study on the use of opioid medications, particularly intranasal fentanyl, in the emergency department with student Julia Chalker, and a study on nasogastric feeding in children with bronchiolitis with Masters Candidate Saima Saqib. In 2018, Dr. Porter published a study with his son Dr. Jonathan Porter (a medical student at the time) and Dr. Kevin Chan on suspected scaphoid fractures in children and the outcome of treatment for this condition.

Much of Dr. Porter's work has been funded by the Janeway Research Foundation, including an upcoming project investigating whether parents can be taught to successfully remove staples from a child's scalp. The goal is for some parents to remove the staples themselves at home, avoiding a repeat visit to the emergency department.

Dr. Porter has been a local representative for Pediatric Emergency Research Canada for a number of years and became chair of the Janeway Research Advisory Committee in September 2018.



PEDIATRIC GASTROENTEROLOGY

Dr. Jeff Critch practices pediatric gastroenterology and hepatology. His research interests are in several areas of pediatric gastroenterology diseases. Many of his research activities are performed in collaboration with Dr. Pushpa Sathya (Memorial University) and colleagues across Canada.

Over the last few years, a major focus of Dr. Critch has been leading the Canadian Children Inflammatory Bowel Disease (IBD) Network (CIDsCaNN) initiative at Janeway site. This is a national collaboration sponsored by C.H.I.L.D. (Children with Intestinal and Liver Disorders) Foundation and facilitated through Canadian Institutes for Health Research (CIHR). CIDsCaNN has brought together committed physicians, nursing professionals, dietitians, clinical investigators, laboratory-based scientists from across Canada, with the common goals of understanding the causes of IBD, and of determining the most effective treatments, so that each child's health and quality of life are restored.

He is also involved with the Canadian Pediatric Hepatology Research Group, a national collaborative effort to research and help improve the care and outcome of children with liver disease.

As a specialist in pediatric gastroenterology, hepatology and nutrition, Dr. Pushpa Sathya is actively involved in research in these areas.

Dr. Pushpa Sathya is currently the local PI for several studies including: a prospective study of children with biliary atresia with a 10-year follow-up, to establish best practices for the assessment, management, and outcome of children with biliary atresia in Canada with the Canadian Registry on Biliary Atresia in Children, a Pediatric Primary Sclerosing Cholangitis outcome study- a retrospective multicenter international study, and a study on Hepatitis C infection in Canadian Children.

Dr. Sathya is the PI, along with Dr. Michael Grant, for a national study on the Role of Omega-3 fatty acids (n-3 PUFA) in controlling inflammation in pediatric Non-Alcoholic Fatty Liver Disease (NAFLD) –a randomized controlled trial (RCT) of fish oil vs. placebo. Her work on this project is funded by the Janeway Foundation grant and the Research and Development Corporation Ignite grant. Dr. Sathya's role as PI also includes a Medical Education Project on Integrated Learning Session and the perceived value among Medical Students at Memorial University. Her co-PIs for this project are Gerona McGrath, Heidi Coombs and Stephen Shorlin.

Dr. Sathya has made publications through her involvement with the Expert Committee on NAFLD (ECON), supported by NASPGHAN Foundation, USA, and through her collaborations with the Canadian Pediatric Hepatology Research Group.

She is currently co-supervising the pediatric resident project of Dr. Tracey Dyer on Gastroesophageal Reflux (GER) in Infants and Children, a Choosing Wisely Canada study on improving prescribing practices for acid suppressants in infants and children with GER across Newfoundland. She is also supervising pediatric resident, Camilla de Lima, for her project on Celiac Disease in Children – Correlating tTG levels to severity based on Marsh criteria.



PATHWAYS TO IMPROVED EMERGENCY PEDIATRIC CARE

Dr. Archna Shah's broad research focus is improving quality of care in the pediatric emergency department. She is working on a number of ongoing and planned projects under this broad umbrella. Dr. Shah is examining several clinical pathways that have been successful in other Canadian centers to determine how they could be applied at the Janeway. For example, she is interested in looking at pathways for gastroenteritis, time to first medication for croup, and the measurement of outcomes and effectiveness of current management for sepsis. She is working with resident Noelle Marsh to develop and implement a pathway for asthma patients (see Student Research).

Dr. Shah is also interested in accessing and using data through the Child Health Injury Prevention Program, run under the Public Health Agency of Canada. This program accumulates data on different types of injuries in children presenting to emergency departments nationally, forming a rich source of data that can be accessed online. Injuries are sometimes related to a toy or a household item, Dr. Shah points out, so this data can be important for injury prevention.

Dr. Shah and her colleagues in the Janeway emergency department are also involved in national studies with Pediatric Emergency Research Canada as site leads. Dr. Shah plans to continue working with this organization.

BIOMEDICAL DEVICES AND PEDIATRIC RESPIROLOGY

Dr. Mary Jane Smith works in general pediatrics with a clinical focus in respirology. Her research focuses primarily in the areas of medical education, asthma, and cystic fibrosis.

Through her research in medical education, Dr. Smith hopes to improve the views of medical trainees towards their roles as professionals and health advocates. She has published and presented in this area, including a poster presentation at the Council on Medical Student Education in Pediatrics about professionalism in medical education in March 2019. She also recently published an article on health advocacy in *Paediatrics & Child Health*.

In collaboration with faculty, students, and residents across Memorial University, Dr. Smith has participated in and published research regarding asthma and traffic-related air pollution. She is site investigator for two ongoing national and international studies on cystic fibrosis and plans to continue this long-term research.

Dr. Smith is also principle investigator in an upcoming clinical trial of BreatheSuite, a mobile health intervention. BreatheSuite was developed by a Memorial University engineering student to improve the technique and adherence of patients using asthma inhalers. Dr. Smith believes this research has the potential to impact and improve asthma care in patients everywhere. This clinical trial has been funded by a Janeway Research Foundation Grant.



PEDIATRIC GENETICS AND RARE DISEASES

Geneticists often see children with very rare conditions. Improved technology and the ability to do whole-exome sequencing often allows these conditions to be diagnosed. For researchers like clinical geneticist Dr. Lesley Turner, rare conditions also present opportunities to connect and collaborate with other physicians with similar experiences. Importantly, Dr. Turner says, the families of children with rare conditions are often interested in participating in studies—they know research may not change anything for their child, but that it might help others.

Dr. Turner is part of the Canadian Inherited Metabolic Disease Research Network, a group of physicians who treat children with metabolic disorders, spearheaded by the Children's Hospital of Eastern Ontario. This group collects information about the treatment of children with metabolic disorders, with the goal of building a database to improve care.

As the clinical director of the newborn screening program at the Janeway, Dr. Turner has conducted research around the process of consent for newborn screening. This study found that many parents felt they did not receive enough information, especially at the time of newborn screening, and that they would prefer to receive the information earlier during the pregnancy.

Dr. Turner is also involved with the Silent Genome Project, spearheaded by the University of British Columbia and of Victoria, which aims to partner with indigenous communities to improve access to genetic testing. Dr. Turner and her colleagues have just been identified as site leaders for this project in Newfoundland and Labrador. They are now in the process of setting up meetings with the members of the indigenous community to engage interest.

Finally, Dr. Turner and her colleagues are involved in research on Fabry disease with the Canadian Fabry Disease Initiative, led by Dr. Michael West in Halifax. This research compares the two available products used to treat this condition, and collects information about the natural history of Fabry disease. They have received funding from Shire for this project.

DOES MARKETING AFFECT LOW BREASTFEEDING RATES?

Newfoundland and Labrador has one of the lowest breastfeeding initiation rates in Canada. Master of Public Health student Susan Barry is investigating one possible factor for this: a link between the marketing of infant formula—forbidden by the World Health Organization (WHO)—and breastfeeding rates.

Barry has collaborated with the JPRU's Breastfeeding Research Working Group since September 2017 and is completing a dietetic internship with Eastern Health. Her current research project centres around WHO's International Code of Marketing of Breast-milk Substitutes, which was created to prevent marketing of infant formula and to support breastfeeding practices. Violation of the WHO Code is a global issue that has been strongly associated with having a negative impact on exclusive breastfeeding rates.

Barry's study will provide relevant data that will provide a better understanding of the local context of Code violations and potentially support the need for legislation to enforce the Code in Newfoundland and Labrador. She hopes to provide direction for policy-making, health promotion, and public health strategies to improve exclusive breastfeeding rates and the health and well-being of infants and children.

Barry found that 84.6% of mothers with infants under the age of two were exposed to at least one WHO Code violation, including coupons or discount codes for infant formula, free samples, or direct contact by an infant formula company.

Since May 2018, Barry has also been working as a graduate research assistant on the Impact of Midwifery in Newfoundland and Labrador on Infant Feeding Outcomes project. Barry will graduate in fall 2019. She has a Bachelor of Science in Nutrition Dietetics from Acadia University (2017).



PREVENTION OF DIABETIC KETOACIDOSIS

Diabetic ketoacidosis (DKA) is a life-threatening complication of diabetes. It can usually be prevented through proper and continuous diabetes management—but it too often is not, particularly in Newfoundland and Labrador, which has a high prevalence of diabetes.

Georgia Darmonkow recently completed an MSc in Medicine (Clinical Epidemiology) under the co-supervision of Dr. Leigh Anne Allwood Newhook and Dr. Roger Chafe. Her research stemmed the need to address the number of complications from Type-1 diabetes, including DKA, within the province's pediatric population. She conducted an evaluation of a knowledge translation initiative designed to help improve DKA outcomes, the NL DKA Project (NLdkaP).

The two-year NLdkaP introduced a suite of interventions tailored for healthcare professionals, patients and patients' families, and the general public. By analyzing provincial hospitalization data covering two years pre-intervention (2009 and 2010), during intervention (2011 and 2012) and post-intervention (2013 and 2014), Darmonkow showed that the most hospitalized age group was 20 to 24—contrary to published literature, which indicated that patients under 5 years old had the most DKA hospitalizations.

Her research also demonstrated that the NLdkaP produced promising results, suggesting that this type of knowledge translation project is effective and could be shared nationally and internationally as a model for DKA awareness and prevention. It also provided insight into knowledge translation and its effective use in clinical practice and patient and public engagement.

Darmonkow presented her preliminary results at PriFor 2017; in 2018 she won the 3-Minute Thesis (3MT) Competition at the provincial level. She is developing a report on the results and recommendations of the NLdkaP in an effort to heighten the clinical skills of health care providers and facilitate the early recognition of DKA and encourage effective long-term diabetes management.

CHOOSING WISELY: IMPROVING PRESCRIBING PATTERNS OF PHYSICIANS

Choosing Wisely Canada (CWC) is a national organization working to reduce unnecessary tests and procedures in health care. Pediatrics resident Tracey Dyer has developed a research project around one of CWC's recommendations: to reduce the use of acid blockers or motility agents in the treatment of gastroesophageal reflux in infants.

Gastroesophageal reflux is the return of stomach (gastric) contents, usually stomach acid, into the esophagus. The condition occurs in about 50 per cent of healthy infants and is generally a functional, self-limiting condition that improves with age. Gastroesophageal reflux disease, however, is rare in infants. In the absence of red flags features, such as failure to thrive, infants diagnosed with gastroesophageal reflux can be quite healthy, and medications are not recommended: anti-reflux medications can cause serious side effects and complications including pneumonia, gastroenteritis, and allergy development.

Dr. Dyer's project, under the supervision of Dr. Leigh Anne Allwood Newhook and Dr. Pushpa Sathya, is a knowledge translation study in collaboration with Choosing Wisely NL and Quality of Care NL. A province-wide survey of physicians was conducted to assess current attitudes toward, and knowledge and management of gastroesophageal reflux in infants. Dr. Dyer also led a public panel to receive feedback about patient educational materials.

The results of the physician survey and patient panel are being used to develop educational tools, including brochures, posters, and a video for social media. These tools will be disseminated to family physicians, pediatricians, public health nurses, pharmacists, and nurse practitioners. An educational webinar for physicians was developed and broadcast province-wide.

The success of this project will be gauged by comparing prescribing rates of anti-reflux medications before and after the knowledge transfer period.

MARIJUANA USE DURING PREGNANCY AND BREASTFEEDING IN NL

On October 17, 2018, recreational marijuana use became legal in Canada. In April 2018, the Society of Obstetricians and Gynecologists of Canada released guidelines recommending that women who are pregnant or thinking about becoming pregnant should abstain from using marijuana. This is because delta-9-tetrahydrocannabinol (THC), the primary psychoactive compound in marijuana, has the ability to cross the placenta and enter fetal tissues during pregnancy, and accumulate in breastmilk postpartum.

Limited research has been done to date on the long-term effects of marijuana use, particularly on the developing brain. Medical marijuana can be used to treat a number of diseases; notably, it can be effective for nausea and depression, symptoms often associated with pregnancy. One study found that 69 per cent of dispensaries in Colorado recommend using marijuana to treat morning sickness. This may cause confusion in parents regarding the safety of using marijuana during pregnancy and breastfeeding.

Medical student Sarah Manning's research included a literature review of studies investigating the patterns and parental perceptions of marijuana use during pregnancy and breastfeeding was conducted. Several studies found that marijuana use during pregnancy is on the rise, positively associated with younger, single women, tobacco smokers, and negatively correlated with level of education and socioeconomic status. It was also found that many women perceived marijuana as a low-risk drug, and that many would increase marijuana use during pregnancy if it was legalized.

This suggests that more education about the dangers of marijuana use during pregnancy and breastfeeding is necessary. There is a lack of research on the number of parents in Canada that use marijuana during pregnancy or breastfeeding, and their perceptions of the safety of marijuana exposure for the infant. Manning will continue this study to evaluate parental patterns and perceptions of marijuana use during pregnancy and breastfeeding in Newfoundland and Labrador, in an attempt to help narrow the gap.



IMPROVING THE CLINICAL CARE OF PEDIATRIC ASTHMA

A new project to improve the quality of care for children who present with asthma in the emergency department is an important step in ensuring the Janeway is practicing up to Canadian standards—while also acknowledging the department's successes.

Third-year pediatric resident Dr. Noelle Marsh is collaborating with Dr. Shah to create and implement an asthma pathway in the Janeway emergency department. The project will introduce measures to determine the current effectiveness of the department in recognizing asthma attacks or asthma exacerbations, scoring these conditions in terms of severity, and ordering and administering the appropriate medications for these patients. Similar asthma pathways are in place in other pediatric emergency departments across Canada. Dr. Marsh hopes initiating this new asthma clinical pathway will lead to earlier

administration of oral corticosteroids in asthmatic patients in the emergency room, leading to shorter length of stay in the ER and lower hospitalization rates.

This work was made possible by a Janeway Foundation Research Grant. Due to its success, Dr. Marsh received the Janeway Foundation Trainee Award and the program's research award for second year project. She was also named the Canadian Child Health Clinician Scientist Program Rising Researcher, and will attend the national CCHCSP symposium in Toronto.

The Pediatric Emergency Network in the United States has approached Dr. Shah and her colleagues about including this asthma pathway in a North American study.



MIDWIFERY AND ITS IMPACT ON INFANT FEEDING

Historically, midwifery played an immense role in health care for the women of Newfoundland and Labrador. The practice of midwifery declined, however, as the health care system evolved to provide obstetric services in hospital under coverage of the medical care plan.

In May 2018, obstetric services were diverted from Gander to Grand Falls-Windsor due to physician shortages. Nearly a year later, both obstetricians and midwives have been hired in Gander to provide services for women upon the reopening of the local obstetric unit.

On March 27, 2019, a women's prenatal health information session was held in Gander as an opportunity for women to learn more about their options for obstetric services. Among those in attendance were obstetric nurses, lactation consultants, doulas, provincial midwifery consultant Gisela Becker, and Health Minister John Haggie (see photo).

Master of Science in Clinical Epidemiology candidate, Rosemary Stanoev, along with supervisors Dr. Leigh Anne Newhook and Dr. Laurie Twells, will conduct a prospective cohort study to examine the impact of midwifery as it is implemented in Gander over a period of two years. The primary outcome to be studied is the exclusive breastfeeding rate at two months postpartum. They will also track breastfeeding initiation, breastfeeding in hospital and at discharge, caesarean section rates, birth complications, birth weight, Apgar scores, and neonatal complications.

Despite the known benefits of breastfeeding, rates remain low in the province. In 2017, Newfoundland and Labrador had an exclusive breastfeeding rate at six months of 25.7 per cent, compared to the national rate of 32.1 per cent. Midwifery-led care is associated with higher rates of exclusive breastfeeding. This study is an opportunity to gain knowledge that may improve the breastfeeding rates in the province, thus improving both maternal and infant health.

INVESTING IN HEALTHY BABIES AND MOTHERS: A PATIENT-ORIENTED APPROACH

Faculty of Medicine PhD candidate Alicia Taylor is embarking on a cost analysis to determine the potential savings associated with increasing the length of time mothers exclusively breastfeed.

Her thesis, “Investing in healthy babies and healthy mothers—a patient-oriented approach,” will examine two feeding modes (exclusively breastfed vs. exclusively formula-fed) and compare the costs incurred by babies and mothers who use each. Costs will consider doctor visits, hospitalizations, medication use, time missed at work from caring for sick children, costs related to maternal mental health and postpartum depression, as well as the environmental costs of the formula feeding industry. Taylor hypothesizes that increasing breastfeeding rates will lead to considerable cost savings.

In April 2019 Taylor travelled to Ottawa to discuss the methodology for her cost-savings analysis at a national conference. In June 2019 she will give two presentations in Cumbria, United Kingdom, on the differences in health care service use by infants in their first year of life.

Taylor’s goal is to engage mothers, policy makers and decision makers through each step of her thesis project to include multiple perspectives on the barriers to breastfeeding, and on the incentives that will help guide a new strategy to promote, protect, and support breastfeeding. She hopes her research will demonstrate the importance of investing in breastfeeding and its benefits to mothers, infants, families, and to the province.

THE BABY-FRIENDLY RESEARCH GROUP

The Baby-Friendly Research Group was established in 2009 by the Baby-Friendly Council of Newfoundland and Labrador to carry out province wide research on infant and young child nutrition and feeding practices.

Members of the research group include medical, pharmacy, and nursing health professionals, researchers from Memorial’s Faculty of Medicine and School of Pharmacy, provincial breastfeeding and midwifery consultants, members of the Provincial Perinatal Program of NL, representatives from the Newfoundland and Labrador Centre for Health Information (NLCHI), and numerous undergraduate and graduate students.

The research group is investigating breastfeeding rates, including regional variations, to better understand why breastfeeding rates are low in the province. Their goal is to help new families make informed choices regarding infant feeding and to support mothers through well-evidenced and effective interventions. For example, implementing community health programs, as well as the WHO/UNICEF Baby-Friendly Initiative, can significantly improve breastfeeding rates.



Group co-chairs Dr. Laurie Twells and Dr. Leigh Anne Allwood Newhook have led or supervised several research studies to better understand factors that influence a mother's infant feeding decisions, including the role grandmother's play in supporting their daughter's choices.

Current studies focus on health care services use and mode of feeding, midwifery-led care and infant feeding outcomes, postpartum depression and infant feeding, barriers to breastfeeding, and assessment of mothers and health care professional knowledge and attitudes of infant feeding choices. The group is also examining complementary feeding practices and health system practices that support breastfeeding.

TRIALNET: WORKING TOWARDS TYPE 1 DIABETES PREVENTION

TrialNet is an international study making important advances in Type 1 diabetes (T1D) research, with the ultimate goal of preventing this disease. Through the participation of affected families, TrialNet studies the role of autoantibodies, beta cells, immune responses, and specific risk factors in the progression of T1D. Nurse Donna Hagerty is the coordinator of the TrialNet investigator site in Newfoundland and Labrador. She contributes to this international effort along with Dr. Leigh Anne Allwood Newhook and



pediatric endocrinologists Dr. Tracey Bridger and Dr. Heather Power. Three distinct phases for the progression of T1D are being used, along with TrialNet's Pathway to Prevention screening, to promote early detection and intervention. Participants are screened with a simple blood test; if they show a positive result for T1D autoantibodies, they attend an eligibility visit and may be included in a clinical study. If results are negative, participants may be rescreened each year until they reach 18 years of age. Without TrialNet, many children may not have been identified as being in the early stages of T1D.

Participants may also elect to enroll in a trial that includes monitoring studies for participants at an increased risk of developing T1D, prevention studies aimed at slowing disease progression, and new onset studies which test ways to preserve insulin for newly diagnosed participants.

Dr. Newhook and Hagerty have presented around St. John's and at local diabetes clinical to raise awareness about the TrialNet project. They have also taken part in conferences hosted by SickKids in Toronto with other TrialNet affiliates.

Over the past 10 years, the TrialNet site in Newfoundland and Labrador has recruited over 500 participants. In 2018, they recruited almost 40 new participants and sent out 175 samples; their most successful year yet. Participants in the monitoring stage are followed very closely, which is a source of comfort for parents: TrialNet highlights the symptoms of T1D and helps parents learn what signs to watch for. This type of monitoring has reduced the risk of DKA from 30 per cent to 3 per cent.

Dr. Newhook and Hagerty recently participated in an oral insulin clinical trial through TrialNet. They plan to continue to participate in new clinical trials where possible, creating another level of opportunity for families to participate.



JANEWAY LIFESTYLE PROGRAM: HELPING CHILDREN LEAD HEALTHY LIVES

The Janeway Lifestyle Program (JLP) is an interdisciplinary program aimed at reducing the risk of chronic disease in Newfoundland and Labrador by encouraging healthy lifestyle behaviours. The JLP team works with families whose children have been identified as being at risk for development of a chronic disease such as high cholesterol, high blood sugars, high blood pressure, liver disease, and weight concerns.

Psychologist Anne Wareham is program lead, and Dr. Tracey Bridger is Medical Director for the program.

A number of children in the JLP are insulin-resistant, often a precursor for Type 2 diabetes. Physiotherapist Sarah Critch recently worked on a study involving a group of adolescents to examine how physical activity, particularly circuit-based and resistance training, affects insulin sensitivity, with the goal of decreasing the risk of chronic disease. Data revealed that insulin sensitivity improved significantly during the 10-week intervention, with sustained improvement for the next six months. Critch and her colleagues have shared this project at a number of national conferences and have used the results to advocate for a focus on chronic disease prevention, and not just weight loss, in lifestyle programs.

This program received a grant that will allow the JLP team to offer similar programs across the province. This research is important in Newfoundland and Labrador, as a large portion of the population is affected by chronic disease and has the genetic disposition to develop insulin resistance and Type 2 Diabetes.

The JLP has also been involved in genetic research with Dr. Guang Sun to examine genetic mutations, epigenetics, and lifestyle factors associated with childhood obesity. New projects include a study of the microbiome. Clinical dietitian Lisa Dooley and Dr. Bridger are studying gut flora to see if it is associated with specific biochemical markers or lifestyle factors.

Wareham is also collaborating with Memorial's psychology department on research around ADHD and its effects on health behaviours. The group is collecting data from their physical literacy program, designed to address the fact that children are not meeting expected milestones due to an increase in sedentary behaviour.

As the JLP continues to collect data regarding nutrition, metabolic testing, anthropometrics, body image, self-esteem, fitness testing, and sedentary behaviour, they are able to make associations with other lifestyle factors and use this information to improve their program, and help children in Newfoundland and Labrador lead healthy lives.

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