In the spring of 2016, a box of historical photos destined for storage was discovered. What we found were priceless photos of physician and patient interactions, buildings, and equipment from the past – a veritable treasure trove of images that showed the evolution of BC Children’s Hospital and the Department of Pediatrics over time.

In our 2013-15 Triennial Report we outlined a historical timeline of the Department and its leadership from its inception until 2015. From a humble house at 8264 Hudson Street with 16 beds to our current facility at 4480 Oak Street – a lot has changed.

Some of the photos that we have included in the 2016 Annual Report were brought to life with rich narratives provided by some of our senior pediatric faculty.

In the Fall of 2017, we will be expanding into the Teck Acute Care Centre with 231 private patient rooms and eight floors of clinical space, totalling an additional 59,400 square meters of space to grow into over the next 20 years.

A special thank you to the individuals that assisted us with captioning the photos – you are the gatekeepers of our rich past, and for this we thank you for helping us to remember where we come from and what we have to look forward to.
VISION
To be a world-leading Pediatric Academic Health Science Department:
Fostering discovery, advancing knowledge and transforming pediatric health

MISSION
In partnership with our community, we are committed to improving the health of British Columbia’s children and youth through excellence in research, education, and clinical care; our focus is provincial, our impact is international.

OUR VALUES
Leadership
Integrity
Accountability
Excellence
Compassion
Quality
Teamwork
Collaboration
Discovery
Innovation
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Message from the Chair

Last year we produced the 2013–15 triennial report. It is never possible to capture everything and everyone deserving of recognition – there are just so many wonderful people and amazing things that happen every day within our pediatric medicine community on the Oak Street and Point Grey campuses and across many provincial sites. For the 2016 report, the focus is on new people and noteworthy accomplishments since 2015, in addition to highlighting some of our pediatric clinical, educational and research programs. We plan to produce a more comprehensive annual report periodically in future years. Preparing an annual report is a relatively new venture for our current team and we welcome your feedback and suggestions to make it better.

In my introductory message this year I have three main goals:

- Acknowledge two important groups of people who deserve more recognition than they received in the 2013–15 report: the leadership team in the Department of Pediatrics Administration and the pediatric clinician-teacher faculty across British Columbia.
- Express my gratitude to be named the first recipient of the Hudson Family Chair in Pediatric Medicine at BC Children’s Hospital.
- Use the framework of the Department’s strategic plan, Vision 2020, to summarize some key accomplishments.

The Department of Pediatrics has a centralized model of administrative support for faculty in accordance with expectations, accountabilities and opportunities to the Provincial Health Services Authority (PHSA) and the University of British Columbia (UBC). The Department functions in an increasingly complex and ever-changing environment and our administrative team enables us to be a truly integrated pediatric health sciences centre. I would like to give special recognition to our leadership group shown below. They are awesome!
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Compassion

Quality
Teamwork
Collaboration
Discovery
Innovation

As a partner in our Provincial Pediatric Academic Health Science Network, it is essential that we identify, adopt and spread innovation, lead best practices, and advance our infrastructure to enable world-leading research.

I am especially excited about the Hudson Scholars Program in Quality Improvement Scholarship, a mentored early career faculty development program that was launched in 2016 with funding from the BC Children’s Hospital Foundation through the establishment of the Hudson Family Hospital Chair in Pediatric Medicine. I am so appreciative of the support provided by the Hudson family, their generous gift, and their leadership and vision for what will hopefully mark the beginning of a new era of BC Children’s Hospital Endowed Chairs. See pages 22–25 to learn about the first three scholars.

Investigators and scientists in the Department continue to make incredible discoveries, some of which are featured throughout this report.

We are so proud of the prestigious awards that they have received over the past year:

**NOTEWORTHY AWARDS**

**Dr. Kelly Brown**
Rheumatology
*Michael Smith Foundation for Health Research Scholar Award*

**Dr. Lori Tucker**
Rheumatology
*Clinical Investigator Award (launched in 2016) from the BC Children’s Hospital Research Institute (BCCHR)*

**Dr. Joseph Ting**
Neonatology
*Clinical Investigator Award (launched in 2016) from the BC Children’s Hospital Research Institute (BCCHR)*
UBC RESEARCH ACHIEVEMENT AWARDS

Dr. Niranjan "Tex" Kissoon
Critical Care

*Distinguished Achievement Award (DAA) for Service to the University and Community*

Dr. Catherine Pallen
Hematology/Oncology

*Award for Excellence in Mentoring Early Career Faculty*

Dr. Clara van Karnebeek
Biochemical Diseases

*DAA for Overall Excellence Early Career*

RESEARCH RECOGNITION AWARDS FROM OTHER ORGANIZATIONS

Dr. Quynh Doan
Emergency Medicine

*BC HEALTH CARE AWARD OF MERIT FOR TOP INNOVATION*

Dr. Bruce Vallance
Gastroenterology

*CANADIAN ASSOCIATION OF GASTROENTEROLOGY*

Dr. Tim Oberlander
Developmental Pediatrics

*TERATOLOGY SOCIETY*

Dr. Sylvia Stöckler-Ipsiroglu
Biochemical Diseases

*CANADIAN ORGANIZATION FOR RARE DISEASES*

Dr. Clara van Karnebeek
Biochemical Diseases

*CANADIAN ORGANIZATION FOR RARE DISEASES*

Dr. Edmond Chan
Allergy & Immunology

He was extensively interviewed by the media as the only Canadian member of an expert panel that published new Guidelines for the Prevention of Peanut Allergy, based on new paradigm-shifting research findings.
VISION 2020

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Innovation

CORE PRIORITY
TEACHING + LEARNING

We have a strong commitment to preparing the leaders of tomorrow across all domains of research, education and clinical care. We strive to continuously improve teaching and learning experiences and the quality of our programs.

The pediatric residency training programs (in both core pediatrics and 16 subspecialties) continue to get stronger and more competitive every year. We interviewed 111 Canadian medical graduates for 13 positions in the Vancouver program and 44 Canadian medical graduates for two positions in the Victoria program. One of 10 International medical graduates interviewed was also accepted. I especially want to acknowledge the incredible work of Drs. Laura Sauvé and Janet Greenman who lead the Vancouver Program; Dr. Jennifer Balfour, associate program director for the Victoria Program; Dr. Mary Bennett, associate head of pediatrics for Education; and the outstanding administrative support of Sylvia Wu, Dylan King, Kristen Elder and Kristi Small in Victoria. Dr. Mumtaz Virji continues in her role as the departmental champion for pediatric undergraduate medical education.

The resident research program was reorganized this year. Dr. Lori Tucker was named head of the Resident Research Committee and Dr. Kevin Harris as the leader of the Resident Research Course, with Casey Welch providing administrative support. Appreciation is expressed to all of the faculty members who participate as members of the Resident Research Committee and as supervisors of resident research projects. Our residents are achieving national recognition for their scholarly work:

- **Dr. Matt Carwana**
  Canadian Paediatric Society (CPS)
  Best Trainee Research Award for Is there an app for that? Assessing the quality and content of apps for asthma management available in Canada, supervised by Dr. Connie Yang (Respirology)

- **Dr. Alison Lee**
  Canadian Pain Society Mental Health
  Award for best poster by a resident/fellow in the mental health field for her work on the HEARTSMAP project, with Dr. Quynh Doan.

- **Dr. Dianna Louie**
  UBC Postgraduate Faculty and Staff
  Wellness Award, and Resident Doctors of Canada Puddester Award for Resident Wellness

The importance of physician resiliency and wellness, and burnout prevention is increasingly recognized and we are trying to do something about it (but no one said it would be easy!).

STRATEGIC OBJECTIVES
Prepare tomorrow’s leaders | Enhance our educational value  
Improve student outcomes and experiences | Empower and support our educators
ANOTHER NOTABLE FACULTY ACHIEVEMENT THIS YEAR

Dr. Dan Metzger
The Dr. Harvey Guyda Education of the Year Award from the Canadian Society of Endocrinology and Metabolism

BEST SERVICE OF THE YEAR

BC is widely recognized for its distributed medical school. The expansion began in 2004 in partnership with the provincial government, academic partners and the health authorities.

The Department of Pediatrics is highly appreciative of the great work done by UBC undergraduate medical student teachers at the four campuses: the Vancouver-Fraser campus in Vancouver and the Lower Mainland; the Island Medical Program in Victoria, a partnership with the University of Victoria; the Northern Medical Program in Prince George, based at the University of Northern British Columbia; and the Southern Medical Program at the UBC Okanagan campus in Kelowna.

I would like to acknowledge the important role that virtually all BC pediatricians serve in pediatric postgraduate education. Indeed, as part of the core pediatric Residency program, the residents have mandatory rotations in Surrey (R1 and R3 years) and in Kamloops (R2 year). Selective rotations in the R1 year are offered in Langley, Abbotsford, Prince George and Nanaimo and in the R4 year at Royal Columbia Hospital NICU in New Westminster or the BC Women’s Hospital + Health Centre NICU in Vancouver, as well as eight-week selective rotations in Langley, Abbotsford, Prince George, Nanaimo, Victoria and Kelowna.

In addition to the above sites, elective experiences are available at Lion’s Gate Hospital (North Vancouver), Richmond General Hospital, Chilliwack and Penticton, and residents in the Victoria program may do electives in Cranbrook or Powell River.

Each year at the June graduation banquet, residents recognize one group of physicians as the "Best Service of the Year". Often this recognition is awarded to a subspecialty team at BC Children’s. I am delighted that the 2016 recipients were the General Pediatrician group in Surrey. A big thank-you for a job well done!

OUTSTANDING COURSE DEVELOPMENT IN 2016

Dr. Ran Goldman
Emergency Medicine and Pharmacology/Translational Therapeutics

First launched in 2014, the UBC Vancouver Summer Program (VSP) grew from 85 students to 139 in 2016. The program also split into two cohorts to accommodate the 64% increase in interest from Asia and South America. Together with an impressive number of teachers from many disciplines from our Department and beyond, led a very successful second year of the VSP. Twenty-nine students from 12 international universities participated in the June cohort and 139 students from 23 international universities were enrolled in the July/August cohort. Two courses were offered: Introduction to Clinical Research and Introduction to Clinical Bedside Skills. Both are among the most popular of the UBC VSP offerings in Medicine. We thank the many faculty and trainees who contributed to the program's success.

ADDITIONAL 2016 UBC TEACHING Awardees INCLUDE

Dr. Jasmine Allaire
Pediatric Emergency Medicine
Innovation in CME/CPD Award for developing an advanced trauma simulation course

Dr. Wingfield Rehmus
Dermatology
Resident Teaching Award from the UBC Department of Dermatology and Skin Sciences
I cannot possibly do justice to the incredible clinical care that happens on this campus and across the province every single day. Please read about some of the programs that are featured later in this report. The Child and Youth Mental Health Program has been part of BC Children’s since 2015 and we are truly fortunate to have strong collaborative working partnerships with them. For example, this year Dr. Pei-Yoong Lam (Adolescent Medicine) was appointed the medical director of the Provincial Specialized Eating Disorder Program based at BC Children’s. Dr. Dzung Vo (Adolescent Medicine) and Dr. Jake Locke (Mental Health) partner to lead programs in Mindfulness that are rapidly expanding. Led by Dr. Maureen O’Donnell and her team at Child Health BC, this year saw the launch of new telemedicine programs in Endocrinology, led by Dr. Brenden Hursh, and Critical Care, led by Dr. David Wensley, while very busy programs in Neurology continue.

This year we began transformational restructuring of the Division of General Pediatrics to address the increasing acuity and complexity of the patients that are hospitalized at BC Children’s. A growing proportion of these patients are presenting with acute illnesses on a background of significant chronic medical disorders. Facilitated by expansion funding from the BC Physician “Alternate Payments” program to hire 3.0 new FTEs for General Pediatric Medicine, our first priorities are to expand inpatient consultation services, especially for surgical patients, increase in-patient and outpatient services for medically-complex patients, provide additional support for inpatient service teams during the busy winter months, and to grow our capacity for rapid-access follow-up visits for patients seen in the Emergency Department who need next day reassessment. In the United States, pediatric hospital medicine was officially recognized as the newest subspecialty by the American Board of Pediatrics in 2016, with certification possible after successful completion of a two-year fellowship. While similar discussions are not yet happening in Canada, it has become clear that special skills, interests and on-site availability are required for the most responsible pediatrician caring for patients on Clinical Teaching Units. We hope the model of care transition at BC Children’s will be fully executed within a few years. I would like to formally acknowledge the tremendous leadership of Mr. John Jacob (Pediatric Strategy and Innovation), Dr. Jenny Druker (division head) and external consultant Dr. Jeremy Friedman (associate physician-in-chief, SickKids hospital in Toronto), who are helping us charter this new course.

Behind all of the 2016 achievements highlighted under the three core priority strategic themes are three enabling themes. Due to space limitations, I will only list a few of many notable achievements in 2016.
MESSAGE FROM THE CHAIR

Our faculty and staff are the most important assets within our Department and we recognize the many contributions that each person makes towards our vision. We consistently strive to take care of all of our people by improving our working environment and supporting personal and professional development.

Departmental processes that support faculty recruitment, appointment, promotion, annual review and mentorship, nomination for awards of recognition, and professional development continue to improve. One example from 2016 was a division head retreat that focused on mentorship and quality improvement.

To build a sustainable future that enables us to efficiently maintain and improve our core services, we must continuously identify opportunities for organizational development and ongoing performance improvement.

We continue to improve the processes that support the collection and reporting of physician accountability metrics required by the Ministry of Health, accurate and timely physician compensation, and departmental communication through monthly meetings and timely updates of our website content (www.pediatrics.med.ubc.ca). The Strategy and Innovation team continues to move into exciting new areas related to systems enhancements.

Enabling Priorities

Our People

Our faculty and staff are the most important assets within our Department and we recognize the many contributions that each person makes towards our vision. We consistently strive to take care of all of our people by improving our working environment and supporting personal and professional development.

Departmental processes that support faculty recruitment, appointment, promotion, annual review and mentorship, nomination for awards of recognition, and professional development continue to improve. One example from 2016 was a division head retreat that focused on mentorship and quality improvement.

Strategic Objectives

Unify our department | Invest in our people | Strengthen our resources | Improve our work environment.

Our System

To build a sustainable future that enables us to efficiently maintain and improve our core services, we must continuously identify opportunities for organizational development and ongoing performance improvement.

We continue to improve the processes that support the collection and reporting of physician accountability metrics required by the Ministry of Health, accurate and timely physician compensation, and departmental communication through monthly meetings and timely updates of our website content (www.pediatrics.med.ubc.ca). The Strategy and Innovation team continues to move into exciting new areas related to systems enhancements.

Strategic Objectives

Enhance our value and performance | Build economic sustainability | Improve operational efficiency | Develop and promote our identity
Positioned at the intersection of research, education and clinical care, we are committed to promoting and facilitating integration with our partners to drive best practices and, ultimately, improve the lives of children and families.

During the development of our Vision 2020 strategic plan, more than 35 different stakeholder groups were consulted, reflecting the complex environment in which we work. Among our continued efforts to expand our visibility and contributions are engagement initiatives with UBC Faculty of Medicine and PHSA. The number of new collaborations and partnerships between BC Children’s-based and BC Children’s Hospital Research Institute located faculty, with other health care professional groups and UBC Departments, continues to grow.

STRATEGIC OBJECTIVES

Advance our shared vision | Drive collaborative achievement | Develop our professional network.

I hope that you enjoy learning more about us by reading the full content of this annual report. For myself, I come to work and learn something new every day. We have so much to be proud of and thankful for. It is truly a privilege to have served as the head/chief of pediatrics/Pediatric Medicine since 2012!

Allison A. Eddy, MD, FRCP(C)
Hudson Family Hospital Chair in Pediatric Medicine, BC Children’s Hospital
James & Annabel McCreary Chair in Pediatrics
Professor and Head, Department of Pediatrics, Faculty of Medicine, UBC
Most work in communities across the province

TOTAL 428

Salaried (or contracted work) based at BC Children's Hospital and its affiliated programs

141

CLINICAL ASSOCIATES (CAS)

CAs are FRCP(C)-certified pediatricians working in subspecialty programs under supervision (mainly Neonatology and Hematology/Oncology)

19

CLINICAL FACULTY

(entirely or partially salaried)

41

ACADEMIC FACULTY

35% PhD scientists | 34% females

CLINICAL FACULTY

(non-salaried)

227

OUR NUMBERS

AT A GLANCE
2016 saw many transformative changes to the administration of our Department. We have been asked to support the physician administration for all departments at BC Children’s in order to emulate the current practices already in existence. In pediatrics we now support Pediatric Radiology, Surgery, Anesthesia, Pathology, Mental Health, Ophthalmology and Dentistry. To enable this expansion, the Physician and Academic Business Services (PABS) was created to oversee financial management, human resources of medical staff and support resources, physician recruitment and retention, academic administration, and integrated business operations. The Strategy and Innovation Office (SIO) was also expanded to support the advancement of integrated goals as an academic health sciences organization. It provides leadership and project management in strategy, planning and performance management, and innovation and technology enablement.

Other administrative changes in our Department included:

The Medical Education unit underwent a restructure of their postgraduate training support roles, separating out didactic and assessment support to the newly-created position of program assistant, Evaluation & Assessment. This new model brings greater resiliency to the program delivery unit and helps to ready the Department for the transition of training models to Competency Based Medical Education (CBME) for all postgraduate programs, set forth from the Royal College of Physicians & Surgeons of Canada. The Medical Education unit also, with support from SIO, developed the Pediatric Resident Information System (PRISm) database. This new platform is used for resident profile development to consolidate, summarize and display all types of academic and scholarly activities. Use of this new tool has allowed for greater efficiencies in performance management and tracking of postgraduate residents.

**Luke Thomas**
The business operations manager position was revised to bridge and support the planning and operational aspects of the expanded services of PABS and SIO. Luke Thomas from the NHS Children’s Hospital was hired for this position.

**Kimi Tanaka**
The Human Resources team was also enhanced to have a dedicated support for the Department Appointment, Reappointment, Promotions, and Tenure (DARPT) processes. Kimi Tanaka began this role on a part-time basis and became full time in July 2016.

**Darwin To**
Darwin To also joined the SIO team as project manager.

**David Harrison**
In the Finance unit, David Harrison joined the Department as interim finance manager. He replaced David Arnold, who was seconded to the UBC Department of Surgery.

**Michelle Man**
The Department’s communications were enhanced by the recruitment of Michelle Man as communications coordinator. Michelle oversees communications and special event coordination for the Department.

**Lauren Jackie**
The Department has also expanded its co-op and internships, recruiting two students to PABS, Amy Du who later went onto PepsiCo Canada and Lauren Jackie who was awarded a Fellowship with Child Life at BC Children’s. Two other interns were also recruited to SIO.
Recognition

A long-term service recognition program for UBC staff and faculty was integrated into the Department’s annual retirement event this year. Recipients were awarded commemorative pins in service milestone increments starting at the five-year mark to acknowledge the efforts of long-term staff and faculty within the Department. Our newly created departmental long-term recognition program for UBC staff and faculty aligns with the Provincial Health Services Authority (PHSA) long-term awards where PHSA pins are also given out at the same employment or service milestones.

Professional Development

This year the Department held a full day professional development event for staff. The event had workshops related to health and wellness, including a food preparation demo and work tips, workplace productivity, as well as a session to update the Department’s strategic plan. There were also door prizes donated by presenters and other vendors to enhance the participants’ experience. Between workshops, attendees were encouraged to sign up for mini massages to make sure that the day was both informative and fun. Overall, the event was very well received by the attendees and many of the staff have adapted some of the healthy eating suggestions, including the incorporation of Spirulina, an antioxidant green algae into their diet.

The Medical Education unit was able to take advantage of multi-sourced funding opportunities and supported eight of the Department’s program administrators so they could attend the Royal College International Conference on Residency Education (ICRE) in Niagara Falls. At this year’s conference, workshops had a particular focus on implementation of Competency-Based Medical Education (CBME) and development of enhanced methodologies and tools to capture and report activity within this new training model. At the Department’s 2016 Education Retreat, an afternoon breakout session was hosted by the education manager & program manager with topics including the Faculty of Medicine and the Department’s launch of the Teaching, Tracking & Payment System (TTPS), updated funding models within the Education programs, and team building activities.

Special Recognition

Ms. Alice So joined the Division of Nephrology in 2009 as the administrative assistant to support the development of our Shared Care clinical program and academic mission. Her roles have been numerous and include providing essential administrative support to our clinical and academic faculty, coordinating our Royal College specialty resident program and clinical fellowship, and organizing our pediatric resident and medical student elective program. She also provides support to, and is the resource person for, the program’s large and diverse nursing and clerical staff. Her organizational and interpersonal skills are exemplary and she has become an integral part of our program. Alice was recently recognized for her accomplishments with the Service & Citizenship Award at the UBC Department of Pediatrics Graduation and Awards Banquet.

Retirement News

Betty Wong was our program assistant in the Division of Critical Care for 10 years, although she worked at UBC for over 20 years. We were sad to see Betty retire this year, but it was much deserved – her service to our Division and hospital will not be forgotten. In her last year with the department Betty was the recipient of the Service Citizenship Award with Alice So. Betty covered the needs of the entire group of intensivists, fellows, CAs and residents in the Division, developing systems so that complex scheduling, academic day planning, human resources management and the day-to-day function of the office hummed on a regular basis.

She became the manager of “potpourri,” the multitude of problems that needed troubleshooting that did not fall under anyone’s umbrella. This included welcoming guests and speakers, sending gift baskets in celebration of life events, and calling trainees when they were ill to see if they needed groceries. It is rare to find someone who turns up to work every single day to do her absolute best, to problem solve at the drop of a hat and be willing to learn new roles and take on new responsibilities whenever they are asked of her. Betty Wong will be dearly missed but we wish her the absolute best in her retirement!

Christine

Christine Veloso, MBA
Senior Director, Physician & Academic Business Services
Dr. Mary Bennett  
Clinical Professor  
Critical Care  
YOUNG WOMEN’S  
CHRISTIAN ASSOCIATION  
Nominated to Women  
of Distinction Award in the  
Health and Wellness category

Dr. Niranjan "Tex" Kissoon  
Professor  
Critical Care  
UBC FACULTY OF MEDICINE  
UBC Distinguished Achievement  
Award for Service to the  
University and Community

Dr. Catherine Pallen  
Professor  
Hematology, Oncology & BMT  
UBC FACULTY OF MEDICINE  
UBC Award for Excellence in  
Mentoring Early Career Faculty

Dr. Jasmine Allaire  
Clinical Instructor  
Emergency Medicine  
UBC FACULTY OF MEDICINE  
Award for Innovation  
in CME/CPD

Dr. Allison Eddy  
Professor and Head  
Department of Pediatrics  
University of British Columbia  
Chief  
Pediatric Medicine  
BC Children’s and  
Women’s Hospital  
BC CHILDREN’S HOSPITAL  
Hudson Family Hospital  
Chair in Pediatric Medicine

Dr. Tim Oberlander  
Professor  
Developmental Pediatrics  
THE TERATOLOGY SOCIETY  
Birth Defects Research Part B  
Distinguished Scholar Award

Dr. Hal Siden  
Clinical Professor  
General Pediatrics  
BRITISH COLUMBIA  
ACHIEVEMENT FOUNDATION  
BC Community  
Achievement Award
Dr. Michael Klein
Professor Emeritus
Developmental Pediatrics
ORDER OF CANADA
Member of the Order of Canada

Dr. Clara van Karnebeek
Affiliate Associate Professor
Biochemical Diseases
UBC FACULTY OF MEDICINE
Distinguished Achievement Award in Overall Excellence – Early Career
CANADIAN ORGANIZATION FOR RARE DISORDERS (CORD)
CORD Scientific Award

Dr. Sandra Whitehouse
Clinical Associate Professor
Adolescent Medicine
DOCTORS OF BC
Leadership in Youth Transition

Dr. Richard Schrieber
Clinical Professor
Gastroenterology
CANADIAN LIVER FOUNDATION
LIVERIGHT Honoree

Dr. Wingfield Rehmus
Clinical Assistant Professor
Dermatology
FACULTY OF MEDICINE
DERMATOLOGY RESIDENTS
The Resident’s Selection for Excellence in Teaching

Dr. Bruce Vallance
Professor
Gastroenterology, Hepatology & Nutrition
CANADIAN ASSOCIATION OF GASTROENTEROLOGY
Research Excellence Award

Dr. Sylvia Stöckler-Ipsiroglu
Professor
Biochemical Diseases
CANADIAN ORGANIZATION FOR RARE DISORDERS (CORD)
CORD Scientific Award
Rarity Award for Scientific Excellence and Support of the Rare Diseases Patient Community

Dr. Sandra Whitehouse
Clinical Associate Professor
Adolescent Medicine
DOCTORS OF BC
Leadership in Youth Transition

Dr. Richard Schrieber
Clinical Professor
Gastroenterology
CANADIAN LIVER FOUNDATION
LIVERIGHT Honoree
The Inaugural Hudson Scholars

The Hudson Scholars Program is an exciting new career development and mentorship program that aims to foster innovation and improve care for pediatric patients in British Columbia. Launched in spring 2016, the first competition is expected to fund salary awards of approximately $50,000 each for junior specialist and subspecialist pediatricians who work at BC Children’s Hospital (BC Children’s).

The Scholars Program provides busy, young pediatric clinical faculty (less than four years in their role) with the protected time and mentorship they need over two years to acquire new knowledge, hone research skills, apply new methods and tools to a specific clinical practice improvement project, and measure the impact of the change. By funding that time – approximately one day a week – this program will enable clinicians to lead innovations in health systems, health services, and health care models to improve pediatric inpatient access, quality and outcomes.

The Hudson Scholars Program is funded by a generous donation to BC Children’s Hospital Foundation to establish the Hudson Family Hospital Chair in Pediatric Medicine at BC Children’s. The Hudson Family Hospital Chair is the first endowed hospital chair in the history of BC Children’s. It was awarded to Dr. Allison Eddy, chief of Pediatric Medicine, who chose to use funding from this award to establish the new Scholars Program.

The goals of keeping patients safe while striving to continuously improve the quality of the health care they receive has long been a cornerstone of the Canadian healthcare system. However, over the past decade it has become evident that achieving significant improvements in the quality of care requires a logical and systematic approach and the application of newer analytical methodologies. The need to acquire and deploy scientifically rigorous approaches has been recognized and has led to the emergence of Healthcare Improvement Science: an applied science within health services research that is focused on translating evidence learned from research into daily clinical practice in order to improve care processes and outcomes. Scholars working in this field need specialized training and time – the foundational pillars of the Hudson Family Hospital Chair in Pediatric Medicine today.

From a historical perspective, two important reports are credited with the launch of the modern day quality improvement discipline. First was a report from the Institute of Medicine (USA) published in 1999: To Err is Human: Building a Safer Health System. The second, considered a landmark study, McGlynn et al (New England Journal of Medicine 348:2635, 2003) found that only 55% of patients in the United States received recommended care.

The Scholars Program provides busy, young pediatric clinical faculty with the protected time and mentorship they need over two years to acquire new knowledge, hone research skills, apply new methods and tools to a specific clinical practice improvement project, and measure the impact of the change.”
The Hudson Scholars Program recognizes the need for dedicated and protected physician time to achieve the following goals:

- Acquire new knowledge in scientific methods and related skills through structured learning
- Apply these methods and tools to a specific clinical practice improvement project
- Measure the impact of the change on the healthcare system

The first Hudson Scholars were awarded on September 1, 2016

Recipients

**Dr. Jennifer Smitten**

Year of FRCP Qualification in Pediatrics: 2014

Project Title: Choosing Wisely in Inpatient Pediatrics

Internal Mentor: Dr. Peter Skippen (Critical Care and Quality Improvement, BC Children’s)

External Mentor: Dr. Jeremy Friedman (The Hospital for Sick Kids, Toronto)

**Dr. Kristopher Kang**

Year of FRCP Qualification in Pediatrics: 2015

Project Title: Targeting inpatients to increase vaccination of children at high risk for infection

Internal Mentor: Dr. Soren Ganttt (Infectious Diseases, BC Children’s)

External Mentor: Dr. Trey Coffey (The Hospital for Sick Kids, Toronto)

**Dr. Mia Remington**

Year of FRCP Qualification in Pediatrics: 2013

Project Title: Improving Discharge Efficiency through Quality Improvement

Internal Mentor: Dr. Tammie Dewan (General Pediatrics and Complex Care, BC Children’s)

External Mentor: Dr. Christine White (Children’s Hospital Cincinnati)
Division Heads

Dr. Allison Eddy
Professor and Head
2012 – Present

Dr. Edmond Chan
Allergy & Immunology
2013 – Present

Dr. Shubayan Santani
Cardiology
2015 – Present

Dr. Julie Prendiville
Dermatology
1990 – Present

Dr. Curren Warf
Adolescent Health and Medicine
2009 – Present

Dr. Sylvia Stöckler-Ipsiroglu
Biochemical Diseases
2005 – Present

Dr. Mary Connolly
Neurology
2004 – Present

Dr. David Wensley
Critical Care
2010 – Present

Dr. Nancy Lanphear
Developmental Pediatrics
2008 – Present

Dr. Douglas Matsell
Nephrology
2003 – Present

Dr. Michael Seear
Respiratory Medicine
2010 – Present
In 1922 a Crippled Children’s Fund was established by the Women’s Institutes of British Columbia to aid a child on Hornby Island. Several subsequent and successful treatments of pediatric cases with the fund at Vancouver General Hospital inspired the Women’s Institutes to incorporate the Women’s Institute Hospital Association for Crippled Children in 1923.

Renting a house on Hudson Street in Marpole, a 16-bed facility served as the first hospital from 1927 to 1933. By 1933, successful fundraising and lobbying provided for the establishment of the 25-bed Crippled Children’s Hospital (reflecting a name change of the association in 1932).
MEDICAL EDUCATION
Education Program Leadership

Dr. Mary Bennett
Associate Head, Education

Dr. Janet Greenman
Associate Director, Pediatric Residency Training Program

Dr. Mumtaz Virji
Director, Undergraduate Program

Dr. Laura Sauvé
Program Director, Pediatric Residency Training Program

Dr. Jennifer Balfour
Associate Director, Pediatric Residency Training Program, Vancouver Island Site

Dr. Ralph Rothstein
Fellowship Chair

Dylan King
Program Manager, Postgraduate and Undergraduate Medical Education

Sylvia Wu
Senior Manager, Education
Undergraduate Program
Dr. Mumtaz Virji, Director, Undergraduate Program

The Department of Pediatrics, Faculty of Medicine, has played a vital role in developing undergraduate, residency and clinical fellowship training programs for over 50 years. The strength of our Department lies in three areas: teaching, research and exemplary patient care.

288 undergraduate medical students are enrolled in our courses each year, not including the visiting medical students from Commonwealth and North American Medical Schools who come to us for elective opportunities.

Our general pediatric training program is four years in length with 60 pediatric residents participating. Our subspecialty and post-doctoral Pediatric training programs have over 70 trainees.

Accomplishments for 2016
Year 4 students, both from UBC and out-of-province, have the opportunity to do a two- to four-week elective in pediatrics. In 2016, we had 164 students join us. Of these, 89 were UBC students and 75 were either out-of-province or out-of-country students.

350 PEDIATRIC RESIDENCY TRAINING PROGRAM
Applicants per year

288 Students per year in the UNDERGRADUATE MEDICAL PROGRAM (4-YEAR PROGRAM)

70 Trainees in the FELLOWSHIP PROGRAMS

14 matched to Vancouver in 2016
64 residents in the Residency Program in Vancouver (total)
2 matched to Victoria
6 of a cohort of 8 residents in the Island Medical Program in Victoria (total)
31 graduates in 2016
General Pediatric Residency Training Program

Dr. Janet Greenman, Associate Director

The General Pediatric Residency training program strives to provide a broad inpatient, ambulatory and community educational base to equip modern-day general pediatricians with the skills necessary for practice. Training within the tertiary care setting helps equip graduates with the confidence and skills necessary to treat children with significant and possibly life-threatening problems. This is complemented by time spent each year in community practices and hospitals. Our pediatric residency training program is committed to providing an excellent educational experience within the guidelines of the Royal College of Physicians and Surgeons of Canada.

In July 2015, the program expanded to a second site in Victoria, where two residents each year are accepted into the Vancouver Island Site Program. They are integrated as UBC pediatric residents, but have a fantastic opportunity to be part of building a community-based program. There are many opportunities for residents to gain hands-on experience, guided by an enthusiastic faculty. Additionally, Victoria is a lovely city and easy to live in.

There are approximately 60 residents in the program over the two sites. The training program is four years, of which residents do three core years of general pediatrics. These core years provide exposure to acute care and ambulatory pediatrics, as well as the subspecialties, with a graded responsibility from junior to senior residency. Residents at the Vancouver site participate in the resident continuity clinic for three years, while the Victoria-based residents focus on longitudinal experiences. The fourth year is either a further year in general pediatrics – with sufficient elective time tailored to the individual’s academic interests and career goals – or the first year of a subspecialty training program.

Residents attend mandated academic activities, including academic half-days and Grand Rounds on a weekly basis. These are video-conferenced to our distributed sites throughout the province. There are two mandatory resident retreats and a Careers Night annually, attended by residents from both sites. Residents also practice resuscitation scenarios in the high-fidelity simulator program, both on acute care rotations (PICU and emergency medicine) and in their longitudinal simulation curriculum in the academic half-day. Regular mock codes take place for CTU residents.

All residents are expected to work on clinical (including quality improvement), basic science or medical education research and to present their work at least once, either at the annual research day or at a conference. First year residents take part in a 30-hour research curriculum during the academic half-day. The resident Journal Club is scheduled bimonthly and introduces residents to key clinical research methodologies and critical appraisal of the literature.

The Department of Pediatrics and the pediatrics residency program have an interest in social pediatrics and the health of vulnerable children and youth. Residents have opportunities to engage in resident-driven local health advocacy projects, outreach programs within Western Canada, and global child health initiatives, including social pediatrics electives and electives overseas. Partnerships exist with hospitals in several countries, including South Africa and Australia.

For more information, please visit:
www.pediatrics.med.ubc.ca/education/residency-program
THE VANCOUVER ISLAND SITE PROGRAM

Victoria General Hospital is an acute care hospital where the pediatric ward has 23 pediatric beds, a five bed Pediatric Intensive Care, a 22-bed neonatal intensive care unit, and a labour and delivery unit where there are 3200 deliveries per year. Outpatient specialized pediatric clinics include diabetes, oncology, asthma, cystic fibrosis, genetics, neurology, rheumatology, neonatal follow up and cardiology.

Victoria based residents do rotations in the Victoria General Hospital Pediatric ICU, ER, NICU and CTU. A range of subspeciality and general pediatric experiences occur both in a block and longitudinal format in Victoria. With the high volume of neonatology, a significant amount of neonatal experience is gained in Victoria and augmented experience may take place at one of several hospitals in the Lower Mainland, including BC Women’s. Some subspeciality electives are undertaken at BC Children’s.

The Developmental Centre of Queen Alexandra Centre in Victoria allows exposure to many complex behavioural and developmental patients in the context of a multidisciplinary team setting. The placement of this hub as a referral center for all of Vancouver Island allows the resident in training to see a range of developmental issues and appreciate the importance of forging management plans that acknowledge the resources of the referring community. The important social component of pediatrics is also evident in this setting.

Victoria General Hospital
1 Hospital Way, Victoria, BC V8Z 6R5

Developmental Centre of Queen Alexandra Centre
2400 Arbutus Rd, Victoria, BC V8N 1V7
Medical residency is an extremely challenging time. Evidence suggests that residency may represent the nadir of a physician’s personal wellness, with burnout rates approaching 70% across programs. The impact of wellness on patient care has been well described – residents suffering from burnout or depression are more likely to make medical errors and provide suboptimal care. Proactive interventions to address resident wellness and resiliency building are urgently needed.

This was the motivation behind the creation of the BC Children’s Hospital Pediatric Resident Wellness Committee in 2013. Our goal is to focus on, not only the prevention of burnout, but also the promotion of resiliency and wellbeing in residency. We want to help residents find joy and meaning during their training. The exceptional programming for medical residents and physicians at Stanford University has provided an excellent model for some of our work.

Our initiatives include the following:

- Creation of Ice Cream Rounds (a confidential resident support and debriefing group)
- Distribution of a resident wellness handbook/survival guide to incoming residents
- Creation of a biannual resident wellness newsletter
- “Resident of the Month” voting system to acknowledge outstanding colleagues
- Weekly running group and resident team entry into local races
- Group fitness and yoga classes
- Development of a wellness library in our lounge
- Incentivizing “random acts of kindness” towards colleagues
- Puppy therapy through the Pacific Assisted Dogs program
- Encouraging attendance at local wellness and mindfulness conferences
- Wellness-themed journal club meetings
- Restructuring of our group mentorship program
- Holiday-themed decor and baking in our lounge and a holiday gift exchange

Great strides have been made towards creating a culture of wellness for medical residents at BC Children’s, but it is a work in progress. Eventually, we hope to introduce a credit system to incentivize residents who go above and beyond. Our ultimate goal is to continue to foster a culture of wellness, collegiality and camaraderie within the hospital and keep residents happy and healthy throughout their training. This, in turn, allows us to provide optimal care to patients and their families.

For more information, please visit:
www.postgrad.med.ubc.ca/2014/02/13/a-healthy-scoop-of-support-residents-tasty-initiative-brings-colleagues-together
PROGRAM UPDATE

Subspecialty Fellowship Program

There are 16 Royal College approved subspecialty pediatric residency (SSR) training programs within the UBC Department of Pediatrics. These programs are open to candidates who have completed core Royal College training in general pediatrics. There is also a parallel Clinical Fellowship program in these subspecialties for pediatricians from other countries seeking further training.

Royal College Accredited Programs:
- Adolescent Health and Medicine
- Allergy & Immunology
- Cardiology
- Critical Care
- Developmental Pediatrics
- Endocrinology & Diabetes
- Emergency Medicine
- Gastroenterology
- Hematology, Oncology & BMT
- Infectious Diseases
- Neonatology
- Neurology
- Nephrology
- Palliative Care
- Respiratory Medicine
- Rheumatology

Non-Royal College Accredited Programs:
- Dermatology
- Translational Therapeutics

Canadian College of Medical Geneticists (CCMG) accredited:
- Biochemical Diseases

Many Clinical Fellows participate in the BC Children's Hospital First Responder program, providing in-house coverage at night for surgical and subspecialty pediatric patients. The program was started following the identification of actual and potential patient harm as a result of delayed identification or response to a deteriorating patient. The First Responder team is an essential component of the BC Children's patient safety plan. There has been a significant decrease in critical events related to a delay in identifying or appropriately responding to a deteriorating patient with the introduction of clinical monitoring tools, such as the Pediatric Early Warning System.

In addition to clinical training, there is an emphasis on research. Subspecialty research opportunities on site are enhanced by BC Children's Hospital Research Institute (BCCHR). The Clinical Fellows enrich our academic/clinical community by sharing new perspectives on global health and alternate preventative, diagnostic and therapeutic approaches to pediatric clinical care.
Distributed Medical Education

UBC started one of the first distributed medical schools in Canada in 2004. The school now has a “main” program in the Vancouver-Fraser area, as well as sites at the Island Medical Program in Victoria, the Northern Medical Program in Prince George and the Southern Medical Program in Kelowna. As the program has been highly successful, further distribution is planned for other sites throughout the province.

**Discipline Specific Site Leaders (DSSLs)**

Discipline Specific Site Leaders are the representatives for the Department of Pediatrics at the distributed medical school sites. They are education leaders for our students and postgraduate trainees, and are responsible for logistics management, evaluation and liaising between local faculty and our central administrative office. DSSLs are community pediatricians with a keen interest in medical education – the success of our distributed programs depends on these committed individuals.
Distributed Medical Education Sites & DSSLs

**Drs. Kathryn Ng & Colleen Poole**  
Langley Memorial Hospital (LMH)  
22051 Fraser Hwy, Langley, BC V3A 4H4

**Dr. Mudaffer Al-Mudaffer**  
Royal Columbian Hospital (RCH)  
330 E Columbia St, New Westminster, BC V3L 3W7

**Dr. Rob Humphreys & Dr. Joanna Jia**  
(appointed in 2016)  
Surrey Memorial Hospital (SMH)  
13750 96 Ave, Surrey, BC V3V 1Z2

**Dr. Melissa Paquette**  
Royal Inland Hospital (RIH)  
311 Columbia Street, Kamloops, BC V2C 2T1

**Dr. Vincent Arockiamsamy**  
Kelowna General Hospital (KGH)  
2268 Pandosy St, Kelowna, BC V1Y 1T2

**Dr. Dianna Louie**  
BC Children’s Hospital  
4480 Oak St, Vancouver, BC V6H 3N1

**Dr. Glenn Robertson**  
Lions Gate Hospital (LGH)  
31 15th St E, North Vancouver, BC V7L 2L7

**Dr. Erik Swartz**  
Richmond General Hospital (RGH)  
7000 Westminster Hwy, Richmond, BC V6X 1A2

**Dr. Antoinette van den Brekel**  
St. Paul’s Hospital (SPH)  
1081 Burrard St, Vancouver, BC V6Z 1Y6

**Dr. Kirsten Miller & Dr. Kathryn Leceese**  
University Hospital of Northern British Columbia (UHNBC)  
1475 Edmonton St, Prince George, BC V2M 1S2

**Dr. Jennifer Balfour**  
Victoria General Hospital (VGH)  
1 Hospital Way, Victoria, BC V8Z 6R5
UBC Department of Pediatrics Education Awards

**FACULTY**

**Dr. Grace Yu**  
Community Pediatrician of the Year Award

**Dr. Kevin Ansah**  
Clinical Associate of the Year Award

**Surrey Gen Peds**  
Best Service of the Year Award

**Dr. Dina Panagiotopoulos**  
Resident Research Faculty Mentor of the Year Award

**Dr. Dianna Louie**  
Golden Rattle Award

**Dr. Connie Yang**  
Ivory Tower Award

**Dr. Colin White**  
Residency - Teacher of the Year Award

**Dr. Vicki Leung**  
Hospital Pediatrician of the Year Award

**Dr. Kristopher Kang**  
Rookie of the Year Award
**TRAINNEES**

**Dr. Emily Kieran**  
Supervised by Dr. Alexander Rauscher  
Laura MacRae Award

**Dr. Surabhi Rawal**  
Fellow of the Year Award

**Christian Kames**  
Supervised by Dr. Alexander Rauscher  
Rapid two-step dipole inversion for susceptibility mapping with sparsity priors  
Natural Sciences and Engineering Research Council of Canada Discovery Grant  
Rapid Two-Step QSM Without A Priori Information  
Magna Cum Laude Award by the International Society of Magnetic Resonance in Medicine (ISMRM)

**Vanessa Wiggerman**  
Supervised by Dr. Alexander Rauscher  
Quantitative MRI of Multiple Sclerosis  
PhD Studentship from the MS Society of Canada

**NATIONALLY RECOGNIZED RESIDENT RESEARCH AWARDS**

**Dr. Allison Lee**  
Clinical Fellow  
CANADIAN PAEDIATRIC SOCIETY MENTAL HEALTH SECTION  
Best Poster  
BC PEDIATRIC SOCIETY  
BC Peds Advocacy Award

**Dr. Matthew Carwana**  
Supervised by Dr. Connie Yang  
Is there an app for that? Assessing the quality and content of apps for asthma management available in Canada  
Resident Research Award for Excellence from the Canadian Pediatric Society Conference

**Dr. Khadijah Maghrabi**  
Laura MacRae Award

**Dr. Megan Kilvert**  
David Alexander Clark, M.D., Prize

**Dr. Steven Rathgeber**  
Dr. Jenny Drucker CTU Quality Assurance Award

**Dr. Jessica Woolfson** (SSR/Fellow)  
UBC Pediatric Research Award

**Dr. Caroline Malcolmson**  
David Alexander Clark, M.D., Prize and the UBC Pediatric Research Award
SUBSPECIALTY GRADUATES

NUMBER OF NEW TRAINEES:

<table>
<thead>
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<th>Subspecialty</th>
<th>Number</th>
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<tbody>
<tr>
<td>BC CHILDREN’S HOSPITAL</td>
<td>13 residents</td>
</tr>
<tr>
<td>OUT OF PROVINCE</td>
<td>17 clinical fellows</td>
</tr>
<tr>
<td>INTERNATIONAL</td>
<td>1 postgraduate trainee</td>
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</tbody>
</table>

GRADUATES ARE RECRUITED TO:

- **BC CHILDREN’S HOSPITAL**: 25%
- **OUT OF PROVINCE**: 23%
- **INTERNATIONAL**: 52%

GRADUATES BY DIVISION:

1. **CLINICAL IMMUNOLOGY & ALLERGY**
2. **CARDIOLOGY**
3. **HEMATOLOGY/ONCOLOGY/BMT**
4. **DEVELOPMENTAL PEDIATRICS**
5. **EMERGENCY MEDICINE**
6. **ENDOCRINOLOGY**
7. **GASTROENTEROLOGY**
8. **INFECTIONOUS DISEASES**
9. **NEONATAL-PERINATAL MEDICINE**
10. **RHEUMATOLOGY**
11. **RESPIROLOGY**
12. **NEUROLOGY**
RESIDENCY PROGRAM GRADUATES

NUMBER OF APPLICANTS IN 2016

295 CMG
166 IMG

16 SEATS available
30 UBC undergrads

PROFILE OF MATCHED APPLICANTS

GRADUATES ARE RECRUITED TO:

BC CHILDREN’S HOSPITAL 48%
OUT OF PROVINCE 50%
INTERNATIONAL 2%

POST RESIDENCY

3 international

3 3 1 1 4
Dr. Alexander Rauscher joined the Department of Pediatrics in 2015 as a Canada research chair in Developmental Neuroimaging. He obtained his PhD in Physics from the TU Vienna and did post-doctoral training at the Friedrich-Schiller-University Jena (Germany) before coming to Canada. In 2007, he began working at the UBC MRI Research Centre and became assistant professor of the Department of Radiology at UBC three years later. Dr. Rauscher received a CIHR New Investigator Award in 2012. His current research uses MRI scanners to image the human brain – from infancy to adulthood – in order to investigate concussions, myelin damage and repair, and brain injury in newborns.

The researchers’ ability to detect the actual damage done to myelin [in hockey players’ brains after a concussion] was made possible by using a novel myelin-specific MRI scan developed by MRI scientists at UBC. The technology is not widely available yet, making Dr. Rauscher and his research team’s myelin study the first of its kind in people with mild traumatic brain injury.”

— Vancouver Coastal Health Research Institute

The Department of Pediatrics Appointment, Reappointment, Promotion & Tenure (DARPT) Committee

As an academic department within the UBC Faculty of Medicine, one of the important functions of the Department of Pediatrics Appointment, Reappointment, Promotion & Tenure (DARPT) Committee is the rigorous process of recruiting and appointing new members to our UBC faculty. We also oversee the reappointment, promotion and tenure of all academic faculties, and serve important mentorship and educational roles for faculty members under review for promotion. Given the geographic distribution of the medical school sites, the DARPT Committee welcomes the increasing number of clinical faculty who join us from all over the province.

2016 Promotions within the Department

<table>
<thead>
<tr>
<th>RANK</th>
<th>2013</th>
<th>2014</th>
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<th>2016</th>
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<tr>
<td><strong>Clinical</strong></td>
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<td>Associate Professor</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>
Dr. Manish Sadarangani was recruited to the Department of Pediatrics this year as an assistant professor in the Division of Infectious Diseases and the medical director of the Vaccine Evaluation Centre (VEC). He undertook his DPhil in Oxford, UK with the Oxford Vaccine Group and completed his Fellowship in Pediatric Infectious Disease at BC Children’s Hospital (2013). Previously working at The Children’s Hospital in Oxford, Dr. Sadarangani’s research focus is on developing and assessing vaccines, and improving diagnosis and treatment for meningitis and encephalitis. He won the 2016 SPARKS Young Investigator of the Year award for this research. As the new lead of VEC, Dr. Sadarangani is aiming to lower the burden of childhood infectious disease through vaccination, ultimately informing evidence-based policy locally, nationally and internationally.

“...”

– Dr. Manish Sadarangani
The Strategy & Innovation Office (SIO)

John Jacob, Senior Director, Strategy and Innovation Office

The Strategy and Innovation Office (SIO) is an integrated unit of BC Children’s Hospital and UBC’s Department of Pediatrics. The SIO focuses on enabling change through strategic initiatives and innovative projects to advance child health and the delivery of core services. Established in 2013, the SIO has continued to evolve, realigning under the hospital’s Medical Affairs Portfolio, in tandem with the Physician and Academic Business Services Office.

The SIO also encompasses a distinct entity known as the SIO Digital Catalyst Lab (SIOLAB) — an internal technology incubator with the aim of enabling digital innovations. The Lab is an integrated component of the Office but is framed as an independent unit and business stream, supporting new ventures beyond traditional operating boundaries. Some of these projects generate revenue through service agreements or grant funding, which enables the Office to offset operating costs and provide seed grants to new ideas.

For more information on the Digital Catalyst Lab, please visit:

www.siolab.ca
"Serving more than 85,000 infants, children and youth each year, BC Children's Hospital is a leader in general and specialized pediatric services, and is the province's foremost teaching facility for child health."
2016 Financials
Christine Veloso, Senior Director, Physician and Academic Business Services

The Department of Pediatrics has an integrated financial plan combining funding sources from the University of British Columbia (UBC) and the Provincial Health Services Authority (PHSA). Funding sources include operating funds from UBC and PHSA, the Ministry of Health funded Pediatric Practice Plan (MoH PPP), the University of British Columbia Faculty of Medicine Postgraduate Medical Education (PGME) program, as well as endowments and restricted funds (i.e. donations) administered by UBC, BC Children’s Hospital Foundation (BCCHF) and BC Children’s Hospital Research Institute (BCCHR).

The Division of General Pediatrics employs part-time pediatricians to support 80% of the total service at the Clinical Teaching Units at BC Children’s Hospital (BC Children’s) and the Intermediate Nursery at the BC Women’s Hospital + Health Centre (BC Women’s). Their compensation is supplemented by fee-for-service activities. The divisions of Cardiology and Emergency Medicine manage their own Pediatric Practice Plans.

The chart below depicts the expenses by funding sources and assumes all funding sources are utilized.
Between the last fiscal year and this fiscal year, there was an 11% increase in revenue from the MoH PPP due to increased utilization and government mandated increases. There were also 25% and 19% increases in the utilization of UBC endowment funds and BCCHF endowments and restricted funding, respectively. The 14% increase in UBC operating funding was due to the Vancouver Summer Program (VSP) courses led by Dr. Ran Goldman, as well as other research activities that generated operating fund revenue.
In 1933, The Crippled Children’s Hospital moved to a larger location at 250 - 59th Avenue, just west of Main Street.

In 1947, the hospital was renamed Children’s Hospital, reflecting its evolution from a rehabilitative orthopedic facility into an acute care and general pediatric hospital. Significant developments in medical and surgical care, ambulatory services, and other programs resulted in constant physical expansion of the hospital into a 100 bed facility by 1950.
The Division of Adolescent Health and Medicine improves the health of adolescents through its support of the Youth Health Program, the Adolescent Eating Disorders Program and the RICHER Program. Our research priorities focus on eating disorders, mindfulness, transitioning to adulthood, and homeless and at-risk youth. We are also responsible for the Adolescent Health and Medicine Subspecialty Residency & Fellowship Program, while providing academic leadership in UBC educational activities related to adolescent health.

Our outpatient services comprise of the Youth Health Program consultation service, the Eating Disorders Program day hospital, and the Youth Health Program Transition Model (ON TRAC). The acute pediatric medical inpatient unit for unstable adolescents with eating disorders, and the Adolescent Intensive Treatment Services Eating Disorders Unit (located in the psychiatry department), serves our inpatient population.

We are extremely proud of our Children’s Youth Advisory Committee (YAC) who provide the youth voice to BC Children’s Hospital. They had a major role in the Children’s Healing Experience Project for the new Teck Acute Care Centre by selecting the local artists, community partners and art themes. They also hosted a world café, along with the leadership team, on voicing patient engagement. Their recent video project, “Orientation to BC Children’s Hospital,” has been watched over 1,100,000 times!

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/adolescent-medicine
FACULTY BY RANK

Clinical Faculty

**Dr. Curren Warf**
Division Head, Clinical Professor

**Dr. Dzung Vo**
Subspecialty Training Program Director, Clinical Associate Professor

**Dr. Sandy Whitehouse**
Clinical Associate Professor

**Dr. Pei-Yoong Lam**
Medical Director, Provincial Specialized Eating Disorders Program, Clinical Associate Professor

**Dr. Eva Moore**
Director, Medical Student and Pediatric Resident Education, Clinical Lead, Clinical Assistant Professor

**Dr. Tara Tandan**
Clinical Instructor

ASSOCIATE FACULTY AND STAFF

**Lynn Straatman, MD**
Department of Social Work, UBC

**Sheila Marshall, PhD**
Department of Social Work, UBC

**Grant Charles, PhD**
Department of Social Work, UBC

**Elizabeth Saewyc, PhD**
School of Nursing, UBC

**Sabrina Gill, RN**
Department of Pediatrics, UBC, Clinical Nurse Specialist

AFFILIATE FACULTY

**Dewey Evans, PhD**
Honorary Research Associate

TRAINING PROGRAM GRADUATES

**Dr. Katherine Ann Mitchell**
Subspecialty Resident

**Dr. Curren Warf**
Clinical Professor

**Dr. Pei-Yoong Lam**
Clinical Associate Professor

**Dr. Dzung Vo**
Clinical Associate Professor

**Dr. Eva Moore**
Clinical Assistant Professor

Eating Disorders

**At-Risk Youth**

**Transitioning to Adult Care**

**Mindfulness**

RESEARCH EXPERTISE within the Division
Transitioning Responsibly to Adult Care (ON TRAC)

Dr. Curren Warf, Head, Division of Adolescent Health and Medicine

The goal of transition from pediatric to adult care is to help adolescent patients with chronic medical conditions and disabilities, and their parents, gain the skills and knowledge to be prepared and ready for the next step: to successfully take increasing responsibility for their own care and interaction with the medical system. This step-by-step process starts at 12 years old and generally finishes by 18 years of age.

The ON TRAC (Transitioning Responsibly to Adult Care) Initiative has been built on the expertise of a large group of stakeholders throughout the province. Initially conceptualized in 1998, ON TRAC developed acceptance following a Youth and Young Adults in Transition Provincial Workshop in 2011 hosted by Child Health BC. Representatives from ministries, organizations and agencies caring for youth, and young adult patients themselves, recognized the need to integrate the many transitions youth face in school, health care, home care services, insurance and housing as they approach adulthood. It is increasingly recognized that the time of transfer from pediatric care for adolescents needs to be based less on a specific age than on developmental preparedness, available social supports, and access to appropriate medical care. Child Health BC continues to be involved in developing plans to engage adult specialists and family practitioners in accepting transitioning patients from BC Children’s Hospital. In 2016, BC Children’s provided funding for a professional practice leader role, called Ambulatory Pediatrics, to promote institutionalization of effective transition and transfer practices.

Given that BC Children’s is the unique children’s hospital of British Columbia, almost all children with serious chronic medical conditions receive care here. The successes of modern pediatric care have led to the survival of greater numbers of patients to adulthood. Consequently, adult medical practitioners, both family physicians and specialists, are faced with a new population of young people with unfamiliar, and often rare, medical conditions. The period of transition preparation and transfer to adult care has been demonstrated by research to be a period of highly increased vulnerability for adolescent and young adult patients. Research has also demonstrated that poor transition planning and transfer results in increased mortality and morbidity related to primary disease outcomes, increased psychological and mental health co-morbidities, and patient distrust and disengagement from the healthcare system. Successful transition and transfer requires preparation and planning that includes the patient, family and all healthcare providers.

In recognition of the importance of transition preparation and transfer to the successful care of patients, medical education has been modified to
include transition education early in professional development for all medical students at UBC. It has also been integrated into the education of pediatric residents at BC Children’s to shape the professional practice of the future generation of physicians, in particular pediatricians.

ON TRAC has responded to feedback and guidance from adolescent and young adult patients, family members, medical specialists, family physicians, nurses, social workers, psychologists, physiotherapists, occupational therapists, dieticians, child life workers, administrators and researchers across pediatric, adult and community-based services throughout BC. Condition-specific agencies and organizations and advocacy groups have provided valuable guidance. Together they have worked closely with many pediatric specialists at BC Children’s to improve the patient transition and transfer process. They have also worked closely with BC Children’s Youth Advisory Committee. Together with young people, they’ve created the Youth Toolkit for transition. It contains tools, tips and ideas to help youth ages 12–24 years plan and prepare for adulthood and adult health care.

Through the support of doctors in BC, ON TRAC has developed new educational Continuing Professional Development (CPD) units called, “Transitioning to Adult Care for Youth with Chronic Health Conditions and Disabilities.” They are now available for all physicians through the UBC Division of CPD. In addition, through collaboration with both pediatric and adult medical subspecialists, multiple neurology and cardiology condition-specific Transition Care Management Plans (TCMPs) have been developed and are now available online for all physicians caring for these complex youth. We have aspirations of developing more condition-specific TCMPs as funding allows.

The Team

Dr. Curren Warf is a pediatrician and specialist in Adolescent Medicine, head of the Division of Adolescent Health and Medicine, and a clinical professor of Pediatrics at BC Children’s and the UBC Faculty of Medicine. He has taken on a leadership role in the planning for transition and supporting the transition initiative.

Dr. Lynn Straatman is a pediatric and adult trained specialist in heart failure/cardiac transplantation. She has worked with the transition project as the cardiology lead to facilitate the transition of adolescents to the adult care system.

Dewey Evans, PhD is honorary research associate of the Division of Adolescent Health and Medicine. He brings an in-depth knowledge of the healthcare system and has been the research lead for the transition initiative.

Ciara McGeogh, RN is the senior practice leader for Youth Transition and Ambulatory Care Services at BC Children’s.

Jennifer Scarr, RN, MSN is the provincial lead, Health Promotion, Prevention and Primary Care for Child Health BC.

We would also like to acknowledge the substantive contributions of Mary Paone, RN and Sandy Whitehouse, MD to the development of ON TRAC and the transition initiative at BC Children’s.

For more information, please visit:
www.bcchildrens.ca/our-services/support-services/transition-to-adult-care
www.ubccpd.ca/course/youth-transition
www.youthtransitioncare.ca

"Together they have worked closely with many pediatric specialists at BC Children’s to improve the patient transition and transfer process."

The Division of Allergy & Immunology serves as a tertiary referral centre for children from around the province. Our goal is to provide the highest level of clinical care and excellence in teaching and research. Our fellowship training program is the only Canadian Royal College of Physicians and Surgeons of Canada accredited training program in Pediatric Clinical Immunology and Allergy west of Manitoba.

Our research interests span a wide variety of topics from childhood asthma prevention, food allergies, eosinophilic esophagitis and DiGeorge syndrome to early infant infections with herpes group viruses, childhood infections, and innate immunity and lung inflammation in cystic fibrosis. Under the leadership of Dr. Anne Junker, the Maternal Infant Child Youth Research Network (MICYRN) focuses on removing barriers and improving support for multi-jurisdictional research conducted by national networks and teams, with attention to ethics, informatics and clinical trials.

The Colonel Harland Sanders Allergy Clinic provides a consultation service to community physicians throughout the province, with over 2,000 patient visits per year. The ambulatory program is designed to provide a "one stop" service for diagnosis and management. The Immunology Clinic provides consultation services for immune deficiency disorders and works with community healthcare providers for screening immunology studies to be done locally.

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/allergy-immunology
FACULTY BY RANK

**Academic Faculty**
- **Dr. Stuart Turvey**
  Professor
- **Dr. Anne Junker**
  Associate Professor

**Clinical Faculty**
- **Dr. Edmond Chan**
  Division Head & Clinical Associate Professor
- **Dr. John Dean**
  Clinical Associate Professor
- **Dr. Hong Yang**
  Research Associate
- **Dr. Nico Marr**
  Research Associate
- **Dr. Tiffany Wong**
  Program Director (interim) & Clinical Assistant Professor
- **Dr. Kyla Hildebrand**
  Program Director & Clinical Assistant Professor
- **Dr. Elodie Portales-Casmar**
  Clinical Assistant Professor
- **Dr. Sara Leo**
  Clinical Instructor
- **Dr. Joanne Yeung**
  Clinical Instructor
- **Dr. Scott Cameron**
  Clinical Instructor

**Clinical Faculty**
- **Dr. Edmond Chan**
  Clinical Associate Professor
- **Dr. John Dean**
  Clinical Assistant Professor
- **Dr. Hong Yang**
  Research Associate
- **Dr. Nico Marr**
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- **Dr. Elodie Portales-Casmar**
  Clinical Assistant Professor
- **Dr. Sara Leo**
  Clinical Instructor
- **Dr. Joanne Yeung**
  Clinical Instructor
- **Dr. Scott Cameron**
  Clinical Instructor

**TRAINING PROGRAM GRADUATES**
- **Dr. Alexander Joseph Lyttle**
  Subspecialty Resident
- **Dr. Hannah Roberts**
  Subspecialty Resident

**SIGNIFICANT AWARDS**
- **Dr. Stuart Turvey**
  Professor
  - ALLERGY, GENES AND ENVIRONMENT NETWORK (ALLERGEN) – NETWORKS OF CENTRES OF EXCELLENCE (NCE)
  - CANADIAN INSTITUTES OF HEALTH RESEARCH (CIHR)
    - Environments, Genes and Chronic Disease – Environment – Microbiome – Gene
    - SPOR Support Units/BC SUPPORT

- **Dr. Edmond Chan**
  Clinical Associate Professor
  - BC CHILDREN’S HOSPITAL RESEARCH INSTITUTE
    - Seed Grant Competition

**RESEARCH EXPERTISE within the Division**
- **Food Allergies + Eosinophilic Esophagitis**
  - **Dr. Edmond Chan**
    Clinical Associate Professor

- **Drug Allergies**
  - **Dr. Tiffany Wong**
    Clinical Assistant Professor

- **Infant, Child + Youth Research**
  - **Dr. Anne Junker**
    Associate Professor

- **Medical Education + DiGeorge Syndrome**
  - **Dr. Kyla Hildebrand**
    Clinical Assistant Professor

- **Innate Immunity + Lung Inflammation in CF**
  - **Dr. Stuart Turvey**
    Professor
Penicillin De-Labelling Program

Dr. Tiffany Wong, Clinical Assistant Professor, Division of Allergy & Immunology
Dr. Ashley Roberts, Clinical Assistant Professor, Division of Pediatric Infectious Diseases, Medical Director, Antimicrobial Stewardship
Karen Ng, Clinical Pharmacy Specialist, Antimicrobial Stewardship
Dr. Kristopher Kang, Consultant Pediatrician and Clinical Instructor, Division of General Pediatrics

Penicillin allergy is a common diagnosis, with up to 10% of patients reporting this drug allergy. However, studies have shown that up to 94% of children referred to an allergist tolerate penicillin upon further evaluation. Patients with a suspected allergy to penicillin are often not referred to an allergist for evaluation and are instead prescribed alternate antimicrobials that may be less effective, more toxic or more expensive. Even if patients are truly allergic, circulating penicillin-specific IgE antibodies have been shown to decrease naturally over time, with corresponding loss of clinical reactivity – but many patients with penicillin allergy labels are never reassessed. Penicillin allergy labels often persist despite negative confirmatory testing, given that the label must be removed from various medical records.
The Infectious Diseases Society of America (IDSA) antimicrobial stewardship guidelines highlight the burden of penicillin allergy mislabelling, and recommend the promotion of allergy assessments and penicillin skin testing when appropriate. As a result, penicillin de-labelling programs have been developed across North America. There is robust evidence indicating that structured drug allergy assessment has been associated with reduced alternative antibiotic use, decreased length of hospital stay, lower costs and increased guideline adherence.

The overarching aim of the penicillin de-labelling program at BC Children’s Hospital is to decrease the rate of erroneous penicillin allergy labels in pediatric patients. It is a multidisciplinary collaborative team from allergy, antimicrobial stewardship, general pediatrics and pharmacy. This is a unique program, as there are no well-established de-labelling programs reported in pediatrics. Specific goals of the program are:

- Proactive identification of inpatients admitted under general pediatrics with a label of penicillin allergy
- Decrease prevalence of inappropriate allergy labels
- Increase appropriate beta-lactam antibiotic prescriptions in patients with a reported penicillin allergy, and decrease prescribing of alternative antibiotics
- Appropriately document de-labelling of penicillin “allergy” in various aspects of patient health records, including community pharmacies
- Decrease use of consultation services by allergy and infectious diseases

The program will initially target pediatric patients admitted to the Clinical Teaching Unit, incorporating a structured questionnaire and clinical algorithm that will help care providers stratify patients according to risk of penicillin allergy. Patients identified to be low risk will have a physician-supervised oral drug challenge. Patients identified to be higher risk will either be referred to the Allergy Clinic, or receive skin testing with consideration for subsequent oral challenge. Patients who pass the oral drug challenge will have penicillin allergy de-labelled in various aspects of their medical record, to prevent alternate antibiotic selection in the future.

In the start-up phase, the focus will be on healthcare worker education and for our team to optimize how this will fit into our workflow to ensure a successful change to daily practice. As we gather data indicating success and feasibility, we aim to expand the program to include more clinical teams within BC Children’s and to improve patient care on a larger scale.

“There is robust evidence indicating that structured drug allergy assessment has been associated with reduced alternative antibiotic use, decreased length of hospital stay, lower costs, and increased guideline adherence.”
Division of Biochemical Diseases

As a team of physicians, nurses, dietitians, research associates and administrative assistants, we are committed to the diagnosis, treatment and care of children and youth with metabolic, biochemical and genetic conditions affecting normal development and organ functions. As such, we treat all patients born in British Columbia with inborn errors of metabolism diagnosed via newborn screening or through metabolic investigations later in life.

We have robust research and education programs that serve our goal to provide the highest standards of care. Our research aims to establish and validate new diagnostic and therapeutic pathways for children with genetic causes of developmental and intellectual disabilities. Our Biochemical Genetics training program is at the intersection of complex chronic care, biochemical laboratory medicine and medical genetics.

We are particularly proud of our TIDE clinic for children with undiagnosed developmental conditions, as well as our multidisciplinary diagnostic clinic for particularly complex patients. We also have a regular follow-up clinic, a nurse practitioner clinic for patients with chronic stable conditions, clinics for enzyme replacement therapies for lysosomal disorders, and we run a neurometabolic clinic in close collaboration with the Division of Neurology and community neurologists.

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/biochemical-diseases
FACULTY BY RANK

Clinical Faculty

Dr. Sylvia Stöckler-Ipsiroglu
Division Head, Professor & Principal Investigator, TIDE-BC

Dr. Gabrielle Horvath
Clinical Associate Professor
Director, Biochemical Genetics Fellowship Program, Canadian College Medical Genetics

Dr. Ramona Salvarinova
Clinical Assistant Professor & Deputy Head, Division of Biochemical Diseases

Dr. Clara Van Karnebeek
Affiliate Associate Professor

MENTORSHIPS

Dr. Clara van Karnebeek
Allison Matthews was awarded a Postdoctoral Fellowship from the BC Children’s Hospital Research Institute
Jessica Jae Lee was awarded a Graduate Studentship Award from the BC Children’s Hospital Research Institute

Dr. Gabrielle Horvath
James O’Byrne was awarded the Health Service Executive Dr. Richard Steevens’ Scholarship Programme Award
May Almalki was awarded a scholarship from the Saudi Arabian Cultural Bureau
Iman Abumansour was awarded a scholarship from the Saudi Arabian Cultural Bureau

SIGNIFICANT AWARDS

Dr. Gabriella Horvath
Clinical Associate Professor

7TH ANNUAL NEUROLOGY RESIDENT RESEARCH DAY, NEUROLOGY RESIDENTS Excellence in Research Mentorship Award

PREVENTION OF INTELLECTUAL DISABILITIES

Dr. Clara van Karnebeek
Affiliate Associate Professor

INNOVATIVE THERAPIES

Dr. Ramona Salvarinova
Clinical Assistant Professor

NEUROTRANSMITTERS’ INVOLVEMENT IN DISEASE

Dr. Gabriella Horvath
Clinical Associate Professor

TREATABLE NEUROMETABOLIC DISORDERS

Dr. Sylvia Stöckler-Ipsiroglu
Professor

RESEARCH EXPERTISE within the Division
The Division of Cardiology provides care in British Columbia for cardiovascular disorders occurring in childhood. This mandate extends from in utero diagnosis via fetal echocardiography through to supervision of care in the Pacific Adult Congenital Heart Clinic. The Heart Centre program is one of two surgical centres in the Western Canadian Children’s Heart Network and provides care for patients in BC, Manitoba and Yukon.

The Children's Heart Centre is active in research at the local, national and international levels. Funding from the Canadian Institutes of Health Research (CIHR), the Heart and Stroke Foundation, and the Canada Foundation for Innovation supports several core projects in Electrophysiology, Interventional Cardiology and Cardiac Prevention. We also run the Pediatric Cardiology Training Program, which is an integral part of the only tertiary care cardiac centre for children in BC.

Our inpatient services focus on a busy cardiac surgical program that performs approximately 250 cardiac surgical operations each year. A busy consultation service is also provided to the NICU and other pediatric Divisions. The outpatient clinic at the Heart Centre is the hub of the program with over 10,000 patient encounters per year. Specialized clinics include a heart function clinic, a healthy lifestyle prevention clinic and a transplant clinic.

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/cardiology

* The last full accreditation with the Royal College of Physicians and Surgeons of Canada was in 2013.
FACULTY BY RANK

**Academic Faculty**
- **Dr. Shubhayan Sanatani**
  Division Head & Associate Professor
- **Dr. Kevin Harris**
  Assistant Professor

**Clinical Faculty**
- **Dr. Walter Duncan**
  Program Director & Clinical Professor
- **Dr. Martin Hosking**
  Clinical Associate Professor
- **Dr. Shreya Moodley**
  Clinical Assistant Professor
- **Dr. Elizabeth Sherwin**
  Clinical Assistant Professor

**Clinical Faculty**
- **Dr. Sonia Franciosi**
  Research Associate
- **Dr. Christine Voss**
  Research Associate

**Clinical Faculty**
- **Dr. Martin Hosking**
  Clinical Associate Professor
- **Dr. Shreya Moodley**
  Clinical Assistant Professor
- **Dr. Elizabeth Sherwin**
  Clinical Assistant Professor

**Clinical Faculty**
- **Dr. Martin Hosking**
  Clinical Associate Professor
- **Dr. Shreya Moodley**
  Clinical Assistant Professor
- **Dr. Elizabeth Sherwin**
  Clinical Assistant Professor

**Clinical Faculty**
- **Dr. Martin Hosking**
  Clinical Associate Professor
- **Dr. Shreya Moodley**
  Clinical Assistant Professor
- **Dr. Elizabeth Sherwin**
  Clinical Assistant Professor

**Clinical Faculty**
- **Dr. Martin Hosking**
  Clinical Associate Professor
- **Dr. Shreya Moodley**
  Clinical Assistant Professor
- **Dr. Elizabeth Sherwin**
  Clinical Assistant Professor

**Clinical Faculty**
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  Clinical Assistant Professor
- **Dr. Elizabeth Sherwin**
  Clinical Assistant Professor

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  Clinical Associate Professor
- **Dr. Shreya Moodley**
  Clinical Assistant Professor
- **Dr. Elizabeth Sherwin**
  Clinical Assistant Professor

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  Clinical Associate Professor
- **Dr. Shreya Moodley**
  Clinical Assistant Professor
- **Dr. Elizabeth Sherwin**
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  Clinical Associate Professor
- **Dr. Shreya Moodley**
  Clinical Assistant Professor
- **Dr. Elizabeth Sherwin**
  Clinical Assistant Professor

**Clinical Faculty**
- **Dr. Martin Hosking**
  Clinical Associate Professor
- **Dr. Shreya Moodley**
  Clinical Assistant Professor
- **Dr. Elizabeth Sherwin**
  Clinical Assistant Professor

**Clinical Faculty**
- **Dr. Martin Hosking**
  Clinical Associate Professor
- **Dr. Shreya Moodley**
  Clinical Assistant Professor
- **Dr. Elizabeth Sherwin**
  Clinical Assistant Professor

TRAINING PROGRAM GRADUATES

**Dr. Khadijah Maghrabi**
Clinical Fellow

**Dr. Eyal Sagiv**
Clinical Fellow

MENTORSHIPS

**Dr. Kevin Harris**
Anita Cote was awarded a Postdoctoral Trainee Fellowship from the Michael Smith Foundation for Health Research

SIGNIFICANT AWARDS

**Dr. Kevin Harris**
Assistant Professor

SOCIETY FOR CARDIOVASCULAR ANGIOGRAPHY AND INTERVENTIONS
Best Congenital Cardiology Research Presentation

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**RESEARCH EXPERTISE**
within the Division

**Optimizing Outcomes for Children with Cardiovascular Disease**
- **Dr. Kevin Harris**
  Assistant Professor

**Childhood Arrhythmias**
- **Dr. Shubhayan Sanatani**
  Clinical Associate Professor

**Congenital Heart Disease**
- **Dr. Walter Duncan**
  Clinical Professor

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PROGRAM HIGHLIGHT

Pediatric Cardiology Partnership Program: Bringing Specialty Care to British Columbia and Yukon

Stella Cockett RN, BSN, Nurse Clinician, Pediatric Cardiology Partnership Program

The BC Children’s Hospital Community Partnerships program has been bringing cardiac care closer to home for pediatric cardiology patients since 1995. A team comprised of a pediatric cardiologist, a pediatric cardiac nurse clinician, and a specialized pediatric echosonographer travels to thirteen cities across the province to see young heart patients. Additionally, an electrophysiology service is provided to northern British Columbia and Victoria.

These patients are children and youth in various circumstances: those with congenital heart defects that require heart surgery at BC Children’s Hospital and receive long-term follow up; those with heart conditions that do not require surgery and can be managed entirely in their home communities with the team’s support; and children who are referred by their local pediatricians for new symptoms and diagnosis. Local hospitals provide the partnership clinics with support services, as well as space, and the BC Children’s team of healthcare professionals provides the clinical expertise. BC Children’s team members also share their cardiac knowledge by providing Continuing Medical Education lectures and nursing educational sessions with local healthcare professionals.

“The children we see are relaxed during their appointments. The clinics have a warm and friendly atmosphere. Each time we attend a clinic, we hear parents expressing their gratitude for this program. It makes our work very rewarding.”

During the 2016–17 year, the team made 71 trips around the province and hosted 1,505 patient consultations during 115 clinic days. Echocardiograms were performed on 981 patients using a portable echo machine generously donated by BC Children’s Hospital Foundation. Child Health BC provides funding for the program. The BC Children’s Hospital Community Partnerships program provides families with the same level of service they can expect from BC Children’s, without the added stress of travelling to the Lower Mainland, truly bringing cardiac care closer to home for the children of BC and Yukon.

For more information, please visit:
www.bcchildrens.ca/our-services/clinics/childrens-heart-centre/clinics-in-your-community
The Division of Critical Care provides leadership and excellence in the provision of critical care to children in British Columbia. The PICU is a 22-bed, level 1 unit that serves as the only comprehensive intensive care facility—other than the newborn nursery—for surgical, medical and cardiac patients in the province. It works in collaboration with the PICU in Victoria, a 4-bed, level 3 unit. The PICU provides 24-hour support to the sickest children in BC.

We have multiple clinical trials ongoing, which are supported by a research assistant/coordinator. We also run the UBC Pediatric Critical Care Subspecialty Training Program for trainees who have completed three years of training in a Royal College approved program. This includes one year of Pediatric Critical Care Medicine, six months of electives and six months of research.

The clinical service of our Division remains busy, with over 1,505 admissions to the PICU annually in each of the past two years. Division physicians also coordinate over 600 acute pediatric transports to BC Children’s Hospital each year. The Extra Corporeal Life Support (ECLS) program continues to be successful and more than 200 patients in total have now been treated.

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/critical-care

* The last full accreditation with the Royal College of Physicians and Surgeons of Canada was in 2013.
**FACULTY BY RANK**

**Academic Faculty**
- Dr. Niranjan "Tex" Kissoon
  Professor

**Clinical Faculty**
- Dr. David Wensley
  Division Head & Clinical Professor
- Dr. Peter Skippen
  Clinical Professor
- Dr. Mary Bennett
  Program Director & Clinical Professor

**Clinical Faculty**
- Dr. Arthur Cogswell
  Clinical Associate Professor
- Dr. Mona Patel
  Program Director & Clinical Assistant Professor
- Dr. Srinivas Murthy
  Clinical Assistant Professor
- Dr. Sandy Pitfield
  Clinical Assistant Professor
- Dr. Mia Remington
  Clinical Assistant Professor
- Dr. Jennifer Smitten
  Clinical Instructor

**CLINICAL ASSOCIATES**
- Dr. Jennifer Retallack
- Dr. Sal Denny (on leave)
- Dr. Jennifer Smitten
- Dr. Mia Remington

**TRAINING PROGRAM GRADUATES**
- Dr. Sachin Dattatraya Desai
  Clinical Fellow
- Dr. Gaby Yang
  Subspecialty Resident

**SIGNIFICANT AWARDS**
- Dr. Jennifer Smitten
  Clinical Instructor
  BC CHILDREN’S HOSPITAL FOUNDATION
  Hudson Scholarship Award
- Dr. Mia Remington
  Clinical Instructor
  BC CHILDREN’S HOSPITAL FOUNDATION
  Hudson Scholarship Award

**Research Expertise within the Division**
- Dr. Niranjan "Tex" Kissoon
  Professor
  Methods of building capacity to provide timely services to children who are injured or acutely ill in resource poor areas of the world
- Dr. Srinivas Murthy
  Clinical Assistant Professor
  Infections and the Critically ill child
- Dr. David Wensley
  Clinical Professor
  Emerging Technologies
- Dr. Jennifer Retallack
  Clinical Fellow
  BC CHILDREN’S HOSPITAL FOUNDATION
  Hudson Scholarship Award
Virtual Pediatric Systems (VPS) Database

Dr. David Wensley, Clinical Professor, Divisions of Critical Care and Respiratory Medicine

Assessment of quality of care is challenging in highly specialized areas of medicine and nowhere is this more evident than in Pediatric Critical Care. Meaningful outcomes of critical care include survival, length of stay in the ICU and hospital (surrogates for morbidity and cost), and long-term outcome and disability on discharge from the hospital. Direct comparisons of the outcome of children admitted to the ICU are unavailable within British Columbia, and less valid when comparing this care in other provinces or countries because of differing populations, number of units and healthcare systems.

The Virtual Pediatric Systems (VPS) is a pediatric critical care database developed for and by pediatric intensivists and specialists in pediatric critical care to provide comparisons of outcomes based on a large reference group with standard definitions for degree of illness, as well as age and diagnosis. Over 135 PICUs in the US and Canada provide data for comparison. Our comparison group comprises 18 PICUs of similar size and patient mix. This allows for comparison of quality of care to provide benchmarks for achieving excellence and improvement over time.

This year’s anonymized data on all admissions demonstrated that the BC Children’s Hospital ICU performed well with similar mortality, and significantly lower length of stay, despite admitting sicker patients than the reference group, similar to the prior two years:

![Figure 4.1.4: Standardized Mortality Ratio (PIM 2) by Quarter](image)
The standardized mortality ratio is the predicted mortality based on a measure of illness of the child within the first hour of admission to the PICU (the PIM2 score).

The standardized length of stay ratio (SLOSR) is the predicted length of stay based on a measure of illness within the first 12 hours of admission to the PICU (the PRISM 3 score).

Despite variations in the mortality and length of stay by quartile, there was no significant trend noted over the year. Reports from the VPS database have also advised the development of the ICU model of care for ICU staffing.

The two above graphs provide an analysis from the report outlining the daily workload of our unit supported by comparison to the reference group. This provides compelling data for the need to stagger staffing to match this workload, and assurance that this is not likely a unique short-term pattern.

Access to the aggregated data at VPS has resulted in two abstracts from our hospital and allowed analysis of specific patient populations regarding mortality and length of stay. Monitoring the performance of BC Children’s ICU longitudinally will provide data for planned changes and allow monitoring of the effect of planned and unplanned changes over time.

For more information, please visit:
www.myvps.org
www.bcchr.ca/our-reseavrch/researchers/results/details/david-wensley
The Division of Dermatology provides high-quality care to British Columbia’s children with skin diseases. We educate medical students, postgraduate trainees and other physicians in the field of Pediatric Dermatology.

In education, the UBC Dermatology Residency Program includes a rotation in Pediatric Dermatology at BC Children’s Hospital. UBC pediatric residents also do elective rotations within our Division.

Patient care in Pediatric Dermatology is active, as our Division has more than 7,000 patient visits per year. Outpatient service has been significantly enhanced since the opening of the Ambulatory Care Centre in 2002, providing more space and a vastly improved environment in which to see patients.

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/dermatology

Dr. Julie Prendiville
Division Head, Program Director, Clinical Associate Professor

Dr. Wingfield Rehmus
Clinical Assistant Professor

FACULTY BY RANK

Clinical Faculty
Dr. Julie Prendiville
Division Head, Program Director & Clinical Associate Professor

Dr. Wingfield Rehmus
Clinical Assistant Professor
"Our Division has more than 7,000 patient visits per year."
Improving Access to Pediatric Dermatology Care
Dr. Wingfield Rehmus, Clinical Assistant Professor, Division of Dermatology

In 2012, the Canadian Skin Patient Alliance issued Skin Deep: A report card on access to dermatologic care and treatment in Canada. The report states, “British Columbia rates a ‘Fail’ on access to dermatological care because it has long and growing wait times that reflect the scarcity of dermatologists to meet the current needs of the population… In rural and remote areas of BC, the shortage of dermatologists is even more acute.”

At BC Children’s Hospital, we have been working to improve access to pediatric dermatology care throughout British Columbia. In 2011, outreach clinics supported by the Northern & Isolation Travel Assistance Outreach Program (NITAOP) were established in Prince Rupert and Terrace. When the only dermatologist in the Northern Health Authority retired from practice in 2014, outreach clinics were opened at the pediatrics clinic at the University of Northern British Columbia Hospital in Prince George. Through these outreach clinics, children from Stewart to Fort St. John to Williams Lake have improved access to care and can visit a dermatologist without needing to fly to Vancouver.

The outreach visits not only improve access to pediatric dermatology for children from the local and surrounding areas, but also provide the opportunity to offer Continuing Medical Education programming for local physicians. Medical students, residents and nurse practitioners shadow in the clinic, with the aim of building local capacity to provide care for common skin problems. The relationships formed through these visits are instrumental in improving care for children between outreach visits and smoothing the transition from community to hospital and back, as well as for children who need to be admitted at BC Children’s for more complex problems.

Given the size of our province, it is not possible to provide in-person dermatology care at the local level for all communities in BC. In addition to outreach visits, teledermatology is being employed to try to fill that gap. After helping to launch the ConsultDerm platform, which is sponsored by Doctors of BC, we are now able to review cases submitted by primary providers and pediatricians throughout the province on a secure platform.

Closer to home, access to care still remains a challenge for many. Working in partnership with the Responsive, Interdisciplinary, Intersectoral Child and Community Health Education and Research (RICHER) social pediatrics program, we are bringing dermatology care to the Strathcona community in Vancouver. We have noted anecdotally that for many patients, it is a skin problem that first brings them through the door, where they subsequently receive primary care. Access to dermatology care remains a challenge in BC; however, through outreach, education, teledermatology, and partnership with local providers, we are striving to bridge the gaps.

For more information, please visit: www.bcchildrens.ca/health-professionals/clinical-resources/dermatology

Outreach clinics were opened in Prince Rupert, Terrace and Prince George...

Now children from Stewart to Fort St. John to Williams Lake have improved access to care and can visit a dermatologist without needing to fly to Vancouver."
The Division of Developmental Pediatrics promotes excellence in clinical practice, research and education in child development and rehabilitation. We provide a resident training period in Developmental Pediatrics/Child Rehabilitation, as well as a Subspecialty Residency/Clinical Fellowship Program that trains academic pediatricians with unique, in-depth expertise in child development and behaviour (both normal and abnormal) from the prenatal period to late adolescence.

Our current research spans many topics and programs, including the Children with Disabilities Research Program, the Cerebral Palsy Registry, autism-specific and fetal alcohol spectrum disorder (FASD), social disparities (the RICHER Program in social pediatrics) and prenatal antidepressant exposure.

Clinically, we work with families and communities as partners to better understand every child’s needs and to develop tailored recommendations and services. This is accomplished through Children and Youth with Special Needs (CYSN), a tiered system representing many layers of expertise. Our services include acute rehabilitation, a neuromotor program, sensory services, and developmental and behavioural health diagnostic evaluations.

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/developmental-pediatrics
FACULTY BY RANK

Academic Faculty
Dr. Tim Oberlander
Professor
Dr. Christine Loock
Associate Professor
Dr. Maureen O’Donnell
Associate Professor
Dr. Whitney Weikum
Research Associate
Dr. Veronica Schiariti
Research Associate

Clinical Faculty
Dr. Nancy Lanphear
Division Head &
Clinical Associate Professor
Dr. Elizabeth Mickelson
Program Director &
Clinical Associate Professor
Dr. Barbara Fitzgerald
Clinical Associate Professor
Dr. Jill Houbé
Clinical Associate Professor

Dr. Anton Miller
Clinical Associate Professor
Dr. Esias Van Rensburg
Program Director &
Clinical Assistant Professor
Dr. Anna Kubow
Clinical Assistant Professor
Dr. Stephen Wellington
Clinical Assistant Professor
Dr. Armansa Glodjo
Clinical Assistant Professor
Dr. Elena Lopez
Clinical Assistant Professor
Dr. Carey Matsuba
Clinical Assistant Professor

NEW TO THE DIVISION IN 2016

Dr. Angie Ip
Clinical Assistant Professor
Medical School – McGill University, Montreal PQ
Residency – University of Alberta, Edmonton AB
Fellowship – University of Toronto, Toronto ON

Dr. Angie Ip completed her medical degree at McGill University, her pediatrics training at the University of Alberta, and her developmental pediatrics subspecialty training at the University of Toronto. Her current research focus is on practices around Autism Spectrum Disorders screening and diagnosis in the community. Dr. Ip feels lucky to be working among such passionate colleagues. Outside of her academic and clinical work, Angie is a certified advanced open water diver and has recently taken up bouldering and would love some new climbing buddies.

TRAINING PROGRAM GRADUATES

Dr. Jillian Ann MacCuspie
Subspecialty Resident

Dr. Stefanie Janelle Narvey
Subspecialty Resident

MENTORSHIPS

Dr. Anton Miller
Emily Gardiner was awarded a Postdoctoral Fellowship Award from the BC Children’s Hospital Research Institute

Dr. Tim Oberlander
Sarah Hutchison was awarded a Postdoctoral Fellowship Award from Brain Canada
Regula Neuenschwander was awarded a Postdoctoral Fellowship Award from Brain Canada

SIGNIFICANT AWARDS

Dr. Angie Ip
Clinical Assistant Professor
HOLLAND BLOORVIEW SPOTLIGHT RECOGNITION
Demonstrating the Values of Partnership and Quality of Care

Dr. Christine Loock
Associate Professor
BC PEDIATRIC SOCIETY Advocacy Award

Dr. Tim Oberlander
Professor
CANADIAN ACADEMY OF HEALTH SCIENCES Fellowship

LEADERSHIP

Dr. Elizabeth Mickelson
Program Director &
Clinical Associate Professor
CANADIAN PEDIATRIC SOCIETY Section Board Member

Dr. Nancy Lanphear
Division Head &
Clinical Associate Professor
SOCIETY FOR DEVELOPMENTAL AND BEHAVIOURAL PEDIATRICS Executive Secretary/Treasurer
The Division of Emergency Medicine provides 24/7 care to infants, children and youth with urgent and emergent care. We handle medical and surgical conditions, as well as trauma. All patients are accepted in the emergency department (ED) from birth through their 17th birthday if they have acute illness or chronic illnesses requiring pediatric expertise. As the only specialty pediatric ED in the province, we serve almost 47,000 children every year and are the only Pediatric Trauma Centre in BC.

Research in Pediatric Emergency Medicine (PEM) has grown tremendously in the last decade, despite several factors: the need to diagnose and treat almost immediately, challenges in obtaining consent, and the crowded nature of the ED. Our Division is actively engaged in collaborative research with the Department of Emergency Medicine at UBC, as well as several community hospitals in BC.

We continue to be involved in the education of many different trainees from a variety of backgrounds. These include third year medical students, elective fourth year students, residents from various surgical and medical subspecialties, and residents from our own pediatric residency program. We also offer a two- or three-year academic fellowship program that has grown significantly in recent years.

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/emergency-medicine

* The last full accreditation with the Royal College of Physicians and Surgeons of Canada was in 2013.
Academic Faculty

Dr. Ran Goldman
Professor

Dr. Garth Meckler
Division Head &
Associate Professor

Dr. Quynh Doan
Assistant Professor

Clinical Faculty

Dr. Sim Grewal
Clinical Associate Professor

Dr. Paul Korn
Clinical Associate Professor

Dr. Karen Black
Clinical Associate Professor

Dr. Vikram Sabhaney
Program Director &
Clinical Assistant Professor

Dr. Margaret Colbourne
Clinical Assistant Professor

Dr. Carolyn Davies
Clinical Assistant Professor

Dr. Navid Dehghani
Clinical Assistant Professor

Dr. Paul Enarson
Clinical Assistant Professor

Dr. David Haughton
Clinical Assistant Professor

Dr. Bruce Philips
Clinical Assistant Professor

Dr. Simi Khangura
Clinical Assistant Professor

Dr. Michelle Clarke
Clinical Instructor

Dr. Zoe Leatherbarrow
Clinical Instructor

Dr. Jasmine Allaire
Clinical Instructor

Clinical Faculty

Dr. Margaret Colbourne
Clinical Assistant Professor

Dr. Carolyn Davies
Clinical Assistant Professor

Dr. Navid Dehghani
Clinical Assistant Professor

Dr. Paul Enarson
Clinical Assistant Professor

Dr. David Haughton
Clinical Assistant Professor

Dr. Bruce Philips
Clinical Assistant Professor

Dr. Simi Khangura
Clinical Assistant Professor

Dr. Michelle Clarke
Clinical Instructor

Dr. Zoe Leatherbarrow
Clinical Instructor

Dr. Jasmine Allaire
Clinical Instructor

TRAINING PROGRAM GRADUATES

Dr. Badrinath Narayan
Subspecialty Resident

Dr. Kate A. Fathi
Subspecialty Resident

Dr. Pavan Judge
Subspecialty Resident

Dr. Roaa Nasser Alnassir
Subspecialty Resident

SIGNIFICANT AWARDS

Dr. Quynh Doan
Assistant Professor

BC HEALTH CARE AWARDS
Award of Merit – Top Innovation Category,
Health Employers Association of BC

UBC, DIVISION OF PEDIATRIC EMERGENCY MEDICINE
Pediatric Emergency Medicine Academic Teacher of the Year

Dr. Sim Grewal
Clinical Associate Professor

UBC, DIVISION OF PEDIATRIC EMERGENCY MEDICINE
Clinical Teacher of the Year

Identifying patterns of use, the quality of the care provided, and the efficiency of service delivery in pediatric emergency departments

Dr. Quynh Doan
Assistant Professor

Prehospital Emergency Care

Dr. Garth Meckler
Associate Professor

Pain Management + Sedation

Dr. Ran Goldman
Professor

Dr. Vikram Sabhaney
Clinical Assistant Professor

RESEARCH EXPERTISE within the Division
PROGRAM HIGHLIGHT

Integration of Nurse Practitioners in the Emergency Department

Christy Hay, MSN, Program Manager, Emergency and Trauma Services, BC Children’s Hospital

In 2012, the BC Children's Hospital Emergency Department (ED) introduced two nurse practitioners (NPs) as part of our care team model. The initial aim was to have the NPs assess and treat non-urgent patients in order to support ED physicians in focusing on the more acute presentations. After a few months, it became clear that this approach was not going to provide the efficiencies hoped for with ED patient flow.

The NPs were also expressing gaps in knowledge when it came to seeing the vastness of pediatric emergency patients that presented to the ED. We adjusted our approach to have the NPs work directly with a few physician champions, to support their knowledge and competencies in pediatric emergency care. We also provided opportunities outside of clinical practice for knowledge translation through mock oral exams, case reviews, conferences and attendance at resident academic half days.

In 2014, we hired a third NP, with a plan to add a fourth in 2017. NPs have become integral members of the ED care team. They work in collaboration and in consultation with the ED physicians, nurses, pharmacists, a social worker, and a child life specialist within the ED and consultative services outside of the ED. They work to their full scope of practice as outlined by the College of Registered Nurses of British Columbia (CRNBC) and have played a key role in the success of other new models of care, such as the Clinical Decision Unit. The implementation of NPs into the department has supported safe, quality and efficient care to all patients that present to the ED.

“Nurse Practitioners have become integral members of the ED care team... They work to their full scope of practice and have played a key role in the success of other new models of care.”
The Division of Endocrinology & Diabetes is a diagnostic, treatment and education centre for children and families affected with diabetes and other endocrine conditions. We have received formal accreditation by the Royal College of Physicians and Surgeons of Canada for our subspecialty fellowship program in Pediatric Endocrinology.

Our Division has a considerable amount of research underway. Dr. Dina Panagiotopoulos aims to improve the prediction, prevention and treatment of type 1 and type 2 diabetes. Dr. Angela Devlin's research program investigates the role of prenatal and childhood environmental factors on gene regulation and the development of cardiometabolic disease. Dr. Daniel Metzger participates in a number of long-term, multi-centre, international studies looking at the prediction and prevention of type 1 diabetes, as well as conducts research within the gender clinic with trans youth. Dr. Shazhan Amed leads the Live 5-2-1-0 initiative, an all-of-community approach to childhood obesity and type 2 diabetes prevention, as well as helps develop a provincial pediatric diabetes database. Dr. Jean-Pierre Chanoine’s academic activities focus on supporting clinical care in pediatric endocrinology and diabetes in low income countries. He is currently the secretary general of the NGO, Global Pediatric Endocrinology and Diabetes, and sits on various committees.

**Special Clinical Program Highlight**

Our Division runs the Gender Clinic for transgender and gender-questioning youth and young adults, the multidisciplinary Polycystic Ovary Syndrome program, and we initiated a regional clinic in Kelowna that we visit six times per year. We also run multidisciplinary case discussions on cystic fibrosis and diabetes, and Dr. Brenden Hursh runs telehealth for diabetes.

**For more Information, please visit:**

[www.bcchildrens.ca/health-professionals/clinical-resources](http://www.bcchildrens.ca/health-professionals/clinical-resources)
FACULTY BY RANK

Academic Faculty
Dr. Ralph Rothstein
Professor
Dr. Angela Devlin
Associate Professor

Clinical Faculty
Dr. Jean-Pierre Chanoine
Division Head & Clinical Professor
Dr. Daniel Metzger
Clinical Professor
Dr. Dina Panagiotopoulos
Clinical Professor

Dr. Laura Stewart
Program Director & Clinical Associate Professor
Dr. Shazhan Amed
Clinical Associate Professor
Dr. Suzanne Stock
Clinical Assistant Professor

Dr. Brenden Hursh
Clinical Assistant Professor
Dr. Murthy Korada
Clinical Assistant Professor
Dr. Penny Sneddon
Clinical Assistant Professor
Dr. Clare Henderson
Clinical Instructor

TRAINING PROGRAM GRADUATES

Dr. Naseem Yahya Alyahyawi
Clinical Fellow

Dr. Danya Arielle Fox
Subspecialty Resident

Dr. Diane Jensen
Clinical Fellow

Dr. Colleen Anne Nugent
Subspecialty Resident

MENTORSHIPS

Dr. Angela Devlin & Dr. Dina Panagiotopoulos
Arya Mehran was awarded a Postdoctoral Trainee Fellowship from the Michael Smith Foundation for Health Research

SIGNIFICANT AWARDS

Dr. Angela Devlin
Associate Professor
BC CHILDREN’S HOSPITAL RESEARCH INSTITUTE Investigator Grant Award Program

Dr. Daniel Metzger
Clinical Professor
CANADIAN SOCIETY OF ENDOCRINOLOGY AND METABOLISM Dr. Harvey Guyda Educator of the Year Award

Dr. Dina Panagiotopoulos
Clinical Professor
UBC DEPARTMENT OF PEDIATRICS Resident Research Faculty Mentor of the Year Award (2015-2016)

Dr. Ralph Rothstein
Professor
CANADIAN MEDICAL ASSOCIATION Honorary Membership Award

Global Health + Obesity
Dr. Jean-Pierre Chanoine
Clinical Professor

Obesity + Diabetes
Dr. Shazhan Amed
Clinical Associate Professor

Diabetes + Trans Youth Health
Dr. Daniel Metzger
Clinical Professor

Diabetes + Autoimmunity
Dr. Dina Panagiotopoulos
Clinical Professor

Gene Regulation + Cardiometabolic Disease
Dr. Angela Devlin
Associate Professor

RESEARCH EXPERTISE within the Division
PROGRAM HIGHLIGHT

Live 5-2-1-0: Creating Community Environments that Support Healthy Choices for Kids

Dr. Shazhan Amed, Clinical Associate Professor, Division of Endocrinology & Diabetes; and Founder and Project Lead, Live 5-2-1-0

It is no secret that childhood obesity is a problem. In British Columbia, over 200,000 children aged 2–17 years are obese or overweight, increasing their risk for serious chronic disease, such as type 2 diabetes. Researchers, health professionals, government officials, parents and many others are asking why. The short answer is: it’s complex, caused by multiple interdependent factors such as biology, individual behaviours and cultural beliefs, as well as built environments and government policy. The solution, therefore, requires collective and coordinated action across multiple stakeholder groups that influence the environments where children live, learn and play.

Live 5-2-1-0 is a “whole-systems” multi-setting and multi-component community-based approach to childhood obesity prevention. It is based on the message: five or more vegetables and fruits, no more than two hours of screen time, at least one hour of active play, and zero sugary drinks each day. It is modelled after similar initiatives from around the world that have shown success in improving healthy behaviours and decreasing rates of childhood obesity at a population level. The initiative is implemented by partnering with key stakeholders from BC communities to guide community action through environmental, policy or programmatic change. The goal is to enhance our capacity to create and deliver unique solutions that promote healthy...
childhood behaviours and weights. The number of communities partnering to implement Live 5-2-1-0 has grown each year from two pilot communities in 2009 to 11 communities in 2016, with several more expressing interest in adopting this initiative.

Community action and capacity to implement Live 5-2-1-0 is supported by an innovative knowledge translation (KT) platform funded by the Canadian Institutes of Health Research (CIHR). Through this KT platform, community stakeholders can access over 40 online resources that were developed with local partners, including videos, fact sheets, toolkits, checklists, and “how to” guides. These resources have been downloaded more than 4,200 times by 707 unique users from 74 different communities across BC. The KT platform also supports inter-community knowledge exchange via webinars, retreats and direct links, allowing stakeholders from different communities to connect so they can share ideas, solutions, resources and strategies to leverage each other’s work.

An example of successful inter-community knowledge exchange is the Live 5-2-1-0 Playboxes. Originally conceived and implemented in Abbotsford, and designed to reduce barriers to active play, Playboxes are industrial metal jobsite boxes with combination locks that are installed in community parks. They are wrapped with colourful Live 5-2-1-0 graphics and filled with games and equipment that families can access after registering for the code locally. Following Abbotsford’s initial pilot of three Live 5-2-1-0 Playboxes in 2014, a “How-to Guide” was developed to help other communities replicate the idea. Two years later, there are 23 Live 5-2-1-0 Playboxes across 13 different BC communities, with 12 new Playboxes added in 2016 alone. More than 1,600 families across BC have registered to access a Live 5-2-1-0 Playbox.

We have also partnered with key provincial and regional organizations, and have been recognized internationally. The Doctors of BC’s Be Active Every Day initiative partners with local elementary schools to promote physical activity and has used the Live 5-2-1-0 message and resources for the past three years. Fraser Health Authority developed Live 5-2-1-0 resources for the early years which, in 2016, were disseminated to all Childcare Licensing Officers to help licensees meet practice and policy guidelines related to physical activity and nutrition in young children. Internationally, the Live 5-2-1-0 initiative is considered an exemplar of community-based childhood obesity prevention by the EPODE International Network and the Global Obesity Centre (GLOBE), a World Health Organization Collaborating Centre. The Live 5-2-1-0 team has recently partnered with UBC’s Human Early Learning Partnership (HELP) to pilot the collection of data on childhood health behaviours initiative among grade four children, in conjunction with the Middle Years Development Instrument (MDI). This next step will support the collection of population-level health behaviour data to demonstrate the impact of Live 5-2-1-0. Further, an efficient, effective and sustainable scale-up model will be developed to meet the growing demand among BC communities to implement Live 5-2-1-0.

For more information, please visit:
www.live5210.ca

“Live 5-2-1-0 means:
five or more vegetables and fruits, no more than two hours of screen time, at least one hour of active play, and zero sugary drinks each day.”
While on call in 2007, Dr. Dina Panagiotopoulos, a pediatric endocrinologist, was surprised to be consulted about a youth presenting with diabetic ketoacidosis after being prescribed a second-generation antipsychotic (SGA) medication. She spoke to Dr. Jana Davidson, psychiatrist-in-chief of BC Children’s Hospital, who had been shocked to see patients who had gained over 50 pounds one year after starting such medications. Together, they conducted the first Canadian studies showing that children taking SGAs are at a three-fold increased risk of diabetes/pre-diabetes, a 2.5-fold increased risk of obesity and up to a 30-fold increased risk of other complications (such as elevated cholesterol and high blood pressure), and were not receiving appropriate health monitoring and healthy living preventative counselling.

In 2010, they received funding through a Provincial Health Services Authority (PHSA) reallocation competition to establish the Provincial Mental Health Metabolic Program (PMHMP). This award-winning program is the first of its kind in the world to provide specialized care to children and youth with mental health disorders who are at risk for, or are experiencing, metabolic side effects and complications associated with the use of psychotropic medications.

The PMHMP employs a holistic and multi-disciplinary approach to care and provides both clinical and educational outreach, and telehealth consultations. Dr. Panagiotopoulos, consulting endocrinologist and medical director; Dr. Davidson, consulting psychiatrist; Lorrie Chow, dietitian and Kristine Kuss, physiotherapist as clinic co-leads; and Fiona Commins, nurse practitioner. Since the inception, the PMHMP has had approximately 700 referrals. The program has 246 active patients and 1,500–1,700 patient encounters each year.
The PMHMP is continuing to expand its role through an online education platform for medical professionals that will ensure more children and youth are helped throughout the province. The team is also embarking on a new quality assurance initiative to ensure that the program is meeting its goal of mitigating metabolic complications that are commonly seen in patients with mental health disorders.

**Translational Research**

Within the PMHMP, Dr. Panagiotopoulos, in collaboration with Dr. Angela Devlin at BC Children’s Hospital Research Institute (BCCHR), is conducting research on why some children develop metabolic complications and identifying ways to prevent and optimize treatment. They have several ongoing clinical and preclinical studies determining why children develop metabolic complications and how SGA drugs affect metabolic processes, causing weight gain and risk for type 2 diabetes. Another focus of their research is on determining the role of lifestyle factors in the development of metabolic complications. This work has led to improved care in the clinic, and PMHMP team members now have access to the gym and take the children on daily walks.

It was also assumed that the metabolic complications in the SGA-treated children occur secondary to the weight gain and development of obesity. Interestingly, in the Journal of Clinical Psychopharmacology, Drs. Devlin and Panagiotopoulos reported on glucose tolerance in SGA-treated children and found that one of the commonly-used SGAs, quetiapine (Seroquel), has direct negative effects on beta cells and insulin production. They now speculate that this may be a causative factor in the heightened risk for type 2 diabetes in SGA-treated children and have ongoing preclinical studies to further elucidate the effects of the drugs on beta cells and glucose metabolism.

For more information, please visit:

www.bcchildrens.ca/our-services/mental-health-services/metabolic-program
www.bcchildrens.ca/health-professionals/clinical-resources/mental-health/metabolic-complications
www.keltymentalhealth.ca/toolkits

“This award-winning program is the first of its kind in the world to provide specialized care to children and youth with mental health disorders who are at risk for, or are experiencing, metabolic side effects and complications associated with the use of psychototropic medications.”
The Division of Gastroenterology, Hepatology & Nutrition has a fresh vision for its future, with major recruitment initiatives underway. Thanks to the dedicated work of the Children with Intestinal and Liver Disorders (CH.I.L.D.) Foundation and its fundraising efforts in recent years, our Division is realizing its goal to develop an outstanding program in basic science research in Pediatric Gastroenterology (GI).

Members of our Division share the vision of improving the lives of children with intestinal and liver disorders through research. We run several programs, including the Pediatric GI Inflammatory Bowel Disease (IBD) Program, the Pediatric Liver Transplant Program, the Celiac Disease Clinic, the Eosinophilic Esophagitis (EoE) Clinic, the Complex Feeding and Nutrition program, and the inpatient Intestinal Rehabilitation Program. We also have a Royal College of Physicians and Surgeons of Canada accredited fellowship training program in pediatric gastroenterology, hepatology and nutrition.

Our Division provides a compressive clinical service with both inpatient and outpatient care. Each year, we receive approximately 4,000 outpatient visits and 500 inpatient consultations. Our Division administers the only Pediatric GI Procedure Suite in British Columbia and is responsible for performing over 700 endoscopic and non-endoscopic procedures in children. A complex feeding and nutrition program has been established to address the needs of children with complex feeding and nutritional disorders.

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/gastroenterology-hepatology-nutrition

* The last full accreditation with the Royal College of Physicians and Surgeons of Canada was in 2013.
FACULTY BY RANK

Academic Faculty
Dr. Bruce Vallance
Professor
Dr. Laura Sly
Associate Professor

Clinical Faculty
Dr. Kevan Jacobson
Division Head & Clinical Professor
Dr. David Israel
Clinical Professor
Dr. Richard Schreiber
Clinical Professor

Dr. Orlee Guttman
Program Director & Clinical Assistant Professor
Dr. Sally Lawrence
Clinical Assistant Professor
Dr. Hongbing Yu
Research Associate

TRAINING PROGRAM GRADUATES

Dr. Katrine Winther
Clinical Fellow

MENTORSHIPS

Dr. Laura Sly
Mahdis Monajemi was awarded a Graduate Studentship Award from the BC Children's Hospital Research Institute

Dr. Bruce Vallance
Martin Stahl was awarded a Postdoctoral Trainee Fellowship from the Michael Smith Foundation for Health Research
Steven Gossland was awarded a CAG /CCFC Summer Student Scholarship from the Canadian Association of Gastroenterology
Else Susan Bosman was awarded a Postdoctoral Trainee Fellowship from the BC Children's Hospital Research Institute
Natasha Ryz was awarded a Canadian Institute of Health Research Grant

Dr. Kevan Jacobson
Justin Chan was awarded a Postdoctoral Trainee Fellowship from the BC Children's Hospital Research Institute
Carlie Penner was awarded a Summer Studentship Award by BC Children's Hospital Research Institute
Alice Foster was awarded the Canadian Institute of Planners Student award for academic excellence from the School of Community and Regional Planning, UBC
Anna Graf was awarded a four year Salary Award from Experimental Medicine, UBC (jointly supervised by Dr. Bruce Vallance)

RESEARCH EXPERTISE
within the Division

UPPER GI DISEASE

OUTCOMES RESEARCH
CB Eosinophilic Esophagitis and Disease Biology
Dr. Vishal Avinashi
Clinical Assistant Professor
Celiac Disease and Quality Improvement
Dr. Collin Barker
Clinical Associate Professor

COMPLEX FEEDING AND NUTRITION (CHIRP PROGRAM, QUALITY IMPROVEMENT)
Dr. Linda Casey
Clinical Associate Professor
Dr. Vishal Avinashi
Clinical Assistant Professor

INFLAMMATORY BOWEL DISEASE

Epithelial Cell Biology and Irritable Bowel Disease Epidemiology
Dr. Kevan Jacobson
Clinical Professor
Macrophages
Dr. Laura Sly
Associate Professor

Interventional Studies, Quality Improvement, and Outcomes Research
Dr. Sally Lawrence
Clinical Assistant Professor

Enteric Bacterial Pathogens
Dr. Bruce Vallance
Professor

LIVER DISEASE

Quality Improvement and Outcomes Research
Dr. Orlee Guttman
Clinical Assistant Professor

Biliary Atresia, Cholestasis, Viral Hepatitcs, Liver Transplant, Immune Mediated Hepato, Biliary Disease, Public Policy and Health Outcomes Research
Dr. Richard Schreiber
Clinical Professor
Even just 15 years ago, the prognosis was grim: a 50% long-term survival rate. Most of the other 50% faced early death and there was only a tiny hope for transplantation. This was the face of a condition almost unknown to the public, called “pediatric intestinal failure.” Usually identified in infants around the time of birth, affected babies have abnormal prenatal development of the intestine or experience illness that results in death of long segments of the intestine early in life. The result is an intestinal tract that is too short or functions too poorly to do its job digesting and absorbing food to support normal growth and development. To survive, these babies depend on intravenous nutrition, also known as parenteral nutrition (PN), to meet their needs, but this treatment also carries risk of severe life-threatening complications. Although some babies survived and recovered, for too many, frequent hospitalizations and relentless deterioration led inevitably to an early death.

Since the early 2000s, increasing attention has been focused on the challenges facing these children and the development of new tools and approaches to improve outcomes. Without question, the most important factor in changing the course of this condition has been the development of specialized clinical teams dedicated to the care of children with intestinal failure. British Columbia’s Children’s Intestinal Rehabilitation Program (CHIRP) Team cares for children and families from their earliest days in the NICU, working with the NICU team to blend neonatal care with intestinal rehabilitation. As they stabilize, children come out of the NICU and the CHIRP team begins the process of preparing for discharge on home PN. Although there is much to learn, families are assisted in providing more and more of their child’s care. The CHIRP team, including physicians, surgeons, a nurse, a diettian, an occupational therapist and a social worker develop a close working relationship with the families, guiding their progress, working through setbacks and celebrating victories.

How has the CHIRP Team impacted outcomes for these fragile children? With the introduction of new approaches to prevent and treat the life-threatening complications of PN, survival is now greater than 95%, even when PN must continue for years. But these children do much more than just survive: they grow and develop, attend school, participate in sports, travel and generally live full and active lives with their families. Although there are still challenges to conquer, the CHIRP Team will continue to work with children with intestinal failure and their families toward an even brighter future.

For more information, please visit: www.bcchildrens.ca/our-services/clinics/complex-feeding-nutrition

With the introduction of new approaches to prevent and treat the life-threatening complications of parenteral nutrition, survival is now greater than 95%.

Image: Ivan Barrett (patient).
PROGRAM HIGHLIGHT

OMG IBD: Oh My Guts! – A Support Group for Youth Living with IBD and their Parents

Dr. Kevan Jacobson, Professor and Head, Division of Gastroenterology, Hepatology & Nutrition
Dr. Theresa Newlove, Adjunct Professor and Head, Department of Psychology
Alam Lakhani, Research Student, Division of Gastroenterology, Hepatology & Nutrition
Kathi Evans, Nurse Clinician, Division of Gastroenterology, Hepatology & Nutrition

Every fourth Thursday of the month, a group of resilient and inspiring families gather in the “bowels” of the basement of the Ambulatory Care building of BC Children’s Hospital. Walking down the hallway towards the room, the laughter and noise becomes increasingly audible. Friends warmly greet other friends; parents give each other hugs and gear up for an evening of sharing and learning.

It wasn't always this way. Living with Inflammatory Bowel Disease (IBD) can be a lonely, confusing and uncertain condition for children diagnosed with it, as well as their families. On a rainy day in September 2014, a facilitator started the quiet group by asking the eight children who bravely attended the first session to raise their hand if they knew anyone else in their age range who had IBD. Not a single hand went up. “Now you all know seven other kids who do.” Four years later, a community fostering warmth and support has formed.

Research has shown that children with these conditions are at risk for falling behind in school, mental health disorders and social isolation by their peers. OMG IBD was born out of a longstanding unmet need to connect.
families living with IBD. This was further highlighted by the feedback from youth participating in the GI Psychosocial Screening project that started in the spring of 2014. Recognizing that support for youth and their parents is a first step in supporting families in their healthcare journey, the support group was formed by a collaboration between the pediatric Gastroenterology, Hepatology & Nutrition division and the Department of Psychology.

The multidisciplinary facilitator team includes psychologists, pediatric gastroenterologists, pediatric gastroenterology fellows, dietitians, former patients and their parents, nurse clinicians, research staff and students. Matthew Smyth, Carlie Penner, Kathi Evans, Dr. Elizabeth Stanford and Alam Lakhani have been instrumental in the organization and delivery of these monthly sessions.

With input from the families at the beginning of the year, a series of themes are developed which are integrated into the groups, either through presentations, speaker series or activities. These include tips and tricks for school, dealing with stress, sleep 101, mindfulness and relaxation, “telling other people about your IBD,” exercise, learning more about food, “ask an expert,” along with many more. Activities include pumpkin carving, painting, yoga sessions, skating nights, Iron chef-style smoothie challenges, jeopardy, board game nights and our traditional year-end Fun Fair Finale. Parents and youth learn together at the beginning of the session – but recognizing that there are different views, dialogues and opportunities for sharing experiences, they separate for the group’s activities and discussions.

Said one of the attendees, a 14-year-old living with Crohn’s Disease, “It feels like I am with my family.” Another attendee, 16 years old, said, “It’s nice to be around people who understand what I’m going through and not be afraid to talk about my disease.” A parent of a 12-year-old girl with Ulcerative Colitis commented that she appreciated “hearing about other family’s experiences so that you know you are not going through this journey alone.” The OMG IBD group is a place for patients and parents to feel understood, heard and supported, and to inspire each other and the dedicated staff with their resiliency.

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/gastroenterology-hepatology-nutrition
www.psych.ubc.ca

"Says one of the attendees, a 16-year-old,
‘It’s nice to be around people who understand what I’m going through and not be afraid to talk about my disease.’"
The Division of General Pediatrics is the Department’s largest division, with 45 community-based and 13 hospital-based pediatricians. Our mission is to provide comprehensive, interdisciplinary general pediatric health care, education, research and advocacy for the wellbeing of all children and youth. Our members are active in both undergraduate and postgraduate training and we provide education and inpatient care to our trainees on two Clinical Teaching Units, as well as newborn care at BC Women’s Hospital + Health Centre.

Our research includes a wide-ranging scope of themes, including life-threatening neurological, metabolic or chromosomal conditions; symptom control in non-cancer conditions; resident wellbeing and burnout; pediatric sepsis; global health ethics; infections in the NICU; and increasing vaccination rates of patients at high risk for severe infection. Division members are also involved in global child health projects internationally, and quality improvement projects locally.

We have a Complex Care Team and provide consultation services throughout the hospital. We work in the ambulatory setting of BC Children’s Hospital and support subspeciality and multidisciplinary teams. Our members offer child protection services, in partnership with emergency department physicians, in a team setting led by Dr. Maureen O’Donnell, executive director of Child Health BC. At Canuck Place, pediatric palliative care is delivered through the collaborative efforts of an interdisciplinary team led by Dr. Hal Siden, director of Canuck Place. Our members also provide an outreach service to Whitehorse Hospital.

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/general-pediatrics

* The last full accreditation with the Royal College of Physicians and Surgeons of Canada was in 2013.
### FACULTY BY RANK

**Clinical Faculty**

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Jennifer Druker</td>
<td>Division Head &amp; Clinical Associate Professor</td>
</tr>
<tr>
<td>Dr. Harold Siden</td>
<td>Clinical Professor</td>
</tr>
<tr>
<td>Dr. Anne Feng</td>
<td>Clinical Associate Professor</td>
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<tr>
<td>Dr. Mumtaz Virji</td>
<td>Medical Director, Resident Continuity Clinics Director, Undergraduate Program Clinical Assistant Professor</td>
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<tr>
<td>Dr. Janet Greenman</td>
<td>Clinical Assistant Professor</td>
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<tr>
<td>Dr. Nita Jain</td>
<td>Clinical Assistant Professor</td>
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<tr>
<td>Dr. Tammie Dewan</td>
<td>Medical Director, Complex Care Programs &amp; Clinical Instructor</td>
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<tr>
<td>Dr. Dianna Louie</td>
<td>Clinical Instructor</td>
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<td>Dr. Jennifer Smitten</td>
<td>Clinical Instructor</td>
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<td>Dr. Kris Kang</td>
<td>Clinical Instructor</td>
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<td>Dr. Esther Lee</td>
<td>Clinical Instructor</td>
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<td>Dr. Mia Remington</td>
<td>Clinical Instructor</td>
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<tr>
<td>Dr. Elizabeth Grant</td>
<td>Clinical Instructor</td>
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**SIGNIFICANT AWARDS**

<table>
<thead>
<tr>
<th>Name</th>
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<tr>
<td>Dr. Dianna Louie</td>
<td>Clinical Instructor</td>
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<tr>
<td></td>
<td>UBC DEPARTMENT OF PEDIATRICS Pediatrics Golden Rattle</td>
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<td></td>
<td>UBC, POSTGRADUATE MEDICAL EDUCATION Resident Wellness Faculty Award</td>
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<tr>
<td>Dr. Kristopher Kang</td>
<td>Clinical Instructor</td>
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<td>UBC DEPARTMENT OF PEDIATRICS Department of Pediatrics Rookie of the Year Award, 2015-2016</td>
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<tr>
<td>Dr. Vicki Leung</td>
<td>Clinical Assistant Professor</td>
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<td>UBC DEPARTMENT OF PEDIATRICS Hospital Pediatrician of the Year</td>
</tr>
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The Division of Hematology, Oncology & Bone Marrow Transplant (BMT) provides care by a team of experts who specialize in medical evaluation and treatment of children with cancer and blood disorders in British Columbia and Yukon. This team provides consultative and directive care for patients requiring hematopoietic stem cell transplantation for both malignant and non-malignant conditions. We also have one of the most sought after subspecialty residency programs in Canada and attract clinical fellows from around the world.

Our Division has a robust basic science and translational research program, including clinical researchers with the Michael Cuccione Childhood Cancer Research Program (MCCCRP) at BC Children’s Hospital. The program has a strong clinician focus and is a full member of the Children’s Oncology Group (COG). Our unit is one of four Canadian institutions offering developmental therapeutics to children with relapsed malignancies, providing access to Phase 1 and 2 trials and access to novel agents.

Our Division sees about 140 new oncology patients per year, with an overall survival rate of 83% (with these children having ongoing follow up). Additionally, more than 300 new hematology patients are seen each year, many of whom also have ongoing follow up. Our Division also performs an average of 35 stem cell transplants per year.

For more information, please visit:
www.pediatrics.med.ubc.ca/hematology
FACULTY BY RANK

Academic Faculty
Dr. Kirk Schultz
Professor
Dr. Catherine Pallen
Professor
Dr. Christopher Maxwell
Assistant Professor
Dr. James Lim
Assistant Professor
Dr. Gregor Reid
Assistant Professor
Dr. Abbas Fotovati
Research Associate
Dr. Hoa Thi Le
Research Associate

Clinical Faculty
Dr. Caron Strahlendorf
Division Head & Clinical Professor
Dr. Chris Fryer
Clinical Professor
Dr. Paul Rogers
Clinical Professor
Dr. John K. Wu
Director of Hematology & Clinical Professor
Dr. David Dix
Program Director & Clinical Professor

Dr. Jeff Davis
Clinical Associate Professor
Dr. Juliette Hukin
Clinical Associate Professor
Dr. Sheila Pritchard
Clinical Associate Professor
Dr. Rebecca Deyell
Clinical Assistant Professor
Dr. Melissa Harvey
Program Director & Clinical Assistant Professor
Dr. Jessica Halparin
Clinical Assistant Professor

Dr. Sylvia Cheng
Clinical Assistant Professor
Dr. Rod Rassekh
Clinical Assistant Professor
Dr. Jacob Rozmus
Clinical Instructor

Clinical Associates

Dr. Leslie Cohen
Dr. Tram Nguyen

Dr. Elaine Peddie
Dr. Svjetlana Ruzic

Dr. Lucy Turnham
Dr. Judy Wolfe

Dr. Peggy Wong

TRAINING PROGRAM GRADUATES

Dr. Björn Baadjes
Clinical Fellow

Dr. Kristin Marr
Subspecialty Resident

Dr. Surabhi Rawal
Subspecialty Resident

Dr. Ashley Szpurko
Subspecialty Resident

MENTORSHIPS

Dr. Christopher Maxwell
Tony Lok Hen Chu was awarded a Fellowship from the Canadian Breast Cancer Foundation British Columbia/Yukon Chapter
Marisa Connell was awarded a Postdoctoral Fellowship Award from the BC Children’s Hospital Research Institute
Helen Chen was awarded a Michael Cuccione Graduate Studentship
Zhengcheng He was awarded a Michael Cuccione Graduate Studentship from the BC Children’s Hospital Research Institute

Dr. Chinten James Lim
Lakshana Sreenivasan was awarded a Graduate Studentship Award from the BC Children’s Hospital Research Institute

Dr. Gregor Reid
Mario Fidanza was awarded a Michael Cuccione Graduate Studentship from the BC Children’s Hospital Research Institute

Dr. Kirk Schultz
Jacob Rozmus was awarded a Postdoctoral Fellowship Award from the BC Children’s Hospital Research Institute

SIGNIFICANT AWARDS

Dr. Caron Strahlendorf
Clinical Professor
Carnegie Wits Diaspora Fellowship Award

Dr. Jacob Rozmus
Clinical Instructor
Canadian Blood and Marrow Transplant Group 2016 Best Oral Abstract Presentation Award

Dr. John Wu
Clinical Professor
Youth Advisory Committee, BC Children's Hospital Youth Friendly Care Award

Dr. Kirk Schultz
Professor
Canadian Academy of Health Sciences Fellowship
Over the past three decades, with improvements in chemotherapy regimens and supportive care, overall cure rates for children and adolescents diagnosed with cancer in British Columbia have improved dramatically. Despite this success, there remains an unacceptable proportion of children and adolescents who will not be long-term survivors, with almost 20% dying of the disease. We still often rely on conventional chemotherapy drugs – these do not specifically target cancer cells, come with a significant burden of toxicity, and are generally chosen without consideration of the underlying cancer genomics or other biological factors that may drive cancer growth and progression.
To address this need, we initiated a pediatric oncogenomics pilot study (Peds POG) at BC Children’s Hospital in October 2013. We have developed a core BC Children’s precision oncology team that includes Drs. Deyell and Rassekh (pediatric oncologists), Drs. Lee and Dunham (anatomic and neuropathologists), Dr. Armstrong (geneticist), Alice Virani (clinical ethicist), surgeons and interventional radiologists, Dr. Vercauteren (BC Children’s Biobank) and Drs. Lange and Reid (BC Children’s Hospital Research Institute scientists). In collaboration with Canada’s Michael Smith Genome Science Centre and BC Cancer Agency, we are able to obtain whole genome, transcriptome and proteome sequencing of tumours to help us better understand what is driving a cancer’s growth and resistance to therapy. We have now completed our initial pilot study, treating 71 children and adolescents from across BC. We have found our approach to be both feasible and informative.

Parents, patients and families in BC have been overwhelmingly supportive of our pilot study. Of the families we approached, 96% decided to pursue enrollment. A wide range of cancer types were included (solid tumours, brain tumours and leukemia) and tumour samples were obtained by minimally invasive techniques when a clinical procedure wasn’t already planned. Of pediatric patients biopsied, 88% and 84% obtained a tumour sample that was adequate for whole genome and transcriptome (RNA) sequencing, respectively. Genomic events that were informative and potentially actionable were found in approximately 85% of all pediatric tumour genomes analyzed.

A group of these children have now been able to access POG-directed targeted therapies for their refractory cancers, and some of this group have achieved both radiographic and clinical improvement.

The BC pediatric precision oncology team is now joining forces nationally with two other pediatric cancer sequencing centres (based in Montreal and Toronto). In doing so, we hope to provide timely access to tumour molecular profiling and real-time availability of target-based therapies for all Canadian children, adolescents and young adults (CAYA) in need. Through this initiative, we aim to develop a standardized strategy for enrollment and high-quality sample collection. We will also continue to enrol CAYA, either at relapse or upfront at diagnosis with very hard-to-treat cancer types, in order to analyze their tumour genome (DNA), transcriptome (RNA) and proteome using standardized platforms. We ultimately aim to create a national molecular tumour board and to design a range of innovative clinical trial strategies that incorporate new drugs and Health Canada individualized patient protocols. These will enable comprehensive access to therapies for all patients identified as having actionable molecular targets.

As part of this, we are developing a pediatric-specific subprotocol of an upcoming, national phase II basket study for molecularly-targeted agents in collaboration with the Canadian Cancer Trials Group. Our goal is that every child, adolescent and young adult with hard-to-treat cancer – from coast to coast in Canada – will have access to precision medicine.

"We are able to obtain whole genome, transcriptome and proteome sequencing of tumours to help us better understand what is driving a cancer’s growth and resistance to therapy."

DIVISIONAL REPORTS | 97
The Division of Infectious Diseases is research-intensive with a strong training program in Pediatric Infectious Diseases. Our Division is composed of infectious diseases consultants, clinician investigators and full-time scientists who advance the clinical research conducted by the team. We are proud of our fully-accredited training program and graduates have gone on to assume leadership positions in Pediatric Infectious Diseases internationally.

Our Division is proud of its multiple publications and presentations, and of a research reputation with national and international recognition. Research opportunities exist within the Vaccine Evaluation Centre (VEC) and the Centre for Infectious and Inflammatory Diseases. Particular areas of research strength in our Division are in microbial pathogenesis, host defence against bacterial infection, inflammation in infants and children, and a wide range of vaccine-related issues.

Members of our Division deliver a variety of programs, including an infectious diseases consultation service; immunology consultation service; an infection control service; and the Oak Tree Clinic, providing care to women, pregnant women and children with HIV-AIDS; all of which are available 24/7. Antimicrobial Stewardship is also a key activity for our Division. A team of physicians, pharmacists and analysts work collaboratively with specialties and pediatric subspecialties to ensure that antimicrobials are used appropriately and safely.

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/infectious-diseases

* The last full accreditation with the Royal College of Physicians and Surgeons of Canada was in 2013.
FACULTY BY RANK

**Academic Faculty**

**Dr. David Scheifele**  
Professor

**Dr. David Speert**  
Professor

**Dr. Tobias Kollmann**  
Clinical Professor

**Dr. Soren Gantt**  
Associate Professor

**Dr. Julie Bettinger**  
Associate Professor

**Dr. Manish Sadarangani**  
Assistant Professor

**Dr. Kelly Macdonald**  
Research Associate

**Dr. James Edward Zlosnik**  
Research Associate

**Clinical Faculty**

**Dr. Simon Dobson**  
Division Head &  
Clinical Associate Professor

**Dr. Ashley Roberts**  
Program Director &  
Clinical Assistant Professor

**Dr. Ariane Alimenti**  
Clinical Assistant Professor

**Dr. Laura Sauve**  
Clinical Assistant Professor

**Dr. Jennifer Smitten**  
Clinical Instructor

NEW TO THE DIVISION IN 2016

**Dr. Manish Sadarangani**  
Assistant Professor

Medical School – University of Oxford, Oxford UK  
Residency – University of Oxford, Oxford UK  
Fellowship – University of Oxford, Oxford UK and University of British Columbia, Vancouver BC

Dr. Manish Sadarangani will be joining the Department of Pediatrics as an assistant professor in the Division of Infectious Diseases and as the medical director of the Vaccine Evaluation Center at BCCHR.

He completed his DPhil with the Oxford Vaccine Group in the UK, developing novel vaccine candidates for protection against group B meningococcal disease, and completed a Fellowship in Pediatric Infectious Diseases in Vancouver in 2013 before returning to Oxford. He has been involved in development and evaluation of meningococcal vaccines from pre-clinical studies through to phase 1 trials and meningococcal disease epidemiology. Current research interests include meningococcal disease, childhood meningitis and encephalitis, the microbiota and antimicrobial stewardship.

TRAINING PROGRAM GRADUATES

**Dr. Joshua Osowicki**  
Clinical Fellow

MENTORSHIPS

**Dr. Julie Bettinger**

Devon Greyson was awarded a Postdoctoral Trainee Fellowship from the Michael Smith Foundation for Health Research and

**Clara Rubincam** was awarded a Postdoctoral Trainee Fellowship from the Michael Smith Foundation for Health Research

SIGNIFICANT AWARDS

**Dr. Manish Sadarangani**  
Assistant Professor

ROYAL COLLEGE OF  
PAEDIATRICS AND  
CHILD HEALTH  
Sparks Young  
Investigator of the Year

**Congenital Cytomegalovirus (CMV) Infection**  
**Dr. Soren Gantt**  
Associate Professor

**Infectious Diseases**  
**Dr. Ashley Roberts**  
Clinical Assistant Professor

**Vaccines and Immunization**  
**Dr. Manish Sadarangani**  
Assistant Professor

**Human Papillomavirus Vaccines**  
**Dr. Simon Dobson**  
Clinical Associate Professor

**RESEARCH EXPERTISE**  
within the Division
Improving the Diagnosis and Care of Infants with Congenital Cytomegalovirus (CMV) Infection

Dr. Soren Gantt, Associate Professor, Division of Infectious Diseases

Congenital cytomegalovirus (CMV) is the most common congenital infection, and is a major cause of childhood deafness and neurocognitive delay. Early interventions, including antiviral treatment, hearing amplification/cochlear implantation, and speech/language therapy are effective, but because most infections are subclinical at birth, affected infants typically do not receive these services.

In 2016, we developed an evidence-based congenital CMV infection screening program targeting high-risk infants born at BC Women’s Hospital + Health Centre. This is the first clinical congenital CMV screening program in Canada. A management algorithm was also developed to rapidly evaluate infected infants, and to provide timely state-of-the-art care. Over 1,000 infants have been screened so far, and as a result, numerous cases of congenital CMV have already been diagnosed and received optimal treatment and support.

Our program was informed by several studies performed by our group, including one showing that most symptomatic congenital CMV infections in British Columbia were not being diagnosed, resulting in frequently missed opportunities for beneficial treatment. We have also conducted studies to validate simple methods of screening for congenital CMV using a saliva swab, and published a widely-referenced study, titled Cost-effectiveness of Universal and Targeted Newborn Screening for Congenital Cytomegalovirus Infection, demonstrating that congenital CMV screening is cost-effective. This work forms the basis, not only of our local screening program, but has been central to the development of other congenital CMV screening programs that will be rolled out in Ontario and Manitoba.

We have also conducted numerous educational activities on congenital CMV, including the BC Pediatric Society Annual Conference, CATS day, academic half-days, Advances in Pediatrics, BC Centre for Disease Control Grand Rounds, and NICU Education Days. We have posted our guideline and algorithm on the BC Children’s Hospital and BC Women’s website (see resource below).

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/infectious-diseases

In 2016, we developed an evidence-based congenital CMV infection screening program targeting high-risk infants born at BC Women’s. This is the first clinical congenital CMV screening program in Canada."
The Division of Neonatology is responsible for providing care to the most acutely ill babies born in British Columbia. We are part of an integrated perinatal program within Maternal, Fetal and Newborn Services, and provide 24-hour urgent patient care, consultation, triage, transport, follow up of survivors, teaching, outreach and research for the benefit of infants and their families throughout the province. We are the only referral centre in BC providing the full complement of subspecialties.

Research within our Division has been mainly directed towards reducing morbidity and mortality among the sickest of the sickest newborns; generating knowledge and new innovations; improving understanding and interventions for neonatal intensive care; informing clinical decisions and policies surrounding neonatal care; and maintaining a sustainable, ethical and rigorous program of research and education. In recent years, research in our Division has built upon a broad range of clinical, basic science and bench-to-bedside translational research projects.

The core of our educational activity is provided to pediatric residents and subspecialty residents in Neonatal/Perinatal Medicine. In fact, the Neonatal/Perinatal Medicine Subspecialty Training Program is the largest program in the Department of Pediatrics and is one of the largest in Canada. Our Division has seen an evolution in the delivery and nature of patient care, focusing on the concept of family-centred care. While inpatient care is the vast majority of overall service delivery, patient follow up remains an important part of the spectrum of care offered to families.

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/neonatology
FACULTY BY RANK

Academic Faculty
† Dr. Sheila Innes
Professor
Dr. Ruth Grunau
Professor
Dr. Liisa Holsti
Associate Professor
Dr. Rajvel Elango
Assistant Professor
Dr. Pascal Lavoie
Associate Professor
Dr. Sandesh Shivananda
Associate Professor

Clinical Faculty
Dr. Horacio Osiovich
Division Head & Clinical Professor
Dr. Susan Alberstheim
Clinical Professor
Dr. Alfonoso Solimano
Clinical Professor
Dr. Anne Synnes
Clinical Professor
Dr. Joseph Ting
Clinical Assistant Professor
Dr. Deepak Manhas
Program Director & Clinical Assistant Professor
Dr. Julia Panzuk
Clinical Assistant Professor
Dr. Jonathan Wong
Clinical Assistant Professor
Dr. Michael Castaldo
Clinical Assistant Professor

CLINICAL ASSOCIATES

Dr. Kevin Ansah
Dr. Michelle Sherwood
Dr. Shelagh Anson
Dr. Constantin Popescu
Dr. Anne Antrim
Dr. Cheryl Mutch
Dr. Rosemary Binnie
Dr. Joanna Rotecka
Dr. Rodney Bucke
Dr. Birgitta Samuelson
Dr. Margaret Choi
Dr. Matt Sibley
Dr. Deborah Gilmer

NEW TO THE DIVISION IN 2016

Dr. Michael Castaldo
Clinical Assistant Professor
Medical School – University College, Dublin IE
Residency – Cohen Children’s Medical Center, Queens NY
Fellowship – University of Toronto, Toronto ON

Dr. Castaldo’s hometown is Toronto, but the pursuit of his medical career has taken him to many other incredible cities. He completed his undergraduate degree in Anatomy and Cell Biology at McGill University before heading to University College Dublin for his medical school training. He completed his pediatric residency and chief residency at Cohen Children’s Medical Center of New York. His fellowship brought him back home to the Hospital for Sick Children in Toronto where he completed his Academic Fellowship in Perinatal-Neonatal Medicine. He remained in Toronto at Sick Kids to complete a fellowship both in Transport Medicine and Targeted Neonatal Echocardiography. The most recent stage in his career has brought him to Vancouver, where he is thrilled to be a neonatologist and part of a Division that is considered an international leader in clinical care, education and research. Michael’s hobbies and interests include trying new foods/restaurants and revisiting old favourites. He enjoys listening to a wide assortment of music, attending the theatre (stage or cinema), travelling, and exploring museums and art galleries on weekends. Michael is excited to discover the endless beauty of BC, although he bashfully admits that he will loyally and passionately support his hometown sports teams (Leafs, Jays, Raptors) to the disapproval of Vancouver fans.

Dr. Sandesh Shivananda
Associate Professor
Medical School – Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, India
Residency – PGIMER, Chandigarh, India
Fellowship – PGIMER, Chandigarh, India and University of Toronto, Toronto ON

Dr. Shivananda’s interest lies in knowledge translation and quality improvement. His focus has been in designing, implementation and evaluation of programs relevant to local context. So far he has obtained grants ($500,000) for programs in three domains: resuscitation and stabilization, infant wellness assessment and prevention of escalated care events. These programs have five to seven interventions involving adoption of evidence-based practices, inter-professional education, integration of technology and measures to ensure sustainability. These programs have resulted in the elimination of inappropriate practices, improved patient safety and promotion of teamwork, thereby adding value to the organization. He is also a co-applicant and steering committee member for SCREEN ROP, a CIHR funded, multi-centric study involving all level III NICUs in Canada. He is also the site investigator for the Canadian Neonatal Network and Evidence-based Practice for Improving Quality (EPIQ, a national collaborative initiative to improve quality in NICUs).
Dr. Jonathan Wong  
Clinical Assistant Professor

Medical School – University of Toronto, Toronto ON  
Residency – Queen’s University, Kingston ON  
Fellowship - University of Toronto, Toronto ON

Dr. Wong joined the Department in September as clinical faculty in the Division of Neonatology. He was born and raised in Vancouver and moved to Ontario for his studies. He completed his pediatric residency at Queen’s University and a Neonatal-Perinatal medicine fellowship at the University of Toronto.

Jonathan is currently completing a masters in health practitioner teacher education and his academic interests are focused on using medical simulation for quality improvement and education.

Outside of work, he enjoys running and rock climbing. Most of all, he enjoys spending time with his wife, two-year old son and fur-child (dog).

Jonathan is excited to return to Vancouver and contribute to the place where he was cared for as a preterm infant many years ago.

Dr. Laura Lucia Konikoff  
Clinical Fellow

Dr. Karen Lavie-Nevo  
Clinical Fellow

Dr. Liron Borenstein-Levin  
Clinical Fellow

Dr. Ruth Grunau  
Manon Ranger was awarded a Doctoral Fellowship from CIHR

Jillian Vinall was awarded a Doctoral Fellowship from CIHR

Dr. Yuk Joseph Ting  
Clinical Assistant Professor

CANADIAN NEONATAL NETWORK  
Early Career Investigator Award

HONG KONG COLLEGE OF PAEDIATRICIANS  
Best Young Investigator Prize

Dr. Julia Panczuk  
Clinical Assistant Professor

CANADIAN NEONATAL NETWORK  
Young Investigator Award 2016, 3rd Place Project

Dr. Susan Albersheim  
Clinical Professor

Immunity, Infection + Inflammation  
Dr. Pascal Lavoie  
Associate Professor

Neonatal Infection, Cardiac + Respiratory Problems  
Dr. Horacio Osiovich  
Clinical Associate Professor

Neonatal Haemodynamics  
Dr. Joseph Ting  
Clinical Assistant Professor

Medical Ethics  
Dr. Susan Albersheim  
Clinical Professor

Research Expertise within the Division
Neonatal Haemodynamics

Dr. Joseph Ting, Clinical Assistant Professor, Division of Neonatology

Targeted neonatal echocardiography (TNE) provides direct measurements of neonatal haemodynamics. Within the context of clinical decision making, its application for evaluation of the cardiovascular system has gained momentum in the last decade. In the neonatal intensive care unit (NICU), and more specifically in the preterm population, cardiovascular monitoring and management of low blood pressure is a frequent problem. This is vitally important because impaired myocardial function, particularly inadequate cardiac output, can compromise end-organ perfusion and correlates to other morbidities, including neurodevelopmental disability. In the newborn, the complexity and dynamic nature of the transitional circulation, variable responsiveness of the immature myocardium in the early neonatal period, and the presence of intracardiac and patient ductus arteriosus (PDA) shunting make therapeutic decision making challenging.

TNE is an excellent tool to complement the more traditional assessments of cardiac anatomy and cardiovascular performance. The routine use of TNE in NICU is useful: it identifies cardiovascular compromise, evaluates the response to therapeutic interventions and improves short term neonatal outcomes. There remain many unanswered clinical questions in the NICU setting, though, such as the optimal medical and post-operative management of PDA in preterm infants, and the management of neonatal septic shock.

Dr. Joseph Ting is working with neonatologist Dr. Michael Castaldo, and other members from the Canadian Targeted Neonatal Collaborative, to carry out multi-centre research studies that address the gaps of knowledge in neonatal haemodynamics at both the individual and population level. The aim is to develop optimal strategies that support the delicate circulatory system in our tiny patients, which will improve clinical outcomes.

For more information, please visit:
www.bcchr.ca/our-research/researchers/results/details/joseph-ting

"The aim is to develop optimal strategies that support the delicate circulatory system in our tiny patients, which will improve clinical outcomes."
Studying the Immune System of Babies Helps Prevent Illnesses from a Dangerous Virus

Dr. Pascal Lavoie, Associate Professor, Division of Neonatology

Respiratory syncytial virus (RSV) is a common virus that infects the lungs and respiratory tract. In adults, RSV causes mild symptoms similar to those caused by the common cold. However, in vulnerable infants, especially those born prematurely and with health conditions affecting their lungs or heart, RSV can lead to a life-threatening inflammation of the lungs and respiratory tract that often requires hospitalization.

Infants at high risk for complications from RSV receive injections of a drug called palivizumab, an engineered antibody that blocks the virus from causing infection. Since palivizumab was introduced in the 1990s, most high-risk babies in Canada have received five injections of the drug over the course of the winter when RSV infections usually occur.

Dr. Lavoie’s research helps understand how babies respond to infection differently than adults. Combining basic science and clinical studies, Drs. Solimano, Lavoie and their collaborators collected health outcomes from 1,180 babies receiving palivizumab at clinics across British Columbia from 2010 to 2014. With help from Nico Marr, a former postdoctoral researcher at the BC Children’s Hospital Research Institute (BCCHR), they also tested the levels of RSV-antibodies in blood from a sample group of the babies.

In a scientific article published in JAMA Pediatrics in 2016, Dr. Pascal Lavoie and medical director of the BC RSV Immunoprophylaxis Program, Dr. Alfonso Solimano report that young babies at high risk for RSV who receive three to four doses of the preventative drug palivizumab in BC are equally protected as those who receive five doses, like the rest of Canada.
The five-injection schedule costs about $10,000 per child per year, which limits the drug’s broader use. In 2010, in response to changing practice guidelines in the United States and other countries, BC introduced a pioneering reduced-dosing schedule. Lower risk infants began receiving three injections of the drug and higher risk infants received four injections.

“We found that the reduced schedule is safe and effective. Babies who receive three or four doses are just as well protected as babies who receive five doses of palivizumab,” Dr. Alfonso Solimano says. Babies on the reduced schedule were no more likely to be hospitalized with RSV than babies who received five doses. Researchers also found babies receiving three or four doses had adequate levels of RSV antibodies in their blood samples. When babies receive five doses, they’re likely getting more antibodies than they need to prevent infection.

“We’ve reduced the number of injections babies require without losing any protection against this dangerous virus,” says Dr. Lavoie. “This has resulted in a substantial cost saving that could then be re-allocated to other babies in need of this treatment.”

In response to the success of BC’s program, the Canadian Pediatric Society (CPS) now recommends that vulnerable infants receive three to five doses of palivizumab, depending on their individual risk factors.

This is a wonderful example of how scientists and physicians can work together to improve clinical practice. Doctors at BC Children’s Hospital and BC Women’s Hospital + Health Centre implemented this program and BCCHR researchers showed it was safe and effective. By working together, this research team was able to change care practices in a relatively short period of time.

For more information, please visit:
www.bcchr.ca/our-research/researchers/results/details/pascal-lavoie

"We’ve reduced the number of injections babies require without losing any protection against this dangerous virus. This has resulted in a substantial cost saving that could then be re-allocated to other babies in need of this treatment."
Division of Nephrology

The Division of Nephrology promotes the health of children living with kidney disease through excellence in evidence-based clinical care, clinical and basic research, and education and advocacy. We are actively involved in UBC undergraduate medical school teaching and postgraduate training for pediatric residents. We also offer a fully accredited training program in Pediatric Nephrology.

Our Division is engaged in a number of important translational research initiatives that include acute kidney injury; congenital, progressive and chronic kidney disease and malformations; and kidney transplantation. Members of our Division are local, national, and international leaders in their areas of research who are actively engaged in multi-centre collaborative efforts, including intensive care consortia for the study of acute kidney injury, the development of best practices for a number of pediatric kidney diseases, and the development and identification of biomarkers in childhood cancer and kidney transplantation.

There have been many achievements in our Division’s Clinical Care Program over the years, including the assembly of highly skilled multidisciplinary teams of specialty clinic physicians, nurses, dieticians, pharmacists and social workers. We run ambulatory care clinics that have approximately 2,000 visits per year, dedicated clinics for nephrotic syndrome and hypertension, as well as a combined renal-rheumatology clinic, chronic kidney disease clinics and a kidney transplant clinic. Our dialysis program offers both hospital and home-based therapies. We are also establishing regional clinics for children with kidney disease throughout British Columbia.

For more information, please visit www.pediatrics.med.ubc.ca/divisions-centres/nephrology
FACULTY BY RANK

**Academic Faculty**
- **Dr. Douglas Matsell**
  Division Head & Professor
- **Dr. Allison Eddy**
  Professor
- **Dr. Tom Blydt-Hansen**
  Associate Professor

**Clinical Faculty**
- **Dr. Colin White**
  (on leave) Program Director & Clinical Associate Professor
- **Dr. Cherry Mammen**
  Clinical Assistant Professor
- **Dr. Janis Dionne**
  Clinical Assistant Professor
- **Dr. Elenora Jugnauth**
  Clinical Assistant Professor

**Clinical Faculty**
- **Dr. Robert Humphreys**
  Program Director, Fellowship & Clinical Assistant Professor

**SIGNIFICANT AWARDS**

**Dr. Robert Humphreys**
Clinical Assistant Professor

SURREY MEMORIAL PEDIATRICS GROUP
Best Service of the Year

**RESEARCH EXPERTISE**

- **Chronic Kidney Disease and Hypertension**
  - **Dr. Janis Dionne**
    Clinical Assistant Professor

- **Abnormal Kidney Development**
  - **Dr. Douglas Matsell**
    Professor

- **Kidney Transplantation**
  - **Dr. Tom Blydt-Hansen**
    Clinical Associate Professor

- **Acute Kidney Injury**
  - **Dr. Cherry Mammen**
    Clinical Assistant Professor

within the Division
The Division of Neurology provides the only tertiary level of care for children with neurological disorders in British Columbia, offering state-of-the-art care for common and rare diseases of the nervous system. Our Pediatric Neurology Program is the most comprehensive in Western Canada, featuring subspecialty programs in Epilepsy, Neuro-oncology, Neuromuscular Disorders, Cognitive Neurology and Neonatal Neurology.

Members of our Division run several active clinical and translational research programs involving trainees at the undergraduate, graduate and postdoctoral levels. We are closely aligned with the Brain & Behaviour theme at the BC Children’s Hospital Research Institute (BCCHR). Research activities in our Division have grown considerably – support obtained over the next five years currently exceeds $1,500,000.

Clinical care is a priority of our Division. We oversee an active, heavily-utilized inpatient consultation service and part of a 14-bed neurosciences inpatient unit. This unit includes facilities for the monitoring of epilepsy patients who are being considered for surgical treatment. In addition, our Division tends to an active outpatient facility with over 6,000 clinic visits per year.

For more information, please visit: www.pediatrics.med.ubc.ca/divisions-centres/neurology

* The last full accreditation with the Royal College of Physicians and Surgeons of Canada was in 2013.

Dr. Mary Connolly
Division Head, Clinical Professor

Dr. Linda Huh
Program Director, Clinical Assistant Professor

Dr. Elke Roland
Director, Medical Students and Residents, Clinical Associate Professor
Academic Faculty
Dr. Alan Hill  
Professor Emeritus
Dr. Peter Wong  
Professor
Dr. Alexander Rauscher  
Assistant Professor

Clinical Faculty
Dr. Mary Connolly  
Division Head & Clinical Professor
Dr. Juliette Hukin  
Clinical Associate Professor
Dr. Elke Roland  
Director, Medical Students and Residents 
Clinical Associate Professor

Dr. Cyrus Boelam  
Clinical Assistant Professor
Dr. Anita Datta  
Clinical Assistant Professor
Dr. James Lee  
Clinical Assistant Professor
Dr. Bruce Bjornson  
Clinical Assistant Professor

Dr. Michelle Demos  
Clinical Assistant Professor
Dr. Kathy Selby  
Clinical Assistant Professor
Dr. Linda Huh  
Program Director 
Clinical Assistant Professor
Dr. Dewi Schrader  
Clinical Assistant Professor

CLINICAL ASSOCIATES
Dr. Ziad Abu Sharar

TRAINING PROGRAM GRADUATES
Dr. Sarah Elisabeth Buerki  
Clinical Fellow
Dr. Colin Jeremy Wilbur  
Clinical Fellow
Dr. Itay Zelcer  
Clinical Fellow

MENTORSHIPS
Dr. Alexander Rauscher
Alexander Weber was awarded a Postdoctoral Fellowship Award from the BC Children’s Hospital Research Institute

RESEARCH EXPERTISE within the Division
Neuroimaging
Dr. Alexander Rauscher  
Assistant Professor

Epilepsy
Dr. Mary Connolly  
Clinical Professor
The Division of Respiratory Medicine’s mandate is to provide leadership and excellence in the discipline of Pediatric Respiratory Medicine for the children of British Columbia. Respiratory problems account for the largest number of physician and emergency department visits for acute problems in children, as well as the largest number of admissions to pediatric hospitals and a significant proportion of bed days for chronic inpatient care.

Our Division members are all involved in clinical research and have a wide range of interests and expertise. Many are also part of the BC Children’s Hospital Research Institute (BCCHRI) and are involved in collaborations with other scientists at the Institute. In education, the Pediatric Respiratory Fellowship Program provides a two-year clinical fellowship for eligible residents and our Division has been training international fellows since 2002.

Apart from running general respiratory clinics dealing with referrals from across the province, our Division runs weekly multidisciplinary clinics for cystic fibrosis, asthma, sleep medicine, non-CF bronchiectasis and home ventilation, as well as the Pulmonary Function Laboratory and Pediatric Polysomnography Service. We also provide an inpatient consultation service and see over 300 new ward consultations each year.

For more Information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/respiratory-medicine
FACULTY BY RANK

Clinical Faculty

Dr. Micheal Seear
Division Head & Clinical Professor

Dr. David Wensley
Clinical Professor

Dr. Mark Chilvers
Cystic Fibrosis Program Director & Clinical Associate Professor

Dr. Connie Yang
Program Director & Clinical Assistant Professor

Dr. Claire Seaton
Clinical Assistant Professor

TRAINING PROGRAM GRADUATES

Dr. Luiz Cesar Pinto de Almeida Junior
Clinical Fellow

Dr. Stuart Christopher Nath
Postgraduate Trainee

SIGNIFICANT AWARDS

Dr. Connie Yang
Clinical Assistant Professor

UBC DEPARTMENT OF PEDIATRICS EDUCATION AWARDS

Ivory Tower Award

Asthma

Dr. Connie Yang
Clinical Assistant Professor

CF + Non-CF Bronchiectasis

Dr. Mark Chilvers
Clinical Associate Professor

International Health

Dr. Mike Seear
Clinical Associate Professor

Oximetry in the Diagnosis of Pneumonia

Dr. David Wensley
Clinical Professor

RESEARCH EXPERTISE within the Division
Cystic Fibrosis: Moving Towards Personalized Care

Dr. Mark Chilvers, Clinical Associate Professor, Division of Respiratory Medicine

Cystic Fibrosis (CF) is the most common, fatal genetic disease affecting young Canadians. It is due to a defect in the formation and/or function of the chloride channel on the surface of certain cells. While CF mainly attacks the lungs and digestive tract, the disease also affects the reproductive system, the musculoskeletal system, the endocrine system and the skin. The psychological effects of the disease are also considerable.

Approximately one in every 3,600 children born in Canada has CF. In 2009, a newborn screening program for CF was established in British Columbia and Yukon. Over 400 CF patients currently live in BC and each year approximately 15 babies are diagnosed with CF. Due to advances in research and clinical care, since 2016 the median age of survival of a person with CF in Canada has been in the 50s, compared to four years old in the 1960s. Most children born with CF are now expected to survive well into adulthood.

Over the last decade the CF clinic at BC Children’s Hospital, under the direction of Dr. Mark Chilvers, has developed a strong research program for children with CF. The clinic was recently selected as one of only three Canadian pediatric centres in the newly-formed CF Canadian Clinical Trials Network (CCTN). This success was in part due to the clinic’s adoption of a technique called Multiple-Breath Washout (MBW), which allows accurate measurement of lung function from infancy. This allows earlier detection of disease progression and can be used as a reliable outcome measurement for clinical trials.

MBW testing is poised to become integrated into clinical care for children with CF in the near future. Expertise in this field is limited, especially in Canada, and BC Children’s is one of only three centres in Canada that currently has MBW equipment and trained testing personnel.

For more information, please visit: www.bcchildrens.ca/our-services/clinics/cystic-fibrosis

The Cystic Fibrosis clinic at BC Children's was recently selected as one of only three Canadian pediatric centres in the newly-formed CF Canadian Clinical Trials Network.”
Division of Rheumatology

The Division of Rheumatology provides diagnosis and treatment, with a comprehensive and coordinated multidisciplinary team, for children and adolescents with rheumatic diseases. These diseases include juvenile idiopathic arthritis, systemic lupus erythematosus, dermatomyositis, scleroderma, vasculitis, autoinflammatory diseases, musculoskeletal pain syndromes, and other less common inflammatory diseases. Our Division has one of only three Royal College of Physicians and Surgeons of Canada approved training programs for Pediatric Rheumatology in Canada.

We have an outstanding clinical research program that includes the areas of juvenile arthritis, lupus, exercise physiology and vasculitis. Division members regularly present research abstracts at all major rheumatology meetings and are leaders in the development of Canadian and North American pediatric multi-centre clinical research cohorts in juvenile arthritis, lupus, vasculitis, and autoinflammatory disease.

The Pediatric Rheumatology Program provides coordinated care for children and youth with rheumatic disease, including Outreach Pediatric Rheumatology Travelling Clinics. We run a diagnostic consultation service, follow-up clinics, consultation and treatment by pediatric rheumatology physiotherapists and occupational therapists, a transition program for youth, a Weekly Procedures Clinic for joint injections, and telephone consultations to pediatricians and family doctors across the province.

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/rheumatology

* The last full accreditation with the Royal College of Physicians and Surgeons of Canada was in 2013.

Dr. David Cabral
Division Head, Clinical Professor

Dr. Kristin Houghton
Program Director, Clinical Associate Professor
FACULTY BY RANK

**Academic Faculty**
- Dr. Ross Petty
  Professor Emeritus
- Dr. Kelly Brown
  Assistant Professor

**Clinical Faculty**
- Dr. David Cabral
  Division Head & Clinical Professor
- Dr. Lori Tucker
  Clinical Associate Professor
- Dr. Kristin Houghton
  Program Director & Clinical Associate Professor
- Dr. Jaime Guzman
  Clinical Associate Professor
- Dr. Kim Morishita
  Clinical Assistant Professor

TRAINING PROGRAM GRADUATES

Dr. Anita Dhanrajani
Clinical Fellow

Dr. Vinay Shivamurthy
Clinical Fellow

**Physical Activity in JIA + childhood Autoinflammatory disease**
- Dr. Lori Tucker
  Clinical Associate Professor

**Inflammation across spectrum of Rheumatic Diseases (basic/translational research)**
- Dr. Kelly Brown
  Assistant Professor

**Exercise + Rehabilitation in Chronic Rheumatic Diseases**
- Dr. Kristin Houghton
  Clinical Associate Professor

**Arthritis, Lupus and Vasculitis**
- Dr. David Cabral
  Clinical Professor

**JIA, Uveitis + Vasculitis (clinical + translational research)**
- Dr. Kim Morishita
  Clinical Assistant Professor

**Clinical Epidemiology and Personalized Medicine**
- Dr. Jaime Guzman
  Clinical Associate Professor

RESEARCH EXPERTISE within the Division
Children and teenagers with complex diseases like lupus and vasculitis often require the care of multiple specialists and members of the allied healthcare team. Optimal care relies on effective communication between patients, families and their multiple medical providers – not always an easy task when so many services are involved. In 2014, the divisions of Rheumatology and Nephrology teamed up to pilot a Combined Clinic to improve the care of these complex patients. The next year, the divisions of Rheumatology and Neurology joined forces to establish a second Combined Clinic. The goal of these clinics is to deliver an integrated and comprehensive approach to the diagnosis and management of children and adolescents with systemic inflammatory conditions that affect the kidney or brain.

**Rheumatology and Nephrology Combined Clinic**

The Combined Rheumatology and Nephrology Clinic now runs as a regular monthly clinic. It is staffed by one pediatric rheumatologist (a rotating roster of Drs. Morishita, Houghton, Tucker, Cabral, Guzman and Human), one pediatric nephrologist (Dr. Mammen), one nurse (Jenny Tekano), one dietician (Nonnie Polderman), one social worker (Danielle Eccles), one physiotherapist (Iris Davidson), and one occupational therapist (Heather Best). Bringing together two subspecialty teams in this collaborative manner has led to positive changes in the way we care for our patients. Decisions and discussions about monitoring and treatment can occur in real time and by the patient bedside, without the need to await results or assessments over multiple care provider visits.

Patients and families appreciate seeing all members of the team at a single clinic visit. They have specifically commented that they prefer the shared approach to care and the ability to discuss their concerns and questions with the team as a whole. From a care provider perspective, the Combined Clinic approach has enabled us to learn from each specialty’s own expertise and collaborate more effectively on, not only clinical matters, but also teaching and research endeavours.

The experience has also stimulated numerous discussions about practice variation and strategies to improve the standardization of care of these complex patients.

Current initiatives include development of a clinical data collection template form and also a comprehensive chart review of the initial evaluation and diagnostic workup of lupus nephritis patients. The clinic has also enabled the establishment of specific research collaborations between the divisions of Rheumatology and Nephrology, and will undoubtedly foster further research initiatives down the road.

**Rheumatology and Neurology Combined Clinic**

The combined Rheumatology and Neurology Clinic runs as a quarterly clinic, as there are fewer patients sharing care with neurology. It is staffed by one pediatric neurologist (Dr. Schrader) and one pediatric rheumatologist (Dr. Cabral). The opportunity for physicians and trainees to learn from different specialty expertise is already evident. The clinic is still very much in a pilot phase and we anticipate positive feedback from patients similar to the Combined Rheumatology & Nephrology Clinic.

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/rheumatology
www.pediatrics.med.ubc.ca/divisions-centres/nephrology
"Patients and families appreciate seeing all members of the team at a single clinic visit. They have specifically commented that they prefer the shared approach to care and the ability to discuss their concerns and questions with the team as a whole."
Towards Individualized Care for Juvenile Arthritis

Dr. Jaime Guzman, Clinical Associate Professor, Division of Rheumatology

Individualization of care has long been a mantra in medical practice and is connected to patient-centred care, yet in recent years personalized medicine has evolved to mean something different. What does individualized care or personalized medicine mean for children with juvenile arthritis and their families?

Dr. Jaime Guzman’s research focuses on using all information available about a child with arthritis to provide the care most likely to attain the best outcomes for his patient at this particular time. This is both an old and a new approach. It is old, in that this is what caring physicians have always tried to accomplish; but it is new in that modern informatics and access to big data and genetic and molecular information allow us to estimate chances of success explicitly and numerically, instead of relying solely on implicit clinical judgement.

This new world of personalized medicine, with an emphasis on genetic and molecular information, is revolutionizing the treatment of patients with cancer and we have high hopes it will also change our understanding of juvenile arthritis and how we tailor therapies to each child. This hope and ambition is shared by the Canadian Institutes of Health Research and sister research funding agencies in the Netherlands, which recently granted eight million dollars to a team — including Dr. Guzman — to advance personalized medicine in childhood arthritis.

We do not need to wait for that research to be completed, though, as we can do a better job of using currently available information now. In a recent paper, Dr. Guzman and colleagues described an algorithm to estimate the chance of a severe arthritis course for children using routine clinical and laboratory assessments at diagnosis. This algorithm was as accurate, or better, than the Framingham risk score currently used to predict development of, and tailor prevention interventions for, cardiovascular disease in adults.

For more information, please visit:
www.bcchr.ca/our-research/researchers/results/details/jaime-guzman

This new world of personalized medicine is revolutionizing the treatment of patients with cancer and we have high hopes it will also change our understanding of juvenile arthritis and how we tailor therapies to each child."
The Division of Translational Therapeutics provides pediatric care at BC Children’s Hospital, where basic science research, clinical research and clinical practice converge. One of our top priorities is to successfully bridge the gap between research and clinical practice in order to smoothly translate innovative/next generation tools, therapies and technologies from the research setting into accepted clinical practice. Our trainees are exposed to both the innovative research at BC Children’s Research Institute (BCCHR) and the strong academic environment of UBC.

We are committed to studying and evaluating drug therapies with the goal of improving human health and quality of life, specifically in the areas of drug effectiveness, drug safety and drug policy. We pursue these goals through Population Therapeutics and Pharmacopeidemiology (medication use and healthcare outcomes), advanced methodologies to discover effectiveness (using randomized control trials, retrospective studies and a combination of qualitative and quantitative methods), and Adverse Drug Reactions (ADRs) and Pharmacogenomics (using state-of-the-art genotyping and sequencing platforms).

The Division of Translational Therapeutics provides consultation services to our colleagues at UBC and Provincial Health Services Authority (PHSA) affiliated institutions. These consultations are primarily complex patient cases addressing drug therapies and/or associated ADRs.

For more information, please visit:
www.pediatrics.med.ubc.ca/divisions-centres/translational-therapeutics

* The last full accreditation with the Royal College of Physicians and Surgeons of Canada was in 2013.
FACULTY BY RANK

**Academic Faculty**

**Dr. Ran Goldman**
Professor

**Dr. Bruce Carleton**
Professor

**Dr. Colin Ross**
Assistant Professor, Pharmaceutical Science

SIGNIFICANT AWARDS

**Dr. Bruce Carleton**
Professor

- *American Society of Human Genetics*
  - Trainee Paper Spotlight
- *BC Children’s Hospital Research Institute*
  - 2016 Award of Excellence: Outstanding Basic Science Research Abstract. Evidence to Innovation (E2i) Research Day & Discovery Talk Events
- *BC Children’s Hospital Research Institute*
  - Outstanding Achievement by a Postdoctoral Fellow

**Dr. Ran Goldman**
Clinical Professor

**Drug Safety + Effectiveness**

**Dr. Bruce Carleton**
Clinical Professor

**Developing Safe + Effective Medications**

**Dr. Colin Ross**
Assistant Professor

**Emergency Therapeutics**

**Dr. Ran Goldman**
Clinical Professor

RESEARCH EXPERTISE within the Division
PROGRAM HIGHLIGHT

The Pharmacogenomics-Driven Personalized Medicine Program in Pediatric Oncology

Dr. Bruce Carleton, Professor and Co-Chair, Division of Translational Therapeutics

Dr. Bruce Carleton is a clinician scientist whose work addresses the significant problem of adverse drug reactions (ADRs) in clinical practice. He studies the genetic determinants predictive of specific ADRs and works to improve both drug safety and drug effectiveness in vulnerable populations.

Dr. Carleton and his team were awarded $3 million of grant funding from Genome British Columbia, with additional funds provided by Provincial Health Services Authority (PHSA) and the Canadian Institutes of Health Research (CIHR), to develop the Personalized Medicine Program (PMP) in pediatric oncology. The PMP provides predictive pharmacogenomic testing for two significant and debilitating ADRs in pediatric oncology: cisplatin-induced ototoxicity (moderate to severe hearing loss, CTCAE Grade 2 or higher) and anthracycline-induced cardiotoxicity (echocardiographic evidence of fractional shortening <26%). Approximately 60% of children experience hearing loss while receiving cisplatin and 40% of children experience cardiotoxicity from anthracyclines.

But not all patients are at the same level of risk. The risk of cisplatin hearing loss, as defined, varies genomically between 25% and 88%, while anthracycline cardiotoxicity varies from 14% to 89%. Given these wide ranges of risk, the inevitable question is: How should we manage these patients differently, given we can now predict these harm-related outcomes?

Testings performed prior to the start of chemotherapy help guide therapeutic decision making by identifying each patient’s individual risk of developing ADRs, but this does not solely justify any change in therapeutics. It becomes part of the data used to define which treatment strategy is most effective and least toxic for each patient.

These pharmacogenomic results have been of high utility to both clinicians and patients’ families in facilitating decision making with respect to cancer treatment. To date, 218 patients have been tested prior to chemotherapy and the pharmacogenomic results have led to changes in therapy, frequency of follow-up audiological and cardiac monitoring, and use of concomitant protective agents where appropriate. One unanticipated finding was that these pharmacogenomic results provided reassurance to oncologists that they can proceed with chemotherapy protocols to treat patients as planned.

“By incorporating pharmacogenomics testing prior to cancer treatment,” says Dr. Carleton, “the trade-off between survivability and the likelihood of developing ADRs can be appropriately considered, as it should be in treatment decisions that are always about trade-offs between benefits and risks.” This will help to improve evidence-based decision making in the treatment of childhood cancers, whereby highly effective drugs can continue to be used for patients with low risk of developing associated ADRs and alternative drugs (possibly with lower survival rates) can be considered for those at high risk for developing severe drug-induced ADRs.

If high risk patients are known in advance, then more patient-centred decisions can be considered, clinical trials can be designed to better understand the impact of treatment changes, and new drugs can be developed to work around toxicities when the toxicity pathways are understood.

As a next step, Drs. Carleton, Colin Ross and Rod Rassekh will be working to implement this innovative technology into pediatric oncology at nine children’s hospitals across Canada. This will allow pediatric oncology patients and their clinicians access to these important pharmacogenomics tests.

For more information, please visit:
www.bcchr.ca/our-research/researchers/results/details/bruce-carleton
"To date 218 patients have been tested [in the personalized medicine program] prior to chemotherapy and the pharmacogenomic results have led to changes in therapy, frequency of follow-up audiological and cardiac monitoring, and use of concomitant protective agents where appropriate."
In June of 1948, the Pediatric Complex Outpatient Department started as an out-patient service on the grounds at Vancouver General Hospital (VGH). The building known as Laurel House was built for UBC in 1914 and ownership later transferred to VGH in 1925 when UBC moved to Point Grey.
FEATURED PROGRAMS IN MEDICAL EDUCATION
The Vancouver International Summer Program in Medicine (VSP)

Dr. Ran Goldman, Professor and Co-Head, Division of Translational Therapeutics and VSP Program Director

Launched in 2014, the Vancouver International Summer Program in Medicine (VSP) provides an opportunity for visiting undergraduate medical students from international universities to experience Canadian health care and life sciences education at its best, as well as learn about Canadian culture firsthand.

The program implements advanced learning tools and techniques, including interactive student participation, small-group workshops, and hands-on exhilarating simulation scenarios. Dr. Ran Goldman developed and continues to lead the rapidly-growing program, including two current courses – Introduction to Clinical Research in the Sciences and Introduction to Clinical Medicine at the Bedside – with a total of over 150 students who learn on the BC Children’s Hospital campus.

The VSP is a unique opportunity for aspiring health professionals to learn with their peers from around the world. Having medical students attend from 15 countries and 30 universities leads to an enriching environment that develops culturally-sensitive physicians and scientists. This international aspect allows UBC and BC Children’s to improve worldwide health care practices through innovative knowledge translation.

The VSP prides itself in its mixed-methodology teaching style, allowing for multifaceted growth in students. Not only do students participate in sessions led by top-notch faculty at UBC, but every concept taught has a practical, hands-on application during group-based workshops. This group learning environment fosters critical thinking, as students create self-developed research projects that are presented at the end of the course. During the clinical course, students actively learn how to do physical examinations, culminating in a high fidelity simulation lab experience.

For more information, please visit:
www.bcchr.ca/our-research/researchers/results/details/ran-d-goldman
Simulation-Based Education (SBE)
Dr. Mary Bennett, Associate Head, Education

Simulation-based education (SBE) has continued to be an important part of our trainee and multidisciplinary education in the Department. The pediatric residency program and some subspecialty programs, such as Pediatric Emergency Medicine and Critical Care, have well-established simulation programs incorporated into their curriculum. In the past year, Pediatric Surgery has developed their simulation program as well.

In addition to simulations in the Simulation Centre, many simulation activities take place in-situ (in clinical patient care areas) throughout the facility. For example, PICU Mock Codes, ward Mock Codes and ER Trauma Codes are well established as team training throughout the hospital. This allows residents to experience and practice a team response in a real environment. These in-situ sessions will be especially important with the move to the new Teck Acute Care Centre (TACC), as trainees get familiar with the hospital and equipment.

We were recently able to make two significant acquisitions to further our SBE, funded by the BC Children’s Hospital Foundation. Trauma Man is a realistic mannequin that allows residents to practice common trauma procedures. It has been utilized for central line training for surgical residents, as well as OR in-situ team training for surgical emergencies. This benefits the entire OR surgical team, as they can identify safety threats and address them in a safe environment. SonoSim Ultrasound simulator increases residents’ ability to have realistic simulation learning and team training, both in the Simulation Centre and in-situ.

SBE creates a learning environment for the physician training program that allows repeated practice of clinical events in a team environment. This means that the low incidence, high stakes events that occur in pediatrics are managed as optimally as possible.

For more information, please visit:
www.bcchildrens.ca/health-professionals/learning-development/simulation-centre
Image: CVA 754 temp #2 – "Nursery" Children's Hospital.
Date unknown.

Pediatric Inpatient Ward.
* In depth reporting available at: www.bcchildrens.ca/our-research
2016 Research Awards

ENDOWED CHAIRS AND PROFESSORSHIPS

Dr. David Cabral, Clinical Professor, Division of Rheumatology
Ross Petty-Arthritis Society Research Chair in Pediatric Rheumatology

Dr. Allison Eddy, Professor and Head, Department of Pediatrics
Hudson Family Hospital Chair in Pediatric Medicine at BC Children’s Hospital
The McCreary Chair in Pediatrics

Dr. Niranján “Tex” Kissoon, Professor, Division of Critical Care
UBC and BC Children’s Hospital Professorship in Acute and Critical Care – Global Child Health

Dr. Tim Oberlander, Professor, Division of Developmental Pediatrics
R. Howard Webster Professorship in Brain Imaging and Early Child Development

Dr. Paul Sorenson, Professor, Department of Pathology & Laboratory Medicine
Asa and Kashmir Johal & Family Chair in Pediatric Oncology

Dr. David Schieflé, Professor, Division of Infectious Diseases
Sauder Family Chair in Pediatric Infectious Diseases

Dr. Stuart Turvey, Associate Professor, Division of Allergy & Immunology
Dr. Aubrey J. Tingle Professorship in Immunological Diseases

Dr. Bruce Vallance, Professor, Division of Gastroenterology
C.H.I.L.D. Foundation Chair in Pediatrics

CANADA RESEARCH CHAIR

Dr. Alexander Rauscher, Assistant Professor, Division of Neurology
Canada Research Chair Tier II (CIHR)

CANADIAN INSTITUTE OF HEALTH RESEARCH NEW INVESTIGATOR AWARDS

Dr. Christopher Maxwell, Associate Professor, Division of Hematology, Oncology & BMT
Dr. Alexander Rauscher, Assistant Professor, Division of Neurology
Dr. Colin Ross, Assistant Professor, Division of Translational Therapeutics
Dr. Harold Siden, Clinical Professor, Division of General Pediatrics

Dr. Ruth Grunau, Professor, Division of Neonatalogy
Dr. Charles Larson, Clinical Professor, Division of Infectious Diseases
Dr. Kirk Schultz, Professor, Division of Hematology, Oncology & BMT
MICHAEL SMITH FOUNDATION FOR HEALTH RESEARCH

Scholar Awards
Dr. Clara van Karnebeek, Affiliate Associate Professor, Division of Biochemical Diseases
Dr. Quynh Doan, Assistant Professor, Division of Emergency Medicine

Career Investigator Program
Dr. Julie Bettinger, Associate Professor, Division of Infectious Diseases
Dr. Laura Sly, Associate Professor, Division of Gastroenterology, Hepatology & Nutrition
Dr. Pascal Lavoie, Associate Professor, Division of Neonatology
Dr. Stuart Turvey, Professor, Division of Allergy & Immunology
Dr. Tobias Kollmann, Professor, Division of Infectious Diseases

Other Significant Awards
Dr. Alexander Rauscher, Assistant Professor, Division of Neurology
Green College Leading Scholars Program Award
Dr. Gregor Reid, Assistant Professor, Division of Hematology, Oncology & BMT
Canadian Cancer Society Research Institute Career Award – Senior Research Scientist

BC CHILDREN'S HOSPITAL RESEARCH INSTITUTE

Clinical Investigator Awards
Dr. Jaime Guzman, Clinical Associate Professor, Division of Rheumatology
Dr. Rod Rassekh, Clinical Assistant Professor, Division of Hematology, Oncology & BMT
Dr. Lori Tucker, Professor, Division of Rheumatology
Dr. Yuk Joseph Ting, Clinical Assistant Professor, Division of Neonatology
Dr. Rebecca Deyell, Clinical Assistant Professor, Division of Hematology, Oncology & BMT

Scientist Awards
Dr. Catherine Pallen, Professor, Division of Hematology, Oncology & BMT
Dr. Laura Sly, Associate Professor, Division of Gastroenterology
Dr. Angela Devlin, Associate Professor, Division of Endocrinology & Diabetes
Dr. Mariana Brussoni, Associate Professor, BC Injury Prevention and Research Unit (BCIPRU)
Dr. Chinten James Lim, Assistant Professor, Division of Hematology, Oncology & BMT
Dr. Rajavel Elango, Assistant Professor, Division of Neonatology
Dr. Christopher Maxwell, Associate Professor, Division of Hematology, Oncology & BMT
Dr. Ruth Grunau, Professor, Division of Neonatology
Dr. Gregor Reid, Assistant Professor, Division of Hematology, Oncology & BMT
† Dr. Sheila Innis, Professor, Division of Neonatology
Dr. Kelly Brown, Assistant Professor, Division of Rheumatology

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Clinician-Scientist Awards
Dr. Manish Sadarangani, Assistant Professor, Division of Infectious Diseases
Dr. Pascal Lavoie, Associate Professor, Division of Neonatology
Dr. Tobias Kollmann, Professor, Division of Infectious Diseases
Dr. Soren Gantt, Associate Professor, Division of Infectious Diseases
Dr. Bruce Carleton, Professor, Division of Translational Therapeutics
Dr. Jean-Paul Collet, Clinical Professor, Research
Dr. Kirk Schultz, Professor, Division of Hematology, Oncology & BMT
Dr. Manish Sadarangani, Assistant Professor, Division of Infectious Diseases
Dr. Kevan Jacobson, Clinical Professor, Division of Gastroenterology, Hepatology & Nutrition

Special Salary Awards
Dr. Ian Pike, Professor, BC Injury Prevention and Research Unit (BCIPRU)
Dr. Jaime Guzman, Clinical Associate Professor, Division of Rheumatology
Dr. Kirk Schultz, Professor, Division of Hematology, Oncology & BMT
Supporting Faculty Involved in Multi-Site Research Across Canada and Beyond

Andrea Rudy, Engagement Associate, MICYRN

MICYRN now links 20 maternal and child health research organizations based at academic health centres in Canada. This was made possible by research leaders who have committed to reducing barriers and improving support for teams of clinical investigators. Affiliated with MICYRN are 20 specialty networks that connect clinician investigators across academic sites.

MICYRN working groups have been formed to address key infrastructure needs, including ethics review, data management and clinical trials. The ethics group involves chairs and managers of the eight self-standing reproductive and child health research ethics boards (REBs), and will review proposals and provide advice to facilitate applications. The data management group, chaired by Dr. Elodie Portales-Casamar of BC Children’s Hospital Research Institute (BCCHR), has implemented the REDCap® (Research Electronic Data Capture, Vanderbilt University) platform across sites, and works to problem solve and develop innovative approaches to handle data. A MICYRN “instance” of REDCap® is available for investigator-initiated clinical trials.

Through its connections within the child health community, MICYRN also provides an excellent connection to key stakeholders during the development of research proposals right through to communicating the results of research. As a member of the Canadian Coalition for Child & Youth Health, MICYRN has awareness of the priorities and initiatives undertaken by many other organizations in Canada. Key partners include the Paediatric Chairs of Canada, the Canadian Association of Paediatric Health Centres and the Canadian Paediatric Society.

Research teams with limited funds and resources can reduce their expenditures by taking advantage of the business, communications and administrative support that MICYRN offers through its collaboration core (housed in the Clinical Support Building at BC Children’s Hospital). In 2016, researchers and networks accessed a number of services, including business model consulting; teleconference and meeting organization support; website development; use of a secure document sharing and collaboration service via the Canadian Network for Public Health Intelligence; design and administering of custom surveys, data collection and scoring systems; access to Kidscan Young Persons’ Research Advisory Group, which provides a youth perspective and input on researchers’ programs and studies; and increased study, result and award exposure through promotion and communication on various platforms.

MICYRN held a rare diseases research planning workshop at BCCHR, participated in the Research Canada Caucus for child health research priorities, formed working groups to improve clinical trials for children, and offered in-kind support for inclusion in project grant applications.

For more information, please visit: www.micyrn.ca
FEATURED PROGRAM IN GLOBAL HEALTH
Stewardship Report on Some Global Child Health Initiatives

Dr. Niranjan “Tex” Kissoon, Professor, BC Children’s Hospital and UBC Global Child Health

Dr. Niranjan “Tex” Kissoon is Vice Chair of the Global Sepsis Alliance, co-chair of World Sepsis Day and the International Pediatric Sepsis Initiative, as well as past president of the World Federation of Pediatric Intensive and Critical Care Societies, of which he is still an active member of its board. He is also a founding and board member of the Canadian Sepsis Foundation; a sepsis expert for the Consortium for Maternal and Newborn Sepsis (a World Health Organization Committee); chair of the National Pediatric Sepsis Guidelines Collaborative; and co-chair of the Pediatric Sepsis Campaign.

National and International Research

Dr. Kissoon has been involved in the Interruption of Maternal and Child Sepsis in Bangladesh study, an almost three million dollar initiative funded by the Canadian International Development Agency (CIDA), which ended in 2016. As a result of generous funding through BC Children’s Hospital Research Institute (BCCHR), in Uganda, Dr. Kissoon and his team were able to look at post-discharge mortality and admission for sepsis in children’s hospitals, increasing post-discharge return visits to 100% and decreasing mortality rates by 30% in the hospitals where the study took place. Other projects include the Data Safety Monitoring Board (DSMB) for Lao Zinc Study (in the Nongbok Health District, Khammouane Province, rural Lao PDR) and the Post Discharge Interventions program (implementing interventions to decrease mortality post discharge in Uganda). Nationally, Healthy Starts Canada and BCCHR has committed $30,000 over three years (March 2016–18) to study critical illness in children in Northern communities.

Ongoing Initiatives

Dr. Kissoon has provided expertise as a scientific advisor on the WHO Research for Influenza Community, has been selected to be on the organizing committee for the World Congress of Intensive Care (Vancouver, 2020), and works with committees in the area of critical and intensive care with the following organizations: North American Cooperative for Emergency Preparedness, Canadian Critical Care Society (CCCS), European Society of Intensive Care Medicine (ESICM), and the National
Institute of Child Health and Human Development (NICHD). He is also a member of the Traumatic Brain Injury (TBI) Pediatric Guidelines Committee and the Traumatic Brain Injury (TBI) Adult Guidelines Committee.

**Education**

Dr. Kissoon is a leader in promoting educational programs worldwide. He leads the International Pediatric Association (IPA) Project, Improving Care in District Hospitals (in low and middle income countries); organized two Global Health Workshops in Vancouver and Toronto; and met with Israeli and Palestinian physicians for a joint Pediatrics BASIC Course (a two-day pediatric intensive care course he developed). Dr. Kissoon is also on the advisory board of OPENPediatrics, a free platform for individuals taking care of critically ill children worldwide (currently working with Boston Children’s Hospital and Harvard Medical School); the UBC Master of Health Administration (MHA) Committee; the PECC – Kenya Advisory Committee as a content expert advisor; is helping to modify the Emergency Triage Assessment and Treatment (ETAT) course initiated in Malawi by the International Pediatric Simulation Society; and serves as an external examiner for the University of the West Indies’ MBBS exam.

**Accolades**

Dr. Kissoon continues to be recognized for his outstanding contributions to the field. He has been selected as the only pediatrician on the Department of Defense’s Austere Environment Consortium for Enhanced Sepsis Outcomes (ACESO) and the Executive Committee of the Emergency Mass Critical Care Task Force (convened by the American College of Chest Physicians), and was the recipient of the 2016 Distinguished Achievement Awards UBC Faculty of Medicine Award for Overall Excellence – Senior Faculty.

He has also been invited as a keynote speaker at many national and international events where the worldwide plight and vulnerability of critically ill children has been brought to the forefront. He continues to contribute to peer reviewed publications, book chapters and is a member of numerous journal editorial boards.

Dr. Kissoon is fully committed to improving the health care of children nationally and internationally: he assists colleagues worldwide in quality and safety projects, as well as enables them to access resources they would not otherwise have.

*For more information, please visit:*

www.bcchr.ca/our-research/researchers/results/details/niranjan-kissoon

"In Uganda, Dr. Kissoon and his team have looked at post-discharge mortality and admission for sepsis in children's hospitals, increasing post-discharge return visits to 100% and decreasing mortality rates by 30."
The Pediatric Complex Outpatient Department was later renamed The Health Center for Children and housed within a wing of VGH.

In 1964, Children’s Hospital and the Health Centre for Children agree to develop a joint facility aided by the efforts of the New Children’s Hospital Society and the medical community. In 1977, a new building is erected at 28th Avenue and Oak Street. The building is fondly referred to as the 1982 building.
FEATURED PROGRAMS IN PEDIATRIC HEALTH CARE RESEARCH
CAUSES Research Clinic

Dr. Alison M. Elliott, Project Lead, CAUSES; Clinical Associate Professor, Department of Medical Genetics

CAUSES (Clinical Assessment of the Utility of Sequencing and Evaluation as a Service) is a translational research program at BC Children’s Hospital and BC Women’s Hospital + Health Centre. We collect the evidence needed to assess the value of diagnostic genome-wide sequencing, as standard of care for patients with suspected genetic diseases in British Columbia.

**CAUSES Research Clinic**

The CAUSES Research Clinic, a three-year initiative to perform diagnostic sequencing on 500 pediatric patients with suspected genetic disorders, provides patient evaluation, genetic counselling, genome-wide sequencing, clinical interpretation of the genomic data, and follow up physician consultation. Patients who live in remote areas and have been recently evaluated by a clinical geneticist are offered the option of participating by telehealth. Genomic and clinical data from trios (child, plus both biological parents) are analyzed using sophisticated bioinformatics tools and clinical correlation to identify conditions caused by known disease-causing genes. Genetic counselling, health services and health economics research are being performed to assess the clinical utility and cost effectiveness of genome-wide sequencing as a clinical service within our healthcare system.

Physician education and awareness regarding the CAUSES Research Clinic has resulted in referrals from diverse pediatric subspecialties, as well as from Medical Genetics. These have included: Neurology, Biochemical Diseases, Hematology, Oncology & BMT, Complex Clinic, Rheumatology, Nephrology, Psychiatry, Cardiology, Endocrinology, Neonatology, Intensive Care and General Pediatrics.

Since June 2015, more than 400 families have been seen and over 250 have been sequenced. From the first 200 families sequenced, a diagnosis was established in 45.5% of participants. This diagnostic rate is higher than that reported in large clinical series from other centres and commercial laboratories.

**The Genomic Consultation Service**

The establishment of the CAUSES Research Clinic necessitated the development of a clinical Genomic Consultation Service at BC Children’s and BC Women’s that provides expert advice to physicians considering genome-wide sequencing for their patients. Inclusion and exclusion criteria for diagnostic genome-wide sequencing were established, and education sessions
for referring physicians were conducted prior to launch of the Genomic Consultation Service and the CAUSES Clinic. A team comprised of clinical geneticists, a pediatric subspecialist, a molecular geneticist and genetic counsellors reviews genomic consultation referrals and provides advice regarding appropriate genetic testing. This is provided in a letter to the referring physician that becomes part of the patients’ health record.

Since May 2015, 877 consultations have been reviewed, with 72% being appropriate for genome-wide sequencing. This triage service has contributed to improving the diagnostic effectiveness and appropriate use of genome-wide sequencing in patients suspected of having rare genetic diseases.

Genetic Counselling
Genetic counsellors are masters-trained allied health professionals. There are genetic counselling issues especially important to families considering genome-wide sequencing that are addressed during the CAUSES Clinic appointment and informed consent process.

For more information, please visit:
www.causes.clinic

These include benefits and limitations of genome-wide sequencing, types of results (definite, probably causal, uncertain and negative), options for incidental findings (findings unrelated to the primary diagnosis), potential for genetic discrimination (e.g. life insurance), implications of findings for other family members, privacy, and storage of genomic data. In CAUSES, all patients receive both pre- and post-test genetic counselling, regardless of whether a causal variant is identified.

Our Team
The CAUSES team includes Dr. Jan Friedman (principal investigator), Shelin Adam, Dr. Nick Dragojlovic, Christele du Souich, Dr. Alison Elliott, Dr. Anna Lehman, Dr. Larry Lynd, Dr. Jill Mwenifumbo, Dr. Tanya Nelson, Dr. Clara van Karnebeek and Kris Roberts. The CAUSES Research Clinic is made possible by a $3 million grant from Mining for Miracles through BC Children’s Hospital Foundation. Additional funding is provided by Genome BC, the Provincial Health Services Authority, the Provincial Medical Genetics Program and the University of British Columbia.

"Since 2015, more than 400 families have been seen and over 250 have been sequenced. From the first 200 families sequenced, a diagnosis was established in 45.5% of participants, a higher rate than that reported in large clinical series from other centres and commercial laboratories."
Long-Term Effects of Neonatal Pain in Children Born Very Preterm

Dr. Ruth Eckstein Grunau, Professor, Division of Neonatology

Dr. Ruth Grunau, a psychologist in the Division of Neonatology and a scientist in the Brain, Behaviour & Development cluster at BC Children’s Hospital Research Institute (BCCHR), is a researcher in developmental neurosciences. Her multidisciplinary program aims to understand why there is a wide range of neurodevelopmental outcomes in children born very preterm (≤32 weeks gestation). Dr. Grunau’s work focuses on how pain and stress during procedures in the neonatal intensive care unit (NICU) relates to their outcomes, above and beyond clinical risk factors related to prematurity. Her groundbreaking research has found that early pain exposure in these fragile babies is associated with altered brain development and stress programming from infancy to school age, thereby contributing to their problems in attention, cognition, self-regulation and behaviour.

Dr. Grunau’s early research produced the first tool to quantify infant pain (Neonatal Facial Coding System [NFCS], 1987). This contributed to establishing that newborns do perceive pain, as well as validating the importance of pain behaviours in the assessment of infant pain. Her research over the past 20 years has shown that pain in premature babies has long-lasting adverse effects. In recognizing that pain management is critical for infants, her research has influenced healthcare policies and prompted changes. Her work has also shown that sensitive parenting after NICU discharge can help ameliorate effects of early pain and stress.

Some children born very preterm do well, whereas others show long-term neurodevelopmental problems, despite similar exposure to early pain and stress. Dr. Grunau’s research is focused on figuring out how and why this happens. Her recent research includes studies examining the role of biomarkers of neuroendocrine stress regulation (cortisol), brain development using advanced quantitative brain imaging in the neonatal period and at school age, as well as molecular factors (genes, epigenetic markers and cytokines). In a multi-site study in collaboration with Dr. Steven Miller between BC Women’s Hospital + Health Centre, SickKids and Mount Sinai Hospital, she is currently studying the role of analgesia and sedation in preventing long-term effects of neonatal pain on brain and neurodevelopment. She hopes this work will lead us to identify new opportunities for intervention to promote healthy development for all children.

For more information, please visit:
www.bcchr.ca/our-research/researchers/results/details/ruth-eckstein-grunau

Dr. Grunau’s early research produced the first tool to quantify infant pain. This contributed to establishing that newborns do perceive pain, as well as validating the importance of pain behaviours in the assessment of infant pain.
Better Responses through the Avatomics Evidence (BRAvE) Initiative
Dr. Gregor Reid, Investigator, Michael Cuccione Childhood Cancer Research Program

The advent of next-generation sequencing has ushered in an era of unprecedented patient-specific data collection. This has enabled the development of highly-personalized treatments, with the potential to significantly improve outcomes. No clinical arena stands to benefit more from such an approach than the oncology clinic, where the identification of specific genetic changes in a cancer can indicate unpredicted drug sensitivity. However, while notable successes have been achieved, considerable hurdles must be overcome to optimize the benefit of this approach for the majority of cancer patients.

In an effort to address the limitations of current personalized therapy development for children with high-risk cancers, researchers in the Michael Cuccione Childhood Cancer Research Program, directed by Dr. Kirk Schultz, have launched the Better Responses through Avatomics Evidence (BRAvE) Initiative at BC Children’s Hospital. This study will more deeply annotate patients’ tumours with genomic and proteomic data, and evaluate drug responses in vitro and in vivo (in mouse avatars). Funded by the Michael Cuccione Foundation, BRAvE will leverage the broad expertise of the research program laboratories to identify the underlying biology and sensitivity to targeted therapy of high-risk cancers arising in children in British Columbia.

To initiate the study of a child’s cancer, the genomics pillar of BRAvE, led by Dr. Christopher Maxwell, will identify changes in the cancer cell DNA. By using a targeted sequencing platform, BRAvE will reduce the turnaround time for analysis, enabling fast-growing cancers – such as hematologic malignancies – to be evaluated, and will identify changes that are actionable (i.e. a specific drug is available to target that change). This approach will increase both the number of children who could benefit and the likelihood of these patients receiving the novel treatment.

A major shortcoming in personalized therapy trials has been the failure of cancer patients to respond to the drug suggested by sequencing results. Using both in vitro extended cell cultures (led by Dr. James Lim) and patient-derived mouse avatars (led by Dr. Gregor Reid), BRAvE aims to improve drug response rates by directly evaluating the sensitivity of patient cancer cells to drugs suggested by the genomic screen. In addition, to shed light on the reasons for drug response failures, Dr. Philipp Lange will evaluate whether the genomic alterations identified cause changes that can be detected at the protein level. He will also develop a proteomics platform to complement the targeted sequencing. This combined approach to identifying the defects in cancer cells and testing drugs pre-clinically will greatly strengthen the evidence-based drug selection process and increase the number of treatment successes.

Initiated in November 2016, the various pillars of BRAvE must be fully developed and tested before the platform can be applied to clinical care. Even at this early stage, however, the study is providing the information and biological samples necessary for the in-depth investigation of tumour biology that is urgently required for all children with cancer, especially those with refractory disease for which no actionable or responsive targets are identified.

For more information, please visit:
www.childhoodcancerresearch.org/michael-cuccione-childhood-cancer-research-program

"BRAvE will reduce the turnaround time for analysis, enabling fast-growing cancers to be evaluated, and will identify changes that are actionable."
BC Injury Research and Prevention Unit (BCIRPU)

Dr. Ian Pike, Professor and Director, BC Injury Research and Prevention Unit
Dr. Shelina Babul, Clinical Associate Professor, Associate Director, BC Injury Research and Prevention Unit

The BC Injury Research and Prevention Unit (BCIRPU) is a leader in the production and transfer of injury prevention knowledge, supporting the integration of prevention practices into the daily lives of British Columbians. In partnership with health authorities and other stakeholders, BCIRPU develops evidence-based prevention strategies with the aim of reducing the societal and economic burden of injury in BC.

BCIRPU resources include a casebook for health authorities and other stakeholders (British Columbia Casebook for Injury Prevention), an interactive tool with data on the burden and causes of injury among children and youth (Canadian Atlas of Child and Youth Injury Prevention), up-to-date injury surveillance data and information (iDOT©), and the Concussion Awareness Training Tool (CATT), a resource aimed at standardizing concussion recognition, diagnosis, treatment and management.

For more information, please visit:
www.injuryresearch.bc.ca
www.injuryevidence.ca
www.cattonline.com

In 2016, 25,000 parents and coaches completed the Concussion Awareness Training Tool (CATT), developed by Dr. Shelina Babul, Clinical Associate Professor and Associate Director of the BC Injury Research and Prevention Unit."
Highlights for the 2016/17 fiscal year:

• BCIIRPU continued our strategic partnership with The Community Against Preventable Injuries (www.preventable.ca) to deliver a social marketing program that impacted parents’ and caregivers’ attitudes and behaviours. It was associated with a significant 27% reduction in child injury deaths in BC.

• BCIIRPU developed a province-wide report on the burden of concussion hospitalizations among children and youth in BC, targeted to healthcare providers and community stakeholders. It is to be used to facilitate discussion around the need for standardized concussion prevention, diagnosis, and management specific to children and youth. An online visualization of concussion in BC is available at: www.injuryresearch.bc.ca/concussion-hospitalization-data.

• The unit received three-year funding from Transport Canada to better understand attitudes about boating safety in BC. The team will investigate the awareness, attitudes, and behaviours of recreational boaters in BC related to boating safety. A social marketing campaign will be developed and implemented to address the burden of boating-related injury.

• BCIIRPU was the successful recipient of funding from the BC Alliance for Healthy Living to develop an Active & Safe sport and recreation injury prevention online platform, with the goal of providing the latest evidence on how best to prevent injury while being physically active.

• Dr. Mariana Brussoni and her lab launched www.outsideplay.ca, an online tool to help parents of young children learn the importance of outdoor risky play and develop strategies for letting their children engage in healthy outdoor play.
The Vaccine Evaluation Centre (VEC)

The Vaccine Evaluation Centre (VEC) helps to ensure that vaccines in British Columbia and Canada are safe and effective by improving our understanding of them through research. We survey hospital admissions for vaccine preventable diseases, study and monitor the safety and effectiveness of vaccines, and partner with government agencies to monitor the impact of new immunization programs on disease elimination.

The VEC has assembled a team of vaccine experts with extensive experience in local and provincial public health, pediatrics, infectious diseases, immunology, laboratory research, data management and study design. Research projects have spanned basic vaccine science, pre-licensure clinical trials, epidemiology research, post-marketing evaluation, including optimizing immunization schedules, social science, promotional and programmatic research, as well as laboratory-based assay development. Virtually every new vaccine for children since 1988 has been studied at the VEC, with results contributing to licensure for public use or establishment/refinement of public programs.

For more information, please visit:
www.vaccineevaluationcenter.ca
The Vaccine Evaluation Centre (VEC) Highlights

We are pleased to highlight various new and ongoing projects this year:

• In June the VEC started its first Phase I (first in humans) clinical trial looking at the safety and effectiveness of a cytomegalovirus (CMV) vaccine. CMV is a common virus that can infect anyone, but only causes serious disease in people with weakened immune systems, pregnant women, and babies. The most significant concern is in newborns infected with CMV as they can develop permanent disabilities such as deafness and developmental problems.

• Although the majority of Canadians have their children immunized, there is growing concern about vaccine hesitancy among parents. This is the concept that parents refuse some, most or all childhood vaccines despite being publically funded and accessible. In 2016, we initiated several studies looking at understanding the reasons for hesitancy, led by Dr. Julie Bettinger. This new research underscores that health care providers can play a role in helping reduce vaccine hesitancy by listening to parent’s concerns. Learning why parents are hesitant about vaccines will help us to better understand which interventions are most effective in achieving high vaccine coverage.

• The VEC rang in its 6th year leading the Canadian National Vaccine Safety (CANVAS) network flu vaccine survey. The study monitors adverse events (side-effects) after the flu shot using an online survey and includes more than 20,000 people who receive their flu vaccine.

• Joining forces with BC Children’s Hospital again this year, the VEC helped provide easy access to influenza vaccines for children and families attending hospital clinics at the Family Flu Vaccination Clinic. In this fourth year of operating, nearly 2000 individuals were immunized against the flu. In 1995, Dr. Scheifele wrote a paper proposing that facilities such as BC Children’s Hospital should have on-site clinics where sick kids could catch up on their vaccinations. That vision is finally becoming a reality. In 2017, BC Children’s Hospital will open the doors to Canada’s first onsite immunization clinic. The new immunization clinic has been made possible by a generous multi-million dollar donation from Save-On Foods.

• The VEC hosts the data center for the IMPACT network - 12 children’s hospitals across Canada, including BC Children’s hospital, which performs active surveillance for vaccine preventable infections and vaccine adverse effects. A highlight for network investigators was tracking the near disappearance of serious infections caused by Haemophilus influenzae type b (Hib). Once the cause of 2/3 of all cases of meningitis, Hib disease has been effectively prevented by routine vaccination. Ongoing surveillance has shown that type a strains of this germ (Hia) are causing equally severe disease among First Nations infants. IMPACT’s experience with over 100 cases since 2007 is the largest to date and is helping to shape development of a new vaccine against Hia at the National Research Council in Ottawa.

• This December marks the 4th year that VEC has been leading a project called QUEST HPV study to monitor girls who have had HPV vaccine. With over 4,700 young girls enrolled, it is extremely inspiring to see youth in Canada making a difference in women’s health here and around the world.

For more information, please visit:
www.questhpvstudy.ca
www.facebook.com/vec.ubc
twitter.com/vec_ubc

“The QUEST HPV study monitors girls who have had the HPV vaccine. With over 5,800 young girls enrolled, it is extremely inspiring to see youth in Canada making a difference in women’s health here and around the world.”

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Image: Dr. Jim Jan from the Division of Neurology at the hospital’s Vision Clinic with a nurse and patient. Circa 1970.
FEATURED PROGRAMS IN CLINICAL CARE
Tiers of Service Framework for Children’s Emergency Care

Dr. Garth Meckler, Associate Professor and Head, Division of Emergency Medicine
Dr. Maureen O'Donnell, Associate Professor, Division of Developmental Pediatrics, Executive Director, Child Health BC
Yasmin Tuff, Project Lead Emergency Department Tiers of Service, Child Health BC

Across our province, approximately one million children may access emergency health services from 109 health centres or hospitals. This relatively low volume of pediatric services and British Columbia’s vast geography provide added challenges in matching need and capacity, optimizing flow to improve access and focusing on quality for children, families and communities.

To facilitate system planning of emergency services for children, Child Health BC (funded by the BC Children’s Hospital Foundation), in conjunction with health authority partners and the BC Children’s Hospital Emergency Department, developed a Tiers of Service framework for children’s emergency care. The Tiers of Service approach provides a common language and methodology for defining and planning health services. A self-assessment was completed based on the Tiers of Service module by all 109 emergency departments in the province and the results identified both strengths and opportunities for improvement in children’s emergency care.

Provincial Pediatric Sepsis Initiative

One of the provincial initiatives that has resulted from this work is the need to better support emergency departments across the province with easy access to the latest evidence, best practices and user-friendly resources in pediatric emergency care. Pediatric sepsis is one of the first clinical areas we are tackling.

A working group of clinical experts, including leaders from BC Children’s Emergency and Pediatric Intensive Care programs, as well as other provincial experts, came together over the past year to develop a standardized provincial approach to the screening and initial management of pediatric sepsis in the emergency/urgent care settings. This was based on the best evidence and provincial consensus. Building on work developed by Translating Emergency Knowledge for Kids (TREKK), we have now drafted point of care resources for sepsis management including guidelines, a screening tool, care management algorithms and other support tools.

Next steps will include developing a comprehensive implementation and education strategy to support all emergency departments in BC. Included in this work will be an evaluation to determine uptake of resource usage, as well as outcomes on the care of pediatric sepsis.

For more information, please visit: www.childhealthbc.ca/tiers-service
"The Tiers of Service approach provides a common language and methodology for defining and planning health services."
Pediatric Palliative Medicine at Canuck Place

Dr. Siden Hal, Clinical Professor, Division of General Pediatrics; Medical Director, Canuck Place Children's Hospice

Pediatric Palliative Medicine provides care to children who live with life-threatening conditions, and their families. These young people have medical conditions that cause a high likelihood of death before adulthood. This definition encompasses both children whose death is anticipated to occur very soon, and those whose conditions are terminal, but not immediately. Therefore, the palliative medicine clinicians care for children with both chronic – and often complex – conditions, and those at end-of-life. We currently follow approximately 360 children in our program and the numbers increase each year. Of those 360 children, 80–90 will die in any given year.

The Pediatric Palliative Medicine physicians are jointly appointed to BC Children’s Hospital and Canuck Place Children’s Hospice, and are often identified as ‘the Canuck Place team.’ We have four staff physicians: Drs. Amy Mabie, Esther Lee, Peter Louie, and Hal Siden. Our group works closely with many other team members based at Canuck Place, including a nurse practitioner, advanced practice nurses and a counselling team.

We are committed to education and provide teaching and training at all levels, from undergraduate through fellowship. Both fourth-year residents and subspecialty residents rotate through our service each month and we currently have fellow Lanna Olson working with us. In 2016, the Royal College approved a subspecialty in Palliative Medicine and we are applying for a fellowship program through UBC. We also have an active research program that is interdisciplinary, and are involved in numerous policy and planning projects in the province.

For more information, please visit:
www.canuckplace.org
"We are committed to education and provide teaching and training at all levels, from undergraduate through fellowship."
Image: Dr. John Gilbert at the Audiology and Speech clinic conducting a speech perception task in the Phonetics Laboratory. Circa 1970.
FEATURED FACULTY PROGRAMS
The Pediatric Seniors Group

Dr. David F. Smith, Associate Professor, Seniors Group Organizer

Pediatricians from around the province, who have reached their 60-year milestone, are invited to attend a twice-yearly social luncheon organized through the Department. Invitees also include members from other clinical services at BC Children’s Hospital who have had close professional and/or personal relationships with pediatric staff. This event was initiated close to 20 years ago by two past chairpersons, Drs. Rob Hill and Judy Hall. While the luncheon location has long been the Royal Vancouver Yacht Club but has recently moved to the Arbutus Club in Vancouver.

The luncheon offers a social venue and provides a forum for discussion on various topics. It is an opportunity to update those who have left the hospital work environment. A number of those attending, including Drs. Judy Hall, Michael Whitfield and Steve Tredwell, remain active with UBC Emeritus activities and provide a regular update to the group. They encourage all to join and partake of the opportunities offered. The presence of the pediatric department head, Dr. Allison Eddy, is always appreciated, as she outlines Departmental activities and shares her perceptions of plans at the hospital.

There are roughly 80 individuals on the luncheon invitation list, and usually around 30 are able to attend. Many retired staff travel in the spring or fall, which impacts attendance numbers, and those still working at the hospital have trouble getting away in order to attend. On a positive note, following the luncheon email invite, many who are unable to attend send updates about themselves, which are passed on to those attending.

There have been many studies published regarding the health outlook for retirees, and a common theme seems to be the importance of individuals keeping a sense of personal “value.” Based on the many conversations we hear at our luncheons, this does not seem to be a significant problem for members of our group. For retirement wellbeing, it is also reportedly important to maintain a social network with friends and family, and such luncheons, while not set up as a therapeutic exercise, do seem to serve such a function.

While on the topic of seniors activities, another Vancouver seniors organization is the Probus Club, which many medical colleagues belong to. This is a nationally-based organization with a local Vancouver Chapter and is designed for retired businesspeople and professionals. The club meets monthly, with high profile guest speakers at each meeting, and has outreach activities, an associated Book Club and an Investment Club. There are presently 800 members who meet at the H.R. MacMillan Space Centre the second Tuesday of each month. Admission is by invitation, along with two endorsing sponsors, and there is a wait list that takes a few months to climb. The Probus Club provides an intellectual and social resource for senior professional staff – they are always looking for interesting and stimulating activities to do.
"The luncheon offers a social venue and provides a forum for discussion on various topics. It is an opportunity to update those who have left the hospital work environment."
Image: Dr. Josef Skala at the Centre for Developmental Medicine using a Millipore ultrafiltration manifold to assay the cyclic GMP content in tissue extracts. Circa 1976.
IN MEMORIAM
In Memoriam

Dr. Sheila Innis (1953–2016)

We are deeply saddened by the news of Dr. Sheila Innis’ death on February 10, 2016. Originally from the UK, Dr. Innis was a highly respected Professor in the UBC Department of Pediatrics and Director of the Nutrition & Metabolism Research Program at BC Children’s Hospital Research Institute (BCCHR).

Dr. Innis was a tireless proponent of the nutritional needs of babies, children, expectant mothers and special populations, including low-weight infants and children with congenital diseases. She was at the forefront of informing national and international policy on nutrition and her research was internationally renowned.

As head of the Nutrition & Metabolism Research Program, Dr. Innis’ academic work was dedicated to pioneering research aimed at solving real problems in how dietary components alone, and in combination with genetic background or disease, affect children in reaching their full potential for physical and cognitive development, as well as their susceptibility to chronic disease throughout the lifespan.

Dr. Innis’ many research accomplishments were considered a cornerstone of important new knowledge, spearheading novel avenues for understanding the link between diet and health. She had a long track record of contributions to national and international research networks, ultimately improving dietary recommendations and practices, and clinical nutrition products. She established advanced metabolic profiling technologies at BC Children’s Hospital and conducted groundbreaking work on the effects of dietary fatty acids during pregnancy and infancy. She trained many researchers who today hold positions around the world. In 2015, Dr. Innis was awarded the Geoffrey C. Robinson Award from the Canadian Paediatric Society in recognition of her outstanding contributions to child and youth health research.

Over the span of Dr. Innis’ illustrious career, her insights, knowledge development and research have improved our understanding of the way nutrition and the health of neonates are linked, and will continue to do so for generations to come.

In 2015, Dr. Innis was awarded the Geoffrey C. Robinson Award from the Canadian Paediatric Society in recognition of her outstanding contributions to child and youth health research."
Image: Dr. David Lirenman, Division Head, Nephrology, with a nurse receiving a donation of state-of-the-art dialysis equipment to BC Children’s. Circa 1970.
SELECTED PUBLICATIONS
Division of Adolescent Health and Medicine


Chapters


Division of Allergy & Immunology


Division of Allergy & Immunology continued


BC Injury Research and Prevention Unit


BC Injury Research and Prevention Unit
continued


Division of Biochemical Diseases


Chapters


Division of Critical Care


Division of Critical Care continued


Chapters


Division of Dermatology

Chapters


Division of Developmental Pediatrics


Division of Developmental Pediatrics continued


Chapters


Division of Emergency Medicine


Chapters


Division of Endocrinology & Diabetes


Chapters


Division of Gastroenterology, Hepatology & Nutrition


Chapters


Division of General Pediatrics


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Division of General Pediatrics continued


Chapters


Division of Hematology, Oncology & BMT


Chapters

Division of Infectious Diseases


Division of Neonatology continued


Chapters


Division of Nephrology


Chapters


Division of Neurology


Division of Neurology continued


Division of Neurology continued


Chapters


Division of Respiratory Medicine


Wu, X. J., Hildebrand, K. J., & Yang, C. L. Phenotype and Medication Use of Preschool Children Seen in a Tertiary Care Asthma Program B51. PEDIATRIC ASTHMA: EVALUATION AND TREATMENT (pp. A3822-A3822).

Chapters


Division of Rheumatology


Chan, M. O., Petty, R. E., Guzman, J., & Re, A.-O. I. (2016). A Family History of Psoriasis in a First-degree Relative in Children with JIA: to Include or
Division of Rheumatology continued


Chapters


Division of Translational Therapeutics


Division of Translational Therapeutics continued


Canadian LEED

Gold Standards
Move in date Fall 2017!

BC Children’s and BC Women’s Redevelopment Project is building a new Teck Acute Care Centre (Teck ACC) at the Oak Street campus of the BC Children’s Hospital and BC Women’s Hospital + Health Centre.
“There are so many wonderful people and amazing things that happen every day within our pediatric medicine community on the Oak Street and Point Grey campuses and across many provincial sites. For the 2016 report, the focus is on new people and noteworthy accomplishments since 2015, in addition to highlighting some of our pediatric clinical, educational and research programs... We have so much to be proud of and thankful for. It is truly a privilege to have served as the head/chief of Pediatrics/Pediatric Medicine since 2012!”

– Dr. Allison A. Eddy, MD, FRCP(C)
Professor and Head,
UBC Department of Pediatrics,
BC Children’s Hospital