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To our Patients and their Families:

A heartfelt thank you!

We really appreciate you sharing your time with us to be photographed for our publication.

Your smiles have brought special meaning to the work that we do.

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Dr. Dianna Louie               Joanne Waxman                            Mary Paone

Michelle Man
Project Management
Art Direction
Photography

Amy Du
Project Assistant
Principal Photography

Lauren Jackie
Project Assistant

Front cover: Kaden Gustafson (patient) and Dr. Alanna Chomyn (top panel).
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Inside front cover: Marcus Ang, Dr. Robert Humphreys, and Daniel Ang (patient).
Inside back cover: Dr. Horatio Osiovich, Amber and Clara (patient) Paquin.

For more information regarding this report, please contact pedcomm@cw.bc.ca
Electronic versions of this report will be available at: http://pediatrics.med.ubc.ca

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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.

Vision
To be a world-leading Pediatric Academic Health Science Department: Fostering Discovery, Advancing Knowledge and Transforming Pediatric Health.

Our Values
Leadership  Quality
Integrity  Teamwork
Accountability  Collaboration
Excellence  Discovery
Compassion  Innovation
TABLE OF CONTENTS

12 | MESSAGE FROM THE CHAIR

14 | THE LEADER’S CORNER

16 | A BRIEF HISTORY OF THE DEPARTMENT OF PEDIATRICS

19 | VISION 2020

20 | SIGNIFICANT FACULTY AWARDS

22 | DIVISIONAL LEADERSHIP & ORGANIZATIONAL CHART

25 | MEDICAL EDUCATION

26 | Education Program Leadership

27 | Program Overview

28 | Undergraduate Program

29 | Postgraduate Pediatric Residency Training Program

29 | i. Island Medical Program (IMP)

29 | ii. Pediatric Residency Training Program Updates for 2013-15

31 | Program Highlight: The Global Health Elective Program, Dr. Jennifer Smitten

33 | iii. The Subspecialty Fellowship Program

34 | iv. Distributed Medical Education

36 | v. Significant Resident Awards

38 | FACULTY PROMOTIONS FROM 2013-15

40 | THE STRATEGY & INNOVATION OFFICE (SIO)

40 | Project Highlight: myCarePath, John Jacob

42 | FINANCIALS

44 | WE’RE MOVING IN 2017
# TABLE OF CONTENTS

## 47 | DIVISIONAL REPORTS

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>Adolescent Health and Medicine</td>
</tr>
<tr>
<td>51</td>
<td>Program Highlight: <em>Mindfulness for Teens</em>, Dr. Dzung Vo</td>
</tr>
<tr>
<td>52</td>
<td>Allergy &amp; Immunology</td>
</tr>
<tr>
<td>55</td>
<td>Biochemical Diseases</td>
</tr>
<tr>
<td>57</td>
<td><em>The Treatable Intellectual Disability Endeavour (TIDE)</em>, Dr. Sylvia Stöckler-Ipsiroglu and Dr. Klara van Karnebeek</td>
</tr>
<tr>
<td>58</td>
<td>Cardiology</td>
</tr>
<tr>
<td>61</td>
<td>Program Highlight: <em>Children’s Heart Centre</em>, Dr. Kevin Harris</td>
</tr>
<tr>
<td>63</td>
<td>Critical Care</td>
</tr>
<tr>
<td>66</td>
<td>Program Highlight: <em>Home Tracheostomy and Ventilation Program</em>, Dr. David Wensley &amp; Lynn Coolen</td>
</tr>
<tr>
<td>67</td>
<td>Dermatology</td>
</tr>
<tr>
<td>69</td>
<td>Developmental Pediatrics</td>
</tr>
<tr>
<td>73</td>
<td>Program Highlight: <em>The Division of Developmental Pediatrics and Sunny Hill Health Centre for Children</em>, Dr. Nancy Lanphear</td>
</tr>
<tr>
<td>74</td>
<td>Emergency Medicine</td>
</tr>
<tr>
<td>77</td>
<td>Program Highlight: <em>HEARTSMAP</em>, Dr. Quyn Doan</td>
</tr>
<tr>
<td>79</td>
<td>Program Highlight: <em>Implementation of the Clinical Decision Unit (CDU)</em>, Christy Hay</td>
</tr>
<tr>
<td>80</td>
<td>Endocrinology &amp; Diabetes</td>
</tr>
<tr>
<td>83</td>
<td>Program Highlight: <em>Multidisciplinary Gender Clinic</em>, Dr. Daniel Metzger</td>
</tr>
<tr>
<td>85</td>
<td>Gastroenterology, Hepatology &amp; Nutrition</td>
</tr>
<tr>
<td>89</td>
<td>Program Highlight: <em>FibroScan</em>, Dr. Orlee Guttman &amp; Dr. Rick Schreiber</td>
</tr>
<tr>
<td>90</td>
<td>Program Highlight: <em>Biliary Atresia</em>, Dr. Rick Schreiber</td>
</tr>
<tr>
<td>91</td>
<td>Program Highlight: <em>Intensive Tube Transition Program</em>, Astrid St. Pierre</td>
</tr>
<tr>
<td>93</td>
<td>General Pediatrics</td>
</tr>
<tr>
<td>97</td>
<td>Program Highlight: <em>The Complex Care Program</em>, Dr. Tammie Dewan</td>
</tr>
<tr>
<td>98</td>
<td>Hematology, Oncology &amp; BMT</td>
</tr>
<tr>
<td>103</td>
<td>Program Highlight: <em>Pediatric Personalized Oncogenomics Study (Peds POG)</em>, Dr. Rebecca Deyell</td>
</tr>
<tr>
<td>105</td>
<td>Infectious Diseases</td>
</tr>
<tr>
<td>108</td>
<td>Neonatology</td>
</tr>
<tr>
<td>112</td>
<td>Program Highlight: <em>The Canadian Neonatal Follow-Up Network (CNFUN)</em>, Dr. Anne Synnes</td>
</tr>
<tr>
<td>114</td>
<td>Nephrology</td>
</tr>
<tr>
<td>117</td>
<td>Program Highlight: <em>Clinical Pathway Development</em>, Dr. Douglas Matsell</td>
</tr>
</tbody>
</table>
DIVISIONAL REPORTS CONTINUED

119 | Neurology
123 | Program Highlight: Pediatric Epilepsy: Using Genomics to Improve Patient Care and Outcomes, Dr. Mary Connolly
125 | Respiratory Medicine
128 | Rheumatology
131 | Program Highlight: New Autoinflammatory Diseases Clinic and Translational Research Study, Dr. Lori Tucker & Dr. Kelly Brown
133 | Translational Therapeutics

137 | FEATURED PROGRAMS IN MEDICAL EDUCATION

138 | Simulation Education at BC Children's Hospital
   | i. The Simulation Centre, Dr. Mary Bennett
   | ii. Pediatric Advanced Trauma Simulation, Dr. Jasmine Allaire
   | iii. Simulation in the Neonatal Intensive Care Unit (NICU), Dr. Deepak Manhas
   | iv. Simulation Curriculum: A Resident-Led Initiative, Drs. Keira Dheensaw, Juliana Wu & Sofia Lopez
141 | The Centre for Health Education Scholarship (CHES), Dr. Ian Scott
143 | Mini Med School and Discovery Days in Health Sciences, Jennifer Myers
144 | The Vancouver Summer Program in Medicine (VSP): Clinical Research and Clinical Skills, Dr. Ran Goldman

147 | RESEARCH

148 | Overview of the BC Children's Hospital Research Institute (BCCHR)
   | i. The History and Leadership of the BCCHR, Jennifer Killam
   | ii. BC Children's Hospital Research Institute Timeline
   | iii. Leadership Roles of Pediatric Faculty at BC Children's Hospital Research Institute
   | Chairs, Professorships & Research Scholarship Awards
   | Research Highlight: Maternal Infant Child and Youth Research Network (MICYRN), Dr. Anne Junker

159 | FEATURED PROGRAMS IN GLOBAL HEALTH RESEARCH

160 | Centre for International Child Health (CICH), Dr. Charles Larson
162 | Reducing Mortality from Sepsis-Associated Deaths Globally, Dr. Niranjan “Tex” Kissoon
163 | Childhood Cancer-Causing Virus Infections in Africa, Dr. Soren Gantt
164 | Prevention of Mother to Child Transmission of HIV, Dr. Laura Sauvé
165 | The Division of Respiratory Medicine's Global Health Work, Dr. Michael Seear
TABLE OF CONTENTS

167 | FEATURED PROGRAMS IN PEDIATRIC HEALTH CARE RESEARCH
   168 | Four Gut Bacteria Decrease Asthma Risk in Infants, UBC Public Affairs
   169 | CAUSES Research Clinic
   171 | The Vaccine Evaluation Centre (VEC)
   172 | BC Injury Research Prevention Unit (BCIRPU)
   173 | ii. Raising Concussion Awareness, Dr. Shelina Babul
   174 | iii. Risky Play, Dr. Mariana Brussoni & Professor Susan Herrington
   176 | iv. Period of PURPLE Crying Program, Dr. Ron Barr
   177 | Developmental Outcomes in Children of Depressed Mothers, Dr. Tim Oberlander
   179 | Traumatic Brain Injury, Dr. Alex Rauscher
   180 | Maternal Omega-3 Supplementation to Reduce Bronchopulmonary Dysplasia in Very Preterm Infants (MOBYDick), Dr. Pascal Lavoie

183 | FEATURED PROGRAMS IN CLINICAL CARE
   184 | Child Health BC, Dr. Maureen O’Donnell, Jennifer Scarr & Michele Fryer
   187 | Antimicrobial Stewardship Program, Dr. Ashley Roberts
   189 | Transitioning Responsibly to Adult Care (On TRAC), Dr. Curren Warf
   191 | The RICHER Program: Responsive, Interdisciplinary, Intersectoral Child and Community Health Education and Research, Dr. Eva Moore and Dr. Chris Loock
   193 | Child Protection Services Unit (CPSU), Dr. Margaret Colbourne

195 | FEATURED FACULTY PROGRAMS
   196 | Young Faculty Initiative, Dr. Orlee Gutman
   197 | Pediatric Seniors Group, Dr. David F. Smith

199 | IN MEMORIAM

203 | SELECTED PUBLICATIONS
This is a time to reflect on the Department’s incredible accomplishments and to celebrate the work that we do every day to provide excellent clinical care, to train the next generation of pediatricians and to pursue new discoveries through research that improves the health and healthcare of children in British Columbia—with an impact that extends far beyond our provincial borders. The Department of Pediatrics is an integrated academic health science centre; it is both the University of British Columbia’s Department of Pediatrics, within the Faculty of Medicine, and Department of Pediatric Medicine within BC Children’s Hospital, an agency of the Provincial Health Services Authority.

This triennial report focuses on our accomplishments over three calendar years: 2013, 2014 and 2015. Why do this now? I was not able to find a record of the last time this department prepared an annual report. When I moved to BC in April 2012 to assume the role of Head of the Department of Pediatrics, University of British Columbia (UBC) and Chief of Pediatric Medicine, it did not take long before I learnt to appreciate and stand in awe of the many talented faculty members in our Department and felt it important to share our story with a broader audience. We quickly got to work with the help of a Guiding Coalition team to create a draft of a five-year strategic plan that would establish our priority actions. After highly valued input from all of the faculty and our many stakeholders—including an environmental scan, electronic surveys, department-wide meetings, SWOT analysis and world cafes—we launched our “Vision 2020: Fostering Discovery, Advancing Knowledge and Transforming Pediatric Health” for a brighter tomorrow. We acknowledge the support of the Faculty of Medicine and Tekera Organizational Effectives, Inc. for getting us launched on this project, and Mr. John Jacob, who was hired as the Department’s Director of Strategy and Innovation in early 2013 and was valuable during the document completion and now implementation. This plan continues to guide our daily activities.

In this overview message, I have tried to paint a high-level picture of our landscape. Each of the areas discussed briefly are developed in the sections that follow. I have come to appreciate the many facets of our Department that make us truly unique. We are an academic department and a children’s hospital without walls and the only medical school and children’s hospital in the province. Serving a pediatric population of nearly one million in BC, our academic activities are built on a geographically distributed framework of the UBC Faculty of Medicine. Our largest campus is based in Vancouver (Vancouver Fraser Medical Program), with three additional campuses based in Victoria (Island Medical Program), Prince George (Northern Medical Program) and Kelowna (Southern Medical Program).

With both undergraduate and postgraduate medical teaching occurring in virtually every corner of the province, more than 80% of BC’s pediatricians hold a Clinical Faculty Appointment at UBC. UBC Medicine has two faculty streams: academic faculty and clinical faculty. The majority (79%) of the Vancouver Oak Street campus-based faculty hold Clinical Faculty Appointments (Instructor, Assistant Professor, Associate Professor, or Professor). The academic faculty (21%) have protected time for research that is funded from a variety of sources (UBC, BC Children’s Hospital Foundation, BC Children’s Hospital Research Institute, endowments and external salary awards). The academic faculty must undergo review for promotion and tenure within seven years of their first appointment as an Assistant Professor, following guidelines set forth in the Senior Appointments Committee (SAC) Guide.

It is noteworthy that our most recent data shows that 66% of research funding is held by the clinical faculty. Many of the faculty accomplishments in 2013-15 are highlighted in the sections that follow.

With a few noticeable exceptions, our research is conducted on the Oak Street Campus at the BC Children’s Hospital Research Institute BCCHR, formerly the Child & Family Research Institute—the name was changed in 2016 but we have chosen to use the new name in this report).

The BCCHR is led by Dr. Wyeth Wasserman, Executive Director. Located within steps of the hospitals, the adjacencies of clinical and basic science researchers serve to catalyze research collaborations. These research collaborations are further enhanced by the presence of BC Women’s Hospital + Health Centre and pediatric specialists from all of the UBC Clinical Departments (Psychiatry, Surgery, Anaesthesia, Radiology, Laboratory Medicine and Pathology, Urology, and Orthopedics) on the Oak Street campus. However, active research collaboration occurs with many faculty from other medical departments and UBC Schools, and with colleagues at Simon Fraser University. In particular, a significant number of our faculty hold affiliate appointments at the UBC School of Population and Public Health and the graduate school of Experimental Medicine that is based in the Department of Medicine.

BC Children’s is an agency of the Provincial Health Services Agency (PHSA) of BC. The province is divided into five geographically-based regional health authorities, plus the First Nations Health Authority (established in 2013 as the first of its kind in Canada), and the PHSA oversees the co-ordination and delivery of provincial programs and highly specialized health care services, including BC Children’s and Sunny Hill Health Centre for Children. Sunny Hill Health Centre is home to faculty members in the Division of Developmental Pediatrics. Here, a multidisciplinary team provides specialized development and rehabilitation services for children, youth and their families. The current BC Children’s building, opened on the Oak Street Campus in 1982, and it is the only full service children’s hospital in the province. The Ambulatory Care building was opened.
in 2003. In the fall of 2017, the inpatient program and oncology outpatient clinics will be moving into a new building on the Oak Street site: the Teck Acute Care Centre (Teck ACC). Thereafter, work will begin at Sunny Hill Health Centre which is currently located 20 minutes away, to newly renovated space in the 1982 building. Our campus is one of several currently involved in a Clinical Systems Transformation project that will transition all medical records and patient management to the Cerner electronic health record system.

Physicians in the BC Children’s Department of Pediatrics provide clinical care that is organized within 19 divisions: Adolescent Health and Medicine; Allergy & Immunology; Biochemical Diseases; Cardiology; Critical Care; Dermatology; Developmental Pediatrics; Emergency Medicine; Endocrinology & Diabetes; Gastroenterology; Hepatology & Nutrition; General Pediatrics; Hematology, Oncology & BMT; Infectious Diseases; Neonatology; Nephrology; Neurology; Respiratory Medicine; Rheumatology; and Translational Therapeutics. While the majority of the patients are seen on the inpatient wards and in the outpatient clinics on the Oak Street and Sunny Hill campuses, many physicians travel to outreach clinics across the province to see patients closer to their homes. For many of these clinics, physicians are accompanied by allied health care workers with unique expertise relevant to the focus of the specialty clinic. With the support of Child Health BC, there is growing use of telehealth to support the care of children and families in sites distant from Vancouver.

A relatively unique feature of BC’s healthcare system is that primary care is provided by family physicians, while the community-based pediatricians provide care as consultants. This affords us the opportunity to work in partnerships with pediatricians in providing care to a significant population of infants, children and youth with chronic and often complex illnesses. Child Health BC is a fabulous initiative of BC Children’s, made possible through generous donor support. Child Health BC, led by Dr. Maureen O’Donnell, Executive Director since 2010, brings together policy makers, health administrators, clinicians, operational leaders and physician leaders from across BC for a common goal: to continuously improve the health status and health outcomes of BC’s children by building an integrated and accessible system of service. Several initiatives are ongoing including exciting work around the “Tiers of Service” framework of care.

Education and training underpins all of our work in Pediatric Medicine. At the undergraduate medical student level, UBC has grown to be the largest medical school in Canada with 288 students per year since 2011. At the postgraduate level, the UBC Department has a pediatric residency program (one international and 15 Canadian medical graduates are accepted each year through the Canadian Resident Matching Service (CaRMS)), plus training programs in 16 pediatric subspecialties. All of these programs received full accreditation by the Royal College of Physicians and Surgeons of Canada in 2013. The residency programs also accept a significant number of self-funded international trainees, often from the Gulf States. While the residency programs are primarily based at the Vancouver site, trainees receive excellent training through rotations and electives at other sites across the province and internationally. We are very excited that a new pediatric residency program was launched in Victoria in 2015, with two residents matched to this site through CaRMS.

We are delighted that a large number of our faculty members have been recognized for their contributions as recipients of special awards. Though discussed in a later section, two awards in the 2013–15 period deserve special recognition:

- **Dr. David Scheifele,**
  Officer of the Order of Canada 2013

- **Dr. Judith Hall (Emerita),**
  Canadian Medical Hall of Fame Inductee 2015

I would like to end this overview with a note of gratitude not only to our terrific pediatric faculty, but to our funders who make our work possible: the taxpayers of BC and the donors to the many philanthropic organizations that support our efforts. Though the latter are many, our partnership with and support from the BC Children’s Hospital Foundation and UBC Medicine Development allows us to dream about not just being good, but striving to be great. It is a privilege to come to work every day with children’s health and healthcare as our focal point as we strive for an even better tomorrow.

Allison A. Eddy, MD, FRCP(C)
Hudson Family Hospital Chair in Pediatric Medicine
James & Annabel McCreary Chair in Pediatrics
Professor and Head, Dept. of Pediatrics, Faculty of Medicine, UBC
Chief Pediatric Medicine, BC Children’s and BC Women’s Hospital + Health Centre & Sunny Hill Health Centre Provincial Health Services Authority

Allison A. Eddy, MD, FRCP(C)
Hudson Family Hospital Chair in Pediatric Medicine
James & Annabel McCreary Chair in Pediatrics
Professor and Head, Dept. of Pediatrics, Faculty of Medicine, UBC
Chief Pediatric Medicine, BC Children’s and BC Women’s Hospital + Health Centre & Sunny Hill Health Centre Provincial Health Services Authority

MESSAGE FROM THE CHAIR | 13
**THE LEADER’S CORNER**

**DR. ALLISON EDDY**

Professor and Head, Department of Pediatrics 2012 – Present
Hudson Family Hospital Chair in Pediatric Medicine

Dr. Eddy is a graduate of Mcmaster University Medical School. After completing a Pediatric Residency at Montreal Children’s Hospital, McGill University and a fellowship in Pediatric Nephrology at the University of Minnesota in Minneapolis, she became a member of the faculty at the University of Toronto and a nephrologist at Sick Kids for 12 years. In 1997, she was recruited to Seattle as Professor of Pediatrics at the University of Washington and Head of the Division of Pediatric Nephrology at Seattle Children’s Hospital. During her tenure in Seattle, this division grew from 4 to 11 pediatric nephrologists and was ranked the #2 Pediatric Nephrology program in the country by US News and World Report. Her clinical practice expands the scope of pediatric nephrology but she has a particular interest in immune-mediated glomerular and interstitial diseases. She was named as one of Seattle’s Best Doctors. In 2012, Dr. Eddy returned to Canada as the Professor and Head, Department of Pediatrics, University of British Columbia.

Dr. Eddy has had a long-standing interest in training nephrology subspecialty residents and fellows. She has directed pediatric nephrology fellowship programs for over 20 years, overseeing the training of more than 60 fellows. In Seattle she was the principal investigator of a NIH-funded research-training grant in Pediatric Nephrology and the program director of a NIH-funded Child Health Research Center.

Dr. Eddy has been an independent basic science investigator since 1985 and is internationally recognized for her work on the cellular and molecular mechanisms of kidney fibrosis, the final common pathway leading to chronic and end-stage kidney disease. Her work was funded by the Medical Research Council of Canada, the NIH and several research foundations. For 10 years she was a project director for a NIH-funded Pediatric Center of Excellence in Nephrology with Vanderbilt University. She was appointed as the first Director of the Tissue and Cell Sciences Research Center at Seattle Children’s Research Institute from 2007–12. From 2001–07, she was the Deputy Editor of the Journal of the American Society of Nephrology and recently completed a term as an Associate Editor for the journal Pediatric Nephrology.

After her arrival in BC, Dr. Eddy worked closely with many members and partners of the academic pediatric community to develop a strategic plan called “Vision 2020,” which defines priority actions that will be implemented towards “Fostering Discovery, Advancing Knowledge and Transforming Clinical Health.” In addition to her administrative roles, Dr. Eddy spends some time teaching and seeing patients in the nephrology program and conducting basic science research as a scientist at the BC Children’s Hospital Research Institute. She is currently President-Elect of the Pediatric Chairs of Canada group and the Chair of the International Society of Nephrology Fellowship Committee.

**ACADEMIC LEADERSHIP**

The Faculty of Medicine at the University of British Columbia has 21 academic departments, 17 centres and institutes, and graduate programs in 17 disciplines. The expansion of the medical school began in 2004 in partnership with the provincial government, academic partners—University of Victoria and University of Northern British Columbia—and all of the six health authorities, during which time medical student enrollment more than doubled (there are now 288 incoming students each year) and three new geographically distant sites were added: Island Medical Program, Northern Medical Program and the Southern Medical Program. 32 incoming medical students are attending physicians at each of these sites while, 192 are based in the Vancouver Fraser Medical Program. UBC Medical also oversees all of the postgraduate research programs in medicine. The Dean of Medicine holds ultimate responsibility for the faculty, though he is assisted by the Vice Dean, Executive Associate Dean, Associate Deans and Assistant Deans. The Department of Pediatrics is well supported by this expert team; the Pediatric Department Head reports to the Dean of Medicine. During the 2013-15 period, we had two Deans of Medicine.

**DR. GAVIN STUART**

Dean, UBC Faculty of Medicine 2013 – 2015

In 2009, Dr. Stuart was announced as UBC & Vice Provost Health. A native of Manitoba, he attended the University of Western Ontario for his undergraduate medical and postgraduate training in obstetrics and gynecology. He pursued a fellowship in Gynecologic Oncology at Wayne State University in Detroit, where he stayed on as a faculty member. He then moved to the Tom Baker Cancer Centre in Calgary, where he was the first Director of Gynecology. After a period as Head of the Department of Obstetrics and Gynecology at the University of Calgary, he was appointed as Professor and Head, Department of Oncology and Director of the Tom Baker Cancer Centre. In 1999, he was appointed as Vice-President of the Alberta Cancer Board. As Dean, he remained active as a teacher, gynecological oncologist and researcher.
Dr. Dermot Kelleher
Dean, UBC Faculty of Medicine 2015 – Present

Prior to his appointment at UBC, Dr. Kelleher served as Vice-President Health and Dean of the Faculty of Medicine at Imperial College London, where he also held a concurrent appointment as Dean of the Lee Kong Chian Medical School in Singapore until 2014. Dr. Kelleher has also served as Head of the School of Medicine and Vice Provost for Medical Affairs at Trinity College, Dublin.

Dr. Kelleher graduated from medicine from Trinity College Dublin in 1978, going on to specialize in gastroenterology. Author of 300 publications and 14 patents, Dr. Kelleher’s research examines the immune response to many of the leading causes of gastrointestinal infectious disease worldwide. Over the years he has received many prestigious awards including a Fogarty Scholarship at the University of California San Diego, Wellcome Senior Fellow in Clinical Science, and most recently the Conway Medal from the Royal Academy of Medicine in Ireland.

With a strong commitment to innovation and collaboration, Dr. Kelleher has worked to found several companies supporting both translational developments in biomedical science and fostering collaboration in biomedical research in both Dublin and London. He also served as President of the Federation of European Academies of Medicine until moving to British Columbia.

Clinical Enterprise Leadership

The Children’s and Women’s Health Centre of British Columbia is an agency of the Provincial Health Services Authority (PHSA) made up of BC Children’s Hospital, Sunny Hill Health Centre for Children, and BC Women’s Hospital + Health Centre. The pediatric programs are under the responsibility of a President, Provincial Child Health (renamed Vice President in 2015), who reports through PHSA Vice-Presidents to the PHSA President and Chief Executive Officer. The Chief of Pediatric Medicine reports to the Vice-President, Provincial Child Health. During the 2013-15 period we were led by two (Vice) Presidents.

Mr. Larry M. Gold
President, BC Children’s Hospital and Sunny Hill Health Centre 2008 – 2013

With a master’s degree in Social Work (University of Pittsburgh) and Health System Management (Carnegie Mellon University), Mr. Gold previously served as President and CEO of Connecticut Children’s Medical Center and Newington Children’s Hospital in Hartford, Conn. During his time in British Columbia, he played a significant role with the planning and development of the Teck Acute Care Centre (Teck ACC) that will open late 2017.

Ms. Leslie Arnold
Vice-President, Provincial Child Health
BC Children’s Hospital and Sunny Hill Health Centre for Children 2014 – Dec 2017

Ms. Arnold assumed her role from January 2014 while initially retaining her role as President of BC Mental Health and Substance Use Services. She holds leadership responsibility for the Provincial Health Services Authority (PHSA) agency: BC Children’s and Sunny Hill Health Centre for Children, which includes child and youth mental health programs and eating disorders.

Ms. Arnold has been with PHSA since the formation of BC’s health authorities in 2001, originally in the capacity of CEO for the Forensic Psychiatric Hospital and Riverview Hospital. She also worked as the superintendent of Families and Children Services, where she served as the guardian to all children who were in the Ministry’s care. In 2006, she played the lead role in the development of the purpose-built Mental Health Building that opened on the BC Children’s site, and in January 2014, she was appointed Vice-President of BC Children’s. Since that time, her portfolio has continued to expand to include additional responsibilities. Prior to joining PHSA, Ms. Arnold was the Director of Health Match, Health Employer’s Association of BC and Executive Director for the BC Association of Community Care. She has also served as Assistant Deputy Minister for the Ministry of Social Services and Housing, where her responsibilities included all children’s services.
A BRIEF HISTORY OF THE DEPARTMENT OF PEDIATRICS

BC Children's Hospital

PEDIATRICS DEPARTMENT HEADS

- **1950**
  The UBC Faculty of Medicine was established.
  Dr. Myron Weaver was appointed the first Dean of the University of British Columbia, Department of Pediatrics.

- **1951–59**
  Dr. Jack McCreary

- **1960–64**
  Dr. Bruce Graham

- **1965–77**
  Dr. Sydney Israels

- **1977–86**
  Dr. Robert Hill

Beginning with Dr. Sydney Israels as the Inaugural Chair, he and subsequent Department Heads have held the UBC James and Annabel McCreary Chair in Pediatrics, a gift of the parents of Dr. Jack McCreary.

**1920s**

- **1923**
  BC Women's Institute establishes a fund for crippled children.

- **1928**
  The Children's Hospital opened in a renovated house.

**1930s – 1970s**

- **1932**
  Preventorium for Smallpox Patients
  In the 50s + 60s, treated children with tuberculosis before transitioning into a pediatric rehabilitation centre.

- **1933**
  Name changed to Crippled Children's Hospital and then to Children's Hospital.

- **1978**
  Creation of the Health Centre Society for Children.
  A research fund was initiated, for newly recruited wet-bench clinician scientists that worked in trailers on West 59th Ave.

**1940s – 70s**

- **1947–48**
  Pediatric Complex Outpatient Department at Vancouver General Hospital (VGH)
  The name of the building later changed to the Health Centre for Children.

- **1940s–70s**
  The Outpatient Department
  Moved from within VGH to a new site on 12th Ave.

- **1951**
  The Infant Ward
  Moved from Haro Street to 12th Avenue (Willow Pavilion).

- **1954**
  The Health Centre for Children
  Housed in a wing of VGH.

- **1969**
  Children's Hospital Diagnostic Centre
  Outpatient and laboratory services for children opened on 10th Ave and a research fund was initiated.

- **1977**
  Ground is broken at 28th Ave and Oak St, the future of the new Children's Hospital.
PEDIATRICS DEPARTMENT HEADS

- **1987–89**
  Dr. Donald Hill

- **1989–90**
  Drs. Aubrey Tingle and David Lirenman, Interim Co-Heads

- **1990–2000**
  Dr. Judith Hall

- **2000–10**
  Dr. Robert Armstrong

- **2010–12**
  Dr. Ralph Rothstein, Interim Head

- **2012–Present**
  Dr. Allison Eddy

1980s – PRESENT

---

- **April 16, 1982**
  **BC Children’s Hospital**
  A new building opened, consolidating hospital campus services on a single site and making room for a new BC Children’s Hospital Research Division.

- **2002**
  **Chieng Family Medical Day Unit**
  Allowed exceptional expansion of medical day care services.

- **2003**
  **BC Children’s Hospital Ambulatory Care** opens in March; its 55 clinics receive more than 95,000 patients a year.

- **2007**
  **Child & Adolescent Mental Health**
  New adjacent buildings opened to further integrate care, teaching and research.

- **2007**
  **Chan Centre for Education and Chieng Family Atrium**
  These buildings were added to provide new educational and meeting facilities. Together with the Child and Family Research Institute, the entire complex was renamed BC Research Institute for Children & Family Health.

- **2012**
  Opening of the **Clinical Support Building for Translational Research**.

- **2014**
  **Teck Acute Care Centre (Teck ACC)**
  Construction began on the new centre, which will service all inpatients and oncology outpatients.

---

- **Fall 2017**
  Patients scheduled to move into new Teck Acute Care Centre

---

- **4480 OAK ST**

---

- **95,000 visits annually**

- **55 specialty clinics**

---

A BRIEF HISTORY OF THE DEPARTMENT OF PEDIATRICS | 17
“MORE THAN 80% OF BC’S PEDIATRICIANS HOLD A CLINICAL FACULTY APPOINTMENT AT UBC.”
VISION 2020

<table>
<thead>
<tr>
<th>MISSION</th>
<th>VISION</th>
<th>OUR VALUES</th>
</tr>
</thead>
</table>
| 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. | To be a world-leading Pediatric Academic Health Science Department: Fostering Discovery, Advancing Knowledge and Transforming Pediatric Health. | • Leadership  
• Integrity  
• Accountability  
• Excellence  
• Compassion  
• Quality  
• Teamwork  
• Collaboration  
• Discovery  
• Innovation |

<table>
<thead>
<tr>
<th>CORE PRIORITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DISCOVERY + INNOVATION</strong></td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td><strong>TEACHING + LEARNING</strong></td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td><strong>CLINICAL CARE + ADVOCACY</strong></td>
</tr>
<tr>
<td>In collaboration with our partners, we are focused on improving the health and wellbeing of children and families. We remain committed to enhancing quality, increasing efficiency and adding value across our health system.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STRATEGIC OBJECTIVES</th>
</tr>
</thead>
</table>
| • Translate discoveries into solutions.  
• Embrace and lead innovation.  
• Enable and promote discovery. |
| • Prepare tomorrow’s leaders.  
• Enhance our educational value.  
• Improve student outcomes and experiences.  
• Empower and support our educators. |
| • Advance pediatric health.  
• Improve access and quality.  
• Increase clinical efficiency.  
• Promote global health. |

<table>
<thead>
<tr>
<th>ENABLING PRIORITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OUR PEOPLE</strong></td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td><strong>OUR SYSTEM</strong></td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td><strong>INTEGRATION</strong></td>
</tr>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STRATEGIC OBJECTIVES</th>
</tr>
</thead>
</table>
| • Unify our department.  
• Invest in our people.  
• Strengthen our resources.  
• Improve our work environment. |
| • Enhance our value and performance.  
• Build economic sustainability.  
• Improve operational efficiency.  
• Develop and promote our identity. |
| • Advance our shared vision.  
• Drive collaborative achievement.  
• Develop our professional network. |
## SIGNIFICANT FACULTY AWARDS

<table>
<thead>
<tr>
<th>NAME</th>
<th>RANK</th>
<th>GRANTING AGENCY</th>
<th>AWARD</th>
<th>YEAR</th>
<th>DIVISION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Christine Loock</td>
<td>Associate Professor</td>
<td>The Governor General of Canada</td>
<td>Queen Elizabeth II Diamond Jubilee Medal</td>
<td>2013</td>
<td>Developmental Pediatrics</td>
</tr>
<tr>
<td>Dr. Daniel Metzger</td>
<td>Clinical Professor</td>
<td>The Governor General of Canada</td>
<td>Queen Elizabeth II Diamond Jubilee Medal</td>
<td>2013</td>
<td>Endocrinology</td>
</tr>
<tr>
<td>Dr. Daniel Metzger</td>
<td>Clinical Professor</td>
<td>Canadian Pediatric Society</td>
<td>Noni MacDonald Award</td>
<td>2014</td>
<td>Endocrinology</td>
</tr>
<tr>
<td>Dr. David Scheifele</td>
<td>Professor</td>
<td>The Governor General of Canada</td>
<td>Queen Elizabeth II Diamond Jubilee Medal</td>
<td>2013</td>
<td>Infectious Diseases</td>
</tr>
<tr>
<td>Dr. David Scheifele</td>
<td>Professor</td>
<td>The Governor General of Canada</td>
<td>Order of Canada</td>
<td>2013</td>
<td>Infectious Diseases</td>
</tr>
<tr>
<td>Dr. David Scheifele</td>
<td>Professor</td>
<td>UBC Centre for Health Education Scholarship</td>
<td>Bill and Marilyn Webber Lifetime Achievement Award</td>
<td>2015</td>
<td>Infectious Diseases</td>
</tr>
<tr>
<td>Dr. Dina Panagiotopoulos</td>
<td>Assistant Professor</td>
<td>Western Society of Pediatric Research</td>
<td>Abbott Nutrition Award in Research by a Young Investigator Award</td>
<td>2013</td>
<td>Endocrinology</td>
</tr>
<tr>
<td>Dr. Harold Siden</td>
<td>Clinical Professor</td>
<td>BC Pediatric Society</td>
<td>Dr. Parminder Singh Award of Distinction</td>
<td>2015</td>
<td>General Pediatrics</td>
</tr>
<tr>
<td>Dr. Jean-Pierre Chanoine</td>
<td>Clinical Professor</td>
<td>Canadian Pediatric Society</td>
<td>Noni MacDonald Award</td>
<td>2014</td>
<td>Endocrinology</td>
</tr>
<tr>
<td>Dr. Judith Hall</td>
<td>Professor Emerita</td>
<td>Canadian Medical Hall of Fame</td>
<td>Canadian Medical Hall of Fame</td>
<td>2014</td>
<td>Medical Genetics</td>
</tr>
<tr>
<td>Dr. Judith Hall</td>
<td>Professor Emerita</td>
<td>Canadian Medical Hall of Fame</td>
<td>Canadian Medical Hall of Fame Inductee</td>
<td>2015</td>
<td>Medical Genetics</td>
</tr>
<tr>
<td>NAME</td>
<td>RANK</td>
<td>GRANTING AGENCY</td>
<td>AWARD</td>
<td>YEAR</td>
<td>DIVISION</td>
</tr>
<tr>
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<td>-----------------------------------------------------------</td>
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</tr>
<tr>
<td>Dr. Leora Kuttner</td>
<td>Clinical Professor</td>
<td>American Society of Clinical Hypnosis</td>
<td>William C. Wester Award</td>
<td>2014</td>
<td>General Pediatrics</td>
</tr>
<tr>
<td>Dr. Michael Seear</td>
<td>Clinical Professor</td>
<td>Canadian Thoracic Society</td>
<td>Victor Chernick Award</td>
<td>2014</td>
<td>Respiratory Medicine</td>
</tr>
<tr>
<td>Dr. Oscar Casiro</td>
<td>Professor</td>
<td>Medical Council of Canada</td>
<td>Dr. Louis Levasseur Distinguished Service Award</td>
<td>2015</td>
<td>Neonatology</td>
</tr>
<tr>
<td>Dr. Rajavel Elango</td>
<td>Assistant Professor</td>
<td>American Society for Nutrition (ASN)</td>
<td>Vernon R. Young International Award for Amino Acid Research</td>
<td>2013</td>
<td>Neonatology</td>
</tr>
<tr>
<td>Dr. Ron Barr</td>
<td>Professor</td>
<td>Pediatric Chairs of Canada</td>
<td>Paediatric Academic Leadership – Clinician Practitioner Award</td>
<td>2014</td>
<td>BC Injury Research &amp; Prevention Unit</td>
</tr>
<tr>
<td>Dr. Sheila Innes</td>
<td>Professor</td>
<td>Canadian Pediatric Society</td>
<td>Geoffrey Robinson Award</td>
<td>2015</td>
<td>Neonatology</td>
</tr>
<tr>
<td>Dr. Stuart Turvey</td>
<td>Professor</td>
<td>Canadian Science Writers’ Association</td>
<td>Science in Society Journalism Award</td>
<td>2015</td>
<td>Allergy &amp; Immunology</td>
</tr>
<tr>
<td>Dr. Sylvia Stöckler-Ipsiroglu</td>
<td>Clinical Associate Professor</td>
<td>Society for Inherited Metabolic Disorders (SIMD)</td>
<td>The Emmanuel Shapira Award</td>
<td>2014</td>
<td>Biochemical Diseases</td>
</tr>
<tr>
<td>Dr. Tex Kissoon</td>
<td>Professor</td>
<td>Society of Critical Care Medicine</td>
<td>Master of Critical Care Medicine Award</td>
<td>2015</td>
<td>Critical Care</td>
</tr>
<tr>
<td>Dr. Trent Smith</td>
<td>Clinical Assistant Professor</td>
<td>Canadian Association for Medical Education</td>
<td>Certificate of Merit for Medical Education</td>
<td>2014</td>
<td>General Pediatrics</td>
</tr>
</tbody>
</table>
**DIVISIONAL LEADERSHIP**

**Division Heads**

Dr. Allison Eddy  
Professor and Head  
2012 – Present

Dr. Curren Warf  
Adolescent Health and Medicine  
2009 – Present

Dr. Edmond Chan  
Allergy & Immunology  
2013 – Present

Dr. Sylvia Stockler-Ipsiroglu  
Biochemical Diseases  
2005 – Present

Dr. Shu Sanatani  
Cardiology  
2015 – Present

Dr. David Wensley  
Critical Care  
2010 – Present

Dr. Julie Prendiville  
Dermatology  
1990 – Present

Dr. Nancy Langheer  
Developmental Pediatrics  
2008 – Present

Dr. Garth Meckler  
Emergency Medicine  
2013 – Present

Dr. Jean-Pierre Chanoine  
Endocrinology & Diabetes  
1998 – Present

Dr. Kevan Jacobson  
Gastroenterology  
Hepatology & Nutrition  
2010 – Present

Dr. Jennifer Druker  
General Pediatrics  
2011 – Present

Dr. Caron Strahlendorf  
Hematology, Oncology & BMT  
2014 – Present

Dr. Simon Dobson  
Infectious Diseases  
2010 – Present

Dr. Horacio Osivoch  
Neonatology  
2010 – Present

Dr. Douglas Matsell  
Nephrology  
2003 – Present

Dr. Mary Connolly  
Neurology  
2004 – Present

Dr. Michael Seear  
Respiratory Medicine  
2010 – Present

Dr. David Cabral  
Rheumatology  
2005 – Present

Dr. Ran Goldman  
Co-Division Head, Translational Therapeutics  
2010 – Present

Dr. Bruce Carleton  
Co-Division Head, Translational Therapeutics  
2010 – Present
“IN 2013, 16 OF OUR DIVISIONS RECEIVED ACCREDITATION FROM THE ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF CANADA. OUR RESIDENCY PROGRAM TRAINS ABOUT 80 RESIDENTS PER YEAR.”
MEDICAL EDUCATION

Education Program Leadership

Dr. Mary Bennett
Associate Head
Education

Dr. Laura Sauvé
Program Director, Pediatric Residency Training Program

Dr. Janet Greenman
Associate Director, Pediatric Residency Training Program

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

Dr. Mumtaz Virji
Year 3 Clerkship Director

Dr. Ralph Rothstein
Fellowship Chair

Sylvia Wu
Manager, Education

Dylan King
Senior Coordinator Education
Program Overview

The Department of Pediatrics 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. 256 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 postdoctoral pediatric training programs have over 70 trainees.
For over 50 years, our Department has cultivated excellence in educational programs. We have several mandates: providing clinical services to the children of British Columbia, conducting research, supporting child advocacy and child health, and delivering medical education—including undergraduate and postgraduate curriculums—across 18 divisions and subspecialties. Over 260 undergraduate medical students are enrolled in our courses each year, not including visiting medical students from other educational institutions.

CURRICULUM RENEWAL
We started a curriculum renewal in 2015 and have been working on the following changes:

• Amalgamation of academic half-days with obstetrics and gynaecology.

• End of rotation written exams, which will contain questions from both pediatrics and obs/gyn. In addition, instead of rotation OSCE’s, there will be program-based OSCE’s.

• Evaluation will be on smaller but more frequent work-based assessments, as well as portfolios.

ACCOMPLISHMENTS
• A randomized lottery system, developed internally, gives most students their first or second choice of inpatient rotations. These are then matched with an outpatient rotation. This has helped provide students with a selection process that is unbiased and leads to a better overall experience.

• We continue to develop our in-house exams. According to the Evaluation Studies Unit, our exams are of high quality. We continue to improve our database of exam questions and thank the Discipline Specific Site Leaders (DSSLs) for making sure we have an excellent question bank.

• Academic half-days are being updated to be more case-based and to include audience responses (via smartphones).

• UBC has been an integral part of the Pediatrics Undergraduate Program Directors of Canada committee. This committee has developed a national pediatrics curriculum and resources for the Key Conditions that students need to learn.

• Pediatrics at Island Medical College (IMC) was voted the best rotation of the year, as well as being the best structured.

• We have developed Pediatrics Objective cards for the faculty: they highlight the objectives of medical students and have tips on teaching and giving feedback.

• Year 4 students, both from UBC and out-of-province, have the opportunity to do a two- to four-week elective in pediatrics. In 2015, we had 163 students join us. Of these, 90 were UBC students and 73 were either out-of-province or out-of-country students.

CHALLENGES
• There has been a reduced number of clinical skills sessions in pediatrics. The toddler session, the developmental session (with a visit to Sunnyhill Health Centre for Children), and pediatrics cardiology small group sessions have been removed from the curriculum. It will be important to monitor the impact this will have on students when they start clerkship rotation in the renewed curriculum.

• There has been difficulty recruiting faculty for the newborn clinical skills session. We will be working with the Dean’s Office and local DSSLs to make sure we have enough tutors to deliver this session next year.

• There is a lack of community general pediatricians willing to take students. Most of the time this is due to lack of space.

• We are working hard to make sure students across sites get a comparable experience. Currently we require students to complete 20 CLIPP cases to make up for the differences.

• There have been some cancelled electives at the last minute, as well as classes that are too full to accept new students.

• We would like to provide students at the Vancouver Fraser Medical Program (VFMP) with simulation experience. The biggest challenge has been resources, as we do not have enough tutors to run this program weekly.

For more information, please visit: WWW.PEDIATRICS.MED.UBC.CA/EDUCATION/UNDERGRADUATE
The general Pediatric Training Program strives to provide a broad inpatient, ambulatory and community educational base to equip modern-day general pediatricians with all the skills necessary for practice in General Pediatrics. Training within the tertiary care setting helps equip the pediatric graduate with the confidence and skills to treat children with significant and possibly life-threatening problems.

The residency program consists of approximately 60 residents. The program has been redesigned to deliver a three-year “plus” program: a core three-year program that ensures competency, knowledge and skills necessary for basic pediatric practice, plus training specific to career path direction for the fourth and fifth years.

**PROGRAM COMPONENTS**

- Clinical competency at a supervised level within the first 18 months, with graduated responsibility and independence
- A junior year of 18 months
- Clinical competence at an independent level within the second 18 months
- A transition from junior to senior over six months
- A senior year of 12 months

**i. Island Medical Program (IMP)**

**DR. JENNIFER BALFOUR, ASSOCIATE DIRECTOR**

**July** 2015, UBC Pediatrics expanded to a second site in beautiful Victoria, BC. Two residents each year have been based in Victoria at the Island Medical Program (IMP). They have been integrated as UBC Pediatrics residents but have also had a fantastic opportunity to be part of building a community-based program in Victoria.

Our IMP program reflects the components of specialty training: the first three years provide exposure to acute care and ambulatory pediatrics, as well as the subspecialties, with a graded responsibility from junior to senior residency. Most of the subspecialty education will be via longitudinal experiences with mixed general pediatrics and subspecialty clinics. Some subspecialty rotations will take place at the BC Children’s Hospital in Vancouver.

The IMP program currently has four residents enrolled.

**ii. Pediatric Residency Training Program Updates for 2013 –15**

**GLOBAL HEALTH ELECTIVE PROGRAM**

A major attraction for new residents to our program is the opportunity to be involved in global health opportunities by participating in local, national or international electives. Feedback from our residents has been extremely positive. See page 32 for recent residencies.

**RESIDENT-LED SIMULATION PROGRAM**

Founded in 2013-14 by Drs. Anas Manouzi, Victoria Cook and Haley Devries, we are extremely proud that resident presentations on simulation have won local and national awards. The program continues to this day as a resident-led initiative with a resident committee supported by Drs. Mary Bennett and Amie Dmytryshn. For more information on our Simulation Program, see page 138.

**CURRICULUM REDEVELOPMENT**

Championed by Dr. Janet Greenman, the resident curriculum was redesigned with an emphasis on more community pediatric rotations and mandatory rural rotations to demonstrate our commitment to social accountability.

**COMMUNITY OUTREACH**

The expansion of pediatric services to underserved areas, such as Whitehorse (Yukon) and Hartley Bay (BC), is a priority by faculty and is enthusiastically supported by resident and subspecialists.

**PEDIATRIC CHIEF RESIDENT POSITION**

The Pediatric Chief Resident role was redesigned in 2014 by residents Drs. Jennifer Smitten and Gaby Yang to allow for a stronger leadership
PEDIATRIC CHIEF RESIDENT POSITION CONTINUED

and teaching role. Changes were later implemented by Drs. Kris Kang, Matt Sibley and Adela Matecjek. The role now encompasses teaching of medical students (during orientation and at academic half-days), teaching residents (including R1 orientation, morning report twice a week and Academic Half-Day lectures), running mock simulations, organizing subspecialty teaching for residents, and providing mentorship to residents in need.

The Chiefs are also responsible for attending committee meetings, organizing the CTU call schedule and recruiting residents for opportunities (eg. Whitehorse, camps, IV shifts). Clinical work is maintained throughout Chief time, including attending a general pediatric clinic, resident continuity clinic and participating in ER shifts.

For more information, please visit:
WWW.PEDIATRICS.MED.UBC.CA/EDUCATION/RESIDENCY-PROGRAM
The Global Health Elective Program

DR. JENNIFER SMITTEN, CHAIR, UBC PEDIATRIC RESIDENCY PROGRAM GLOBAL HEALTH EDUCATION SUB-COMMITTEE

The UBC Pediatric Residency Program has a keen and long-standing interest in global child health, and provides residents with a number of opportunities to become involved—either locally, elsewhere in Canada, or internationally. These include:

• A global health seminar series and journal club
• Advocacy events, including annual activities for World AIDS Day and World Immunization Week
• Opportunities to work with refugees in the Lower Mainland
• Outreach visits to the remote community of Hartley Bay (Gitga’at First Nation) in northern British Columbia
• International elective opportunities

In addition to flexible one-month international electives, the residency program has established long-term partnerships for three-to six-month electives. With these established partnerships, residents are involved in educational activities, such as developing simulation programs and OSCEs. These partner sites include:

• Red Cross War Memorial Children’s Hospital in Cape Town, South Africa
• Paarl Hospital in Paarl, South Africa
• Sydney Children’s Hospital in Sydney, Australia
• Lamb Hospital in Parbatipur, Bangladesh (currently on hold for safety reasons)
• Princess Marina Hospital in Gaborone, Botswana

These experiences enhance residents’ education in a number of ways: residents manage a much higher volume of acutely ill children; diagnose and treat conditions not often seen in North America; hone their procedural skills; develop a deeper understanding of the social determinants of health; and experience different cultural practices and ways of practicing medicine (often with fewer resources).

This well-established global health program attracts trainees to our residency program from across the country. It also helps residents develop a strong understanding of the social determinants of health, the need for effective advocacy and the importance of child health globally. Furthermore, pediatricians who graduate from the program and have been involved with global health activities often go on to work with vulnerable populations in Canada as part of their careers.

For more information, please visit: HTTP://GLOBALHEALTH.PEDIATRICS.UBC.CA
<table>
<thead>
<tr>
<th>HOST HOSPITAL</th>
<th>COUNTRY</th>
<th>SUPERVISOR</th>
<th>RECENT RESIDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Princess Mariana Hospital / University of Botswana</td>
<td>Botswana</td>
<td>Dr. Loeto Mazhani</td>
<td>Drs. Allison Lee and Matt Carwana</td>
</tr>
<tr>
<td>Baylor College of Medicine – Abbott Fund</td>
<td>Malawi</td>
<td>Dr. Peter Kazembe</td>
<td>Dr. Adela Matecjek</td>
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<tr>
<td>Children’s Clinical Centre of Excellence and</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Kamuzu Central Hospital</td>
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<tr>
<td>Baylor College of Medicine – Bristol Myers</td>
<td>Lesotho</td>
<td>Dr. Edith Mohapi</td>
<td>Dr. Jennifer Smitten</td>
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<tr>
<td>Squibb Children’s Clinical Center of Excellence</td>
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<tr>
<td>Red Cross War Memorial Children’s Hospital /</td>
<td>South Africa</td>
<td>Dr. Alan Davidson</td>
<td>Drs. Jennifer Smitten, Kris Kang, Haley Devries, Rachel Li, Megan Gilley,</td>
</tr>
<tr>
<td>University of Cape Town</td>
<td></td>
<td></td>
<td>Caroline Malcolmson and Trisha Patel</td>
</tr>
<tr>
<td>Paarl Hospital / Stellenbosch University</td>
<td>South Africa</td>
<td>Dr. Eckhart von Delft</td>
<td>Drs. Aisling O’Gorman, Matt Sibley, Dianna Louie, Allison Lee and Elizabeth De</td>
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<td>Kler</td>
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<tr>
<td>Lutheran Aid to Medicine in Bangladesh Hospital</td>
<td>Bangladesh</td>
<td>Dr. Louise Day</td>
<td>Drs. Mia Remington, Katie Mitchell, and Katrina Stockley</td>
</tr>
<tr>
<td>(LAMB)</td>
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<td></td>
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<tr>
<td>Postgraduate Institute of Medical</td>
<td>India</td>
<td>Dr. Sunil Singhi</td>
<td>Dr. Jatinder Grewal</td>
</tr>
<tr>
<td>Education and Research</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Siraraj Hospital</td>
<td>Thailand</td>
<td>Dr. Wanatpreeeya Phongsamart</td>
<td>Drs. Jackie Wong and Bahar Torabi</td>
</tr>
<tr>
<td>Boya Hospital</td>
<td>China</td>
<td>EMAS Canada (Education,</td>
<td>Dr. Charmaine Wong</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medical Aid and Service),</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>South China</td>
<td></td>
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<tr>
<td>TWO WEEK SURGICAL CAMP, OPERATION RAINBOW CANADA</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Kaka-Ba Hospital</td>
<td>India</td>
<td>Dr. Naz Bhanji</td>
<td>Drs. Amie Dymtryshn, Sean George, Jennifer Smitten, Deepak Manhas and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Stephany Quinn</td>
</tr>
<tr>
<td>TWO WEEK CARDIAC CAMP, CHU SAINTE-JUSTINE</td>
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<td></td>
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<tr>
<td>Cardiac Centre of Ethiopia</td>
<td>Ethiopia</td>
<td>Dr. Jaoquim Miró</td>
<td>Dr. Anas Manouzi</td>
</tr>
</tbody>
</table>
iii. Subspecialty Fellowship Program

**Clinical** Fellowships provide opportunities for trainees to expand their knowledge of a particular subspecialty area through teaching, research and clinical experience. Fellowships may vary from one to three years in duration. The Department of Pediatrics offers Clinical Fellowships in the following subspecialty areas:

- Adolescent Health and Medicine*
- Allergy & Immunology*
- Biochemical Diseases*
- Cardiology*
- Critical Care*
- Dermatology*
- Developmental Pediatrics*
- Emergency Medicine*
- Endocrinology & Diabetes*
- Gastroenterology, Hepatology & Nutrition*
- Hematology, Oncology & BMT*
- Infectious Diseases*
- Neonatology*
- Nephrology*
- Neurology*
- Respiratory Medicine*
- Rheumatology*

Individual subspecialty programs coordinate the recruiting and registration of Clinical Fellows with the Education Office in the Department of Pediatrics. In addition to teaching, clinical and research activities assigned by the respective Divisions, postgraduate training for fellows is also developed through the Subspecialty Residency Training Committee. Recent initiatives include Research Methodology Training and a Workplace Cultural Orientation Program.

Clinical Fellowships provide an opportunity for subspecialists to develop leadership roles within their respective Divisions. Through scheduled rotations and electives, fellows gather knowledge from every component of their subspecialty. By interacting with faculty and residents, fellows become an important part of the patient care team at BC Children’s Hospital. This Program is supported by BC Children’s Hospital Foundation.

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

For more information, please visit:
WWW.PEDIATRICS.MED.UBC.CA/EDUCATION/FELLOWSHIP
iv. Distributed Medical Education

In 2004, UBC recognized the need for more physicians, particularly in rural communities, and established one of the first distributed medical schools in Canada. Initially students were in Victoria’s Island Medical Program, along with the Vancouver-Fraser “main” program, but now distributed sites include the Northern Medical Program in Prince George and the Southern Medical Program in Kelowna. The students at all four sites have a common curriculum, but their experiences may differ due to the patient setting. Pediatrics is taught in the distributed sites by dedicated community practitioners who ensure students get a quality rotation.

Pediatric residents have had rotations in community centres for a number of years. In 2014, two Pediatric Residency positions were established in Victoria, as a formal distributed training site. The residents follow the same Objectives of Training as the BC Children’s Hospital site residents, but may achieve them differently. The plan is to ultimately have eight residents in Victoria spread over the four-year training period. Thanks to the Associate Program Director and faculty in Victoria, the program has been highly successful. Further distribution in the future is planned for other sites in the province.

Discipline Specific Site Leaders (DSSLs)

DSSLs are the representatives for the Department of Pediatrics at the distributed medical school sites. They are responsible for being the education leaders for Year 3 and 4 medical students and for any postgraduate trainees rotating through their site. Their responsibilities include scheduling, orientation, and most importantly, evaluation of all students/trainees. They are aware of the goals and objectives for all levels of training and meet with trainees if there are concerns at the end of the rotation. DSSLs maintain contact with the Undergraduate and Postgraduate Program Directors and are part of the UG and PG Program Committees. They also participate in curriculum retreats and planning for training at their site.

DSSLs are an essential component of our training programs. They are community pediatricians with an interest in medical education and 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. Joanna Jia
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. Kristen Miller & Dr. Kathryn Lecese
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

<table>
<thead>
<tr>
<th>YEAR</th>
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<th>RECIPIENT</th>
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<tbody>
<tr>
<td>2015–16</td>
<td>The Dr. David Alexander Clark, M.D. Award</td>
<td>Dr. Caroline Malcolmson and Dr. Megan Kilvert</td>
</tr>
<tr>
<td>2014–15</td>
<td>Dr. Haley Devries, Dr. Victoria Cook, and Dr. Anas Manouzi</td>
<td></td>
</tr>
<tr>
<td>2014–15</td>
<td>Recognition of Chief Residents Award</td>
<td>Dr. Kamal Abdulwahab, Dr. Anas Manouzi and Dr. Alysha Dedhar</td>
</tr>
<tr>
<td>2014–15</td>
<td>BC Pediatric Society Resident Prize</td>
<td>Dr. Katrina Stockley and Dr. Tatiana Sotindjo</td>
</tr>
<tr>
<td>2014–15</td>
<td>Laura MacRae SSR / Fellow Award</td>
<td>Dr. Kathryn Rebecca Armstrong and Dr. Serge Grazioli</td>
</tr>
<tr>
<td>2014–15</td>
<td>UBC Pediatric Resident Research Award</td>
<td>Dr. Rebecca Ronsley</td>
</tr>
<tr>
<td>2014–15</td>
<td>UBC Pediatric SSR / Fellow Research Award</td>
<td>Dr. Akshat Kapur</td>
</tr>
</tbody>
</table>

### Recognition of Chief Residents Award

- **2013–14**: Dr. Adela Matejcek, Dr. Kris Kang and Dr. Matthew Sibley
- **2013–14**: Dr. Dianna Louie
- **2012–13**: Dr. Jennifer Gelinas

### BC Pediatric Society Resident Prize

- **2013–14**: Dr. Anas Manouzi
- **2012–13**: Dr. Manish Sadarangani

### UBC Pediatric Resident Research Award

- **2013–14**: Dr. Anas Manouzi
- **2012–13**: Dr. Brett Schrewe

### UBC Pediatric SSR / Fellow Research Award

- **2013–14**: Dr. Carolina Escudero
- **2012–13**: Dr. Manish Sadarangani

### Nationally Recognized Resident Research Awards

<table>
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<th>YEAR</th>
<th>AWARD</th>
<th>RECIPIENT</th>
<th>TITLE</th>
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<tbody>
<tr>
<td>2014–15</td>
<td>First place</td>
<td>Dr. Rebecca Ronsley</td>
<td>“Increased risk of obesity and metabolic dysregulation following 12 months of second-generation antipsychotic treatment in children: a prospective cohort study”</td>
<td>Dr. Dina Panagiotopoulos</td>
</tr>
</tbody>
</table>

### Best Paediatric Trainee Abstract

- **2014–15**: Dr. Rebecca Ronsley
- **2012–13**: Dr. Jennifer Gelinas

### Nationally Recognized Resident Research Awards

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<tr>
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<th>TITLE</th>
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<td>Dr. Dina Panagiotopoulos</td>
</tr>
<tr>
<td>2012–13</td>
<td>First place</td>
<td>Dr. Manish Sadarangani</td>
<td>“The impact of serogroup C meningococcal vaccine in Canada over the past 10 years”</td>
<td>Dr. Julie Bettinger</td>
</tr>
</tbody>
</table>
“THE DEPARTMENT OF PEDIATRICS HAS PLAYED A VITAL ROLE IN DEVELOPING UNDERGRADUATE, RESIDENCY AND CLINICAL FELLOWSHIP TRAINING PROGRAMS FOR OVER 50 YEARS.”
As an academic department within the UBC Faculty of Medicine, one of our important functions is the rigorous process of recruiting and appointing new members to our UBC faculty and to oversee the reappointment, promotion and tenure of all academic faculties. The “Guide to Reappointment, Promotion and Tenure at UBC” summarizes information set in the Collective Agreement, “Conditions of Appointment for Faculty.” The substance of this document has been agreed on by the Senior Appointment Committee (SAC). The Pediatric DARPT Committee comprises a group of dedicated and hardworking faculty who take this responsibility seriously and often serve important mentorship and educational roles for faculty members under review for promotion. The committee meets monthly and has two separate sections: one for academic faculty and one for clinical faculty. Given the geographical distribution of the medical school across the province, the size of the clinical faculty is larger and enriches us as a Department.

Over the past couple of years, members of the DARPT Committee have worked hard to revise and standardize the Department criteria for clinical faculty appointment and promotion. On the BC Children’s Hospital campus we also have a relatively unique group of general pediatricians (and a few family physicians) who provide clinical care in subspecialty programs under the supervision of a pediatric subspecialist physician called a Clinical Associate. Community-based pediatricians and Clinical Associates are typically appointed as Clinical Instructors with the possibility of promotion, based on evidence of contribution to the academic mission of UBC. A requirement of the medical school accreditation process is that everyone formally involved in teaching at the undergraduate or postgraduate level must hold a UBC faculty position. For this reason, in recent years a number of allied healthcare professionals have become members of the Department of Pediatrics clinical faculty.
### THE DARPT COMMITTEE 2013–15

<table>
<thead>
<tr>
<th>ACADEMIC</th>
<th>CLINICAL</th>
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<tbody>
<tr>
<td>Dr. Allison Eddy</td>
<td>Dr. Peter Skippen</td>
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<tr>
<td>Dr. Ran Goldman</td>
<td>Dr. Horacio Osiovich</td>
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<td>Dr. Bruce Carleton</td>
<td>Dr. David Wensley</td>
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<tr>
<td>Dr. Niranjan Kissoon</td>
<td>Dr. Kevan Jacobson</td>
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<tr>
<td>Dr. Kirk Schultz</td>
<td>Dr. John Wu</td>
</tr>
<tr>
<td>Dr. Catherine Pallen</td>
<td>Dr. Dina Panagiotopoulos</td>
</tr>
<tr>
<td>Dr. Sylvia Stöckler-Ipsiroglu</td>
<td>Dr. David Dix</td>
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<tr>
<td>Dr. Bruce Vallance</td>
<td>Dr. Curren Warf</td>
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<td>Dr. Tobias Kollmann</td>
<td>Dr. Anne Synnes</td>
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<tr>
<td>Dr. David Scheifele</td>
<td>Dr. Walter Duncan</td>
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<tr>
<td>Dr. Sheila Innis</td>
<td>Dr. David Cabral</td>
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<tr>
<td>Dr. Shubhayan Sanatani</td>
<td>Dr. Mary Connolly</td>
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<tr>
<td>Dr. Angela Devlin</td>
<td>Dr. Barbara Fitzgerald</td>
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<tr>
<td>Dr. Julie Bettinger</td>
<td>Dr. Mark Chivers</td>
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<tr>
<td>Dr. Tom Blydt-Hansen</td>
<td>Dr. Shazhan Amed</td>
</tr>
<tr>
<td>Dr. Mariana Brussoni</td>
<td>Dr. Edmond Chan</td>
</tr>
<tr>
<td>Dr. Clara van Karnebeck</td>
<td>Dr. Collin Yong</td>
</tr>
<tr>
<td>Dr. Anne Junker</td>
<td>Dr. Cherry Mammen</td>
</tr>
<tr>
<td></td>
<td>Dr. Ashley Roberts</td>
</tr>
</tbody>
</table>

- Chair
- Professor
- Associate
- Assistant
- Associate Head, Faculty Affairs

### RETIREMENTS

- Dr. Robert Adderly
- Dr. Ron Barr
- Dr. Godfrey Baumgard
- Dr. Sterling Clarren
- Dr. Marion Coulter-Mackie
- Dr. Kevin Farrell
- Dr. Chris Fryer
- Dr. Anne George
- Dr. Eric Hassall
- Dr. Jean Hlady
- Dr. James Jan
- Dr. Yolanda Lilliquist
- Dr. Brian Lupton
- Dr. Stuart Macleod
- Dr. Ken Poskett
- Dr. George Sandor
- Dr. David Scheifele

### FORMER MEMBERS

#### 2013
- Dr. David Cabral
- Dr. Mary Connolly
- Dr. Walter Duncan
- Dr. Sheila Innis
- Dr. David Scheifele

#### 2014
- Dr. Walter Duncan
- Dr. Sheila Innis

#### 2015
- Dr. Walter Duncan
- Dr. Sheila Innis
myCarePath

JOHN JACOB, DIRECTOR, STRATEGY & INNOVATION OFFICE

Over the past three years, the SIO Office completed a number of digital projects under the SIOLAB portfolio, including the recently launched digital health tool for managing pediatric chronic pain, titled "myCarePath." The project was a collaborative initiative between the SIO, UBC Pediatrics, BC Children's Hospital and Pain BC, a community-based partner. myCarePath is a web-based early intervention tool intended for youth ages 12–17 that are learning to cope with chronic pain; many of these adolescents would benefit from targeted support as they wait to be seen by the specialized Chronic Pain Team at BC Children's. Addressing the individuality of pain, the myCarePath tool offers a self-assessment and ranking algorithm to enable users with resources that cater to their individual needs. The project involved a large amount of new content creation, media production, and the development of an innovative digital platform that was built internally from the ground up.

For more information, please visit: WWW.MYCAREPATH.CA

“MYCAREPATH IS A WEB-BASED EARLY INTERVENTION TOOL INTENDED FOR YOUTH AGES 12–17 THAT ARE LEARNING TO COPE WITH CHRONIC PAIN.”
“THE UBC DEPARTMENT OF PEDIATRICS IS THE ONLY PROVINCIAL TERTIARY PEDIATRIC CENTRE IN BRITISH COLUMBIA SERVING A POPULATION OF ONE MILLION UP TO THE AGE OF 18.”
A small number of senior faculty have also been granted special permission by the Ministry of Health to bill FFS for care provided on-site after hours. The FFS billings and the after-hours on call (Medical On Call Availability Program) payments are not captured in the financial summaries shown on page 42.

The chart represents the distribution of costs by expense type. Compensation averages 86% of the total expenses of the Department. The increase in compensation is proportional to the increases in funding.
The Department of Pediatrics has a complex funding model with revenues from UBC, the Ministry of Health (MOH) (administered through the Provincial Health Services Authority) and the BC Children’s Hospital Foundation. These revenues support clinical work, education, research and administration. We are the only large clinical department at UBC with an Alternate Payment Plan (APP) / Pediatric Practice Plan (PPP) that enables us to compensate faculty clinical work, clinical program leadership and bedside teaching via contracts or salary agreements.

Currently, two Divisions (Cardiology and Emergency Medicine) manage their own practice plans. General Pediatrics is the only Division that has a significant number of part-time pediatricians that provide clinical service on the Clinical Teaching Units at BC Children’s Hospital and on the Intermediate Nursery at BC Women’s Hospital + Health Centre. These physicians provide 80% of total service coverage (they bill fee-for-service (FFS) for this work).

The chart depicts the different sources of revenue that fund the Department’s operations. Other clinical plans include externally funded clinical programs. The increasing trend is mainly due to the Pediatrics Practice Plan, endowments and the Postgraduate Medical Education (PGME) program.
The 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.

Teck ACC will replace aging infrastructure and provide much-needed space for the larger care teams and new technologies required to treat today’s chronic and more complex illnesses. The building has been designed to minimize the movement of patients, care providers, equipment and supplies to improve the patient experience and increase efficiency.
WE HAVE SEEN SIGNIFICANT INCREASES IN OUR DEPARTMENT’S PUBLISHING AND LECTURING ACTIVITIES, BETWEEN 2013–15:
DIVISIONAL REPORTS
DIVISION OF ADOLESCENT HEALTH AND MEDICINE

OVERVIEW

The Division of Adolescent Health and Medicine (DAHM) supports programs at BC Children’s Hospital: the Youth Health Program, the Adolescent Eating Disorders Program, inpatient clinical care and consultation, and the RICHER social pediatrics program. BC Children’s is the only pediatric hospital in BC and is the referral centre for medically complex pediatric and adolescent patients for the entire province.

Our mission is to improve the health of adolescents through clinical services, education and training, advocacy, health promotion, and research. The Division seeks to define best practices for youth, educate and train health professionals in these best practices, facilitate youth involvement in program planning and evaluation, identify and address adolescent health issues, and develop partnerships for clinical services, training and research.

RESEARCH

Over the past several years, members of the Division have supported numerous research initiatives. Current research projects include:

- Evaluation of the pilot clinical trial of Mindful Awareness and Resilience Skills for Adolescents (MARS-A). (Dr. Dzung Vo, Sheila Marshall, PhD, Dr. Jake Locke and Andrea Johnson, PhD)
- Males with eating disorders (3-year grant). (Dr. Pei-Yoong Lam in collaboration with Dr. Jennifer Coelho, 2015)
- Effects of atypical antipsychotic medications in anorexia nervosa. (Dr. Pei-Yoong Lam, 2015)
- Health experiences in the transition to adulthood for Youth in Care. (Dr. Eva Moore with Susan Shumay, MN, NP and Genevieve Creighton, PhD)
- Maintaining and formalizing partnerships for homeless youth. Research completed February 2014. (Rob Rivers, BSc, MA, Dr. Eva Moore, and Elizabeth Saewyc, PhD, RN)
- Publication of Four Organizations Partnered to Address Youth Homelessness in Vancouver: Analysis of Intersectoral Collaboration. (Elizabeth Saewyc, PhD, RN, Steve Mathias, Robert Rivers, BSc, MA, Claire Pitcher, RN, Carmelina Barone, MA, and Dr. Eva Moore)
- Emergency presentation of at-risk youth in Vancouver. (Dr. Eva Moore with Dr. Badri Narayan and Judy Lynam, PhD, RN)
RESEARCH CONTINUED

- Publication of Capturing the Wisdom and the Resilience: How the Pinnacle Program Fosters Connections for alternative high school students. (Susan Shumay, MN, NP with Genevieve Creighton, PhD, Dr. Eva Moore and Elizabeth Saewyc, PhD, RN).

The DAHM maintains a close working relationship with the McCreary Centre Society, a unique non-governmental, non-profit agency that conducts population-based health research of adolescents in British Columbia.

EDUCATION

Our Division is responsible for providing academic leadership in UBC educational activities related to adolescent health. Dr. Vo has developed the introductory curriculum on adolescent health for first year UBC medical students on Nutrition, Growth and Development (2010–14). Our staff provides clinical education for first and second year medical students in how to interview adolescents, as well as an introductory presentation on adolescent development for third year students. We also offer a four-week elective rotation in Adolescent Health and Medicine for fourth year medical students and for visiting pediatric residents.

Subspecialty Education

The Adolescent Health and Medicine Subspecialty Residency (or Fellowship) Program at BC Children’s, accredited by the Royal College of Physicians and Surgeons of Canada since 2010, is one of four Canadian Adolescent Medicine Subspecialty Residencies and the only Adolescent Medicine training program in Western Canada.

In addition, our Division participates in developing the RICHER Social Pediatrics Initiative in the lowest income area of Vancouver. Residents work clinically and contribute to program development in order to address social determinants of health of marginalized youth.

CLINICAL CARE

Patient Care

The goals of the Division’s clinical programs are to develop and maintain best practices for youth medical care and health, and to provide training opportunities for medical students and residents.

Outpatient Services

- The Youth Health Program provides consultation services for youth with complex health conditions. This clinic focuses on the needs of youth with chronic medical conditions in adhering to treatment, adjusting to limitations, effectively dealing with challenges related to behavioural, substance use, mental health problems and pain management. We work to promote family support for youth transitioning to adult care.

- The RICHER (Responsive, Interdisciplinary, Child Health Education and Research) social pediatrics program is a core component of the Division of Adolescent Health and Medicine. This initiative is interdisciplinary with Developmental Pediatrics, General Pediatrics and others. We work collaboratively with community agencies, including schools, community centres and the Ministry for Child and Family Development to assure positive development of physical, psychological and social health.

- The Eating Disorders Program, operated in collaboration with Child Psychiatry, includes in-hospital treatment for medically unstable patients. It is the only tertiary level inpatient and intensive treatment program, as well as the only day hospital program in BC, for adolescents with eating disorders that includes secondary level clinical services and consultative services. The Eating Disorders Program accepts referrals and consultations from throughout BC and several other provinces. Clinical protocols for the evaluation and management of adolescent patients with eating disorders have been developed and are available provincially.

- The Youth Health Transition Model (ONTRAC) has been introduced to ambulatory clinics at BC Children’s to provide guidance in preparing adolescent patients and their families for the transition to the adult health care system. The ONTRAC model provides pathways for transitional health planning that is uninterrupted and developmentally appropriate for young people prior to and throughout their transfer into the adult health care system.

Inpatient Services

The medical staff, subspecialty residents and other trainees supervise the care of medically unstable adolescents with eating disorders in an inpatient Clinical Teaching Unit. In addition, the medical staff provides consultative services for adolescent inpatients with chronic medical conditions and complex biopsychosocial concerns.

- The Adolescent Intensive Treatment Services Eating Disorders Unit is located in the psychiatry department and provides a continuum of comprehensive medical and mental health services for patients requiring inpatient treatment for with anorexia nervosa and other eating disorders.

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
Medical School | University of California, Los Angeles
Residency | University of Southern California, Los Angeles
Fellowship | University of Southern California, Los Angeles

Dr. Dzung Vo, Director Medicine Subspecialty Residency & Fellowship Program & Clinical Assistant Professor
Medical School | University of Pennsylvania, Philadelphia (US)
Residency | University of California, San Francisco (US)
Fellowship | University of California, San Francisco (US)

Dr. Eva Moore, Director & Clinical Assistant Professor
Medical School | Johns Hopkins School of Medicine, Baltimore (US)
Residency | University of Washington, Seattle (US)
Fellowship | Johns Hopkins School of Medicine, Baltimore (US)

Dr. Pei-Yoong Lam, Medical Lead, Adolescent Eating Disorder Program & Clinical Assistant Professor
Medical School | University of Melbourne, Melbourne (AU)
Residency | University of Melbourne, Melbourne (AU)
Fellowship | University of Melbourne, Melbourne (AU)

Dr. Lynn Straatman, Medical Lead for Transition & Clinical Associate Professor
Medical School | University of Toronto, Toronto
Residency | University of Washington, Seattle (US)
Fellowship | University of Michigan, Ann Arbor (US),
University of Toronto, Toronto

Dr. Sandy Whitehouse, Clinical Associate Professor
Medical School | University of Sydney, Sydney (AU)
Residency | University of New South Wales, Sydney (AU)

ASSOCIATE FACULTY AND STAFF

Elizabeth Saewyc, PhD, Department of Nursing, UBC
Grant Charles, PhD, Department of Social Work, UBC
Sabrina Gill, RN, Department of Pediatrics, UBC, Clinical Nurse Specialist
Sheila Marshall, PhD, Department of Social Work, UBC

TRAINING PROGRAM GRADUATES

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<tr>
<th>NAME</th>
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<tr>
<td>Dr. Khaled Abdulhamid Shahat</td>
<td>Clinical Fellow</td>
<td>2013</td>
</tr>
<tr>
<td>Dr. Mariana Deevska</td>
<td>Subspeciality Residency</td>
<td>2015</td>
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SIGNIFICANT AWARDS

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<th>AWARD</th>
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<tr>
<td>Dr. Curren Warf</td>
<td>Clinical Professor</td>
<td>BC Health Care Awards</td>
<td>Top Innovation – Health Authority</td>
<td>2015</td>
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<tr>
<td>Dr. Sandy Whitehouse</td>
<td>Clinical Associate Professor</td>
<td>BC Health Care Awards</td>
<td>Top Innovation – Health Authority</td>
<td>2015</td>
</tr>
</tbody>
</table>
Mindfulness for Teens
DR. DZUNG X. VO, CLINICAL ASSISTANT PROFESSOR, DIVISION OF ADOLESCENT MEDICINE

Many adolescents struggle with severe stress in navigating demands of school, family, peer relationships and social determinants of health. In addition, many adolescents experience severe stress from chronic medical illness and/or mental health conditions such as anxiety and depression. Building resilience and healthy coping skills is critical to helping adolescents thrive in the face of such adversities. Mindfulness is a powerful tool that adolescents can learn to help cope with chronic stress, chronic illness, depression and anxiety. Mindfulness means “Paying attention in a particular way: On purpose, in the present moment, and non-judgmentally” (Jon Kabat-Zinn). Mindfulness practice is historically derived from ancient Buddhist cultures. Mindfulness training has adapted for secular environments and has been used successfully in clinical practice with adults for many decades. In 2011, Dr. Dzung Vo and Dr. Jake Locke, Department of Psychiatry, co-developed a mindfulness training program just for teenagers, called MARS-A: Mindful Awareness and Resilience Skills for Adolescents.

MARS-A is an eight-week outpatient program for adolescents ages 15–19 with psychological distress, with or without co-occurring chronic illness or chronic pain. We receive referrals for MARS-A from pediatric and mental health providers in many specialty areas throughout BC Children’s Hospital, as well as from providers in the community. In MARS-A, we teach adolescents formal and informal mindfulness skills to let go of worries about the future and regrets about the past, so that they live their lives more fully in the present moment, and transform their relationship with pain and difficult emotions.

To date, several hundred adolescents have benefited from MARS-A. Preliminary clinical research on MARS-A has found that adolescents reported increased positive affect, increased self-compassion, decreased psychological distress and decreased depression symptoms. One youth reported, “I can deal with my anxiety better now, in more than one way. Now I have many different strategies… five different practices like deep breathing and meditation, like body scanning, to help make my anxiety feel better.” Another youth said, “I really like the body scan… It helps by calming me down a bit. If I am in pain, I can focus on different parts of my body and by the end I am not as worried about my pain, even when it’s still there.”

Our work on MARS-A has positioned BC Children’s as a leader in the field of mindfulness for youth. The MARS-A program has been adapted for use at Hospital for Sick Children (Toronto) and McMaster Children’s Hospital (Hamilton). Dr. Vo’s book, The Mindful Teen: Powerful Skills to Help You Handle Stress One Moment at a Time (2015) has sold over 19,000 copies to date.

For more information, please visit:
WWW.MINDFULNESSFORTEENS.COM
WWW.KELTYMENTALHEALTH.CA/HEALTHY-LIVING/MINDFULNESS
OVERVIEW
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. The Division of Allergy merged with Immunology (previously a part of Infectious Diseases) in June 2013 to create the new Division of Allergy & Immunology. This better reflects the structure of training in the subspecialty, as per the Royal College of Physicians and Surgeons of Canada.

RESEARCH
Faculty research interests span a wide variety of topics in allergy and immunology:

- Dr. Chan’s research is focused on food allergy and eosinophilic esophagitis. For food allergy, some of the projects in 2013-2015 included: site-principal investigator for a CIHR sponsored milk oral immunotherapy clinical trial (GET-FACTS), confidence with parent use of epinephrine auto-injectors during oral food challenges, national peanut & seafood allergy registries, and development of a mobile e-health tool for education about food allergy. For eosinophilic esophagitis, he co-leads the BC Children's Hospital eosinophilic esophagitis registry with Dr. Vishal Avinashi in Gastroenterology, the only multidisciplinary eosinophilic esophagitis collaboration of its kind in Canada which is interested in multiple outcomes associated with the condition in a Canadian pediatric context. Dr. Chan was the primary author of the 2013 Canadian Paediatric Society’s food allergy prevention guidelines, and the only Canadian representative on the 2015 international consensus communication on peanut allergy prevention.

- Dr. Hildebrand’s specialized training in medical education has led to her interest in bridging the gap between medical education and research, as it pertains to Clinical Immunology and Allergy. She is working towards developing a national database for the management of DiGeorge syndrome.

- Dr. Junker is the Director of the Maternal Infant Child Youth Research Network (MICYRN), which connects the 20 child/maternal-child and three of the largest maternal research organizations across Canada. Under her leadership, MICYRN is focused on removing barriers and improving support for multi-jurisdictional research conducted by national networks and teams, with attention to ethics, informatics and clinical trials.
RESEARCH CONTINUED
- Dr. Turvey is the Director of Clinical Research and a Senior Clinician Scientist at BC Children’s Hospital Research Institute, and the Aubrey J. Tingle Professor of Pediatric Immunology. Key areas of interest include the genetics of susceptibility to childhood infection, the role of toll-like receptors in human disease, and innate immunity and lung inflammation in cystic fibrosis.

EDUCATION
Our fellowship training program is the only training program in Pediatric Clinical Immunology and Allergy west of Manitoba accredited by the Canadian Royal College of Physicians and Surgeons of Canada. Our main goal is to train candidates to practice evidence-based Pediatric Clinical Immunology and Allergy, preparing them for a career in either academic or community-based practice.

CLINICAL CARE
The Colonel Harland Sanders Allergy Clinic provides a consultation service to community physicians throughout the province, resulting in treatment of a wide variety of allergic disorders. There are over 1,800 patient visits per year. The ambulatory program is designed to provide a “one stop” service for diagnosis and management by including diagnostic, treatment and teaching facilities within the clinical unit. The Immunology Clinic provides consultation services for immune deficiency disorders and works with community health care providers for screening immunology studies to be done locally.

For more information
WWW.PEDIATRICS.MED.UBC.CA/DIVISIONS-CENTRES/ALLERGY-IMMUNOLOGY
WWW.MED.UBC.CA/THE-PEDIATRICIAN-AND-THE-PEANUT
WWW.BCCHF.CA/ABOUT-US/OUR-NEWSLETTER/SOC-SPRING-2016/EARLY-INTERVENTION

FACULTY BY RANK

<table>
<thead>
<tr>
<th>CLINICAL FACULTY</th>
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<tbody>
<tr>
<td>Dr. Stuart Turvey, Professor</td>
</tr>
<tr>
<td>Medical School</td>
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<tr>
<td>Residency</td>
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<tr>
<td>Fellowship</td>
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</tbody>
</table>

| Dr. Edmond Chan, Division Head & Clinical Associate Professor  |
| Medical School | University of Alberta, Edmonton  |
| Residency | University of Manitoba, Winnipeg  |
| Fellowship | University of Manitoba, Winnipeg  |

| Dr. Anne Junker, Associate Professor  |
| Medical School | University of Alberta, Edmonton  |
| Residency | University of British Columbia, Vancouver  |
| Fellowship | University of Washington, Seattle (US)  |

| Dr. John Dean, Clinical Associate Professor  |
| Medical School | University of London, London (UK)  |
| Residency | University of London, London (UK), University of British Columbia, Vancouver, McGill University, Montreal  |
| Fellowship | McGill University, Montreal  |

| Dr. Hong Yang, Research Associate  |
| Graduate School | (PhD) University of Waterloo, Waterloo  |
| Postdoctoral Fellowship | University of Toronto, Toronto, Simon Fraser University, Burnaby  |

| Dr. Tiffany Wong, Program Director & Clinical Assistant Professor  |
| Medical School | University of British Columbia, Vancouver  |
| Residency | University of Calgary, Calgary  |
| Fellowship | University of British Columbia, Vancouver  |

| Dr. Nico Marr, Research Associate  |
| Graduate School | (PhD) Julius Maximilian University of Würzburg, Würzburg (DE)  |
| Postdoctoral Fellowship | University of British Columbia, Vancouver  |

| Dr. Kyla Hildebrand, Program Director & Clinical Assistant Professor  |
| Medical School | University of Manitoba, Winnipeg  |
| Residency | University of Alberta, Edmonton  |
| Fellowship | University of Toronto, Toronto  |

| Dr. Kyla Hildebrand, Program Director & Clinical Assistant Professor  |
| Medical School | University of Manitoba, Winnipeg  |
| Residency | University of Alberta, Edmonton  |
| Fellowship | University of Toronto, Toronto  |

| Clinical Professor | Clinical Assistant Professor |
| Associate Professor | Assistant Professor |
| Clinical Professor | Clinical Instructor |
FACULTY BY RANK CONTINUED

CLINICAL FACULTY

Dr. Elodie Portales-Casm, Clinical Assistant Professor
Graduate School | (PhD) University of Montpellier II, Montpellier (FR)
Postdoctoral Fellowship | University of British Columbia, Vancouver

Dr. Sara Leo, Clinical Instructor
Medical School | University of Alberta, Edmonton
Residency | University of British Columbia, Vancouver
Fellowship | University of British Columbia, Vancouver

Dr. Joanne Yeung, Clinical Instructor
Medical School | University of British Columbia, Vancouver
Residency | University of British Columbia, Vancouver
Fellowship | McGill University, Montreal,
University of British Columbia, Vancouver

Dr. Scott Cameron, Clinical Instructor
Medical School | (PhD) University of British Columbia, Vancouver,
(MD) University of Manitoba, Winnipeg
Residency | University of British Columbia, Vancouver
Fellowship | University of Manitoba, Winnipeg

SIGNIFICANT AWARDS

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<tr>
<th>NAME</th>
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<th>GRANTING AGENCY</th>
<th>AWARD</th>
<th>YEAR</th>
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<tr>
<td>Dr. Edmond Chan</td>
<td>Clinical Associate Professor</td>
<td>UBC Department of Pediatrics</td>
<td>Ivory Tower Award</td>
<td>2013–14</td>
</tr>
<tr>
<td>Dr. Stuart Turvey</td>
<td>Professor</td>
<td>Canadian Science Writers’ Association</td>
<td>Science in Society Journalism Award</td>
<td>2015</td>
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"OUR FELLOWSHIP TRAINING PROGRAM IS THE ONLY TRAINING PROGRAM IN PEDIATRIC CLINICAL IMMUNOLOGY AND ALLERGY WEST OF MANITOBA ACCREDITED BY THE CANADIAN ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF CANADA."
DIVISION OF BIOCHEMICAL DISEASES

OVERVIEW
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. The spectrum of conditions spans from disorders of amino acid, fatty acid and carbohydrate metabolism to lysosomal, mitochondrial, peroxisomal, and cellular transport and trafficking disorders.

We serve patients in providing the highest standards of care for established therapies and in offering participation in clinical trials for innovative therapies. To ensure that every single child with a biochemical genetic condition in BC has access to treatment, we have developed a protocol that allows screening all children with unexplained developmental conditions for treatable biochemical genetic conditions. (The protocol is called, The Treatable Intellectual Disability Endeavour, or TIDE.) For those patients who have remained undiagnosed after application of standard biochemical tests, next generation sequencing has helped to establish a diagnosis in more than 50 percent.

Apart from our regular follow-up clinic, we have a nurse practitioner clinic for patients with chronic stable conditions, as well as clinics for enzyme replacement therapies for lysosomal disorders. We run a Neurometabolic clinic in close collaboration with the Division of Neurology and community neurologists. We are particularly proud of our TIDE clinic for children with undiagnosed developmental conditions, which is in close collaboration with community pediatricians and medical geneticists, as well as our multidisciplinary diagnostic clinic for particularly complex patients. As such, we have over 1,000 clinic visits per year and see up to 300 new referrals per year.

RESEARCH
Our research aims to establish and validate new diagnostic and therapeutic pathways for children with genetic causes of developmental and intellectual disabilities. Our major research endeavors can be seen in our Program Highlights.

EDUCATION
We are a Canadian College Medical Genetics (CCMG) accredited training site for biochemical genetics and train Canadian and international fellows. Our Biochemical Genetics training program is at the intersection of complex chronic care, biochemical laboratory medicine and medical genetics. It is thus open for both MDs coming from pediatrics, neurology, internal medicine or genetics, as well as for PhDs and lab scientists. The training includes rotations to Biochemical Genetics, Molecular Genetic and Cytogenetic Laboratories and the Department of Medical Genetics. Participation in the Transition program and rotation to the Adult Metabolic Clinic at Vancouver General Hospital ensures that the gains in survival which have come with advances in the treatment of these diseases in children are translated into adulthood.
EDUCATION CONTINUED

The Division of Biochemical Diseases also offers electives for residents in pediatric Neurology, Gastroenterology and Medical Genetics, as well as clinical Biochemical Genetic fellowships outside the CCMG accredited training program for international trainees.

For more information
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**
  Medical School | Karl Franzen’s University Graz (Austria)
  Residency | Department of Pediatrics, Karl Franzen's University Graz (AU)
  Biochemical Genetics Fellowship | Departments of Pediatrics and Clinical Chemistry, Karl Franzen's University Graz (AU)
  Pediatric Neurology Fellowship | Department of Pediatrics and Neurology, Georg August University of Goettingen (DE)

- **Dr. Ramona Salvarinova, Clinical Assistant Professor & Deputy Head, Division of Biochemical Diseases**
  Medical School | S.S. Cyril and Metodiji, Skopje (MK)
  Residency | Department of Pediatrics, University of Saskatchewan, Saskatoon
  Fellowship | Departments of Pediatrics, Pathology and Medical Genetics, and University of British Columbia

- **Dr. Clara van Karnebeek, Assistant Professor, Co-Principal Investigator TIDE-BC; Co-Director CAUSES Clinic & Principal Investigator, The Centre for Molecular Medicine and Therapeutics**
  Medical School | University of Amsterdam (NL)
  Residency | Department of Pediatrics, University of Amsterdam (NL)
  Fellowship | Departments of Pediatrics, Pathology and Medical Genetics, University of British Columbia

- **Dr. Gabrielle Horvath, Clinical Associate Professor Director, Biochemical Genetics Fellowship Program, Canadian College Medical Genetics**
  Medical School | Institute of Medicine and Pharmacology, Faculty of Medicine, Tirgu Mures (RO)
  Residency | Department of Pediatrics, University of British Columbia
  Fellowship | Departments of Pediatrics, Pathology and Medical Genetics, and the University of British Columbia

**SIGNIFICANT AWARDS**

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<tr>
<th>NAME</th>
<th>RANK</th>
<th>GRANTING AGENCY</th>
<th>AWARD</th>
<th>YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Clara van Karnebeek</td>
<td>Assistant Professor</td>
<td>CIHR</td>
<td>Finalist, Maud Menten New Investigator Prize (Institute of Genetics)</td>
<td>2013</td>
</tr>
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</table>
The Treatable Intellectual Disability Endeavour (TIDE)

The TIDE study (2011–15), funded by the BC Children’s Hospital Foundation as a collaborative area of innovation, has shown that 6% of children with developmental disabilities have biochemical genetic conditions for which there are already causal treatments available. As part of this study, we applied exome sequencing in 41 patients and we could establish a diagnosis in the majority (n=37), including two new gene discoveries (CAVA deficiency, NANS deficiency) and novel candidate genes.

The CAUSES (Clinical assessment of the Utility of Sequencing and Evaluation) Clinic is a unique research program established in extension of the TIDE program and in a joint collaboration with TIDE investigators and investigators from Medical Genetics and the CMMT (Centre for Molecular Medicine and Therapeutics) at BC Children’s Hospital Research Institute.

The TIDE program has a strong commitment to providing the highest standards of care and innovative therapies to our patients. With this mandate in mind, we are participating in international clinical trials for treatment of rare biochemical genetic disorders and are performing n=1 trials to offer patients innovative therapies which are not yet available as clinical trials.

As co-investigators in CIMDRN (Canadian Inherited Metabolic Disease Research Network) we are contributing with our clinical data to a national observational database, which will help to create practice informed evidence for treatments of conditions diagnosed by expanded newborn screening.

In collaboration with the nutritional research unit at BC Children’s Hospital Research Institute (Dr. Rajavel Elango) we are creating a research pipeline including in vivo stable isotope testing for the development of innovative nutritional therapies for children with disorders such as PKU, pyridoxine dependent epilepsy and cerebral creatine deficiencies.

For more information, please visit:
WWW.TIDEBC.ORG
WWW.TREATABLE-ID.ORG
DIVISION OF CARDIOLOGY

OVERVIEW
The Division of Cardiology provides care in BC 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, as well as those from Manitoba and Yukon. Our Division enjoys excellent relations with the Department of Radiology and together we provide an imaging service second to none in Angiography, Cardiac CT and Cardiac Magnetic Resonance Imaging.

RESEARCH
Our current research:

• The Children’s Heart Centre is active in research at the local, national and international levels. Funding from BC Children’s Hospital Foundation, 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.

• Scientific work is routinely presented at the Canadian Cardiovascular Society and the American Heart Association, as well as subspecialty meetings like the Heart Rhythm Society and The Pediatric and Adult Interventional Cardiac Symposium. Members of our Division have been recognized by the Department of Pediatrics for fostering an environment of research mentorship. Faculty members have taken leadership positions, including the President of Research for the Pediatric and Congenital Electrophysiology Society (Dr. Shubhayan Sanatani) and President of the Canadian Pediatric Cardiology Society (Dr. Kevin Harris).

• Our Division has also made contributions to national cardiovascular guidelines, including Newborn Oximetry Screening (Dr. Derek Human), the Approach to Syncope in the Pediatric Patient (Dr. Sanatani), Management of Heart Failure in Children (Dr. Human) and the Diagnosis, Evaluation and Treatment of Hypertension (Dr. Harris). Our faculty is leading several international registries on cardiovascular disorders in children.

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

Dr. Shubhayan Sanatani
Division Head
Clinical Associate Professor

Walter Duncan
Program Director
Clinical Professor

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

EDUCATION
The Pediatric Cardiology Training Program is an integral part of the only tertiary care cardiac centre for children in BC. The Cardiology Fellowship program was fully accredited by the Royal College of Physicians and Surgeons of Canada again in 2007 and our fellows have continued to be uniformly successful in pediatric cardiology examinations.

CLINICAL CARE
The ability of our Division to provide the highest possible standard of care is based on a collaborative team approach, with an open dialogue between health care providers. The Echocardiography Laboratory has completed a major upgrade with new machines, including portable units that support the travelling clinics, and a digital recording and reporting system. This has created compatibility with the imaging systems in the Department of Radiology, prepares our Division for the era of the electronic patient record, and creates the ability to integrate these tools into a hospital-wide digital imaging and recording system.

Our inpatient services focus on a busy cardiac surgical program that performs approximately 250 cardiac surgical operations each year. The full spectrum of operative care is provided, including heart transplant and mechanical support programs. Multidisciplinary rounds are conducted twice daily through the weekdays with the Pediatric Intensive Care Unit. A busy consultation service is also provided to the Neonatal Intensive Care Unit 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. A full-time exercise physiologist supports clinical care, as well as research.

For more information:
WWW.PEDIATRICS.MED.UBC.CA/DIVISIONS-CENTRES/CARDIOLOGY

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<tr>
<td>ACADEMIC FACULTY</td>
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</tbody>
</table>
| **Dr. Shubhayan Sanatani, Division Head & Associate Professor**  
Medical School | University of British Columbia, Vancouver  
Residency | Queen’s University, Kingston  
Fellowship | University of Toronto, Toronto  
University of British Columbia, Vancouver |
| **Dr. Walter Duncan, Program Director & Clinical Professor**  
Medical School | University of Saskatchewan, Saskatoon  
Residency | University of Toronto, Toronto |
| **Dr. Kevin Harris, Assistant Professor**  
Medical School | University of British Columbia, Vancouver  
Residency | University of British Columbia, Vancouver  
Fellowship | Emory University, Atlanta (US) |
| **Dr. Martin Hosking, Clinical Associate Professor**  
Medical School | University of Calgary, Calgary  
Residency | University of British Columbia, Vancouver  
Fellowship | University of Toronto, Toronto |
| **Dr. Sonia Franciosi, Research Associate**  
Graduate School | (PhD) University of British Columbia, Vancouver  
Postdoctoral Fellowship | Mount Sinai School of Medicine, New York (US) |
| **Dr. Shreya Moodley, Clinical Assistant Professor**  
Medical School | University of Saskatchewan, Saskatoon  
Residency | University of British Columbia, Vancouver  
Fellowship | University of British Columbia, Vancouver |
| **Dr. Christine Voss, Research Associate**  
Graduate School | (PhD) University of Essex, Colchester (UK)  
Postdoctoral Fellowship | University of British Columbia, Vancouver |
| **Dr. Elizabeth Sherwin, Clinical Assistant Professor**  
Medical School | Virginia Commonwealth University, Richmond (US)  
Residency | Harvard University, Boston (US)  
Fellowship | Harvard University, Boston (US), Boston University, Boston (US),  
University of British Columbia, Vancouver |

**Professor**  
**Associate Professor**  
**Assistant Professor**  
**Clinical Professor**  
**Clinical Instructor**  
**Clinical Associate Professor**  
**Clinical Assistant Professor**  
**Research Associate**
### FACULTY BY RANK CONTINUED

#### CLINICAL FACULTY

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Medical School</th>
<th>City, Country</th>
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<tbody>
<tr>
<td>Dr. Derek Human</td>
<td>Clinical Professor</td>
<td>Medical School</td>
<td>Oxford, UK</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Residency</td>
<td>Bulawayo, ZI</td>
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<tr>
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<td></td>
<td>Fellowship</td>
<td>Cape Town, ZA</td>
</tr>
<tr>
<td>Dr. Marion Tipple</td>
<td>Clinical Professor</td>
<td>Medical School</td>
<td>Oxford, UK</td>
</tr>
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<td></td>
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<td>Residency</td>
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### TRAINING PROGRAM GRADUATES

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<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Dr. Shreya Moodley</td>
<td>Subspecialty Resident</td>
<td>2013</td>
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<tr>
<td>Dr. Cecilia Albaro</td>
<td>Subspecialty Resident</td>
<td>2013</td>
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<tr>
<td>Dr. Benjamin Auld</td>
<td>Postgraduate Trainee</td>
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<tr>
<td>Dr. Carolina Andrea Escudero</td>
<td>Subspecialty Resident</td>
<td>2014</td>
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<tr>
<td>Dr. Merav Dvir Orgad</td>
<td>Clinical Fellow</td>
<td>2015</td>
</tr>
<tr>
<td>Dr. Ala Mustafa Mohamed</td>
<td>Clinical Fellow</td>
<td>2015</td>
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<tr>
<td>Dr. Kathryn Rebecca Armstrong</td>
<td>Clinical Fellow</td>
<td>2015</td>
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<tr>
<td>Dr. Tejal Risbud-Rao</td>
<td>Clinical Fellow</td>
<td>2015</td>
</tr>
<tr>
<td>Dr. Ahmad Salem Almutairi</td>
<td>Clinical Fellow</td>
<td>2015</td>
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### SIGNIFICANT AWARDS

| Name                        | Rank           | Granting Agency                              | Award                                                          | Year  |
|-----------------------------|----------------|----------------------------------------------|                                                               |       |
| Dr. Anas Manouzi            | Resident       | UBC Department of Pediatrics                 | Dr. David Alexander Clark, MD, Prize                           | 2014–15 |
| Dr. Kevin Harris           | Assistant Professor | UBC Department of Pediatrics                        | Resident Research Faculty Mentor of the Year Award              | 2014–15 |
| Dr. Kevin Harris           | Assistant Professor | Canadian Cardiovascular Society                        | Young Investigator Award                                     | 2013   |
| Dr. Shreya Moodley         | Clinical Assistant Professor | UBC Department of Pediatrics                        | Clinical Fellow Award for Excellence in Teaching Pediatric Residents | 2012–13 |
| Dr. Shubhayan Sanatani     | Associate Professor | UBC Sauder Physician Leadership Program                  | Valedictorian – Physician Leadership Program                    | 2015   |
| Dr. Shubhayan Sanatani     | Associate Professor | Heart & Stroke Foundation and Canadian Pacific                  | CP Has Heart Cardiovascular Award                             | 2015   |
Children’s Heart Centre

DR. KEVIN HARRIS, ASSISTANT PROFESSOR, DIVISION OF CARDIOLOGY

2013–15 has been highlighted by advancements in several important research themes in the Children’s Heart Centre: preventive cardiology, interventional cardiology and electrophysiology. Our research in these fields has resulted in the development of several national guidelines, which have been led by members of the Division of Cardiology. These include the joint Canadian Cardiovascular Society-Canadian Pediatric Cardiology Association Guideline on Syncope (Dr. Shubhayan Sanatani) and the inaugural Canadian Hypertension Education Program Guidelines on Pediatric Hypertension (Dr. Kevin Harris). Additionally Dr. Derek Human contributed to the national Newborn Pulse Oximetry Guidelines to improve the detection of newborns with critical congenital heart disease.

We continue to focus on preventive cardiac health and are investigating how to evaluate and promote physical activity in children with congenital and non-congenital cardiovascular disease. Physical activity is critical to optimize long-term cardiovascular health in children with congenital heart disease (CHD), but there are concerns that participation in this population remains low, in part due to dogmatic physical activity restrictions. With our research, we use state-of-the-art tools to better understand and promote physical activity levels in our patients with CHD. We are actively involved in training clinicians and scientists in research—we have mentored many trainees (pediatric residents, medical students, scientists, post-doctoral fellows, PhD students and pediatric cardiology residents) in research publications in this field of study.

We are currently evaluating if commercial activity trackers promote physical activity in children with CHD, and what the validity and value of commercial trackers is to monitor activity over prolonged periods of time; for example, to study the considerable effects of seasons (weather, daylight, school curriculum) on activity levels. We also recently initiated a longitudinal, survey-based study on cardiovascular health and physical activity in our patients with CHD, including a physical activity questionnaire we validated for use in this clinical population.

A particular highlight of last year was that we were able to offer research participation to children who attended our travelling pediatric cardiology clinics across BC and Yukon, where we offer specialist clinical care that is not otherwise available outside of Vancouver. With funding from BC Children’s Hospital Foundation and the Heart & Stroke Foundation, we were able to recruit over 50 children and adolescents to our ongoing activity tracker study from these remote communities, with one participant living as far as 3,000 km away from the Children’s Heart Centre in Vancouver. These children would otherwise not have been able to participate in research and/or interventions offered at the centre.
In Interventional Cardiology, we are evaluating the impact of new technologies on patient care—specifically we are interested in new high resolution intravascular imaging and complex interventional therapies. The Interventional Cardiology research program has recently had a number of highlights, including being recognized with the top research abstract presentation at the international cardiac catheterization meeting, “Society for Cardiovascular Angiography and Interventions.” Additionally, we have successfully established an International Pediatric OCT Registry and the Children’s Heart Centre serves as the lead centre, and hosts both the core imaging laboratory and data coordinating centre for evaluating this exciting new imaging modality in children and adolescents.

The Cardiac Electrophysiology Research Program aims to drive and support cardiac electrophysiology research initiatives with the overall goal to improve the outcome of pediatric patients who have arrhythmias. The areas of research within the program include Sudden Unexplained Death in the Young (SUDY), Supraventricular Tachycardia (SVT), as well as cardiovascular autonomic control. The program currently leads and partakes in several prospective multi-centre studies, registries and retrospective chart reviews. With new funding from the Canadian Institutes of Health Research (CIHR), we are currently leading a study of pediatric patients with Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT), an inherited heart rhythm disorder that causes SUDY in apparently healthy individuals.

In collaboration with members of the international Pediatric and Congenital Electrophysiology Society, Dr. Sanatani has assembled a team of renowned clinical leaders to establish an International Pediatric CPVT Registry and Biobank. By combining detailed health information with a patient’s genetic profile, more effective, personalized treatments can be developed. Further, this registry will support future research in areas such as novel CPVT gene discovery and therapeutics. We are also currently leading an international, multi-centre, prospective registry of infants with SVT. The overall goal is to determine the most effective secondary treatment for acute SVT termination in infants when typical first line therapies such as vagal maneuvers and adenosine fail.

The Children’s Heart Centre Research Team is actively collaborating with scientists and clinicians across the BC Children’s Hospital and UBC campus. We are expanding our research capacity and continuing to recruit trainees with an ongoing focus on research education for pediatric residents, pediatric cardiology subspecialty residents and students at all levels.

For more information, please visit: WWW.BCCHILDRENS.CA/OUR-SERVICES/CLINICS/CHILDRENS-HEART-CENTRE

“We CONTINUE TO FOCUS ON PREVENTIVE CARDIAC HEALTH AND ARE INVESTIGATING HOW TO EVALUATE AND PROMOTE PHYSICAL ACTIVITY IN CHILDREN WITH CONGENITAL AND NON-CONGENITAL CARDIOVASCULAR DISEASES.”
OVERVIEW
The Division of Critical Care provides leadership and excellence in the provision of critical care to children in BC. The Pediatric Intensive Care Unit (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.

RESEARCH
Research activity is supported by a research assistant/coordinator, with multiple clinical trials ongoing.
- Dr. Srin Murthy is the research supervisor for the pediatric critical care training program.
- Gordon Krahn is the research coordinator and provides support for individual and multi-centre research.

EDUCATION
The UBC Pediatric Critical Care Training Program is fully accredited by the Royal College of Physicians and Surgeons of Canada.

CLINICAL CARE
The clinical service of our Division remains busy, with approximately 1,200 admissions to the PICU annually in each of the past two years. Division physicians also coordinated over 600 acute pediatric transports to the BC Children’s Hospital each year. The Extra Corporeal Life Support (ECLS) program, now in its 18th year, 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. Tex Kissoon, Professor**
  - *Medical School* | University of the West Indies, Mona (JM)
  - *Residency* | University of Calgary, Calgary
  - *Fellowship* | University of Toronto, Toronto

#### CLINICAL FACULTY

- **Dr. David Wensley, Division Head & Clinical Professor**
  - *Medical School* | University of London, London (UK)
  - *Residency* | University of London, London (UK)
  - *Fellowship* | University of Melbourne, Melbourne (AU)
- **Dr. Srinivas Murthy, Clinical Assistant Professor**
  - *Medical School* | McGill University, Montreal
  - *Residency* | Harvard University, Boston (US)
  - *Fellowship* | University of Toronto, Toronto
- **Dr. Peter Skippen, Clinical Professor**
  - *Medical School* | University of Queensland, Brisbane (AU)
  - *Residency* | University of Queensland, Brisbane (AU)
  - *Fellowship* | University of Queensland, Brisbane (AU)
  - University of Alberta, Edmonton, University of Toronto, Toronto
- **Dr. Mona Patel, Program Director & Clinical Assistant Professor**
  - *Medical School* | University of Manitoba, Winnipeg
  - *Residency* | University of British Columbia, Vancouver
  - *Fellowship* | University of British Columbia, Vancouver
  - Harvard University, (Boston)
- **Dr. Sandy Pitfield, Clinical Assistant Professor**
  - *Medical School* | Queen’s University, Kingston
  - *Residency* | University of British Columbia, Vancouver
  - *Fellowship* | University of British Columbia, Vancouver
  - University of Southern California, Los Angeles (US)
- **Dr. Arthur Cogswell, Clinical Associate Professor**
  - *Medical School* | University of Tasmania, Hobart (AU)
  - *Residency* | University of Tasmania, Hobart (AU)
  - *Fellowship* | University of Sydney, Sydney (AU)
  - University of British Columbia, Vancouver
- **Dr. Mia Remington, Clinical Assistant Professor**
  - *Medical School* | University of Saskatchewan, Saskatoon
  - *Residency* | University of Saskatchewan, Saskatoon
  - *Fellowship* | University of British Columbia, Vancouver

#### Clinical Instructor

- **Dr. Jennifer Smitten**
  - *Medical School* | University of British Columbia, Vancouver
  - *Residency* | University of British Columbia, Vancouver

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**DIVISION OF CRITICAL CARE**

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**DEPARTMENT OF PEDIATRICS**

*Triennial Report 2013-2015*
## Clinical Associates

Dr. Jennifer Retallack

Dr. Sal Denny

## Training Program Graduates

<table>
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<tr>
<th>Name</th>
<th>Title</th>
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<tbody>
<tr>
<td>Dr. Sarah Goodwin</td>
<td>Postgraduate Trainee</td>
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<td>Dr. Yuval Cavari</td>
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<tr>
<td>Dr. Jeff Bishop</td>
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<td>Dr. Melissa Esteves Martins</td>
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<td>Dr. Isabel Mennes</td>
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<td>Dr. Arpita Chattopadhyay</td>
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<td>Dr. Saskia Coetzee</td>
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<td>Dr. Pavan Judge</td>
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<tr>
<td>Dr. Luiz Cesar Pinto de Almeida Junior</td>
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<td>Dr. Serge Grazioli</td>
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## Significant Awards

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<tr>
<th>Name</th>
<th>Rank</th>
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<th>Year</th>
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<tr>
<td>Dr. Mary Bennett</td>
<td>Clinical Associate Professor</td>
<td>UBC CPD (Continuing Professional Development)</td>
<td>Distinguished Services to CME-CPD Award</td>
<td>2015</td>
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<tr>
<td>Dr. Alexander (Sandy) Pitfield</td>
<td>Clinical Assistant Professor</td>
<td>Partners in Care, The Family Advisory to BC Children's Hospital</td>
<td>Patient &amp; Family Centred Care Award – Award of Distinction</td>
<td>2013</td>
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<tr>
<td>Dr. Haley Devries</td>
<td>Resident</td>
<td>UBC Department of Pediatrics</td>
<td>Dr. David Alexander Clark, MD, Prize</td>
<td>2013–14</td>
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<tr>
<td>Dr. Tex Kissoon</td>
<td>Professor</td>
<td>Society of Critical Care Medicine</td>
<td>Master of Critical Care Medicine Award</td>
<td>2015</td>
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</table>
Home Tracheostomy and Ventilation Program

DR. DAVID WENSLEY, DIVISION HEAD, DIVISION OF CRITICAL CARE
LYNN COOLEN, PROGRAM MANAGER, PEDIATRIC INTENSIVE CARE UNIT

Advances in medical care and expansion of supportive care options have contributed to the survival of children with complex medical conditions, including those dependent on chronic ventilator support. The BC Children’s Home Tracheostomy and Ventilation Program was developed in the late 1980s under the direction of Dr. Robert Adderley. Over the last 20 years, there has been a steady increase in the number of patients in our program.

We are currently providing multidisciplinary care to 127 patients from all over BC. 20 of our patients are tracheostomy- and ventilation-dependent, 93 are dependent on non-invasive ventilation (CPAP or BiPAP) and 14 are tracheostomy dependent.

Between 20 and 30 new patients have been added to the program each year for the last four years, with half of this number leaving the program because of no further need for support, transitioning to adult services or passing away. All of these children and youth are managed in their family homes, foster care or group homes, with none spending significant time in institutions. Respite care for many is through Canuck Place, the pediatric hospice program.

In 2013, we published an analysis of our program, one of the largest series published, which demonstrated a 10-year survival rate of 91%. Although approximately one in five patients are able to have their respiratory support discontinued, increasing numbers are being transitioned to adult care. Our program also recently published a landmark study on quality of life of home ventilated patients and families. Over 90% of children assess the adverse effects of home care as mild or moderate and over 80% of school-age children attend regular school.

For more information, please visit:
WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/DAVID-WENSLEY

“WE ARE CURRENTLY PROVIDING MULTIDISCIPLINARY CARE TO 127 PATIENTS FROM ALL OVER BRITISH COLUMBIA. 20 OF OUR PATIENTS ARE TRACHEOSTOMY-AND VENTILATION-DEPENDENT, 93 ARE DEPENDENT ON NON-INVASIVE VENTILATION (CPAP OR BIPAP) AND 14 ARE TRACHEOSTOMY DEPENDENT”
— DR. DAVID WENSLEY, DIVISION HEAD, DIVISION OF CRITICAL CARE
OVERVIEW
The Division of Dermatology provides high-quality care to BC children with skin diseases. We undertake clinical research and academic enquiry, and educate medical students, postgraduate trainees and other physicians in the field of pediatric dermatology.

RESEARCH
Over the past several years, research has focused on studies of the safety and efficacy of biologic agents for the treatment of psoriasis. These are multi-centre studies sponsored by the pharmaceutical industry.

EDUCATION
The UBC Dermatology Residency Program includes a rotation in pediatric dermatology at the BC Children’s Hospital. The UBC Pediatric Residents also do elective rotations with our Division.

CLINICAL CARE
Patient care in pediatric dermatology is active, as our Division has more than 4,000 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

“PATIENT CARE IN PEDIATRIC DERMATOLOGY IS ACTIVE, AS OUR DIVISION HAS MORE THAN 4,000 PATIENT VISITS PER YEAR.”
DIVISION OF DERMATOLOGY

FACULTY BY RANK

<table>
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<tr>
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<tr>
<td>Dr. Julie Prendiville, Division Head, Program Director &amp; Clinical Professor</td>
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<td>Dr. Wingfield Rehmus, Clinical Assistant Professor</td>
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TRAINING PROGRAM GRADUATES

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<td>Dr. Wen Lyn Ho</td>
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SIGNIFICANT AWARDS

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<tr>
<td>Dr. Joseph Lam</td>
<td>Associate Member</td>
<td>UBC Department of Pediatrics</td>
<td>UG Teacher of the Year Award</td>
<td>2013–14</td>
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OVERVIEW
The Division of Developmental Pediatrics is located at Sunny Hill Health Centre for Children and the BC Children’s Hospital. Sunny Hill is a tertiary care provincial centre providing services to children from around the province. Our Division promotes excellence in clinical practice, education and research in child development and rehabilitation.

RESEARCH
Our current research spans many programs:

Children with Disabilities Research Program
- Dr. Anton Miller is involved in independent and collaborative initiatives aimed at children with neurodevelopmental disorders and disabilities (NDD/D) as a group or population in a non-categorical way (not focused on any one diagnostic category). He is studying relationships between a child’s diagnosed health condition, functional characteristics, and child and family needs.

Mother’s Mood Matters: The Developmental Consequences in Children with Prenatal Antidepressant Exposure
- Dr. Tim Oberlander’s research focuses on developmental outcomes in children of depressed mothers who were treated with an SSRI (selective serotonin reuptake inhibitor) antidepressant during their pregnancies. His work spans studies that range from molecular/genetic to population epidemiological levels that characterize neurodevelopmental pathways that reflect risk, resiliency and developmental plasticity.

Cerebral Palsy Registry
- Dr. Esias van Rensburg and colleagues from across Canada are establishing the Canadian Cerebral Palsy Registry, the first national cerebral palsy registry in North America. The main aims of the CP Registry are to gain further understanding of the risk factors and causes of CP, to understand how often children are diagnosed with CP, to find out where they live in Canada, and to better understand parents’ perspectives on their child’s care and how services are provided to them.

Autism-Specific Research
- Dr. Nancy Lanphear is leading a review of the diagnostic process for autism in Canadian Pediatric Centres. There are also ongoing quality improvement projects done in collaboration with Sunny Hill.
RESEARCH CONTINUED
Fetal Alcohol Spectrum Disorder (FASD)
• Drs. Timothy Oberlander, Christine Loock and Nancy Lanphear are involved with the NeuroDevNet Research project on FASD. This is a collaborative effort with other Canadian sites.

Social Disparities
• Dr. Christine Loock helps lead the RICHER Program Initiative to address social pediatrics in BC.

EDUCATION
Resident Education
The training period for residents in developmental pediatrics/child rehabilitation is currently four weeks in the PGY-3 year. Additional structured learning activities in developmental pediatrics occur throughout the R1-R3 years. This takes the form of monthly ward rounds focusing on child development in selected patients and a two-year lecture series as part of the academic half-day program. Elective rotations in child development are available to R4s.

Subspecialty Residency / Clinical Fellowship Program
The objective of the UBC Subspecialty Residency Program in Developmental Pediatrics is the training of academic pediatricians with unique, in-depth expertise in child development and behaviour (both normal and abnormal) from the prenatal period to late adolescence. Training in our Subspecialty Residency Program enables pediatric residents to gain proficiency in the assessment and management of a full spectrum of neurodevelopmental disorders, including cerebral palsy, autism, intellectual disability, and learning disorders, and the neurobehavioural effects of prenatal substance exposure and environmental poverty. These conditions comprise more than 40% of General Pediatric practice, and are a cause of significant concern in the majority of children referred for pediatric specialty consultation.

CLINICAL CARE
Our Division works primarily at Sunny Hill. We work with families and communities as partners to better understand every child’s needs and to develop tailored recommendations and services. In BC, the service delivery system for Children and Youth with Special Needs (CYSN) is organized into tiers representing the many layers of expertise available to children, youth and families.

Services
• Acute Rehabilitation, Neuromotor Program and Sensory Services: The Child Development and Rehabilitation Program offers specialized diagnostic and therapeutic services to children and adolescents experiencing developmental conditions and disabilities.
• Developmental and Behavioural Health: The program also offers specialized diagnostic evaluations to children and adolescents experiencing delayed cognition, communication and behavioural health issues.

For more information, please visit:
WWW.PEDIATRICS.MED.UBC.CA/DIVISIONS-CENTRES/DEVELOPMENTAL-PEDIATRICS
### FACULTY BY RANK

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<thead>
<tr>
<th>ACADEMIC FACULTY</th>
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</table>
| **Dr. Tim Oberlander, Professor**  
*Medical School*: Queen’s University, Kingston  
*Residency*: McGill University, Montreal  
*Fellowship*: McGill University, Montreal, Harvard University, Boston (US) | **Dr. Nancy Lanphear, Division Head**  
*Clinical Associate Professor*  
*Medical School*: University of Missouri, Kansas City (US)  
*Residency*: University of Cincinnati, Cincinnati (US)  
*Fellowship*: University of Cincinnati, Cincinnati (US) |
| **Dr. Ron Barr, Professor**  
*Medical School*: McGill University, Montreal  
*Residency*: McGill University, Montreal  
*University of British Columbia, Vancouver*  
*Fellowship*: Harvard University, Boston (US) | **Dr. Elizabeth Mickelson, Program Director & Clinical Associate Professor**  
*Medical School*: University of Missouri, Kansas City (US)  
*Residency*: University of Cincinnati, Cincinnati (US)  
*Fellowship*: Harvard University, Boston (US) |
| **Dr. Christine Loock, Associate Professor**  
*Medical School*: Harvard University, Boston (US)  
*Residency*: University of Washington, Seattle (US)  
*University of British Columbia, Vancouver*  
*Fellowship*: University of British Columbia, Vancouver, Harvard University, Boston (US) | **Dr. Barbara Fitzgerald, Clinical Associate Professor**  
*Medical School*: University of British Columbia, Vancouver  
*Residency*: University of British Columbia, Vancouver  
*Fellowship*: University of British Columbia, Vancouver |
| **Dr. Maureen O’Donnell, Associate Professor**  
*Medical School*: University of Saskatchewan, Saskatoon  
*Residency*: University of Saskatchewan, Saskatoon  
*Fellowship*: McMaster University, Hamilton | **Dr. Jill Hoube, Clinical Associate Professor**  
*Medical School*: Harvard University, Boston (US)  
*Residency*: University of Southern California, Los Angeles (US)  
*Fellowship*: University of California, Los Angeles (US) |
| **Dr. Whitney Weikum, Research Associate**  
*Graduate School*: University of British Columbia, Vancouver  
*Postdoctoral Fellowship*: University of British Columbia, Vancouver | **Dr. Osman Ipsiroglu, Clinical Associate Professor**  
*Medical School*: University of Vienna, University, Vienna (AT)  
*Residency*: Karl-Franzens Universitat, Graz (AT)  
*Fellowship*: Karl-Franzens Universitat, Graz (AT), University of Munster, Munster (DE) |
| **Dr. Veronica Schiariti, Research Associate**  
*Medical School*: University of Buenos Aires, Buenos Aires (AR)  
*Residency*: University of Buenos Aires, Buenos Aires (AR)  
*Fellowship*: University of Buenos Aires, Buenos Aires (AR), University of British Columbia, Vancouver | **Dr. Anton Miller, Clinical Associate Professor**  
*Medical School*: University of Cape Town, Cape Town (ZA)  
*Residency*: University of British Columbia, Vancouver  
*Fellowship*: University of British Columbia, Vancouver, McGill University, Montreal |

- **Professor**
- **Associate Professor**
- **Assistant Professor**
- **Research Associate**
- **Clinical Professor**
- **Clinical Associate Professor**
- **Clinical Assistant Professor**
- **Clinical Instructor**
### FACULTY BY RANK

#### CLINICAL FACULTY CONTINUED

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#### TRAINING PROGRAM GRADUATES

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<td>Dr. Bat-Chen Friedman</td>
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<td>Dr. Lana Marie Soper</td>
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<td>Clinical Associate Professor</td>
<td>UBC Sauder Physician Leadership Program</td>
<td>Physician Leadership Program</td>
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The Division of Developmental Pediatrics and Sunny Hill Health Centre for Children

DR. NANCY LANPHEAR, DIVISION HEAD, DIVISION OF DEVELOPMENTAL PEDIATRICS

CLINICAL CARE

We believe that children should grow to achieve their own unique potential. The Division of Developmental Pediatrics works primarily at Sunny Hill Health Centre for Children with families and communities as partners to better understand every child's needs, and to develop tailored recommendations and services. Every year, Sunny Hill receives substantial funding from BC Children’s Hospital Foundation.

In British Columbia, the service delivery system for Children and Youth with Special Needs (CYSN) is organized into tiers representing the many layers of expertise available to children, youth and families. This is based on a model which has been used successfully in other countries to help reduce gaps and overlaps in service, and increase collaboration between service providers.

For more information on the CVSN Framework of action and Tiers of Service, please visit: http://www2.gov.bc.ca/assets/gov/family-and-social-supports/children-teens-with-special-needs/framework_for_action.pdf

SERVICES

The following two streams of services are available at Sunny Hill:

**Acute Rehabilitation, Neuromotor Program and Sensory Services**

The Child Development and Rehabilitation Program offers specialized diagnostic and therapeutic services to children and adolescents experiencing developmental conditions and disabilities. The Sunny Hill program is a provincial service offering complex care, diagnosis and treatment for children and adolescents, up to 19 years of age.

The following teams provide specialized services and functional assessments:

- Acute Rehabilitation Inpatient Team
- Positioning and Mobility Team
- Assistive Technology Team
- Feeding
- Gait Lab
- Tone/Spasticity Management
- Hearing Impairment
- Vision Impairment

**Developmental and Behavioral Health**

The Child Development and Rehabilitation Program offers specialized diagnostic evaluations to children and adolescents experiencing delayed cognition, communication and behavioural health issues. The Sunny Hill program is a regionalized Provincial service offering complex care, diagnosis and treatment for children and adolescents, up to 19 years of age, experiencing:

- Autism Spectrum Disorders
- Fetal Alcohol Spectrum Disorder
- Complex Development and Behavioural Conditions

For more information on the Neuromotor Program, please see: http://www.bccchildrens.ca/our-services/sunny-hill-health-centre/our-services
OVERVIEW
The Division of Emergency Medicine provides 24/7 care to infants, children and youth with urgent and emergent care. We take care of 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 Emergency Department in the province, we serve almost 43,000 children every year and are the only Pediatric Trauma Centre in BC.

RESEARCH
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. Our research includes:

• Pain and Sedation: Pain management during procedures is important because of the deleterious consequences of pain later in life. Within this focus of research we may identify sub-themes:
  • Assessment of pain
  • Pharmacology of pain
  • Procedural sedation

• Trauma and Resuscitation: Approximately 25–30% of all visits to EDs are of ill or injured children, and almost 85% of visits occur in general or community hospitals. Of all pediatric visits to EDs, 1–5% are critically ill children who require cardiopulmonary resuscitation.

• Knowledge Translation: Our team of experienced PEM physicians—with a provincial mandate—have become leaders in Knowledge Translation of acute pediatrics, mostly in the field of resuscitation. Much of our work in this area is in conjunction with a Canada-wide project known as TREKK (Translating Research in Emergency Care for Kids), a partnership between children’s hospitals and community hospitals across the country. This project aims to promote the uptake of best practices in pediatric emergency care through bottom-line recommendations for evidence-based treatment of common childhood emergencies.
RESEARCH CONTINUED

- In partnership with BC Children’s Hospital Mental Health, we have developed an innovative tool to help improve the evaluation of youth with mental health concerns and facilitate appropriate outpatient community referrals or acute crisis intervention. Our researcher team is currently training emergency providers across BC to utilize this tool and has begun work with youth and families.

EDUCATION

Our Division continues 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. All trainees participate in Pediatric Emergency Medicine. These rounds cover a core curriculum in PEM and provide a forum to discuss new developments in the field.

Our Fellowship program has grown significantly in recent years. Our Division offers a two- or three-year academic fellowship in PEM. Fellows in the program are offered a wide variety of clinical opportunities, with rotations in Pediatric Emergency, Toxicology, Intensive Care, Transport Medicine, Orthopedics and others.

For more information, please visit: WWW.PEDIATRICS.MED.UBC.CA/DIVISIONS-CENTRES/EMERGENCY-MEDICINE

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</table>
| Dr. Ran Goldman, Professor  
*Medical School* | Dr. Sim Grewal, Clinical Associate Professor  
*Medical School* |
| Hebrew University of Jerusalem (IL)  
*Residency* | University of British Columbia, Vancouver  
*Residency* |
| Tel Aviv University, Tel Aviv (IL)  
*Fellowship* | University of Alberta, Edmonton  
*Fellowship* |
| Dr. Garth Meckler, Division Head & Associate Professor  
*Medical School* | Dr. Paul Korn, Clinical Associate Professor  
*Medical School* |
| Harvard University, Boston (US)  
*Residency* | McMaster University, Hamilton  
*Residency* |
| University of Washington, Seattle (US)  
*Fellowship* | University of British Columbia, Vancouver  
*Fellowship* |
| Dr. Quynh Doan, Assistant Professor  
*Medical School* | Dr. Vikram Shabhaney, Program Director & Clinical Assistant Professor  
*Medical School* |
| McGill University, Montreal  
*Residency* | University of Alberta, Edmonton  
*Residency* |
| University of British Columbia, Vancouver  
*Fellowship* | University of British Columbia, Vancouver  
*Fellowship* |
| Dr. Shan Yin, Clinical Assistant Professor  
*Medical School* | Dr. Margaret Colbourne, Clinical Assistant Professor  
*Medical School* |
| Case Western Reserve University, Cleveland (US)  
*Residency* | University of British Columbia, Vancouver  
*Residency* |
| University of Southern California, Los Angeles (US)  
*Fellowship* | University of British Columbia, Vancouver  
*Fellowship* |
| Dr. Carolyn Davies, Clinical Assistant Professor  
*Medical School* | Dr. Navid Dehghani, Clinical Assistant Professor  
*Medical School* |
| University of British Columbia, Vancouver  
*Residency* | University of British Columbia, Vancouver  
*Residency* |
| University of British Columbia, Vancouver  
*Fellowship* | University of British Columbia, Vancouver  
*Fellowship* |

**For more information, please visit:** WWW.PEDIATRICS.MED.UBC.CA/DIVISIONS-CENTRES/EMERGENCY-MEDICINE
FACULTY BY RANK CONTINUED

CLINICAL FACULTY

- Dr. Paul Enarson, Clinical Assistant Professor
  Medical School | University of Calgary, Calgary
  Residency | University of British Columbia, Vancouver
  Fellowship | University of Alberta, Edmonton

- Dr. Christine Perreault, Clinical Assistant Professor
  Medical School | McGill University, Montreal
  Residency | University of Colorado, Denver (US)
  Fellowship | University of Western Ontario, London

- Dr. David Haughton, Clinical Assistant Professor
  Medical School | Cornell University, Ithaca (US)
  Residency | University of California, Los Angeles (US),
  University of British Columbia, Vancouver
  Fellowship | University of British Columbia, Vancouver

- Dr. Bruce Philips, Clinical Assistant Professor
  Medical School | University of Natal, Durban (ZA)
  Residency | University of British Columbia, Vancouver
  Fellowship | University of British Columbia, Vancouver

- Dr. Simi Khangura, Clinical Assistant Professor
  Medical School | University of British Columbia, Vancouver
  Residency | University of British Columbia, Vancouver
  Fellowship | University of British Columbia, Vancouver

- Dr. Karen Black, Clinical Associate Professor
  Medical School | University of British Columbia, Vancouver
  Residency | Dalhousie University, Halifax
  Fellowship | University of British Columbia, Vancouver

- Dr. Zoe Leatherbarrow, Clinical Instructor
  Medical School | University of British Columbia, Vancouver
  Residency | University of British Columbia, Vancouver
  Fellowship | University of British Columbia, Vancouver

- Dr. Jasmine Allaire, Clinical Instructor
  Medical School | University of British Columbia, Vancouver
  Residency | McGill University, Montreal
  Fellowship | Université de Montréal, Montreal,
  University of British Columbia, Vancouver

TRAINING PROGRAM GRADUATES

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<td>Dr. Dayna Bell</td>
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<td>Dr. Maher Hassan Nahari</td>
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<td>Dr. Elisa Mapelli</td>
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<td>Dr. Melissa Yen May Chan</td>
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<tr>
<td>Dr. Geneviève Ernst</td>
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<tr>
<td>Dr. Garth Meckler</td>
<td>Associate Professor</td>
<td>UBC Department of Pediatrics</td>
<td>Teacher of the Year</td>
<td>2013–14</td>
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HEARTSMAP

DR. QUYNH DOAN, ASSISTANT PROFESSOR, DIVISION OF EMERGENCY MEDICINE

HEARTSMAP is a Psychosocial Assessment tool that was developed and tested by Dr. Quynh Doan, a BC Children's Hospital emergency pediatrician and clinician scientist at the BC Children's Hospital Research Institute, in collaboration with Dr. Tyler Black, the Medical Director of the Child and Adolescent Psychiatric Emergency (CAPE) Unit. It was designed to be used by emergency room physicians. Pediatric resident, Dr. Alison Lee, was involved in the early studies and won the 2016 resident best poster award from the Canadian Paediatric Society.

While an overwhelming 1.2 million Canadian children and youth are affected by mental illness, evidence suggests only 20% of this population receives mental health care in a timely manner. As a result, emergency departments (EDs) have increasingly become a gateway for access to specialized mental health services. In fact, data from the BC Children’s ED suggests pediatric mental health presentations are one of the fastest growing patient demographics seen in the Department.

Between 2002–12, the volume of mental health-related visits made to the BC Children’s ED increased by 86%, far surpassing the observed 27.5% increase in the overall ED visit volume. Prior to 2014, BC Children’s ED care providers had no standardized method of assessing and managing children and youth with mental health concerns. Without a comprehensive approach towards acquiring information from patients and families, devising a discharge plan tailored to patients’ needs proved challenging for ED clinicians. Furthermore, with the majority of mental health presentations occurring outside of regular office hours, coordinating follow-up care with community-based programs was unfeasible and patients were often referred to inappropriate services. Reluctant to send patients home, in fear of an acute safety risk, clinicians in the ED frequently requested a psychiatric consult regardless of whether the patient’s concerns were of a psychiatric, social or behavioural nature. Consequently, mental health-related visits spent on average 96 minutes longer in the Department compared to their non-mental health counterparts between 2003–12. Of particular concern was that approximately one-third of these mental health-related visits were return visits, suggesting that the care these patients received during their initial visit may have been insufficient or unable to meet their needs.

In 2014, the HEARTSMAP tool was validated at BC Children’s. An assessment using the HEARTSMAP tool typically takes 10–30 minutes for clinicians to complete. In addition to helping the clinician organize their psychosocial assessment, HEARTSMAP allows users to safely determine which patients are safe to be discharged home and which require further care in the acute
The results from this study revealed strong inter-rater reliability among ED practitioners at BC Children’s. The tool has since been adopted as the standard psychosocial assessment tool for all mental health visits to the BC Children’s ED.

In response to previous findings that fewer than 25% of outpatient mental health referrals from the BC Children’s ED reached the correct service, the LINK program was introduced concurrently with the HEARTSMAP tool in October 2014. LINK provides an emergency follow-up service for all patients and families discharged from the BC Children’s ED to help them navigate community mental health resources and re-direct them to appropriate services if necessary. Since its implementation, LINK has successfully connected every patient requiring follow-up care in the community to appropriate mental health support.

Dr. Doan and Dr. Black’s work with the HEARTSMAP tool was awarded the Award of Merit in the Top Innovation category at the 2016 BC Health Care Awards.

From over 330 applications, Dr. Doan’s proposal to disseminate HEARTSMAP provincially was one of the selected 30 projects granted funding from the Specialist Services Committee (SSC), a joint collaboration between Doctors of BC and the provincial Ministry of Health. In early 2017, HEARTSMAP will be implemented to 50 EDs across BC in five health authorities: Provincial Health Services Authority, Vancouver Coastal Health, Providence Healthcare, Fraser Health and Interior Health.

For more information, please visit:
WWW.HEARTSMAP.CA
WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/QUYNH-DOAN
The BC Children’s Hospital Emergency Department (ED) implemented a pilot Clinical Decision Unit (CDU) in October 2014 to test validity for future state planning for the new Teck Acute Care Centre (Teck ACC). Funding was secured through Redevelopment’s Early Implementation Opportunity program to implement and evaluate a six-month pilot. Leading up to the implementation, a cross section of physicians, administrators, nurse leaders, pharmacists, nurse practitioners and front line nursing staff reviewed literature on CDUs and developed patient criteria for transfer into the BC Children’s ED. The ED team utilized the implementation of the CDU to trial other processes, such as iPASS and medication reconciliation. The pilot was deemed successful and the ED managed to secure an additional six-months of funding through Redevelopment to test the seasonality of the CDU. In the pilot year, the CDU had over 1,700 patients transferred into the space and an estimated 500 inpatient admissions were avoided. Other positive aspects of the CDU were improved efficiencies in ED patient flow and improved teamwork among staff. The CDU was well received by patients and families. The Provincial Health Services Authority committed to continue the funding until we transition into the Teck ACC in the fall of 2017.

For more information, please visit:
WWW.BCCHF.CA/BLOG/THE-NEW-BC-CHILDREN’S-HOSPITAL-SERIES-LEVEL-1-EMERGENCY
OVERVIEW

The Division of Endocrinology & Diabetes is a diagnostic, treatment and education centre for children and families affected with diabetes and other endocrine conditions. These conditions include variations and abnormalities of normal growth and puberty, as well as both over- and under-production of thyroid, parathyroid, adrenal, and antidiuretic hormones. Through our affiliation with the UBC Faculty of Medicine, Department of Pediatrics, we are an academic resource centre for pediatricians, other physicians and healthcare professionals who serve children affected with diabetes and hormone problems in our province.

RESEARCH

Our current research includes:

• Scope Program: Live 5-2-1-0, a childhood obesity prevention program founded and led by Dr. Shazhan Amed, expanded its implementation from 2 to 11 BC communities. Also, funding and support was secured to implement Live 5-2-1-0 at BC Children’s Hospital.

• Global Health in Endocrinology and Diabetes: Access to medicines in low-income countries (Dr. Jean-Pierre Chanoine).

EDUCATION

We have received formal accreditation by the Royal College of Physicians and Surgeons of Canada for our subspecialty fellowship program in Pediatric Endocrinology (Dr. Laura Stewart).

CLINICAL CARE

Drs. Shazan Amed, Brenden Hursh and Jean-Pierre Chanoine initiated a regional clinic in Kelowna (six visits/year). We also have multidisciplinary clinics (Dr. Dina Panagiotopoulos leads the Polycystic Ovary Syndrome program, and we have multidisciplinary case discussions on cystic fibrosis and diabetes) and telehealth for diabetes (Dr. Brenden Hursh).

The Gender Clinic, which began seeing transgender and gender-questioning youth and young adults in 1998, is now one of the busiest clinics in North America. Over the last two to three years, the number of referrals has increased so rapidly that we now see more than 150 patients. Insufficient funding is a major issue for the future of this clinic.

For more Information, please visit:
WWW.BCCOURLDREN.CA/HEALTH-PROFESSIONALS/CLINICAL-RESOURCES/ENDOCRINOLOGY-DIABETES

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

<table>
<thead>
<tr>
<th>ACADEMIC FACULTY</th>
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</table>
| **Dr. Ralph Rothstein, Professor**  
  *Medical School* | **Dr. Jean-Pierre Chanoine, Division Head** & Clinical Professor  
  *Medical School* |
<p>| Medical School | Free University of Brussels, Brussels (BE) |
| Residency | Free University of Brussels, Brussels (BE) |</p>
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| **Dr. Angela Devlin, Associate Professor**  
  *Graduate School* | **Dr. Daniel Metzger, Clinical Professor**  
  *Medical School* |
| (PhD) University of British Columbia, Vancouver | Case Western Reserve University, Cleveland (US) |
| Postdoctoral Fellowship | University Hospitals of Cleveland, Cleveland (US) |
| University of California, Davis (US), University of Iowa, Iowa City (US) | Fellowship | University of Virginia Health Sciences Center, Charlottesville, (US) |
| --- | --- |
| **Dr. Dina Panagiotopoulos, Clinical Professor**  
  *Medical School* | **Dr. Laura Stewart, Program Director** & Clinical Associate Professor  
  *Medical School* |
<p>| Queen’s University, Kingston | University of Calgary, Calgary |
| Residency | University of Calgary, Calgary |</p>
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| **Dr. Shazhan Amed, Clinical Associate Professor**  
  *Medical School* | **Dr. Suzanne Stock, Clinical Assistant Professor**  
  *Medical School* |
<p>| University of Calgary, Calgary | Queen’s University, Kingston |
| Residency | University of Manitoba, Winnipeg |</p>
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| **Dr. Laura Stewart, Program Director** & Clinical Associate Professor  
  *Medical School* | **Dr. Suzanne Stock, Clinical Assistant Professor**  
  *Medical School* |
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| Residency | University of Toronto, Toronto |</p>
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| **Dr. Brenden Hursh, Clinical Assistant Professor**  
  *Medical School* | **Dr. Shazhan Amed, Clinical Associate Professor**  
  *Medical School* |
<p>| Mount Sinai School of Medicine, New York (US) | University of Calgary, Calgary |
| Residency | University of Manitoba, Winnipeg |</p>
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- **Professor**
- **Associate Professor**
- **Assistant Professor**
- **Research Associate**
- **Clinical Professor**
- **Clinical Assistant Professor**
- **Clinical Associate Professor**
- **Clinical Instructor**
### TRAINING PROGRAM GRADUATES

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<tr>
<td>Dr. Karine Khatchadourian</td>
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</tr>
<tr>
<td>Dr. Shira Harel</td>
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<td>Dr. John Welch</td>
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<tr>
<td>Dr. Akash Sinha</td>
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<tr>
<td>Dr. Naseem Alyahyawi</td>
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### SIGNIFICANT AWARDS

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<tr>
<td>Dr. Daniel Metzger</td>
<td>Clinical Professor</td>
<td>Partners in Care; The Family Advisory to BC Children's Hospital</td>
<td>Patient &amp; Family Centred Care Award</td>
<td>2013</td>
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<tr>
<td>Dr. Laura Stewart</td>
<td>Clinical Associate Professor</td>
<td>UBC Faculty of Medicine</td>
<td>Clinical Faculty Award for Excellence in Clinical Teaching</td>
<td>2014</td>
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</table>
In 1998, the Division of Endocrinology & Diabetes Unit at BC Children's Hospital was asked by Sexual Medicine at Vancouver General Hospital to see our first youth with gender dysphoria. At the time, psychologists and pediatric endocrinologists in the Netherlands were just starting to see these youth, but essentially nothing was happening in North America. We reached out to our Dutch colleagues and they kindly provided advice and shared their protocols with us. As well, members of the local trans community were happy to come and share their experience with us and "bring us up to speed" on the medical and social issues facing this population.

We formed close working relationships with a small but slowly growing group of trans-competent mental health providers (psychologists and psychiatrists in the community, and now also at BC Children's), to help serve the diagnostic and mental health needs of trans-youth. Over the years, we have developed a multidisciplinary Gender Clinic (physician, nurse clinician, social worker and trainees), one of the busiest clinics in North America, to serve transgender and gender-non-conforming youth. We function as a "clinic without walls," since our care colleagues are spread across the province under the umbrella oversight of the BC Transgender Clinical Care Group. We are recognized across Canada as a leader in trans care for youth and are often called upon to provide phone or email advice, lectures and web resources.

The Provincial Health Services Authority is now responsible for the oversight of Trans Care BC, which is ushering in new models of high-quality, equitable, specialized trans care to children, youth and adults across the province.

For more information, please visit:
WWW.BCCCHILDRENS.CA/HEALTH-INFO/COPIING-SUPPORT/TRANSGENDER-RESOURCES
WWW.BCCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/DANIEL-L-METZGER
NEW GENDER DYSPHORIA PATIENTS SEEN 1998–2015

"THE GENDER CLINIC, WHICH BEGAN SEEING TRANSGENDER AND GENDER-QUESTIONING YOUTH AND YOUNG ADULTS IN 1998, IS NOW ONE OF THE BUSIEST CLINICS IN NORTH AMERICA. OVER THE LAST TWO TO THREE YEARS, THE NUMBER OF REFERRALS HAS INCREASED SO RAPIDLY THAT WE NOW SEE MORE THAN 150 PATIENTS."
OVERVIEW

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).

RESEARCH

All members of our Division share the vision of improving the lives of children with intestinal and liver disorders. We have a considerable amount of research underway:

- Dr. Kevan Jacobson is our Division Head, Senior Clinician Scientist and Director of the pediatric GI Inflammatory Bowel Disease (IBD) program. Dr. Jacobson is involved in clinical care of children with IBD and in clinical and basic research in the field of IBD. He studies how intestinal vasoactive peptides modulate intestinal epithelial barrier integrity and promote intestinal health. He is also examining the role of diet in modulating intestinal microbes and epithelial barrier function and how diet affects susceptibility to IBD. Dr. Jacobson oversees the Pediatric GI IBD database, which currently has data on 1,200 children.

- Dr. Richard Schreiber is our Division’s Senior Liver Specialist and Director of its pediatric liver transplant program. His clinical research interests include biliary atresia, pediatric viral hepatitis B and C, autoimmune hepatitis, and liver transplant. He is the lead investigator of a Canadian Institute of Health Research (CIHR)-funded project to examine the feasibility of a home-based newborn screening program for biliary atresia using infant stool colour cards.

- Dr. David Israel’s areas of interest include the diagnosis and epidemiology of celiac disease and IBD, and optimizing and ethical issues in medicine.

- Dr. Collin Barker’s research interests focus on celiac disease, GI complications in oncology patients, and quality assessment and quality improvement projects within our Division.
THE HEPATOLOGY CLINIC AT BC CHILDREN’S HOSPITAL BECAME ONE OF THE FIRST IN NORTH AMERICA TO INCORPORATE FIBROSCAN INTO THE CARE OF CHILDREN WITH LIVER DISEASE.
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| **Dr. Bruce Vallance, Professor**  
*Graduate School* | **Dr. Kevin Jacobson, Division Head & Clinical Professor**  
*Medical School* |  
| (PhD) McMaster University, Hamilton  
*Postdoctoral Fellowship* | *University of the Witwatersrand, Johannesburg (ZA)*  
*Residency* |  
| University of British Columbia, Vancouver | *University of Alberta, Edmonton, McMaster University, Hamilton*  
*Fellowship* |  
|  | *McMaster University, Hamilton* |
| **Dr. Laura Sly, Associate Professor**  
*Graduate School* | **Dr. David Israel, Clinical Professor**  
*Medical School* |  
| (PhD) University of Alberta, Edmonton  
*Postdoctoral Fellowship* | *Sackler School of Medicine New York State / American Program of Tel Aviv University, New York (US)*  
*Residency* |  
| University of British Columbia, Vancouver | *Schneider Children's Hospital of Long Island Jewish Medical Center, New York City (US)*  
*Fellowship* |  
|  | *University of British Columbia, Vancouver* |
| **Dr. Hongbing Yu, Research Associate**  
*Graduate School* | **Dr. Richard Schreiber, Clinical Professor**  
*Medical School* |  
| (PhD) National University of Singapore, Singapore  
*Postdoctoral Fellowship* | *McGill University, Montreal*  
*Residency* |  
| University of British Columbia, Vancouver | *McGill University, Montreal*  
*Fellowship* |  
|  | *Harvard University, Boston (US)* |
| **Dr. Collin Barker, Program Director & Clinical Associate Professor**  
*Medical School* | **Dr. Linda Casey, Clinical Associate Professor**  
*Residency* |  
| University of Alberta, Edmonton  
*Fellowship* | *University of Alberta, Edmonton*  
*Fellowship* |  
| University of Calgary, Calgary |  
|  |  
| **Dr. Vishal Avinashi, Clinical Assistant Professor**  
*Medical School* | **Dr. Orlee Guttman, Clinical Assistant Professor**  
*Residency* |  
| University of Saskatchewan, Saskatoon  
*Fellowship* | *University of Toronto, Toronto*  
*University of Calgary, Calgary* |  
| University of Toronto, Toronto |  
|  |  
| **Dr. Sally Lawrence, Clinical Assistant Professor**  
*Medical School* | **Dr. Orlee Guttman, Clinical Assistant Professor**  
*Residency* |  
| University of Aberdeen, Aberdeen (SCT)  
*Fellowship* | *University of Edinburgh, Edinburgh (SCT)*  
*Fellowship* |  
| University of British Columbia, Vancouver |  
|  |  

**FACULTY BY RANK**

**Professor**  
**Associate Professor**  
**Assistant Professor**  
**Research Associate**  
**Clinical Professor**  
**Clinical Assistant Professor**  
**Clinical Associate Professor**  
**Clinical Instructor**

**DIVISIONAL REPORTS** | 87
### Training Program Graduates

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<tr>
<td>Dr. Juliana Cheng</td>
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<tr>
<td>Dr. Sepideh Tabarestani</td>
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<td>Dr. Kamran Sadiq</td>
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<td>Dr. Alice Foster</td>
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<td>2015</td>
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<tr>
<td>Dr. Quais Mujawar</td>
<td>Subspecialty Resident</td>
<td>2015</td>
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<tr>
<td>Dr. Ashok Varkey</td>
<td>Clinical Fellow</td>
<td>2015</td>
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### Studentships

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<tr>
<td>Bonnie Cheung</td>
<td>Dr. Laura Sly</td>
<td>Canadian Association of Gastroenterology</td>
<td>CAG/ Summer Student Scholarship</td>
</tr>
<tr>
<td>Carly Aspden</td>
<td>Dr. Bruce Vallance</td>
<td>Canadian Association of Gastroenterology</td>
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<td>Hsin Tsai</td>
<td>Dr. Bruce Vallance</td>
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<tr>
<td>Jenna Ries</td>
<td>Dr. Bruce Vallance</td>
<td>Canadian Association of Gastroenterology</td>
<td>CAG/ Summer Student Scholarship</td>
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<tr>
<td>Jennifer Liang</td>
<td>Dr. Orlee Guttman</td>
<td>Canadian Liver Foundation</td>
<td>Summer Studentship</td>
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<tr>
<td>Kiera Hamden</td>
<td>Dr. Laura Sly</td>
<td>Canadian Association of Gastroenterology</td>
<td>CAG/ Summer Student Scholarship</td>
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<tr>
<td>Shraavan Raveendran</td>
<td>Dr. Orlee Guttman</td>
<td>Canadian Liver Foundation</td>
<td>Summer Studentship</td>
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<tr>
<td>Zheng Zhao</td>
<td>Dr. Laura Sly</td>
<td>Canadian Association of Gastroenterology</td>
<td>CAG/ Summer Student Scholarship</td>
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FibroScan

DR. ORLEE GUTTMAN, CLINICAL ASSISTANT PROFESSOR, DIVISION OF GASTROENTEROLOGY, HEPATOLOGY & NUTRITION
DR. RICK SCHREIBER, CLINICAL PROFESSOR, DIVISION OF GASTROENTEROLOGY, HEPATOLOGY & NUTRITION

For patients with chronic liver disease, the assessment of liver scarring (fibrosis) is of paramount importance in decision-making and evaluation of treatment responses and outcomes. Until recently, the only option was a liver biopsy that requires anaesthesia and hospitalization.

FibroScan® (Echosens, France) is a novel technology that is changing the way pediatric liver patients are evaluated. This rapid, painless, bedside tool uses shear wave technology to measure liver stiffness as a marker of fibrosis. Through a generous donation from a BC Children’s Hospital family through the BC Children’s Hospital Foundation, the Hepatology Clinic at BC Children’s became one of the first in North America to incorporate this device into the care of children with liver disease.

A partnership with the Children’s Heart Centre at BC Children’s has led to the development of a new clinical care pathway aimed at improving the liver health of patients post-Fontan Cardiac surgery. Patients undergo yearly FibroScan measurements, as well as comprehensive assessment of biochemical, imaging and clinical parameters. A prospective study is underway to inform strategies for better assessment of liver damage in this complex patient population. Preliminary results detailing elevated FibroScan scores in Fontan patients have recently been published in the Canadian Journal of Gastroenterology and Hepatology.

Another new initiative is underway at the BC Children’s Cystic Fibrosis clinic, to develop better methods for identifying and monitoring cystic fibrosis liver disease. This complex condition may lead to cirrhosis, but such patients are difficult to identify before liver disease is severe. In collaboration with Dr. Francois Jean from UBC Microbiology and Immunology, we are also studying serum biomarkers that will facilitate earlier diagnosis of this challenging disease.

For more information, please visit: WWW.BCCOLLECTIONS.CA/OUR-RESEARCH/RESEARCH-FOCUS/GASTROENTEROLOGY
Biliary Atresia

**Biliary Atresia** is a serious pediatric liver disease. It is the most frequent reason for cirrhosis and liver-related death in infants and children, and the leading indication for liver transplantation in the pediatric population.

While not an inherited condition, BA occurs in 1:19,000 live births in Canada and manifests exclusively in the first weeks of life with jaundice and pale (acholic) stools. Abnormal stool colour is an indication that the bile duct is blocked, resulting in BA. A surgical hepato-portalenterostomy (Kasai procedure) can re-establish the bile flow from the liver to the intestine, but if it is not performed within the first two months of birth, the effectiveness of the operation drops drastically from 80% to 20%.

If the procedure is unsuccessful, the child requires a liver transplant to survive. And without any treatment, rapid progression of liver damage can lead to the child’s death by the age of two. Early detection of this rare newborn liver disease offers improved outcomes with affected babies having much longer survival rates with their own liver.

There is no single blood test for BA, so stool colour is a main tool for early detection. Taiwan has a universal BA screening program using infant stool colour cards (SCCs) with proven effectiveness. A recent Canadian Institutes of Health Research (CIHR)-funded study conducted by Dr. Rick Schreiber and his team at UBC determined that a BA SCC screening program would be feasible in Canada—well-utilized by families and highly cost-effective.

Based on the results of this research, a province-wide Biliary Atresia Home Screening Program was launched in British Columbia on April 1, 2014 under the auspices of Perinatal Services BC. At the time of discharge from maternity, parents are given a stool colour card that contains photos of normal and abnormal infant stool colours. They are asked to check their newborn’s stool colour against the colour card every day for the first month after birth. If the colour is abnormal, they contact the screening centre for follow-up.

BC is the first jurisdiction in Canada and North America to have implemented this novel and innovative newborn liver screening program. Based on clinical research here at UBC, it is hoped that the BA home screening program will be adopted in other provinces across Canada and elsewhere in the world.

For more information, please visit:
WWW.PERINATALSERVICESBC.CA
WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/RICHARD-SCHREIBER
Intensive Tube Transition Program
ASTRID ST. PIERRE, OCCUPATIONAL THERAPIST, COMPLEX FEEDING AND NUTRITION SERVICE, DIVISION OF GASTROENTEROLOGY, HEPATOLOGY & NUTRITION

The BC Children’s Hospital intensive tube weaning program started two years ago as a subprogram of the Complex Feeding and Nutrition Service. It was identified that a specialty service was required to help support children who have become tube-dependent but are otherwise safe to feed orally. Although some children are able to transition from enteral to oral nutrition without difficulty, many others require an interdisciplinary approach. A further subset of this population would benefit from an intensive approach to stimulate hunger, establish meal time routines and receive medical monitoring throughout the transition.

PROGRAM DESCRIPTION
1. Pre-program evaluation with an Occupational Therapist (OT), Registered Dietitian (RD), Social Worker (SW), Nurse (RN) and Physician (MD).
2. After the pre-program evaluation, a child may be given recommendations to decrease oral aversion and support feeding readiness skills prior to participating in an intensive tube wean.
3. Just prior to the program, G tube formula feeds are significantly reduced with a milder decrease to the fluids.
4. Two-week, outpatient, intensive feeding intervention with OT, RD, SW, RN and MD. Children and their families are required to participate in regular feeding sessions with a therapist, one to three times per day.
5. Follow-up education and support at two, five and nine weeks after completion of the two-week program with OT, RD, SW and RN. Long-term follow-up resumes with the child’s community providers.

PROGRAM CRITERIA
1. Child is medically stable, as determined by primary medical provider or specialist.
2. Child is dependent on supplemental or full nutrition or hydration support by tube.
3. Child’s swallow is safe for oral intake but may require dietary modifications.
4. Child is on bolus NG or G-tube feeds.
STEPS TO FEEDING-TUBE TRANSITION CLINIC
The program offers a two-week, outpatient-based, intensive feeding intervention designed to increase oral eating for children who are tube fed. The program is modelled after a similar program established at Seattle Children’s Hospital, which has been running for the past 13 years.

Before starting the program, children who meet criteria to participate will have a medically-approved reduction in their calories and fluids. This is done to promote their natural sense of hunger and interest in eating. Feeding therapy sessions will be individualized to the unique needs of each child, but generally model typical family meals.

Developed by Ali Boyle, RD and Rochelle Stokes, OT, and supported by Kathryn Urquhart, Dr. Linda Casey and Dr. Vishal Avinashi, the Steps to Feeding-Tube Transition Clinic is a program that facilitates the transition from tube to oral feeding that addresses a gap in service here in BC. The program is receiving 6–12 referrals per year, which is almost at capacity due to the intensive nature of the service. We are proud of our high success rate and families are very appreciative of the support and treatment that helps their children progress with eating. For many families, feeding has been a source of significant stress for years.

For more information, please visit: WWW.BCCHILDRENS.CA/OUR-SERVICES/CLINICS/COMPLEX-FEEDING-NUTRITION

“THE STEPS TO FEEDING-TUBE TRANSITION CLINIC IS A PROGRAM THAT FACILITATES THE TRANSITION FROM TUBE TO ORAL FEEDING THAT ADDRESSES A GAP IN SERVICE HERE IN BC.”
OVERVIEW
The Division of General Pediatrics is the Department’s largest division, with 45 community-based and 11 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.

RESEARCH
Our research includes:

- Dr. Tammie Dewan’s paper, *The Use of an Online Health Communication Platform in the Care of Children with Complex Needs*, was presented as a poster at the Health and Wellbeing in Children, Youth and Adults with Developmental Disabilities Conference (Vancouver, 2016) and will be submitted for publication later this year.

- In palliative care, Dr. Hal Siden completed a multi-centre longitudinal study of 274 families who have children with life-threatening neurological, metabolic or chromosomal conditions and undertook a scoping review of the literature on symptom control in non-cancer conditions. He also published 15 papers and presented at several conferences. He was supported by approximately $115,000 in direct research funding as a principal investigator, including funding from the Canadian Institute of Health Research (CIHR). Two poster sessions were presented by our team, including *Transition to senior resident: improving preparedness via the CanMEDS framework* by Drs. Surabhi Rawal and Jenny Druker at the Royal College of Physicians and Surgeons of Canada International Conference on Residency Education (Toronto, 2014), and *Pediatric medical student speech language pathology and audiology experience: an inter-professional encounter to talk about* by Dr. Erin N. Swartz, Andrea Gates and Darlene Hicks at the APPD/COMSEP 2013 Combined Annual meeting (Nashville, 2013).

- In education, Dr. Dianna Louie’s passion for resident wellbeing was conveyed through her commitment to modelling wellness in all her endeavours. She conducted research on Resident Moral Distress and Burnout with UBC Internal Medicine and Pediatrics.

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

- In clinical care, Dr. Kris Kang published manuscripts on pediatric sepsis and global health ethics, as well as worked with the antimicrobial stewardship program on projects related to infections in the NICU. His ongoing research investigates how to increase vaccination rates of patients at high risk of severe infection.

EDUCATION

Division members are active in both undergraduate and postgraduate training. The Undergraduate Program Director, Year 4 Electives Director and the site leader at BC Children’s Hospital are all members of our Division, as is the Associate Director of the Residency program. Our members are also actively involved in the Simulation Program, PALS instruction, NRP instruction and Continuing Medical Education.

Division members are involved in global child health projects internationally. We have been working closely with the province to expand the Social Pediatrics program, focusing on the under-serviced population in Vancouver’s Downtown Eastside through the RICHER Initiative.

CLINICAL CARE

General pediatricians provide inpatient care and education to our trainees on two Clinical Teaching Units, as well as newborn care at BC Women’s Hospital + Health Centre. We have a Complex Care team, providing both inpatient and outpatient services to a growing population of children with complex medical needs throughout the province. Division members provide consultation services throughout the hospital, work in the ambulatory setting of BC Children’s providing general pediatric clinical services, and support subspecialty and multidisciplinary teams such as the plagiocephaly, vascular anomalies, spinal and craniofacial clinics.

Child Protection services are provided by general pediatricians and emergency department physicians, who work in a team setting to best serve both the inpatient and outpatient areas, and consult on a provincial level. At Canuck Place, pediatric palliative care is delivered through the collaborative efforts of an interdisciplinary team. Dr. Hal Siden, Director of Canuck Place, and his physician colleagues are all members of our Division. Through collaboration, education and research, the physicians provide leadership in the improvement of pediatric palliative care at regional, national and international levels.

Our members also provide an outreach service to Whitehorse Hospital and work collaboratively with colleagues in the greater Vancouver area and provincial hospitals.

For more information, please visit: WWW.PEDIATRICS.MED.UBC.CA/DIVISIONS-CENTRES/GENERAL-PEDIATRICS
# FACULTY BY RANK

## CLINICAL FACULTY

<table>
<thead>
<tr>
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<th>Rank</th>
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<th>Fellowship</th>
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<tr>
<td>Dr. Harold Siden</td>
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<td>University of Michigan, Ann Arbor (US)</td>
<td>University of Michigan, Ann Arbor (US)</td>
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<tr>
<td>Dr. Kris Kang</td>
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<tr>
<td>Dr. Jennifer Druker</td>
<td>Division Head &amp; Clinical Associate Professor</td>
<td>University of Cape Town, Cape Town (ZA)</td>
<td>University of Cape Town, Cape Town (ZA)</td>
<td>Medical University of South Africa, Pretoria (ZA), University of Toronto, Toronto</td>
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<tr>
<td>Dr. Esther Lee</td>
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<tr>
<td>Dr. Anne Feng</td>
<td>Clinical Associate Professor</td>
<td>Fudan University, Shanghai (CN)</td>
<td>Shanghai Jiao Tong University, Shanghai (CN)</td>
<td>Dalhousie University, Halifax</td>
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<tr>
<td>Dr. Mia Remington</td>
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<tr>
<td>Dr. Mumtaz Virji</td>
<td>Clinical Assistant Professor</td>
<td>University of Sindh</td>
<td>Nawabskah Maimonides Medical Center, Brooklyn (US)</td>
<td>Interfaith Medical Centre, Brooklyn (US)</td>
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<tr>
<td>Dr. Janet Greenman</td>
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<td>University of Calgary, Calgary</td>
<td>Dalhousie University, Halifax</td>
<td>University of Calgary, Calgary</td>
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<tr>
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<td>Dr. Nita Jain</td>
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<tr>
<td>Dr. Jean Hlady</td>
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<tr>
<td>Dr. Sandy Whitehouse</td>
<td>Clinical Associate Professor</td>
<td>University of Sydney, Sydney (AU)</td>
<td>University of New South Wales, Sydney (AU)</td>
<td>University of Sydney, Sydney (AU)</td>
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<tr>
<td>Dr. Jennifer Smitten</td>
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### SIGNIFICANT AWARDS

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<th>AWARD</th>
<th>YEAR</th>
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<tr>
<td>Dr. Amie Dmytryshyn</td>
<td>Clinical Instructor</td>
<td>UBC Department of Pediatrics</td>
<td>Rookie of the Year Award</td>
<td>2012–13</td>
</tr>
<tr>
<td>Dr. Anne Feng</td>
<td>Associate Professor</td>
<td>UBC Department of Pediatrics</td>
<td>Golden Rattle Award</td>
<td>2012–13</td>
</tr>
<tr>
<td>Dr. Dianna Louie</td>
<td>Clinical Instructor</td>
<td>UBC Department of Pediatrics</td>
<td>Rookie of the Year Award</td>
<td>2014–15</td>
</tr>
<tr>
<td>Dr. Jennifer Druker</td>
<td>Clinical Associate Professor</td>
<td>UBC Department of Pediatrics</td>
<td>Golden Rattle Award</td>
<td>2014–15</td>
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<tr>
<td>Dr. Jennifer Druker</td>
<td>Clinical Associate Professor</td>
<td>UBC Sauder Physician Leadership Program</td>
<td>Physician Leadership Program</td>
<td>2015</td>
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<tr>
<td>Dr. Mumtaz Virji</td>
<td>Clinical Assistant Professor</td>
<td>UBC Department of Pediatrics</td>
<td>Hospital Paediatrician of the Year Award</td>
<td>2013–14</td>
</tr>
<tr>
<td>Dr. Nazmudin Bhanji</td>
<td>Clinical Associate Professor</td>
<td>UBC Department of Pediatrics</td>
<td>Community Paediatrician of the Year Award</td>
<td>2013–14</td>
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<tr>
<td>Dr. Regan Ebbeson</td>
<td>Clinical Assistant Professor</td>
<td>UBC Department of Pediatrics</td>
<td>Hospital Paediatrician of the Year Award</td>
<td>2014–15</td>
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<tr>
<td>Dr. Tammie Dewan</td>
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<td>UBC Department of Pediatrics</td>
<td>Golden Rattle Award</td>
<td>2013–14</td>
</tr>
<tr>
<td>Dr. Tammie Dewan</td>
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<td>UBC Department of Pediatrics</td>
<td>Hospital Paediatrician of the Year Award</td>
<td>2012–13</td>
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<tr>
<td>Dr. Zaneta Lim</td>
<td>Resident</td>
<td>UBC Department of Pediatrics</td>
<td>Dr. Jenny Druker CTU Quality Assurance Award</td>
<td>2013–14</td>
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<tr>
<td>Dr. Hemendra Ramdhani</td>
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<td>UBC Department of Pediatrics</td>
<td>Community Paediatrician of the Year Award</td>
<td>2014–15</td>
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<td>Dr. Sunira Singh</td>
<td>Clinical Instructor</td>
<td>UBC Department of Pediatrics</td>
<td>Community-Based Pediatrician of the Year Award</td>
<td>2012–13</td>
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The Complex Care Program

DR. TAMMIE DEWAN, CLINICAL INSTRUCTOR, DIVISION OF GENERAL PEDIATRICS

The Complex Care Program was renewed in 2012 and has undergone rapid development over the past three years. This innovative model of care focuses on streamlining care and providing a central point of contact for children and youth with medical complexity (defined as multiple chronic conditions, developmental differences and high healthcare needs). The physician-nurse practitioner team provides inpatient care, routine health surveillance, acute appointments and care coordination to children and families throughout the province.

This service has resulted in high levels of family and provider satisfaction, better continuity of care at BC Children’s Hospital and improved outpatient coordination for families, with trends towards shorter hospitalizations and fewer emergency department visits. The Complex Care Program is an important development at BC Children’s, targeted to better meet the needs of children and families and improve their experience of care, regardless of diagnosis.
OVERVIEW
The Division of Hematology, Oncology & BMT provides care by a team of experts who specialize in medical evaluation and treatment of children with cancer and blood disorders in BC and Yukon. This team also provides consultative and directive care for patients requiring hematopoietic stem cell transplantation for both malignant and non-malignant conditions.

RESEARCH
Our Division has a robust basic science and translational research program with seven PhD researchers. It includes 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), a worldwide cooperative research group. 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 clinical research interests include:
• Clinical trials
• Cancer molecular biology
• Immunological aspects of transplantation
• Peripheral blood stem cell infusion post-intensive chemotherapy
• Immune and cellular therapy
Other interests include participation in the Canadian Childhood Thrombophilia Program, and hematology clinical trials. A wide variety of research projects are available to fellows.

EDUCATION
Our Division has one of the most sought after subspecialty residency programs in Canada and attracts clinical fellows from around the world. A three-year Royal College of Physicians and Surgeons of Canada accredited training program in clinical hematology, oncology and bone marrow transplantation is offered.

All levels of trainees in our Division are exposed to lectures, mentorship, physician development, journal clubs and research opportunities. The rotations include inpatient, hematopathology, adult bone marrow transplant and adult lymphoma/radiation therapy service, blood banking, ambulatory clinics, research and electives. Candidates are required to have completed a minimum of three core years in general pediatrics.

Currently, we have two faculty members (Dr. Sylvia Cheng and Dr. Melissa Harvey) pursuing higher qualifications in Medical Education.
CLINICAL CARE
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.

Committees
Our Division is very proud of the passion, leadership and personal commitment demonstrated by all its members in the care and management of our patients.

- American Society of Bone Marrow Transplantation (ASBMT)
- American Society of Clinical Oncology (ASCO)
- American Society of Pediatric Hematology Oncology (ASPHO)
- Association of Hemophilia Clinic Directors of Canada (AHCDC)
- Camp Goodtimes
- Canadian Association Child Neurology Committee
- Canadian Blood and Marrow Transplant Group
- Canadian Children’s Thrombophilia Society
- Canadian Congress of Neurological Sciences
- Canadian Pediatric Brain Tumour Consortium
- Canadian Pharmacogenomic Network for Drug Safety (CPNDS)
- Children’s & Women’s Hospital Research Ethics Board (REB)
- Children’s Cancer Group-Brain Tumour Strategy Group, Neurosciences Scientific Committee
- Children’s Oncology Group (COG)

Global Initiatives
Bangladesh, South Africa, and Uganda

We are part of the Provincial Pediatric Oncology/Hematology Network, which includes parent advocates and community health care providers. It operates under the guidance of BC Children’s and the BC Cancer Agency, supported by Child Health BC. The Network supports community hospitals and practitioners, and develops partnerships with other health care facilities to enable seamless and integrated care for patients and their families, whether they are on treatment or off treatment. This includes telehealth and outreach clinics.

For more information, please visit: WWW.BCCOLCA.ORG/OUR-SERVICES/CLINICS/CANCER-BLOOD-DISORDERS
## FACULTY BY RANK

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<tbody>
<tr>
<td><strong>Dr. Kirk Schultz, Professor</strong></td>
<td><strong>Dr. Chris Fryer, Clinical Professor</strong></td>
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<tr>
<td>Medical School</td>
<td>University of Nebraska, Lincoln (US)</td>
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<td>Residency</td>
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<td>Fellowship</td>
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<tr>
<td><strong>Dr. Catherine Pallen, Professor</strong></td>
<td><strong>Dr. Paul Rogers, Clinical Professor</strong></td>
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<td>(PhD) University of Calgary, Calgary</td>
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<tr>
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<tr>
<td><strong>Dr. Christopher Maxwell, Assistant Professor</strong></td>
<td>Fellowship</td>
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<td>Lawrence Berkeley National Laboratory, Berkeley (US)</td>
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<td><strong>Dr. James Lim, Assistant Professor</strong></td>
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<tr>
<td><strong>Dr. Abbas Fotovati, Research Associate</strong></td>
<td><strong>Dr. Jeff Davis, Clinical Associate Professor</strong></td>
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<tr>
<td><strong>Dr. Hoa Thi Le, Research Associate</strong></td>
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<tr>
<td>Dr. Sheila Pritchard</td>
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<td>University of Nottingham</td>
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<td>University of Washington, Seattle (US)</td>
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<tr>
<td>Dr. Rebecca Deyell</td>
<td>Clinical Assistant Professor</td>
<td>University of Alberta</td>
<td>University of Calgary, Calgary, University of British Columbia, Vancouver</td>
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<tr>
<td>Dr. Melissa Harvey</td>
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<tr>
<td>Dr. Jessica Halparin</td>
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<td>University of Ottawa, Ottawa</td>
<td>University of British Columbia, Vancouver</td>
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<tr>
<td>Dr. Sylvia Cheng</td>
<td>Clinical Assistant Professor</td>
<td>University of Hong Kong</td>
<td>State University of New York, Syracuse (NY)</td>
<td>Children’s Hospital Medical Centre, Cincinnati (OH)</td>
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<tr>
<td>Dr. Rod Rassekh</td>
<td>Clinical Assistant Professor</td>
<td>University of British Columbia, Vancouver</td>
<td>BC Children’s Hospital, Vancouver</td>
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<tr>
<td>Dr. John K. Wu</td>
<td>Director of Hematology and Clinical Professor</td>
<td>University of Hong Kong (HK)</td>
<td>University of Toronto, Toronto</td>
<td>Children’s Hospital Medical Centre, Cincinnati (OH)</td>
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<tr>
<td>Dr. Leslie Cohen</td>
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<tr>
<td>Dr. Yigel Kaikov</td>
<td>Research Associate</td>
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<tr>
<td>Dr. Tram Nguyen</td>
<td>Assistant Professor</td>
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<tr>
<td>Dr. Aisling O’Gorman</td>
<td>Clinical Associate Professor</td>
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<tr>
<td>Dr. Elaine Peddie</td>
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<tr>
<td>Dr. Claire Rawson</td>
<td>Clinical Professor</td>
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### Training Program Graduates

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<tr>
<td>Dr. Ann Van Eyssen</td>
<td>Clinical Fellow</td>
<td>2013</td>
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<tr>
<td>Dr. Kaljit Bhuller</td>
<td>Clinical Fellow</td>
<td>2014</td>
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<tr>
<td>Dr. Kanwaldeep Mallhi</td>
<td>Subspecialty Resident</td>
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### Studentships

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<tr>
<td>Kristin Reipas</td>
<td>Dr. Sandra Dunn</td>
<td>Canadian Breast Cancer Foundation</td>
<td>Doctoral Fellowship</td>
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<tr>
<td>Nina Rolf</td>
<td>Dr. Kirk Schultz</td>
<td>CIHR</td>
<td>Doctoral Fellowship</td>
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<td>Phillip Ly</td>
<td>Dr. Catherine Pallen</td>
<td>CIHR</td>
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<tr>
<td>Tony Chu</td>
<td>Dr. Christopher Maxwell</td>
<td>Canadian Breast Cancer Foundation</td>
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### Significant Awards

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<tr>
<td>Dr. David Dix</td>
<td>Clinical Associate Professor</td>
<td>Royal College of Physicians &amp; Surgeons of Canada</td>
<td>Royal College Specialty Chair Tinker Award</td>
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<tr>
<td>Dr. Kirk Schultz</td>
<td>Clinical Professor</td>
<td>The Canadian Academy of Health Sciences (CAHS)</td>
<td>Canadian Academy of Health Sciences Fellow (elected position)</td>
<td>2014</td>
</tr>
<tr>
<td>Dr. Kirk Schultz</td>
<td>Clinical Professor</td>
<td>Canadian Academy of Health Sciences</td>
<td>Election to Fellowship in the Canadian Academy of Health Sciences (CAHS)</td>
<td>2014</td>
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Pediatric Personalized Oncogenomics Study (Peds POG)

Dr. Rebecca Deyell, Co-Investigator and Clinical Assistant Professor, Division of Hematology, Oncology & BMT

80% of children diagnosed with cancer in BC achieve long-term cures with current treatment approaches, which typically still rely heavily on conventional, non-targeted cytotoxic chemotherapy. However, there remains a group of children whose disease relapses or is refractory to initial therapy, for which novel approaches are desperately needed.

The Pediatric Personalized Oncogenomics (Peds POG) study was launched in September 2013 and is an ongoing collaboration between clinicians, pathologists, surgeons and radiologists at BC Children’s Hospital, along with adult oncologists, genome scientists and bioinformaticians at the BC Genome Science Centre and the BC Cancer Agency. Children and adolescents with relapsed, refractory or very poor prognosis cancers are offered enrollment in POG, which aims to complete whole genome and transcriptome sequencing of each patient’s tumour, and matched healthy cells, in hopes of identifying tractable therapeutic targets. As of October 2016, we have enrolled 48 children and adolescents with a wide range of diagnoses.

We recently completed our Peds POG pilot study in which we demonstrated the feasibility of this approach. We now know it is possible to identify and consent/assent patients, obtain relapse tumour samples using minimally invasive approaches, sequence whole tumour genomes and transcriptomes, analyze and report abnormalities, and identify potential actionable targets in a clinically relevant time frame.

We have a weekly molecular tumour board, held in conjunction with adult clinicians, pathologists and scientists, to review results and consider targeted treatment options. An ethics and genomics working group has been established to help navigate important aspects of consent, incidental findings and variants of uncertain significance. The majority of cases with successful sequencing have had findings that were either directly actionable or informative for patient care.

**Examples of the Type of Information We Derived Includes:**

- The identification of druggable pathways that would not have been considered for the type of cancer
• Repurposing of drugs developed for other cancers or conditions
• Understanding the evolution of a cancer over time and with treatment
• Identification of primary sites for unknown primary cancers
• Reclassification of a rare cancer to an entirely different diagnosis

The Peds POG study has now expanded to a second phase where we aim to offer whole genome sequencing to more children with cancer and build on our initial track record of feasibility and utility. The overarching theme of the program is to create a comprehensive cataloguing of somatic cancer mutations and cellular pathway abnormalities. This could generate profound insights into genetic patterns that underlie particular cancer phenotypes and provide valuable prognostic and predictive information. The established POG platform will enable the development of independent initiatives and sub-studies that can utilize the POG Program framework to explore specific research objectives.

We are also involved in a national collaboration that aims to provide access to tumour genomics to children, adolescents and young adults across Canada, with plans to link into molecularly-guided clinical trial options.

For more information, please visit: [WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/REBECCA-DEYELL](http://WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/REBECCA-DEYELL)

“AS OF OCTOBER 2016, THE PEDIATRIC PERSONALIZED ONCOGENOMICS STUDY HAS ENROLLED 48 CHILDREN AND ADOLESCENTS WITH A WIDE RANGE OF DIAGNOSES.”
OVERVIEW
The Division of Infectious Diseases is a research-intensive division with a strong training program in Pediatric Infectious Diseases. Our Division is proud of its fully accredited training program and trains many graduate students and postdoctoral scientists who seek a career in this field.

RESEARCH
Research opportunities exist within the Vaccine Evaluation Centre (VEC) and the Centre for Infectious and Inflammatory Diseases, BC Children’s Hospital Research Institute. Particular areas of research strength in our Division are in microbial pathogenesis, host defense against bacterial infection, inflammation in infants and children, and a wide range of vaccine-related issues.

VEC, under the direction of Dr. David Scheifle, and with the active involvement of Drs. Simon Dobson, Tobias Kollmann, Julie Bettinger and Jan Ochnio continues to make important advances in vaccine research. A number of major initiatives were embarked upon recently, including the creation of a national group, the Canadian Association for Immunization Research and Evaluation (CAIRE), under the direction of Dr. Sadarangani. Dr. Sauvé is a member of VEC and she is the National Co-chair of the Perinatal Surveillance Program.

EDUCATION
The Infectious Diseases fellowship is a three year (plus) program offering training in clinical and research skills for physicians pursuing an academic career in infectious diseases. The program is fully accredited by the Royal College of Physicians and Surgeons of Canada. A busy consultation service sees approximately 300 inpatients and 150 outpatients per year.

CLINICAL CARE
Members of our Division deliver a variety of programs for the treatment of children and youth with infectious and immunological diseases. The following services are provided with 24/7 coverage:

• Infectious diseases consultation service: inpatient and outpatient.
• Immunology consultation service: inpatient and outpatient.
• Oak Tree Clinic: a unique facility in Canada providing care to women, pregnant women and children with HIV-AIDS.
• Infection Control Service: Dr. Dobson is one of four physician members providing service to BC Children’s Hospital.

For more information, please visit: WWW.PEDIATRICS.MED.UBC.CA/DIVISIONS-CENTRES/INFECTIOUS-DISEASES/
### ACADEMIC FACULTY

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<th>Medical School</th>
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<tbody>
<tr>
<td>Dr. David Scheifele</td>
<td>Professor</td>
<td>University of Western Ontario, London</td>
<td>McGill University Medical School, Montreal</td>
<td>Harvard Medical School, Boston (US)</td>
</tr>
<tr>
<td>Dr. David Speert</td>
<td>Professor</td>
<td>Columbia University, New York (US)</td>
<td>University of Michigan, Ann Arbor (US)</td>
<td>University of Minnesota, Minneapolis (US)</td>
</tr>
<tr>
<td>Dr. Soren Gantt</td>
<td>Associate Professor</td>
<td>New York University School of Medicine, New York (US)</td>
<td>University of Washington, Seattle (US)</td>
<td>University of Washington, Seattle (US)</td>
</tr>
<tr>
<td>Dr. Julie Bettinger</td>
<td>Associate Professor</td>
<td>(PhD) John Hopkins University, Baltimore Maryland (US)</td>
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<td>University of British Columbia, Vancouver</td>
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<tr>
<td>Dr. Kelly Macdonald</td>
<td>Research Associate</td>
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<tr>
<td>Dr. James Edward Zlosnik</td>
<td>Research Associate</td>
<td>Imperial College of London (UK)</td>
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<tr>
<td>Dr. Simon Dobson</td>
<td>Division Head &amp; Clinical Associate Professor</td>
<td>Newcastle University, Newcastle upon Tyne (UK)</td>
<td>Newcastle University, Newcastle upon Tyne (UK)</td>
<td>Baylor University, Houston (US)</td>
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<tr>
<td>Dr. Ashley Roberts</td>
<td>Program Director &amp; Clinical Assistant Professor</td>
<td>McMaster University, Hamilton</td>
<td>University of British Columbia, Vancouver</td>
<td>University of Toronto, Toronto</td>
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<tr>
<td>Dr. Tobias Kollmann</td>
<td>Clinical Professor</td>
<td>Einstein College of Medicine, Brooklyn (US)</td>
<td>University of Washington, Seattle (US)</td>
<td>University of Washington, Seattle (US)</td>
</tr>
<tr>
<td>Dr. Ariane Alimenti</td>
<td>Clinical Assistant Professor</td>
<td>Universite Libre de Bruxelles, Brussels (BE)</td>
<td>Universite Libre de Bruxelles, Brussels (BE)</td>
<td>University of Toronto, Toronto</td>
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<tr>
<td>Dr. Laura Sauvé</td>
<td>Clinical Assistant Professor</td>
<td>University of Calgary, Calgary</td>
<td>University of Calgary, Calgary</td>
<td>University of Toronto, Toronto</td>
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<tr>
<td>Dr. Jennifer Smitten</td>
<td>Clinical Instructor</td>
<td>University of British Columbia, Vancouver</td>
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### DEPARTMENT OF PEDIATRICS

#### DIVISION OF INFECTIOUS DISEASES

- **Professor**
- **Associate Professor**
- **Assistant Professor**
- **Research Associate**
- **Clinical Professor**
- **Clinical Assistant Professor**
- **Clinical Associate Professor**
- **Clinical Instructor**
"MEMBERS OF OUR DIVISION DELIVER A VARIETY OF PROGRAMS FOR THE TREATMENT OF CHILDREN AND YOUTH WITH INFECTIOUS AND IMMUNOLOGICAL DISEASES."
DIVISION OF NEONATOLOGY

OVERVIEW
Neonatology is the subspecialty of pediatrics responsible for providing care to the most acutely ill babies born in BC. The Division of Neonatology is part of an integrated perinatal program within Maternal, Fetal and Newborn Services, and provides 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.

Our Division sits at the crossroads between BC Children’s Hospital and BC Women’s Hospital + Health Centre, where it belongs to an integrated perinatal program. The academic division and the hospital Program of Neonatology are very closely linked and involved in running one of the largest and busiest nurseries in Canada. It is the only referral centre in BC providing the full complement of subspecialties, including pediatric surgery and extracorporeal membrane oxygenation (ECMO).

RESEARCH
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 related to neonatal follow-up, child neurodevelopment, neonatal immunology, acute stabilization of high-risk newborns, bio-banking, pediatric surgery, genetics, bioethics, intensive care monitoring/technology development, cardiovascular physiology and nutrition.

EDUCATION
Teaching is directed towards all levels of trainees from the undergraduate to the postgraduate, as well as provincial outreach and continuing medical education for healthcare providers in Vancouver and beyond.

The core of our educational activity is provided to pediatric residents and subspecialty residents (fellows) 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. Faculty also supervise numerous Masters and PhD students in a variety of...
EDUCATION CONTINUED

health and basic sciences disciplines. One of the biggest successes of our Division over the years is outreach education. A partnership between the program and the Perinatal Services BC was seen as an important strategy to cope with a very centralized system and the reality of having the lowest number of level II and III beds in Canada per 1,000 births.

CLINICAL CARE

The Division sits at the cross roads between Children's and Women's Hospitals where it belongs to an integrated perinatal program.

The academic Division and the Hospital Newborn Program of Neonatology are very closely linked and entwined in running one of the largest and busiest nurseries in Canada. It is the only referral center in BC providing the full complement of subspecialties. Beyond the birth process, the complexity of the aftercare of these babies and their need for complex pediatric care drives the outcomes of the patients.

For more information, please visit WWW.PEDIATRICS.MED.UBC.CA/DIVISIONS-CENTRES/NEONATOLOGY

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<thead>
<tr>
<th>ACADEMIC FACULTY</th>
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</table>
| Dr. Sheila Innes, Professor  
Graduate School | Dr. Horacio Osiovich, Division Head & Clinical Professor |
| (PhD) University of Toronto, Toronto | Medical School | University of Buenos Aires, Buenos Aires (AR) |
|  | Residency | University of Buenos Aires, Buenos Aires (AR), Queen’s University, Kingston |
|  | Fellowship | University of Miami, Miami (US) |
|  | University of British Columbia, Vancouver, University of Alberta, Edmonton |
| Dr. Ruth Grunau, Professor  
Graduate School | Dr. Susan Alberstheim, Program Director & Clinical Professor |
| (PhD) University of British Columbia, Vancouver | Medical School | University of Manitoba, Winnipeg |
| Postdoctoral Fellowship | Residency | University of Manitoba, Winnipeg |
| University of British Columbia, Vancouver | Fellowship | University of Manitoba, Winnipeg |
| Dr. Liisa Holsti, Associate Professor  
Graduate School | Dr. Alfonoso Solimano, Clinical Professor |
| (PhD) University of British Columbia, Vancouver | Medical School | Universidad Peruana Cayetano Heredia, Lima (PE) |
| Postdoctoral Fellowship | Residency | Rush Presbyterian St. Luke’s Medical Center, Chicago (US) |
| University of British Columbia, Vancouver | Fellowship | University of Toronto, Toronto |
| Dr. Elango Rajvel, Assistant Professor  
Graduate School | Dr. Anne Synnes, Clinical Professor |
| (PhD) University of Alberta, Edmonton | Medical School | McGill University, Montreal |
| Postdoctoral Fellowship | Residency | University of Toronto, Toronto |
| University of Toronto, Toronto | Fellowship | University of British Columbia, Vancouver |
| Dr. Pascal Lavoie, Associate Professor  
Medical School | Dr. Brian Lupton, Clinical Associate Professor |
| McGill University, Montreal | Medical School | Queen’s University Belfast, Belfast, (UK) |
| Residency | Residency | Queen’s University Belfast, Belfast, (UK) |
| University of Montreal, Montreal | Fellowship | University of British Columbia, Vancouver |
| Fellowship | University of British Columbia, Vancouver |
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### CLINICAL FACULTY

<table>
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<th>Dr. John Smyth, Clinical Associate Professor</th>
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### CLINICAL ASSOCIATES

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<tr>
<th>Dr. Kevin Ansah</th>
<th>Dr. Audrey Hebert</th>
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<tr>
<td>Dr. Shelagh Anson</td>
<td>Dr. Zaneta Lim</td>
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<tr>
<td>Dr. Anne Antrim</td>
<td>Dr. Cheryl Mutch</td>
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<tr>
<td>Dr. Rosemary Binnie</td>
<td>Dr. Joanna Rotecka</td>
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<tr>
<td>Dr. Rodney Bucke</td>
<td>Dr. Birgitta Samuelson</td>
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<tr>
<td>Dr. Margaret Choi</td>
<td>Dr. Matt Sibley</td>
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<tr>
<td>Dr. Deborah Gilmer</td>
<td>Dr. Sophie Tremblay</td>
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### TRAINING PROGRAM GRADUATES

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<tr>
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<tbody>
<tr>
<td>Dr. Elavazhagan Chakkarapani</td>
<td>Clinical Fellow</td>
<td>2013</td>
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<tr>
<td>Dr. Mohammad Jabr</td>
<td>Clinical Fellow</td>
<td>2013</td>
</tr>
<tr>
<td>Dr. Tejal J Risbud</td>
<td>Clinical Fellow</td>
<td>2014</td>
</tr>
<tr>
<td>Dr. Rani Ameena Bashir</td>
<td>Clinical Fellow</td>
<td>2014</td>
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<tr>
<td>Dr. Jenna Gillone</td>
<td>Postgraduate Trainee</td>
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<tr>
<td>Dr. Nilesh Rao</td>
<td>Clinical Fellow</td>
<td>2014</td>
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<tr>
<td>Dr. Allison Marie Callejas Salgado</td>
<td>Clinical Fellow</td>
<td>2015</td>
</tr>
<tr>
<td>Dr. Claudia Rossana Olivera Muñoz</td>
<td>Clinical Fellow</td>
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<tr>
<td>Dr. Amitava Sur</td>
<td>Clinical Fellow</td>
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### STUDENTSHIPS

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<tr>
<td>Manon Ranger</td>
<td>Dr. Ruth Grunau</td>
<td>CIHR</td>
<td>Doctoral Fellowship</td>
</tr>
<tr>
<td>Jillian Vinall</td>
<td>Dr. Ruth Grunau</td>
<td>CIHR</td>
<td>Doctoral Fellowship</td>
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### SIGNIFICANT AWARDS

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<tr>
<td>Dr. Rajavel Elango</td>
<td>Assistant Professor</td>
<td>American Society for Nutrition (ASN)</td>
<td>Vernon R. Young International Award for Amino Acid Research</td>
<td>2013</td>
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<tr>
<td>Dr. Yuk Joseph Ting</td>
<td>Clinical Assistant Professor</td>
<td>Asian Society for Pediatric Research (PAS-ASPR Meeting 2014)</td>
<td>Travel Award</td>
<td>2014</td>
</tr>
<tr>
<td>Dr. Oscar Casiro</td>
<td>Professor</td>
<td>BC College of Physicians &amp; Surgeons</td>
<td>Award of Excellence in Medical Practice</td>
<td>2014</td>
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</table>
The Canadian Neonatal Follow-Up Network (CNFUN)

DR. ANNE SYNNES, CLINICAL PROFESSOR, DIRECTOR OF THE NEONATAL FOLLOW-UP CLINIC, DIVISION OF NEONATOLOGY

In neonatal intensive care units (NICUs), most babies respond well to our life-saving interventions, but some children go home with chronic conditions that will affect them and their families for a lifetime. Whereas survival rates, easy to measure and track, have improved for most babies admitted to the NICU, the functioning, health and wellbeing of NICU survivors is much harder to chronicle and has not seen the same improvement.

The Neonatal Follow-Up Program at BC Children’s Hospital, located within BC Women’s Hospital + Health Centre, performs sequential standardized assessments of the highest risk premature and ill babies. Neonatal follow-up programs are unique: patients are invited to attend even if they are doing well. Children and their family are invited to attend either because their child was born very premature, very small, very ill or has a condition or a treatment where the long-term prognosis is unknown. The child has in-depth medical and neurodevelopmental assessments which permit early identification and referral to the community for potential problems. These clinical assessments also provide information for audit, quality improvement and research. For the tiniest babies born weighing less than 800 grams in BC (between 1983–2003), survival rates increased from 46% to 71%, but the overall impairment rate remained unchanged at 30%.

Interestingly, impairment rates differ between NICUs even after adjusting for various risk factors; we now know that prematurity per se is not a risk factor for neurological impairment. NICU short-term morbidities such as intraventricular hemorrhage, bronchopulmonary dysplasia and nosocomial infections are some of the important determinants of long-term neurodevelopmental impairments. If we can identify NICUs with low impairment rates and the practices associated with better outcomes, we should be able to improve outcomes for our most premature babies.

The Canadian Neonatal Network (CNN) started in 1994 by Dr. Shoo Lee while he was a neonatologist at BC Children’s Hospital. He confirmed the tremendous variation in NICU practices, resource use and outcomes. CNN then developed a quality improvement strategy called Evidence-based Practice for Improving Quality (EPIQ). EPIQ incorporates the best evidence from scientific literature, targeting interventions based on local data and using quality improvement techniques. In a cluster randomized trial of EPIQ, the six NICUs randomized to nosocomial infections, including Vancouver, reduced infection rates by 32%; the six NICUs randomized to chronic lung disease reduced rates by 15%; and five control NICUs had no change in either infection nor chronic lung disease rates. Thanks to EPIQ, mortality and morbidity rates in the pre-term population have fallen faster than any other developed country in the international neonatal network.

Dr. Shoo Lee envisioned that CNN should collect data beyond NICU discharge. The Canadian Neonatal Follow-Up Network (CNFUN) was started by Dr. Anne Synnes and includes all 26 Neonatal Follow-Up
Networks in Canada. In 2011, CNFUN started collecting data on the health, neurodevelopmental status and resource use at 18 months corrected age for children born at less than 29 weeks gestation.

With linkage to NICU data, CNFUN has been powerful and productive. From April 2009 to September 2011, there were 3,700 very preterm births less than 29 weeks gestational age in CNN: 84% survived to discharge. We found a spectrum of disabilities in the 2,340 children seen in CNFUN: 46% had one or more mild delays or disabilities, 16.5% had a more severe disability, 6.4% had cerebral palsy, 2.6% had hearing aids or a cochlear implant, and 1.6% had a severe visual impairment. There was tremendous variation between NICUs across Canada, which provides opportunities for us to learn from those sites doing well.

We are pleased to report that BC Women’s had the lowest rate of severe disability in Canada. We learned the risk factors for adverse developmental outcome, which provides strategies to improve the development of these children. NICU practices change and the long-term effects are not always known. Bevacizumab, a new treatment for retinopathy of prematurity shown to improve visual outcomes, was associated with a 3.1 higher odds of severe neurodevelopmental disabilities in the CNFUN population. Using 100% oxygen to resuscitate preterm babies in the delivery room was standard care until recently. As practices have changed at different times across Canada, CNFUN was able to show that babies resuscitated in room air have better long-term outcomes than those given 100% oxygen. CNN, CNFUN and a new obstetrical network will soon launch an EPIQ-style intervention to scientifically attack the neurodevelopmental and chronic health conditions that afflict too many premature children.

CNFUN also identified that there isn’t consensus about what parents and healthcare providers consider a severe disability. CNFUN is participating in a network called CHILD-BRIGHT, a program funded by the Canadian Institutes of Health Research (CIHR) under their Strategy for Patient Oriented Research (SPOR) initiative. It will soon launch “Parent EPIQ,” to both explore with parents what they consider to be a severe disability and implement parent-integrated post-NICU discharge interventions to improve language and thinking abilities of children born preterm. CNFUN hopes to make the future brighter for each child born preterm.

For more information, please visit: WWW.CNFUN.CA

“WE ARE PLEASED TO REPORT THAT BC WOMEN’S HAD THE LOWEST RATE OF SEVERE DISABILITY IN CANADA.”
DIVISION OF NEPHROLOGY

OVERVIEW
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.

RESEARCH
Our Division is engaged in a number of important translational research initiatives, including:

- Epidemiology and long-term outcomes of acute kidney injury in children and infants.
- Mechanisms of scarring in progressive kidney disease.
- The role of hypertension in the progression of chronic kidney disease in children.
- The importance of medication adherence to outcomes in kidney transplantation in teens.
- The development of noninvasive markers of rejection in kidney transplant patients.

Members of our Division are local, national and international leaders in their areas of research and are actively engaged in multi-centre collaborative efforts, including:

- Neonatal and pediatric intensive care consortia for the study of acute kidney injury (AWARE, AWAKEN).
- National and international collaborations in the development of best practices for a number of pediatric kidney diseases, including glomerulonephritis, nephrotic syndrome (NS), and hypertension (CKD, STOPP, KDIGO).
- The development and identification of biomarkers in childhood cancer (ABLE) and kidney transplantation (PROBE).
- National collaborations in transplantation research programs, including the Canadian National Transplant Research Program, TAKE-IT, and PROBE.

EDUCATION
Our Division is actively involved in UBC undergraduate medical school teaching, with leadership roles in course and curriculum development in the first and second years. Postgraduate training for pediatric residents is an integral component of the nephrology program.
EDUCATION CONTINUED

outpatient teaching experience. Pediatric residents rotate annually through an elective rotation in nephrology ambulatory care.

The Division of Nephrology also offers a fully accredited Royal College of Physicians and Surgeons of Canada training program in Pediatric Nephrology. Full training in Pediatric Nephrology is achieved by a program of graded responsibilities and learning experiences that fulfill the central roles necessary to the specialist, whether it be a medical expert, communicator, collaborator, manager, health advocate, scholar or professional.

CLINICAL CARE

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; the establishment of specialty outpatient clinics; and the evolution of a shared care model of practice. There are presently a number of half-day clinics offered per week, including dedicated clinics for chronic kidney disease, kidney transplant, general referrals, nephrotic syndrome, hypertension and a combined renal-rheumatology clinic.

The ambulatory care clinics see approximately 2,000 visits per year. Of these, 1,200 visits are follow-up evaluations in the General Nephrology clinics with approximately 350–400 new referrals annually. Within this group we have recently developed dedicated clinics for the care of our children with nephrotic syndrome (75–100 active patients), hypertension, and a combined renal-rheumatology clinic. Our Chronic Kidney Disease clinics provide care for approximately 150 children identified as having decreased kidney function (<60 ml/min/1.73m²), but not requiring dialysis. Our Kidney Transplant clinic is the model upon which the Multi Organ Transplant clinic has been built. It sees approximately 350 visits per year and serves a population of approximately 50 active patients.

Our dialysis program offers both hospital and home-based therapies. Our hospital-based hemodialysis unit provides over 1,000 dialysis treatments for approximately six children per year, in addition to providing hemodialysis treatment support to the Pediatric Intensive Care Unit. We have a dedicated state-of-the-art pediatric hemodialysis unit, which will be relocated to the third floor of the new Teck Acute Care Centre of BC Children’s Hospital. Our home-based dialysis program provides care for up to 15 children on peritoneal dialysis.

Our Division is committed to delivering specialty care “closer to home” and is establishing regional clinics for children with kidney disease throughout BC, including Kelowna, Prince George and Surrey.

For more information, please visit
WWW.PEDIATRICS.MED.UBC.CA/DIVISIONS-CENTRES/NEPHROLOGY

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<tr>
<td><strong>Dr. Douglas Matsell, Division Head</strong> &amp; Professor</td>
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<td><strong>Dr. Allison Eddy, Professor</strong></td>
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<td><strong>Dr. Cherry Mammen, Clinical Assistant Professor</strong></td>
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<td><strong>Dr. Colin White, Program Director</strong> &amp; Clinical Associate Professor</td>
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- Professor
- Associate Professor
- Assistant Professor
- Research Associate
- Clinical Professor
- Clinical Assistant Professor
- Clinical Associate Professor
- Clinical Instructor

DIVISIONAL REPORTS | 115
**FACULTY BY RANK CONTINUED**

**CLINICAL FACULTY**

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<tr>
<td>Dr. Janis Dionne, Clinical Assistant Professor</td>
<td>University of Alberta, Edmonton</td>
<td>University of Saskatchewan, Saskatoon</td>
<td>University of British Columbia, Vancouver</td>
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<tr>
<td>Dr. Malcolm Ogborn, Clinical Professor</td>
<td>University of Adelaide, Adelaide (AU)</td>
<td>University of Western Australia, Perth (AU)</td>
<td>The Royal Australasian College of Physicians, Sydney (AU)</td>
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<tr>
<td>Dr. Elena Jugnauth, Clinical Assistant Professor</td>
<td>University of Manitoba, Winnipeg</td>
<td>University of Toronto, Toronto</td>
<td>University of Toronto, Toronto</td>
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<tr>
<td>Dr. Tom Blydt-Hansen, Clinical Associate Professor</td>
<td>McGill University, Montreal QC</td>
<td>McGill University, Montreal QC</td>
<td>McGill University, Montreal QC, and, University of California, Los Angeles CA</td>
</tr>
<tr>
<td>Dr. Robert Humphreys, Clinical Assistant Professor</td>
<td>Memorial University, St. John’s</td>
<td>University of Rochester, Rochester (US)</td>
<td>University of Rochester, Rochester (US) and, University of British Columbia, Vancouver</td>
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**TRAINING PROGRAM GRADUATES**

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<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Year</th>
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<tr>
<td>Dr. Jasper Job Jobsis</td>
<td>Clinical Fellow</td>
<td>2013</td>
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<tr>
<td>Dr. Kathy Lee-Son</td>
<td>Subspecialty Resident</td>
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</tr>
<tr>
<td>Dr. Alanoud Ali Alshami</td>
<td>Clinical Fellow</td>
<td>2014</td>
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<tr>
<td>Dr. Bikramjit Singh Grewal</td>
<td>Subspecialty Resident</td>
<td>2014</td>
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<tr>
<td>Dr. Nicholas George Larkins</td>
<td>Clinical Fellow</td>
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<tr>
<td>Dr. Chia Wei Teoh</td>
<td>Postgraduate Trainee</td>
<td>2014</td>
</tr>
<tr>
<td>Dr. Eman Ahmad H. Nooreddeen</td>
<td>Clinical Fellow</td>
<td>2015</td>
</tr>
<tr>
<td>Dr. Sheetal Lad</td>
<td>Clinical Fellow</td>
<td>2015</td>
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</tbody>
</table>
Clinical Pathway Development

DR. DOUGLAS MATSELL, DIVISION HEAD, DIVISION OF NEPHROLOGY

With a commitment to excellence in clinical care, the Division of Nephrology’s Clinical Pathway Development (CPD) Team was conceived to help transform established best practices and innovative research findings into standardized clinical care and improved patient outcomes. Spearheaded by Drs. Douglas Matsell and Cherry Mammen, and in collaboration with numerous trainees, students and multidisciplinary experts, both within our Division and the surrounding UBC community, the CPD Team endeavours to elevate the patient care experience by empowering pediatricians, primary care physicians, allied health professionals and patients and families themselves, with cutting edge knowledge, exceptional care and uncompromised quality.

The overarching goal of the CPD Team is to ensure the health, safety and wellbeing of the patients and families cared for by the Division of Nephrology. Underpinning this goal is the CPD Team’s commitment to continuing education, change management, knowledge translation, quality improvement and clinical research. More specifically, the CPD aims to:

- Critically review available evidence
- Establish consensus and make evidence-based recommendations for practice in the form of clinical pathways
- Develop the necessary tools and resources needed to support the effective education, dissemination and evaluation of the pathways
- Audit end-user fidelity to, and satisfaction with, the pathways
- Iteratively re-evaluate and update the pathways as new evidence becomes available
- Support ongoing research initiatives in the fields of clinical pathway theory and pediatric nephrology

Since its inception in 2011, the primary focus of the CPD Team has been the evolution of the Childhood Nephrotic Syndrome (CNS) Clinical Pathway: a structured, evidence-based and prescriptive care plan detailing the essential steps to be taken by various care providers for the management of children with nephrotic syndrome, the single most commonly seen childhood renal condition.

Numerous resources and programs have been produced as part of the CNS Pathway. Examples of major milestone deliverables include: parent- and physician-specific educational handbooks; easy-to-use parent worksheets and an electronic steroid treatment calculator for real-time monitoring at home and in clinic; twice-monthly dedicated NS clinics within the Division of Nephrology’s outpatient renal care program; and NS-specific, semi-structured clinic worksheets with embedded fidelity checklists. Collectively, these resources have allowed for highly efficient patient care, uniquely broad yet focused learning opportunities for students and trainees, and increased adherence to CNS Pathway recommendations by healthcare practitioners and patients themselves.
The work of the CPD Team has helped spur several ancillary research projects within the general domain of clinical pathway theory, as well as the more NS-specific areas of clinical biomarkers, steroid treatment, diet management and urine protein monitoring. At present, the CPD Team’s compendium of published works includes a journal review paper on the importance of clinical pathways and protocols in Pediatric Nephrology, as well as numerous published abstracts in the Journal of Investigative Medicine. In time, results from these preliminary studies will have an important impact on clinical practice in general and NS diagnosis and management in particular. Moreover, the CPD Team continues to share and promote the CNS Pathway at local, national and international forums, including UBC Pediatric Grand Rounds, BC Kidney Days meetings, the Canadian Association of Nephrology Nurses & Technologists (CANNT) meetings, and Western Society of Pediatric Nephrology (WSPN) meetings.

A guiding modus operandi for the CPD Team has been to push current practices towards, and indeed beyond, the best-available standards. To this end, future directions of the CPD Team include, not only the progression of the CNS Pathway, but also the development of unique pathways for the other renal conditions typically seen within the Division of Nephrology, including but not limited to hypertension, childhood glomerulonephritis, and congenital kidney anomalies diagnosed in the antenatal period.

For more information, please visit:
WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/DOUGLAS-MATSELL
WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/CHERRY-MAMMEN
WWW.MED-FOM-PEDIATRICS.SITES.OLT.UBC.CA/FILES/2013/11/SUMMARY-CLINICAL-PATHWAYS.PDF
OVERVIEW
The Division of Neurology provides the only tertiary level of care for children with neurological disorders in BC. We have the most comprehensive Pediatric Neurology program in Western Canada, featuring subspecialty programs in Epilepsy, Neuro-oncology, Neuromuscular Disorders, Cognitive Neurology and Neonatal Neurology. We offer state-of-the-art care for common and rare diseases of the nervous system, including epilepsy, stroke, brain tumours, newborn brain injury and muscle diseases. Clinical care is a priority of our Division, and young patients are referred from across the province by general practitioners, general pediatricians and physicians in the Emergency Department and other departments at BC Children’s Hospital and Sunny Hill Health Centre for Children.

RESEARCH
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. Current research interests include:

- Neonatal brain injury, including prematurity, perinatal asphyxia and congenital heart disease
- Treatment of intractable epilepsy with experimental anticonvulsant medication, the ketogenic diet and surgical methods
- Natural history and treatment of neuromuscular disorders
- Brain mapping
- Stroke in children
- Management of brain tumours and the neurological complications of malignancy

EDUCATION
There is a long-standing and strong commitment to teaching within our Division, which offers an accredited subspecialty training program in Pediatric Neurology. For the last few years, our Division has been fortunate to have funding from the Associate Dean’s Office and the BC Children’s Hospital Foundation to have two trainees in Pediatric Neurology enter the program each year. Other fellows from overseas join our Division for subspecialty training in Pediatric Neurology and complement the Royal College of Physicians and Surgeons of Canada training program. Further subspecialty training and postdoctoral fellowships are offered in Epilepsy, Neuro-oncology and Neonatal Neurology.

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

CLINICAL CARE
Our Division oversees an active, heavily-utilized inpatient consultation service and is 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 of their epilepsy. In addition, our Division tends to an active outpatient facility with over 3,000 clinic visits per year.

Subspecialty clinical interests and programs within our Division include:

• Neonatal Neurology: Newborns with neurological problems are cared for in the Special Care Nursery with advanced diagnostic and therapeutic modalities.

• Epilepsy: Our Division manages essentially all of BC’s most complicated pediatric epilepsy patients.

• Epilepsy Surgery: Our Division has developed vast and significant experience in selecting patients appropriate for this surgery.

• Ketogenic Diet: Patients with epilepsy that is uncontrollable by the use of anticonvulsant medications are treated with a complicated diet supervised by a physician, nurse and dietician.

• Neurophysiology: This is a highly-regarded tertiary service at BC Children’s, and although this Department is operationally-independent of our Division, all of the medical staff in the Department are neurologists.

• Neuromuscular Diseases: Members of our Division assess and manage children with muscle diseases and other diseases of the neuromuscular system in a specialized multidisciplinary clinic.

• Behavioural and Higher Cognitive Function: We assess children with specific learning disabilities and autism. This includes the Brain Mapping Program, which uses advanced MR imaging techniques for diagnosis and localization.

• Neuro-oncology: Infants, children and adolescents with brain tumours and other oncological diseases of the neurological system are cared for with special expertise in collaboration with Oncology, Neurosurgery, Radiation Oncology and Neuroradiology.

For more information, please visit
WWW.PEDIATRICS.MED.UBC.CA/DIVISIONS-CENTRES/NEUROLOGY
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<th>FACULTY BY RANK</th>
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<tbody>
<tr>
<td><strong>ACADEMIC FACULTY</strong></td>
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</table>
| - **Dr. Peter Wong, Professor**  
  Medical School | McMaster University, Hamilton  
  Residency | University of Toronto, Toronto  
  Fellowship | University of Toronto, Toronto, University of California, San Diego (US), Harvard University, Boston (US) | - **Dr. Mary Connolly, Division Head & Clinical Professor**  
  Medical School | University of Dublin, Dublin (IE)  
  Residency | University of Dublin, Dublin (IE)  
  Fellowship | Harvard University, Boston (US) |
| - **Dr. Alex Rauscher, Assistant Professor**  
  Graduate School | PhD Vienna Medical University, Vienna (AT)  
  Postdoctoral Fellowship | Friedrich-Schiller-University, Jena (GE) | - **Dr. Elke Roland, Program Director & Clinical Associate Professor**  
  Medical School | University of Western Ontario, London  
  Residency | University of Western Ontario, London  
  Fellowship | University of British Columbia, Vancouver |
| - **Dr. Alan Hill, Professor Emeritus**  
  Medical School | PhD University of Nottingham, Nottingham (UK) and MD University of Saskatchewan, Saskatoon  
  Residency | University of Toronto, Toronto  
  Fellowship | University of Toronto, Toronto | - **Dr. Linda Huh, Program Director & Clinical Assistant Professor**  
  Medical School | University of Ottawa, Ottawa  
  Residency | Memorial University, St. John’s  
  Fellowship | University of British Columbia, Vancouver, Yale University, New Haven (US) |
| - **Dr. Ron Barr, Professor**  
  Medical School | McGill University, Montreal  
  Residency | McGill University, Montreal  
  Fellowship | Harvard University, Boston (US) | - **Dr. Cyrus Boleman, Clinical Assistant Professor**  
  Medical School | University College Dublin, Dublin (IE)  
  Residency | University of Toronto, Toronto |
| - **Dr. Anita Datta, Clinical Assistant Professor**  
  Medical School | University of Saskatchewan, Saskatoon  
  Residency | University of Saskatchewan, Saskatoon, University of Alberta, Edmonton  
  Fellowship | Harvard University, Boston (US) | - **Dr. James Lee, Clinical Assistant Professor**  
  Medical School | University of Ottawa, Ottawa  
  Residency | University of British Columbia, Vancouver  
  Fellowship | Albert Einstein College of Medicine, New York (US), University of British Columbia, Vancouver |
| - **Dr. Dewi Schrader, Clinical Assistant Professor**  
  Medical School | University of Melbourne, Melbourne (AU)  
  Residency | University of British Columbia, Vancouver,  
  Fellowship | McGill University, Montreal | - **Dr. Ron Barr, Professor**  
  Medical School | University of Saskatchewan, Saskatoon  
  Residency | University of Saskatchewan, Saskatoon, University of Alberta, Edmonton  
  Fellowship | Harvard University, Boston (US) |
## FACULTY BY RANK

### CLINICAL FACULTY CONTINUED

**Dr. Bruce Bjornson, Clinical Assistant Professor**  
*Medical School* | University of Alberta, Edmonton  
*Residency* | University of Manitoba, Winnipeg MB, and, Harvard University, Boston (MA)  
*Fellowship* | Harvard University, Boston (MA)

**Dr. Michelle Demos, Clinical Assistant Professor**  
*Medical School* | University of British Columbia, Vancouver  
*Residency* | University of British Columbia, Vancouver  
*Fellowship* | University of British Columbia, Vancouver

**Dr. Kathy Selby, Clinical Assistant Professor**  
*Medical School* | Manchester University, Manchester (UK)  
*Residency* | Manchester University, Manchester (UK), and, University of British Columbia, Vancouver  
*Fellowship* | Manchester University, Manchester (UK), and, University of British Columbia, Vancouver

**Dr. Juliette Hukin, Clinical Associate Professor**  
*Medical School* | University of Sydney, Sydney (AU)  
*Residency* | University of New South Wales, Sydney (AU), and University of British Columbia, Vancouver  
*Fellowship* | Albert Einstein University, New York (US)

### CLINICAL ASSOCIATES

- Dr. Ziad Abu Sharar

### TRAINING PROGRAM GRADUATES

<table>
<thead>
<tr>
<th>NAME</th>
<th>TITLE</th>
<th>YEAR</th>
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<tbody>
<tr>
<td>Dr. Jennifer N. Gelinas</td>
<td>Subspecialty Resident</td>
<td>2013</td>
</tr>
<tr>
<td>Dr. Aspasia Michoulas</td>
<td>Clinical Fellow</td>
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<tr>
<td>Dr. Gemma Burford</td>
<td>Clinical Fellow</td>
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<tr>
<td>Dr. Alexandra Julia Faber</td>
<td>Subspecialty Resident</td>
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<tr>
<td>Dr. Qi Xu</td>
<td>Subspecialty Resident</td>
<td>2015</td>
</tr>
<tr>
<td>Dr. Torin James Alexander Glass</td>
<td>Subspecialty Resident</td>
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<td>Dr. Chinnuwat Sanguansermsri</td>
<td>Clinical Fellow</td>
<td>2015</td>
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<tr>
<td>Dr. Itay Zelcer</td>
<td>Clinical Fellow</td>
<td>2015</td>
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### SIGNIFICANT AWARDS

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<tr>
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<th>AWARD</th>
<th>YEAR</th>
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<tbody>
<tr>
<td>Dr. Alex Rauscher</td>
<td>Assistant Professor</td>
<td>Green College</td>
<td>Leading Scholars Program</td>
<td>2015</td>
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<tr>
<td>Dr. James Lee</td>
<td>Clinical Assistant Professor</td>
<td>UBC Department of Pediatrics</td>
<td>Rookie of the Year Award</td>
<td>2013–14</td>
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<tr>
<td>Dr. Mary Connolly</td>
<td>Clinical Professor</td>
<td>Canadian League Against Epilepsy</td>
<td>Clinical Practice Advocacy Award</td>
<td>2015</td>
</tr>
<tr>
<td>Dr. Michelle Demos</td>
<td>Clinical Assistant Professor</td>
<td>Partners in Care; The Family Advisory to BC Children's Hospital</td>
<td>Patient &amp; Family Centred Care Award</td>
<td>2013</td>
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</table>
Epilepsy is one of the most common neurological disorders affecting children. Children with epilepsy, especially if seizures are poorly controlled (30%–40% of patients), are at increased risk of intellectual impairment, autism and psychiatric illness. In 20%–30% of individuals with epilepsy, the cause is due to acquired conditions such as a head injury, infection or brain tumours. In the remaining 70%–80%, the cause is believed to be due to one or more genetic factors, yet in the majority of children, the genetic cause is not determined from current diagnostic investigations.

The introduction of next-generation sequencing technology, including the use of whole exome sequencing (WES) or epilepsy gene panels, has enabled the identification of a specific genetic diagnosis in 30% or more of select patients with unexplained epilepsy. The clinical impact is significant and includes the potential to identify disorders with specific treatment implications. The potential to influence treatment, and therefore outcome, supports early use of this testing in the diagnostic process; however, access to this testing on a clinical basis is currently limited.

Given this, clinical researchers from BC Children’s and scientists at UBC began a collaboration project in December 2014, the Pediatric Epilepsy Genomics, to develop, assess and promote next-generation sequencing (NGS) as an essential tool in identifying the genetic cause of epilepsy. This collaborative effort is led by Dr. Matthew Farrer, Professor of Medical Genetics and Canada Excellence Research Chair in Neurogenetics and Translational Neuroscience; Dr. Michelle Demos, Clinical Assistant Professor of Pediatrics, Pediatric Neurologist and Neurogeneticist at BC Children’s; and Dr. Mary Connolly, Clinical Professor of Pediatrics and Director of the Epilepsy Program, at BC Children’s. Funding for this project is from the Alva Foundation and the Dean’s Innovation Fund.

The success of the project has exceeded the investigators’ expectations. The recruitment of participants happened quickly, and the team has already met the goal of enrolling 160 children in the study. Children with onset of epilepsy under the age of five years were studied, including a prospective group with new onset epilepsy and a group of children with epilepsy for many years in whom no cause was identified (retrospective). Within two weeks of receiving each patient’s sample, investigators performed exome sequencing to discover causative variants in over 800 genes already implicated in epilepsy. Overall, a diagnosis was established in 40% of children enrolled in this study, and the diagnosis had an immediate...
impact on treatment in 45%. Time from study enrollment with genetic counselling to diagnosis with Sanger confirmation of the variant was approximately 50 days. Comparing time from epilepsy diagnosis to genetic diagnosis in the prospective group and the retrospective group, revealed that a diagnosis could have been made 95 months or almost eight years sooner if performed at the onset of epilepsy in the retrospective group.

Our results support WES as an effective method of identifying the genetic cause of seizures in patients with early onset epilepsy. The team plans to continue this discovery work with grant and philanthropic support, and to work with the Provincial Test Review Committee around feasibility of making WES testing available for high-risk epilepsy patients.

For more information, please visit:
WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/
MARY-B-CONNOLLY
WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/
MATTHEW-FARRER
WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/
MICHELLE-DEMOS

“The team has already met the goal of enrolling 160 children in the study.”
DIVISION OF RESPIRATORY MEDICINE

OVERVIEW
The Division of Respiratory Medicine’s mandate is to provide leadership and excellence in the discipline of Pediatric Respiratory Medicine for the children of BC. Respiratory problems account for the largest number of physician and emergency department visits for acute problems in children. They also account for the largest number of admissions to pediatric hospitals and a significant proportion of bed days for chronic inpatient care. Strong leadership in this specialty is crucial to providing quality care for the children of BC.

RESEARCH
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 and are involved in collaborations with other scientists at the Institute.

• Over the last 15 years, Dr. Mark Chilvers has developed a research interest in non-CF Bronchiectasis, focusing primarily on primary ciliary dyskinesia. He has developed a new method for the evaluation of function of microscopic hairs (cilia), which line the airways of the lung. This has been standardized and is now used as an accepted method for the diagnosis of primary ciliary dyskinesia and research platform.

• Dr. Michael Seear is currently running a large multi-centre trial in India that looks into childhood pneumonia. He also investigates topical questions in clinical respiratory medicine, including the very specialized topic of children that need mechanical ventilation in their homes.

• Dr. David Wensley is working on improving in-hospital care of children by using standardized tools that provide early warning of changes in their conditions. This allows them to be treated before they deteriorate. He has also utilized technology to provide access for children to simple diagnostic tests (oximetry) in their home to assess breathing disorders during sleep. In the developing world, this provides access to oximetry in the diagnosis of pneumonia.

EDUCATION
All pediatric residents rotate through the Division of Respiratory Medicine as part of their core first year rotation. They can also participate in Respiratory Medicine electives later in their training. The Pediatric Respiratory Fellowship program was fully accredited by
EDUCATION CONTINUED
The Royal College of Physicians and Surgeons of Canada in 2013 and provides a two-year clinical fellowship for eligible residents. Applications are accepted through the CARMS system (Canadian Resident Matching Service). A one- to two-year clinical or research fellowship in Respiratory Medicine is also available for international trainees. Our Division has been training international fellows since 2002 and has had trainees from the United Kingdom, South America and South Africa.

CLINICAL CARE
Apart from running general respiratory clinics dealing with referrals from across the province, our Division also runs weekly multidisciplinary clinics for cystic fibrosis, asthma, sleep medicine, non-CF bronchiectasis and home ventilation. The home ventilation clinic has now grown to become one of the largest clinics of its kind in North America. We also provide an inpatient consultation service and see over 300 new ward consultations each year.

The Respiratory Medicine Division is responsible for the Pulmonary Function Laboratory, which is a category 3A laboratory as accredited by the BC Diagnostic Accreditation Program. We also manage the Pediatric Polysomnography Service and test 150 to 200 children with sleep disordered breathing each year.

For more Information, please visit
WWW.PEDIATRICS.MED.UBC.CA/DIVISIONS-CENTRES/RESPIRATORY-MEDICINE

“THE RESPIRATORY MEDICINE DIVISION IS RESPONSIBLE FOR THE PULMONARY FUNCTION LABORATORY, WHICH IS A CATEGORY 3A LABORATORY AS ACCREDITED BY THE BC DIAGNOSTIC ACCREDITATION PROGRAM. WE ALSO MANAGE THE PEDIATRIC POLYSOMNOGRAPHY SERVICE AND TEST 150 TO 200 CHILDREN WITH SLEEP DISORDERED BREATHING EACH YEAR.”
FACULTY BY RANK

CLINICAL FACULTY

Dr. Micheal Seear, Division Head & Clinical Professor
Medical School | University of Rhodesia, Harare (ZW)
Residency | University of British Columbia, Vancouver
Fellowship | University of British Columbia, Vancouver, University of Toronto

Dr. Claire Seaton, Clinical Instructor
Medical School | Oxford University, Oxford (UK)
Residency | Oxford University, Oxford (UK)
Fellowship | University of British Columbia, Vancouver, and Oxford University, Oxford (UK)

Dr. Connie Yang, Program Director & Clinical Assistant Professor
Medical School | University of Toronto, Toronto
Residency | University of Western Ontario, London
Fellowship | University of Toronto, Toronto

Dr. Mark Chilvers, Program Director & Clinical Associate Professor
Medical School | University of Leicester, Leicester (UK)
Residency | University of Leicester, Leicester (UK)
Fellowship | University of Leicester, Leicester (UK)

CLINICAL ASSOCIATES

Dr. Kristine Ebbert
Dr. Kelly Luu

TRAINING PROGRAM GRADUATES

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<tr>
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<tr>
<td>Dr. Vishwanath Gowraiah</td>
<td>Clinical Fellow</td>
<td>2013</td>
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<tr>
<td>Dr. Celine Colette Kempeneers</td>
<td>Clinical Fellow</td>
<td>2014</td>
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<tr>
<td>Dr. Akshat Kapur</td>
<td>Clinical Fellow</td>
<td>2015</td>
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<tr>
<td>Dr. Marie Wright</td>
<td>Postgraduate Trainee</td>
<td>2015</td>
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SIGNIFICANT AWARDS

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<tbody>
<tr>
<td>Dr. Connie Yang</td>
<td>Clinical Assistant Professor</td>
<td>UBC Department of Pediatrics</td>
<td>Teacher of the Year Award</td>
<td>2012–13</td>
</tr>
<tr>
<td>Dr. Mark Chilvers</td>
<td>Clinical Associate Professor</td>
<td>UBC Department of Pediatrics</td>
<td>Ivory Tower Award</td>
<td>2012–13</td>
</tr>
<tr>
<td>Dr. Michael Seear</td>
<td>Clinical Professor</td>
<td>Canadian Thoracic Society</td>
<td>Vic Chernick Award</td>
<td>2014</td>
</tr>
<tr>
<td>Dr. Victoria Cook</td>
<td>Assistant Professor</td>
<td>UBC Department of Pediatrics</td>
<td>Dr. David Alexander Clark, MD, Prize</td>
<td>2013–14</td>
</tr>
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OVERVIEW
The BC Children’s Hospital Division of Rheumatology provides diagnosis and treatment, with a comprehensive and coordinated multidisciplinary team, for children and adolescents with rheumatic diseases. These diseases include chronic arthritis (juvenile idiopathic arthritis), systemic lupus erythematosus, dermatomyositis, scleroderma, vasculitis, musculoskeletal pain syndromes, and other less common inflammatory diseases.

Research
Our Division has a strong research program, which includes both clinical and basic research in inflammatory rheumatic diseases of childhood. Division members regularly present research abstracts at all major national and international rheumatology meetings, as well as being invited to speak at the Pediatric Rheumatology European Society meeting, the European League Against Rheumatism (EULAR) Postgraduate Course, and the American College of Rheumatology meeting, as well as local meetings.

Our outstanding clinical research program includes research in the areas of juvenile arthritis, lupus, exercise physiology and vasculitis. Members of our Division are leaders in the development of Canadian and North American pediatric multi-centre clinical research cohorts in juvenile arthritis, lupus and vasculitis. Drs. Lori Tucker and David Cabral, together with colleagues in Pediatric Endocrinology and basic immunology researchers at BC Children’s and BC Children’s Hospital Research Institute, have recently been awarded a large grant to do translational research into basic pathophysiology of childhood lupus and diabetes.

Education
Our Division has one of only three Royal College of Physicians and Surgeons of Canada approved training programs for pediatric rheumatology in Canada. Over the past 15 years, the Subspecialty Training Program has trained over 20 pediatric rheumatologists from North America, Europe, the Middle East, Australia and Asia.

Clinical Care
The Pediatric Rheumatology program provides coordinated care for children and youth with rheumatic disease through the following services:

- Diagnostic consultation service.
- Rheumatology follow-up clinics for patients diagnosed with definite rheumatic diseases: juvenile idiopathic arthritis, systemic lupus erythematosus, dermatomyositis, vasculitis, scleroderma and other rare autoimmune or inflammatory disorders.
**CLINICAL CARE CONTINUED**

- Consultation and treatment by specialized pediatric rheumatology physiotherapists and occupational therapists.

- A specialized transition program for youth aged 18–23 years, called The Young Adults with Rheumatic Diseases (YARD) clinic. This unique program is focused on providing support to youth to become independent in the management of their health care as they move to adult rheumatology services. This clinic is held at the Mary Pack Arthritis Centre, with the help of an adult rheumatologist.

- Weekly Procedures clinic for joint injections, done under conscious sedation.

- Telephone consultations to pediatricians and family doctors across the province.

- The Pediatric Rheumatology Program is a province-wide resource for patients, families and physicians. Outreach Pediatric Rheumatology Travelling Clinics take place in Prince George and Terrace three times yearly and are now being established in Surrey on a regular basis. In addition, two graduates of the pediatric rheumatology training program have established pediatric rheumatology services in BC—Dr. Katherine Gross in Penticton and Dr. Roxana Bolaria in Victoria.

For more information, please visit WWW.PEDIATRICS.MED.UBC.CA/DIVISIONS-CENTRES/RHEUMATOLOGY

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**FACULTY BY RANK**

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<tr>
<th>ACADEMIC FACULTY</th>
<th>CLINICAL FACULTY</th>
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| Dr. Ross Petty, Professor Emeritus  
*Medical School* | Dr. David Cabral, Division Head & Clinical Professor  
*Medical School* |
| University of Saskatchewan, Saskatoon  
*Graduate School* | University of Western Australia, Perth (AU)  
*Residency* |
| (PhD) University of London, London (UK)  
*Residency* | University of Western Australia, Perth (AU),  
University of British Columbia, Vancouver  
*Fellowship* |
| University of Saskatchewan, Saskatoon,  
University of Michigan, Ann Arbor (US)  
*Fellowship* | University of British Columbia, Vancouver  
*Fellowship* |
| University of London (UK)  
*Fellowship* | |

| Dr. Kelly Brown, Assistant Professor  
*Graduate School* | Dr. Kristin Houghton, Program Director & Clinical Associate Professor  
*Medical School* |
| University of British Columbia, Vancouver  
*Postdoctorate Fellowship* | University of British Columbia, Vancouver  
*Residency* |
| University of British Columbia, Vancouver,  
University of Gothenburg, Gothenburg (SE)  
*Fellowship* | Dalhousie University, Halifax  
*Fellowship* |
| University of British Columbia, Vancouver  
*Fellowship* | University of British Columbia, Vancouver  
*Fellowship* |

| Dr. Jaime Guzman, Clinical Associate Professor  
*Medical School* | Dr. Lori Tucker, Clinical Associate Professor  
*Medical School* |
| Universidad de Guanajuato, Leon (MX)  
*Residency* | Tufts University, Boston (US)  
*Residency* |
| University of Mexico, Mexico City (MX)  
*Fellowship* | Tufts University, Boston (US)  
*Fellowship* |

| Dr. Lori Tucker, Clinical Associate Professor  
*Medical School* | Dr. Kim Morishita, Clinical Assistant Professor  
*Medical School* |
| Tufts University, Boston (US)  
*Residency* | University of British Columbia, Vancouver  
*Residency* |
| University of Alberta, Edmonton  
*Fellowship* | University of British Columbia, Vancouver  
*Fellowship* |

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**DIVISIONAL REPORTS** | 129
DIVISION OF RHEUMATOLOGY

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<th>TRAINING PROGRAM GRADUATES</th>
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<tr>
<td>Dr. Abdullatif Al Alenazi</td>
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<td>Dr. Mercedes Chan</td>
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<tr>
<td>Dr. Hend Mohammed Alkwai</td>
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<td>Dr. Vinay Shivamurthy</td>
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<td>Dr. Hosam Al Thagafi</td>
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<td><strong>NAME</strong></td>
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<td>Dr. Jaime Guzman</td>
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<td>Dr. Kelly Brown</td>
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"THE AUTOINFLAMMATORY DISEASES (AID) CLINIC INTEGRATES THE HIGHEST QUALITY MULTIDISCIPLINARY CLINICAL DIAGNOSIS AND CARE WITH A TRANSLATIONAL RESEARCH PROGRAM, ALL AIMED AT BETTER TREATMENT AND UNDERSTANDING OF THESE DISORDERS."
New Autoinflammatory Diseases Clinic and Translational Research Study

DR. LORI TUCKER, CLINICAL ASSOCIATE PROFESSOR, DIVISION OF RHEUMATOLOGY
DR. KELLY BROWN, ASSISTANT PROFESSOR, DIVISION OF RHEUMATOLOGY

Autoinflammatory diseases are a group of rare inflammatory conditions, usually starting early in childhood with recurrent unprovoked attacks of inflammation, including symptoms of fever, rash and other organ problems. For many affected children, the attacks occur every month, often without warning, and frequently result in emergency room visits or hospitalizations. Due to low general awareness of these conditions, the diagnosis of an autoinflammatory condition is often delayed for months to years. A sense of normal everyday life for the child and the entire family is generally lost, with the child routinely missing school/daycare/activities and the parents often struggling to maintain full-time employment and provide adequate care for other (healthy) children. Long-term, these ongoing attacks pose a serious negative impact on the child’s growth, development and ability to function. Some of these conditions can be quite severe, even life threatening, while others seem to resolve over time during childhood. Over the past 5–10 years, the spectrum of autoinflammatory disease has expanded, with a number of these disorders now known to be associated with specific genetic mutations affecting the immune system.

Unlike initiatives that began almost a decade ago in Europe and at the National Institutes of Health in the US, in Canada there are no specialized care centres or translational research programs in autoinflammatory diseases, and only limited genetic testing. It is often not clear if, where or to whom patients should be referred. Moreover, there are no standard treatment or care guidelines. Thus, patients receive fragmented care, often get no treatment or general immunosuppressive therapy, and no formalized follow-up. Some existing new treatments may be helpful, or even life-saving, but require assessment and monitoring by a pediatric specialist (rheumatologist, immunologist, infectious diseases); for some patients, current treatments are not effective.

It is estimated that at least 200 children in BC and 1,500 children in Canada could be living with an autoinflammatory condition, although this number may be much higher. In the Pediatric Rheumatology Clinic at BC Children’s Hospital, there has been a three-fold increase in cases of autoinflammatory disease referred for evaluation and care over the past three years, with more cases expected as awareness of this new group of diseases increases.
A new program has been developed by the Division of Rheumatology to improve and streamline care for children with autoinflammatory diseases in BC. The Autoinflammatory Diseases (AID) Clinic, integrates the highest quality multidisciplinary clinical diagnosis and care with a translational research program, all aimed at better treatment and understanding of these disorders.

This initiative is led by Dr. Lori Tucker and Dr. Kelly Brown. Patients and families who attend the AID clinic will have access to accurate and cutting edge diagnostic services, and multidisciplinary treatment and follow-up from the Pediatric Rheumatology team (pediatric rheumatologists, nurse specialists, physical and occupational therapists, social workers, and other specialty services as required: Pediatric Infectious Disease, Pediatric Immunology, Pediatric ENT, Clinical Genetics). Research collaborators include Drs. Brown, Gibson and Dutz at the BC Children’s Hospital Research Institute and Dr. Pauline Johnson at UBC Department of Microbiology and Immunology.

As an important first step to this program, Drs. Tucker and Brown have developed a longitudinal patient registry, called CAN-Fever, and an accompanying biobank, to facilitate research aimed at genetic and biologic discovery, development of novel treatment approaches, and understanding of the burden of disease to children and families. Other Canadian centres will soon be enrolled.

For more information, please visit: WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/LORI-B-TUCKER WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/KELLY-BROWN

“DRS. TUCKER AND BROWN HAVE DEVELOPED A LONGITUDINAL PATIENT REGISTRY, CALLED CAN FEVER, AND AN ACCOMPANYING BIOBANK.”
OVERVIEW
The Division of Translational Therapeutics provides pediatric care at BC Children’s Hospital, where basic science research, clinical research and clinical practice converge. This is crucial to our Division, as one of our 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. The bedside-to-bench-to-bedside approach we take is especially important within the context of pediatrics because we know less about how children will respond to medication and treatment than we do about adult populations suffering from similar medical conditions.

Dr. Bruce Carleton is the Director of the Pharmaceutical Outcomes Programme (POPi), Director of the PHSA Therapeutic Evaluation Unit, and CEO of the Canadian Pharmacogenomics Network for Drug Safety (CPNDS). He currently leads numerous multidisciplinary projects relating to drug safety and drug effectiveness.

Dr. Ran Goldman is the Director of Pediatric Research in Emergency Therapeutics (PRETx), which offers an extensive online database of therapeutics research in pediatric acute care.

RESEARCH
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 Pharmacoepidemiology: We focus on medication use and healthcare outcomes using large-scale population-based data sets to foster pharmaceutical policy innovation. This is accomplished through proactive policy, research and knowledge translation concerning the effectiveness, safety and cost management of prescription drugs.

- Advanced Methodologies to Discover Effectiveness: We use randomized controlled trials, retrospective studies and a combination of qualitative and quantitative methods to discover effectiveness of treatments, mostly in acute care pediatrics.

- Adverse Drug Reactions (ADRs) and Pharmacogenomics: We use state-of-the-art genotyping and sequencing platforms to identify the genetic determinants of ADRs in pediatric and adult populations. Through our active surveillance approach, we are able to collect cases and controls to conduct genetic association and validation studies to define ADR causal genes, and to develop diagnostic tests that offer personalized therapeutic recommendations for commonly used drugs.
EDUCATION
As one of the leading research centres in Canada, trainees are exposed to both the innovative research at BC Children’s Research Institute and the strong academic environment of UBC.

Applicants with a background in pharmacogenomics, clinical pharmacology, medical genetics, experimental medicine, pediatrics, pharmacoepidemiology, biostatistics, population health, pharmacy, medical anthropology, ethics or any other related fields are encouraged to contact us.

CLINICAL CARE
The Division of Translational Therapeutics provides consultation services to our colleagues at UBC and Provincial Health Services Authorities (PHSA)-affiliated institutions, including: BC Children’s, Sunny Hill Health Centre, BC Women's Hospital + Health Centre, BC Cancer Agency and Vancouver General Hospital. 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

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<tr>
<td>ACADEMIC FACULTY</td>
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<tr>
<td>Dr. Ran Goldman, Co-Division Head &amp; Professor</td>
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Medical School | Hebrew University of Jerusalem (IL)  
Residency | Tel-Aviv University Medical School, Tel Aviv (IL)  
Fellowship | University of Toronto, Toronto,  
| Dr. Colin Ross, Assistant Professor  
Graduate School | (PhD) McMaster University, Hamilton  
Postdoctoral Fellowship | University of British Columbia, Vancouver  
| Dr. Bruce Carleton, Co-Division Head & Professor |
Medical School | (PharmD) University of Utah, Salt Lake City (US)  
Residency | University of Utah, Salt Lake City (US)  
Fellowship | University of Minnesota, Minneapolis (US)  

STUDENTSHIPS

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<td>Dr. Bruce Carleton</td>
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<tr>
<td>Dr. Ran Goldman</td>
<td>Professor</td>
<td>UBC Department of Pediatrics</td>
<td>Ivory Tower Award</td>
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"ONE OF OUR 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."
"HAVING OVER 140 MEDICAL STUDENTS FROM 11 COUNTRIES AND 30 DIFFERENT UNIVERSITIES LEADS TO AN ENRICHING ENVIRONMENT."

— DR. RAN GOLDMAN, PROGRAM DIRECTOR, THE VANCOUVER SUMMER PROGRAM IN MEDICINE: CLINICAL RESEARCH AND CLINICAL SKILLS
FEATURED PROGRAMS IN MEDICAL EDUCATION
SIMULATION EDUCATION AT BC CHILDREN’S HOSPITAL

i. The Simulation Centre

DR. MARY BENNETT, ASSOCIATE HEAD EDUCATION, DEPARTMENT OF PEDIATRICS

**In** May 2012, the Simulation Centre opened at BC Children’s Hospital and BC Women’s Hospital + Health Centre. This much-appreciated facility was funded by the BC Children’s Hospital Foundation to establish a state of the art facility for physician trainees and allied health members.

Simulation provides on demand, immersive and experiential learning in a risk-free environment. In pediatrics, where critical events are rare but stakes are high when they occur, it allows for practice of management of these patients and also allows for extensive practice of Communication, Collaboration, and Leadership competencies for learners. The incorporation of multidisciplinary teams into the simulations means that teams work much more effectively to provide patient care.

At BC Children’s, the Simulation Programs, with dedicated staff supported by Provincial Health Services Authority (PHSA), have grown over the past three years from an average of 29 to now 50 simulation events per month. The learners include medical students, pediatric residents, and residents from other services including Anesthesia and Surgery, Pediatric Intensive Care Unit (PICU), Neonatal Intensive Care Unit (NICU), and subspecialty trainees. In addition, pediatric life support courses are run for outside physicians to help fulfill our mandate to care for children throughout the province. There are Mock Code Blue practices frequently throughout many areas of the hospital, including PICU and the pediatric wards. Trauma Codes are practiced weekly in the Emergency Room. The Pediatric Resident multi-year program in simulation-based learning has won awards and is a magnet that draws excellent new trainees into our program.

With the new hospital opening in late 2017, this technology will also be used to test equipment, protocols and procedures to ensure the best care for our patients.

For more information, please visit: WWW.BCCHILDRENS.CA/HEALTH-PROFESSIONALS/LEARNING-DEVELOPMENT/SIMULATION-CENTRE
ii. Pediatric Advanced Trauma Simulation
DR. JASMINE ALLAIRE, PEDIATRIC EMERGENCY PHYSICIAN, COURSE DIRECTOR, DIVISION OF EMERGENCY MEDICINE

The PATS (Pediatric Advanced Trauma Simulation) course is a simulation-based course that has been developed by local trauma experts at BC Children's Hospital to provide an interdisciplinary approach to the management of trauma in pediatric patients.

Trauma is the leading cause of injury and mortality in the pediatric population. There are several anatomical, physiological and emotional differences between children and adult patients that make pediatric trauma a unique entity. Unfortunately, most trauma courses are geared towards an adult population, often with only a quick summary of pediatric considerations. A group of pediatric emergency and intensive care physicians decided to develop a local course to address this deficit.

PATS makes use of online modules and simulation cases, as well as skill stations, to give healthcare providers an opportunity for experiential learning—along with the latest information—in a safe learning environment. This one-day course consists of four simulation stations and one advanced air-way/breathing skill station, as well as eight pre-requisite online modules (with current medical information, interactive slides, video content and links to relevant websites), which must be completed prior to taking the course.

The PATS course focuses on the interdisciplinary teamwork and communication provided by a simulation-based environment.

We ran the first PATS course on November 21, 2015. In June 2016, the PATS course received the Award for Innovation in Continuing Medical Education from the Faculty of Medicine at the University of British Columbia. The course will be held annually from now on.

iii. Simulation in the Neonatal Intensive Care Unit (NICU)
DR. DEEPAK MANHAS, CLINICAL ASSISTANT PROFESSOR, PROGRAM DIRECTOR, DIVISION OF NEONATOLOGY

10% of all newborns require some form of resuscitation measure, but this is often unanticipated. Neonatal resuscitation scenarios comprise the bulk of emergency situations that a general pediatrician working in a community hospital setting will encounter. Combinations of foundational knowledge teaching, procedural skills stations, and high-fidelity simulation in our centre have prepared inter-professional healthcare providers for these unanticipated emergencies.

In situ simulations have provided the opportunity to practice and improve the Neonatal Resuscitation Program (NRP) recommendations for the delivery suite and to anticipate potential complications that may occur in the Neonatal Intensive Care Unit (NICU). These simulation scenarios have been able to bridge the gap between the NRP and Pediatric Advanced Life Support (PALS) for the longer stay patients in the NICU. Additionally, simulation has allowed the NICU to move past acute resuscitation into the stabilization period, with the practice of Acute Care of at-Risk Newborns (ACoRN) program.

With the upcoming arrival of the new hospital, including introduction of single-bed rooms and greater family care involvement, simulations have assisted in determining room layouts, equipment needs, personnel requirements and work flows. Simulation is increasingly being used to allow staff to improve communication skills, particularly with counselling and breaking difficult news. Simulation in the NICU will continue to evolve with the new hospital and will be an essential factor in ensuring our unit delivers best patient care.

For more information, please visit: WWW.CHES.MED.UBC.CA/DR-DEEPAK-MANHAS
iv. Simulation Curriculum: A Resident-Led Initiative

SIMULATION TEAM 2015–16, UBC PEDIATRICS
DR. KEIRA DHEENSAW
DR. JULIANA WU
DR. SOFIA LOPEZ

Simulation Curriculum began as a course offered three times a year in 2013. Residents complete 12 simulations in several themes, including cardiovascular, respiratory, shock, trauma, Neonatal Intensive Care Unit and neuro-metabolic. A state-of-the-art simulation facility hosts a series of high-fidelity mannequins that breathe, cough, talk and—at the press of a button—turn blue. A dedicated three-person simulation team comprised of a nurse, respiratory therapist and technician run the mannequins during the simulation sessions, but the Simulation Curriculum is a resident-led endeavor. Many hospital staff dedicate their time to leading residents through these scenarios, including a debriefing session and discussion of key learning points at the end of each case.

Many aspiring medical students are drawn to the UBC program due to its innovative simulation curriculum. Our pediatric residents are also taking their simulation knowledge abroad—with residents running sessions for our colleagues in Bangladesh, Botswana and South Africa. For the past two years, a separate Senior Curriculum has been created in which challenging scenarios, such as managing emergency situations over the phone and running multiple codes at once, are played out.

Simulation is a well-received addition to the BC Children’s Hospital residency experience. In a 2014 survey of UBC pediatric residents, 88% of respondents felt an improvement in their performance over time. Chief Resident Matt Carwana agrees: “It’s amazing how real the scenarios feel when you’re doing them in simulation. Your heart beats like it’s a real life or death situation, and the team is functioning like it is a real acute scenario. When I’m on the ward or in the emergency room, I draw on what I’ve been learning in simulation in order to provide better, more efficient care. You have more confidence because you have seen it before.”

With simulation being incorporated as a standard part of main residency programs over the past few years, UBC Pediatric residents have been pioneers in this emerging field.

For more information, please visit:
WWW.MED.UBC.CA/PRACTICE-UNTIL-PERFECT

“When I’m on the ward or in the emergency room, I draw on what I’ve been learning in simulation in order to provide better, more efficient care.” – MATT CARWANA, CHIEF RESIDENT, 2014
The Centre for Health Education Scholarship (CHES)

DR. IAN SCOTT, ASSOCIATE PROFESSOR, DIRECTOR OF CENTRE FOR HEALTH EDUCATION SCHOLARSHIP

Centre for Health Education Scholarship (CHES) was created in 2008 as an official academic unit in the UBC Faculty of Medicine dedicated to the scholarship of health education. Its mission is to shape the theories and activities of learning in the health professions by: creating new knowledge through research and informed innovation, building capacity through mentorship of individuals, and fostering a culture of collaboration and scholarly thinking in health profession education. CHES offers residents in Royal College programs or established clinicians an opportunity to develop experience or skills in health education scholarships through a two-year Clinician Education Fellowship Program (CEFP). Dr. Joanna Bates was the first Director of CHES. In 2015, Dr. Ian Scott was appointed Director with two Associate Directors, Drs. Kevin Eva and Glenn Reghr.

Several residents from our Department have taken the CEFP program. Over the 2013–15 period, these included: Dr. Mercedes Chan, Dr. Melissa Harvey, Dr. Deepak Manhas and Dr. Surabhi Rawal.

CHES strives to enhance health education scholarship by building capacity across the Faculty of Medicine through collaboration with researchers on national and international projects, mentorship of new faculty, training of the next generation of healthcare providers, and many other activities. Linked strongly to undergraduate and postgraduate events, CHES serves as a resource to help support best practice in terms of the delivery of the faculty’s educational programs, including assessment. CHES is also responsible for developing access to certificate and graduate programs in educational scholarship. The CHES vision, mission and aspirational objectives for the next five years are:

CHES VISION
Promoting health through educational scholarship.

CHES MISSION
Serving the health needs of the people of BC and beyond through building and supporting scholarly communities of leaders in health profession education.

Aspirational Objectives
• Creating new knowledge through research and informed innovation
• Building capacity through mentorship of groups and individuals
• Fostering a culture of collaboration and scholarly thinking in health profession education
Driven by our commitment to health profession education scholarship, we have worked with all the Health Profession Education Programs in the province. We have also developed an international reputation and we have attracted more than 200 individuals, ranging from graduate students to internationally renowned researchers, who have visited CHES since 2009. We are proud to share our research, innovations and successes with the CHES community, which includes over 300 members worldwide.

CHES’ CONNECTION WITH THE DEPARTMENT OF PEDIATRICS

CHES’ strong ties with the Department of Pediatrics date back to its creation, as Dr. Bob Armstrong (Head of Pediatrics) was on the initial Steering Committee for CHES. Since then, seven of our Clinical Educator Fellows have come from the Department of Pediatrics and continue to contribute to pediatric medical education both at UBC and across Canada:

• Dr. Mercedes Chan is now a member of the Pediatric Rheumatology Department at the University of Alberta, where she uses her medical education training in teaching and program development.

• Dr. Rosemary Binnie now works in the neonatal ICU at BC Children’s Hospital and is a Clinical Associate Professor in the Division of Neonatology at UBC.

• Dr. Melissa Harvey is a pediatric oncologist and hematologist and the Fellowship Program Director in the Division of Hematology, Oncology & BMT at BC Children’s.

• Dr. Deepak Manhas is a Clinical Assistant Professor with the Department of Pediatrics at UBC. As well, he is a clinical neonatologist in the Division of Neonatology at BC Women’s Hospital + Health Centre, as well as the Program Director of Neonatal-Perinatal Medicine.

• Dr. Glenn Robertson now works in private practice at North Shore Pediatrics in North Vancouver.

• Dr. Brett Schrewe became a PhD candidate in the Department of Educational Studies in September 2016; as well, he is a Clinical Assistant Professor in the Department of Pediatrics at UBC.

• Dr. Roona Sinha is a pediatric hematologist oncologist that joined the University of Saskatchewan faculty in January 2012. She completed her undergraduate and medical school studies at the University of Ottawa. This was followed by a pediatrics residency at the University of Alberta and then fellowship training in pediatric hematology oncology at the University of British Columbia.

• Our current second-year fellow at CHES, Dr. Surabhi Rawal, is also in her fourth year of a Pediatric Hematology, Oncology & BMT Fellowship at BC Children’s. Her research interests include humanism and professionalism in medicine, and the development of communication skills in residency. Dr. Rawal also contributes to Pediatrics Undergraduate Medical Education as an instructor, lecturer and examiner.

We also have a number of Department of Pediatrics members who have chosen to become CHES members and we would encourage those who are involved in medical education to also become CHES members.

For more information, please visit:
WWW.CHES.MED.UBC.CA

“SINCE 2008, SEVEN OF OUR CLINICAL EDUCATOR FELLOWS HAVE COME FROM THE DEPARTMENT OF PEDIATRICS.”
Mini Med School and Discovery Days in Health Sciences

JENNIFER MYERS, MANAGER, RESEARCH EDUCATION, BC CHILDREN’S HOSPITAL

The Mini Med School program is a health science youth outreach and public education program that was launched in 2003 by the BC Children’s Hospital Research Institute. Offered on an annual basis, each course is led by a selected Mini Med School Dean and is comprised of six weekly evening seminars developed to focus on an exciting field. The program targets students in grades 10–12 who have been nominated to attend by their science or career teacher. Each year the course focuses on a different field of scientific research and is designed to give a basic understanding of the field while exploring up-to-the-minute basic science research, clinical applications, and special and ethical implications. Researchers from the Department of Pediatrics have been involved in the program most years.

Discovery Days in Health Sciences is a one-day event that gives secondary school students and teachers the opportunity to explore a variety of career options in medicine and the health sciences.

Organized by The Canadian Medical Hall of Fame, hosted by BC Children’s Hospital and funded through BC Children’s Hospital Foundation, the day is comprised of a dynamic keynote lecture, hands-on workshops and a career panel discussion. Students gain a clear picture of what it would be like to be a health professional by interacting with researchers, clinicians and educators in their real-life work setting. For our Discovery Days Event we have had the following Department of Pediatric keynote speakers:

2014 | The Dynamic and Developing Brain
Dr. Tim Oberlander
Dean, Mini Med School

2015 | Towards a Health Global Village
Dr. Jean-Pierre Chanione
Dean, Mini Med School
Dr. Srinivas Murthy

Keynote Lecture 2013
“Trying to cure cancer one child at a time”
Dr. Rod Rassekh
Pediatric Oncologist, BC Children’s Hospital
Clinical Assistant Professor, Division of Hematology, Oncology & BMT, Department of Pediatrics, UBC Associate Clinician Scientist, BC Children’s Hospital Research Institute

Keynote Lecture 2014
“Everything you wanted to know about pediatric cardiology (but were afraid to ask)”
Dr. Shubhayan Sanatani
Associate Professor, Department of Pediatrics, UBC Pediatric Cardiac Electrophysiologist, Children’s Heart Centre

Keynote Lecture 2015
“From the soccer field to medical school and back again - a personal journey”
Dr. Kristin Houghton
Clinical Investigator, BC Children’s Hospital Research Institute, Clinical Assistant Professor, Division of Rheumatology, Department of Pediatrics, UBC Pediatrician, BC Children’s Hospital
Launched in 2014, the Vancouver International Summer Program in Medicine (VSP) is a four-week academic program that provides an opportunity for visiting undergraduate medical students from international universities to experience Canadian health and life sciences education at its best, and learn about Canadian culture firsthand. This is accomplished through engaging classes in basic and clinical sciences, as well as social activities and intercultural workshops. The program was first offered in the summer of 2014, as courses in seven fields of medicine. Dr. Ran Goldman developed and led the Department of Pediatrics course, “Introduction to Clinical Research in the Sciences” that was offered in 2014 and had 85 participants. In 2015, a second course was added to the curriculum, “Introductions to Clinical Medicine at the bedside” with a total of 86 students for the two courses.

The VSP is a unique opportunity for aspiring health professionals to learn with their peers from around the world. Having over 140 medical students from 11 countries and 30 different universities leads to an enriching environment that develops culturally sensitive physicians and scientists. This international aspect allows UBC and BC Children’s Hospital to improve worldwide health care practices through innovative knowledge translation.

The VSP prides itself in its mixed methodology teaching style, allowing for multi-faceted growth in students. Not only do students hear lectures from leading academic clinicians, 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, presented at the end of the course. During the clinical course, students actively learn how to do physical examinations, accumulating in a high-fidelity simulation lab experience. To maximize the clinical setting experience of this course, students tour various wards and research labs and observe the day to day running of the hospital.

Our two courses are:
- “Introduction to Clinical Research in the Sciences” – started in 2014
- “Introduction to Clinical Medicine at the bedside” – started in 2015

For more information, please visit:
WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/RAN-D-GOLDMAN
FEATURED PROGRAMS IN MEDICAL EDUCATION

YEAR | # OF PARTICIPANTS | MONTH
-----|-------------------|-------
2014 | 85                | -     
2015 | 86                | -     
2016 | 28                | June  
2016 | 111               | July  

AVERAGE SCORES ON WORKSHOPS (OUT OF 5)

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COURSE LEARNING METHODOLOGY

- Lectures
- Workshops
- Project-Based Learning
- Research Competition

% time

55%
20%
20%
5%
“TODAY, THE BC CHILDREN’S HOSPITAL RESEARCH INSTITUTE HAS 319 INVESTIGATORS, 263,000 SQUARE FEET OF RESEARCH SPACE AND $48 MILLION IN EXTRAMURAL GRANT FUNDING.”
Overview of the BC Children’s Hospital Research Institute (BCCHR)

i. The History and Leadership of the BCCHR

JENNIFFER KILLAM, DIRECTOR, RESEARCH COMMUNICATIONS, BC CHILDREN’S HOSPITAL

Pediatric research on the Oak Street campus dates back to the early 1980s with vaccine immunology activities on the site. In 1985, the Children’s Variety Research Centre opened. It was incorporated in 1995 as the B.C. Research Institute for Child & Family Health with Dr. Aubrey Tingle as the Founding Executive Director. In the late 1990s, the institute’s name changed to the B.C. Research Institute for Children’s & Women’s Health and in 1998 the UBC Centre for Molecular Medicine and Therapeutics (CMMT) joined the institute. Following the departure of Dr. Tingle in 2001 to launch the Michael Smith Foundation for Health Research, Dr. Mike Mahoney served as the institute’s Interim Executive Director. In 2002–03, Dr. Stuart MacLeod and Dr. Geoffrey Hammond joined the institute as the Executive Director and Scientific Director, respectively. In 2005, the institute was renamed the Child & Family Research Institute (CFRI) and in 2008 the new Translational Research Building opened with state-of-the-art dry and wet lab space. In 2010, Dr. MacLeod retired, followed by Dr. Hammond’s move in 2011 to become Head of the Department of Cellular & Physiological Sciences in the UBC Faculty of Medicine. In 2012, space for clinical research was expanded with the opening of a newly constructed clinical support building.

From 2010 to 2012, distinguished geneticist Dr. Jan Friedman served as the institute’s Acting Executive Director. He was followed by Dr. Michael O’Shaughnessy as interim Executive Director, until the appointment of internationally-renowned bioinformatics expert Dr. Wyeth Wasserman as the Executive Director at the end of 2013. Dr. Wasserman led a widespread consultation throughout the research institute that culminated in the five-year strategic plan launched in 2015 and the reorganization of the institute’s scientific structure into four Research Themes. That same year the BC Mental Health and Addictions Research Institute (BCMHARI) joined CFRI. The institute rebranded in 2016, taking on the name BC Children’s Hospital Research Institute (BCCHR) and adopting the beloved sunshine logo of BC Children’s Hospital. Today the BCCHR has 319 investigators (Department of Pediatrics plus investigators from several other departments), 263,000 square feet of research space and $48 million in extramural grant funding.

For more information, please visit:
WWW.BCCHR.CA

WYETH WASSERMAN, PHD

Dr. Wasserman, Professor, Department of Medical Genetics, came to UBC in 2002 as a Senior Scientist in the Centre for Molecular Medicine and Therapeutics. He obtained an undergraduate degree in Cell Biology and Mathematics from the University of Washington, a PhD in Oncology from the University of Wisconsin, postdoctoral training in Bioinformatics at SmithKline Beecham Pharmaceuticals and worked in Stockholm, Sweden for three years before moving to UBC. Dr. Wasserman became the Executive Director of the BC Children’s Hospital Research Institute and Associate Dean Research, UBC Faculty of Medicine in 2013. The Wasserman laboratory focuses on the creation, evaluation and application of computational methods for the analysis of genome sequences, with international strength in the study of cis-regulatory elements regulating gene expression.
The lab creates widely-used software and databases, performs applied analyses of genome sequences, and partners with diverse research teams on projects at the intersection of the computational and life sciences.

New computational methods and tools allow researchers and clinicians to identify functional consequences of genetic variations within cis-regulatory elements such as transcription factor binding sites. The 1,500 transcription factors (TFs) within the human genome perform a key role in determining the set of active genes within a specific cell, as well as the magnitude of activity. The lab studies gene regulation via multiple lines. First, the lab creates novel algorithms and software to predict interactions between TFs and DNA. The software incorporates diverse types of data to maximize prediction quality. Second, the lab collaborates internationally on the analysis of emerging data, such as the international FANTOM project to map regulatory sequence positions through the study of the 5’ end of RNA transcripts. Third, the lab engages in the applied analysis of genomes for pediatric disorders, in part to improve the delivery of information to clinicians. Such work is key to translating basic research advances into clinical impacts. Past and ongoing projects are linked to the central goals of understanding how genes are regulated and learning how to apply this knowledge to advance biomedical research. With partners at BC Children’s, the lab is developing methods for efficient analysis of exome and genome sequences for children with genetic disorders.

**For more information, please visit:**
WWW.CISREG.CA

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**STUART TURVEY, MB BS, DPHIL**

Dr. Turvey, Professor, Department of Pediatrics, was recruited to UBC in 2004. Dr. Turvey obtained an undergraduate degree in Medical Physiology and a Bachelor of Medicine and Bachelor of Surgery (MB BS) from the University of Sydney. He went on to the United Kingdom as a Rhodes Scholar to complete a doctoral degree (DPhil) in Immunology at the University of Oxford. His clinical training in Pediatrics and Allergy/Immunology/Rheumatology and a postdoctoral research fellowship were all done at Boston Children’s Hospital and Harvard University. Dr. Turvey’s research program is translational, interdisciplinary and unique in its focus on understanding the role of innate immunity in infectious and inflammatory diseases of childhood. Starting with a population of children with a defined infectious or inflammatory disease phenotype (e.g., undue susceptibility to infection, juvenile idiopathic arthritis, asthma), he investigates the underlying cellular, molecular and genetic abnormalities responsible for the disease through detailed immunological, genomic and proteomic analysis. The new knowledge generated by this approach will aid diagnosis, elucidate mechanisms of disease pathogenesis and, ultimately, identify novel targets for anti-inflammatory and anti-infectious therapeutic agents. His current research focuses on three specific areas:

**GENETICS OF SUSCEPTIBILITY TO CHILDHOOD INFECTION**

The Turvey laboratory is searching for subtle genetic immune defects in apparently healthy children who have developed serious infections, including invasive pneumococcal infection and severe respiratory syncytial virus infection.

**INNATE IMMUNITY AND LUNG INFLAMMATION IN CYSTIC FIBROSIS (CF)**

In 2015 only half of the people living with CF will survive beyond their mid-30s. Through synergistic studies harnessing the power of cell biology, chemistry and functional genomics, the laboratory is working to identify optimal “drugable” targets responsible for CF airway inflammation and to discover novel anti-inflammatory drugs. Ultimately, these experiments are designed to develop new therapies for safely reducing lung inflammation and improving the quality and length of life of people with CF.

**CANADIAN HEALTHY INFANT LONGITUDINAL DEVELOPMENT (CHILD) STUDY**

This study is a multicentre, multidisciplinary, longitudinal, population-based birth-cohort study of 5,000 children enrolled “pre-birth” and followed for five years. The main purpose of this study is to determine what aspects of the environment interact with genetic factors to affect children’s health and development. Dr. Turvey is a co-principal investigator for the CHILD study and leads the Vancouver study site. Recent research involving the CHILD study cohort discovered an important relationship between the intestinal microbiome in infancy and the risk of asthma.

**For more information, please visit:**
WWW.CANADIANCHILDSTUDY.CA
ii. BC Children’s Hospital Research Institute Timeline

- **1980s**
  - 1985: Children’s Variety Research Centre opened. It consolidated pediatric researchers and enabled recruitment and expansion of the academic mandate.

- **1960s**
  - 1960: Centre for Developmental Medicine opened at the Vancouver General Hospital site.

- **1970s**
  - Late 1970s: The research space was renamed the Syd Israels Memorial Laboratories.

- **1980s**
  - 1985: BC Research Institute for Child & Family Health is established with 36,000 square feet of research space.
  
  Dr. Aubrey Tingle was appointed the founding Executive Director (1993–2001) of the BC Research Institute for Children’s & Women’s Health (later rebranded as the B.C. Research Institute for Child & Family Health). The Institute was established to advance the health of children, youth, women and their families through research excellence.

- **1990s**
  - 1998: UBC Centre for Molecular Medicine and Therapeutics (CMMT) joined the Institute. The new north and south block buildings had an addition of 78,000 square feet of research space.
2001
Dr. Mike Mahoney served as the Institute’s Interim Executive Director.

2002–2003
Dr. Stuart MacLeod and Dr. Geoffrey Hammond joined the Institute as the Executive Director and Scientific Director, respectively.

2005
The Institute was renamed the Child & Family Research Institute (CFRI).

2000 – PRESENT

2006
There were 175 investigators and $35.5 million in external grant funding.

2007
The Child & Family Research Institute expanded to include the Chan Centre for Education, and the Chieng Family Atrium.

2008
The Translational Research Building opened with an additional 120,000 square feet of research space, including state-of-the-art dry and wet lab space.

2010–2011
Dr. MacLeod retired, followed by Dr. Hammond’s move to become Head of the Department of Cellular & Physiological Sciences in the UBC Faculty of Medicine.

2010–2012
Dr. Jan Friedman served as the institute’s Acting Executive Director, followed by Dr. Michael OShaughnessy as Interim Executive Director.

2012
The Clinical Support building opened with an additional 30,000 square feet of research space.

2013
Dr. Wyeth Wasserman appointed as Executive Director.

2015
BC Mental Health and Addictions Research Institute (BCMHI) joins the Child & Family Research Institute. The Institute was reorganized into research themes.

2016
Rebranded to BC Children’s Hospital Research Institute (BCHR). There are now 319 investigators, 263,000 square feet of research space and $48 million in external grant funding.
iii. Leadership Roles of Pediatric Faculty at BC Children’s Hospital Research Institute

DR. STUART TURVEY, DIRECTOR, CLINICAL RESEARCH

For a list of our members in the in the four theme groups, please visit: www.bcchr.ca/our-research
“IN 2015, WE RECEIVED $19 MILLION DOLLARS OF REVENUE FOR THE RESEARCH ACTIVITIES: 61% CAME FROM CANADIAN AND FOREIGN GRANTING AGENCIES, 31% FROM FOUNDATIONS AND 8% FROM INDUSTRY”
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 and, The
McCreary Chair in Pediatrics
Dr. 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 Kastmir Johal and Family Chair in Pediatric Oncology
Dr. David Speert, Researcher, Division of Infectious Diseases:
Sauder Family Chair in Pediatric Infectious Diseases
Dr. Stuart Turvey, Associate Professor, Division of Allergy & Immunology:
Pediatric Cardiology Research Endowment

CANADA RESEARCH CHAIRS
Dr. Ron Barr, Professor, Division of Neurology:
Tier 1: Community Child Health Research
Dr. Steve Miller, Associate Professor,
Division of Neurology: Chair in Neonatal Neuroscience
Dr. Alexander Rauscher, Assistant Professor,
Division of Neurology: Tier 2: Developmental Neuroimaging
Dr. Bruce Vallance, Associate Professor, Division of Gastroenterology:
Tier 2: CH.I.L.D. Foundation Chair in Pediatric Gastroenterology

CANADIAN INSTITUTES 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,
Knowledge Synthesis Grant

MICHAEW SMITH FONDATION FOR HEALTH RESEARCH SCHOLAR AWARDS
Dr. Quynh Doan, Assistant Professor, Division of Emergency Medicine
Dr. Clara van Karnebeek, Clinical Assistant Professor,
Division of Biochemical Diseases
Dr. Julie Bettinger, Associate Professor, Division of Infectious Diseases
Dr. Laura Sly, Associate Professor,
Division of Gastroenterology, Hepatology & Nutrition
Dr. Tobias Kollmann, Professor, Division of Infectious Diseases
Dr. Stuart Turvey, Professor, Division of Allergy & Immunology

CANADIAN PEDIATRIC SOCIETY
Dr. Daniel Metzger, Clinical Professor,
Division of Endocrinology, Noni McDonald Award
Dr. Jean-Pierre Chanoine, Clinical Professor,
Division of Endocrinology, Noni McDonald Award
Dr. Sheila Innis, Professor, Division of Hematology & Oncology
& BMT, Geoffrey Robinson Award

OTHER SIGNIFICANT AWARDS
Dr. Alex Rauscher, Assistant Professor, Division of Neurology,
Green College Leading Scholars Program Award
Dr. Gregor Reid, Assistant Professor, Canadian Cancer Society
Research Institute Career Award – Senior Research Scientist,
Division of Hematology, Oncology & BMT
BC Children's Hospital Research Institute Investigator Grant Awards Program

**SCIENTIST AWARDS**
- Dr. Rajavel Elango, Assistant Professor, Division of Neonatology
- Dr. James Lim, Assistant Professor, Division of Hematology, Oncology & BMT
- Dr. Christopher Maxwell, Associate Professor, Division of Hematology, Oncology & BMT
- Dr. Gregor Reid, Assistant Professor, Division of Hematology, Oncology & BMT
- Dr. Angela Devlin, Associate Professor, Division of Endocrinology & Diabetes
- Dr. Anne George, Associate Professor, Division of General Pediatrics
- Dr. Mariana Brussoni, Associate Professor, BC Injury Prevention and Research Unit (BCIPRU)
- Dr. Laura Sly, Associate Professor, Division of Gastroenterology, Hepatology & Nutrition
- Dr. Ruth Grunau, Professor, Division of Neonatology
- Dr. Sheila Innis, Professor, Division of Neonatology
- Dr. Catherine Pallen, Professor, Division of Hematology, Oncology & BMT

**CLINICIAN-SCIENTIST AWARDS**
- Dr. Jean-Paul Collet, Clinical Professor, Research
- Dr. Soren Gantt, Associate Professor, Division of Infectious Diseases
- Dr. Tobias Kollmann, Associate Professor, Division of Infectious Diseases
- Dr. Pascal Lavoie, Associate Professor, Division of Neonatology
- Dr. Bruce Carleton, Professor, Division of Translational Therapeutics
- Dr. Kirk Schultz, Professor, Division of Hematology, Oncology & BMT

**SPECIAL SALARY AWARDS**
- Dr. Rajavel Elango, Assistant Professor, Division of Neonatology
- Dr. Clara van Karnebeck, Assistant Professor, Division of Biochemical Diseases
- Dr. Ian Pike, Associate Professor, BC Injury Prevention and Research Unit (BCIPRU)
- Dr. David Scheifele, Professor, Division of Infectious Diseases
- Dr. James Lim, Assistant Professor, Division of Hematology, Oncology & BMT
- Dr. Christopher Maxwell, Associate Professor, Division of Hematology, Oncology & BMT
- Dr. Gregor Reid, Assistant Professor, Division of Hematology, Oncology & BMT
- Dr. Laura Sly, Assistant Professor, Division of Infectious Diseases
- Dr. Alex Rauscher, Assistant Professor, Division of Neurology
- Dr. Gregor Reid, Assistant Professor, Division of Hematology, Oncology & BMT
Maternal Infant Child and Youth Research Network (MICYRN)

DR. ANNE JUNKER, SCIENTIFIC DIRECTOR, MATERNAL INFANT CHILD AND YOUTH RESEARCH NETWORK (MICYRN)

**Maternal** Infant Child and Youth Research Network (MICYRN) is a federal not-for-profit and a charitable organization founded in 2006 with the purpose of benefiting maternal and child health. The Canadian child health research institute directors came together with the view that only by working together can we achieve the greatest results.

By 2015, 20 pediatric specialty networks were affiliated with MICYRN.

MICYRN is unique in the world for this type of collaborative engagement. Working together in a coordinated fashion enables the sharing of innovations and reduces duplication of effort and resource use, which means more funds can be spent on doing research.

The MICYRN collaboration brings a cross-country foundation of support and important connections to research initiatives, helping to ensure strong proposals are developed and are ultimately successful. This connection also enables the broad communication of results, thereby allowing the greatest impact.

Several members of the UBC Department of Pediatrics have held leadership positions in national networks during 2013–15, including Dr. David Scheifele (Canadian Association for Immigration Research and Evaluation), Dr. Lori Tucker (Canadian Alliance of Pediatric Rheumatology Investigators), Dr. Anne Synnes (The Canadian Neonatal Follow Up Network), Dr. Mary Connolly (Canadian Pediatric Epilepsy Network), Dr. Rick Schreiber (Canadian Pediatric Hepatology Research Group), Dr. Bruce Carleton (Canadian Pharmacogenomics Network for Drug Safety), Dr. Hal Siden (Pediatric Palliative Care) and Dr. Ariane Alimenti (Canadian Pediatric AIDS Research Group).

MICYNR's key partners linked in the Canadian Child & Youth Health Coalition enables a coordinated response to important child health issues and bridges the divide between researchers, families and healthcare providers. This guarantees research is relevant to families and has the greatest impact. International partnerships ensure Canadian involvement in global initiatives to improve maternal and child health.

MICYNR's well-established working groups in clinical research informatics and research ethics involve representatives from member organizations, and provide researchers with invaluable connections. Expert opinion in these key areas can help shape proposals, facilitate multi-jurisdictional studies, achieve efficiencies, and deliver results, all of which optimize the investment in research.

**For more information, please visit:**

WWW.MICYRN.CA

WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/ANNE-JUNKER

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**VISION**

Better health for mothers and children.

**MISSION**

Catalyzing advances in maternal and child healthcare by connecting minds and removing barriers to high-quality health research.
“BC CHILDREN'S HOSPITAL FOUNDATION SUPPORTS RESEARCH, INNOVATIVE PROGRAM, CAPITAL EQUIPMENT AND FACILITIES.”
“THERE ARE EXCELLENT OPPORTUNITIES IN INTERNATIONAL CHILD HEALTH WITH THE ESTABLISHMENT OF THE CENTRE FOR INTERNATIONAL CHILD HEALTH.”
FEATURED PROGRAMS IN

GLOBAL HEALTH RESEARCH
FEATURED PROGRAMS IN GLOBAL HEALTH RESEARCH

Centre for International Child Health (CICH)
DR. CHARLES LARSON, CLINICAL PROFESSOR, DIRECTOR OF CICH

Over the past two decades, BC Children’s Hospital has introduced projects aimed at generating and sharing knowledge, as well as strengthening skills to improve child health globally. With support from the BC Children’s Hospital Foundation, the Centre for International Child Health (CICH) was established in 2004. Its mission is to connect and engage professionals in BC and internationally to collaborate in improving global child health-leading causes of under-five disease burden, which CICH projects are addressing.

They include:
• Neonatal Asphyxia and sepsis
• Pneumonia and under-five sepsis
• Diarrhea
• Injuries
• Neuro-motor disabilities

In 2008, Dr. Charles Larson was recruited from McGill University to become the Director of CICH. Dr. Larson has made many contributions to infant and child health in low/middle income countries throughout his career. During the 2013–15 period, he received funding for international research projects.

ON-GOING INTERNATIONAL ACTIVITIES

TANGAIL, BANGLADESH
Funded by DFATD in partnership with the International Centre for Diarrhea Disease Research, Bangladesh. This multidisciplinary project is linking community engagement and a call-in + emergency transport system with higher quality care of seriously ill children in sub-district hospitals. The aim is to interrupt pathways to maternal, newborn and early childhood sepsis.

MBARARA, UGANDA
Funded by Grand Challenges Canada. We now know 5% to 10% of children discharged from hospital following a serious infectious illness are dead within six months. This project is testing post-discharge interventions, which aim to prevent these deaths, and post-discharge survival of under-five children admitted for treatment of serious infection (syndromic sepsis).

RURAL LAO PEOPLE’S DEMOCRATIC REPUBLIC
Funded by Micronutrient Initiative, International. This project aims to provide evidence to guide decision-making that will influence the content of micronutrient supplementation programs. We do this by a randomized field trial of alternative micronutrient interventions so the ministries of health can make sound, evidence-based decisions about nutrition policies and intervention programs.
FEATURED PROGRAMS IN GLOBAL HEALTH RESEARCH

LADAKH, INDIA
Funded by the Canadian Interprofessional Health Collaborative (CIHC). For the past five years, Sunny Hill Health Centre for Children staff have been working in Ladakh to develop and train local health providers in community-based pediatric rehabilitation.

GUANGZHOU, CHINA
Locally funded. The Guangzhou birth cohort study will improve our understanding of genetic-environmental interactions explaining childhood illnesses.

Many of the divisions have established partnerships with colleagues in low/middle income countries. These include Neurology; Endocrinology & Diabetes; Dermatology; Respiratory Medicine; Cardiology; Hematology, Oncology & BMT; Infectious Diseases; Pharmacology & Therapeutics; Adolescent Health and Medicine; and General Pediatrics.

Dr. Larson was also the co-lead of the Global and Indigenous Health Theme at the UBC School of Population and Public Health. Dr. Larson retired from his position as CIHC Director in July 2015.

For more information, please visit: WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/CHARLES-LARSON

“OVER THE PAST TWO DECADES, BC CHILDREN’S HAS INTRODUCED PROJECTS AIMED AT GENERATING AND SHARING KNOWLEDGE, AS WELL AS STRENGTHENING SKILLS TO IMPROVE CHILD HEALTH GLOBALLY.”
Reducing Mortality from Sepsis Associated Deaths Globally

**Dr. Niranjan “Tex” Kissoon, Chair in Acute & Critical Care for Global Child Health**

Dr. Niranjan “Tex” Kissoon has played an active role on the local, national and international field of children suffering from acute life-threatening illnesses. Dr. Kissoon is the vice chair of the Global Alliance for Sepsis, co-chair of World Sepsis Day and the International Pediatric Sepsis Initiative. His international work has included work in China, India, Bangladesh, Brazil and Africa, often in areas of vulnerability and limited resources for the critically ill child.

Dr. Kissoon has a plethora of important accolades: he has been selected as the only pediatrician on the Department of Defense of the United States of America’s Austere Environment Consortium for Enhanced Sepsis Outcomes (ACESO), whose main intent is to study sepsis and obtain better methods of treatment and diagnosis. He chairs the Canadian Association of Paediatric Health Centres (CAPHC) Canadian Sepsis Community of Practice Committee. The group raises awareness of the prevalence and burden of sepsis in Canada and globally as well as implements national standards for screening, recognition and treatment of sepsis. He has also been invited to consult with many national and international committees on global child health. In this last year, Dr. Kissoon has been invited by the International Liaison Committee on Resuscitation (ILCOR) and the American Heart Association (AHA) to participate in their Guidelines Update Meeting (Dallas, Texas, January 17–21, 2015); as well, the World Health Organisation (WHO) invited him to chair an informal consultation on the management of pediatric Ebola Viral Disease (Geneva, Switzerland, March 23–27, 2015). Another important event that Dr. Kissoon was invited to as a keynote speaker was the 12th Pediatric Emergency Update (PEM) Conference on new pediatric resuscitation guidelines, which was presented by UBC (Vancouver, May 8, 2015).

In the past year, Dr. Kissoon was the recipient of two international awards for meritorious contributions: he received the very prestigious Master of Critical Care Medicine (MCCM) award from the Society of Critical Care Medicine (SCCM) in recognition of his tireless efforts and achievements as a prominent and distinguished leader of national and international stature (Phoenix, Arizona), as well as the BNS Walia PGIMER Golden Jubilee Oration 2015 Award for major contribution to Pediatrics in India from the Postgraduate Institute Medical Education and Research (Chandigarh, India).

Dr. Kissoon has been a keynote speaker at many national and international events where he has been able to bring the worldwide plight and vulnerability of critically ill children to the forefront, enabling the availability of better health care for these children with very limited resources.

As a recognized expert in the field of pediatric emergency and critical care, Dr. Kissoon has contributed to peer reviewed publications and authored many chapters. He has been a visiting professor at institutions worldwide along with being a member of journal editorial boards.

For more information, please visit: [WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/NIRANJAN-KISSOON](http://WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/NIRANJAN-KISSOON)
Childhood Cancer-Causing Virus Infections in Africa

DR. SOREN GANTT, MD PHD, ASSOCIATE PROFESSOR, DIVISION OF INFECTIOUS DISEASES

**Infections** with Epstein-Barr virus (EBV) and Kaposi sarcoma herpesvirus (KSHV) are associated with an enormous amount of disease worldwide, particularly in equatorial Africa where they cause the two most common cancers in children: Burkitt’s lymphoma and Kaposi’s sarcoma. Along with our colleagues at the Uganda Cancer Institute, Dr. Soren Gantt’s research team has been working for the last 10 years to understand how EBV and KSHV infect and cause cancer in children, and how best to treat them. Their studies have involved going to children’s homes in Kampala every week from birth, and for several years, to collect samples and information about when infection occurs and how the viruses are transmitted. In doing so, Dr. Gantt has found that, although EBV and KSHV infections are common in Ugandan children, these viruses are extremely inefficient. The vast majority of the time when EBV or KSHV gets into a child’s mouth, it fails to establish a lasting infection; successful infection typically only occurs after many exposures. This finding not only indicates the feasibility of blocking infection with a vaccine, but by analyzing the viral exposures that fail and succeed, they are also gaining clues as to what kind of vaccine is likely to be most effective.

Survival rates for Ugandan children with Burkitt’s lymphoma or Kaposi sarcoma are poor. Some of this has to do with delays in accessing treatment quickly, but more effective therapies—that are also safe and inexpensive—are badly needed. In addition to helping kids get early access, this team is working to figure out whether they can improve chemotherapy for Burkitt’s lymphoma and Kaposi sarcoma. They and others had made observations in the clinic that Kaposi’s sarcoma seemed to respond better in HIV-infected patients who received a kind of antiretroviral drug called protease inhibitors. Based on this, they tested protease inhibitors against KSHV and found that one drug in particular, nelfinavir, was very potent in blocking the virus from growing in the laboratory. Nelfinavir is an oral medicine that has been safely used to treat HIV for nearly 20 years. In addition to its effects on HIV and KSHV, nelfinavir may also be effective for certain non-viral cancers. As a result, the team has partnered with the AIDS Malignancy Consortium, part of the National Cancer Institute, to conduct a clinical trial of nelfinavir to treat Kaposi’s sarcoma in Uganda and the U.S. Through this research in Uganda, they are discovering new ways to prevent and treat cancers caused by EBV and KSHV that may be valuable everywhere.

**For more information, please visit:**
WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/SOREN-GANTT
Prevention of Mother to Child Transmission of HIV

DR. LAURA SAUVÉ, CLINICAL ASSISTANT PROFESSOR, DIVISION OF INFECTIOUS DISEASES

The beginning of the HIV epidemic was a bleak time in infectious diseases. Pregnant women with HIV faced the terrible odds of up to 30% of their infants becoming infected. Without treatment, virtually all of those children would die. At that time, pediatric infectious diseases specialist Dr. Jack Forbes teamed up with adult and obstetrical infectious diseases specialists at BC Women's Hospital + Health Centre and started the Oak Tree Clinic—this was life-changing for hundreds of women and children who passed through its doors. The clinic has been at the centre of ground-breaking research in HIV care for pregnant women, infants and children. The pediatricians at the Oak Tree Clinic (Dr. Ariane Alimenti, Dr. Laura Sauvé and Dr. Jennifer Smitten) care for all of the HIV-infected children in BC, and the infants born to HIV-infected mothers. With a dedicated interdisciplinary team, the Oak Tree Clinic staff have celebrated the births of 20–30 healthy babies who are perinatally HIV-exposed but are uninfected each year. It has been 20 years since an infant was perinatally infected in BC from a mother who was engaged in care (and eight years since the last perinatal transmission).

In 1991, the Canadian Perinatal HIV Surveillance Program (CPHSP) was started and soon endorsed by the Canadian Pediatric AIDS Research Group to keep track of the number of HIV-infected women having babies, and the outcomes of those infants. Approximately 10 years later, the data centre moved to BC as a collaboration between the BC Centre for Excellence in HIV, the University of British Columbia and BC Women’s, with leadership still provided by a Canadian Pediatric AIDS Research Group steering committee. The Public Health Agency of Canada depends on this system to monitor perinatal HIV transmission in Canada. Over the last 30 years, CPHSP has been able to document the near disappearance of perinatal HIV transmission in Canada, and has allowed us to understand where the missed opportunities are happening.

Currently, the focus of pediatricians and the interdisciplinary teams providing pediatric HIV care has largely shifted from managing life-threatening opportunistic infections to working with families of both HIV-infected and HIV-exposed, but uninfected, children to optimize their overall health and long-term developmental outcomes. The epidemiology of pediatric HIV infection in Canada has changed; most of the younger children are newcomers to Canada either as refugees, immigrants or international adoptees. Adolescents who have grown up with the disease are transitioning to adult HIV care while facing the challenges of a highly stigmatized and criminalized condition. With innovative programs like those of Camp Moomba and our Youth Group clinics, run in partnership with YouthCo, a community agency for youth impacted by HIV and hepatitis C, the Oak Tree Clinic pediatricians emphasize the social determinants of health, and on combating the stigma that families affected by HIV still contend with every day.

We also put a great deal of effort into preventing vertical transmission. Kits to prevent perinatal transmission are provided in maternity wards throughout BC so that women who are at risk of acquiring HIV can be quickly tested and, if needed, HIV prophylaxis can be given to the newborn while awaiting test results.

For more information, please visit: WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/LAURA-SAUVÉ
The Division of Respiratory Medicine’s Global Health Work

Dr. Michael Seear, Division Head, Respiratory Medicine

The most common causes of childhood death, at a global level, are all respiratory diseases—pneumonia, bronchiolitis and asthma. Together, these conditions kill roughly one million children every single year, more than HIV, malaria and TB combined. There is clearly an urgent need for research in this area. The Division of Respiratory Medicine has made global health one of its main priorities.

Examples of our Division’s work are:

**Global Health Teaching**

Our Division head, Dr. Michael Seear, grew up and trained in a low-resource country. He maintains that early interest in global health by teaching the subject. He has published two textbooks on Global Health (in 2002 and 2012). Dr. Seear also teaches a 300-level course on working in international health at UBC.

**Drug Quality in Low-Resource Areas**

A combination of poor manufacturing standards and criminal counterfeiting means that the quality of drugs in developing countries is far poorer than is often appreciated. There is little quantified work in this area, so our Division of Respiratory Medicine developed a joint study team with the university hospital of Chennai, India. This study showed significant problems with drug quality in a range of pharmaceutical outlets around the city of Chennai. This was the first ever published study of drug quality in India and led to requests for reviews by other journals.

**Diagnosis and Management of Pneumonia**

Pneumonia is the most common single cause of death in children worldwide. Optimal management is challenged by the absence of reliable diagnostic criteria. Current WHO criteria are unreliable and far out of date. With a joint team between the respiratory Division and four separate Indian teaching hospitals, we organised a large study of pediatric pneumonia. Our results allowed us to define far more accurate diagnostic criteria that allowed greater accuracy in dividing tachypenic children into chest infections and wheezy diseases (asthma and bronchiolitis). This was the first time the criteria had been reviewed for 30 years.

**Diagnostic Value of Chest Radiographs in Low-Resource Regions**

Although huge numbers of chest X-rays are done each year, there is no research looking at their diagnostic accuracy. We worked with the same team in India to examine this question. Our results showed that predictive accuracy was far less than often claimed. Before spending limited resources on a chest X-rays, it is important to understand their practical limitations.

For more information, please visit: www.bccchr.ca/our-research/researchers/results/details/michael-seear
“INJURIES FROM FALLS, CAR CRASHES, POISONING, SUICIDE AND OTHER INCIDENTS COST BRITISH COLUMBIA $3.7 BILLION IN JUST ONE YEAR—THAT’S OVER $400,000 AN HOUR.”
FEATURED PROGRAMS IN

PEDIATRIC HEALTH CARE
Four Gut Bacteria Decrease Asthma Risk in Infants

UBC PUBLIC AFFAIRS AND BC CHILDREN’S HOSPITAL RESEARCH INSTITUTE

New research by scientists at BC Children’s Hospital Research Institute (BCCHR) and the University of British Columbia finds that infants can be protected from getting asthma if they acquire four types of gut bacteria by three months of age. More than 300 families from across Canada participated in this research through the Canadian Healthy Infant Longitudinal Development (CHILD) Study.

“This research supports the hygiene hypothesis that we’re making our environment too clean. It shows that gut bacteria play a role in asthma, but it is early in life when the baby’s immune system is being established,” said the study’s co-lead researcher B. Brett Finlay, Peter Wall Distinguished Professor in the Michael Smith Laboratories and the departments of Microbiology & Immunology, and Biochemistry and Molecular Biology at UBC.

Asthma rates have increased dramatically since the 1950s and now affect up to 20% of children in Western countries. The discovery opens the door to developing probiotic treatments for infants that prevent asthma. The finding could also be used to develop a test for predicting which children are at risk of developing asthma.

The researchers analyzed fecal samples from 319 children involved in the CHILD Study. Analysis of the gut bacteria from the samples revealed lower levels of four specific gut bacteria in three-month-old infants who were at an increased risk for asthma. Most babies naturally acquire these four bacteria, nicknamed FLVR (Faecalibacterium, Lachnospira, Veillonella and Rothia), from their environments, but some do not, either because of the circumstances of their birth or other factors.

The researchers also found fewer differences in FLVR levels among one-year-old children, meaning the first three months are a critical period for a baby’s developing immune system. The researchers confirmed these findings in mice and also discovered that newborn mice inoculated with the FLVR bacteria developed less severe asthma.

“This discovery gives us new potential ways to prevent this disease that is life-threatening for many children. It shows there’s a short, maybe 100-day window for giving babies therapeutic interventions to protect against asthma,” said co-lead researcher Dr. Stuart Turvey, pediatric immunologist at BC Children’s Hospital; Director of clinical research and senior clinician scientist at the BC Children’s Hospital Research Institute and; Aubrey J. Tingle Professor of Pediatric Immunology at UBC.

The researchers say that further study with a larger number of children is required to confirm these findings and reveal how these bacteria influence the development of asthma.


FUNDING
This research was supported by the Canadian Institutes of Health Research (CIHR). The CHILD Study is supported by the Allergy, Genes and Environment Network (AllerGen NCE Inc.), CIHR, Health Canada, Environment Canada, Canada Mortgage and Housing Corporation, and the Childhood Asthma Foundation. The researchers are supported by BC Children’s Hospital Foundation, the University of British Columbia, Michael Smith Foundation for Health Research and Tula Foundation.

For more information, please visit: WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/STUART-TURVEY
CAUSES Research Clinic

The CAUSES (Clinical Assessment of the Utility of Sequencing and Evaluation) Clinic is an interdisciplinary research clinic that represents the evolution of a unique research program that was first launched in 2011 and is known as TIDE (Treatable Causes of Intellectual Disability). Drs. Sylvia Stöckler-Ipsiroglu and Clara van Karnebeek in the Division of Biochemical Diseases launched this clinic to identify treatable causes of intellectual disabilities. The CAUSES Clinic uses next generation and extends genome-wide sequencing service to a unique population of children (and their parents), who have complex, undiagnosed disorders, despite routine genetic testing.

CAUSES is a research study to determine the clinical impact of genome-wide sequencing for children in BC with undiagnosed disorders.

Launched in 2015, with funding from Mining for Miracles, through BC Children’s Hospital Foundation, the CAUSES Clinic will:

- Test at least 500 children and their parents by 2018 to identify disorders that would previously have gone undiagnosed.
- Provide genetic counselling, interpretation of complex test results, personalized treatment recommendations, and access to improved services for children who receive a diagnosis from genome-wide sequencing.
- Help speed up diagnoses, prevent additional tests, reduce medical complications, and in some cases, save lives.
- Provide many opportunities for discovery and therapeutic research that will benefit patients at BC Children’s Hospital, in partnership with the BC Children’s Hospital BioBank (also funded by Mining for Miracles) and other investigators at the BC Children’s Hospital Research Institute, throughout Canada and around the world.

CAUSES has a new, modern clinic space at BC Children’s. Families throughout BC can also be seen via telehealth.

Although initially funded as a three-year research pilot project to study 500 trios (affected child and both parents), an important goal of the CAUSES Research Study is to make clinical genome-wide sequencing available as a funded diagnostic service through the BC healthcare system.

CAUSES will be imbedded within a comprehensive set of translational research activities that will demonstrate the clinical utility and cost-effectiveness of genome-wide sequencing, providing the evidence needed to justify ongoing provincial support.
Our Interdisciplinary CAUSES Research Team:

1. Dr. Jan Friedman, Director, Department of Medical Genetics, UBC
2. Dr. Anna Lehman, Medical Co-Director, Department of Medical Genetics, UBC
3. Dr. Clara van Karnebeek, Medical Co-Director, Department of Pediatrics, UBC
4. Dr. Jill Mwenifumbo, Clinical Bioinformatician, Department of Medical Genetics, UBC
5. Allison Elliott, Program Manager, Department of Medical Genetics, UBC
6. Shelin Adam, Research Genetic Counsellor, Department of Medical Genetics, UBC
7. Christèle du Souich, Genetic Counsellor, Department of Medical Genetics, UBC
8. Dr. Alison M. Elliott, Project Lead, Department of Medical Genetics, UBC

For more information, please visit: WWW.CAUSES.CLINIC

“CAUSES WILL BE IMBEDDED WITHIN A COMPREHENSIVE SET OF TRANSLATIONAL RESEARCH ACTIVITIES THAT WILL DEMONSTRATE THE CLINICAL UTILITY AND COST-EFFECTIVENESS OF GENOME-WIDE SEQUENCING, PROVIDING THE EVIDENCE NEEDED TO JUSTIFY ONGOING PROVINCIAL SUPPORT.”
The Vaccine Evaluation Centre (VEC)

The Vaccine Evaluation Centre (VEC) was co-founded by Drs. David Scheifele and Aubrey Tingle in 1988 as the first formal non-profit centre to conduct vaccine research in Canada. It is independent of vaccine centres and non-research government agencies. Close to three decades of VEC research has focused on: vaccine safety and effectiveness, evaluation of new vaccines, preventable infections, and enhancement of public immunization programs.

There has been a remarkable accomplishment since a vaccine was developed in 1996: the elimination of serious childhood infections due to bacteria Hemophilus influenza. However, much work remains to be done. New global infectious diseases continue to emerge (Ebola and Zika Virus are recent examples); cause-and-effect relationships are being established between certain types of cancers and infections, which might be preventable by vaccines (such as human papilloma virus and certain types of Lymphoma-Epstein Barr virus); and there is ongoing vaccine hesitancy by parents. In BC, only 65%–70% of two-year old children have received all recommended immunizations.

**DURING THE 2013–15 PERIOD, THERE WERE SIX PEDIATRIC FACULTY RESEARCHERS IN THE VEC:**

- **Dr. David Scheifele’s** (Director, Vaccine Evaluation Centre) research interests include influenza, Haemophilus influenzae, Pneumococcus and vaccine safety. He was appointed as an officer of the Order of Canada in 2012 for his contributions.

- **Dr. Simon Dobson’s** research interests include hepatitis B, Meningococcus, human papilloma virus and a specialized clinic to evaluate children with an adverse vaccine event.

- **Dr. Julie Bettinger’s** research interests include Meningococcus, vaccine safety, and serving as the lead epidemiologist for the Canadian Immunization Monitoring Program ACTive (IMPACT) and as the lead investigator for the (PCIRN) national ambulatory network.

- **Dr. Tobias Kollman’s** research focuses on understanding newborn and infant immune responses to immunization, with the goal of improving vaccine efficacy.

- **Dr. Soren Gantt’s** research focuses on Herpes virus infections and HIV.

- **Dr. Laura Sauvé’s** research focuses on pediatric HIV (Canadian Perinatal HIV Surveillance Program) and surveillance for vaccine preventable diseases and adverse events following immunizations (BC site investigator for IMPACT).

For more information, please visit:
WWW.VACCINEEVALUATIONCENTER.CA

**SIGNIFICANT AWARDS**

<table>
<thead>
<tr>
<th>NAME</th>
<th>RANK</th>
<th>GRANTING AGENCY</th>
<th>AWARD</th>
<th>YEAR</th>
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<tr>
<td>Dr. David Scheifele</td>
<td>Professor</td>
<td>Merck Canada</td>
<td>Outstanding Patient Service Award</td>
<td>2014</td>
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<tr>
<td>Dr. David Scheifele</td>
<td>Professor</td>
<td>BC Children’s Hospital Research Institute</td>
<td>Geoffrey L. Hammond Lectureship</td>
<td>2015</td>
</tr>
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<td>Dr. Gordean Bjornson</td>
<td>Research Associate</td>
<td>UBC Centre for Health Education Scholarship</td>
<td>Applegarth Staff Service Award</td>
<td>2014</td>
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BC Injury Research and Prevention Unit (BCIRPU)

i. Overview of BCIRPU

DR. IAN PIKE, ASSOCIATE PROFESSOR AND DIRECTOR, BC INJURY RESEARCH AND PREVENTION UNIT

The Injury Research and Prevention Unit (BCIRPU) is a leader in the development of evidence-based prevention strategies and has a solid reputation among the provincial, national, and international injury prevention communities. BCIRPU partners with health authorities and other stakeholders to coordinate and support injury prevention programs and initiatives.

KNOWLEDGE SYNTHESIS AND TRANSLATION

The Unit’s British Columbia Casebook for Injury Prevention assists health authorities and other injury stakeholders with decision-making, priority setting, planning processes, and resource allocation for injury prevention in the province. Funded by the Provincial Health Services Authority, this highly visual, online resource includes ten chapters that make the case for injury prevention in BC and nine case studies that provide examples of injury prevention successes.

The BC Injury Atlas is a report containing maps and graphics describing injury death and hospitalization, identifying at-risk age groups and geographic regions within the province. It highlights the social and physical context for injuries as well as their frequency in different age and sex categories.

The Canadian Atlas of Child and Youth Injury Prevention highlights the work of the CIHR Team in Child and Youth Injury Prevention, co-led by Dr. Pike with Dr. Alison Macpherson from York University. It is an interactive tool that contains data on the burden and causes of injury among child and youth, including injury outcomes, risk factors, and policies concerning national- and provincial-level injury mortality, hospitalization, drowning, and transport data.

The Canadian Atlas supports injury professionals, practitioners and policy makers to make informed and timely decisions to improve injury prevention in Canada.

RESEARCH

Injuries from falls, car crashes, poisoning, suicide, and other incidents cost British Columbia $3.7 billion in just one year—over $400,000 an hour. The Economic Burden of Injury in British Columbia report and accompanying infographic breaks down the causes of injury, rates, and costs within each health authority, showing where injury prevention efforts in each health authority could have the greatest return on investment.

SURVEILLANCE

Available via the BCIRPU website, the Injury Data Online Tool (iDOT®) provides up-to-date injury surveillance data and information. Users select from multiple pull down menus to choose parameters and create a customized view of data according to their needs. Tools currently available include: Injury Hospitalizations, Traffic Accident System, Injury Related Deaths, Sports Related Injuries, BC Children’s ER Visits, and Work Related Injury Claims.

PUBLIC INFORMATION

BCIRPU has a diverse strategy for targeting the media and the general public. The Unit currently utilizes its website and newsletter to convey information and messaging. Furthermore, BCIRPU has a strategic alliance with The Community Against Preventable Injuries (Preventable.ca) to develop and implement professional social marketing campaigns. After seven years of highlighting injury issues and engaging with British Columbians on their attitudes towards preventable injuries, the Preventable campaign is seeing a 4% to 5% positive shift in attitudes and behaviours towards preventable injuries across the entire BC population. The preventable injuries, the campaign is seeing a 4%–5% positive shift in attitudes and behaviours towards preventable injuries across the entire BC population.

For more information, please visit:
WWW.INJURYRESEARCH.BC.CA
WWW.INJURYEVIDENCE.CA
WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/IAN-PIKE
ii. Raising Concussion Awareness

DR. SHELINA BABUL, ASSOCIATE DIRECTOR AND SPORTS INJURY SPECIALIST, BC INJURY RESEARCH AND PREVENTION UNIT

Dr. Shelina Babul’s concussion program is a multifaceted implementation science endeavour with an extensive knowledge translation strategy. Surveillance reports for each of British Columbia’s five regional health authorities, as well as a provincial-level report, have been developed in order to provide details on the burden of concussion hospitalizations among children and youth. These reports can be used by health care providers and community stakeholders to facilitate discussion of the need for standardized concussion prevention, diagnosis and management specific to children.

CONCUSSION AWARENESS TRAINING TOOL (CATT)

Over the past several years, Dr. Babul has been spearheading the Concussion Awareness Training Tool (CATT) to support the standardization of concussion practice in British Columbia. CATT is currently comprised of three toolkits: CATT for Medical Professionals (MP) launched in April 2013; CATT for Parents, Players and Coaches (PPC) launched in July 2014; and CATT for School Professionals (SP) launched in February 2016. The content for each of the CATT toolkits was developed through expert consultations with extensive external review and feedback.

Each of the three toolkits has been evaluated to determine if it is a factor in improving knowledge, attitudes and practices, as appropriate, among the target audiences. Statistically significant results were found demonstrating a positive change in: practices among physicians ($p=0.001$); practices among nurses ($p=0.055$); attitudes among nurses ($p=0.035$); knowledge among parents ($p=0.007$); and knowledge among school professionals ($p=0.027$).

Future enhancements to CATT will include: language translation (French, Punjabi, Mandarin); revisions to CATT MP based on continually emerging international evidence; supplements on mood changes, sleep hygiene and headaches; and an increased focus on mental health implications due to concussion.

KNOWLEDGE TRANSLATION

Dr. Babul leads several other initiatives and generates new knowledge about concussions. For example, supporting knowledge translation within the BC concussion research and practice community, Dr. Babul is chair of the BC Concussion Advisory Network (BC CAN), formed to raise awareness of concussion and traumatic brain injury. With over 80 network members, including health authority representatives, medical professionals, sport governing bodies, governmental representatives, educators and researchers, BC CAN increases communication supporting new partnerships and fosters collaboration on concussion initiatives.

Dr. Babul has also partnered with the Community Against Preventable Injury (Preventable.ca) to mount a social marketing campaign focused on concussion awareness.

For more information, please visit:

WWW.CATTONLINE.COM
WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DATA/SHELINA-BABUL
iii. Risky Play

DR. MARIANA BRUSSONI, ASSOCIATE PROFESSOR, BCIRPU
PROFESSOR SUSAN HERRINGTON, CHAIR OF LANDSCAPE ARCHITECTURE, UBC

Dr. Mariana Brussoni and Professor Susan Herrington (UBC School of Architecture and Landscape Architecture) developed a collaborative research program examining risky play. This research program is primarily concerned with investigating the effects on children’s health and development associated with the drastic reduction of children’s opportunities for engaging in risk taking and with natural materials during play. Below are highlighted two projects from this research program.

NATURE PLAY MEETS RISKY

Recent generations of children have had their outdoor playtime reduced and their play environments dominated by pre-fabricated equipment, which prioritizes risk reduction with little regard for developmental and play needs. Evidence indicates the importance of play environments that maximize affordances for diverse play opportunities.

We used a repeated measures design to examine the effects of an intervention to increase access to nature and challenging play opportunities in the outdoor play environment of two childcare centres with low-quality play spaces. Grounded in the Seven Cs play space design criteria, we added plants and other natural materials to enhance children’s play opportunities and affordances. We measured social behaviour, psychological wellbeing, and physical activity in 45 children aged two to five before and after the intervention. We collected observational play data and spatial behavioural movement maps on 16 children, and conducted focus groups with Early Childhood Educators.

Our findings indicated a significant increase in play with natural materials and independent play, and a decrease in depressed affect and peer problems. Spatial behavioural movement maps (see page 175) indicated greater and more varied use of play space. Early Childhood Educators observed improved socialization, problem-solving, focus, self-regulation, creativity and self-confidence, and reduced stress, boredom and injury. The findings suggest the importance of intentional design of outdoor environments to promote children’s health, wellbeing and development.

PLAY WORTH REMEMBERING: ARE PLAYGROUNDS TOO SAFE?

Studies indicate that contemporary children are playing outdoors less than their parents did when they were young, with the potential for profound consequences on their mental and physical health and wellbeing. Their limited outdoor play time is typically spent in unimaginative play spaces with pre-fabricated play equipment and a lack of natural materials. This is despite the fact that children express preference for natural play spaces over manufactured...
environments. Furthermore, when asked to describe their favourite childhood place, most adults describe fond memories of playing outdoors in natural settings, such as the woods.

Using an online survey of 592 adults, we investigated the defining characteristics of favourite outdoor play spaces, benefits received from playing in these spaces, and attitudes toward the safety of contemporary play spaces. When recollecting their own childhood, 59% preferred natural play spaces, compared to 14% who preferred spaces designed specifically for play (like a traditional playground). Participants most frequently described opportunities for creativity, fun and freedom as key benefits of their play. A total of 69% found today’s playgrounds too safe and lacked challenge. Our results suggest public support for shifting our approach to the design of children’s outdoor play spaces to include more natural materials, access to unstructured play areas and risky play opportunities.

Dr. Brussoni has been involved in various initiatives nationally and internationally, including the development of a Position Statement on Active Outdoor Play, released as part of the ParticipACTION 2015 report card on physical activity for children and youth.

For more information, please visit:
WWW.BRUSSONILAB.CA
WWW.BCHR.CA/INJURY/HOME
Shaken Baby Syndrome or Abusive Head Trauma (SBS/AHT) are terms used to describe the constellation of signs and symptoms resulting from violent shaking, or shaking with impact to the head of an infant or small child. Among shaken infants, mortality rates range from 15% to 38% with a median of 20% to 25%. It has been recognized that crying is a main stimulus for SBS.

THE PERIOD OF PURPLE CRYING® PROGRAM

In 2007, Prevent Shaken Baby Syndrome BC, a program of BC Children’s Hospital, developed a shaken baby syndrome and infant abuse prevention program called the Period of PURPLE Crying under the leadership of Dr. Ron Barr and his wife, Marilyn Barr. The program title describes the time in a newborn’s life when he or she cries more than any other time in infancy. It begins at about two weeks of age and continues until they are about three to four months old. PURPLE is an acronym that describes the characteristics of infant crying, which can be very frustrating for caregivers: “Peak of crying/Unexpected/Resists soothing/Pain-like face/Long-lasting/Evening”. It’s a normal part of every infant’s development and all babies go through this period.

The PURPLE program has three aims:

• To change the way parents and caregivers are educated about normal infant crying.
• To improve awareness around the dangers of shaking infants.
• To reduce the incidence of SBS/AHT and infant abuse in British Columbia.

DELIVERY

Since February 2009, the Period of PURPLE Crying program has been delivered to parents of BC’s 45,000 annual births at all 48 birthing hospitals and 110 public health units. Parents receive the first dose or exposure to the program from maternity nurses or midwives and a second dose or reinforcement from public health nurses. Parents also receive crying education and resources to take home. The general public receives program information via the third dose of the program from an annual public education campaign. This campaign is a province-wide grassroots effort called CLICK for Babies, where purple newborn caps are collected and distributed with the program during the months of November and December. To date, more than 11,000 health personnel, early childhood support personnel and students across the province have completed the PURPLE program training and are administering the program. 13 post-secondary institutions have incorporated the program into their curriculum and/or course assignments as well.

PARTNERSHIPS

Prevent Shaken Baby Syndrome BC is funded by the BC Ministry of Children and Family Development and is supported by the BC Ministry of Health, Provincial Health Services Authority, Canada Research Chair in Community Child Health Research and the BC Injury Research and Prevention Unit.

For more information, please visit:

HTTP://DONTSHAKE.CA (FOR PROFESSIONALS)
WWW.PURPLECRYING.INFO (FOR PARENTS)
Developmental Outcomes in Children of Depressed Mothers

DR. TIM OBERLANDER, PROFESSOR, DIVISION OF DEVELOPMENTAL PEDIATRICS

Dr. Tim Oberlander is a Clinician-Scientist whose work bridges developmental neurosciences and community child health. As a Clinician, he is a Developmental Pediatrician with the Child Development and Rehabilitation Program and is the medical lead for the Complex Pain Service at BC Children’s Hospital. He has particular expertise in managing persistent pain in children with developmental disabilities.

As a researcher, Dr. Oberlander's work focuses on understanding how early life experiences, related to exposure to mothers' mood and antidepressant medications (selective serotonin reuptake inhibitors, or SSRIs), shape thinking, memory, attention and stress response during childhood. Together his program seeks to uncover the early origins of self-regulation.

"The impact of prenatal antidepressant exposure is not a simple cause and effect," says Dr. Oberlander. "When it comes to assessing the long-term impact of SSRI exposure before birth, genes and family life play a powerful role in influencing how a child will be affected."

His work is guided by an understanding that child development and behaviour reflects a remarkable capacity for both brain plasticity and recovery—namely, vulnerability, as well as resiliency. Even in the face of adversity, some children do very well. Dr. Oberlander’s research is focused on figuring out how and why this happens. He hopes his work will lead us to identify real fundamental developmental mechanisms that offer new opportunities for intervention to promote healthy development for all children.

Since 1996, Dr. Oberlander’s research program has studied over 250 mothers and their children from fetal periods through to age 12. His program includes studies examining the role of molecular factors (genes and epigenetic markers), markers of stress regulation (heart rate variability, neuroendocrine stress biomarkers) and early brain development using advanced MR imaging, as well as studies involving all children in the province using BC population-level linked data.

Dr. Oberlander has reported novel findings related to how prenatal and early life events shape stress regulation and early childhood behavior via pharmacological, genetic and epigenetic factors. His work provides strong evidence that both prenatal maternal mood disturbances and in utero SSRIs antidepressant exposure influence infant and childhood behaviour, possibly via early changes in brain serotonin levels—for better and worse.

Dr. Oberlander’s findings highlight the important impact of a mother’s mental health and how this shapes her child’s
FEATURED PROGRAMS IN PEDIATRIC HEALTH CARE RESEARCH

development, starting long before birth and lasting well into childhood. How and why this happens is a pressing question, but is far from a simple story. Failure to recognize or treat perinatal mood disturbances has negative implications for both mother and her baby, and the antidepressant medications used to treat these conditions may also present risks. Depression during pregnancy is an urgent public health issue and there are no easy answers to pressing questions about how to promote health and wellbeing across two generations.

The clinical implications, while unclear, have huge ramifications. Dr. Oberlander has shown that 10% to 20% of pregnant women in British Columbia have clinically recognized levels of anxiety and depression, and 5% of women use SSRIs during pregnancy. “Depression during and after pregnancy is a major public health problem for mothers and their children,” Dr. Oberlander added. “Non-treatment is never an option. It is really important that pregnant women discuss all treatment options, including the use of antidepressants, with their physicians or midwives.”

For more information, please visit: WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/TIM-OBERLANDER
Traumatic Brain Injury

DR. ALEX RAUSCHER, ASSISTANT PROFESSOR, DIVISION OF NEUROLOGY

Traumatic brain injury (TBI) is the leading cause of death and disability in persons under 45 years of age. TBI occurs more frequently than breast cancer, AIDS, multiple sclerosis and spinal cord injury combined. Even mild traumatic brain injuries, also called concussions, can have serious cumulative long-lasting effects, such as depression, cognitive impairment and dementia, and are therefore often called a silent epidemic.

MRI scientist Dr. Alexander Rauscher and coworkers have conducted the first study with pre-injury MRI, followed by serial MRI scans after concussion. They scanned two entire ice hockey teams before the hockey season and every player who sustained a concussion three days, two weeks and two months after the injury. This approach allowed them to compare advanced MRI scans of concussion before and after the injury.

Dr. Rauscher and his team found that myelin, the insulating sheath around the nerve fibres, was still damaged at two weeks after concussion, when the clinical symptoms had already resolved. This means that the brain is still vulnerable, even after clinical symptoms have resolved. Experiencing another concussion before the brain has healed can have serious health effects.

Dr. Rauscher’s results provide further evidence that concussed persons should avoid risky activities for at least three weeks after they are injured. In children and adolescents, this period may have to be even longer, since the developing brain is more vulnerable than the adult brain. In addition, they found that the brains of both concussed and non-concussed players shrunk over the course of one season.

For more information, please visit: WWW.EXPERTS.NEWS.UBC.CA/EXPERT/ALEXANDER-RAUSCHER
Maternal Omega-3 Supplementation to Reduce Bronchopulmonary Dysplasia in Very Preterm Infants (MOBYDick)

DR. PASCAL LAVOIE, ASSOCIATE PROFESSOR, DIVISION OF NEONATOLOGY

8% of all babies in Canada are born prematurely. Some of the smaller, most immature preterm babies can require intensive care treatment up to several weeks after birth in order to survive. However, life-saving, intensive care interventions also place these babies at risk of a number of serious complications that can have long-term health consequences. Dr. Pascal Lavoie’s research group studies the role preterm infants’ own immune defenses play in the development of these complications.

Omega-3 lipids are essential for a healthy development of several organs, including the brain and the eyes. These lipids also turn out to be essential to help our body regulate excessive inflammation. Babies born below 29 weeks of gestation are deficient in an omega-3 lipid called DHA (docosahexaenoic acid), which is normally acquired during the last trimester of pregnancy through a mother’s own dietary intake.

In 2014, a Canadian group of researchers and physicians from 14 Canadian Neonatal Intensive Care Units (NICUs), co-led by Dr. Lavoie, initiated a large randomized trial funded by the Canadian Institutes of Health Research ($2.6M): to determine whether supplementation of lactating mothers of premature babies born below 29 weeks of gestation in DHA can prevent a chronic form of neonatal lung disease called bronchopulmonary dysplasia in their premature baby.

Four years from now, we will have results from these trials, which involve 16 Canadian NICUs, including the BC Women’s Hospital + Heath Centre. NICU. This information will provide a definitive answer to a main question in neonatology: Can DHA help prevent bronchopulmonary dysplasia (BPD) when administered through mothers? Use of DHA in this manner could help prevent inflammatory injury in the thousands of infants born very prematurely who need intensive care each year in Canada.

Understanding the role of omega-3 lipids in the prevention of neonatal complications in premature infants will also open new therapeutic avenues to prevent the harmful long-term health consequences of an overreaction of the immune system in this age group.

For more information, please visit: WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DETAILS/PASCAL-LAVOIE
"MRI scientist Dr. Alexander Rauscher and coworkers have conducted the first study with pre-injury MRI, followed by serial MRI scans after concussion."
"THE ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF CANADA NOW RECOGNIZES CHILD MALTREATMENT PEDIATRICS AS AN AREA OF FOCUSED COMPETENCE."

— CHILD PROTECTION SERVICES UNIT (CPSU)
FEATURED PROGRAMS IN

CLINICAL CARE
Child Health BC (Head Benefactor Save-on-Foods)

DR. MAUREEN O’DONNELL, MD MSC FRCPC, EXECUTIVE DIRECTOR, CHILD HEALTH BC, ASSOCIATE PROFESSOR
DIVISION OF DEVELOPMENTAL PEDIATRICS, UNIVERSITY OF BRITISH COLUMBIA
JENNIFER SCARR, MSCN, PROVINCIAL LEAD, HEALTH PREVENTION AND PRIMARY CARE
MICHELE FRYER, BSCN, MHSA, PROVINCIAL LEAD, SPECIALTY AND SUBSPECIALTY SERVICES

Child Health BC brings together policy makers, health administrators, clinicians, operational leaders and physician leaders from across BC who together have a bold, common goal: To work together to continuously improve the health status and health outcomes of BC's children by building an integrated and accessible system of service.

TO ACHIEVE THIS GOAL OF IMPROVING HEALTH STATUS, OUTCOMES AND SERVICES FOR BC'S KIDS, WE COLLABORATE TO:

• Complete focused initiatives to measure and improve health status, including innovative health promotion and prevention activities and maneuvers.

• Build strong systems of service for the children of BC, based on the collective Tiers of Service approach.

• Support novel and innovative care delivery across the Tiers of Service—from rural and remote sites in the far corners of the province to the BC Children's Hospital—through creative service delivery approaches, outreach, telehealth and evidence-based provider tools.

OUTREACH CLINIC

Ensuring that children across the province have easy access to subspecialists continues to be important, particularly for those who are ill with chronic health conditions. Travel to Vancouver can be very challenging, costly and disruptive to children and families. In the past 10 years since Child Health BC was formed, the growth in the numbers of outreach visits provided by teams at BC Children's has been impressive, and the child health service system has grown stronger with a gift of $20 million dollars to BC Children's Hospital Foundation from their Lead Benefactor Save-on-Foods. 10 years ago (2006/07)—the first year of Child Health BC—six subspecialty pediatric medical/surgical programs from BC Children's initiated some outreach activity. Now, there are 11 clinic areas with ever-expanding locations of service. In the past three years alone, outreach patient visits by BC Children's subspecialty teams supported by Child Health BC increased by over 30%. Current outreach clinic sites are shown in the map on page 186.

TELEHEALTH

Over the past two years, Child Health BC has worked with the Provincial Health Services Authority (PHSA) Telehealth and regional health authority clinical, administrative and telehealth teams to build the telehealth system for children, and to integrate it
TELEHEALTH CONTINUED

as part of the children’s specialty and subspecialty services. All of this was made possible, in part, due to a gift to BC Children’s Hospital Foundation from TELUS.

Children’s Virtual Care Initiative includes:

• Planned medical and surgical subspecialty services for children delivered by telehealth to regional health facilities close to where children live.

• An on demand, virtual service called Tele-PICU that allows the BC Children’s Pediatric Intensive Care team to connect to a regional hospital and contribute to the care of the child who is critically ill or injured. This service is supported by 24/7 technical support and is a first of its kind in Canada.

As a result of the Children’s Virtual Care Initiative, BC children can receive subspecialty visits from BC Children’s teams without leaving their community, missing school and work, and bearing the financial burden and disruptions that travel creates. Through the support and education of the Child Health BC staff and the addition of needed equipment and clerical support, telehealth visits by BC Children’s providers using telehealth increase every month and include not only physicians but also dietitians, nurses, nurse practitioners and physiotherapists.

PEDIATRIC MEDICAL SUBSPECIALTY VISITS BY TELEHEALTH

Scheduled medical subspecialty pediatric consultations are provided by over 20 different subspecialty providers at BC Children’s to 16 different Children’s Virtual Care Initiative sites in BC. Some of the pediatric medical programs now using telehealth to deliver their services to children include neurology, gastroenterology, cystic fibrosis, biochemical diseases, endocrine/diabetes and oncology long term follow up. The interest and participation are growing quickly as both providers and families experience the many benefits of accessing telehealth as an alternative to either family or provider travel.

The 16 pediatric enhanced Children’s Virtual Care Initiative sites in regional health authorities have, not only technology and telehealth equipment, but also the other equipment, nurses and support staff to support their visit. On the BC Children’s end, providers are equipped with desktop technology, mobile carts or fixed equipment in telehealth rooms. The goal is to make sure that the visit to a regional telehealth location feels as much like a visit to Vancouver as possible.

In addition to the subspecialists at BC Children’s, communities without general pediatricians are being reached remotely. The Children’s Virtual Care Initiative has supported Powell River children in having access to a pediatrician from Island Health (Campbell River) and children in Bella Bella and Bella Coola in having access to a general pediatrician from BC Children’s in Vancouver.

Tele-Mental Health and Tele Medical Genetics has been very active for a few years, so were not involved in some of the initial work of the Children’s Virtual Care Initiative, but will be part of our ongoing work to improve access to subspecialty services to children and youth across BC. In addition, a growing number of pre-surgical and post-operative assessments are performed by BC Children’s surgeons.

TELE-PEDIATRIC INTENSIVE CARE (PICU): A FIRST IN CANADA

Tele-PICU allows children who are critically ill to receive subspecialty care right from the time they arrive at their community hospital. Depending on the child’s needs, Tele-PICU will either enable the child to stay in their community or be transferred to BC Children’s with immediate pre-transport care that includes both the BC Children’s team and the local team. Parents can virtually “meet” the children’s hospital team and be part of the assessment—a very important part of family-centred care.

Teams in Trail and Victoria have successfully used the technology to collaborate with the PICU team at BC Children’s. Early results are overwhelmingly positive and providers both at BC Children’s and the health authority sites are eager for expansion.

The years ahead will see existing pediatric subspecialty outreach grow to new communities, with the addition of new clinical programs using outreach as a means to better reach families when their own community does not have the specialized health services they need. The travelling teams will complement their service to children and families across BC with telehealth and services that need to be provided at the only Tier 4 Children’s Hospital in BC – BC Children’s.

For more information, please visit:
WWW.CHILDHEALTHBC.CA
WWW.CHILDHEALTHBC.CA/ABOUT-CHBC/TEAM

FEATURED PROGRAMS IN CLINICAL CARE

FEATURED PROGRAMS IN CLINICAL CARE | 185
FEATURED PROGRAMS IN CLINICAL CARE

Outreach Services Pediatric Members

**Cardiology**
Dr. Derek Human  
Dr. Shubhayan Sanatani  
Dr. Kevin Harris  
Dr. Marin Hosking  
Dr. Walter Duncan  
Dr. Shreya Moodley

**Cystic Fibrosis**
Dr. Mark Chilvers

**Dermatology**
Dr. Wingfield Rhemus

**Endocrinology & Diabetes**
Dr. Laura Stewart  
Dr. Shazhan Amed  
Dr. Brenden Hursh  
Dr. JP Chanoine

**Gastroenterology, Hepatology & Nutrition**
Dr. Collin Barker  
Dr. Rick Schreiber  
Dr. Kevan Jacobson  
Dr. Vishal Avinashi  
Dr. Andy Skinn

**Hematology, Oncology & BMT**
Dr. John Wu

**Nephrology**
Dr. Rob Humphreys  
Dr. Doug Matsell

**Neurology**
Dr. James Lee  
Dr. Linda Huh  
Dr. Ziad Abusharar  
Dr. Mary Connolly  
Dr. Allan Hill

Dr. Cyrus Boelman  
Dr. Michelle Demos  
Dr. Sia Michoulas

**Rheumatology**
Dr. Ross Petty  
Dr. Kim Morishita  
Dr. Lori Tucker  
Dr. Tommy Gerschman  
Dr. Kristin Houghton

“In the past three years alone, Outreach Patient visits by BC Children’s Hospital subspecialty teams supported by Child Health BC increased by over 30%.”
Antimicrobial Stewardship Program

DR. ASHLEY ROBERTS, MEDICAL DIRECTOR, ANTIMICROBIAL STEWARDSHIP PROGRAM, PROVINCIAL HEALTH SERVICES AUTHORITY

BC Children’s Hospital Antimicrobial Stewardship (AMS) Program began in October 2013 with the goal of optimizing patient care with regard to antibiotic use. The program comprises a collaborative interdisciplinary team from pharmacy, infectious diseases, microbiology and information technology with local champion physician representatives from the high antibiotic use areas of the hospital (PICU, NICU, Hematology, Oncology & BMT, and General Pediatrics).

Recent activities can be divided into three general categories:

**CLINICAL**
- Creation of evidence-based clinical pathways and guidelines such as: BC Children’s Hospital Empiric Antibiotic Guidelines, Treatment of Influenza at BC Children’s and BC Women’s, BC Children’s Fever and Neutropenia algorithm, NICU Late onset sepsis protocol, NICU gastroschisis protocol, BC Children’s Surgical Prophylaxis guidelines and C. difficile protocol.
- Daily Audit (review) and Feedback program carried out by Antimicrobial Stewardship pharmacist (reviews the antibiotic management of all inpatients at BC Children’s who are on antibiotics). To date, 26,877 patients, 44,212 antibiotics and 2,946 antibiotic intervention recommendations have made by the AMS team. The average rate of acceptance of the interventions has steadily increased from 85%–92%. There has been a decrease in overall hospital antibiotic costs since the inception of the program (pre-AMS: $1,144,513; post-AMS: $941,430).
- Creation of a BC Children’s-specific antibiogram in conjunction with microbiology, in order to help clinicians to make antibiotic choices using local bacterial susceptibility patterns.

**EDUCATION**
- Academic half-days on antibiotic use for medical students, pediatric residents and all of the subspecialty fellows, as well as nursing teams and medical staff at the hospital.
- The AMS Program received a Teaching and Learning Enhancement Fund grant from UBC to create five online teaching modules about the basic concepts and principles of antimicrobial stewardship.

**RESEARCH**
The AMS Program is leading several Quality Improvement research projects at the hospital on a variety of topics. Pharmacy students, medical students and pediatric residents are involved in this research work. Currently, we are working with three medical students on supervised projects through the FLEX program. Some of their current projects include:
RESEARCH CONTINUED

- Surveillance and description of infections: CNS infections in neonates—multi-centre Canadian, Bacteremia treatment and outcome at BC Women’s Hospital + Health Centre (five-year review), Empyema study (10-year BC Children’s review), Fungemia in Canadian NICU patients (10-year review).
- Surveillance of antibiotic resistance: ER UTI study, MRSA colonization and infection in NICU.
- Surveillance and assessment of antibiotic utilization: assessment of antibiotic usage in very low birth weight infants, Oncology Meropenem utilization, antibiotic safety in neonates study (multi-centre, NIH-funded), and comparison of clinical outcomes between Cloxacillin and Cefotaxime for the treatment of MSSA bacteremia in pediatric patients.
- Intervention evaluation: Empiric antibiotic guidelines study, MALDI-TOF study, Oncology Fever and Neutropenia protocol study NICU Late onset sepsis protocol study, and BC Children’s and BC Women’s Influenza protocol study.

For more information, please visit: WWW.BCCHR.CA/OUR-RESEARCH/RESEARCHERS/RESULTS/DATA/ASHLEY-ROBERTS

“There has been a decrease in overall hospital antibiotic costs since the inception of the program (before: $1,144,513; after: $941,430).”
Transitioning Responsibly to Adult Care (ON TRAC)

DR. CURREN WARF, DIVISION HEAD, ADOLESCENT HEALTH AND MEDICINE

The goal of transition is to offer a step by step process (starting at 12 years of age) by which care providers help youth and parents gain skills and knowledge to enter into the new adult healthcare system (by 18 years of age), prepared and ready to face new experiences.

The ON TRAC (Transitioning Responsibly to Adult Care) Initiative has been built on the expertise of a large group of stakeholders throughout the province. Beginning with 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 identified the need to integrate with the many health transitions youth face at 18 years of age (school, health care, home care services, insurance and living).

ON TRAC has responded to guidance from youth, young adults, 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 direction. Together they have closely worked with several pediatric specialists at BC Children’s to improve their patient transition process. They have also worked closely with a youth advisory group. Unique tools resulting from this work include:

CONSEQUENCES OF POOR TRANSITION PLANNING AND TRANSFER

• Studies have demonstrated increased morbidity and mortality with respect to primary disease outcomes
• Increased psychological and mental health co-morbidities
• Distrust and disengagement in the healthcare system

YOUTH TOOLKIT

The Youth Toolkit for transition was created by and for youth. It contains tools, tips and ideas to help youth ages 12–24 years plan and prepare for adulthood and adult health care.

TRANSITION OF READINESS WORKSHOP

The Sea of Transition Readiness Workshop was developed by and for youth as an interactive way to share experiences and knowledge about transition. Workshops have been facilitated by youth leaders across the province at conferences, summer camps and other youth spaces with more than 200 participants.

THE TEAM

Dr. Curren Warf is a pediatrician, Head of the Division of Adolescent Health and Medicine, and a Clinical Professor of Pediatrics at BC Children's and the University of British Columbia Faculty of Medicine.
THE TEAM CONTINUED
He was recruited from the Children’s Hospital of Los Angeles to BC Children’s as the Adolescent Medicine Division Head in 2009 and has taken on a leadership role in the strategic planning for transition and supporting the ON TRAC Initiative.

Dr. Sandy Whitehouse is a pediatrician who has held leadership roles in both adolescent health and pediatric emergency medicine at BC Children’s. Dr. Whitehouse was the principal investigator of a grant from the Doctors of BC Specialist Services Committee (2015–16) that greatly accelerated the pace of the transition-related activities at BC Children’s.

Dr. Lynn Straatman is a pediatric and adult trained specialist in heart failure/cardiac transplantation who has worked with the transition project as the cardiology lead to facilitate the transition of adolescents to the adult care system, while identifying the differences between the two healthcare systems.

Mary Paone is the Nursing Lead for the ON TRAC Initiative. Mary’s commitment to the field of transition began in 1998 with the inception of the original ON TRAC framework. Her current focus of work includes: development of provincial and national transition clinical practice guidelines and tools, youth and family engagement, research of transitional practices as they relate to readiness and preparation for adult services, web and tablet applications, and communication strategies.

For more information, please visit:
WWW.BCCHILDRENS.CA/OUR-SERVICES/SUPPORT-SERVICES/TRANSITION-TO-ADULT-CARE

“WORKSHOPS HAVE BEEN FACILITATED BY YOUTH LEADERS ACROSS THE PROVINCE AT CONFERENCES, SUMMER CAMPS AND OTHER YOUTH SPACES WITH MORE THAN 200 PARTICIPANTS.”
The RICHER Program: Responsive, Interdisciplinary, Intersectoral Child and Community Health Education and Research

DR. EVA MOORE, CLINICAL ASSISTANT PROFESSOR, DIVISION OF ADOLESCENT HEALTH AND MEDICINE
DR. CHRIS LOOCK, ASSOCIATE PROFESSOR, DIVISION OF DEVELOPMENTAL PEDIATRICS

Envisioned in 2006 as a Social Pediatrics Initiative, the RICHER Program developed as a collaborative partnership between interdisciplinary health care providers—including nurse practitioners, public health, family and specialist physicians, researchers and community partners—to build evidence-based services for socially-isolated, marginalized, and materially-disenfranchised families in Vancouver’s Downtown Eastside (DTES). RICHER serves an inner-city population of approximately 4,000 children that includes new immigrants and Indigenous families, many of whom have relocated from other places in BC, Canada and internationally. Numerous have experienced significant trauma, the effects of which can be profound for adults and children alike. While the current rates of vulnerability are just over 50%, with the implementation of RICHER and other community-driven, place-based strategies, there has been a critical difference in vulnerability, with a decrease of almost 20%.

The RICHER team includes a wealth of UBC professionals including pediatricians, specialist pediatricians, nurse practitioners, a dermatologist, a psychiatrist, researchers, students and residents, who partner side-by-side with community agencies, public health, family physicians, community champions and families to reach the most vulnerable children and families.

RICHER is responsive to community and hospital-identified needs for children, youth and families most vulnerable and falling through the cracks of the health care system. Programs and objectives are set by intersectoral collaboration. Gaps in care for health and mental health for vulnerable youth have prompted a concentrated effort to better reach this population.

INNOVATIVE RICHER OUTREACH INITIATIVES:
Richer Townhouse Clinic
Open in 2015 within a public housing complex, the Town House is a safe space for low-barrier health care for vulnerable children and families. Health care is provided five days a week by RICHER primary care, specialist and subspecialist teams, linking them to BC Children’s, BC Women’s Hospital + Health Centre and other essential specialty services.

YWCA Crabtree Corner and Sheway
Forged by a UBC Pediatric partnership with community and public health in the 90’s, the purpose is to prevent adverse fetal outcomes from prenatal alcohol, opioid and homelessness, and decrease...
YWCA Crabtree Corner and Sheway continued

‘mother-baby pair’ separations. Since 2015, all UBC pediatric residents provide weekly developmental observations and consultations to the onsite YWCA Crabtree Emergency Daycare. Sheway grew out of a BC Children’s community partnership grant with UBC Pediatrics, BC Children’s Hospital Foundation, YWCA, Vancouver Native Health, and public health.

Bright Family Futures
Located at Ray-Cam Community Centre, this is a weekly evening gathering to support young parents, families and friends. RICHER clinicians, Dr. Dzung Vo and BC Children’s family nurse practitioners provide health promotion workshops (mindfulness, parenting, vaccines, etc.) and the opportunity for evening pediatric and primary care consultations.

Pinnacle Program Alternative School
Pinnacle is a senior interagency school for youth in the foster care system and probations who have been unable to participate due to health and social barriers. Weekly clinics with Dr. Eva Moore and Sue Shumay, NP are held to address complex health/mental health problems and facilitate graduation and successful transition to adulthood. Over 30% of these youth have received services at BC Children’s. See the UBC program evaluation at: www.saravyc.ubc.ca/files/2014/11/pinnacle-program-evaluation-report-nov-18-web.pdf

OFF THE GRILL & REACH CLINIC PARTNERSHIP
Developed in response to dangerous, recurrent youth activity, this initiative reunites a longstanding collaboration between UBC Adolescent Health and Medicine and REACH Clinic family practice. The physicians reach outside their walls to engage youth over healthy, generous meals offered to youth and community. Clinicians such as Dr. Eva Moore and Kristina Pikksalu, NP connect with youth over food, as do youth workers, drug and alcohol counsellors, recreational staff, and more.

SUPPORT FOR SCHOOL SUCCESS & GRAD STRATEGY
RICHER, public health (VCHA), and the Ministry of Education (VSB), team up to provide earlier identification of health and developmental/behavioral challenges, focusing on critical transitions to improve depressed graduation rates.

INTERDISCIPLINARY TRAINING
RICHER is now the principal training ground for required curriculum in Social Determinants of Health for UBC specialty and subspecialty residents, and for medical, social work, law and nursing students.

RICHER-BC CHILDREN’S EMERGENCY DEPARTMENT
This working group for vulnerable youth was established in 2014 to address unaccompanied youth in the BC Children’s Emergency Department. This intersectoral, interagency group meets monthly to develop a collaborative response to vulnerable youth presenting to the ED without a responsible adult. Members include the BC Children’s Emergency Department, Division of Adolescent Health and Medicine, BC Children’s and VCH Mental Health Services, BC Children’s Social Work, the Ministry for Child and Family Development, Vancouver Aboriginal Child and Family Services Society, Network of Inner City Community Services Society, and Ray Cam Community Centre.

RESEARCH
RICHER research methodology uses an approach that is participatory and community driven. The community participates in all steps of the process, which enhances the value, accuracy, and translation of the work. Social justice and ethical approaches are key when working with populations who have been historically harmed by institutions. RICHER research has been published in local, provincial, national, and international journals and conferences.

For more information, please visit:

“POPULATION [SOCIAL] PEDIATRICS IS ABOUT WHO WE AREN’T SEEING. WE NEED TO ASK OURSELVES WHY? THEY ARE OFTEN THE ONES WE NEED TO WORRY ABOUT MOST”

— GEOFFREY ROBINSON, C.M., O.B.C., MD, FRCPC, PROFESSOR EMERITUS, UBC DEPARTMENT OF PEDIATRICS (CIRCA 1990)
Established in 1976, the Child Protection Services Unit (CPSU) is a multidisciplinary group that is supported by the BC Ministry of Children and Family Development (MCFD) to provide a comprehensive child maltreatment service. Dr. Margaret Colbourne became the Director in 2013. This team works with the four Suspected Child Abuse and Neglect teams (SCAN) around the province and the community-based Child and Youth Advocacy Centres. The CPSU is collaborating with MCFD in a variety of educational endeavours to increase the recognition and reporting of childhood abuse and neglect. This is well recognized as a significant factor for negative adult health outcomes. Recognizing the complexity and need for specialized experience and skills, the Royal College of Physicians and Surgeons of Canada now recognizes Child Maltreatment Pediatrics as an Area of Focused Competence.

The current CPSU team consists of four pediatricians, three social workers, three psychologists, a psychiatrist, a pediatric nurse and two administrative assistants. The CPSU evaluates the most complex and serious cases of child maltreatment from all regions of the province. They also provide a 24/7 on-call service to provide assistance and advice for physicians dealing with child abuse emergencies province-wide. Over the past three years there were 309–355 annual visits, 83% of which were new referrals. In decreasing order of frequency, the most common reasons for referral were: physical abuse, sexual abuse, neglect, emotional abuse and other.

CPSU is actively engaged in educational outreach activities throughout the province, including presentations at conferences, leading workshops, publication of educational materials for families and healthcare professionals, publication in medical literature, and bringing together medical residents and learners from other healthcare professions. The team also collaborated with research teams, such as the Period of PURPLE Crying program. Awards of recognition to members of the CPSU have included: Excellence in Medical Practice, awarded by the College of Physicians and Surgeons of BC to Dr. Jean Hlady in 2014, and Excellence for Innovative Services, awarded by the BC Representative for Children and Youth to Dr. Sarina Kot.

For more information, please visit: WWW.BCCHILDRENS.CA/OUR-SERVICES/SUPPORT-SERVICES/CHILD-PROTECTION
“THE YOUNG FACULTY INITIATIVE WAS ESTABLISHED WITH A VIEW TOWARD DEVELOPING A SENSE OF COMMUNITY AMONG PHYSICIANS IN THEIR FIRST 10 YEARS OF PRACTICE, AND TO ENABLE THESE YOUNGER PHYSICIANS TO ESTABLISH INFORMAL MENTORSHIP AMONG THEIR PEERS.”
The Young Faculty Initiative

DR. ORLEE GUTTMAN, CLINICAL ASSISTANT PROFESSOR, DIVISION OF GASTROENTEROLOGY, HEPATOLOGY & NUTRITION

The Young Faculty Initiative began in 2014 after a hallway conversation drew attention to two issues facing younger faculty members at BC Children’s Hospital: a sense of social isolation and a relative scarcity of professional mentorships. The initial group was established with a view toward developing a sense of community among physicians in their first 10 years of practice, and to enable these younger physicians to establish informal mentorship among their peers.

In 2015, the Young Faculty Initiative evolved to establish a novel approach to mentorship. Group meetings have been held quarterly at faculty homes since then and discussion is facilitated by one or more senior BC Children’s faculty members. Each meeting focuses on a topic that is relevant to young faculty, such as navigating the promotions process, maintaining work-life balance, or establishing a research career. Young faculty have the opportunity to discuss these topics with like-minded peers and benefit from the guidance of their more senior colleagues. Membership in the group now tops 70 physicians, with nearly every Division represented.
The Pediatric Seniors Group

DR. DAVID F. SMITH, ASSOCIATE PROFESSOR, SENIORS GROUP ORGANIZER

The seniors group consists of approximately 100 retired or slightly older practicing pediatricians, who have reached an arbitrary but still active age of 60 years. Also included in the group are pediatric specialists such as surgeons, pathologists, anesthetists, bacteriologists and others who’ve worked in close concert with BC pediatricians. Former BC Children’s Hospital presidents also attend on occasion. At the 60-year milestone, BC Children’s and UBC faculty members, along with community pediatricians and others from around the province, receive their first invitation to participate in the group.

Initiated by a former Pediatric Department Head, Dr. Judy Hall, and managed and led for many years by another former Head, Dr. Rob Hill, the group meets informally twice a year at a spring and fall luncheon. While usually held at the Royal Vancouver Yacht Club in Vancouver, for the first time last fall, the event was held at the Arbutus Club in Vancouver.

This group was established largely based on a desire, primarily by retirees, to maintain contact with old friends and colleagues, and to share information about their lives and personal interests. Each luncheon also provides an opportunity for attendees to hear about BC Children’s activities, including the progress of building construction and renovations, and be informed about UBC alumni activities. Usually some clinical anecdotes or remembrances enter into the discussions. It tends to be an upbeat affair, with the only downside being the occasional reported passing of a member. For those unable to attend in person, often because they are travelling, emails about personal activities are routinely sent along and read aloud after the meal.

The viability and consistency of the seniors group is a confirmation that a health professional’s curiosity doesn’t cease once work stops. And it’s always nice to see old friends and colleagues, even if it’s only twice a year.
IN MEMORIAM
Dr. Roger Tonkin (1936–2015)

Dr. Roger Tonkin passed away on December 23, 2015. Roger had been a great creative force in the development of the field of Adolescent Medicine in British Columbia, and particularly in Vancouver. He initiated the Division of Adolescent Medicine of the Department of Pediatrics at BC Children's Hospital and the University of British Columbia. He led the development of adolescent-specific health services with a special interest and focus on adolescents with eating disorders.

Roger extended adolescent medicine into the broader community, leading the creation of the REACH Clinic in the lowest income area of Vancouver. He made a lasting contribution to the field of adolescent health research, initiating the provincial British Columbia Adolescent Health Survey, which continues to be a force in policy development for adolescent health in BC. It is also a model for Canada. He was a founder of the McCreary Centre Society, which conducts the BC Adolescent Survey and continues to conduct influential research focused on specific adolescent populations.

In 2010, Roger was acknowledged with the Alan Ross Award for lifetime achievement, the highest honour of the Canadian Pediatric Society. He received the Order of British Columbia in 1998. Roger was the first president of the International Association of Adolescent Health and an active and vocal presence in the Society for Adolescent Health and Medicine.

Roger's obituary was published in the Vancouver Sun on January 9, 2016. It emphasized: “In life Roger was always willing to swim against the current, and until his death he remained authentic to his true nature, with humour and passion.”

During the last years of his life, Roger battled Parkinson’s disease, but nonetheless remained an engaged and vocal advocate for young people. He died in Nanaimo surrounded by his family. He is survived by his wife, Carrol Tonkin.

For more information, please visit: WWW.LEGACY.COM/OBITUARIES/VANCOUVERSUN/OBITUARY.ASPX?PID=177029848

Dr. Brian Lupton (1952–2015)

Dr. Brian Lupton passed away peacefully in North Vancouver on December 19, 2015 at the age of 63.

Brian will be deeply missed by his fiancée Susan Tolley, his daughters Keeva (Cameron) and Nareela, his sister Marjorie Glavin (Ronnie), friend and mother of their children Bonnie, and extended family and lifelong friends. Brian was born in Northern Ireland and immigrated to Canada in the 1980s.

He dedicated his life to his work as a Neonatologist at BC Children's Hospital in the Newborn Intensive Care Unit. Along with his passion for work, he was an avid runner, lover of music and books, and lifelong traveller. Above all, he was an incredible father and friend.

For more information, please visit: WWW.LEGACY.COM/OBITUARIES/VANCOUVERSUN/OBITUARY.ASPX?PID=177029848
"DR. BRIAN LUPTON DEDICATED HIS LIFE TO HIS WORK AS A NEONATOLOGIST AT BC CHILDREN'S HOSPITAL IN THE NEWBORN INTENSIVE CARE UNIT."

"IN 2010, DR. ROGER TONKIN WAS ACKNOWLEDGED WITH THE ALAN ROSS AWARD FOR LIFETIME ACHIEVEMENT. HE RECEIVED THE ORDER OF BRITISH COLUMBIA IN 1998."
Division of Adolescent Health and Medicine


Chapters


SELECTED PUBLICATIONS

Division of Allergy & Immunology


Grunau, R. E., Cepeda, L. L., Chau, C. M., Brummelte, S., Weinberg, J., Lavoie, P. M., … Turvey, S. E. (2013). Neonatal pain-related stress and NFKBIA genotype are associated with altered cortisol levels in preterm boys at school age. PloS One, 8(9), e73926. doi: 10.1371/journal.pone.0073926


Division of Allergy & Immunology continued


Chapters

Division of Biochemical Diseases


Division of Biochemical Diseases continued


Division of Biochemical Diseases continued

Chapters


Division of Cardiology


Division of Cardiology continued


Chapters


Division of Critical Care


Chapters


Murthy, S., Skippen, P. Healthcare Associated Infections, in Fuhrman, Pediatric Critical Care

Murthy, S., Cox, P. Infectious Syndromes, in Fuhrman, Pediatric Critical Care


Division of Developmental Pediatrics continued

Chapters


In Editing: Aicardi ed. Diseases of the Nervous System in Childhood – Chapter on Vision 2014
Division of Emergency Medicine


Division of Emergency Medicine continued


Chapters


Division of Endocrinology & Diabetes


Division of Endocrinology & Diabetes continued


Division of Endocrinology & Diabetes continued


Chapters


SELECTED PUBLICATIONS

Division of Gastroenterology, Hepatology & Nutrition


Chapters

Division of General Pediatrics


Division of Hematology, Oncology & Bone Marrow Transplant


SELECTED PUBLICATIONS | 223
Division of Hematology, Oncology & Bone Marrow Transplant continued


Division of Hematology, Oncology & Bone Marrow Transplant continued


*Chapters*


Division of Infectious Diseases


Division of Infectious Diseases continued


Division of Infectious Diseases continued


Chapters


SELECTED PUBLICATIONS

Division of Neonatology continued


MacDonald, K. G., Han, J. M., Himmel, M. E., Huang, Q., Kan, B., Campbell, A. I. M., ... Levings, M. K. (2013). Response to Comment on “Helios(+) and Helios(-) Cells Coexist within the Natural FOXP3(+) T Regulatory Cell Subset in Humans”. J Immunol, 190(9), 4440-4441. doi: 10.4049/jimmunol.1390019


Division of Neonatology continued


Division of Neonatology continued


Chapters

Division of Nephrology


Chapters


Division of Neurology continued


Chapters

Division of Neurology continued


Division of Respiratory Medicine


Chapters

Division of Rheumatology


Chapters


Division of Rheumatology continued


SELECTED PUBLICATIONS

Division of Translational Therapeutics


SELECTED PUBLICATIONS

Division of Translational Therapeutics continued


Division of Translational Therapeutics continued


Chapters

“THE NEONATAL AND PEDIATRIC INTENSIVE CARE UNITS AT C&W PROVIDE A FULL RANGE OF TERTIARY AND QUATERNARY SERVICES.”
“THIS IS A TIME TO REFLECT ON THE DEPARTMENT’S INCREDIBLE ACCOMPLISHMENTS AND TO CELEBRATE THE WORK THAT WE DO EVERY DAY TO PROVIDE EXCELLENT CLINICAL CARE, TO TRAIN THE NEXT GENERATION OF PEDIATRICIANS AND TO PURSUE NEW DISCOVERIES THROUGH RESEARCH THAT IMPROVES THE HEALTH AND HEALTHCARE OF CHILDREN IN BRITISH COLUMBIA—WITH AN IMPACT THAT EXTENDS FAR BEYOND OUR PROVINCIAL BORDERS.”

– DR. ALLISON A. EDDY, MD, FRCP(C), HEAD, UBC DEPARTMENT OF PEDIATRICS, BC CHILDREN’S HOSPITAL