ACHRI Research Retreat
BANFF CENTRE FOR ARTS AND CREATIVITY

December 12 and 13, 2019

Keynote Speakers:

Dr. Stephen Gilman,
National Institute of Child Health and Human Development, NIH

Dr. Jeremy Reiter,
Biochemistry and Biophysics, University of California

Dr. Sandra Davidge,
Women and Children’s Health Research Institute,
University of Alberta
Thursday, December 12

9 - 10  Registration  
Max Bell Building

10 - 11  Keynote: Dr. Stephen Gilman, National Institute of Child Health and Human Development, NIH  
*The developmental origins of health inequalities, transgenerational implications, and opportunities for improving health equity*  
Max Bell Performance Hall

11 - 12  ACHRI 2019 and beyond  
Dr. Susa Benseler  
Max Bell Performance Hall

12 - 1:30  Lunch  
Sally Borden Building, Vistas Dining Room

1:30 - 3:30  Breakout group sessions  
Max Bell Building

### HEALTHY CHILDREN, FAMILIES & COMMUNITIES
Max Bell 251

1:30 - 2:00  Dr. Carolyn Emery  
*SHRed injuries: Moving upstream towards injury prevention in youth sport and recreation*

Trainee talks

2:00 - 2:12  • Paul Eliason: *Player rate of injury associated with bodychecking policy in non-elite midget ice hockey players*

2:12 - 2:24  • Dr. Nicole Racine: *Development of trauma symptoms following adversity in childhood: The moderating role of protective factors*

2:24 - 2:36  • Meghan Critchley: *Bone mineral density and associated factors in female pre-professional dancers*
Thursday, December 12

2:36 - 3:01  Drs. Suzanne Tough & Sheila McDonald

All Our Families - What a longitudinal cohort can tell us about child development

3:01 - 3:30  Dr. Jennifer Zwicker

Policy matters: Improving health outcomes across the continuum of care for youth with disabilities and their families

**PRECISION MEDICINE & DISEASE MECHANISMS**
Max Bell Performance Hall

1:30 - 2:10  Dr. Maja Tarailo-Graovac

From bedside to bench ... and back?

Trainee talks

2:10 - 2:23  • Charlene Watterston: *Endothelial expressed Semaphorin 3b* regulates angiogenic sprouting and vascular patterning

2:23 - 2:36  • Dr. Amanda Tyndall: *Rapid access to pediatric diagnoses kidomics: Review of the first 10 cases of rapid whole exome sequencing at ACH*

2:36 - 2:49  • Dr. Jessica Rosin: *Unraveling microglial heterogeneity and stress responses in the embryonic hypothalamus*

2:49 - 3:30  Dr. Guang Yang

*Finding the way home: Protein shuttling and cell fate decision*

**MATERNAL & CHILD HEALTH**
Max Bell 253

1:30 - 2:10  Dr. Lianne Tomfohr-Madsen

Sad and scared: Better understanding of paternal depression and anxiety in the transition to fatherhood

Trainee talks

2:10 - 2:23  • Sarah Lee: *Medication adherence pattern differs by drug class during pregnancy for women with asthma*

2:23 - 2:36  • Amelia Potter: *Associations among infant cortisol, maternal-child relationship quality and infant attachment pattern*
### Thursday, December 12

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>2:36 - 2:49</td>
<td>Natalie Scime: <em>Association of prenatal medical risk with breastfeeding duration in a community-based birth cohort</em></td>
<td>Max Bell 253</td>
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<td>2:49 - 3:30</td>
<td>Dr. Laura Sycuro: <em>Your baby, your body, your bacteria: Emergent understanding of maternal microbes and their potential to influence reproductive outcomes</em></td>
<td>Max Bell 253</td>
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<td>3:30 - 3:45</td>
<td>Break</td>
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<td>3:45 - 4:45</td>
<td>Keynote: Dr. Jeremy Reiter, University of California: <em>How cilia signal and what to do when they don’t</em></td>
<td>Max Bell Performance Hall</td>
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<td>4:45 - 5:45</td>
<td>Annual General Meeting (ACHRI members only)</td>
<td>Max Bell Performance Hall</td>
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<td>Trainees Check in</td>
<td>Professional Development Centre</td>
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<td>5:45 - 6:30</td>
<td>Trainees Set Up Posters</td>
<td>Kinnear Centre, Rooms 101 &amp; 105</td>
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<td>Members Check in</td>
<td>Professional Development Centre</td>
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<td>6:30 - 7:30</td>
<td>Dinner</td>
<td>Sally Borden Building, Vistas Dining Room</td>
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<td>7:30 - 9:00</td>
<td>Trainee Poster Session - Judging Criteria &amp; Poster List</td>
<td>Kinnear Centre, Rooms 101, 103 &amp; 105</td>
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<td>9:00</td>
<td>Social (DJ, Cash bar)</td>
<td>Kinnear Centre, Room 103</td>
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CARE TRANSFORMATION FOR CHILDREN
Max Bell 253

8:30 - 9:10  Dr. Greg Guilcher
A program of research for hematopoietic cell transplantation as a curative therapy for sickle cell disease in Calgary

9:10 - 9:23  • Dr. Jumana Samara: Probiotics modulate the intestinal microbiome in extremely premature infants: a randomized controlled trial

9:23 - 9:36  • Jessica Shillington: Feeding and readiness: The transition from hospital–to-home with a late-preterm infant

9:36 - 9:49  • Krista Wollny: Comorbidities increase the risk of intubation in children with RSV

9:49 - 10:30  Drs. Tanya Beran & Jackie Pearson
So what has the MEDi® robot been doing at ACH and what’s next?

CHILD HEALTH DATA SCIENCE
Max Bell 251

8:30 - 9:10  Dr. Jason de Koning
Limitations of machine learning from finite and imperfect data: Gene discovery as a case study

9:10 - 9:23  • Imam Asad: Single-cell profiling of tumors more accurately classifies glioma molecular subtypes and reveals cancer cell origins
## CHILD BRAIN & MENTAL HEALTH
### Max Bell Performance Hall

### Trainee talks

#### 9:10 - 9:23
- **Anamika Choudhary:** *The ketogenic diet mediates its anti-seizure effects through respiratory-induced intracerebral acidosis in the triple-hit rodent model of infantile spasms*

#### 9:23 - 9:36
- **Elena Ali:** *Maternal prenatal anxiety and children’s externalizing and internalizing behavioural problems at 2 years of age: The moderating roles of maternal-child attachment security and child’s sex*

#### 9:36 - 9:49
- **Preeti Kar:** *Associations between prenatal alcohol exposure and white matter microstructure in young children*

### Dr. Tim Shutt

*Mitochondria: More than just the powerhouse of the cell*

### Dr. Signe Bray

*Early childhood brain development*

### 10:30 - 11
**Break**

### 11 - 12
**Keynote: Dr. Sandra Davidge,** University of Alberta

*Impact of pregnancy complications on later-life cardiovascular health in the offspring: What can we do about it?*

**Max Bell Performance Hall**

### 12 - 12:15
**Closing Remarks: Dr. Susa Benseler**

**Max Bell Performance Hall**
Our program will build and empower multidisciplinary and multi-sectoral collaborations within hospital, clinic and community health program settings to translate evidence into action to improve outcomes for children and families.

Dr. Graham Thompson, MD, program director, is an assistant professor at the University of Calgary in the departments of paediatrics and emergency medicine.

Child Brain & Mental Health

Our program will translate research from bench to backyard, including cutting-edge molecular, genetic, neuroimaging, assessment and intervention techniques, in both model organisms and humans. Our members study brain development, neurodevelopmental and neurological disorders, brain injury, cognition, behaviour, and mental health.

Dr. Catherine Lebel, PhD, program director, is an associate professor in the Department of Radiology and an adjunct associate professor in the Werklund School of Education at the University of Calgary.
Our program will support the development and implementation of cutting-edge data science, including advanced big data machine learning, and foster high-end computational resources to enable precision medicine for children. We will collect, analyze, and integrate data from multiple sources to improve the prevention, diagnosis, and treatment of pediatric diseases in direct collaboration with clinicians.

Dr. Nils Forkert, PhD, program director, is an assistant professor at the University of Calgary in the departments of radiology and clinical neurosciences.

Child Health Data Science

Childhood Cancer and Blood Disorders

A collaborative initiative of ACHRI and the Arnie Charbonneau Cancer Institute, our program will advance understanding of the biology and sequelae of childhood cancers and blood disorders, and use existing and new knowledge to improve diagnosis and treatment.

Dr. Jennifer Chan, MD, program director, is an associate professor at the University of Calgary in the departments of oncology, clinical neurosciences, and pathology & laboratory medicine.
Healthy Children, Families & Communities

Our program will bring together scientists and community partners in research to improve the health and well-being of children, youth and families. Major threats to Canada’s children include: intentional (e.g. child abuse, suicide) and unintentional injuries, mental health, poverty, infant mortality, obesity, inactivity, food insecurity, vaccine preventable illnesses, discrimination and bullying. Policies to address these threats, and prevention strategies focused on the social determinants of health will drive program research activities.

Dr. Brent Hagel, PhD, program director, is a professor at the University of Calgary in the departments of paediatrics and community health sciences and an adjunct professor in kinesiology.

Maternal & Child Health

Our program will conduct interdisciplinary research spanning fundamental research into fetal and placental development; understanding how events during pregnancy impact women and children’s health in the short- and long-term; and how the health care system and communities can be strengthened to improve the health and wellbeing of mothers and children in Canada and abroad.

Dr. Amy Metcalfe, PhD, program director, is an associate professor at the University of Calgary in the departments of obstetrics & gynaecology, community health sciences, and medicine.
Our program will work at the surface of basic and clinical science to better understand mechanisms of normal development and the origins of disease. In an intercalated research pipeline, advanced genetic, epigenetic and genomic technologies are applied to decipher the molecular and cellular basis of development and childhood disorders.

Dr. Myriam Hemberger, PhD, program director, is a professor at the University of Calgary in the departments of biochemistry & molecular biology, and medical genetics.