

# Research Canada **UPDATE**

Summer 2016

NEWS FOR PARLIAMENTARIANS ON CANADIAN HEALTH RESEARCH

## UNIVERSITY OF SASKATCHEWAN RESEARCHERS DEVELOP DIAGNOSTIC TEST FOR ASTHMA IN CHILDREN



*Dr. Darryl Adamko, Associate Professor in the Department of Pediatrics, University of Saskatchewan*

Researchers at the University of Saskatchewan (U of S) are developing a new diagnosis and monitoring test for children with asthma.

Asthma is the most common chronic disease in children. It affects at least 13 percent of our children and is a major cause of hospitalization (Statistics Canada). Treating asthma is a key goal, but differentiating it from other breathing disorders is a challenge because diseases such as viral bronchiolitis and Cystic Fibrosis share similar symptoms. Adding to the challenge - doctors are unable to measure lung function or airway inflammation accurately in clinical settings – making diagnosis and predicting exacerbations very difficult in children.

Dr. Darryl Adamko, a Pediatric Pulmonary Specialist at the U of S and a collaborative team of researchers from across the globe are investigating how urine metabolomics molecules generated from cellular metabolic activity can lead to the detection of asthma in children. “People with asthma have different types of airway cells, and these cells produce different

metabolites. Our general hypothesis is that the presence of disease induces cellular stress and a change in cellular metabolism,” says Adamko.

Urine is excellent for metabolomic studies due to the richness of its chemical composition and ease of collection. “Asthma has negative effects within the body and results in prolonged distress for children and their families. What is needed is a simple, non-invasive test for primary care doctors,” explains Adamko. Progress to date is encouraging: the team has developed methods for analysis of multiple metabolites in urine that have not been previously perfected and the data gleaned from hundreds of urine samples could soon be translated into a commercially viable diagnostic test.



The University of Saskatchewan is a member of the U15, a group of the top research universities in Canada. The U of S hosts two unique national research facilities – the Canadian Light Source which is one of the

**Next  
Caucus Event**  
**October 24, 2016**  
Health Research Caucus  
Frailty Among the Aged in Canada

## Recent Caucus Event



On May 9, Research Canada held a Health Research Caucus, Paediatric Research and Child Health in Canada. For more information please see [rc-rc.ca/pediatric-research-child-health-canada-2/](http://rc-rc.ca/pediatric-research-child-health-canada-2/)

## STAY IN TOUCH

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[www.rc-rc.ca](http://www.rc-rc.ca)

world's leading synchrotron facilities, and VIDO-InterVac, a world leader in developing vaccines and technologies to fight infectious diseases in humans and animals. More than 20,000 students from around the world study at the U of S, and over 145,000 alumni are spread across the globe.

## ALBERTA HEALTH SERVICES IMPROVES PEDIATRIC HEALTH OUTCOMES

To get the most out of the health care system, AHS has developed specialized networks of people who are passionate and knowledgeable about specific areas of health.

Their challenge is to find new and innovative ways of delivering care that will provide better quality, better outcomes and better value for every Albertan.

The Maternal Newborn Child and Youth Strategic Clinical Network aims to catalyze real, sustainable change and improve outcomes for expectant mothers and children of all ages throughout Alberta.

The network is focused on accessing research, creating partnerships, and engaging patients and families to find new solutions that will improve patient care. Strong clinician leadership and a unique collaboration among other health care professionals, patients and families,

researchers, educators, and policy makers will help drive innovation in child and maternal health.



### ABOUT ALBERTA HEALTH SERVICES

Alberta Health Services (AHS) is dedicated to improving quality by integrating research and innovation into patient care, and by making decisions informed by evidence. AHS supports its research partners by facilitating research and innovation that improve clinical and health outcomes and help solve the complex challenges facing the health system.

There are more than 3,000 research studies underway at AHS. Guided by its Strategy for Clinical

Health Research, Innovation and Analytics, 2015-2020, AHS is focused on five strategic priorities to deliver better care to Albertans:

1. Build strong partnerships
2. Incent research and innovation of highest value to Albertans
3. Liberate health system data
4. Apply and spread knowledge
5. Innovate to achieve service excellence

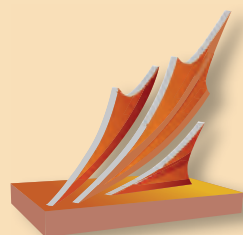
The **Stollery Children's Hospital** in Edmonton and the **Alberta Children's Hospital** in Calgary are home to active research programs in several areas. Thanks to partners at the Women and Children's

- *cardiology*
- *gastroenterology*
- *organ transplant*
- *endocrinology*

Health Research Institute, and the Alberta Children's Hospital Research Institute, Alberta has research strengths in the following areas:

- *neurodevelopment and child disorders*
- *pediatric brain health*
- *rare diseases and genomics*
- *pediatric emergency medicine*

### CALL FOR NOMINATIONS!



## Research Canada Leadership Award

The Research Canada Leadership Award honours champions of health research advocacy. This year's Award will be presented in Toronto on November 22, at the Prix Galien and HRF Medal of Honour Award Ceremony. If you know someone or are familiar with an organization deserving of this recognition, please visit:

[www.rc-rc.ca](http://www.rc-rc.ca)

### EXCERPTS FROM DR. MARTIN OSMOND'S OPENING REMARKS AT THE PARLIAMENTARY HEALTH RESEARCH CAUCUS, MAY 9, 2016

Children are not just small adults. Children have unique medical and surgical conditions and a unique physiology that changes with age and impacts how pharmaceuticals are metabolized in the body. Research findings in adults cannot be assumed to be translatable to children. We require specific discovery research aimed at pediatric diseases and specific clinical trials in children to make sure that drug therapies are safe and effective. Both require strong research networks and well-funded multicenter studies.

**Pediatric research is a team activity.** The conditions we study in pediatrics are often relatively rare. This requires research networks that are national, often international, in scope. Researchers' work cannot be carried out in isolation. Multidisciplinary teams: doctors, nurses, bench scientists, epidemiologists, health economists, chemists, bioinformaticians,

psychologists, engineers, etc., all play a role. Parents and children are a critical part of the study team as encouraged by the CIHR Strategy for Patient Oriented Research. They help prioritize critical research questions, advise on the feasibility of the study, determine which study outcomes are important to them and help in rapidly translating the results.

**The effect of the social determinants of health on children is massive.** The effects of poverty, education, diet, exercise, mental health stress and drugs and alcohol on child health outcomes is enormous. Through research, we are understanding the role these determinants play in the acquisition of certain diseases and how modifying them can lead to improved outcomes.

*Dr. Martin Osmond is the CEO and Scientific Director of the Children's Hospital of Eastern Ontario and a Member of the Board of Research Canada.*