

Ideas on the Edge

In Search of the Switch

ASTHMA AFFLICTS AT LEAST 12 PERCENT OF CANADIAN CHILDREN. BUT FIRESTONE INSTITUTE RESEARCHER PAUL O'BYRNE IS LOOKING FOR A WAY TO "TURN OFF" THE DISEASE IN TOMORROW'S KIDS.



A child gasps for breath. There's a frantic search through pockets and kitchen drawers. And then a puff of medication brings rapid relief.

It's an increasingly common scene. The worldwide prevalence of asthma has been growing steadily at about 50 percent per decade, and much of that growth has been in industrialized and urbanized countries. At least 12 percent of Canadian children, for example, have been diagnosed with the condition.

Dr. Paul O'Byrne is a medical

researcher who knows a lot about asthma, and some of that knowledge comes from personal experience. "I had bad childhood asthma," he

says, "and I don't remember it with great fondness... When I was picking a medical specialty I probably chose respiratory medicine because of my memories of having suffered as a child." Today, as the head of the Firestone

Institute for Respiratory Health in Hamilton, Dr. O'Byrne and his colleagues are pursuing research that may save future generations of children from

RESEARCH THAT MATTERS
REAL-WORLD BENEFITS FOR ONTARIANS:

- new understanding of respiratory illness, leading to new treatments and preventive strategies

those kinds of memories.

Scientists at the Institute are tackling the challenge of asthma—and other respiratory ailments—from a

number of different angles. One recent study used databases from around the world to take a close look at the annual spike in asthma that takes place at the beginning of the school year. The study led to a better understanding of the causes of the phenomenon and to the development of preventative strategies. Other researchers are looking for clues to the cause, treatment and prevention of respiratory illness at the cellular and molecular level. And still others are developing and evaluating new drugs and surgical procedures. A suite of sophisticated lab tools, provided in part by an investment from the Ontario Innovation Trust, helps keep the research on the cutting edge.

“We span the entire spectrum of research,” says Dr. O’Byrne, “right from genetics and molecular biology through to the bedside.”

Perhaps the most ambitious project at the Institute is a recently-launched study that will follow up to 10,000 Canadian children from

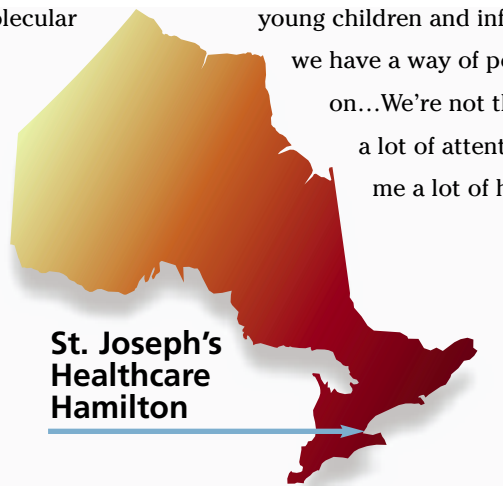
Project: Pathobiology, Clinical Investigation and Health Impact of Airway Inflammation
Institution: St. Joseph’s Healthcare Hamilton
Principal Investigator: Dr. Paul O’Byrne
Trust Investment: \$8,523,200
CFI Investment: \$8,523,200
Total research investment from all sources: \$21,308,000

infancy to their mid-teens, looking at a range of factors related to asthma. It’s not the first study of its type, but it is the first to build on

the explosion of knowledge in genetics and immunology that’s taken place over the last five years.

Dr. O’Byrne will be watching the study with interest; his own research is focused on environmental factors related to asthma, like dust mites, pollens and dander. “We think regular exposure to these kinds of allergens helps initiate the process. We want to know how and why that happens. We’re interested in that initial ‘switch’ that turns on the asthma.”

Does all this effort mean that the scourge of Paul O’Byrne’s childhood may one day be a thing of the past? “I’m much more optimistic about it than I was five or ten years ago,” he replies. “We’re really getting a pretty good understanding of what it is that triggers the process in young children and infants. If we can figure that out, then we have a way of potentially switching it off early on... We’re not there yet by a long way, but there’s a lot of attention focused on it, and that gives me a lot of hope.”



MaRS Centre, Heritage Building
101 College Street, Suite HL20
Toronto, ON M5G 1L7
416-977-9188 Fax: 416-977-9460
innovation@oit.on.ca
www.oit.on.ca

Infrastructure for Innovation About the Ontario Innovation Trust

The Ontario Innovation Trust was created in 1999 by the Government of Ontario to invest in research equipment and facilities at Ontario’s universities, colleges, hospitals and other non-profit research institutions. The Trust is governed by a volunteer Board of Directors, according to the terms of a Trust agreement established by the Ontario government. A small permanent staff looks after day-to-day operations.

Since its inception, the Trust has committed almost \$843 million to strengthen Ontario’s position in the global marketplace of ideas. This represents more than a third of the \$2.44 billion in total funding that has been invested in Trust-supported projects.