As one of the top funders of inflammatory bowel disease (IBD) research in the world, Crohn’s and Colitis Canada is leading the way in finding cures for Crohn’s disease and ulcerative colitis as well as improving quality of life for the 250,000 Canadians living with these chronic diseases.

Our commitment to the promise of finding cures and improving quality of life is demonstrated through investments in research. Over the past year, we invested $6.7 million in research, bringing our total investment to over $115 million since our founding in 1974.

Crohn’s and Colitis Canada supported groundbreaking research efforts by highly-trained scientists such as Dr. Reena Khanna, the recipient of our 2017 Rising Star Award. These world-renowned scientists achieved excellence in IBD research, leading the way in identifying causes and triggers of IBD and in the discovery of novel treatments. To help improve the lives of those affected by Crohn’s or colitis, we supported research focused on improving symptom management, the delivery of health care and ensuring healthcare professionals have access to the most up-to-date research.

Collaboration by scientists, healthcare professionals and patients enabled targeted, patient-focused initiatives such as Promoting Access and Care through Centres of Excellence (PACE), a program focused on improving quality of care. Furthermore, we are pleased to announce the Genetic, Environmental, Microbial (GEM) project reached a critical milestone as for the first time we have aggregated patient history data (pre- and post-diagnosis). Data gathered from this international research study will aid in understanding Crohn’s disease and support the development of new treatments and possibly a cure. In addition to supporting patient-focused programs, we ensured scientists achieved excellence in the field of IBD research as we supported access to training and funded more than 50 scientific projects.

We are proud to share in this report details about the groundbreaking research that took place this year throughout Canada. Crohn’s and Colitis Canada remains a global leader in IBD research due to the dedication of researchers, healthcare professionals, donors, partners, sponsors and volunteers. As always, thank you for your unwavering support as we work towards making our promise of finding cures a reality.

### CROHN’S AND COLITIS CANADA

Harvey Doerr,  
Board Chair

Mina Mawani,  
President and CEO

Marli MacNeil,  
Chair of the Research Committee,  
Board Director

Kate Lee,  
VP Research and Patient Programs

### SCIENTIFIC AND MEDICAL ADVISORY COUNCIL

**CHAIR**

Dr. Mark Silverberg,  
University of Toronto, Mount Sinai Hospital

**MEMBERS**

Dr. Eric Benchimol,  
University of Ottawa, Children’s Hospital of Eastern Ontario

Dr. Brian Bressler,  
University of British Columbia,  
St. Paul’s Hospital

Dr. Nicola Jones,  
University of Toronto, The Hospital for Sick Children

Dr. Gil Kaplan,  
Institute of Public Health, University of Calgary

Dr. John Marshall,  
McMaster University Medical Centre

Dr. Tony Otley,  
Dalhousie University

Dr. John Rioux,  
Université de Montréal & Montreal Heart Institute

Dr. Laura Sly,  
University of British Columbia,  
BC Children’s Hospital

Dr. Stephen Vanner,  
Queen’s University
2020 VISION

Crohn’s and Colitis Canada is a global force advancing transformational research and activating our community to improve the lives of people affected by Crohn’s and colitis in Canada.

ACTIVATE COMMUNITIES

- Support high performance and strategic action
- Create an open conversation about Crohn’s and colitis and grow our profile as leaders
- Diversify and grow our fundraising
- Improve the quality of life and day to day experience of people living with or affected by Crohn’s or colitis
- Generate new science, knowledge and treatments for Crohn’s and colitis through a diverse research portfolio

LEGEND

- Orange: Generate new science, knowledge and treatments for Crohn’s and colitis through a diverse research portfolio
- Pink: Improve the quality of life and day to day experience of people living with or affected by Crohn’s or colitis
- Blue: Create an open conversation about Crohn’s and colitis and grow our profile as leaders
- Green: Diversify and grow our fundraising
- Gray: Support high performance and strategic action across the organization
FUELING RESEARCH BY

ADVANCING DISCOVERY
Powering the research discovery process that is driving new treatments and cures.

- RECRUITING HIGHLY QUALIFIED PERSONNEL
  - Supporting the careers of the best and brightest Crohn’s and colitis researchers across Canada.
  - STUDENTSHIPS
  - FELLOWSHIPS
  - SALARY AWARDS
  - CHAIRSHIPS

- FINDING CAUSES AND TRIGGERS
  - Uncovering the multiple triggers that predict or lead to the onset of the disease.
  - DISCOVERING ENVIRONMENTAL TRIGGERS
  - DISCOVERING GENETIC MARKERS

- DISCOVERING NOVEL TREATMENTS
  - Discovering new ways to block inflammation, treat complications, improve therapy, and create a healthy gut.
  - BLOCKING INFLAMMATION
  - CREATING HEALTHY GUT ECOSYSTEMS

IMPROVING LIVES
Getting the best care and symptom management in the hands of Crohn’s and colitis patients.

- HELPING MANAGE SYMPTOMS
  - Finding the best ways to get novel treatments in the hands of patients.
  - TREATING COMPLICATIONS
  - PREDICTING DISEASE COURSE

- GETTING THE BEST CARE
  - Exploring new ways to provide the best treatments and multidisciplinary care model to patients.
  - CREATING HEALTH SERVICE MODELS
  - PROMOTING EVIDENCE-BASED PRACTICE

- EDUCATING PROFESSIONALS
  - Ensuring that healthcare professionals have access to the very latest and best information
  - HOSTING MEDICAL CONFERENCES
  - SUPPORTING IBD NURSES
FUNDING RESEARCH

FINDING CAUSES AND TRIGGERS

What causes Crohn’s and colitis? What are the triggers that worsen their symptoms? These questions drive our researchers, as they examine environmental triggers and genetic markers responsible for IBD.

ENVIRONMENTAL EFFECTS  
Dr. Claude Asselin | University of Sherbrooke  
$125,000  
Dr. Asselin is examining the effect of the environment on genes by altering proteins: two of which are HDAC

MICROBE EFFECTS  
Dr. Elena Verdu | McMaster University  
$125,000  
Dr. Verdu is studying the microbes in the gut (microbiota) to see how alterations in the microbiota affect inflammation specifically in UC

REGULATING INFLAMMATION  
Dr. Mark Silverberg | Mount Sinai Hospital  
$124,000  
Dr. Silverberg is studying patients who have undergone pouch surgery to look at changes in intestinal microbiome to determine the role they play in inflammation

METABOLISM CHANGES  
Dr. Martin Pelletier  
Centre de recherche du CHU de Québec - Université Laval  
$50,000  
Dr. Pelletier is characterizing how changes in energy metabolism in immune cells affect disease progression in colitis

GENETIC MUTATIONS  
Dr. Stephen Girardin | University of Toronto  
$124,000  
Dr. Girardin is studying the impact of the most common genetic mutation in IBD, NOD2, on the function of the small intestine

CELL DEATH  
Dr. Wallace MacNaughton | University of Calgary  
$124,000  
Dr. MacNaughton is studying how the protein PAR2 regulates the death of the cells which turn off inflammation

TRANSPLANTATION  
Dr. Derek McKay | University of Calgary  
$125,000  
Dr. McKay is using cells with anti-inflammatory qualities as a personalized approach to treating IBD

VITAMIN D  
Dr. Nicola Jones | Hospital for Sick Children  
$125,000  
Dr. Jones is studying how vitamin D may influence IBD

INFECTIOUS E. COLI  
Dr. Brian Coombes | McMaster University  
$73,000  
Dr. Coombes is investigating how infection caused by E. coli is linked to IBD

LEAKY GUT  
Dr. Aleixo Muise | Hospital for Sick Children  
$124,000  
Dr. Muise is investigating how certain genes help control the leakiness of the gut found in IBD

GEM PROJECT

Genetic, Environmental, Microbial project reached a critical milestone – for the first time, we have aggregated patient history before and after diagnosis providing a repository of keys to better understand the triggers and causes of Crohn’s disease.
FUNDDED RESEARCH

GETTING THE BEST CARE
It's so important to ensure that people living with Crohn's or colitis get the best treatments. These grants are looking to create evidence-based health service models to ensure the best patient care.

SAFER PREGNANCIES Dr. Geoffrey Nguyen | University of Toronto $125,000
Dr. Nguyen will study interventions that affect compliance with medication during pregnancy to improve overall outcomes

DRUG EFFECTIVENESS Dr. Laura Targownik | University of Manitoba $125,000
Dr. Targownik will study the effectiveness of the drugs currently prescribed to patients to look for connections between the use of specific drugs and whether their use is linked to reduced IBD-related hospitalizations, operations, and corticosteroid use

SYSTEMATIC REVIEWS Dr. Brian Feagan | Cochrane IBD Group $175,000
The Cochrane IBD Group is part of the prestigious Cochrane Group, the world leader in producing systematic reviews of scientific literature. Crohn's and Colitis Canada has partnered with the Cochrane IBD Group to support our mutual interest in providing high-quality information to help healthcare professionals, policymakers, and researchers make well-informed decisions for IBD patients

KID CARE Dr. Eric Benchimol | Children's Hospital of Eastern Ontario $123,000
Dr. Benchimol and his colleagues are looking into how clinical care is being provided to children with IBD across the country

PACE
The Promoting Access and Care through Centres of Excellence (PACE) network represents the largest Canadian collaboration for adults living with Crohn's disease or ulcerative colitis. PACE unites leading Canadian researchers in order to combine areas of expertise. Together, the centres of excellence can improve patient outcomes and standardize delivery of care for Canadians living with IBD.
FUNDDED RESEARCH

DISCOVERING NOVEL TREATMENTS
Figuring out how to block inflammation and create healthy gut ecosystems is at the forefront of this research.

PREVENTING SYMPTOMS  Drs. Jane Shearer & Derek McKay | University of Calgary  $50,000  (Year 1 of 1)
Drs. Shearer and McKay are studying a new drug that prevents mitochondria – the powerhouse of a living cell – from splitting into smaller, less functional units that could improve IBD symptoms

LEAKY GUT  Dr. Bruce Vallance | University of British Columbia  $125,000  (Year 1 of 3)
Dr. Vallance is studying inflammasomes, which are proteins that are important in preventing leaky gut and defending against invading bacteria

NANOPARTICLES  Dr. Stuart Turvey | British Columbia Children’s Hospital  $125,000  (Year 1 of 3)
Dr. Turvey is studying a new treatment by developing a nanoparticle that will reduce gut inflammation

CONTROLLING INFLAMMATION  Dr. Theodore Steiner | University of British Columbia  $125,000  (Year 1 of 3)
Dr. Steiner will study the difference between types of inflammatory responses to bacteria in the gut. The goal is to harness the power of certain regulatory white blood cells (Tregs) to control inflammation

REGULATING INFLAMMATION  Dr. Jean-Eric Ghia | University of Manitoba  $125,000  (Year 2 of 3)
Dr. Ghia is studying the role of semaphorin (proteins involved in communications between cells in the nervous system) in regulating intestinal inflammation

BACTERIA TRAP  Dr. Eytan Wine | University of Alberta  $15,000  (Year 2 of 3)
Dr. Wine is using new technologies to locate and ‘trap’ bacteria that are recognized by the patient’s own immune system

FECAL TRANSPLANT  Dr. Michael Surette | McMaster University  $108,000  (Year 3 of 3)
Dr. Surette is trying to determine the mechanisms by which fecal transplantation works
These grants focus on treating complications and predicting the disease course of IBD.

**STRESS+OPIOIDS = PAIN?** Dr. Stephen Vanner | Queen's University  
Dr. Vanner is investigating how stress and prescribed opioids can increase pain in the IBD patient  

**BIOFILM FLARES** Dr. Andre Buret | University of Calgary  
Dr. Buret is studying how a group of microorganisms called biofilms can cause flares in IBD  

**PAIN** Dr. Dean Tripp | Queen's University  
Dr. Tripp is looking into the psychosocial risk factors of pain and poor quality of life in IBD  

**MUCUS** Dr. Kris Chadee | University of Calgary  
Dr. Chadee is studying the role of MUC2 mucin in maintaining a healthy microbiome  

**TIGHT GUT** Dr. Simon Hirota | University of Calgary  
Dr. Hirota is looking at how the protein PXR keeps the lining of the gut tight and protects against inflammation  

**SEQUENCING THE FUTURE** Dr. Mark Lathrop | McGill University  
Dr. Lathrop is using high-tech sequencing to uncover new genetic factors that put people at risk of developing IBD

We host medical conferences and support IBD nurses because we believe that true expertise requires an understanding of how knowledge is evolving.

**MEETING OF THE MINDS**  
In November 2016 Crohn's and Colitis Canada hosted its 6th annual Canadian Future Directions in IBD Conference.

**CANIBD MEETING**  
Held jointly with the Meeting of the Minds conference, this meeting brought together IBD nurses from around the country for education and networking.

**RESEARCH TOPICS IN GASTROINTESTINAL DISEASE MEETING**  
During Canadian Digestive Diseases Week, we supported the next generation of highly qualified IBD scientists by giving them an opportunity to present their research findings and engage in career development.
FUNDED RESEARCH

RECRUITING HIGHLY TRAINED PROFESSIONALS
Crohn’s and Colitis Canada finances researchers through all stages of their careers. We support the entire spectrum of IBD scholarship from undergraduate students all the way through to seasoned investigators.

CROHN’S AND COLITIS CANADA/ UNIVERSITY OF OTTAWA POST-DOCTORAL TRAINEE

AMANDA STARR
University of Ottawa

CROHN’S AND COLITIS CANADA/ SASKATCHEWAN HEALTH RESEARCH FELLOWSHIPS

JUAN-NICOLAS PENA-SANCHEZ
University of Saskatchewan

WHITNEY DUFF
University of Saskatchewan

CROHN’S AND COLITIS CANADA/ (Undergraduate summer studentships) CANADIAN ASSOCIATION OF GASTROENTEROLOGY

SABRINA SECORD
Dalhousie University

EMMA ZWAIGENBAUM
University of Alberta

SONIA MARTINS
University of Calgary

AMBika AGRAWAL
University of Alberta

KWEStan SAFAri
Simon Fraser University

MEGAN MAITLAND
Queen’s University

CROHN’S AND COLITIS CANADA/ CANADIAN INSTITUTES OF HEALTH RESEARCH/ CANADIAN ASSOCIATION OF GASTROENTEROLOGY SALARY AWARDS

DR. GEORGIA PERONA-WRIGHT
University of British Columbia

DR. ERIC BENCHIMOL
Children’s Hospital of Eastern Ontario

DR. GEOFFREY NGUYEN
University of Toronto

DR. JOHAN VAN LIMBERGEN
Dalhousie University

CROHN’S AND COLITIS CANADA/ CANADIAN INSTITUTES OF HEALTH RESEARCH/ CANADIAN ASSOCIATION OF GASTROENTEROLOGY FELLOWSHIPS

DR. JOANIE ALLAIRE
University of British Columbia

DR. GABRIELLA LEUNG
The Hospital for Sick Children

DR. CHRISTOPHER MA
Western University & University of Calgary
In collaboration with the Canadian Institutes of Health Research (CIHR) and Genome Canada, Crohn’s and Colitis Canada has leveraged its funds to support cutting-edge team grants related to critical IBD issues.

### GOVERNMENT PARTNERSHIPS

<table>
<thead>
<tr>
<th>Research Topic</th>
<th>University</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>The diet-microbiome-gut axis in pediatric IBD</td>
<td>University of Ottawa</td>
<td>$10,000</td>
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<tr>
<td>Elucidating the gene-environment interactions that drive autoimmune disease among South Asian Canadians</td>
<td>University of Toronto</td>
<td>$10,000</td>
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<tr>
<td>Targeting chronic inflammation of the gut, liver and joints</td>
<td>University of Calgary</td>
<td>$2,800</td>
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<tr>
<td>Critical illness in IBD, multiple sclerosis and rheumatoid arthritis</td>
<td>University of Manitoba</td>
<td>$2,800</td>
</tr>
<tr>
<td>Preventing complications from inflammatory skin, joint and bowel conditions</td>
<td>University of British Columbia</td>
<td>$2,800</td>
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<tr>
<td>Insights into Parkinson's disease, Crohn's disease, and leprosy</td>
<td>University of Ottawa</td>
<td>$2,800</td>
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<tr>
<td>Brain dysfunction in chronic inflammatory disease</td>
<td>University of Calgary</td>
<td>$2,900</td>
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<tr>
<td>NADPH oxidase function in the pathogenesis of pediatric IBD and Juvenile Idiopathic Arthritis</td>
<td>Hospital for Sick Children</td>
<td>$2,900</td>
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<tr>
<td>Linking innate immunity and inflammation to chronic disease</td>
<td>University of Toronto</td>
<td>$2,900</td>
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<tr>
<td>The microbiota at the intestinal mucosa-immune interface: a gateway for personalized health</td>
<td>University of Ottawa</td>
<td>$7,500</td>
</tr>
<tr>
<td>IBD Genomic Medicine Consortium (iGenoMed): translating genetic discoveries into a personalized approach to treating IBD</td>
<td>Université de Montréal</td>
<td>$25,000</td>
</tr>
</tbody>
</table>
IN 2016/17:

16
Hospitals and Universities Supported

For every $1 we invested, $8 were leveraged from government and industry

2139
Articles and book chapters published by our researchers

50+
Research Projects and Initiatives Funded

Over 92%
of grants featured collaborations among leading scientists and partners across Canada

$6.7M
Dollars spent on research
CROHN’S AND COLITIS CANADA

The only national, volunteer-based charity focused on finding the cures for Crohn’s disease and ulcerative colitis and improving the lives of children and adults affected by these diseases. We are one of the top two health charity funders of Crohn’s and colitis research in the world, investing over $115 million in research since 1974, leading to important breakthroughs in genetics, gut microbes, inflammation and cell repair research as well as laying the groundwork for new and better treatments. We are transforming the lives of people affected by Crohn’s and colitis (the two main forms of inflammatory bowel disease) through research, patient programs, advocacy, and awareness. Our Crohn’s & Colitis – Make it stop. For life. campaign has achieved $57 million (or 57%) at year 4 of the seven year campaign and funds raised are already advancing our mission. Visit crohnsandcolitis.ca for more information.