

we spark HEALTH INSTITUTE

IMPACT REPORT

2020-21

TABLE OF CONTENTS

Achieving More, Together....3

Year in Review....4

Message from the Board of Trustees....6

About the Institute....7

Our Team....8

Our Research Community....10

Research Activity of Core Principal Members....11

WE-SPARK Grants program....12

Community Support for Research....13

2020 Grant Competition Results....14

Research Drives Discoveries & Provides Solutions....16

Research Supports Health & Wellness....20

Research Trains the Next Generation....22

Research Improves Health Outcomes & Saves Lives....24

Looking forward....26

Priorities for 2021 - 2022....27



WINDSOR REGIONAL HOSPITAL
OUTSTANDING CARE – NO EXCEPTIONS!

University of Windsor

HDGH
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ST. CLAIR COLLEGE

Achieving More, Together

WE-SPARK Health Institute is supported by an innovative research partnership between Hôtel-Dieu Grace Healthcare, St. Clair College, Windsor Regional Hospital, and the University of Windsor. WE-SPARK brings together health research strengths, expertise, and infrastructure from across the Windsor Essex region. Since our formal launch in March 2020, we have grown to over 650 members. We accelerate and strengthen collaborations and provide tools and resources needed for local health research and training to excel.

WE-SPARK Health Institute is physically located on land and surrounded by water honoured by the Wampum Treaty; agreements between the Anishinaabe, Haudenosaunee, Lenni, Lenape and allied Nations to peacefully share and care for the resources around the Great Lakes.
We acknowledge the presence of the People of the Three Fires Confederacy (Ojibwe, Odawa, Potawatomi and Huron/Wendat) and the importance of reconciliation. Health research and care can benefit from a deep appreciation of the past and present healing practises of Indigenous people. There is urgency for health research, care, and training to meet the needs of Indigenous communities in Canada; WE-SPARK is dedicated to such positive action.

We are committed to providing equity, diversity, inclusivity, and support – all components of an environment that enhances excellence, innovation and creativity. We aim to develop and support policies and practices that strengthen the research community, as well as the quality, social relevance, and impacts of our research.

Igniting discovery, living better, achieving more - together.

Year in Review

WE-SPARK began our 2nd year on May 1, 2020 with 146 members. Since then, we have grown our membership by 363%. In the face of the COVID-19 pandemic, we quickly pivoted to hosting virtual events that engaged over 1500 participants. We have found new ways to connect with our community and created and implemented a social media plan to share our members' success through mainstream media engagement and newsletters. Our WE-SPARK office has added 3 new



$8,881,856.47
Total External Funding *

63
Times in Mainstream News

8,045
Newsletter Engagements

14,595
Unique Website Visits

1550
Participants

28
Events Hosted

13
Clinical Professorships Facilitated

46
Research Tools/ Resources Created

staff members, took on 4 interns, and initiated a formal volunteer program. We streamlined the WE-SPARK grants program, hosted 2 competitions and awarded over $340,000 to local research projects. Our Core Principal membership grew to 21 researchers and we increased total external research funding by 44%. Despite the challenges that the global pandemic placed on all of our members, with a particular strain on our hospital partners caring for those who fell ill during this difficult time, we are proud of how our region came together to move health research forward in Windsor-Essex.



677
Members

5 Staff
15 Volunteers
4 Interns

1100
Followers

8,970
Engagements

766,500
Reach

18
WE-SPARK Grants Awarded ($346,725)

13
Projects Added to the Research Registry

1335
Patients/Participants Involved in Research**

*Funding reflects the grant activity of the 21 Core Principal Members
**Only includes fresh tissue & REDCap participants

Message from the Board of Trustees

Over the past year, the healthcare needs for Windsor-Essex have been in the spotlight. With both a cross-border community and large migrant worker population, our region faced unique challenges with the COVID-19 pandemic that emphasized the need for health research. The global response to the pandemic showed us, in real-time, how innovative solutions to health crises are driven—first and foremost—by research. We rely on best practices during uncertain times, and the backbone of scientific knowledge provides that mechanism to be a part of the solution.

In pure Windsor-Essex fashion, during the toughest of times, our partnership with each other and our region has become stronger than ever.

Looking forward, we will build on the recognition that research and education are a driving force behind the health of our region. We will focus on our strong foundation of individual organizational strengths, and continue to work together to find efficiencies and advance discoveries that will have real and lasting impacts on the health of our community.



About the Institute

Since inception in 2019 and formal launch on March 7, 2020, WE-SPARK Health Institute has worked to bring together health research strengths across our region. Together we are pursuing a vision of a thriving and engaged community driving advancements in health.

What We Do

Enhance the health, well-being, and care of people through transformative research and knowledge translation. We accomplish this by:

- **Accelerating research activities and facilitating connections.**
- **Building critical mass of health researchers.**
- **Providing local research funding opportunities.**
- **Offering research workshops, services, and consultations.**
- **Engaging student volunteers.**
- **Hosting events to engage community members in research.**
- **Establishing infrastructure capacity.**

Quarterly reports highlighting our metrics can be found at: **www.wesparkhealth.com/our-impact**

Why Local Research Matters

Research outcomes have a global benefit, but there are additional impacts felt when research is funded locally. Local research:

- **Keeps our health professionals & educators current.**
- **Attracts and retains the brightest students & professionals.**
- **Brings cutting-edge infrastructure, diagnostics, and treatments to our region.**
- **Increases access to clinical trials in Windsor-Essex.**
- **Reduces the number of patients that must travel out-of-town for care.**
- **Improves health outcomes for our community. Research saves lives.**

Budget and Funding

WE-SPARK is funded by contributions from four Institutions totaling $500,000 (Expenses: salaries, internships, operating costs, and grants program). The WE-SPARK grants program is also supported by donations from organizations and individual community members.

Patti France
St. Clair College
President



Robert Gordon
University of Windsor
President & Vice-Chancellor



Janice Kaffer
Hôtel Dieu Grace Healthcare
President & CEO



David Musyj
Windsor Regional Hospital
President & CEO



Our Team

Our team is comprised of dedicated and passionate people who are committed to working together to enhance the health, well-being, and care of people in our community.

Leadership

Executive Committee

Lisa Porter
WE-SPARK – Executive Director

Nicole Sbrocca (Chair)
Windsor Regional Hospital

Terra Cadeau
Hôtel Dieu Grace Healthcare

Marla Jackson
Hôtel Dieu Grace Healthcare

Caroline Hamm
Windsor Regional Hospital

Heather Pratt
University of Windsor

Chad Sutherland
University of Windsor

Pete Wawrow
St. Clair College

Karen Metcalfe
WE-SPARK

Staff

Karen Metcalfe
Assistant Director

Kyle Lago
Translational Research Associate

Adriana Grande
Knowledge Translation and NUCLEUS Coordinator

Cathy Mombourquette
Special Projects – Media Relations

Linda Hudson-Chapman
Administrative Assistant

Interns/ Studentships

Ryan Palazzolo
Volunteer Network

Megan Pidgeon
Marketing and Media

Aleksandra Redko
Equity, Diversity and Inclusion (EDI)

Natalie Hazineh
EDI - Special Project

Committees

Knowledge Translation

Pete Wawrow (Co-Chair)
St. Clair College

Dora Cavallo-Medved (Co-Chair)
University of Windsor

Dave Andrews
University of Windsor

Linda DiRosa
Hôtel Dieu Grace Healthcare

Jody Ralph
University of Windsor

Indryas Woldie
Windsor Regional Hospital

Lisa Porter
WE-SPARK

Karen Metcalfe
WE-SPARK

> ***WE-SPARK allows us to bring our unique strengths and perspective to one table. We work together to elevate interdisciplinary, cross-institutional research that leads to new training opportunities for our students and better health outcomes for our community."***
>
> **Pete Wawrow,**
> Director of Applied Research and Development,
> St. Clair College

Research Development

Caroline Hamm (Co-Chair)
Windsor Regional Hospital

Ingrid Qemo (Co-Chair)
University of Windsor

Chris Abeare
University of Windsor

Balraj Jhawar
Windsor Regional Hospital

Jody Ralph
University of Windsor

Simon Rondeau-Gagne
University of Windsor

Jennifer Voth
Hôtel Dieu Grace Healthcare

Pete Wawrow
St. Clair College

Lisa Porter
WE-SPARK

Karen Metcalfe
WE-SPARK

Nucleus

Adriana Grande (Chair)
WE-SPARK

Renee Biss
University of Windsor

Arezoo Emadi
University of Windsor

Jackie Fong
University of Windsor

Wendy Foote
St. Clair College

Phil Karpowicz
University of Windsor

Kyle Lago
WE-SPARK

Michelle Nevett
University of Windsor

Ken Ng
University of Windsor

Ming Pan
Windsor Regional Hospital

Lisa Porter
WE-SPARK

Jody Ralph
University of Windsor

Chad Sutherland
University of Windsor

Pete Wawrow
St. Clair College

Governance

Lisa Porter (Chair)
WE-SPARK

Terra Cadeau
Hôtel Dieu Grace Healthcare

Heather Pratt
University of Windsor

Nicole Sbrocca
Windsor Regional Hospital

Monica Tighe
St. Clair College

Karen Metcalfe
WE-SPARK

Community Engagement

Marla Jackson (Co-Chair)
Hôtel Dieu Grace Healthcare

Chad Sutherland (Co-Chair)
University of Windsor

Dora Cavallo-Medved
University of Windsor

Roseann Danese
St. Clair College

Allison Johnson
Windsor Regional Hospital

Karen Metcalfe
WE-SPARK

Our Research Community

Everyone in our community has a role to play in health research. WE-SPARK members are a network of people dedicated to improving the health and wellness of our region. Our research activities are driven by our Core Members, people who work in the research field and are actively engaged on a daily basis. However, essential to our progress are those working behind the scenes to elevate research activities including healthcare providers, educators, students, volunteers and supporters.

677 Members:

Researchers who have a formal affiliation with one of our four partner institutions

21	**Core Principal** are funded by provincial or national health projects, or lead a clinical trial
162	**Core Associate** are actively engaged in research but do not yet hold provincially or nationally funded projects or are leading clinical trials.
217	**Affiliate Researcher** are associated with health research or healthcare locally or beyond; including administrative support
183	**Affiliate Students** post-secondary students in any discipline with an interest in health research
86	**Community Members** individuals or organizations interested in the health landscape in Windsor-Essex
8	**Ambassadors** organizations or individuals that provide a donation/support

> ***"Working with WE-SPARK gave me a unique opportunity to make connections that have inspired me to continue advocating for advancements in research and education of transgender and gender-diverse specific health needs."***
>
> **Natalie Hazineh,**
> WE-SPARK Intern, Biomedical Science, University of Windsor

Research Activity of Core Principal Members

Marcus Drover
Chemistry & Biochemistry

Arezoo Emadi
Electrical & Computer Engineering

Adrian Guta
Social Work

Caroline Hamm
Cancer Program

Phillip Karpowicz
Biomedical Sciences

Matthew Krause
Kinesiology

Mitra Mirhassani
Electrical & Computer Engineering

Jayashree Mohanty
Social Work

Kenneth Ng
Chemistry & Biochemistry

Ming Pan
Cancer Program

Lisa Porter
Biomedical Sciences

Munir Rahim
Biomedical Sciences

Lance Rappaport
Psychology

Simon Rondeau-Gagné
Chemistry & Biochemistry

Sara Scharoun Benson
Kinesiology

Charlene Senn
Psychology

Yufeng Tong
Chemistry & Biochemistry

John Trant
Chemistry & Biochemistry

Jill Urbanic
Mechanical, Automotive & Materials Engineering

Otis Vacratsis
Chemistry & Biochemistry

Paula van Wyk
Kinesiology

21
Core Principal Members

> *"As a local radiation oncologist, I get to see first-hand the positive impact local research can have on our patients. It's so important that experts in our community work together to address the problems we see impacting the health of people in our region and WE-SPARK makes this possible."*
>
> **Dr. Ming Pan,**
> Radiation Oncology, Windsor Regional Hospital

$8,881,856.47
External Grant Funding

16
Awards/Recognitions

5
Clinical Trials

136
Active Collaborations

1335
Patients/Participants Involved*

28
28 Grants Awarded

47
Peer Reviewed Publications, Books and Chapters

65+
Talks/Presentations Given

238
Students Trained

The successes here reflect those of our 21 Core Principal members who hold national/provincial funding or lead an investigator-initiated clinical trial

*Only includes fresh tissue & REDCap participants

WE-SPARK Grants Program

The WE-SPARK grants program is designed to support local health researchers at all stages of their career.

Igniting Discovery GRANT

up to $20,000

Funds early-stage, novel & innovative health research projects throughout Windsor-Essex.

Incentive GRANT

up to $40,000

Funds projects that are close to being successfully funded in large, national funding competitions.

Infrastructure GRANT

$ varies

Funds equipment and infrastructure needs identified and prioritized by the NUCLEUS committee or identified by a donor.

> ***"It says a lot about our community, the fact that we have a local company, NYN, who felt that it is important to support their own community and to look at how COVID-19 has affected us."***

Dr. Andrea Steen,
Vice President Medical Affairs, Quality & Chief of Staff, HDGH

> ***"WE-SPARK was created for this purpose and makes it very easy for people who are interested in research to be able to go to one central location and get their idea off the ground."***

Dr. Wassim Saad,
Vice President Medical Affairs, Chief of Staff, Windsor Regional Hospital

Grant Program Timeline

February
Launch grant competition

March
Letters of Intent due

May
Full application due

June
External reviews complete



Community Support for Research

Research takes time and investment. We continue to be inspired by our community of supporters who understand the value of research in our everyday lives. WE-SPARK donors provide the funding that fuels critical local research projects.

> ***"Without research, hope is just a word."***
>
> **Dr. Michael Dufresne,**
> Ambassador of Hope

VISIONARY

$20,000+

University of Windsor · Windsor Cancer Centres Foundation · NYN · Windsor Cancer Research Group

CHAMPION

$10,000
Gang Lu

FRIEND

$1,000
Lawrence Delmore
Peter Dunn
Heather Metcalfe

BELIEVER

< $1,000
Marcella Beneteau
Michael J. Dufresne
Jo Anne Lambing
Wonder Broads of Windsor-Essex County

Mid-June
Internal review panel adjudicates grants

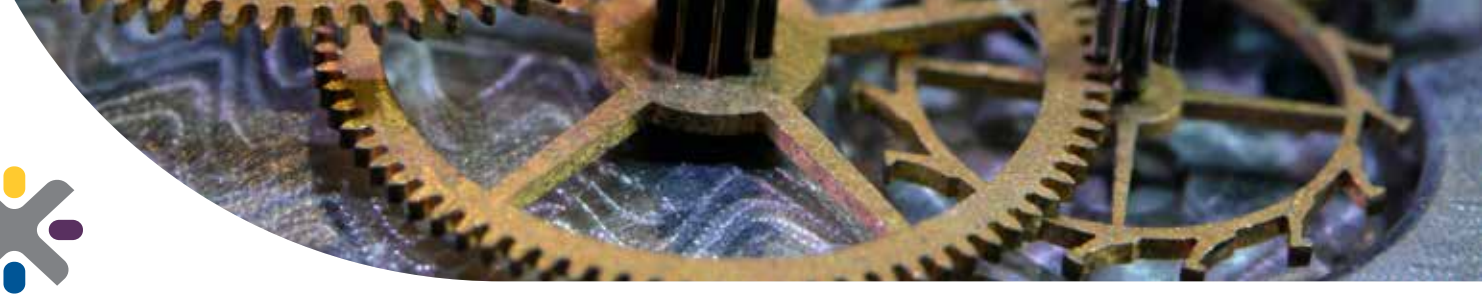
July
Grants are announced

September
Recipients begin projects

2020 Grant Competition Results

FUNDING DISPURSED	$346,725
GRANTS AWARDED	18
COLLABORATING INSTITUTIONS (ACADEMIC, HEALTHCARE, COMMUNITY & INDUSTRY)	18
COLLABORATORS INVOLVED	100+

Behind each Project Lead is a team of people from diverse backgrounds and experiences. WE-SPARK focuses on funding projects that bring together experts from the four supporting institutions and collaborators across the region, province, nation and world!



Incentive Grant Recipients

Sponsored by WE SPARK Health Institute and Office of the Vice-President, Research and Innovation, University of Windsor

Christopher Abeare - Improving Diagnosis and Assessment of Concussion

Jeffery Dason - Roles of Frequenin1 and Frequenin2 in nociception

Onawa Labelle - Exploring the Impact of Online Meetings on Recovery Outcomes

Igniting Discovery Grant Recipients

Sponsored by we spark HEALTH INSTITUTE

Sara Scharoun Benson - Advancing inclusive Physical Education in schools

Renee Biss - Evaluating an Online Memory Intervention for Older Adults

Edward Cruz - Creating programs to provide essential support to caregivers

Marcus Drover - Developing novel imaging agents for local PET scanning

Wendy Foote - Designing a ventilation device for use in pandemics

John Freer - Making classrooms more inclusive for students with disabilities

Kristofer Romero - Improving online tests to assess cognitive functioning

Caroline Hamm - Improving the quality of life for Leukemia patients

Ryan Punambolam - Creating an on-line stroke education program for youth

Sponsored by Windsor Cancer Centre Foundation

Laura D'Alimonte - Improving Rehabilitation Services for Radiation Oncology Patients

Andrew Swan - Finding new ways to protect against cancer

Yufeng Tong - Developing better drugs for cancer treatment

John Trant - Designing probes for early identification of prostate cancer

Sponsored by Windsor Cancer Research Group

Kenneth Ng - Advancing new therapies for cancer patients

Sponsored by NYN

Wassim Saad & Andrea Steen

Understanding the Long-Term Impacts of COVID-19 on patients in Windsor-Essex

Research Drives Discoveries & Provides Solutions

Spotlight on Cancer

Research is an ongoing process that builds on the discoveries of the past. Several decades of research have led to the understanding that cancer is not one disease and requires different approaches to diagnose and treat.

As a result of research investment, 63% of individuals diagnosed with cancer today will survive beyond 5 years, compared to 30% in the 1960s.

Over the past year, WE-SPARK has supported members of the Windsor Cancer Research Group to develop 27 new projects and evolve existing work to obtain national funding.

Our researchers have brought in $1.8 million in new cancer research funding this year, adding to the $6.8 million in current cancer funding held locally.

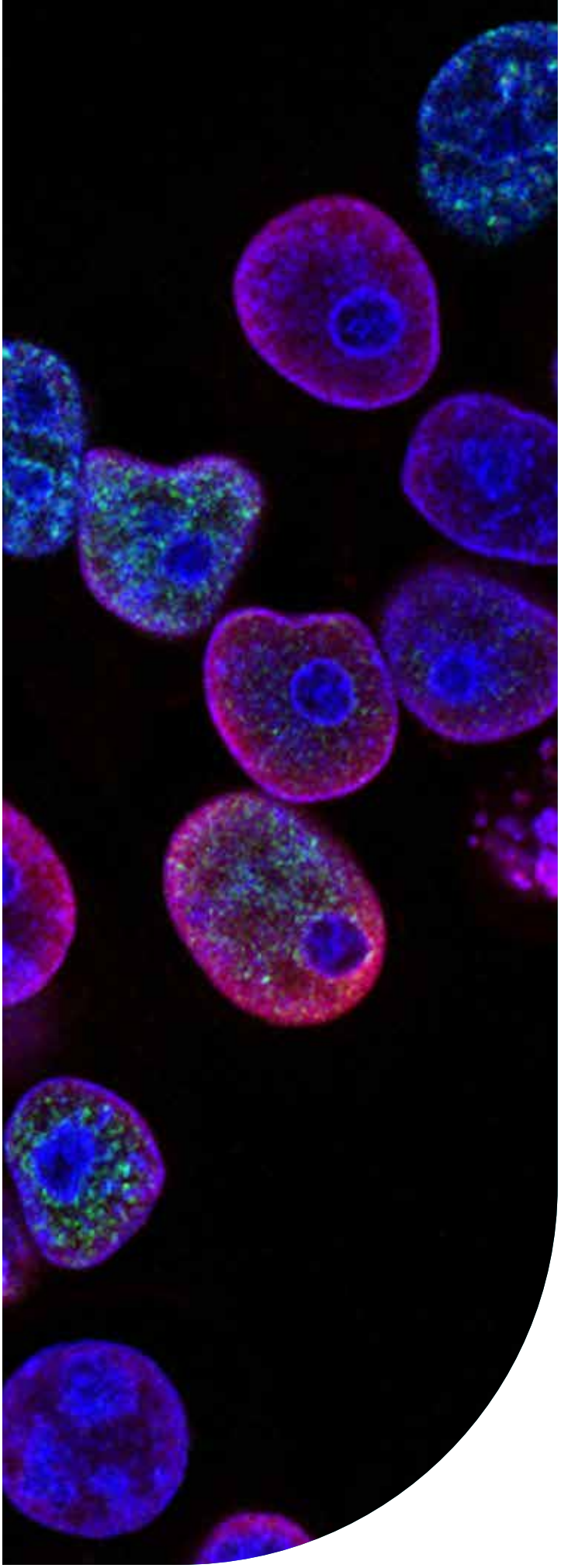
Project: A Universal Drug Delivery Vehicle to Transport Drugs Across the Blood-Brain Barrier to Target Glioblastoma

Funder: Brain Tumour Foundation of Canada

Team Leads: Dr. John Trant, Chemistry & Biochemistry University of Windsor

Glioblastoma is one of the most devastating cancers with five-year survival under 7 per cent. Surgery and radiation remain the standard of care for patients with these cancers, with chemotherapies playing primarily a supporting role, despite so many drugs showing remarkable benefits in cell models.





One big reason for this are the physiochemical limitations that prevent anti-cancer drugs from both crossing the blood-brain barrier (BBB) and then remaining in the brain. Imagine what would be possible for these patients if we could courier these drugs right to the cancer cells through the BBB. This project is aiming to do just that!

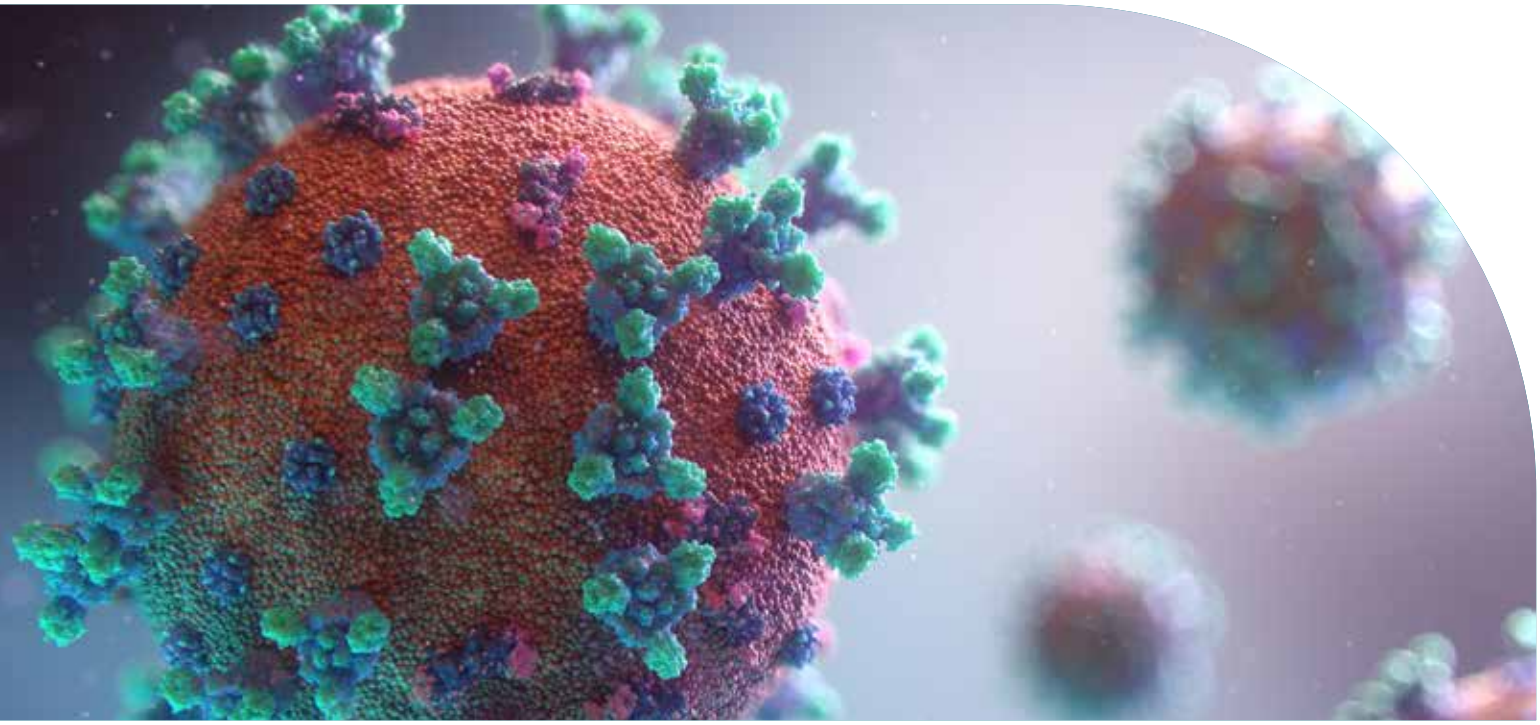
Local brain tumour research has grown steadily over the past several years, with teams of researchers from neurosurgery, neuro-oncology, biomedical sciences, and chemistry & biochemistry working together to find new hopeful treatments for patients.

Project: Discovering Better Ways to Treat Triple Negative Breast Cancer
Funder: Canadian Institute for Health Research (CIHR)
Team Leads: Dr. Lisa Porter, Biomedical Science and Dr. Caroline Hamm, Oncology

Unlike many breast cancer diagnoses, patients with triple negative breast cancer have fewer treatment options available. Bringing the scientific laboratory and clinical practice together, Drs. Porter and Hamm team up to improve treatment options available to patients now but also to test why some patients may not respond to find new potential targets for therapy. Having this research occurring here in Windsor-Essex means our local patients will have access to new cutting-edge discoveries first!

Our cancer researchers are supported by:

Research Drives Discoveries & Provides Solutions



Spotlight on COVID-19

Throughout history, research has advised public health guidelines and developed screening tests and vaccines for a number of life-threatening diseases, including meningitis, measles, and polio. The importance of these earlier discoveries has never been more relevant than in the past year, with researchers from all over the world working together to stop the spread of COVID-19.

Locally, researchers responded by developing rapid diagnostic tests, setting up COVID-19 screening centres and wastewater testing, optimizing personal protective equipment and ventilation devices, launching informative dashboards, and working on predictive modeling of infection spread.

Project: The Canada Hood: Development of a Non-Invasive Ventilation Device
Funder: WE-SPARK Health Institute
Team Leads: Wendy Foote, Respiratory Therapy; Dr. Jay MacDonald, Emergency Medicine and Hyperbaric Medicine; Dr. Robert Woodall, Emergency Medicine; Ed Bernard, Research & Development,

A local team from healthcare, college, and industry settings came together to work on a made-in-Canada solution to avoid putting patients on traditional ventilators with the goal of improving patient outcomes. The Canada Fume Hood provides the function of a ventilator without intubation and patient sedation.

It also provides options for versatile settings such as nursing homes and field hospitals where there is no ventilator equipment available. Applied solutions right here in Windsor-Essex!

Project: Optimizing COVID-19 Detection for the Windsor-Essex Community

Funders: WE-SPARK Health Institute, CIHR, NSERC, CFI, MITACS, MECP

Team Leads: Dr. Yufeng Tong, Chemistry & Biochemistry; Dr. Lisa Porter, Biomedical Sciences; Dr. Mohamed Belalia, Mathematics & Statistics; Dr. Corinna Quan, Infectious Disease; Dr. Caroline Hamm, Oncology; Dr. Mike McKay, GLIER/School of the Environment; Dr. Ken Ng, Chemistry & Biochemistry; Dr Kendall Soucie, Psychology; Dr. Enders Ng, Chemistry & Biochemistry.

S.M. Research Inc

University of Windsor · Windsor Regional Hospital · GLIER · University of Calgary

With the initial support of a WE-SPARK Igniting Discovery Grant, this multidisciplinary team optimized a rapid qPCR-based diagnostic test that allows for quicker, accessible, and more cost-effective testing for COVID-19. Paired with a waste-water surveillance project (funded by NSERC, CFI, MITACS, and MECP) and a CIHR program to monitor for emerging COVID variants, the rapid diagnostic test created a pipeline to rapidly detect the presence of the virus and novel variants in our population. Together, these projects will allow us to safely isolate individuals and prevent large outbreaks.

Adopting a post-pandemic framework to monitor community rates of COVID-19 to detect variants of concern early is a mitigation strategy that is unique in Canada. **This testing pipeline will also position Windsor-Essex to test rapidly for other infectious and food-borne illnesses that pose a public health threat, thereby protecting the health of the citizens of Windsor-Essex in the future.**



Research Supports Health & Wellness

To understand the impact that social determinants can have on health, we focus on screening, nutrition, activity, and stress management to learn how to better prevent disease or poor health outcomes. Often, some of the best solutions to these problems arise through this type of longitudinal research.

Project: Finding Cardiac Rehabilitation Models of Care to Improve Patient Outcomes
Funder: Partners in Research (UWindsor and HDGH)
Team Leads: Dr. Jennifer Voth, Rehabilitation Science; Dr. Cheri McGowan, Kinesiology; Jason Petro, Dr. Kevin Milne, Kinesiology; Cayla Wood, Kinesiology; Dr. Steven Keteyian, Cardiac Rehabilitation; Dr. Clinton Brawner, Cardiac Rehabilitation; Dr. Neville Suskin, Cardiac Rehabilitation; Dr. Melvyn Rubenfire, Cardiac Rehabilitation

Cardiovascular disease (CVD) is the leading cause of death world-wide. In Windsor-Essex, nearly 900 deaths and over 4,000 annual hospitalizations are attributed to CVD. Cardiac rehabilitation lowers subsequent CVD-related deaths, reduces hospitalizations, and improves quality of life. This project is focused on increasing the number of patients undergoing cardiac rehabilitation, with the goal of helping thousands of individuals living in Windsor-Essex and beyond achieve the best possible outcome.

Project: The Longitudinal Impact of the COVID-19 Pandemic on the Mental Health of Children in Southwestern Ontario
Funder: WE-SPARK Health Institute, Government of Ontario Ministry of Health
Team Leads: Dr. Lance Rappaport, Psychology; Dr. Rosanne Menna, Psychology; Dr. Kimberly Babb, Psychology; Dr. Erin Picard, Psychology; Dr. Ananda B. Amstadter, Psychiatry; Dr. Marco Battaglia, Psychiatry

This team is investigating the long-term impacts of the pandemic on the mental health of children. One takeaway so far is that social support from family and friends can serve as a protective function for the psychological wellbeing of children. This research will continue to inform best practices to mitigate the negative psychosocial impacts of the pandemic.

Project: Implementing an evidence-based sexual assault resistance intervention in universities across Canada
Funder: CIHR
Team Leads: Dr. Charlene Senn, Psychology; Dr. Paula Barata, Psychology; Dr. Misha Eliasziw, Public Health & Community Medicine; Dr. Gail McVey, Psychology; Dr. Lorraine Radtke, Psychology; Dr. Wilfreda Thurston, Community Health Sciences

As many as 1 in 4 women will experience rape or attempted rape while attending university. As the Canada Research Chair in Sexual Violence, Dr. Charlene Senn and a team of experts across Canada are focused on interventions that will change campus culture and reduce the sexual violence university students experience. In a clinical trial on 3 campuses, women who received this program experienced 46% fewer completed rapes and 63% fewer attempted rapes across one year than women in the control group.



Research can provide a voice for underserved communities and those who are most vulnerable.

In Windsor-Essex, we have researchers focused on the health and wellness of populations needing this voice, including individuals with intellectual and developmental disabilities, those facing homelessness, newcomer immigrants, and refugee youth.

Project: Responding to the needs of people who use drugs and understanding the impact of the COVID-19 pandemic on them and their communities

Funder: CIHR

Team Leads: Dr. Adrian Guta, Social Work; Dr. Adam Bourne, Public Health; Dr. Marilou Gagnon, Nursing; Dr. Carol Strike, Social and Behavioural Health Sciences; Natasha Touesnard, Advocacy & Policy

University of Windsor · La Trobe University · University of Victoria · University of Toronto · CAPUD

Dr. Adrian Guta is known for partnering with community members and clinical professionals to design projects that meet the needs of patients and service users. With this CIHR funded project, a team with expertise on harm reduction and policy come together with persons with lived experience of substance use. This work aims to determine how to best support people with drug dependencies during relevant health emergencies and pandemics. The outcomes will inform critical resources focused on reducing barriers to testing, treatment, and care for this vulnerable group of individuals.

Project: Building positive attitudes toward disability in school aged children

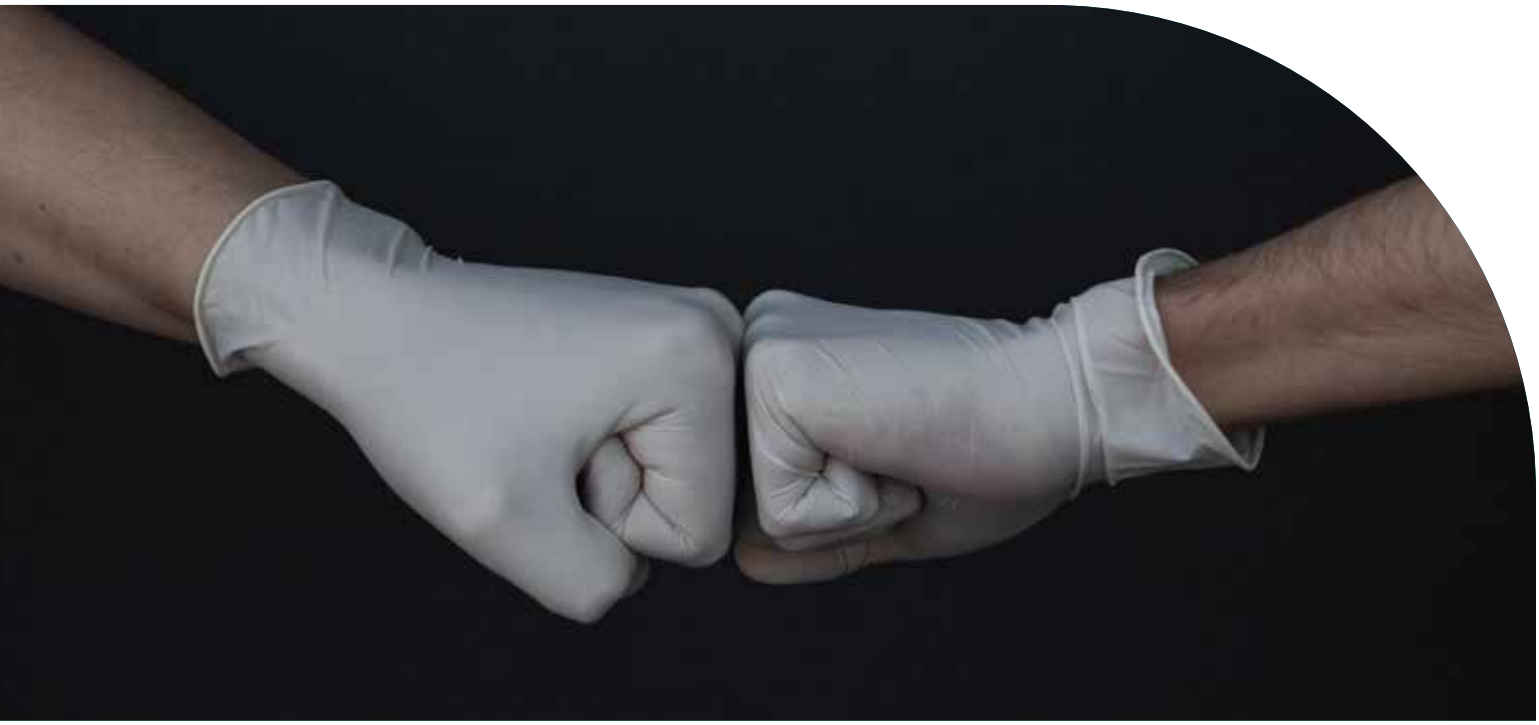
Funder: WE-SPARK Health Institute

Team Leads: Dr. John Freer, Education; Dr. Monique Somma, Education; Erica Miklas, Education; Dylan Menard, Education; Dr. Tanya Kaefer, Education

St. Clair College · University of Windsor · Brock University · Lakehead University

Poor attitudes toward disability threaten the very nature of inclusive education. This research project examines evidence-based approaches to shape school aged children's attitudes towards disability in ways that will have lasting effects. It will also provide practical tools for educators interested in teaching their students about disability experiences. This work aims to ensure that all students feel welcome and a part of their class and learning.

Research Trains the Next Generation



Research ensures that we stay current, teach the latest techniques, provide up-to-date infrastructure for training, and evolve new areas of study that address the health needs of society. **Providing cutting edge experiences for the next generation of healthcare professionals, researchers and innovators fuels hope for the future.**

In Windsor-Essex, our multi-disciplinary health training landscape spans from clinical and postdoctoral fellows to medical students and graduate and undergraduate students.

Student Successes

Conferences provide students with the opportunity to learn the latest developments in a field, present their work, and network with experts. In November 2020, the Windsor Cancer Research Group hosted their 5th Cancer Research Conference. Over 170 trainees participated with 68 students presenting their research during the poster session. Thanks to sponsorship from University of Windsor Alumni Association and the Cancer Research Collaboration Fund, a total of $4,000 was awarded to top student presenters. Local winners included: Kyle Stokes, Layale Bazzi, Adam Pillon, Vanessa Montemurri, Isabelle Hinch, Cody Caba, Abdel Hendy.

Communicating Research Impact

An important part of training the next generation is helping them effectively communicate about research findings to the general public. In the past year, students have played key roles in creating content that allows us to share our local health research expertise with the public.

Providing unique training opportunities specifically focused on research communication is one way to ensure that the workforce has the skills needed to succeed. Tejas Shinde, a St. Clair College student, created dashboards to communicate COVID-19 trends to the community. For other student related projects and community events look to our YouTube Channel.

In the past year, researchers have acquired approximately $1M in new equipment that is essential to create the best learning environments for our students. From an imaging machine that can look at cancer in animal models, to a sustainable biomaterials laboratory, to devices that permit rapid identification of new drug targets – cutting-edge infrastructure is key.

Infrastructure and Training

Project: Advanced Flow Management System for Development of Smart Sensor Systems and E-Nose Mapping

Funder: Ontario Research Fund

Team Leads: Arezoo Emadi, Electrical and Computer Engineering; Jalal Ahamed, Mechanical, Automotive and Materials Engineering; Majid Ahmadi. Electrical and Computer Engineering

The Emati lab focuses on advancing sensor devices to develop highly sensitive diagnostic and monitoring tools that can detect disease early in a non-invasive fashion. The ability to acquire expensive sensor systems through grant funding is a critical component to make this work possible. Dr. Emati aims for a day when we can detect liver cancer by breathing into a detection device.

Medical Student Training

The Schulich - UWindsor Opportunities for Research Excellence Program (SWORP) is a unique grant opportunity for our local medical students to conduct research under the supervision of a University of Windsor faculty member. Eighteen SWORP students were trained during the past year. One project supervised by Dr. Ian Brown, Clinical Professor, Department of Biomedical Sciences, University of Windsor is led by medical student Wara Lounsbury and looks at Optimizing Discharge Planning for COVID-19 Patients.



Research Improves Health Outcomes & Saves Lives

Research is the vehicle that informs best practices, supports evidence-based decision-making, and improves health outcomes. **Embedding research in clinical care, supporting clinician-led projects, and building multi-disciplinary, cross institutional research teams offers considerable hope for patients who are treated at our local hospitals every year.**

Project: Evaluating Long-Term Impacts of COVID-19 infections in Windsor-Essex
Funder: WE-SPARK Health Institute, Igniting Discovery sponsored by NYN
Team Leads: Dr. Wassim Saad, Internal Medicine; Dr. Andrea Steen, Family Medicine; Dr. Ross Moncur, Family Medicine; Dr. Caroline Hamm, Oncology; Dr. Jennifer Voth, Research and Evaluation; Krista Naccarato, Clinical Trials

Leaders at our 3 local hospitals have joined forces to follow patients who were hospitalized with COVID-19 to better understand and respond to the long-term health challenges that they face. This research will inform recovery plans and improve the care of people in our community. It will also contribute to the understanding of COVID-19 worldwide.

Project: Improving outcomes for local patients with Chronic Myeloid Leukemia
Funder: WE-SPARK Health Institute
Team Leads: Hematology/Oncology: Dr. Caroline Hamm, Dr. Indryas Woldie, Dr. Mohamad Jarrar, Dr. Rasna Gupta, Dr. Sindu Kanjeekal; Mr. Greg Yousif, Medical Student

Chronic Myeloid Leukemia accounts for 15% of all leukemias. Current guidelines recommend lifelong treatment that although very successful can lead to lasting and difficult side effects. There has been recent evidence that stopping treatment for patients in remission can be effective if carefully planned. This study is currently enrolling local patients who are good candidates that would otherwise be on medication for the rest of their lives.





Project: Supporting families waiting for intensive treatment services at Hôtel-Dieu Grace Healthcare's Regional Children's Centre.

Funder: Hôtel Dieu Grace Healthcare

Team Leads: HDGH Quality Improvement Team: Kyle Williamson, Courtney Woolson, Michael Bannister, Marla Jackson, Rachel Gough, Ava Hamelin and Jennifer Voth

To combat long waitlists for children ages 6-12 years old who have significant emotional and behavioural issues that need supports and treatment, this team at Hôtel-Dieu Grace Healthcare's (HDGH) Regional Children's Centre (RCC) developed a pilot program called Intensive Treatment Services (ITS) Outreach to see if it could make a difference. After 24 families participated in the full program, both youth and parents significantly improved their ability to recognize the child's symptoms and were more engaged and motivated to continue treatment. Overall, 83% of families were diverted from ITS Day Treatment admission, as they no longer required intensive services, and were instead referred to lower intensity options at RCC.

Project: Using Artificial Intelligence to Improve Radiation Treatment for Cancer Patients

Funder: Windsor Cancer Centre Foundation

Team Leads: Dr. Ming Pan, Radiation Oncology; Dr. Arash Ahmadi, Electrical and Computer Engineering; Dr. John Agapito, Medical Physics

This team is using Artificial Intelligence (AI) to explore how to reduce the time needed to develop treatment plans for patients receiving radiation therapy. The focus is on finding ways to increase accuracy of the treatment by giving the cancer less time to grow before radiation is delivered. Bringing engineering and physics expertise together with specializations in oncology are providing new opportunities to detect and treat cancers locally.

Looking Forward

In our first two years we established a strong common vision and united our strengths to develop programs and processes to drive advancements in health. During a global pandemic, we grew existing areas of strength, formed new collaborations, and supported novel ideas to enhance the health, well-being, and care of people in our region. We achieved more by working together.

As we look forward to Year 3, we will focus on accelerating research ideas and elevating our excellence. We will enrich the cohesiveness, the diversity and the inclusion in our research community. WE-SPARK will continue to provide support as research programs grow and will find new opportunities to build critical mass and enhance health research capacity. I look forward to:

Igniting Discovery, Succeeding Together, Living Better

Lisa A. Porter, PhD, Executive Director
Professor, University of Windsor



*Please note, all PPE and safety requirements were followed. This picture was taken before January 2020.

Priorities for 2021-2022



Organizational Effectiveness

Continue quarterly reporting and tracking that leads to the yearly impact report

Monitor and adapt budget reporting

Implement a fundraising plan

Develop MOUs between WE-SPARK institutions, as needed

Review current terms, policies and reporting mechanisms to identify and respond to changing needs

Develop process and timelines for next strategic planning cycle



Research Excellence

Host events that build collaboration, grow teams and support professional development

Host WE-SPARK Grant competitions

Profile and track successes of Core Members

Consult and support WE-SPARK programs

Provide a central hub for research processes and system navigation

Monitor the progress toward a regional Research Ethics Board (REB)

Provide support for external peer review

Implement an Equity, Diversity and Inclusion (EDI) action plan

Bring together local experts to develop position papers that advocate for change in areas of interest to our partners



Community Engagement

Create workshops, series and/or events that engage the community and build the profile of WE-SPARK, e.g., Ask the Expert series, Cheers to Hope

Increase engagement on all social media platforms

Broaden community understanding of WE-SPARK through media relations, our community newsletter and speaking engagements, locally, regionally and provincially

Continue to evolve our website capabilities and reach

Develop and Implement a Citizens science program that involves students and focuses on the health concerns of our community



Knowledge Translation

Support and grow a student research network

Expand, promote, and update our Health Research Resource Hub

Expand the Knowledge Translation Toolkit, including tools for commercialization, and increase awareness to our research community

Support student experiential learning and novel training opportunities in health research

Develop a plan for increasing engagement with industry and community partners



Build Capacity

Support and expand use of data sharing platforms for our researchers

Facilitate joint funding plan for large infrastructure grants

Explore and evolve infrastructure planning and a capital plan

Implement the Nucleus plan, including collecting key core facility metrics and developing promotional content to inform our members and the community about research infrastructure (existing and future needs)

RESEARCH HAPPENS HERE

we spark HEALTH INSTITUTE



I'm really proud of what we've achieved together, and I highly recommend pursing an internship with WE-SPARK. It was an amazing way to get first-hand experience in a real-world environment and make great connections."
- Megan Pidgeon

Thank you to Megan Pidgeon, Graphic Designer in the School of Media, Art & Design at St. Clair College for providing graphic design and visual formatting of this Report.

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WINDSOR REGIONAL HOSPITAL
OUTSTANDING CARE – NO EXCEPTIONS!

ST. CLAIR COLLEGE

Statistics reflect the WE-SPARK 2010/21 fiscal year ending on April 30, 2021.
Photos courtesy of: Unsplash.com
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