Lightning Round Presentations

Research Group	Presenters
Urban Form	Yan Kestens, Brent Hagel, Lise Gauvin
Obesity and Environment	Philip Awadalla, Dany Doiron
Child Health	Vernon Dolinsky, Padmaja Subbarao, Meaghan Jones
Microbiome	Alain Stintzi, Alberto Martin, Jennifer Gommerman
Resource Development	Michael Ungar, Margot Parkes, Nicole Bates-Eamer
Agri-Food	Barbara Hales, Norman Neumann, Sherilee Harper

Lightning Round Presentations – Urban Form

Presenter	Project Title
Yan Kestens	Environments and Health INTERACT: INTErventions, Research, and Action in Cities Team
Brent Hagel	The Built Environment and Active Transportation Safety in Children and Youth
Lise Gauvin	Multisectoral Urban Systems for Health and Equity in Canadian cities

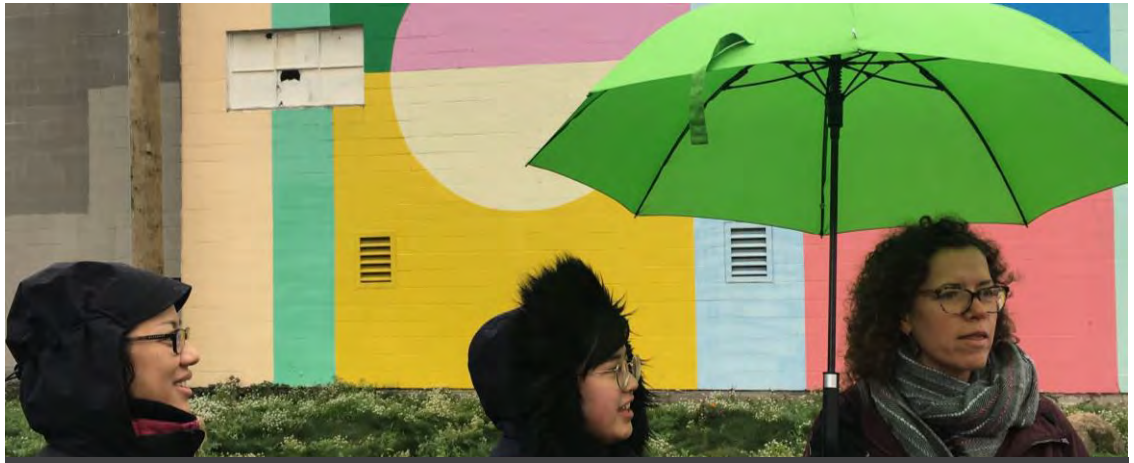
INTERACT

In partnership with cities and communities, we harness big data to deliver timely public health intelligence on the influence of real-world built environment interventions on health, well-being, and equity—generating local evidence and action to advance the design of smart, sustainable, and healthier cities for all.

INTERACT IS


Solid Research Infrastructure
Sustainable Reciprocal Partnerships
Local Evidence to Guide Action
13
investigators
34
trainees
50+
local partners
4
cities
15
additional grants
$5M
leveraged funding
1
National Knowledge Hub
20
published papers
3000+
cohort

01 Guide future research



02 Apply evidence locally

03 Inform national dialogues

04 Amplify attention

UNIVERSITY OF CALGARY

CHASE

CHild Active-Transportation Safety and the Environment

Brent Hagel, Alison Macpherson, Andrew Howard, Pam Fuselli

Vancouver: Meghan Winters	**Calgary:** Brent Hagel	**Toronto:** Alison Macpherson, Andrew Howard, Linda Rothman, Sarah Richmond	**Montreal:** Marie-Soleil Cloutier
Moreno Zanotto	Janet Aucoin	Rebecca Ling, Saroar Zubair	Mathieu Rancourt
Ian Pike, Kay Teschke, Guy Faulkner, Quynh Doan, Tammy Do	Gavin McCormack, Carolyn Emery, Antonia Stang, Stephen Freedman	Colin Macarthur, Ron Buliung, Liraz Fridman, Sue Beno	Juan Torres

Co-Investigators:
Kathy Belton, Gregory Morrow, Tracey Ma, Kelly Russell, Liz Owens, Donald Voaklander, Alberto Nettel-Aguirre

Program Coordinators:
Tate HubkaRao, Tona Pitt

Expert Advisory Board
Tony Churchill, Adam Bell, Kidist Bartolomeos, Jamie Hilland, Keshia Pollack Porter

CIHR IRSC
Canadian Institutes of Health Research | Instituts de recherche en santé du Canada

UNIVERSITY OF CALGARY

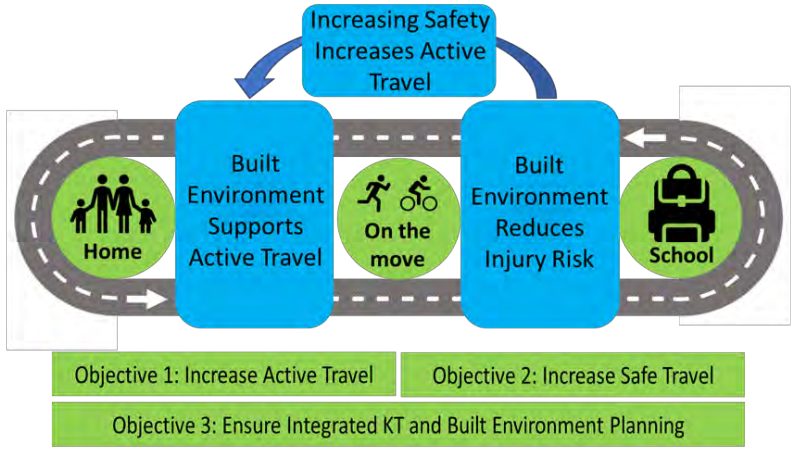
SickKids

YORK UNIVERSITÉ UNIVERSITY

Parachute
PREVENTING INJURIES. SAVING LIVES.

What did you set out to achieve (advanced field, policy changes)?

How does the built environment influence child and adolescent active transportation and the risk of active transportation injury across different Canadian urban settings?



Hagel et al. BMC Public Health (2019) 19:728
https://doi.org/10.1186/s12889-019-7024-6

BMC Public Health

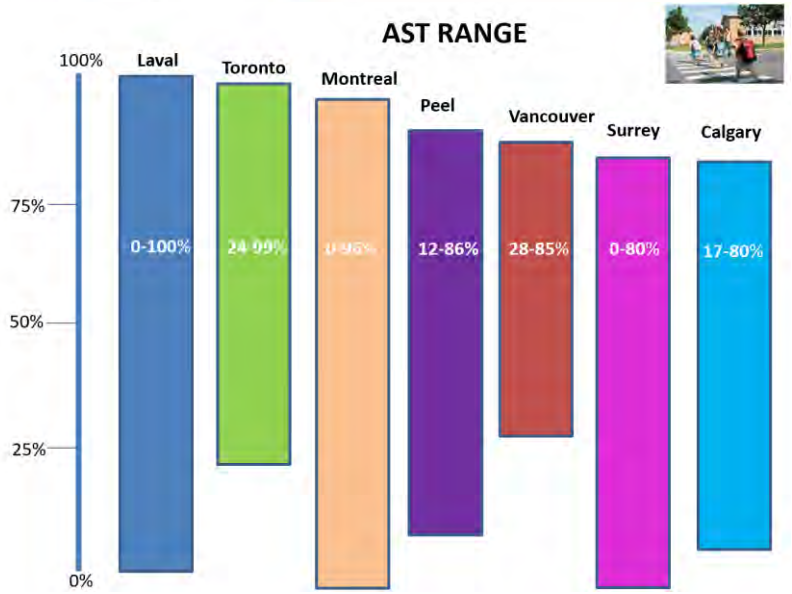
STUDY PROTOCOL Open Access

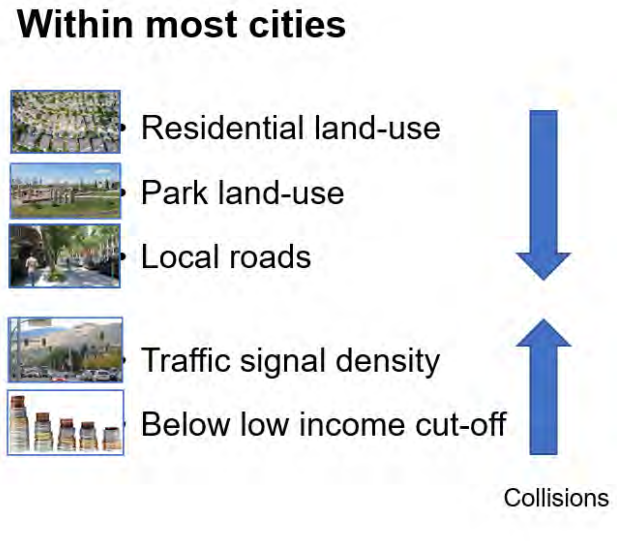
The built environment and active transportation safety in children and youth: a study protocol

Brent E. Hagel[1*], Alison Macpherson[2], Andrew Howard[3], Pamela Fuselli[4], Marie-Soleil Cloutier[5], Meghan Winters[6], Sarah A. Richmond[7], Linda Rothman[8], Kathy Belton[9], Ron Buliung[10], Carolyn A. Emery[11], Guy Faulkner[12], Jacqueline Kennedy[13], Tracey Ma[14], Colin Macarthur[15], Gavin R. McCormack[16], Greg Morrow[17], Alberto Nettel-Aguirre[18], Liz Owens[19], Ian Pike[20], Kelly Russell[21], Juan Torres[22], Donald Voaklander[9], Tania Embree[23] and Tate Hubka[24]

Objective 1 To examine associations between the built environment and child active transportation to school within and across multiple large Canadian centres
Objective 2 To examine associations between the built environment and child and youth active transportation injuries in multiple large Canadian centres
Objective 3 To identify implementation strategies for built environment change at the municipal level to encourage active transportation.

What did you achieve based on the above (scientific advances, policy, or clinically-relevant findings)?





https://doi.org/10.1016/j.ypmed.2021.106470

doi:10.1136/injuryprev-2021-044459

Major **barriers** to BE change decision-making:

1. Motor vehicle prioritization
2. Lack of funding and resources
3. Lack of political will
4. Sectoral silos

Major **facilitators** for BE change decision-making:

1. Cross-sectoral collaboration
2. Data sharing
3. Champions and advocates

https://doi.org/10.1016/j.jth.2022.101478

Trainees

- 4 postdoctoral fellowships
- 5 graduate student scholarships
- 17 undergraduate studentships

How will the knowledge you have produced make a difference for public/population health?

- Prioritize social equity in planning road safety interventions including
  - Reducing speeds
  - Deploying traffic calming
  - Separating children from traffic (bike lanes, better walking infrastructure)
- Different BE/AT/Collision associations between cities
  - need for local knowledge/interventions
- Municipal-Researcher partnerships
  - Speed humps
  - Lower speed limits
  - In-street signs and traffic calming curbs
  - Metrics for built environment change evaluation
- Knowledge Translation
  - CHASE Webinar Series (n=22)
  - Freely available web tool: projectchase.ca
  - Infographics
  - CHASE Database (school environment, AT counts, dangerous behaviours, etc)

Acknowledgements

UNIVERSITY OF CALGARY

Public Health Ontario | Santé publique Ontario

Ontario Traffic Council

CIHR IRSC
Canadian Institutes of Health Research | Instituts de recherche en santé du Canada

Johns Hopkins Bloomberg School of Public Health

URBAN SYSTEMS

Alberta Health Services

SFU Simon Fraser University Engaging the World

Toronto Metropolitan University

Green Communities Canada

University of Wollongong Australia

Montréal

Sport Injury Prevention Research Centre
University of Calgary

Calgary

York University

Alberta Children's Hospital Research Institute

Parachute
Preventing Injuries. Saving Lives.

City of Guelph

CARSP ACPSER

Ontario Ministry of Transportation

University of Calgary O'Brien Institute for Public Health

University of Calgary Cumming School of Medicine

Transports Canada | Transport Canada

City of Vancouver

Toronto District School Board

eco counter

METROLINX
An agency of the Government of Ontario

Region of Peel
Working for you

Sustainable Calgary

THE UNIVERSITY OF BRITISH COLUMBIA

perc
Pediatric Emergency Research Canada

World Health Organization

HASTe
HUB for ACTIVE SCHOOL TRAVEL

INRS
Institut national de la recherche scientifique

Vélo Québec

ité

INJURY PREVENTION CENTRE
KNOWLEDGE. LEADERSHIP. ACTION.

Toronto Public Health

BC Children's Hospital

Alberta Transportation

Ecology Action Centre

TORONTO

Public Health Ontario
Partners for Health

Santé publique Ontario
Partenaires pour la santé

Active & Safe
Routes to School

University of Alberta

SickKids
Research Institute

CAA

BC INJURY research and prevention unit

University of Manitoba

Université de Montréal

University of Toronto

MUSE

Multisectoral Urban Systems for Health and Equity in Canadian Cities

MUSE: Multisectoral Urban Systems for health and Equity in Canadian cities *THEPA*: Targeting Health Eating and Physical Activity

Lise Gauvin & Nazeem Muhajarine for the *MUSE/THEPA* Team

ENVIRONMENTS & HEALTH RESEARCH SUMMIT

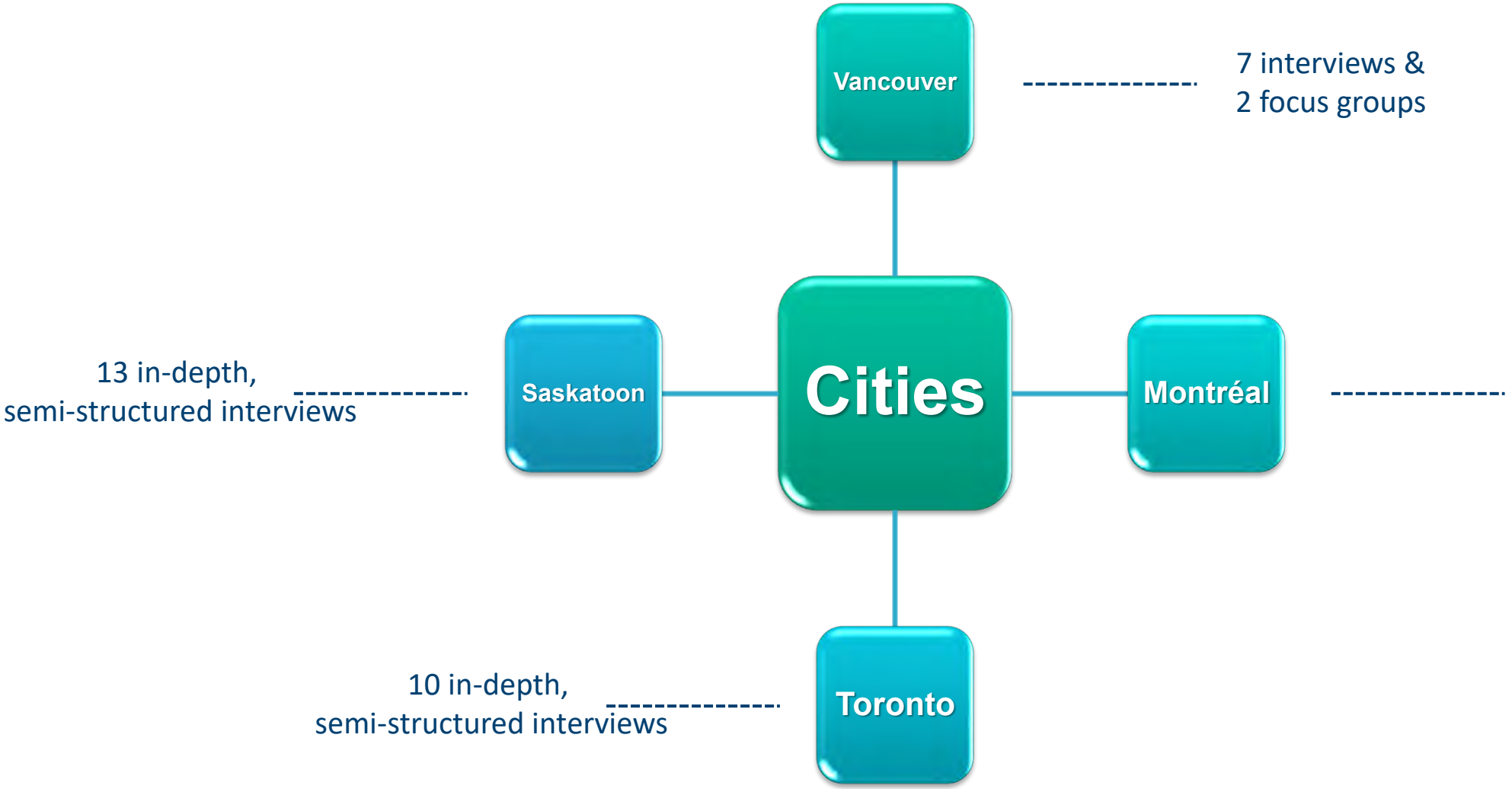
OTTAWA, APRIL 17TH 2023

FINANCIAL SUPPORT FROM:

CIHR IRSC

MUSE
Multisectoral Urban Systems for Health and Equity in Canadian Cities

Data collection – intersectoral partnerships



	MPA	CSAM
Surveys	76	68
Structured interviews	24	21
In-depth interviews	12	10
Theory of change workshop	9	

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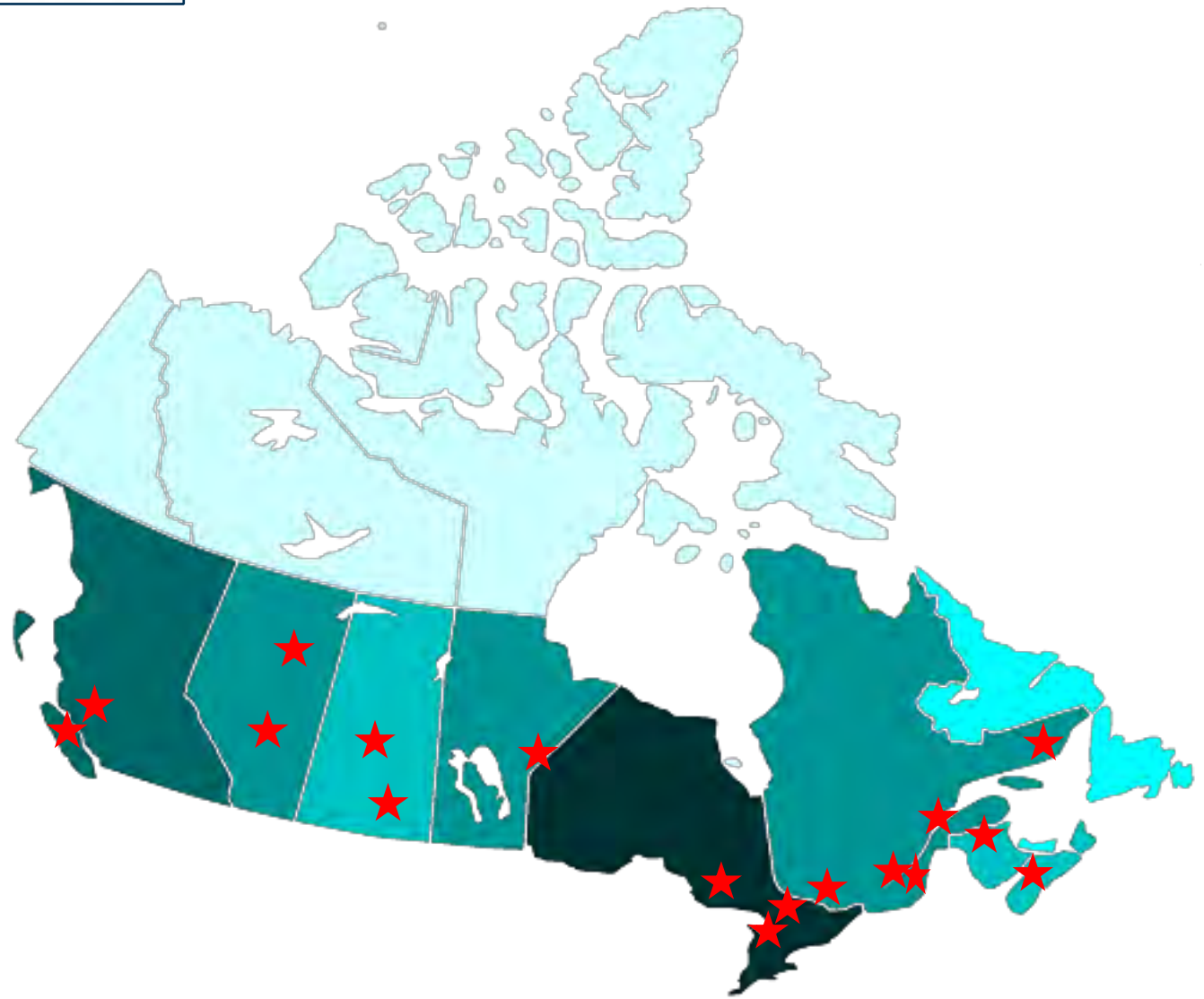
Multisectoral Urban Systems for Health and Equity in Canadian Cities

Data collection acceptability survey

Name of CMA	# of surveys completed
TOTAL	27 162
Victoria	1 200
Vancouver	2 400
Calgary	1 201
Edmonton	1 200
Saskatoon	1 065
Regina	1 068
Winnipeg	1 199
Hamilton	1 200
London	1 200
Ottawa Gatineau	1 200
Toronto	4 801
Montreal	3 606
Quebec	1 200
Sherbrooke	1 200
Fredericton-Moncton-St John	1 201
Halifax	1 201
St-Johns-NL	1 020



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Multisectoral Urban Systems for Health and Equity in Canadian Cities

… a glimpse at some findings …

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Multisectoral Urban Systems for Health and Equity in Canadian Cities

Multi-sectoral Collaboration Matrix

Alhassan, J., **Gauvin, L.**, Judge, A., Gower, S., Fuller, D.L., Engler-Stringer, R., Muhajarine, N. (2021). Enablers and Barriers to Multisectoral Collaboration: Evidence from a Midsized Canadian City. Canadian Journal of Public Health, 112(6): 1058-1068. https://doi.org/10.17269/s41997-021-00534-3.

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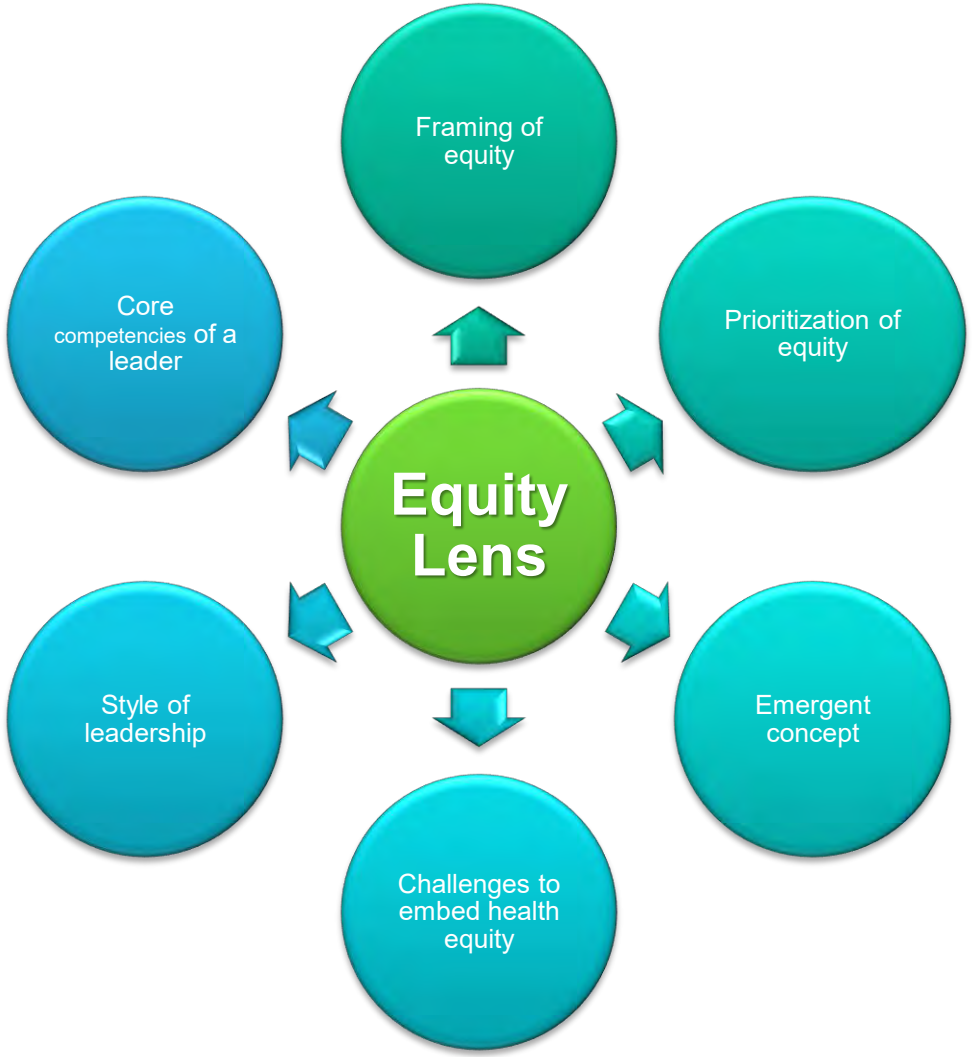
Multisectoral Urban Systems for Health and Equity in Canadian Cities

How MPs think about and use an equity lens (Saskatoon & Toronto)



Datta Gupta, S., Pisolkar, V., Alhassan, J.A.K., Judge, A., Engler-Stringer, R., **Gauvin, L.**, & Muhajarine, N. (2022). Employing the equity lens to understand multisectoral partnerships: lessons learned from a mixed-method study in Canada. International Journal of Health Equity, 21: 141. https://doi.org/10.1186/s12939-022-01746-w

MUSE

Multisectoral Urban Systems for Health and Equity in Canadian Cities

… a glimpse at some findings from across the country …

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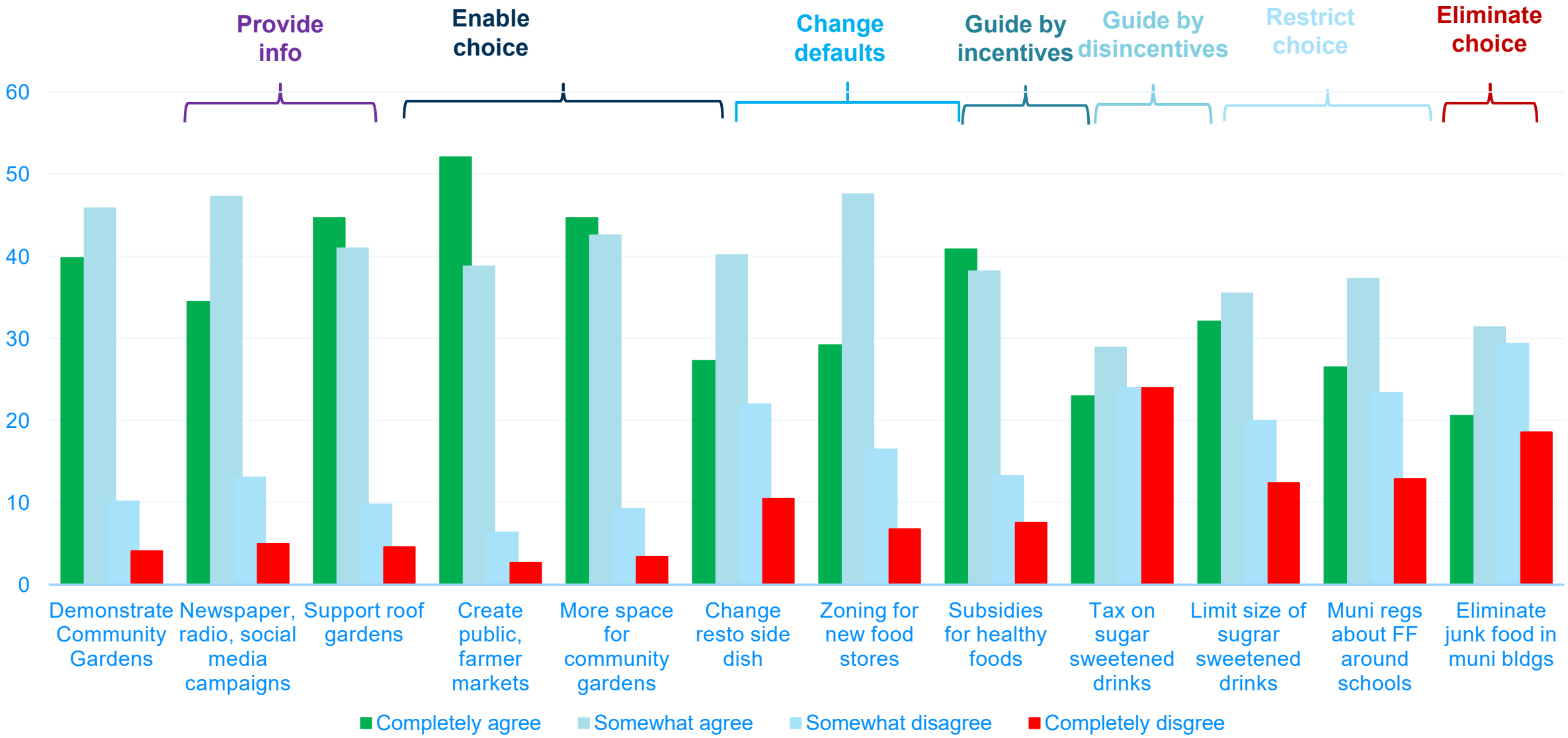
Multisectoral Urban Systems for Health and Equity in Canadian Cities

A few updates : *THEPA* goals

- **acceptability** : the level of agreement regarding the hypothetical implementation of **services**, **facilities**, **regulations**, and **policies** in their residential neighbourhood, that is within a 15-minute walking distance or 8 to ten city blocks

Weighted proportions for different levels of agreement with changes to the Food Environment



A few take aways from these & other analyses

- There is a **gradient** as a function of **intrusiveness**
- Some of the lower rungs on the ladder – **information** – do not always appear as most acceptable
- Many analyses show that **women** tend to show greater acceptance of many actions
- **Lower income** is associated with greater acceptance of food system actions
- Individuals self-identifying as **indigenous** are more favorable to both food environment and active living environment interventions

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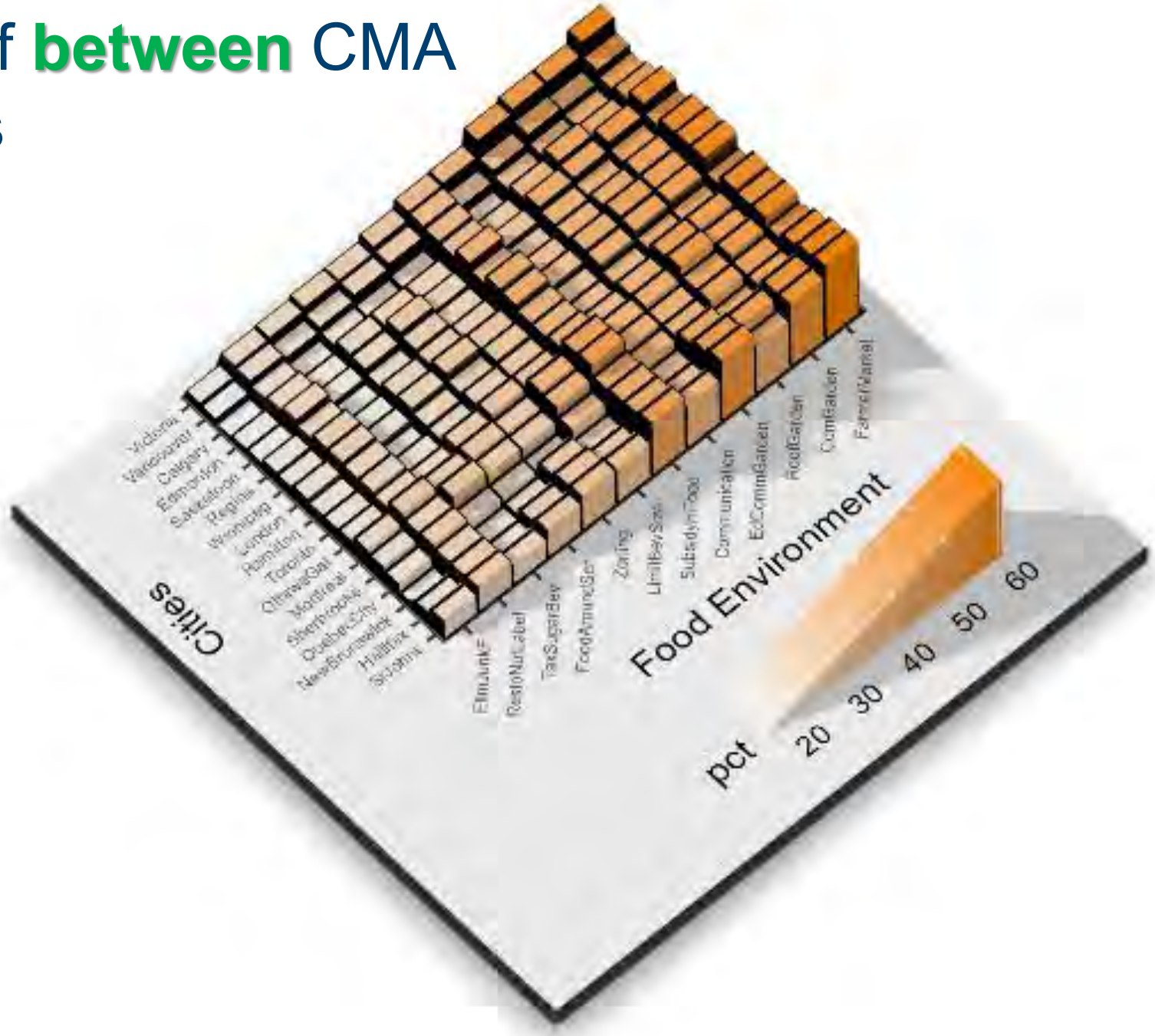
Multisectoral Urban Systems for Health and Equity in Canadian Cities

Let's talk!

Example of **between** CMA differences



MUSE

Multisectoral Urban Systems for Health and Equity in Canadian Cities

A few updates : *THEPA* framework for BE

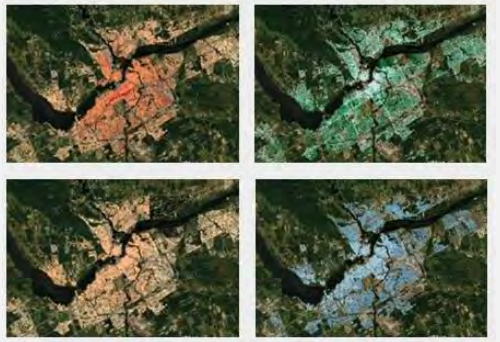
Lightning Round Presentations
Obesity and Environment

Presenter	Project Title
Philip Awadalla	Determining the genetic and environmental factors associated with metabolic phenotypes across Canada
Dany Doiron	CANadian Urban Environmental (CANUE) Health Research Consortium

Canadian Urban Environmental Health Research Consortium (CANUE)

DATA PLATFORM AND LINKAGE

> 45 nationally-standardized datasets



Access:

1. Directly from CANUE at: www.canuedata.ca
2. Linked to Canada's health databases

clsa élcv | CanPath Canadian Partnership for Tomorrow's Health | CHILD COHORT STUDY | populationdata BC | NB-IRDT | Manitoba Centre for Health Policy

MULTIDISCIPLINARY NETWORK

> 350 members from academia, governments, NGOs

Exposure scientists, Epidemiologists, public health practitioners, clinicians, urban planners

RESEARCH TRANSLATION

> 40 public webinars

Domain experts, CANUE data usage, Results from CANUE-facilitated studies

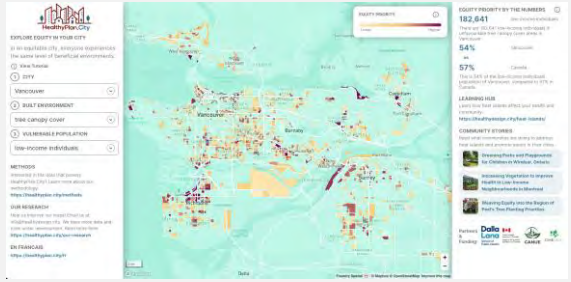
DEMOCRATIZING DATA

HealthyDesign.City

TOOLS THAT SUPPORT AN EQUITABLE AND HEALTHY BUILT ENVIRONMENT

Planning for Built Environment Equity

Engagement and Education



NEW CAPACITY AND EVIDENCE

443	Data requests
> 135	Scientific publications
> 20	MSc and PhD theses

TRAINING

Online training courses

Data science and health geography

GEOHEALTH NETWORK | populationdata BC

Lightning Round Presentations
Child Health

Presenter	Project Title
Vernon Dolinsky	The Developmental Origins of Pediatric Obesity and Obesity-Related Complications
Padmaja Subbarao	Gene and environment effects on lung health and risk for chronic respiratory disease, asthma & COPD
Meaghan Jones	Programmatic research to understand how modifiable environmental factors interact with the genome in the development of asthma.

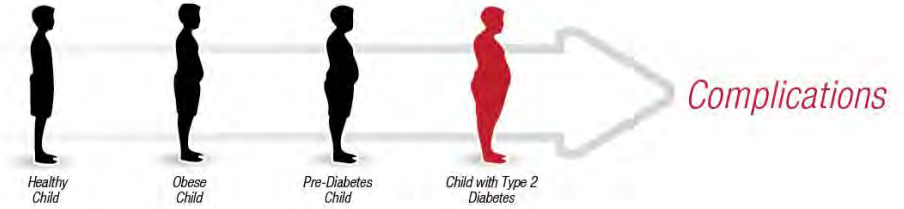
Mike Kobor
UBC

Meaghan Jones
U of Manitoba

Jim Davie
U of Manitoba

Developmental Origins of Obesity

We will unite 4 cohorts of children that span a broad spectrum of gestational exposures (from maternal obesity, GDM, pre-existing T2D) and cardio-metabolic risk in children (healthy, obese, T2D). Key clinical data and biological samples have been collected across all cohorts.

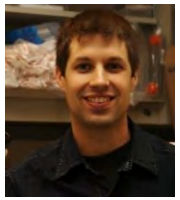


Meghan Azad
U of Manitoba

Marie-France Hivert
Harvard
Luigi Bouchard
Sherbrooke

Allison Dart
Brandy Wicklow
U of Manitoba

Vern Dolinsky
Christine Doucette
U of Manitoba



CHILD
General population pregnancy cohort to examine the interaction between genes and environment.

Gen 3G
General population pregnancy cohort with refined metabolic data on mothers and their children.

Next Gen
Pregnancy cohort of mothers with T2D follows the development of cardiometabolic disease in children.

iCare
Cohort of children with T2D to identify the determinants of cardiometabolic disease.

	CHILD	Gen 3G	Next Gen	iCARE
N	3500 mother-infant dyads	724 mother-infant dyads	200 mother-infant dyads	550 youth
GDM / Existing T2D	6%	9%	50%	35%
Maternal Obesity	15%	18%	85%	?
Age of Children at Assessment	Birth, 1, 3, 5, (7) years	Birth, 3, (5) years	Mean = 10 years (range 2-18)	Mean = 16 years (range 12-24)
Children overweight/obese	Expected 20%	Expected 20%	60%	100%
Children with T2D	0	0	25%	100%
Obesity and Cardiometabolic Measures	BMI, BP, skin folds, waist circumference, (glucose, insulin, % body fat)	BMI, BP, skin folds, (glucose, insulin, adipokines, % body fat)	BMI, BP, WC, (glucose, c-peptide, insulin, OGTT, leptin , adiponectin)	BMI, BP, % body fat, 24 hr BP, urine, cardiac imaging
Blood Samples	cord, 1, 5, (7) years	Maternal, cord, (5yr)	Cord, (6mo) , 7, 8, 9, 10, 15 yrs	12-18 yrs

Characterize Offspring

Liver/Islet/Heart Phenotypes	Tissue Level DNA Mechanisms Transcriptome/Metabolome Analysis

Characterize HNF1$^{\alpha}$ Mouse

Create HNF1G319S model	Phenotype	Transcriptome/ChIP analysis

DREAM
Diabetes Research Envisioned and Accomplished in Manitoba

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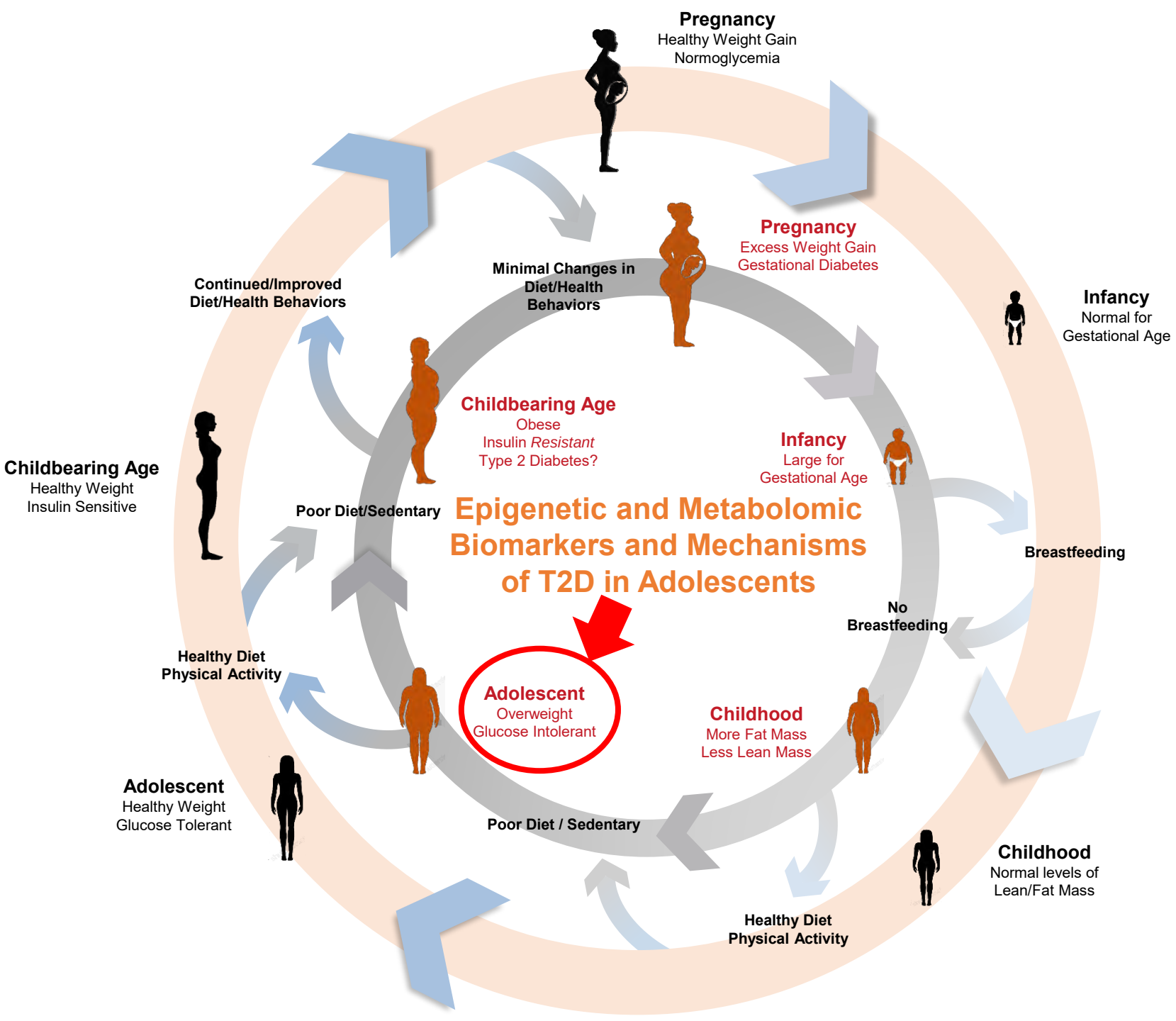
the Children's Hospital Research Institute of Manitoba
a division of the Children's Hospital Foundation of Manitoba

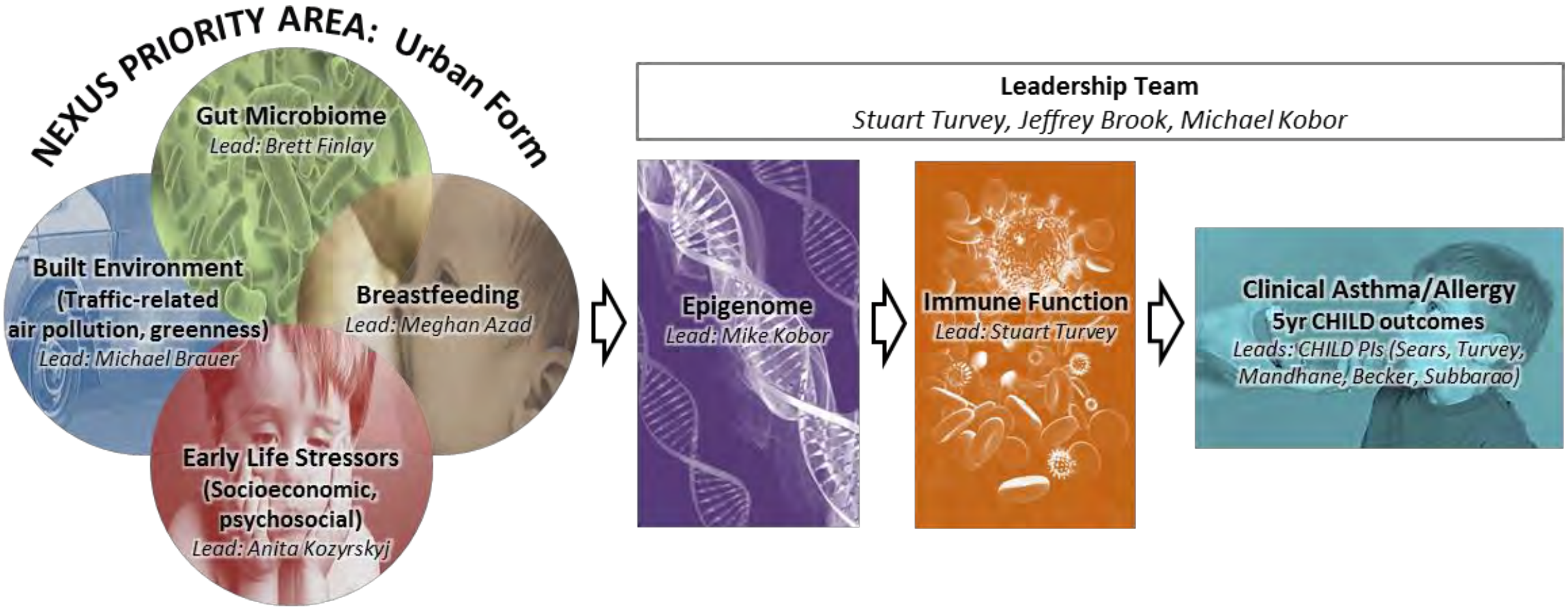

Pregnancy
Healthy Weight Gain
Normoglycemia
Pregnancy
Excess Weight Gain
Gestational Diabetes
Minimal Changes in Diet/Health Behaviors
Infancy
Normal for Gestational Age
Continued/Improved Diet/Health Behaviors
Childbearing Age
Obese
Insulin Resistant
Type 2 Diabetes?
Infancy
Large for Gestational Age
Childbearing Age
Healthy Weight
Insulin Sensitive
Poor Diet/Sedentary
Epigenetic and Metabolomic Biomarkers and Mechanisms of T2D in Adolescents
Breastfeeding
No Breastfeeding
Healthy Diet
Physical Activity
Adolescent
Overweight
Glucose Intolerant
Childhood
More Fat Mass
Less Lean Mass
Adolescent
Healthy Weight
Glucose Tolerant
Poor Diet / Sedentary
Childhood
Normal levels of Lean/Fat Mass
Healthy Diet
Physical Activity

Programmatic research to understand how modifiable environmental factors interact with the genome in the development of asthma

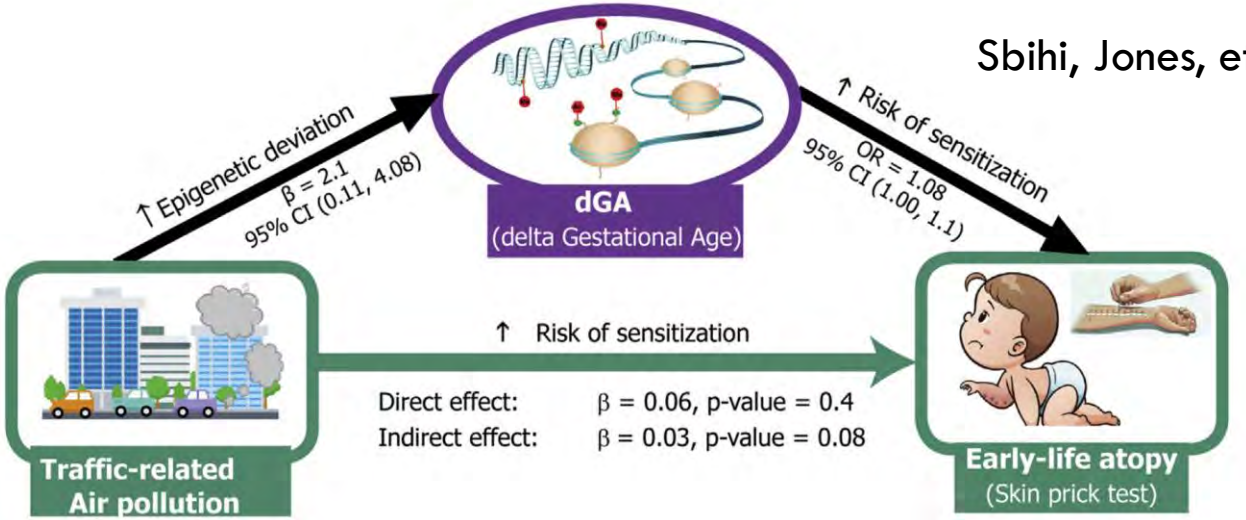
TURVEY, Stuart, MD	Nominated Principal Applicant	University of British Columbia
BROOK, Jeff MS, PhD	Principal Applicant	Environment Canada
KOBOR, Michael PhD	Principal Applicant	University of British Columbia
AZAD, Meghan PhD	New Investigator	University of Manitoba
BECKER, Allan MD	Clinician-Scientist	University of Manitoba
BEFUS, Dean PhD		University of Alberta
BRAUER, Michael ScD		University of British Columbia
FINLAY, Brett PhD		University of British Columbia
KOZYRSKYJ, Anita PhD		University of Alberta
MANDHANE, Piushkumar MD, PhD	Clinician-Scientist	University of Alberta
SEARS, Malcolm MB, ChB	Clinician-Scientist	McMaster University
SUBBARAO, Padmaja MD, FRCPC	Clinician-Scientist	Hospital for Sick Children

Dr. Hind Sbihi

Dr. Meaghan Jones

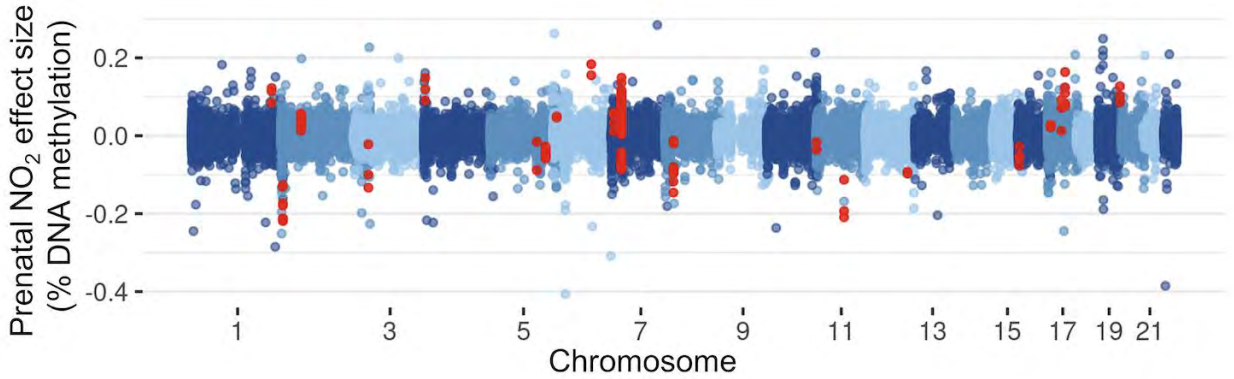

NEXUS PRIORITY AREA: Urban Form
Gut Microbiome
Lead: Brett Finlay
Built Environment
(Traffic-related
air pollution, greenness)
Lead: Michael Brauer
Breastfeeding
Lead: Meghan Azad
Early Life Stressors
(Socioeconomic,
psychosocial)
Lead: Anita Kozyrskyj
Leadership Team
Stuart Turvey, Jeffrey Brook, Michael Kobor
Epigenome
Lead: Mike Kobor
Immune Function
Lead: Stuart Turvey
Clinical Asthma/Allergy
5yr CHILD outcomes
Leads: CHILD PIs (Sears, Turvey,
Mandhane, Becker, Subbarao)

Sbihi, Jones, et al, 2019 JACI

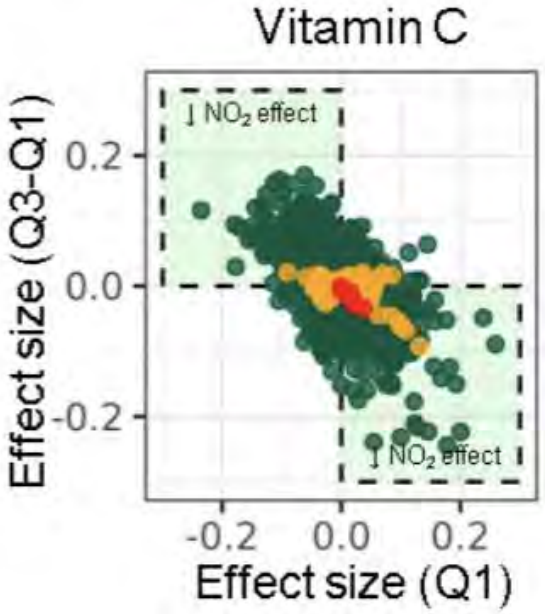


1) Epigenetics linking TRAP to early life atopy

Lee, et al, under review 2023



2) Longitudinal epigenetic changes linking TRAP to atopy and/or wheeze



Lee, et al, in prep

3) Diet moderating the effect of TRAP on epigenetic marks

Lightning Round Presentations
Microbiome

Presenter	Project Title
Alain Stintzi	The diet-microbiota-gut axis in pediatric IBD
Alberto Martin	The impact of the gut microbiome and environment on the development of colorectal cancer
Jennifer Gommerman	Elucidating the Gene-Environment Interactions that drive Autoimmune Disease among South Asian Canadians - The GEMINI Program

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The Impact of the gut microbiome and environment on the development of colorectal cancer

Alberto Martin
(University of Toronto)

Catherine O'Brien
(Princess Margaret Cancer Centre)

Emma Allen Vercoe
(University of Guelph)

Stephen Girardin
(University of Toronto)

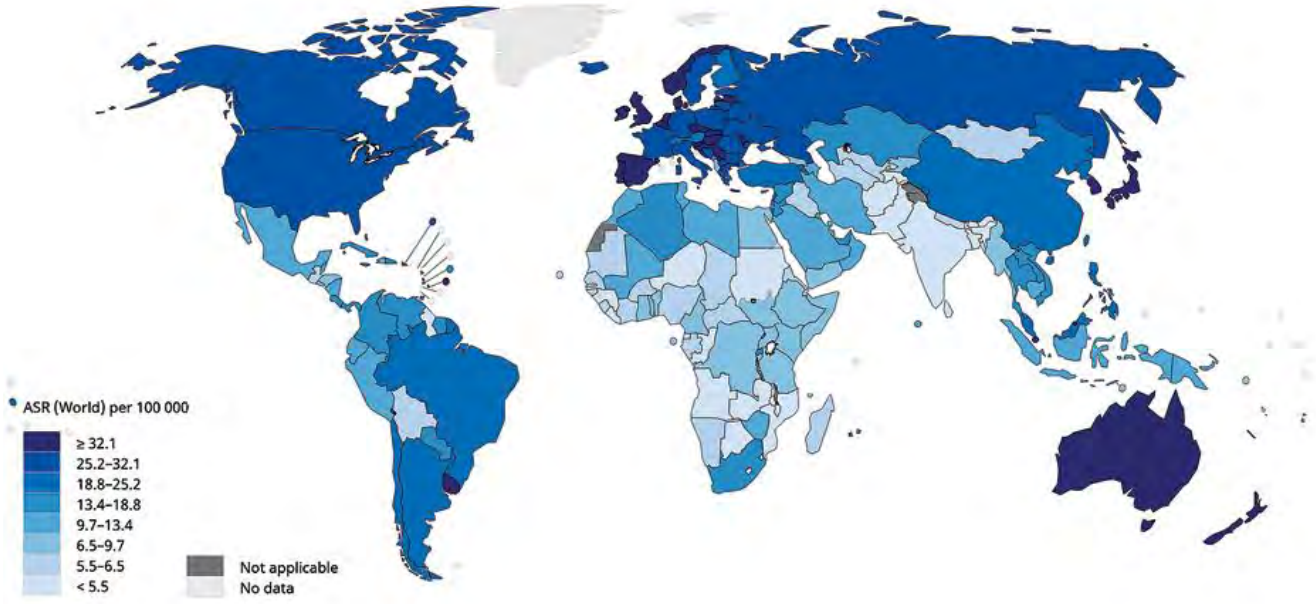
William Navarre
(University of Toronto)

Dana Philpott
(University of Toronto)

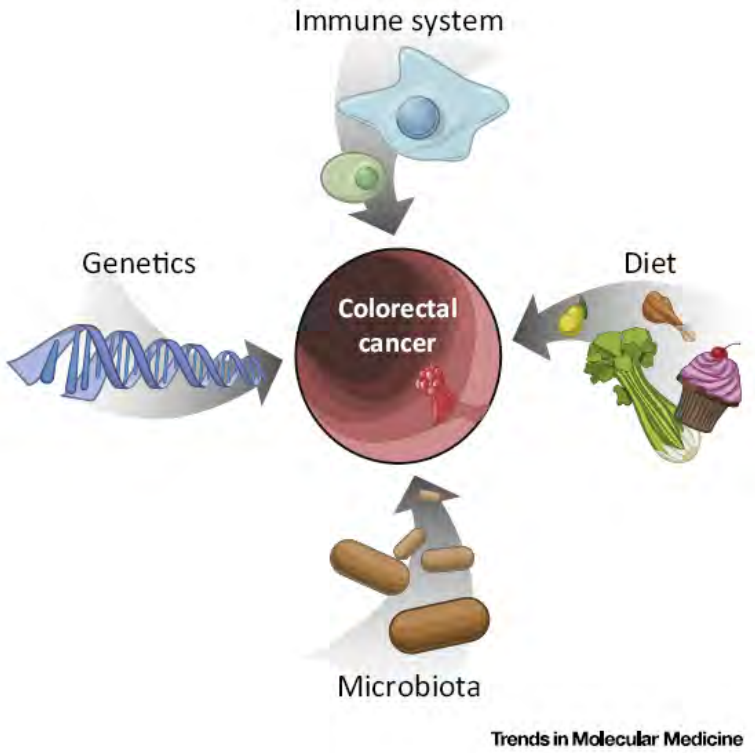
Robert Gryfe
Sinai Health

Global Colorectal Cancer incidence

- Colorectal cancer is the second most deadly cancer worldwide.

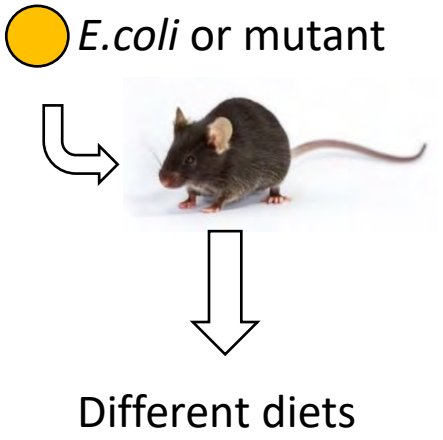


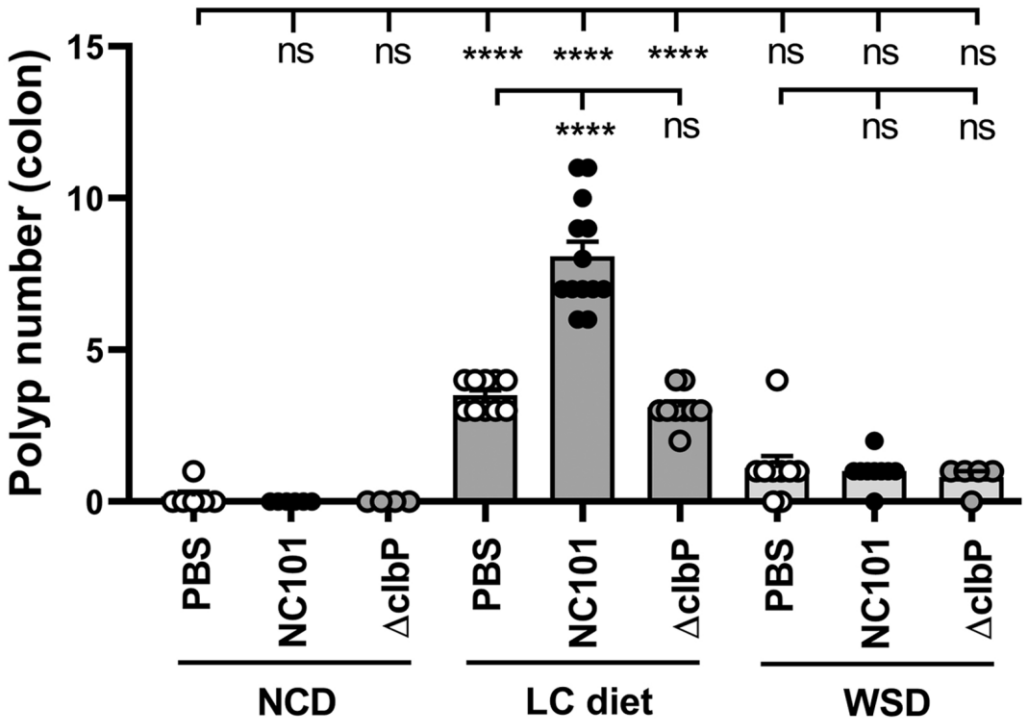
Adapted from http://globocan.iarc.fr/



E.coli NC101 promotes colon cancer when mice fed a low fiber diet

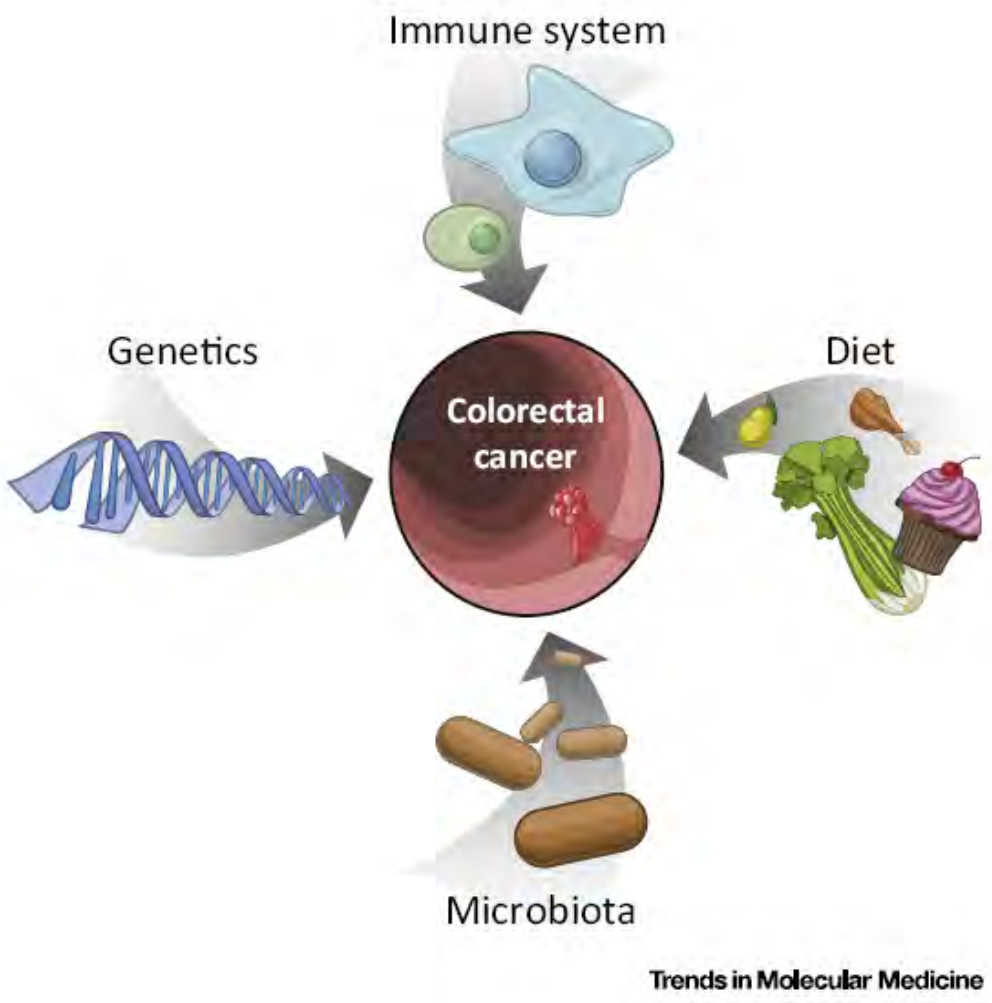
- We screened a number of pathobionts and their effects on colon cancer in mice.
- *E. coli NC101* produces a genotoxic compound called colibactin. The *dclbP* mutant cannot produce colibactin.





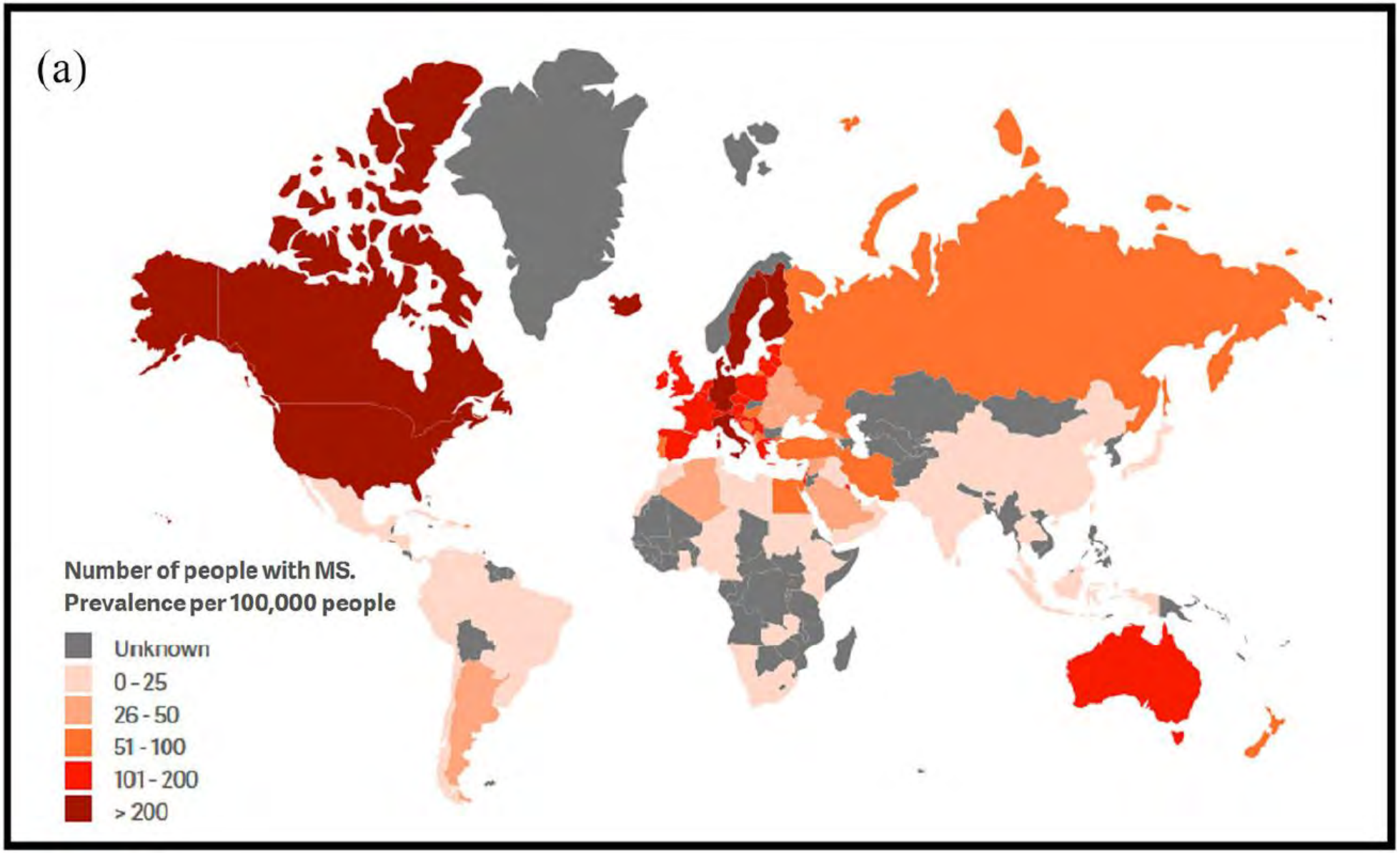
Low fibre diet causes E.coli NC101 to grow and cause DNA damage

Factors linked to colorectal cancer development



Take home message: a diet rich in fibers will protect you from colon cancer caused by this common E.coli bacteria

Li & Martin 2016



Walton *et al.* 2020 Multiple Sclerosis Journal

Immigration Status	Number of incident cases	Total population	Person-years	Incidence per 100,000 person-years (95% CI)	Adjusted IRR (95% CI)
Children <18y (1994–2008)					
South Asian Immigrant	31	112,425	627,800	4.9(3.3 to 7.0)**	0.47 (0.33 to 0.67)
Immigrant from Other Regions	103	368,777	2,159,083	4.7 (3.9 to 5.8)***	0.47 (0.38 to 0.57)
Non-Immigrant	3805	4,532,055	37,224,059	10.2 (9.9 to 10.5)	REF
Adults 18–64y (1999–2008)					
South Asian Immigrant	289	422,864	2,791,421	10.3 (9.1 to 11.5)***	0.32 (0.22 to 0.49)
Immigrant from Other Regions	853	1,306,270	9,331,817	9.1 (8.5–9.8)***	0.29 (0.20 to 0.42)
Non-Immigrant	20,635	7,987,726	65,903,239	31.3 (30.9–31.7)	REF
Ontario-born children					
South Asian Immigrant Mother	41	109,830	713,821	5.8 (4.1 to 7.8)	0.90 (0.65 to 1.22)
Immigrant Mother from Other Regions	68	271,503	2,015,218	3.4 (2.6 to 4.3)***	0.53 (0.41 to 0.67)
Non-immigrant Mother	923	1,624,120	14,396,199	6.4 (6.0–6.8)	REF

NB Age groups represent age at disease onset. The category of Ontario-born children represent children born after 1991, where full administrative data is available from birth.

* $P<0.05$,

**$P<0.001$,

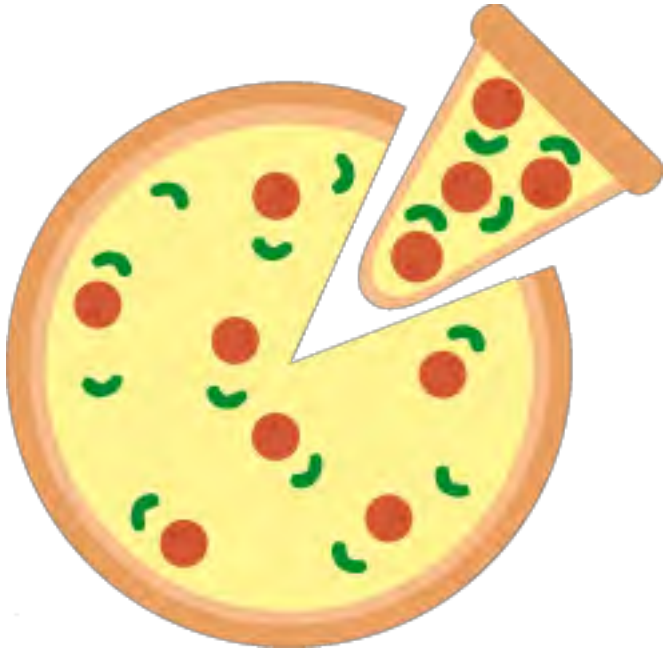
***$P<0.0001$ compared to non-immigrant group by age- and sex-adjusted Poisson regression analysis.

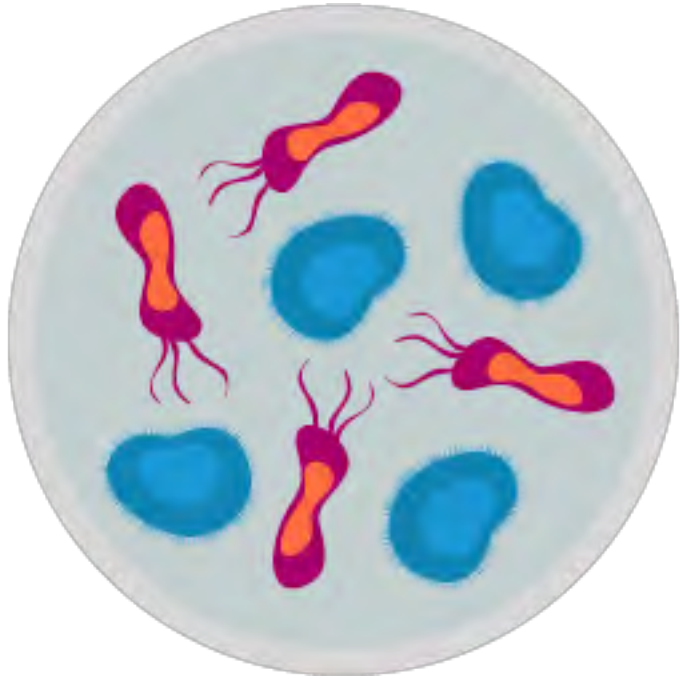
CI: confidence intervals; IBD: inflammatory bowel disease; IRR: relative incidence ratio; REF: reference group.

doi:10.1371/journal.pone.0123599.t004

GEMINI

Generations Environment Migration Inflammation





Lightning Round Presentations
Resource Development

Presenter	Project Title
Michael Ungar	Patterns of Resilience Among Youth in Contexts of Petrochemical Production and Consumption in the Global North and Global South
Nicole Bates-Eamer	A SHARED Future: Achieving Strength, Health, and Autonomy through Renewable Energy Developments for the Future
Margot Parkes	The ECHO Network (Environment, Community, Health Observatory): Strengthening intersectoral capacity to understand and respond to health impacts of resource development

The Resilient Youth in Stressed Environments Study: Multisystemic Approaches to Researching Resilience

Michael Ungar, Ph.D.

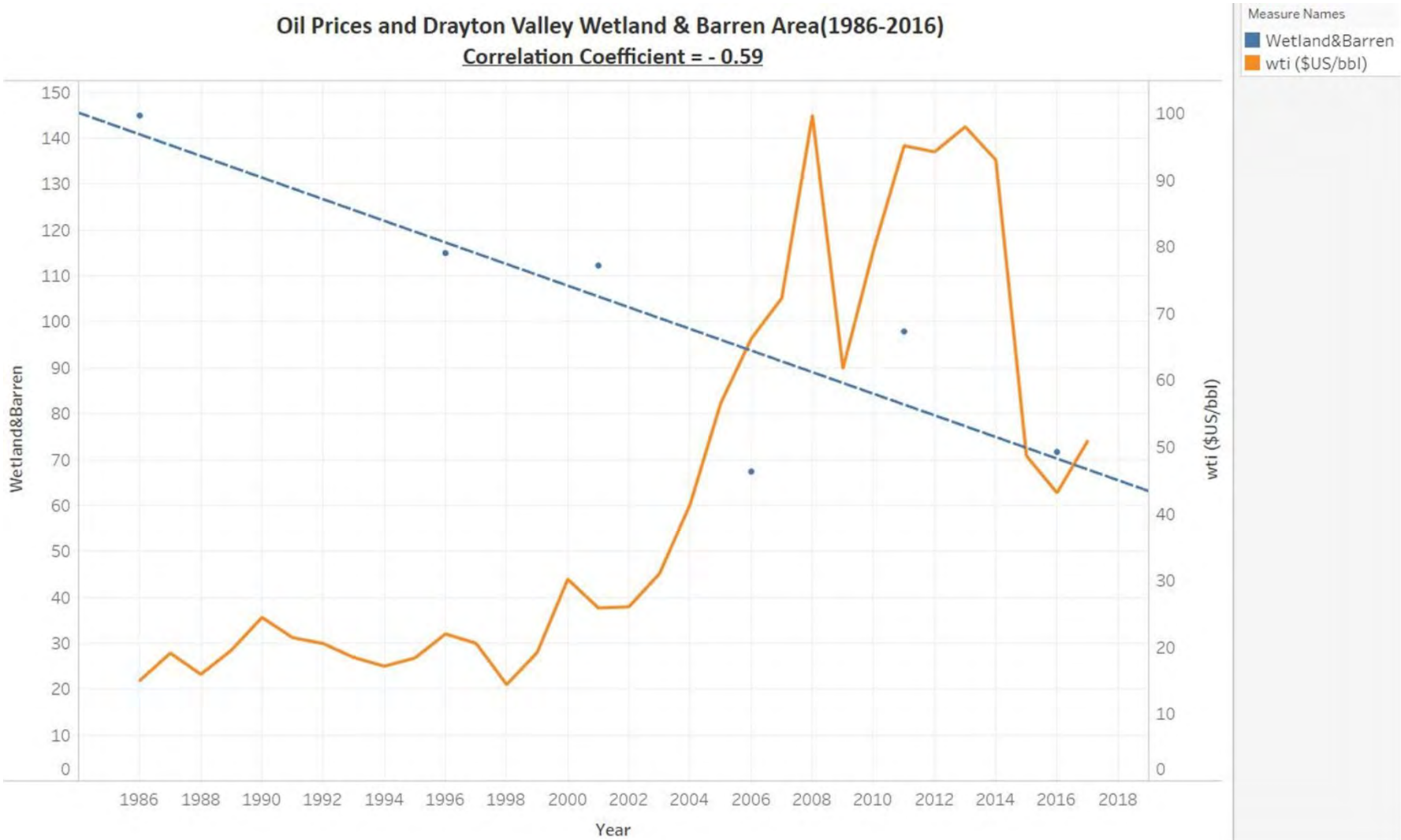
Canada Research Chair in Child, Family and Community Resilience

Dalhousie University

Philip Jefferies, Ph.D.

Research Fellow, Resilience Research Centre, Dalhousie University

Resilience Research Centre



PH = Physical Health (SF-15)

I1 = CYRM individual subscale – personal strength

I2 = CYRM individual subscale – peer support

I3 = CYRM individual subscale – social skills

CG1 = CYRM caregiver subscale – physical support

CG2 = CYRM caregiver subscale – psychological support

C1 = CYRM Context subscale – Spirituality/Religion

C2 = CYRM Context subscale – Education

C3 = CYRM Context subscale – Culture

Engage = Engagement at work or at school (if person is not working but at school)

Neigh = Perception of Neighborhood Scale

Cort = Hair cortisol

Depr = Depression

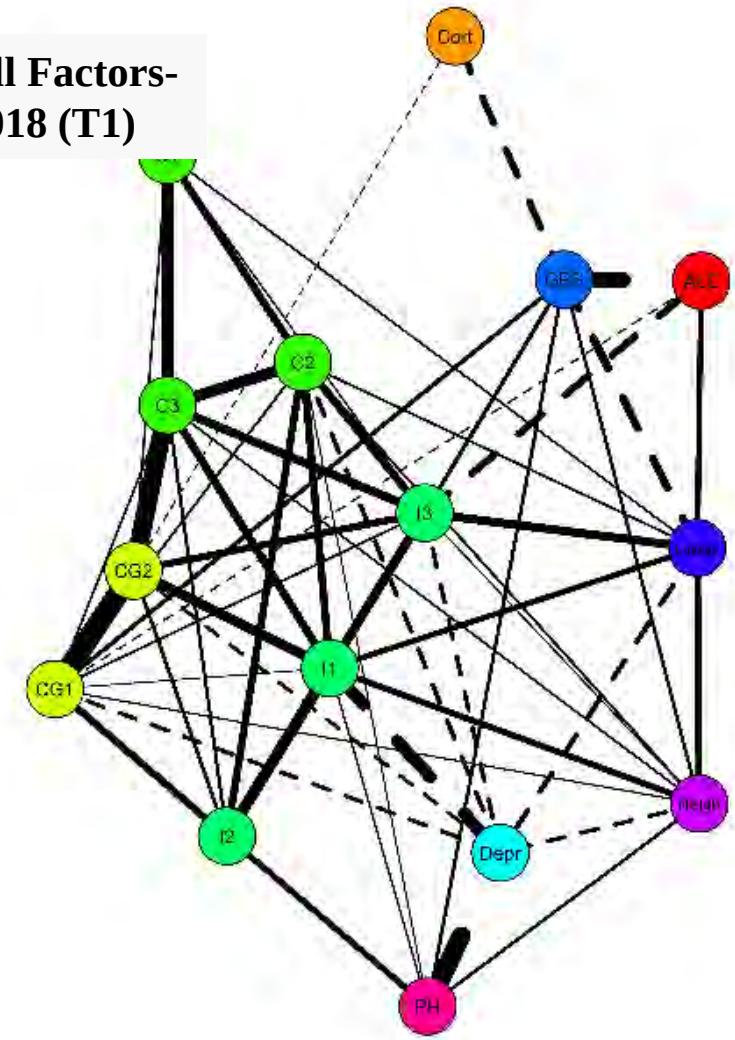
ALE = Active Living Environment

GBS = Percentage of Green and Blue Space within a 1000m radius **around a person's living area**

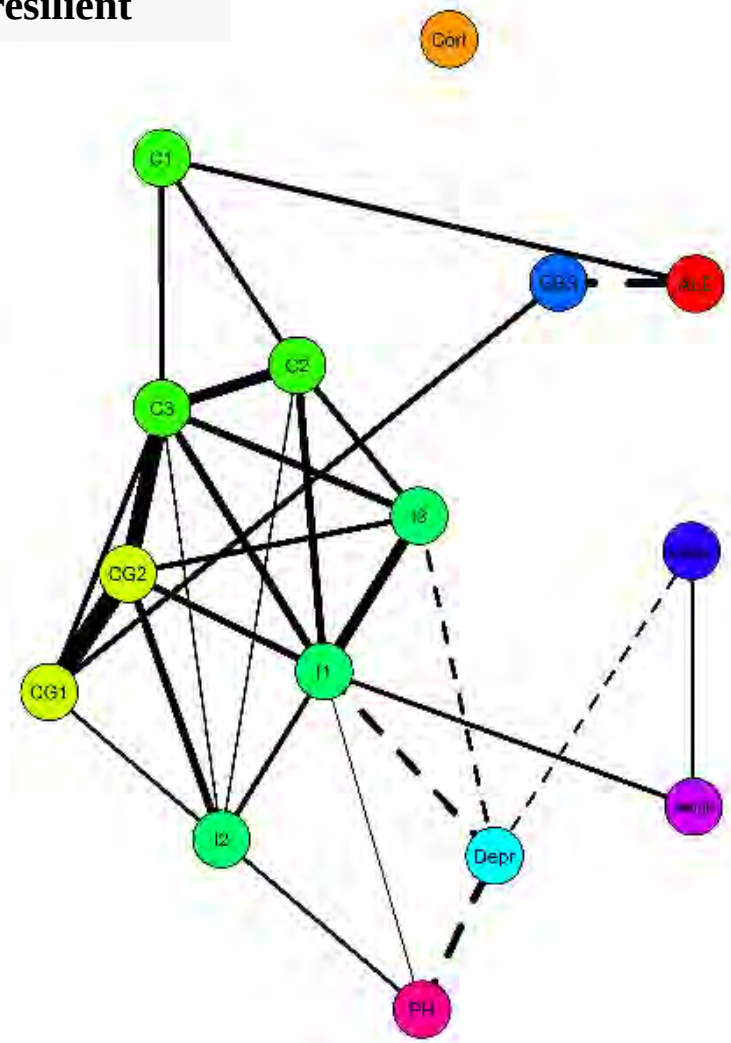
Resilience Research Centre

All

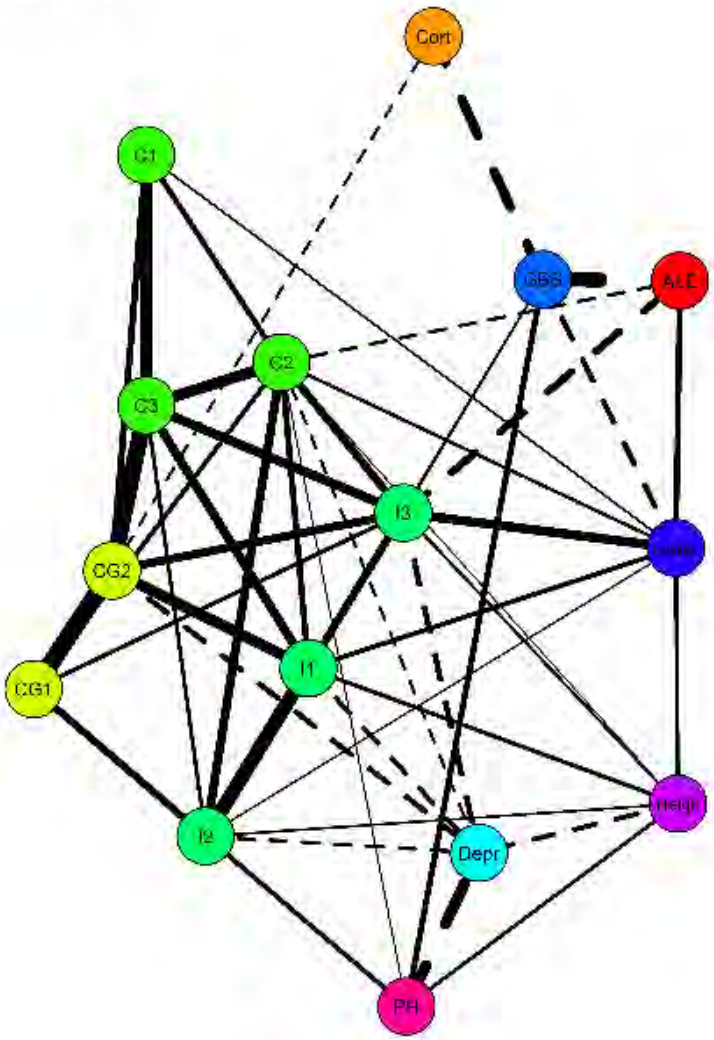
All Factors- 2018 (T1)



Non-resilient



Resilient



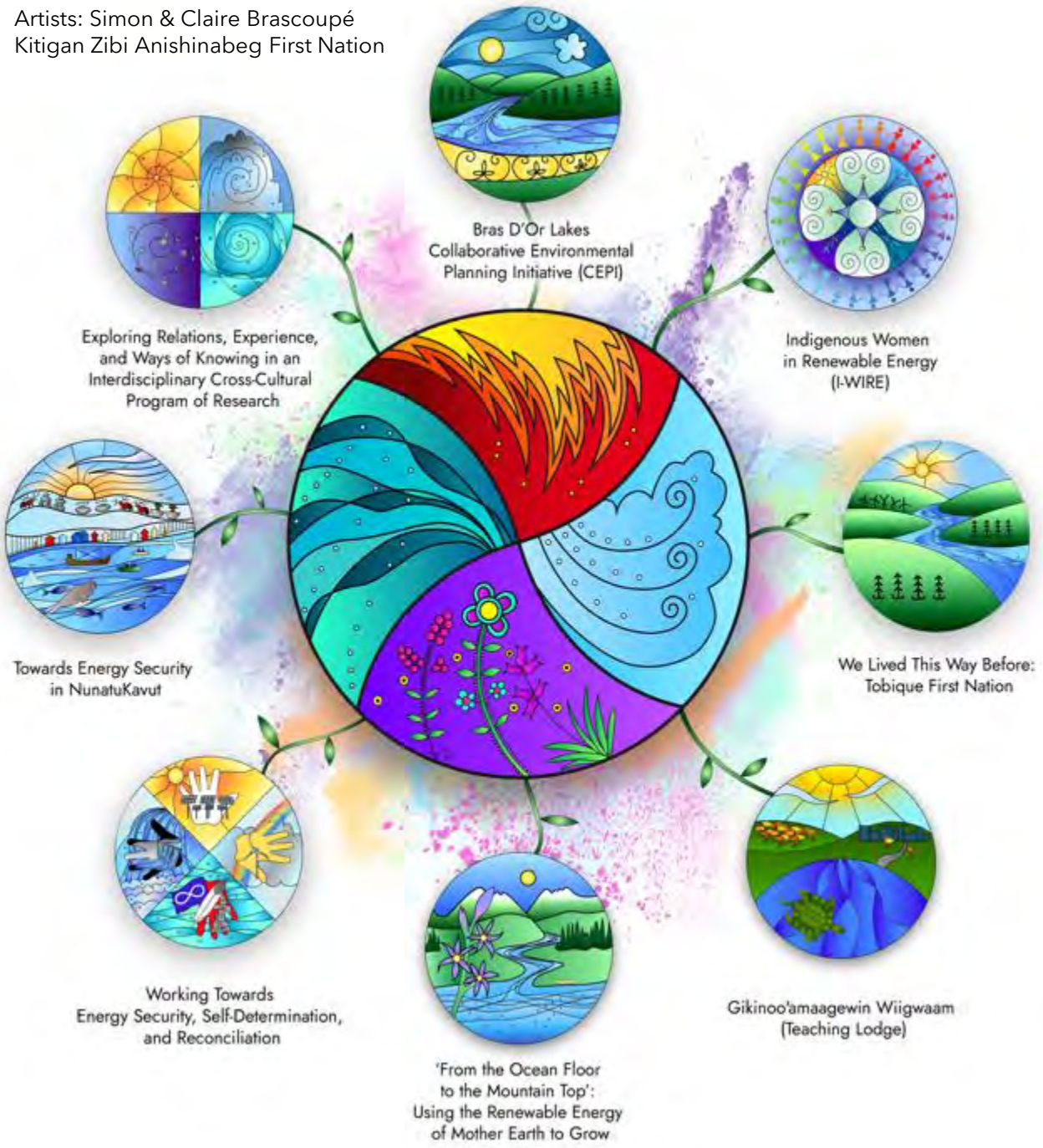
Network Analysis 2018 (T1)

A SHARED Future: Achieving Strength, Health, and Autonomy through Renewable Energy Development for a Shared Future

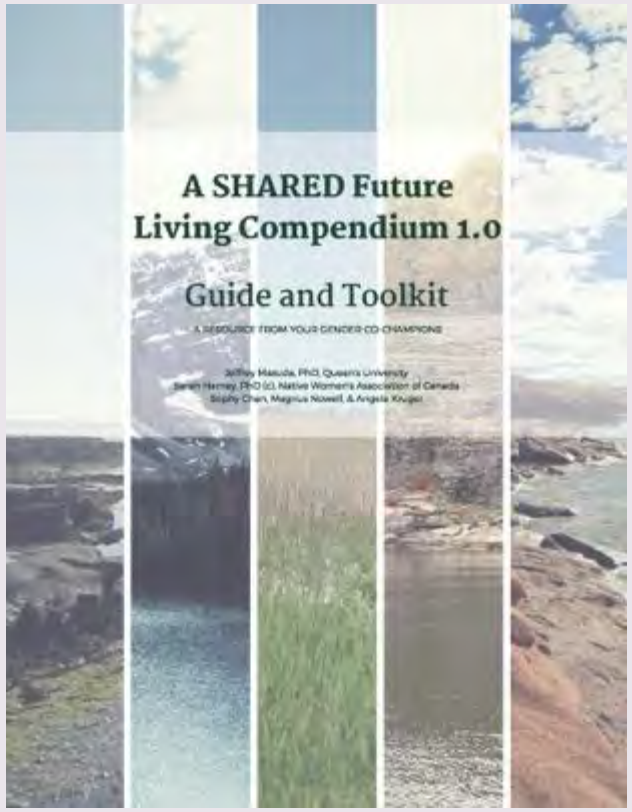
A SHARED Future's Co-Directors:
Dr Heather Castleden, President's Impact Chair in Transformative Governance for Planetary Health (Prof. UVic)
Dr Diana Lewis, Canada Research Chair in Indigenous Environmental Health Governance (Asst. Prof. Guelph)

A SHARED Future's Current Postdoctoral Fellow (Presenter): Dr Nicole Bates-Eamer (UVic), nbeamer@uvic.ca

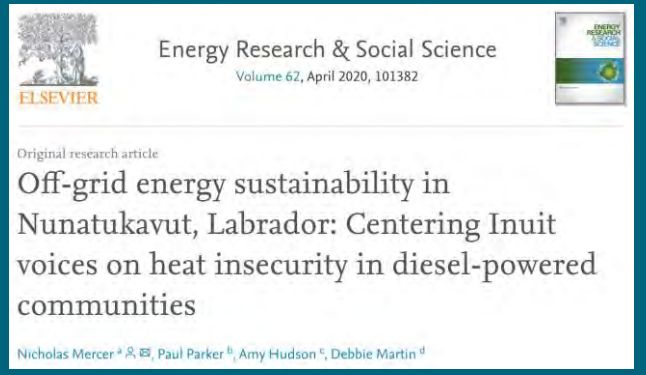
Artists: Simon & Claire Brascoupé
Kitigan Zibi Anishinabeg First Nation



Accomplishments



Knowledge Translation



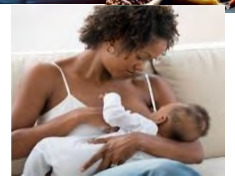
Lightning Round Presentations
Agri-Food

Presenter	Project Title
Barbara Hales	Endocrine Disrupting Chemicals: Towards Responsible Replacements
Norman Neumann	Developing a Framework for Wastewater Reuse in Canada
Sherilee Harper	Climate Change and Indigenous Food System, Food Security, and Food Safety (Climate Change IFS3)

Endocrine Disrupting Chemicals (EDCs): Towards Responsible Replacements

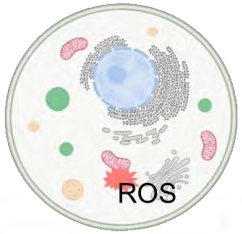
Goal: To develop innovative approaches to ensure that "safe" alternatives replace endocrine disrupting chemicals, such as bisphenol A, brominated flame retardants and phthalates

1. Exposure assessment



Canada & South Africa
Led by C Goodyer

2. Bioactivity



In Vitro and Ex Vivo High Content Screening
Led by B Robaire

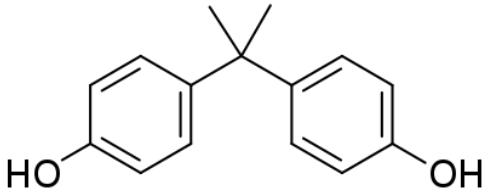
3. Replacement

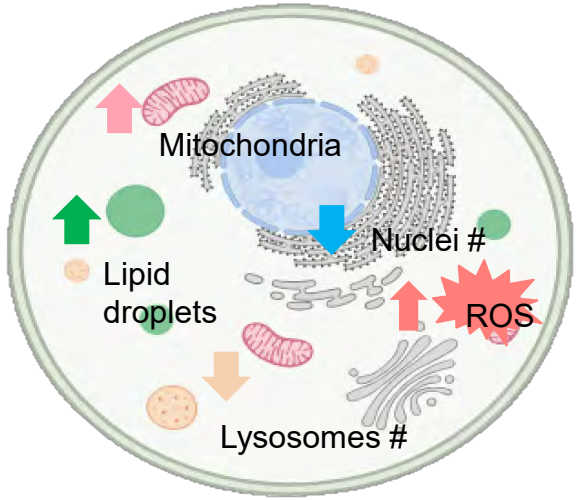
Informed Substitution
Led by J Ellis

https://www.mcgill.ca/edc/

Endocrine Disrupting Chemicals (EDCs): Towards Responsible Replacements

Bisphenol A (BPA) and its replacements: are they regrettable or responsible?





Cells: testis, ovary, adrenal, liver
Organs: developing limbs, testes

Food: Legacy and replacement bisphenols were detected in food from Montreal and South Africa. Cooking did not reduce exposure much.
Thermal labels were identified as a dietary source of BPS for the first time.

Water: Bisphenols were **not** detected in ANY water samples.

Milk: BPA, BPS, D8 and D90 were detected in human milk from mothers in Montreal.

Cells: The effects of the bisphenols tested were chemical and cell-line specific.
Importantly, some of the bisphenols replacing BPA in commerce today are similar to, or more potent, than BPA.

Organ cultures: Bisphenols suppressed the embryonic development of cultured limb buds and testes.

Endocrine Disrupting Chemicals (EDCs) Team

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McGill University Health Centre

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Department:
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REPUBLIC OF SOUTH AFRICA

Noluzuko (Zukie) Gwayi

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Eeva Leinala

Canadian Environmental Law Association
EQUITY. JUSTICE. HEALTH.

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Jane Muncke

P&G

George Daston