

Update on the Canadian Longitudinal Study on Aging (CLSA)

An online event for CLSA participants

October 27, 2023



Land Acknowledgement

We acknowledge the diverse Indigenous nations who call these lands home, respect the Treaties that were made on these territories, and acknowledge the harms and mistakes of the past as we dedicate ourselves to moving forward in partnership with Indigenous communities in a spirit of reconciliation and collaboration.



Agenda

- Welcome & Introductions
- CLSA Update
- Findings & Impact

PARTICIPANT WEBINAR



Update on the Canadian Longitudinal Study on Aging (CLSA)

Date: Friday, October 27, 2023

Time: 1 PM ET | Noon CT

CLSA panelists include:



Dr. Parminder Raina
Lead Principal Investigator



Dr. Christina Wolfson
Principal Investigator
Site Investigator, Montreal



Dr. Verena Menec
Inaugural Site Investigator,
Winnipeg



Dr. Vanessa Taler
Site Investigator,
Ottawa



Dr. Brent Richards
Co-lead, Biomarker
Working Group

Scientific Leadership



Parminder Raina
Lead Principal Investigator
McMaster University



Christina Wolfson
Principal Investigator
McGill University



Susan Kirkland
Principal Investigator
Dalhousie University



Lauren Griffith
Co-principal Investigator
McMaster University



Cynthia Balion
Co-principal Investigator
McMaster University



Andrew Costa
Associate Scientific Director
McMaster University

Site Principal and Co-Principal Investigators

Manitoba, Ontario, Quebec



Verena Menec
University of
Manitoba



Cara Brown
University of
Manitoba



Phil St. John
University of
Manitoba



Lauren Griffith
McMaster
University



Laura Anderson
McMaster
University



Vanessa Taler
University of
Ottawa



Arne Stinchcombe
University of
Ottawa



Christina Wolfson
McGill
University



Benoît Cossette
University of
Sherbrooke



Mélanie Levasseur
University of
Sherbrooke

Site Principal and Co-Principal Investigators

British Columbia, Alberta, Nova Scotia and Newfoundland



Theone Paterson
University of
Victoria



Tarek Amer
University of
Victoria



Teresa Liu-Ambrose
University of
British Columbia



Andrew Wister
Simon Fraser
University



Jacqueline McMillan
University of
Calgary



David Hogan
University of
Calgary



Susan Kirkland
Dalhousie
University



Gerry Mugford
Memorial
University



Zhiwei Gao
Memorial
University

CLSA Site Coordinators



Joseph Soriano
Winnipeg Site



Rachel Williams
Ottawa Site



Christina Ammerata
Hamilton Site



Yan Romanesky
Montreal Site



Stéphane Choquette
Sherbrooke Site



Monica Kelly
Victoria Site



Heather Stewart
Vancouver/Surrey Site



Eireann O'Dea
Vancouver CATI Site



Noshin Koenig
Calgary Site



Katerina MacIntyre
Halifax Site



Lindsay Macdonald
Halifax Site



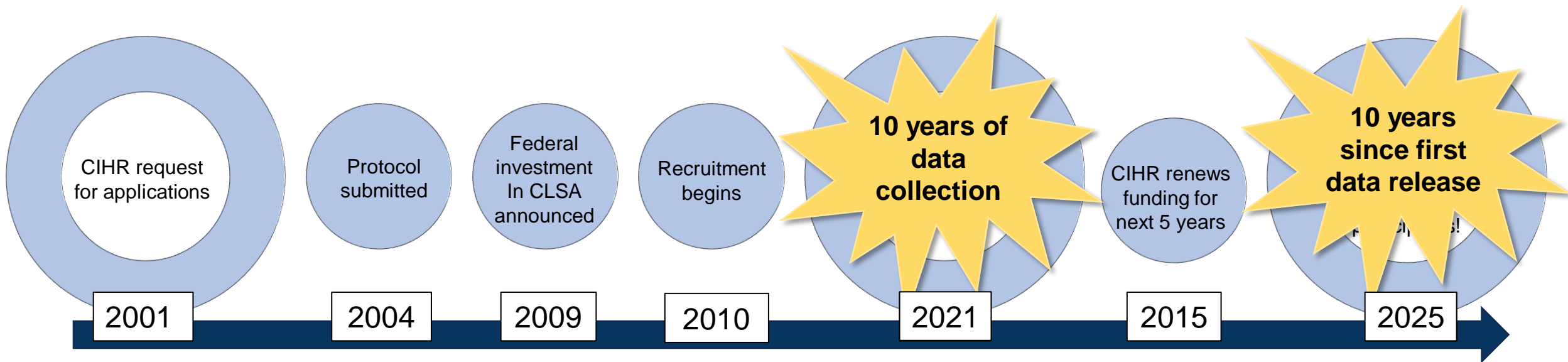
William Martin
Halifax CATI Site



Alyona Lewis
St. John's Site

CLSA History

2001-2015



What is the CLSA?

A research study and platform.

Supports population research into health and aging, leading to better health and quality of life for Canadians.



CLSA Network of Collaborating Institutions



a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA



**UNIVERSITY OF
CALGARY**



McGill

Institut de
recherche
Centre universitaire
de santé McGill



Research
Institute
McGill University
Health Centre



uOttawa



**University
of Victoria**



Canadian Longitudinal Study on Aging
Étude longitudinale canadienne sur le vieillissement

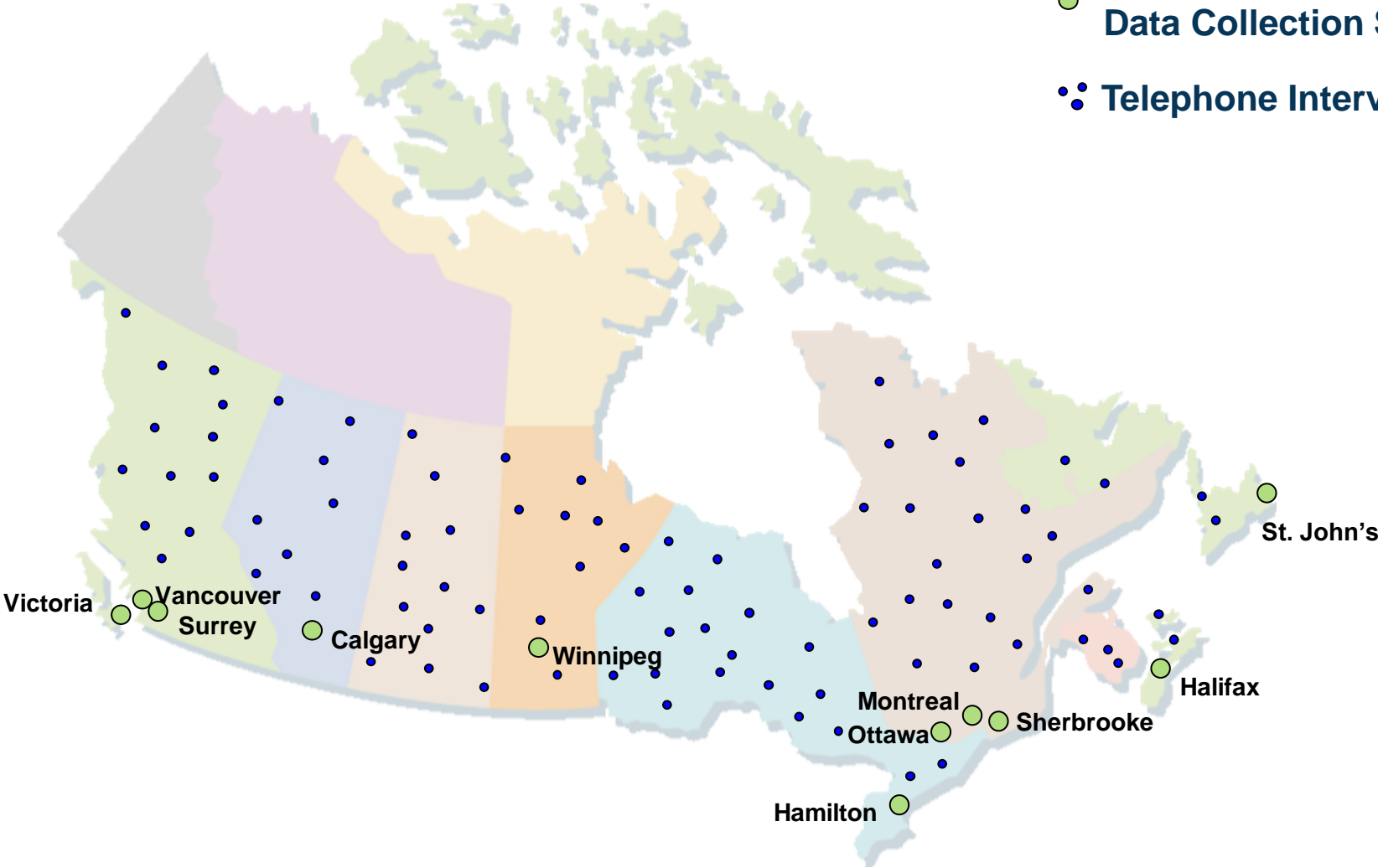


**Université de
Sherbrooke**



National Scope

- Home Interviews & Data Collection Site Visits
- Telephone Interviews



CLSA Research Platform

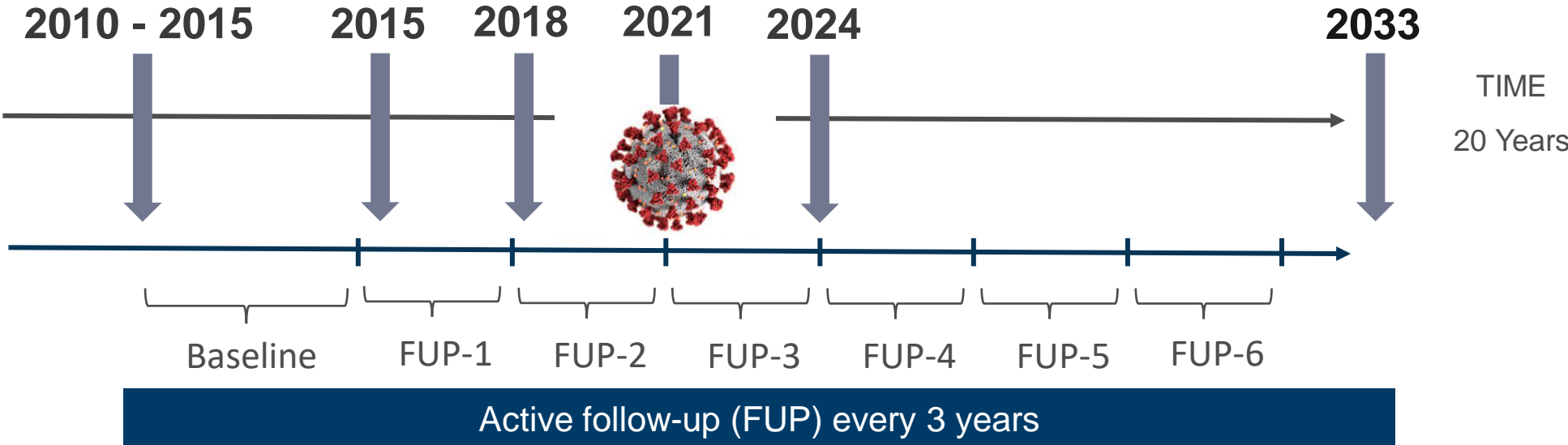
51,338 participants aged 45 - 85 at recruitment



CLSA Tracking
21,241 participants



CLSA Comprehensive
30,097 participants



Platform Enhancements



CLSA Tracking

2020

2021

2022

2023



COVID-19 Questionnaire Study



COVID-19 Antibody Study

Memory Study

Healthy Brains, Healthy Aging Initiative

Proxy Questionnaire



CLSA Comprehensive



COVID-19 Brain Health Study

Follow-up 3 begins



Canadian Longitudinal Study on Aging
Étude longitudinale canadienne sur le vieillissement

Data Collection through Questionnaires

- Answer a variety of questions on physical, social and psychological health
- Questions largely remain the same, but new content has been added

NEW

- In Follow-up 3, a short supplemental questionnaire was added
- Baseline Tracking data were released in 2015, leading to research about social isolation, hearing loss, risk factors for falls, retirement, and chronic health conditions



CLSA Data Collection

Data Collection Site Visits

Physical Assessments

- Height, Weight, BMI
- Bone Density, Body Composition, Aortic Calcification
- Blood Pressure
- ECG
- Carotid Intima-Media Thickness
- Pulmonary Function
- Vision & Hearing
- Performance testing
- Wearables **NEW**

Biospecimen Collection

- Blood
- Urine
- Stool

Cognitive Assessments

- Memory
- Executive function
- Reaction time



Mobility Trackers

- TicWatch
- ActiGraph (thigh)
- Tracks activity and community mobility (e.g., driving)
- All Comprehensive participants



Canadian Longitudinal Study on Aging
Étude longitudinale canadienne sur le vieillissement



Sleep Trackers

- Muse headband
- ActiGraph (wrist)
- Tracks sleep quality and patterns
- 2,360 Comprehensive participants

CLSA-Weston Healthy Brains, Healthy Aging Initiative

- \$12M brain health initiative funded by the Weston Family Foundation
- 6,000 Comprehensive participants
- MRIs & stool samples (2,630 Comprehensive participants)
- Stool samples only (6,000 Comprehensive participants)



Canadian Longitudinal Study on Aging
Étude longitudinale canadienne sur le vieillissement



Losses to the CLSA

- By the end of the second follow-up, 7.4% of participants had withdrawn from active data collection though most (80%) consented to continue through data linkage
- 6.9% of participants have died since their baseline assessment
- Strategies to prevent losses
 - Web questionnaires for participants who move outside of the area
 - Proxies who can answer questions for the participant

CLSA Impact Story of the Year

COVID-19 findings
that used the
CLSA research
platform

cihr-irsc.gc.ca/e/53522.html



- Pandemic depression persists, especially among adults who are lonely (November 2021)



- Female informal caregivers who provide intensive care at home experienced higher levels of depression and anxiety during the COVID-19 pandemic (March 2022)



- Hard to change minds when it comes to vaccine willingness (April 2022)



- For people over 50, even mild COVID-19 can result in mobility problems (January 2022)



- Pandemic prompts higher uptake of flu vaccination among older adults (January 2022)



- One in four older adults reported changing their alcohol intake during the pandemic (July 2022)



COVID-19 Data Dashboard:
clsa-elcv.ca/covid-study-results

COVID-19 Antibody Study: Findings



18,536 CLSA participants provided blood samples between November 2020 to July 2021.



Between November 2020 and July 2021, 3.9% of participants tested positive for antibodies that indicates infection from the SARS-CoV-2 virus.



17,311 blood samples were able to be tested for the presence of antibodies that indicates infection due to SARS-CoV-2 — the virus that causes COVID-19.



Overall, younger participants (aged 50-69 years) were most likely to test positive for antibodies that indicates infection from the SARS-CoV-2 virus.



Rates of positivity increased over time in all provinces.



Additional results available here: clsa-elcv.ca/antibody-results-update

**How are the
collected
data being
used?**



Projects & Publications

- More than 500 research teams have been approved to use CLSA data since 2014
 - More than a third of approved projects are led by trainees
 - Most projects are based in Canada, but many are international e.g., U.S., UK, Netherlands, Switzerland, Australia
 - www.clsa-elcv.ca/approved-projects
- 320 publications have been published in scientific journals
 - www.clsa-elcv.ca/stay-informed/publications



Scientific Publications



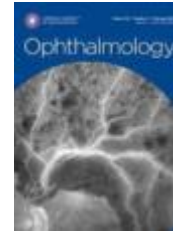
Mills CM, Keller HH, DePaul VG, Donnelly C. **Factors Associated with the Development of High Nutrition Risk: Data from the Canadian Longitudinal Study on Aging.** Can J Aging. 2023 Sep 26:1-14.



Levasseur M, Dubois MF, Génereux M, Naud D, Trottier L, Menec V, Roy M, Gabaude C, Couturier Y, Raina P. **Key Age-Friendly Components of Municipalities that Foster Social Participation of Aging Canadians: Results from the Canadian Longitudinal Study on Aging.** J Urban Health. 2023 Aug 18.



Ho M, Pullenayegum E, Fuller-Thomson E. **Is Social Participation Associated with Successful Aging among Older Canadians?** Findings from the Canadian Longitudinal Study on Aging (CLSA). Int J Environ Res Public Health. 2023 Jun 6;20(12):6058.



He W, Han X, Ong JS, Wu Y, Hewitt AW, Mackey DA, Gharahkhani P, MacGregor S. **Genome-wide meta-analysis identifies novel loci and improves disease prediction of age-related macular degeneration.** Ophthalmology. 2023 Aug 25:S0161-6420(23)00622-X.



Zolfaghari S, Cyr M, Pelletier A, Postuma RB. **Effects of Season and Daylight Savings Time Shifts on Sleep Symptoms: Canadian Longitudinal Study on Aging.** Neurology. 2023 May 3.



Griffith LE, Beauchamp M, McMillan J, Borhan S, Oz UE, Wolfson C, Kirkland S, Basta NE, Thompson M, Raina P; Canadian Longitudinal Study on Aging (CLSA) Team. **Persistent COVID-19 symptoms in community-living older adults from the Canadian Longitudinal Study on Aging (CLSA).** Commun Med (Lond). 2023 Mar 11;3(1):36.



Media coverage



Loneliness a major risk factor for depression in seniors: study

A survey of more than 24,000 Canadians over the age of 50 found they were twice as likely to experience symptoms after the first pandemic lockdown

ERIN ANDERSEN

Loneliness was the most significant risk factor for depression among older Canadians during the first year of the pandemic, according to the results of a large-scale longitudinal study that followed seniors both before and after COVID-19 spread through the country.

The research is part of a growing treasure trove of data pinpointing risk factors in pandemic mental health that experts say should help governments target health dollars to the Canadians who will struggle most in the aftermath.

"If you only look at mental health in aging populations from a medical viewpoint, you can overlook the social factors that contribute to chronic issues," said Parminder Raina, the scientific director of the McMaster Institute for Research on Aging, and the lead investigator of the longitudinal study.

The study, which surveyed more than 24,000 Canadians over the age of 50 from before the pandemic to the end of 2020, found that they were twice as likely to experience symptoms of depression after the first lock-



Women experienced higher rates of depression than men during the first year of the pandemic, according to a study that followed seniors both before and after COVID-19 spread. RYAN REMIORZ/THE CANADIAN PRESS

term care homes.)

As with many COVID-19 surveys, the research, which used a sample of people from the Canadian Longitudinal Study on Aging, found that what put people at higher risk of mental-health issues before the pandemic also tended to make them more vulnerable during it.

income was less than \$20,000, the prevalence of symptoms was 31 per cent, a number that did not change much during the survey's time period. As Dr. Raina notes, low-income seniors already had higher rates of depression than those with more financial resources before March, 2020.

The New York Times

The Pandemic Has Made Many Seniors Less Active

Health experts are concerned that the pandemic, in upending daily routines, has reduced mobility and physical conditioning in older adults.

Why Are More Canadians Living Past 100?

In the next 40 years, Canada could have nearly 100,000 centenarians.



Canadian Longitudinal Study on Aging
Étude longitudinale canadienne sur le vieillissement

Impact of Projects & Publications on Policy

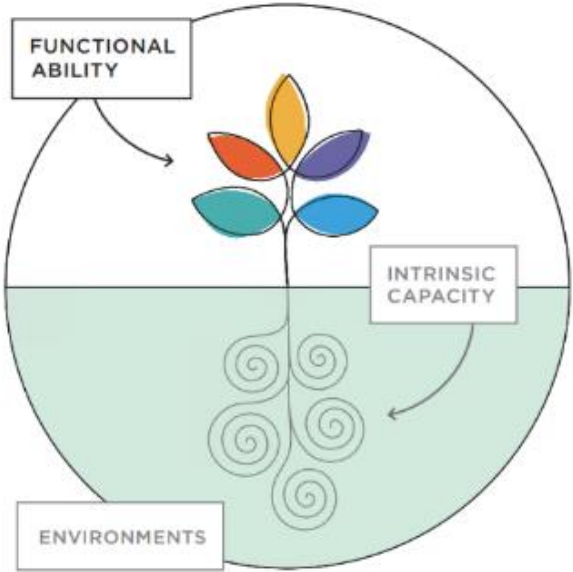


DECADE OF HEALTHY AGEING BASELINE REPORT



COVID-19
IMMUNITY
TASK FORCE

GROUPE DE TRAVAIL
SUR L'IMMUNITÉ
FACE À LA COVID-19



Public Health
Agency of Canada

Agence de la santé
publique du Canada



Canadian Longitudinal Study on Aging
Étude longitudinale canadienne sur le vieillissement



CLSA is funded by the Government of Canada through CIHR and CFI, and provincial governments and universities. COVID-19 research funding is provided by the Weston Family Foundation, COVID-19 Immunity Task Force, Juravinski Research Institute, McMaster University, McMaster Institute for Research on Aging, Nova Scotia COVID-19 Health Research Coalition and the Public Health Agency of Canada.

Thank you!



Cognition data in the CLSA

Vanessa Taler, PhD

School of Psychology,
University of Ottawa
Bruyère Research Institute,
Ottawa

October 27, 2023



What cognition measures do we collect in CLSA?



CLSA Tracking

- animal fluency test
- mental alternation test
- auditory verbal learning (immediate and delayed)



CLSA Comprehensive

- animal fluency test
- letter fluency test
- mental alternation test
- auditory verbal learning (immediate and delayed)
- Stroop
- prospective memory test
- choice reaction time test

Subjective cognitive status

- We also ask questions about people's self-perceived memory function
- For example,
 - Have you noticed changes in your memory?
 - Are you worried about them?



Why do we collect these data?

- Allows us to track changes in cognition over time
- We can examine the effects of different events/health conditions on cognitive performance
- We can identify factors that help people maintain cognitive function
- We can track the progress of people who are worried that they are losing memory function, even if their memory testing is normal

Traumatic brain injury (TBI) and cognition

Goals:

- To investigate rates of cognitive decline after 3 years in people who report a previous TBI with loss of consciousness
- To examine the role of social support as predictor of preserved cognitive function

Traumatic brain injury (TBI) and cognition

We found that:

- People with previous TBI and loss of consciousness showed greater cognitive decline years after the head injury
- However, perceived social support, particularly emotional support, may help buffer against this cognitive decline.

Subjective cognitive status

- Some people report that they are worried about changes in their memory/cognition, even though their performance on cognitive tasks is normal
- Research is trying to determine the meaning of these concerns – is the person noticing changes doctors can't yet detect? Or are things fine?
- CLSA has started asking people about their self-perceived cognitive function so we can begin to answer these questions

Predictors of subjective cognitive concerns

Goal:

- To identify the biopsychosocial factors that predict concerns about cognition

Why?

- Understanding the factors that predict people being worried about their cognition could help us design interventions to assist people with these concerns

Predictors of subjective cognitive concerns

Findings:

- Physical factors (physical activity, hypertension, vision problems) did NOT predict concerns about cognition
- Rather, psychosocial variables (depression, perceived social status, and personality traits) showed a more consistent association
- These results emphasize the importance of considering *psychological and social factors* in conceptualizing subjective cognitive concerns.

Predictors of subjective cognitive concerns

Future directions:

- We are following up on these findings by:
 - *Identifying factors that influence the risk of subsequent cognitive decline* in people with subjective cognitive concerns
 - *Examining factors that protect against cognitive decline* in these people

Other ongoing work

- Developing methods to detect changes in cognition using the CLSA battery
 - Development of a “cognitive impairment indicator”
 - Detection of spurious low scores in neuropsychological assessment
 - Identification of risk factors (e.g., shift work)



Other ongoing work

- Development of norms based on this very large sample
 - Cognition is expected to change as we age – we call this normal aging
 - Provides vital information for clinicians assessing patients for cognitive impairment
 - Norms available in both English and French



Other ongoing work

- CLSA can help us understand normal/healthy aging and identify markers of cognitive decline
- In the future, we will be able to identify risk and protective factors for dementia
- Harmonizing across other large-scale studies to identify the optimal way to ask people about their cognitive function



Conclusions

- The cognitive data are a crucial component of the CLSA
- They allow us to understand the factors driving cognitive health throughout the lifespan
- This can help us understand more about:
 - how to assist people in maintaining cognitive health
 - how to identify people who are at risk of cognitive decline
- Ultimately, this will lead to better quality of life for Canadians.





**Thank you for your
participation!**



Canadian Longitudinal Study on Aging
Étude longitudinale canadienne sur le vieillissement



TARGETING
ISOLATION

TARGETING ISOLATION

Verena Menec, PhD

Professor

Department of Community Health Sciences

University of Manitoba

October 27, 2023

The University of Manitoba campuses are located on original lands of Anishinaabeg, Cree, Oji-Cree, Dakota, and Dene peoples, and on the homeland of the Métis Nation.

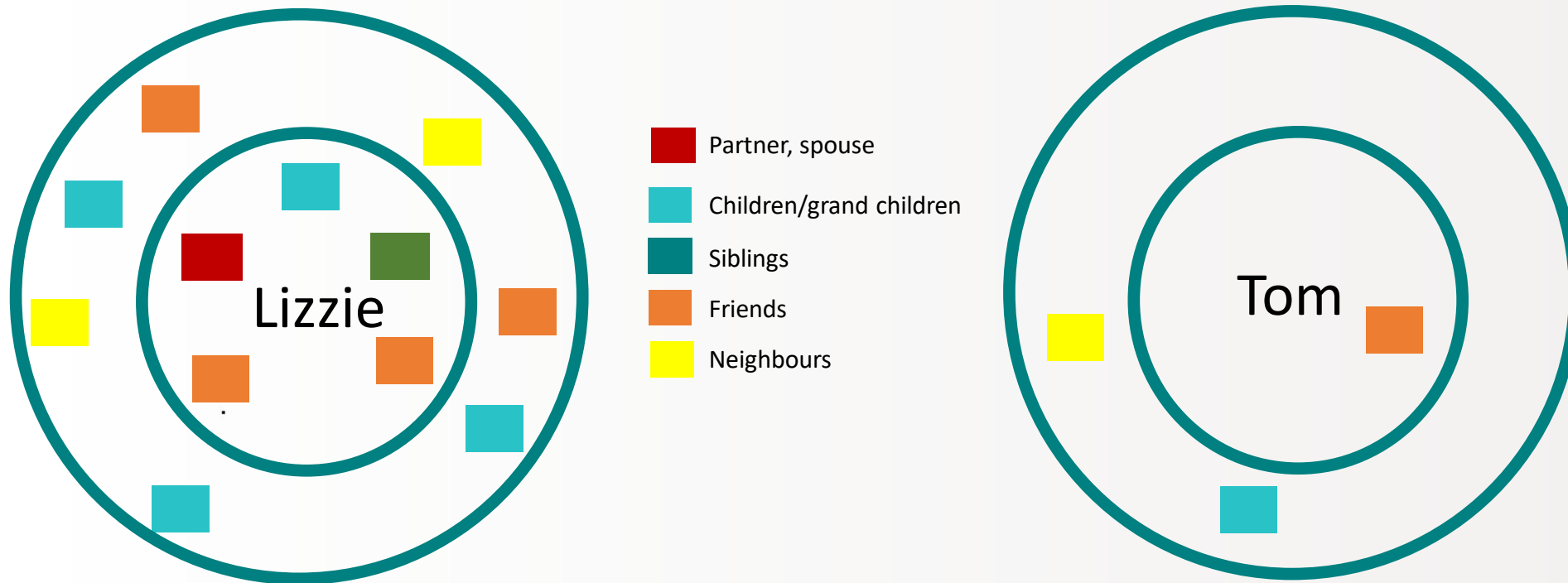


Nancy Newall, PhD

Associate Professor
Department of Psychology
Brandon University

Definitions: Social isolation and loneliness

Social isolation: An objective state of a lack of social contact



Loneliness: The unpleasant feeling of being disconnected

The Problem: Social isolation and loneliness are health risks

- Decreased immune system
- Heart disease and stroke
- Dementia
- Depression
- Lower quality of life



The Problem: Social isolation and loneliness are health risks

Social isolation increases the risk of mortality as much as smoking 15 cigarettes a day



The Challenge: How to connect people



Socially isolated
older adult



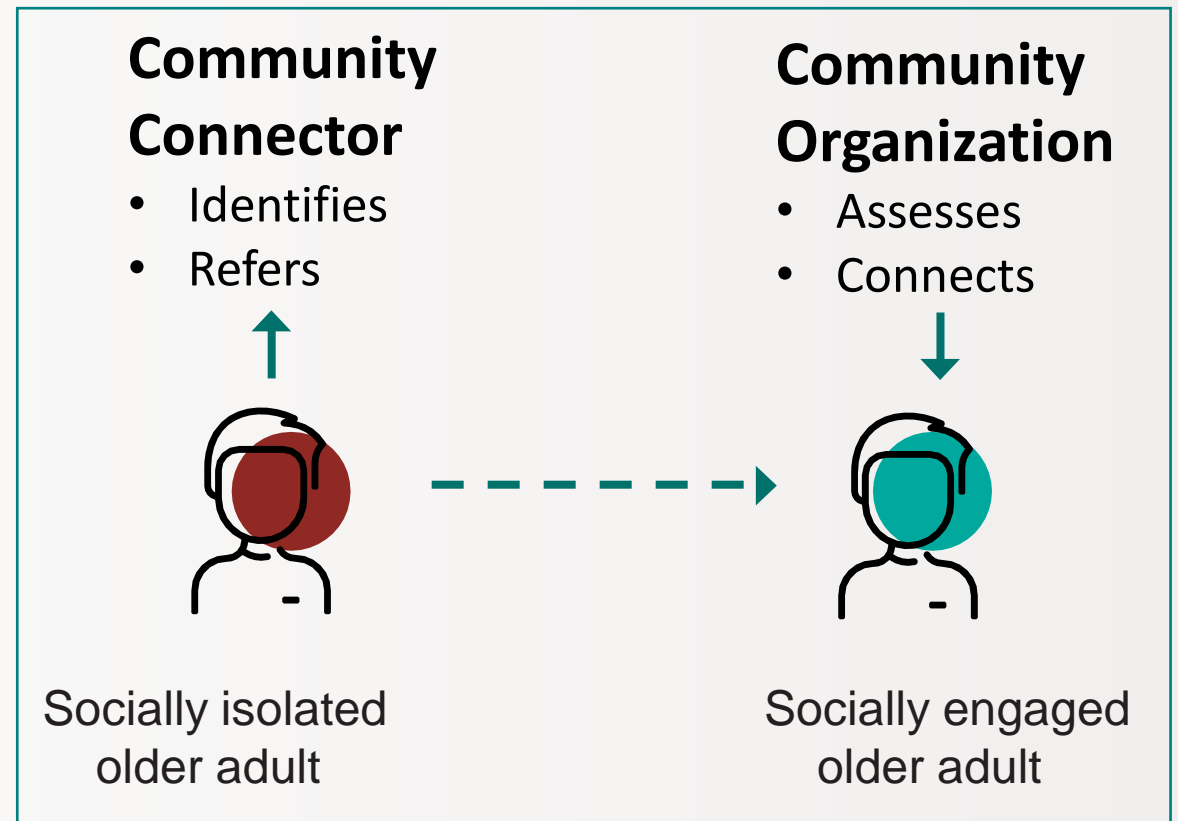
Socially engaged
older adult



A Solution: Targeting Isolation

Objectives:

- Provide evidence-based information
- Train 'community connectors' to identify and refer at-risk older adults to resources



Aging Well Together Coalition

Awareness

Collaboration

Support services



Active living

Transportation

Community
Connectors

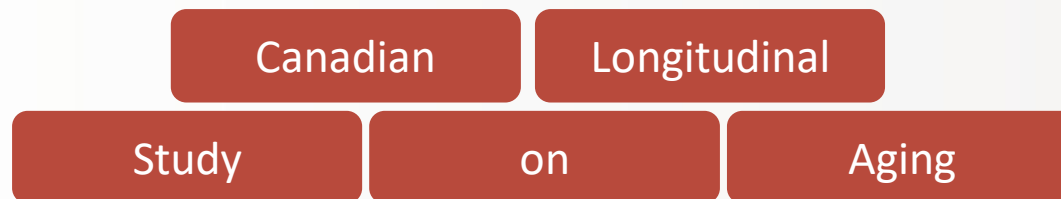


Funded by the Government of Canada's New Horizons for Seniors Program

Targeting Isolation

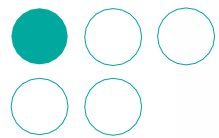


RESEARCH
BASED
INFORMATION

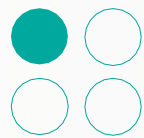


Social Isolation and loneliness are common

Among Manitobans aged 65 or older (pre-COVID) ...



1 in 5
were socially
isolated

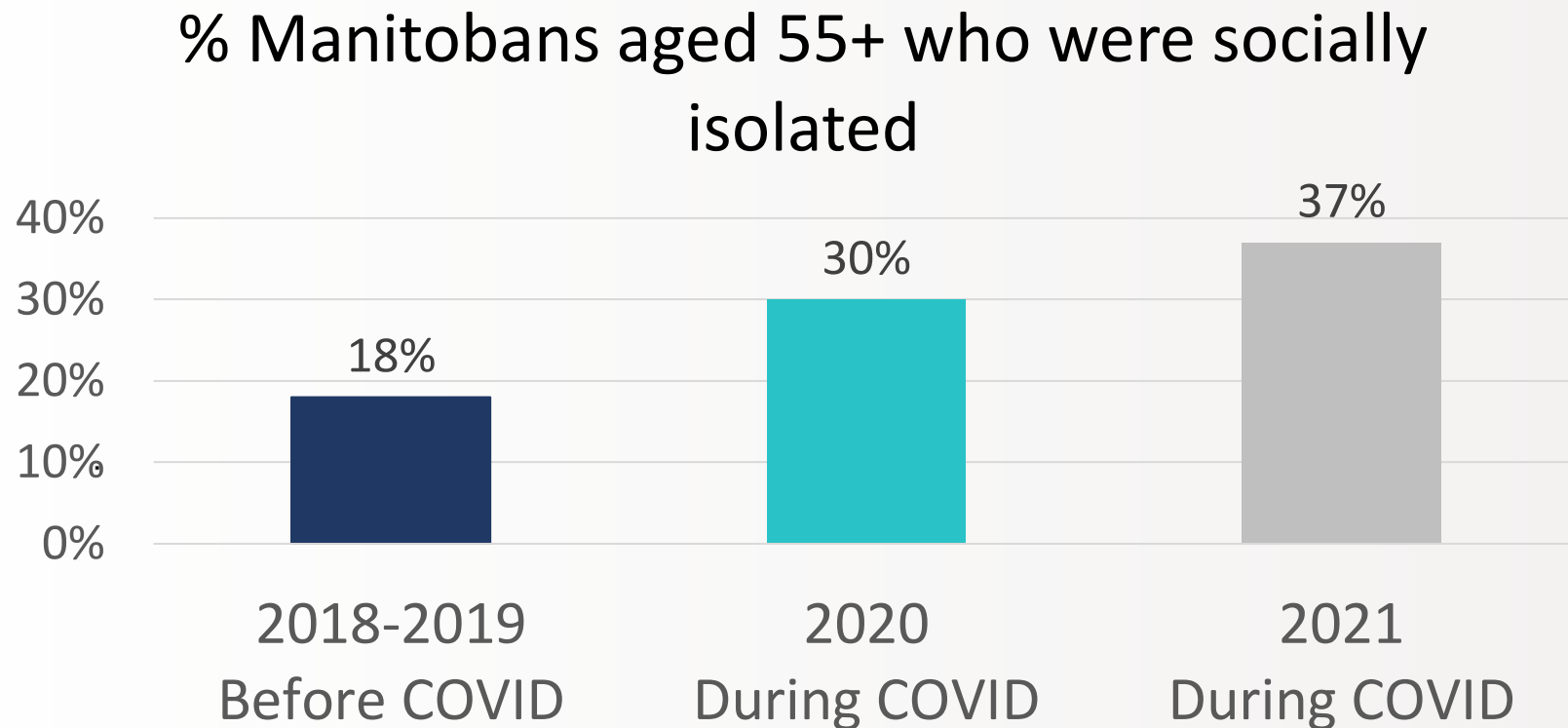


1 in 4
said they were
lonely



1 in 3
wanted to
participate in more
social activities

Social isolation/loneliness increased during COVID-19



Social isolation/loneliness are more common among certain groups ...

- People living on low income
- Those with health problems
- Those experiencing life transitions (e.g., loss of spouse)
-

Knowing the Risk Factors **HELPS**

H Health problems

E nvironmental factors

L ife transitions

P sychological factors

S ocial groups

Identifying signs of social isolation/loneliness

Show somebody you
CARED

Connections

Activities

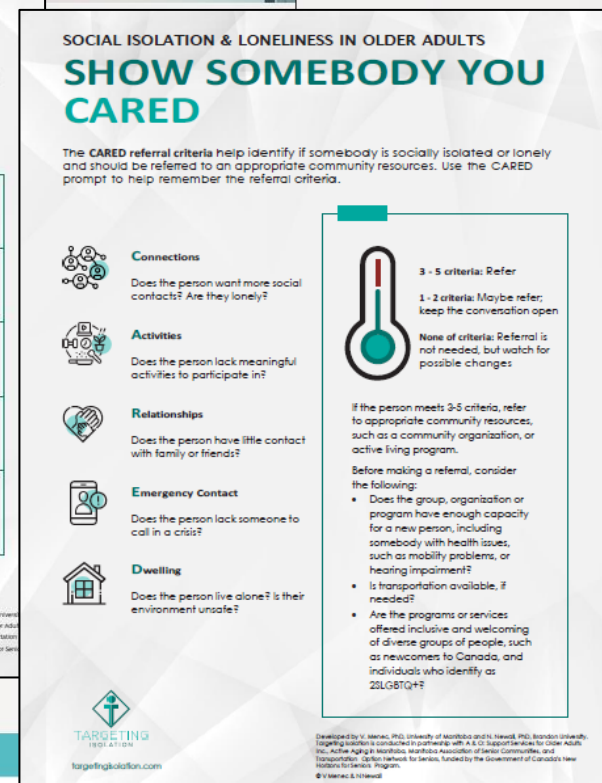
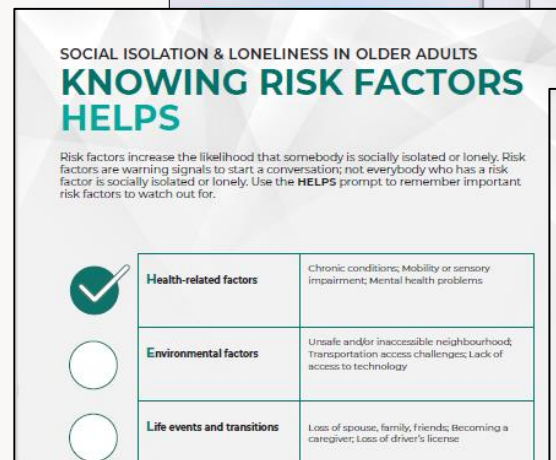
Relationships

Emergency Contact

Dwelling

Targeting Isolation

- Fact sheets
- Reports
- Resources
 - Knowing risk factors HELP
 - Show somebody you CARED
 - Conversation starters
 - And much more ...
- Videos



Targeting Isolation

Training Community Connectors

- Workshops
- E-learning module for healthcare professionals and volunteers/staff



Targeting Social Isolation Together E-Module For Healthcare Professionals

Please click the "sign-up" button below to take our e-module designed for health professionals.



Targeting Social Isolation Together E-Module For Community Volunteers

Please click the "sign-up" button below to take our e-module designed for community volunteers.



*Thank you for participating
in the CLSA!*

For more information visit

targetingisolation.com



CLSA and Personalized Medicine



Brent Richards, MD, MSc

Division of Endocrinology, Department of Medicine, Jewish General Hospital

Professor of Medicine / William Dawson Scholar / FRQS Chercheur Senior

Lady Davis Institute

McGill University





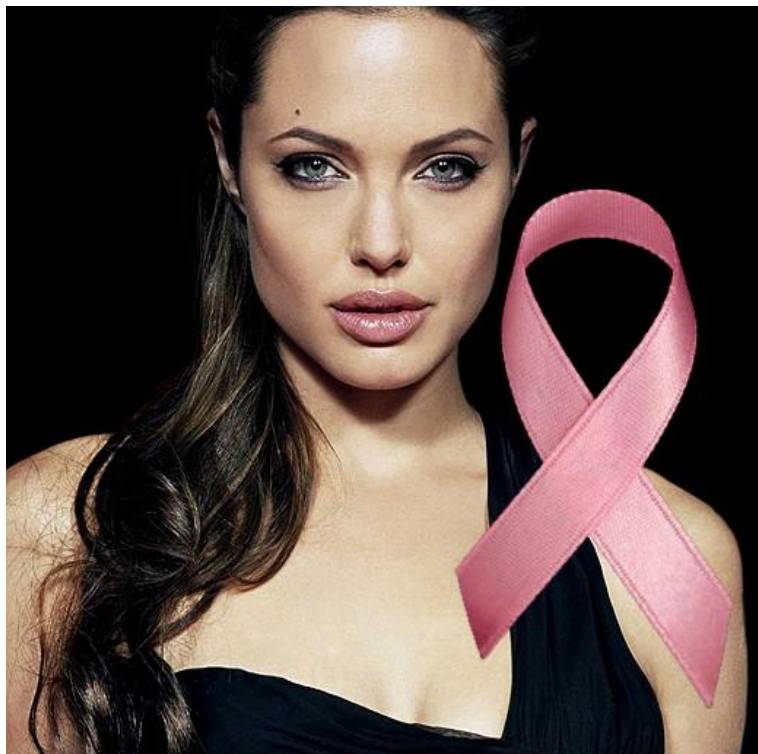
James Doak, St. John's School survivor of Lac Temiscamingue canoe tragedy arrives at the village of Ville-Marie on June 13, 1978. *LEN SIDAWAY / MONTREAL GAZETTE*

1978 Lake Timiskaming Canoeing Tragedy

Causes of the Tragedy?

- Inexperienced paddlers
- Moderate wind
- Moderate waves
- Paddling for four hours
- Poor night's sleep after an all-night car trip
- Cold water
- No swim test
- Only one adult





A single genetic cause



A single genetic cause



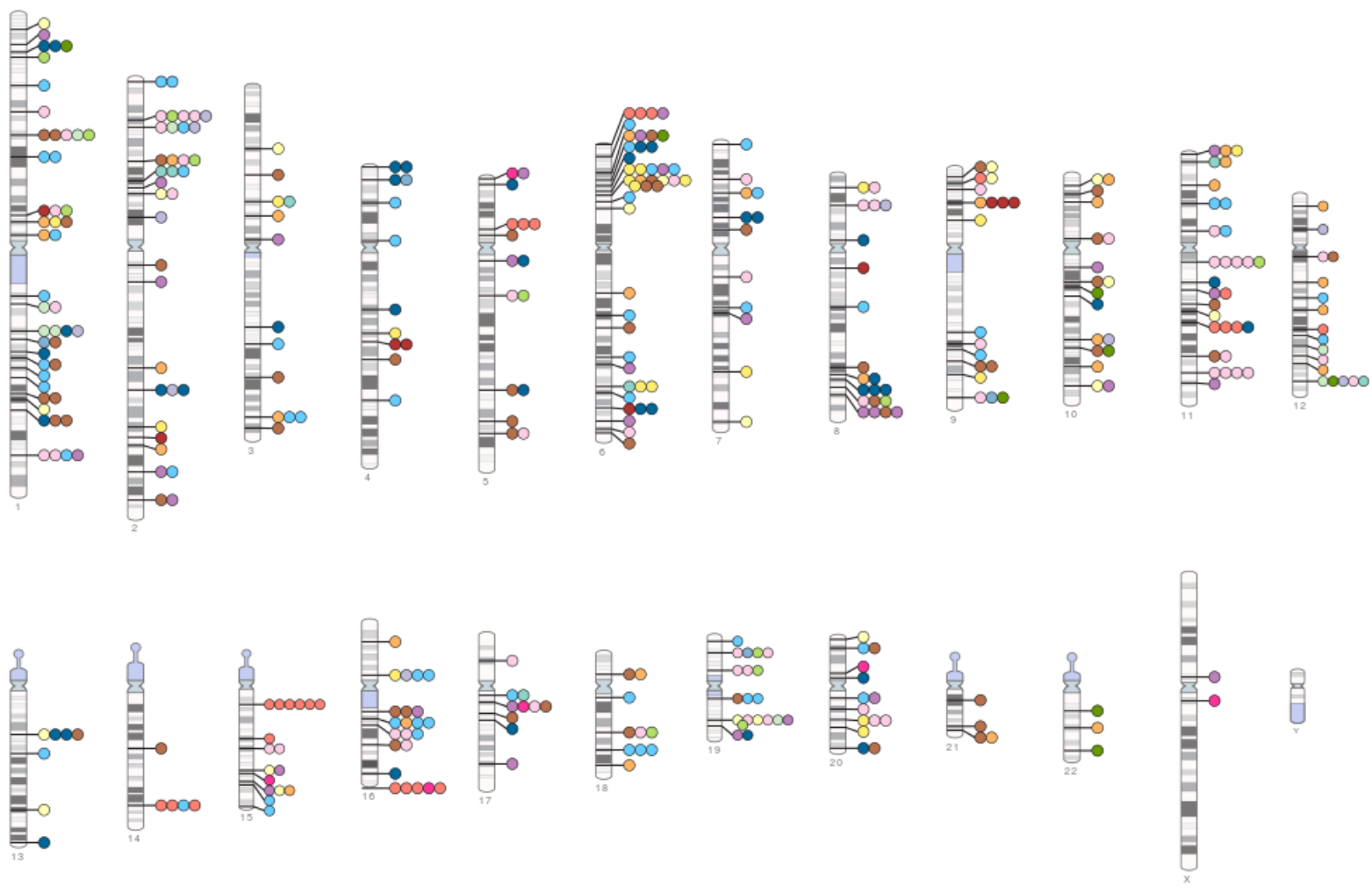
A confluence of many causes

Most ageing-related disease is caused by hundreds of little nudges





2005



2010



2020

Helping our patients?



Disease Prediction



Improving Diagnosis



Identifying causes of disease

Helping our patients?



Disease Prediction

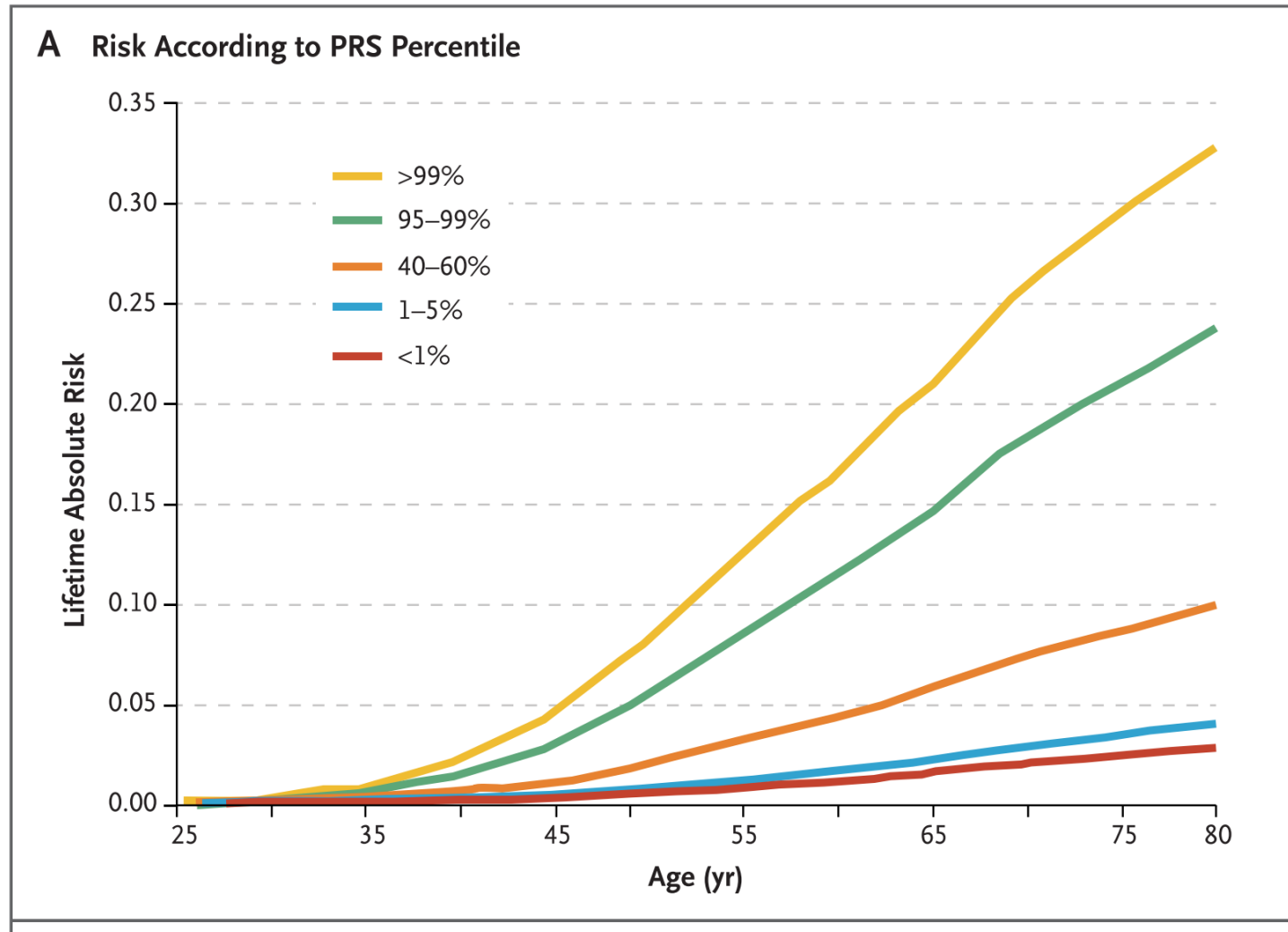


Improving Diagnosis



Treatment Response / Non-Response

Lifetime Breast Cancer Risk to Age 80



Hunter & Drazen,
NEJM 2019

Helping our patients?



Disease Prediction

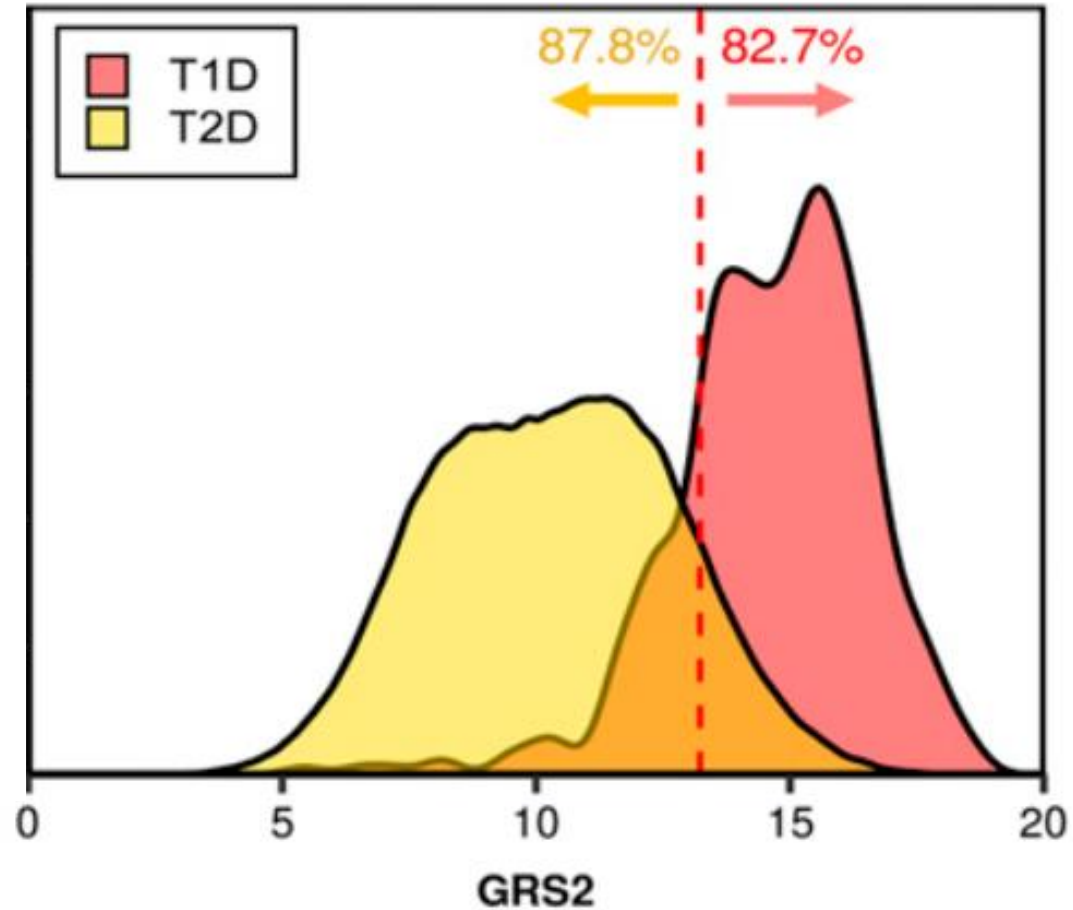


Improving Diagnosis



Treatment Response / Non-Response

Improving Diagnosis: Which diabetes do I have?



Helping our patients?



Disease Prediction

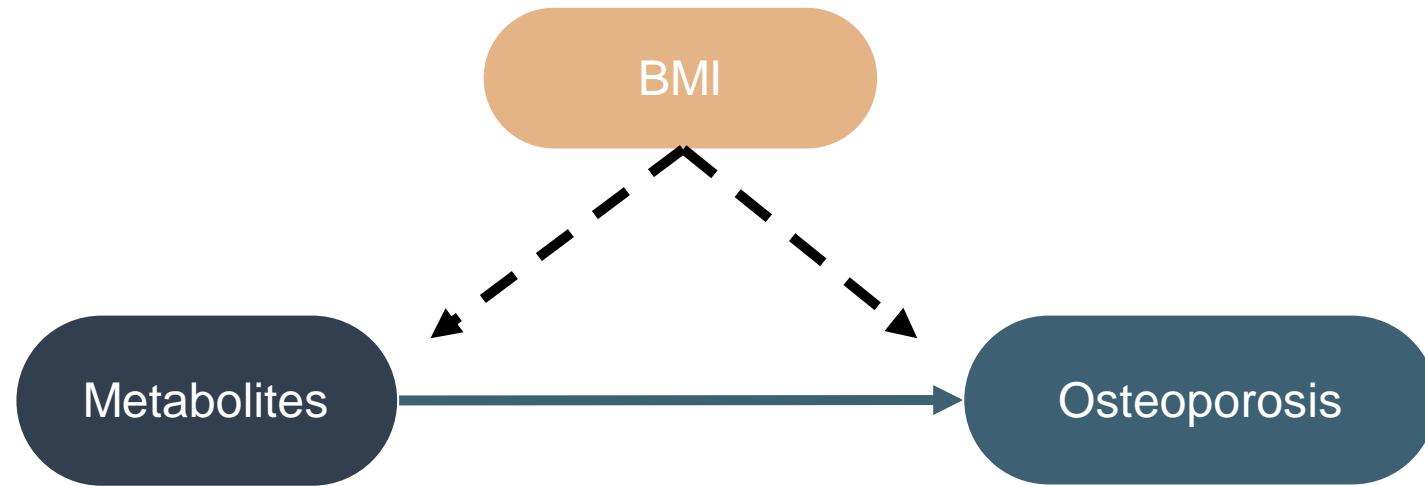


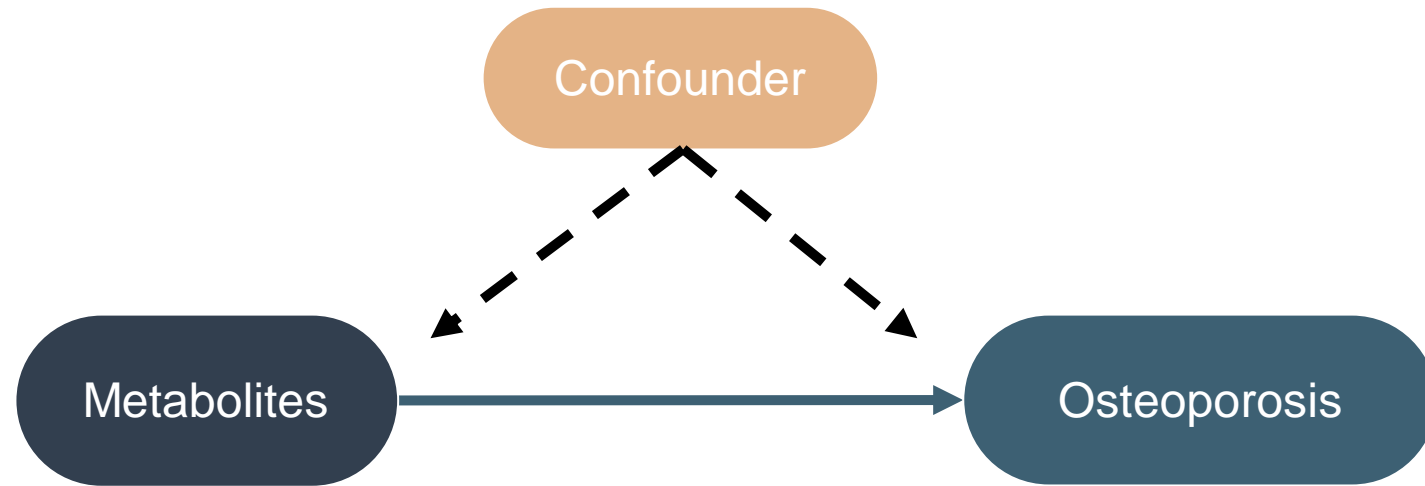
Improving Diagnosis

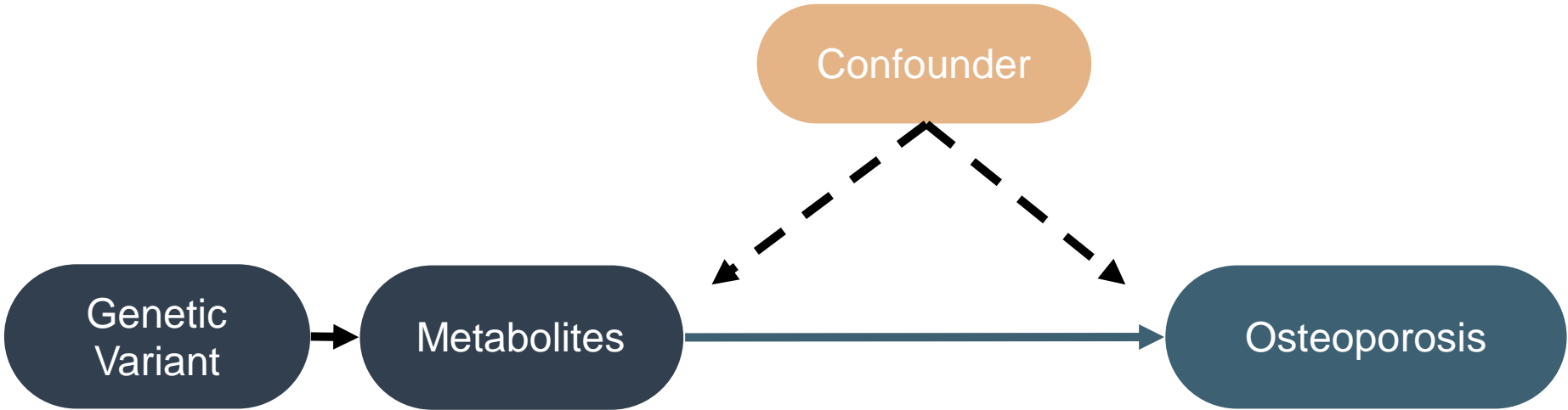


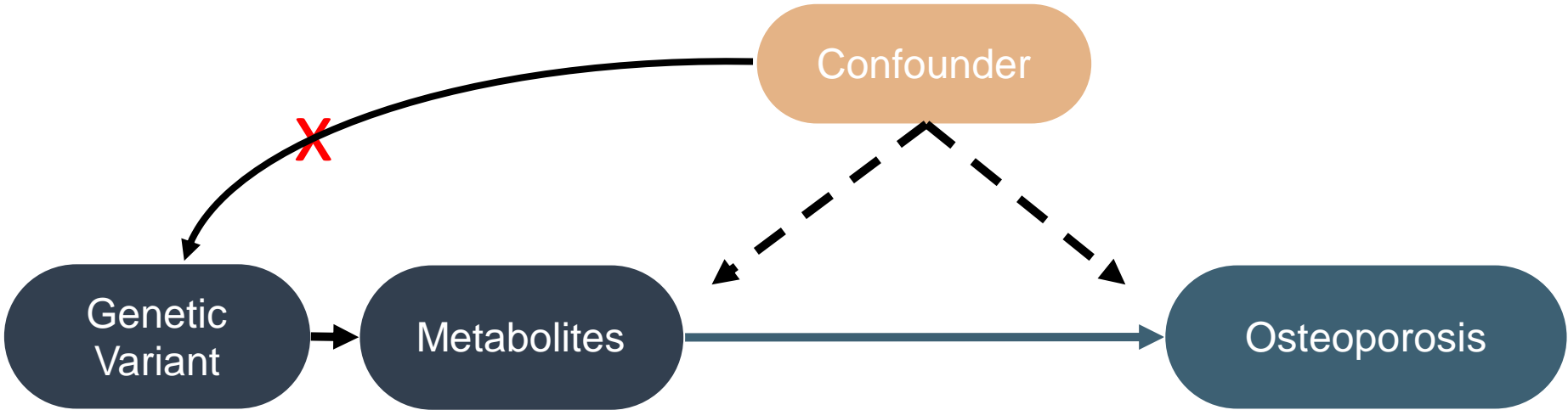
Identifying causes of disease

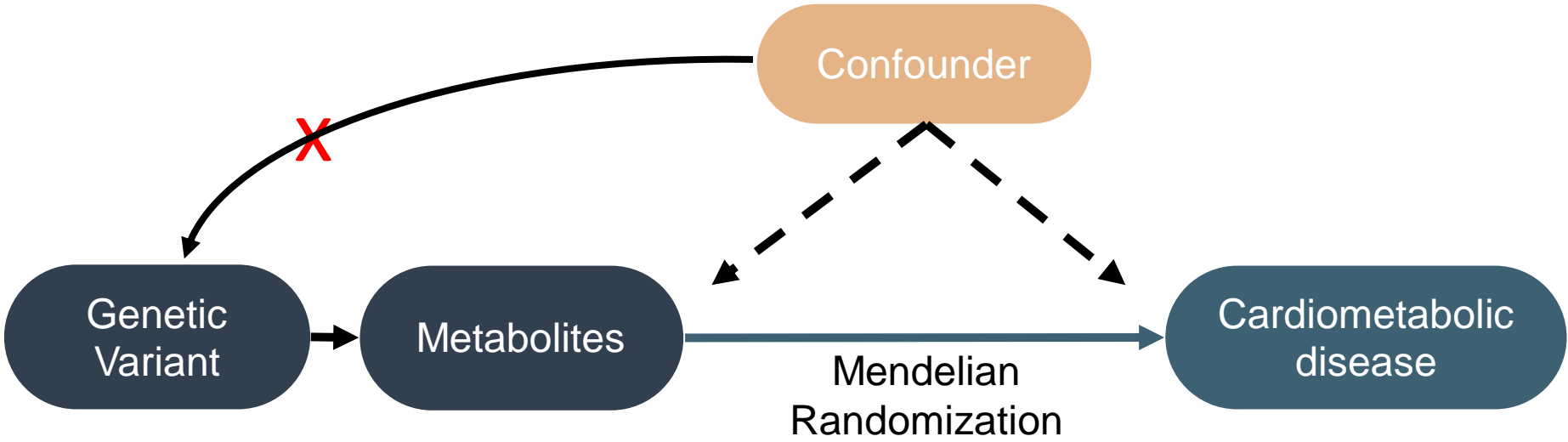




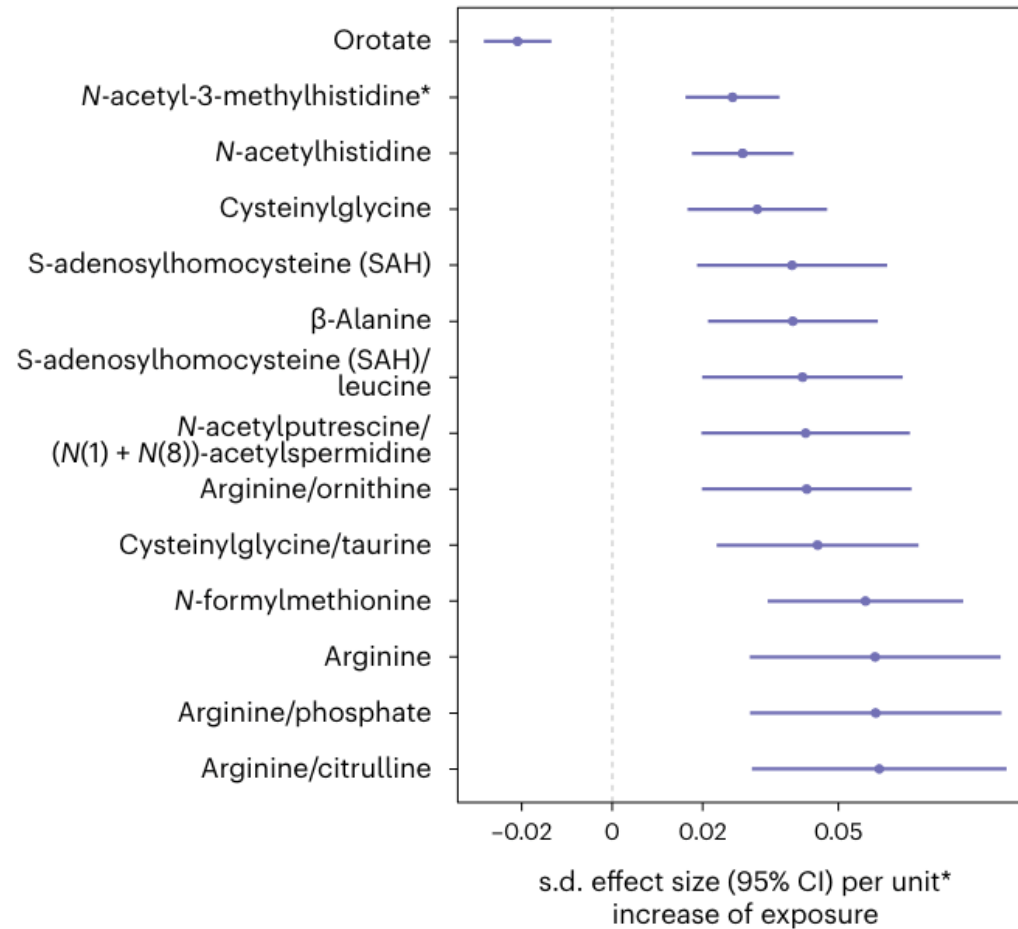








Causal effect of metabolites on bone density



Summary

- Rapid advances in measuring the millions of small influences on disease risk has allowed us to:
 1. Better identify individuals at risk of disease
 2. Clarify diagnoses
 3. Help to identify causes of disease, which can be used as targets for therapeutic interventions

Summary

- This is only possible through large—scale collections of data from humans, such as you, the participants of the CLSA



James Doak, St. John's School survivor of Lac Temiscamingue canoe tragedy arrives at the village of Ville-Marie on June 13, 1978. *LEN SIDAWAY / MONTREAL GAZETTE*

1978 Lake Timiskaming Canoeing Tragedy

Reminders

- Questions? New contact information? Get in touch:
 - Toll-free: **1-866-999-8303**
 - Email: **info@clsa-elcv.ca**
 - Web: **www.clsa-elcv.ca/update-your-details**
- For the latest study updates, visit **www.clsa-elcv.ca** or follow us on social media.
- Complete your feedback survey and let us know if you enjoyed today's webinar.
 - **<https://forms.office.com/r/0bYWQauYqE>**

