

Research with Impact

A selection of high-impact projects from 2015/16 that illustrate the combination of clinical insight and scientific rigour that drives ICES research.



Measuring incidence, overdiagnosis and management of thyroid cancer in Ontario



Better understanding the link between neighbourhood walkability and population-wide hypertension risk



Investigating barriers to health care for people with developmental disabilities



Demonstrating that ICES drug safety research has changed physician prescribing behaviour



Assessing need and feasibility of supervised drug consumption sites in Toronto and Ottawa

Measuring incidence, overdiagnosis and management of thyroid cancer in Ontario

ISSUE

The incidence of thyroid cancer in women is increasing at an epidemic rate in Ontario and worldwide, with evidence suggesting this is due to overdiagnosis and possibly overtreatment.



STUDY

Looked at records for all
12,959 adults diagnosed with thyroid cancer in Ontario from 1999 to 2008.


Calculated mean annual rate of diagnosis (cases/100,000), for each Local Health Integration Network (LHIN).

STAKEHOLDERS INVOLVED

- Cancer Care Ontario (CCO)
- South East LHIN

FINDINGS

112%
increase in new cases over 9 years
(1999: 893; 2008: 1,890)

80%
female 

Diagnosis rates vary among LHINs by as much as
4x (from 5.2 to 21.6; mean 11.5)

LHINs with high use of diagnostic ultrasound of neck, pelvis and abdomen

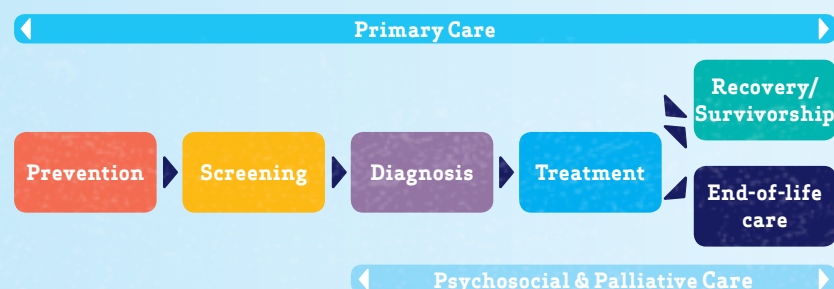
Higher diagnosis rates



LHINs with higher education rates and income

IMPACT

The cancer journey



Adapted from CCO, The Cancer Journey

CCO is using the data to create a disease management pathway for thyroid cancer.

LHINs are using comparative data to improve quality and resource allocation.

Health planners are using the data to understand practice patterns and identify regions where overdiagnosis may be taking place, in order to improve.

Wider system implications:

demonstrates how poor evidence and lack of policy on medical tests and treatments can distort physician behaviour, adversely affect patients and increase costs.



Better understanding the link between neighbourhood walkability and population-wide hypertension risk

ISSUE

Previous studies on neighbourhood walkability and health have been smaller and unable to adjust for important individual characteristics that may affect analyses.



STUDY

Used records from Statistics Canada's Canadian Community Health Surveys to identify and compare

1,057

people

who moved from low to high walkable areas



with

1,057

people

who moved from one low walkable area to another.



Propensity matching methodology assured that both groups were balanced in **age, income, marital status and body mass index.**

STAKEHOLDERS INVOLVED

- American Heart Association
- Heart and Stroke Foundation of Canada
- Public Health Agency of Canada

FINDINGS



Respondents who moved to a more walkable area had a **54% lower risk of hypertension** than people who moved between two low walkable areas.

Broke new ground in devising a statistical method for propensity-score matched analysis using complex survey data.

IMPACT



Presented at the **American Heart Association Scientific Sessions** and was selected for an AHA Press Conference.



Lead author Maria Chiu won the prestigious **AHA Elizabeth Barrett-Connor Young Investigator Research Award** for this work.



The new methodology led to a **peer-reviewed paper** in *Statistical Methods in Medical Research*.



Findings were disseminated to a **wide international audience** via TV, radio, print, online and social media outlets.

Chiu M, Rezai MR, MacLagan LC, Austin PC, Shah BR, Redelmeier DA, Tu JV. Moving to a highly walkable neighborhood and incidence of hypertension: a propensity-score matched cohort study. *Environmental Health Perspectives*. 2016; 124(6):754-60. ([Abstract](#))

Investigating barriers to health care for people with developmental disabilities

ISSUE

People with developmental disabilities are a highly vulnerable, difficult-to-reach population. They frequently face more health problems and have more difficulties accessing health care than other adults. They have also been challenging to identify for research purposes.



STUDY

ICES is a partner agency in the Health Care Access Research and Developmental Disabilities (H-CARDD) program, which was created to research and address disparities in health status and health care access faced by individuals with developmental disabilities in Ontario.

The H-CARDD study population is the largest of its kind internationally.



STAKEHOLDERS INVOLVED

- H-CARDD research collaborators
- Ministry of Health and Long-Term Care
- Ministry of Community and Social Services
- Autism Ontario
- Community Living Ontario
- Evidence Exchange Network for Mental Health and Addictions

ICES RESEARCH PRODUCTS

ICES partnered with the H-CARDD group to produce the *Atlas on the Primary Care of Adults with Developmental Disabilities in Ontario* (2013), a foundation for much of the H-CARDD work.



IMPACT



The relationship between ICES and H-CARDD has led to the **integration of research findings into emerging frameworks and policy directions**, as well as informing future performance measurement.



Several resources have been developed, including **toolkits, clinical supports and videos, to improve primary and emergency care**. These resources have been evaluated and are being shared across the province.



Several **peer-reviewed papers have been published** about the health needs of people with developmental disabilities on topics such as diabetes, preventive care, emergency care, frailty and pregnancy.



In February 2016, a meeting to discuss recent findings was held with **100 attendees from five ministries, the LHINs and Health Quality Ontario**.

Demonstrating that ICES drug safety research has changed physician prescribing behaviour

ISSUE

The blood thinner clopidogrel is widely used for the treatment of ischemic heart disease and stroke. Proton pump inhibitors (PPIs) are often co-prescribed to offset the risks from gastric bleeding associated with the use of blood thinners. In the late 2000s, concerns were raised of an increased risk of recurrent heart attacks in patients co-prescribed a PPI and clopidogrel.

STUDY



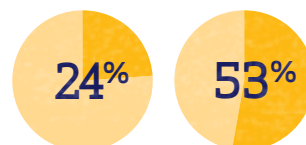
2009: A highly-publicized ICES population-wide study showed that patients who took clopidogrel following a heart attack were at significant **risk of a recurrent heart attack** if they were also taking certain PPIs. Unlike other studies, the ICES paper determined that one PPI, pantoprazole, was not tied to this higher risk.

2015: Assessed the impact of the 2009 publication on physician prescribing behaviour, in particular, on **whether there was a shift in how many patients were prescribed pantoprazole (rather than another PPI) while taking clopidogrel.**



FINDINGS

Before the 2009 study, pantoprazole represented only **24%** of all PPI prescriptions dispensed to patients receiving clopidogrel. Only nine months after the study, the proportion of pantoprazole use had rapidly expanded to **53%**.



The 2015 study demonstrated that other 2009 studies and an FDA warning about clopidogrel and PPI risk did not differentiate between PPI formulations, so this **shift could only be attributed to the extensive media attention surrounding the ICES study.**

IMPACT



Confirmed the power of ICES' large linked **data holdings to investigate system-wide temporal trends.**



Provided more clarity about the differentiated **risks of PPI formulations** for patients receiving clopidogrel.



Demonstrated that news campaigns can **influence physician prescribing behaviour.**

Juurlink DN, Gomes T, Ko DT, Szmitko PE, Austin PC, Tu JV, Henry DA, Kopp A, Mamdani MM. A population-based study of the drug interaction between proton pump inhibitors and clopidogrel. *CMAJ*. 2009; 180(7):713-8. ([Abstract](#))
Juurlink DN, Gomes T, Paterson JM, Hellings C, Mamdani MM. Trends in the coprescription of proton pump inhibitors with clopidogrel: an ecological analysis. *CMAJ Open*. 2015; 3(4):E428-31. ([Abstract](#))

Assessing need and feasibility of supervised drug consumption sites in Toronto and Ottawa

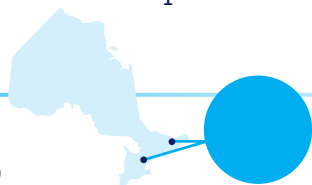
ISSUE

Supervised consumption sites are legally sanctioned spaces where people can inject illegal drugs, typically heroin or cocaine, under the supervision of trained health staff and without fear of prosecution. The sites are associated with fewer overdoses, safer needle use, more drug treatment referrals and better public order. However, implementation remains controversial.



STUDY

ICES was a research partner in the 2012 Toronto and Ottawa Supervised Consumption Assessment (TOSCA) study, which used multiple research methods to produce a report that recommended opening safe injection sites in Toronto and Ottawa, home to **roughly 50%** of all people who inject drugs in Ontario.



ICES conducted a 2015 follow-up study, published in the journal *Addiction*, which determined that establishing **up to three supervised injection facilities in Toronto and up to two in Ottawa** would be cost-effective.



STAKEHOLDERS INVOLVED

- Toronto Public Health
- Ottawa Public Health
- Ministry of Health and Long-Term Care
- Several community health agencies in Toronto and Ottawa
- Communities of people who use drugs

IMPACT



Briefings about the 2012 report were held with public health agencies, police officials, senior civil servants, municipal government officials and community groups.



The **report received national and international attention**, including extensive coverage by major Canadian and international news outlets and an invited commentary in *The Lancet*.



Conducted public opinion polling and qualitative research to determine that Ontarians' support for supervised injection services has increased, with 90% of respondents indicating support if evidence shows that these sites improve the health of people who use drugs and reduces neighbourhood problems.



Based on the TOSCA report, **Toronto's Chief Medical Officer recommended that Toronto create three safe injection sites**. Toronto City Council voted overwhelmingly to support this plan, and Ottawa's Board of Health is moving forward with a modified plan.