The Ontario Health Study (OHS): Occupational and Environmental Research Priorities, Exposure Assessment Strategies, Challenges, and Opportunities.

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Scientist, Population Studies and Surveillance, Cancer Care Ontario;
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November 19, 2009
What is the OHS?

• Large population-based, longitudinal cohort study to advance knowledge of the major risk factors for cancers, cardiovascular and other chronic diseases
  – 150,000 participants in Ontario, with 30-year follow up
  – contributing to the Canadian Partnership for Tomorrow Project (n=300,000)

• Prospective collection of data from individual participants and communities
Design Features

Who

Sample Size: 150,000; Sex: women & men; Age: 35-69 years;
Representing: Ethno-cultural diversity (e.g., South Asian, Chinese, Aboriginal Communities) of Ontario;

Recruitment: 2009-2012

When

Comprehensive Data: Self-report, physical measures (blood pressure), community level measures, biospecimens, environmental and occupational measures

What

Sampling Frame: Within selected communities using multiple approaches: direct mail/phone; volunteers from public awareness campaign; future options

Follow-up: To 2025 and beyond; Both active and passive

How
Follow-Up and Outcomes

Follow-up: to 2025 and beyond

Active

- *Annually:* via newsletter, supplemental questionnaires
- *Every 4-5 years:* community measures, and aim to repeat biospecimens, general risk factor and nutritional data, physical measures

Passive via record linkage

- Ontario Cancer Registry (incident cancers)
- Cancer screening programs
- Hospital Discharge Abstract Database (hospitalizations)
- Death certificates ....etc.
Demographic Characteristics - Ontario

Population: 12 160 282
Total area: 1 076 395 km²
Population density: 13.4 persons per km²

Northern Ontario: 1.1 persons per km²
Southern Ontario: 115.3 persons per km²

Percentage of Canadians who live in Ontario: 38.47%

### Assessment Centres - Pilot Sites

<table>
<thead>
<tr>
<th>Centre</th>
<th>Opening Date</th>
<th>Completed Assessments *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mississauga</td>
<td>Mar 26, 2009</td>
<td>2,156</td>
</tr>
<tr>
<td>Owen Sound</td>
<td>May 27, 2009</td>
<td>692</td>
</tr>
<tr>
<td>Sudbury</td>
<td>Sep 24, 2009</td>
<td>166</td>
</tr>
</tbody>
</table>

3,014

1,500 assessments were completed for the Pilot by August 7, 2009. *as of Nov. 2
Assessment Centre Locations

Pilot:
Mississauga
Owen Sound
Sudbury

Under consideration:
Richmond Hill
Kitchener/Waterloo
Barrie
St. Catharines
Toronto (downtown site)
Toronto (suburban site)
Ottawa
London
Peterborough
Windsor
Kingston
Thunder Bay
Assessment Centre Flow

- Station #1: Reception, Enrollment & Close-out (includes Measurement Report)
- Station #2: Consent, Questionnaire & Cognitive Testing
- Station #3a: Nurse Interview, Sitting Blood Pressure, Heart Rate & Ankle-Brachial Index
- Station #3b: Nurse Interview, Sitting Blood Pressure, Heart Rate & Ankle-Brachial Index
- Station #4a: Physical Measures: Standing Height, Sitting Height, Weight/Bioimpedance, Bone Frailty, Waist Circumference, Hip Circumference, Grip Strength, Spirometry
- Station #4b: Physical Measures: Standing Height, Sitting Height, Weight/Bioimpedance, Bone Frailty, Waist Circumference, Hip Circumference, Grip Strength, Spirometry

- Back-up Station (Nurse Manager):
  - Seated Blood Pressure & Heart Rate
  - Ankle-Brachial Index
  - Standing Height
  - Sitting Height
  - Weight/Bioimpedance
  - Bone Frailty
  - Waist Circumference
  - Hip Circumference
  - Grip Strength
  - Spirometry

- Station #5: Blood & Urine Collection
  - Note: Station 5 can collapse with Station 3 if there is not enough space for a separate phlebotomy station (i.e., nurse draws blood)

- IT Manager’s Office: 23 computers (all are connected via an internal intranet; two have external connection capabilities)
- Staff Room: Includes fridge, microwave, toaster, table, chairs, & lockers
- Nurse Manager’s Office: 2 printers (one at reception, one at IT Manager’s Office)
- 11 staff

- Closet
- Bathroom
- Refreshment
- Note: Staff Room
- Note: Staff Room
Biospecimen Processing for the OHS

**Central Processing**

- Allow to clot at room temperature for ~30 minutes
- Pipette 1.5 mL urine into each of 4 cryovials
- Centrifuge at 1500xg (3000 rpm) for 15 minutes
- Gently invert tube 5x immediately before dispensing; remove stopper
- Use a disposable pipette to transfer 2 drops of whole blood to each side of filter paper; seal filter paper in plastic bag provided and store at 4°C
- Reseal tube
- Carefully draw plasma off cells & transfer evenly into 6 cryovials (~1.5 mL ea.)
- Carefully draw lymphocytes, mix with DMSO & aliquot into 2 cryovials (~1.5 mL ea.)
- After removal of plasma, draw white cells from each tube into a fresh pipette & transfer to 2 cryovials
- After removal of white cells, transfer red cells into 2 cryovials

**Local Processing**

- Layer onto Ficoll gradient

**Shipping Instructions**

- Ship ambient on day of collection

**Notes**

- The Cryovials on the blue fields must be placed in the freezer boxes provided and frozen within 2 hours of collection (n=20/collection if ACD processed centrally; n=22 if ACD processed locally).

Please Note: Volumes on tube labels reflect draw volumes. Filter papers shipped ambient weekly.
Baseline Data Collection

• **Biospecimens**
  – Blood
  – Urine

• **Physical Measures**
  – Weight
  – Height, standing and sitting
  – Waist and hip circumference
  – Bioimpedance
  – Blood pressure
  – Resting heart rate
  – Bone density
  – Spirometry
  – Grip strength

• **Questionnaire/Interview**
  – Personal medical history
  – Family medical history
  – Socio-demographic information
  – Health/lifestyle behaviours
  – Psychosocial factors
  – Diet (FFQ)
  – Community features (NEWS)
  – Residential history
  – Environmental exposures
  – Occupational history
OHS Environmental and Occupational (E-O) Working Group - Ontario

Harris, S.A. (1, 2,7), Ritter, L. (3, 4)  
Arbuckle, T. (5, 6), Blair, A.E. (7), Bus, J. (8), Hall, J.C. (4), Mabury, S. (9), Marrett, L.D. (1,2), Miller, A.B. (2), Rasmussen, P.E. (10,11), Villeneuve, P.J. (2,5), Wheeler, A. (12), McLaughlin, J. (1, 2)

1- Population Studies and Surveillance, Cancer Care Ontario;  
2- Dalla Lana School of Public Health, University of Toronto;  
3- Canadian Network of Toxicology Centres;  
4- Department of Environmental Biology, University of Guelph;  
5- Population Studies Division, Environmental Health Sciences and Research Bureau, Health Canada;  
6- Department of Epidemiology and Community Medicine, University of Ottawa;  
7- Occupational Cancer Research Center, Toronto, ON;  
8- Toxicology and Environmental Research and Consulting, Dow Chemical Company, Midland, MI, USA;  
9- Department of Chemistry, University of Toronto;  
10- Department of Earth Sciences, University of Ottawa;  
11- Environmental Exposures and Biomonitoring Division, Environmental Health Sciences and Research Bureau, Health Canada;  
12- Air Health Science Division, Water, Air and Climate Change Bureau, Health Canada.
E-O Working Group Objectives

• To prioritize the environmental and occupational exposures for the OHS for measurement at baseline and follow-up.
• To evaluate the methods and tools required to measure exposures.
• To identify and develop sampling protocols for environmental and/or biological samples that will be collected and stored for future analysis (i.e. EnviroBank).
OHS E-O Workgroup Priorities

- Air Pollutants (NOx, ozone, particulates etc.)
- Brominated Flame Retardants (PBDEs)
- Electromagnetic Fields (EMFs)
- Metals (As, Ni, Pb, Hg)
- Nanomaterials
- Organic and Local Food Consumption
- Polycyclic Aromatic Hydrocarbons
- Perchlorate
- Perfluorochemicals
- Pesticides (select)
- Pharmaceutical Estrogens
- Phenols (nonylphenol, bisphenol-A)
- Phthalates
- Radon
- Shift Work
- Water Chlorination Byproducts
- WiFi (wireless technologies)
- Personal Care Products
Absorbed Dose - Biological Monitoring - Direct

- Blood
- Urine
- Adipose, Bone
- Perspiration
- Hair
- Nails
- Saliva
- Feces
Residential History

The Canadian Partnership for Tomorrow Project

Residential History Questionnaire
(Pre-test)

Gender:  □ Male
         □ Female

Age: _____________

Province of residence: _____________

Length of time to complete questionnaire: _____________
Residential History Questionnaire

To the best of your ability, please tell us the address and following information for each home you have lived in for at least 12 months or longer. Begin with your most recent address, even if you have lived there for less than 12 months, and continue backward to the first address that you can remember. Please estimate the time period if you cannot remember the exact number of years or months you lived in one location. If you cannot recall your exact street address, please tell us the name of the nearest cross-street (or the nearest town if you lived in a rural location). If you lived outside of Canada for 12 months consecutively, please provide the City and Country. Please attach additional pages if you require more space.

<table>
<thead>
<tr>
<th>Time Period (Mo/Yr to Mo/Yr)</th>
<th>Street &amp; Number (including suite or apt no.)</th>
<th>City, Town or Municipality (If rural, please indicate county or nearest town)</th>
<th>Province</th>
<th>Postal Code</th>
<th>Country</th>
<th>How many people normally lived in this house?</th>
<th>Approximately when was this house built?</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/98 to 08/99</td>
<td>1689 East 4th Avenue</td>
<td>Vancouver</td>
<td>BC</td>
<td>V5N 1J7</td>
<td>Canada</td>
<td>3</td>
<td>1965</td>
</tr>
<tr>
<td>09/98 to 05/98</td>
<td>close to Sherbrooke St &amp; Lacordaire Blvd</td>
<td>Montreal</td>
<td>Quebec</td>
<td></td>
<td>Canada</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Residence 1:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residence 2:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Residential History Questionnaire

Please answer, to the best of your ability, the following questions for each residence that you listed in the table above.

<table>
<thead>
<tr>
<th>Residence #</th>
<th>What was the main source of heat in this home?</th>
<th>What was the source of water coming into this home?</th>
<th>In this house, did you: (Please check all that apply.)</th>
<th>How many bedrooms did this home have?</th>
<th>In this home, where was your bedroom located?</th>
<th>Did you normally share your bedroom with someone else?</th>
<th>Do you normally park your car in a garage attached to your residence?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Electric</td>
<td>Municipal treated water</td>
<td>Open your windows?</td>
<td>Basement</td>
<td>Ground floor</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Gas</td>
<td>Private well (dug well)</td>
<td>Use central air conditioning?</td>
<td></td>
<td></td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Oil furnace</td>
<td>Private well (drilled well)</td>
<td>Use window or wall air conditioning units?</td>
<td></td>
<td></td>
<td>No</td>
<td>Yes (1 car garage)</td>
</tr>
<tr>
<td></td>
<td>Wood burning</td>
<td>Other, please specify</td>
<td>Use fans for cooling?</td>
<td></td>
<td></td>
<td>Yes (2 car garage)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>fireplace or stove</td>
<td></td>
<td>Use an air exchanger?</td>
<td></td>
<td></td>
<td>Yes (3 car garage)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coal</td>
<td></td>
<td>Use storm windows?</td>
<td></td>
<td></td>
<td>Yes (underground)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other, please specify:</td>
<td></td>
<td>Use a gas fireplace?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td></td>
<td>Use a humidifier?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td></td>
<td>Use a dehumidifier?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Environmental Questionnaire Development

- Food/Beverages/Water
- Characteristics of the home (not captured on residential history)
- Cleaning products
- Personal care products
- Hobbies
- Pesticides
- WiFi, EMF, cellphone use/exposure
- Time-activity data
### Questionnaire: Food and Beverages

<table>
<thead>
<tr>
<th>Food</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local/Organic foods</td>
</tr>
<tr>
<td></td>
<td><strong>Packaging</strong></td>
</tr>
<tr>
<td></td>
<td>Perfluorochemicals - pizza boxes, popcorn bags, chips and snacks, fast foods</td>
</tr>
<tr>
<td></td>
<td>Bisphenol A - canned foods</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th><strong>Consumption</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Metals (particularly mercury &amp; lead) as well as organochlorines, perfluorochemicals, brominated flame retardants - fish, shellfish and game meats</td>
</tr>
<tr>
<td></td>
<td>Sweeteners, preservatives and food additives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th><strong>Cooking</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Polycyclic aromatic hydrocarbons – meat preparation</td>
</tr>
<tr>
<td></td>
<td>Xenoestrogens, dioxins – microwaving plastic dishes</td>
</tr>
<tr>
<td></td>
<td>Use of non-stick pans – perfluorochemicals</td>
</tr>
</tbody>
</table>
## Questionnaire: Water

<table>
<thead>
<tr>
<th>Water</th>
<th><strong>Source</strong></th>
</tr>
</thead>
</table>
|       | • tap, well, ground, bottled, filtered  
|       | • Home and work  |

**Consumption**
- quantity of water consumed through coffee, tea and pop  
- Bisphenol A - exposure through use of polycarbonate reusable water bottles
## Questionnaire: Household

<table>
<thead>
<tr>
<th>Characteristics of the home</th>
<th><strong>Air Pollution</strong> – eg. NOx, particulates, PAH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Source of cooking heat</td>
</tr>
<tr>
<td></td>
<td>• Garage and whether vehicles are parked in the garage</td>
</tr>
<tr>
<td></td>
<td>• Use of air conditioning and heat source (including use of space heaters)</td>
</tr>
<tr>
<td></td>
<td>• Burning of incense in the home</td>
</tr>
<tr>
<td></td>
<td>• Air fresheners</td>
</tr>
<tr>
<td><strong>Lead – paint</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Age of home</td>
</tr>
<tr>
<td><strong>Perfluorocarbons</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Stain resistant chemicals used on furniture, carpeting and curtains</td>
</tr>
<tr>
<td><strong>Radiation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• WiFi internet</td>
</tr>
<tr>
<td></td>
<td>• EMF exposure from electrical appliances</td>
</tr>
<tr>
<td><strong>Brominated Flame Retardants</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Carpeting in the home</td>
</tr>
<tr>
<td></td>
<td>• Frequency of dusting/vacuuming</td>
</tr>
</tbody>
</table>
# Questionnaire: Cleaning & Personal Care Products, Hobbies and Time Activity

| Cleaning Products | **Phenols and Phthalates**  
|                   | • Request respondents list specific products used for general tasks; general cleaner, window cleaner, bathroom cleaner etc |
| Personal Care Products | **Phenols and Phthalates**  
|                       | • Request respondents list specific products used for personal care tasks; shampoo, conditioner, soap, shower gel, hand soap etc. |
| Hobbies | **Solvents**  
|         | • Household and artistic painting, wood working, home renovations, maintenance and repair etc |
| Time-Activity | **Duration and time of exposure associated with routine activities**  
|              | • Request respondents describe an average week in their lives during summer months and during winter months |
Ontario Health Study Pilot Sample, N=1,500
3 Assessment Centres

Mississauga  N=500
n=350
assume 70% home ownership

Owen Sound  N=500
n=350

Sudbury  N=500
n=350

Environmental Sampling Package (ESP)
Pretest Fall, 2009
Deploy Radon and Dust, Fall/Winter, 2009
Deploy Water in 2010

Radon
Alpha track detectors
N=1,050 households (3-month measurement)
N=100 (replication)
N=100 (blanks)
N=100 (second location within household)

N=1,450 samples
N* = 1,160 returned

Health Canada-Radiation Protection Bureau for Radon Analysis

Water
Amber Bottles, 250 ml
N=1,050 households (spot measurement)
N=100 (replication)

N=1,150 samples
N* = 920 returned

Sample aliquot volumes:
- 2 x Sml.
- 2 x 10 ml
- 2 x 50 ml
- 1 x 100 ml
Total water samples: 7 x 920 = 6,440 samples

Dust
Electrostatic Dust Collectors (under consideration)
N=1,050 households (3-month measurement)
N=100 (replication)
N=100 (blanks)

N=1,250 samples
N* = 1,000 returned

ENVIROBANK
Water and dust stored, frozen at -20°C
Urine stored at -80°C

Residual Urine not sent to the Biorepository
Occupational History Questionnaire (Pre-test)

Gender: □ Male □ Female

Age: ____________
Province of residence: ____________

Length of time to complete questionnaire: ____________
# Occupational History Questionnaire

To the best of your ability, please tell us about each job or occupation you held for at least 3 months in Canada or elsewhere. Include full-time, seasonal work, part-time, volunteer work and military service if you worked the cumulative equivalent of 3 months per year or more. Also include your current job, even if you have had this for less than 3 months. Begin with your most recent job and continue back to your first job. Please estimate the time period if you cannot remember exact years. Please attach additional pages if you require more space. Even if you are retired, we still require the information. Do not include time spent as a full-time housewife or househusband.

<table>
<thead>
<tr>
<th>Time Period (Mo/Yr to Mo/Yr)</th>
<th>Job Title</th>
<th>Main Job Tasks</th>
<th>Company Name</th>
<th>Company Address</th>
<th>What did your company do at that site?</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/02 to 08/09</td>
<td>Automotive Machinist</td>
<td>repairs automotive transmissions &amp; brakes; operates a lathe &amp; a grinding wheel; cleans &amp; degreases parts; repairs cracks in engine parts with arc and gas welding equipment</td>
<td>ABC Automotive Repair Ltd.</td>
<td>900 Block SW Marine Drive, Vancouver BC (between Shaughnessy Street &amp; Oak Street Bridge off ramp)</td>
<td>Full service vehicle maintenance and car repairs</td>
</tr>
<tr>
<td>04/95 to 12/01</td>
<td>Farm Labourer</td>
<td>fed &amp; watered poultry; cleaned barn &amp; pens; planted &amp; harvested vegetables; cleaned barns &amp; tractors</td>
<td>Mom &amp; Pop's Farm Ltd.</td>
<td>25555-55th Avenue, Aldergrove BC V4H 1L5</td>
<td>Free-range, non-medicated chickens and beef, grew tomatoes &amp; peas chart</td>
</tr>
</tbody>
</table>

**Job 1:**

- to

**Job 2:**

- to
For each job....

Please answer the following questions for each job you listed in the table above. Please attach additional pages if you required additional space to complete job history table.

| Job # | How many hours per week, on average, did you work? | How many weeks per year? | What percentage of time did you spend working? | Did your job require you to work outdoors in the warmer months of the year (Apr.-Sept.)? If yes, how much time each day, on average, were you in the sun between 11 am and 4 pm? | What best describes your work pattern? | How many days per month did you work 3 or more hours between midnight and 5am? | For each job, how many minutes did you normally spend on any of the following means of transportation? Indicate all that apply. |
|-------|---------------------------------|--------------------------|---------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------
| 1     | Indoors?                        |                          |                                             | Fixed Days                                                                               |                                            |                                               | June – August or the summer months     |
|       | Indici                         |                          |                                             | Fixed Nights                                                                             |                                            |                                               | Car
|       |                                 |                          |                                             | Fixed Evenings (shift ends before midnight)                                               |                                            |                                               | Bus
|       |                                 |                          |                                             | Rotating                                                                                 |                                            |                                               | Train
|       |                                 |                          |                                             | Other, please describe                                                                   |                                            |                                               | Subway
|       |                                 |                          |                                             |                                                                                          |                                            |                                               | Walk
|       |                                 |                          |                                             |                                                                                          |                                            |                                               | Bike
|       |                                 |                          |                                             |                                                                                          |                                            |                                               | Other, please describe
| 2     | Indoors?                        |                          |                                             | Fixed Days                                                                               |                                            |                                               | September – May or the cooler months     |
|       | Indici                         |                          |                                             | Fixed Nights                                                                             |                                            |                                               | Car
|       |                                 |                          |                                             | Fixed Evenings (shift ends before midnight)                                               |                                            |                                               | Bus
|       |                                 |                          |                                             | Rotating                                                                                 |                                            |                                               | Train
|       |                                 |                          |                                             | Other, please describe                                                                   |                                            |                                               | Subway
|       |                                 |                          |                                             |                                                                                          |                                            |                                               | Walk
|       |                                 |                          |                                             |                                                                                          |                                            |                                               | Bike
|       |                                 |                          |                                             |                                                                                          |                                            |                                               | Other, please describe
| 3     | Indoors?                        |                          |                                             | Fixed Days                                                                               |                                            |                                               |                                      |
|       | Indici                         |                          |                                             | Fixed Nights                                                                             |                                            |                                               | Car
|       |                                 |                          |                                             | Fixed Evenings (shift ends before midnight)                                               |                                            |                                               | Bus
|       |                                 |                          |                                             | Rotating                                                                                 |                                            |                                               | Train
|       |                                 |                          |                                             | Other, please describe                                                                   |                                            |                                               | Subway
|       |                                 |                          |                                             |                                                                                          |                                            |                                               | Walk
|       |                                 |                          |                                             |                                                                                          |                                            |                                               | Bike
|       |                                 |                          |                                             |                                                                                          |                                            |                                               | Other, please describe
Occupational Exposures - Opportunities

• Questionnaire modules

• New or adapted:
  – Farm/agricultural exposures
  – Commercial applicators
  – Construction workers etc.
  – Shiftwork
~ 2% employed in agriculture….n=3000 in OHS
Opportunities

• Targeted recruitment
• Develop JEMs for Ontario/Canada
• Expert assessment of occupational exposures
• Biomarkers studies of exposure and/or effect
• Future collection of:
  – Biospecimens / high risk groups
  – occupational / environmental data
• Workplace measures?
Our Funders & Supporters

• Ontario Institute for Cancer Research (OICR)
• Canadian Partnership Against Cancer (CPAC)
• Cancer Care Ontario (CCO)
  – In-kind including salaries, benefits, space
  – Access to specialized resources, long-term support
• Ontario Agency for Health Protection & Promotion
  – Pilot funding plus In-kind for biospecimen processing
    (including laboratory facilities and services)
• Occupational Cancer Research Centre (OCRC)
• Endorsed by Ontario Division of the Canadian Cancer Society
CCO Project Team for Science
John McLaughlin, Nancy Kreiger, Vicki Kirsh, Scott Leatherdale, Shelley Harris, Beatrice Boucher, Patrick Brown, Peggy Sloan, Gord Fehringer

OHS Operations Team
Sandra Sinclair, Pamela Spencer, Joan Antal, Laszlo Benedek, Leanne Blahut, Anna Caccamo-Davies, Connie Fernandes, Hedy Jiang, Raj Kapoor, Kelly McDonald, Caitlin Mills, Melissa Pirie, Umer Sami, Marcella Sholdice, James Stang, Bob Zurowski

Ontario Advisory Committee & Collaborators
Roy Cameron, Jane Irvine, Julian Little, Matthew McQueen, Tony Miller, Greg Ross, Patricia Smith, Rob Roberts, Jack Tu, Brent Zanke, Len Ritter, working group chairs and members, and many others

Partner Agencies
Tom Hudson, Vincent Ferretti (OICR), Anu Rebbapragada, Natasha Crowcroft (OAHPP), Heather Bryant, Stuart McLeod (CPAC), CCS, Genome Quebec, Teams in other provinces
O/E National Advisory Committee

and Jeff Whyte, Jack Siemiatycki, Miriam Diamond

.....and many more
Have you ever wondered why some people get cancer or heart disease but other people don’t?

The new Ontario Health Study is a large, long-term study that will help us learn more about the causes of these diseases. The causes could come from where we live and work or what we eat. They could also come from how much we exercise, whether we smoke or other causes we have yet to discover. We hope to find ways to help prevent and better treat these chronic diseases.

We are looking for 150,000 Ontario residents between the ages of 35 and 69 to join the Study.

To learn more, call us or visit our website.

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