



Ontario Health Study  
Étude sur la santé Ontario

## IWH Presentation December 2010

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**[www.ontariohealthstudy.ca](http://www.ontariohealthstudy.ca)**

# Where are we now in human disease research?

- Rising incidence of common diseases
- Causes are unknown - small effects are hard to detect
- Explosive growth in new technologies and knowledge
  - Human Genome Project
  - Genomics and biomarkers
- Ability to discover common genes of modest effect
- Real potential to understand causes of common diseases and to translate to the bedside...
- However, discovery, characterization and translation all require large, population-based samples

**We need very large cohort studies: 'BIOBANKS'...**

# Biobanking: Large scale efforts

Number of participants targeted (recruited or to be recruited) (N = 139)

Number of participants	Number of studies	Number of participants TARGETED
10,000 to 49,999	79	1,532,000
50,000 to 99,999	26	1,788,000
100,000 to 499,999	25	3,749,000
500,000 and more	9	5,386,000

**Total: 12,455,000**

\* 15 studies have been excluded from the table because the number of participants  $\leq 10,000$  ( 96,000 participants targeted)



# Biobanking is international

		Number of studies	Number of participants TARGETED
Single-country studies	Europe	70	5,528,000
	America	47	4,010,000
	Oceania	7	441,000
	Africa	1	85,000
	Asia	17	1,419,000
Multiple-countries studies	Europe, America, Oceania, Africa, Asia	12	1,068,432

# BIOBANKS ARE TRANSLATIONAL PLATFORMS

For instance, pharmacogenomics, a personalized medicine

## Correlating Drug Response to Biological Markers



**“One drug fits all”**



**“The right drug at the right dose  
for the right patient, the first time”**

# What is the OHS?

- A large population-based, longitudinal cohort study
- Prospective collection of data from individual volunteers
- Adults and families in the general population
- Social, environmental and genetic determinants of health and disease
- Genes and environment

## **An integrated platform for:**

- Prevention, diagnosis, and treatment of illness
- Health promotion and intervention
- Better, more efficient health systems
- Empower communities and individuals to take responsibility for health
- Education of clinical, academic, government, business, and general society
- Community engagement



# The national context...

The Study is one of five similar regional initiatives being conducted across Canada for the

## ***Canadian Partnership for Tomorrow Project***

- Alberta Tomorrow Project
- CartaGene Quebec
- Atlantic Partnership for Tomorrow's Health
- BC Generations project





# Funders and Supporters

## Funders



Ontario Institute  
for Cancer Research  
Institut ontarien de  
recherche sur le cancer



## Supporters

Arthritis Society of Canada • Asthma Society of Canada • Canadian Cancer Society • Canadian Diabetes Association • Canadian Liver Foundation • Centre for Addiction and Mental Health • Heart and Stroke Foundation of Ontario • The Kidney Foundation of Canada • Institute for Clinical Evaluative Sciences • Ottawa Hospital Research Institute • Samuel Lunenfeld Research Institute • University of Toronto Joint Centre for Bioethics • Bluewater Health • Dryden Regional Health Centre • Grand River Hospital • Hamilton Health Sciences • Hotel-Dieu Grace Hospital • London Health Sciences Centre • Mount Sinai Hospital • Ottawa Hospital • Queensway Carleton Hospital • Rouge Valley Health System • St. Joseph's Health Care • Sunnybrook Health Sciences Centre • Thunder Bay Regional Health Sciences Centre • Timmins and District Hospital • Toronto East General Hospital • Trillium Health Centre • University Health Network • Windsor Regional Hospital • Women's College Hospital • Algoma University • Brock University • Carleton University • Dalla Lana School of Public Health at the University of Toronto • McMaster University • Queen's University • University of Guelph • University of Ontario Institute of Technology • University of Ottawa • University of Western Ontario • University of Windsor



# Online surveys

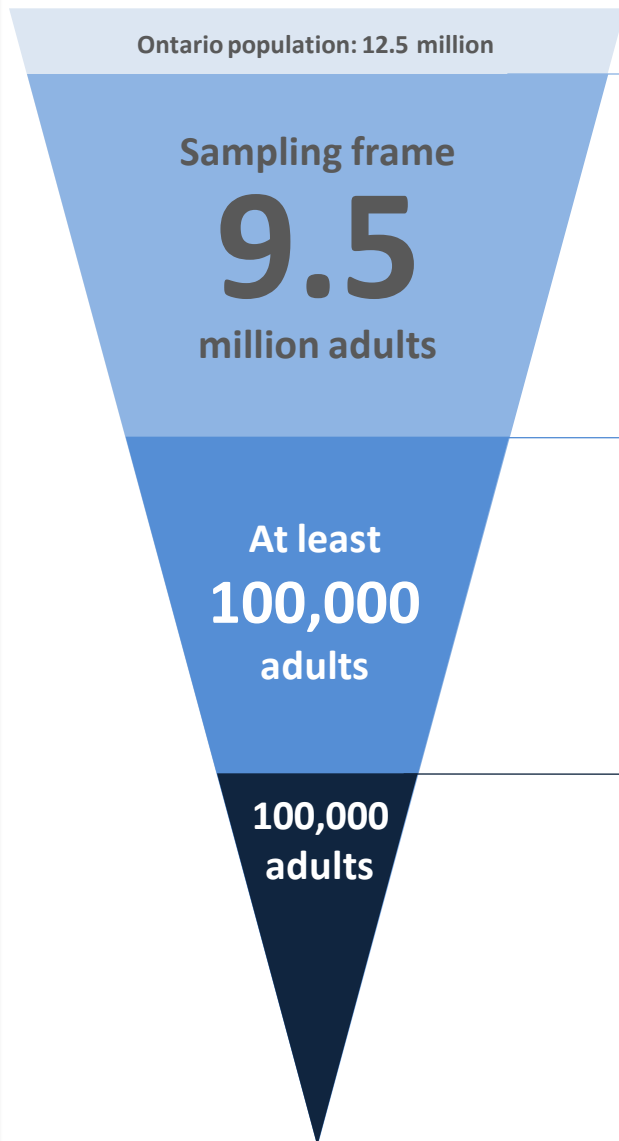
The screenshot shows a web browser window with the URL <https://survey.ontariohealthstudy.ca/Register.aspx>. The page features the Ontario Health Study logo and a banner of diverse people. The registration form is titled "Registration (1 of 2)" and includes the following fields:

- Title:
- First Name\*:
- Middle Name:
- Last Name\*:
- Sex\*: ☐ Male ☐ Female
- Age\*:
- Postal Code\*:
- How did you hear about us?:

A note at the bottom states: "Note- Fields with ( \*) will be kept by the study, only after you acknowledge the Terms on the following page of the Registration, even if you choose not to participate in the Study." A "Next" button is located at the bottom right of the form.

[www.ontariohealthstudy.ca](http://www.ontariohealthstudy.ca)

# Phase II: A new and bigger vision for the OHS...



## **‘Thin’ data collection on all adult volunteers in Ontario**

Province-wide invitation to participate of **all volunteering adults** from September 2010

- Core health questionnaire (online)
- Additional online questionnaires (e.g., nutrition, physical activity)

## **‘Thin+’ data collection focussing on workplaces**

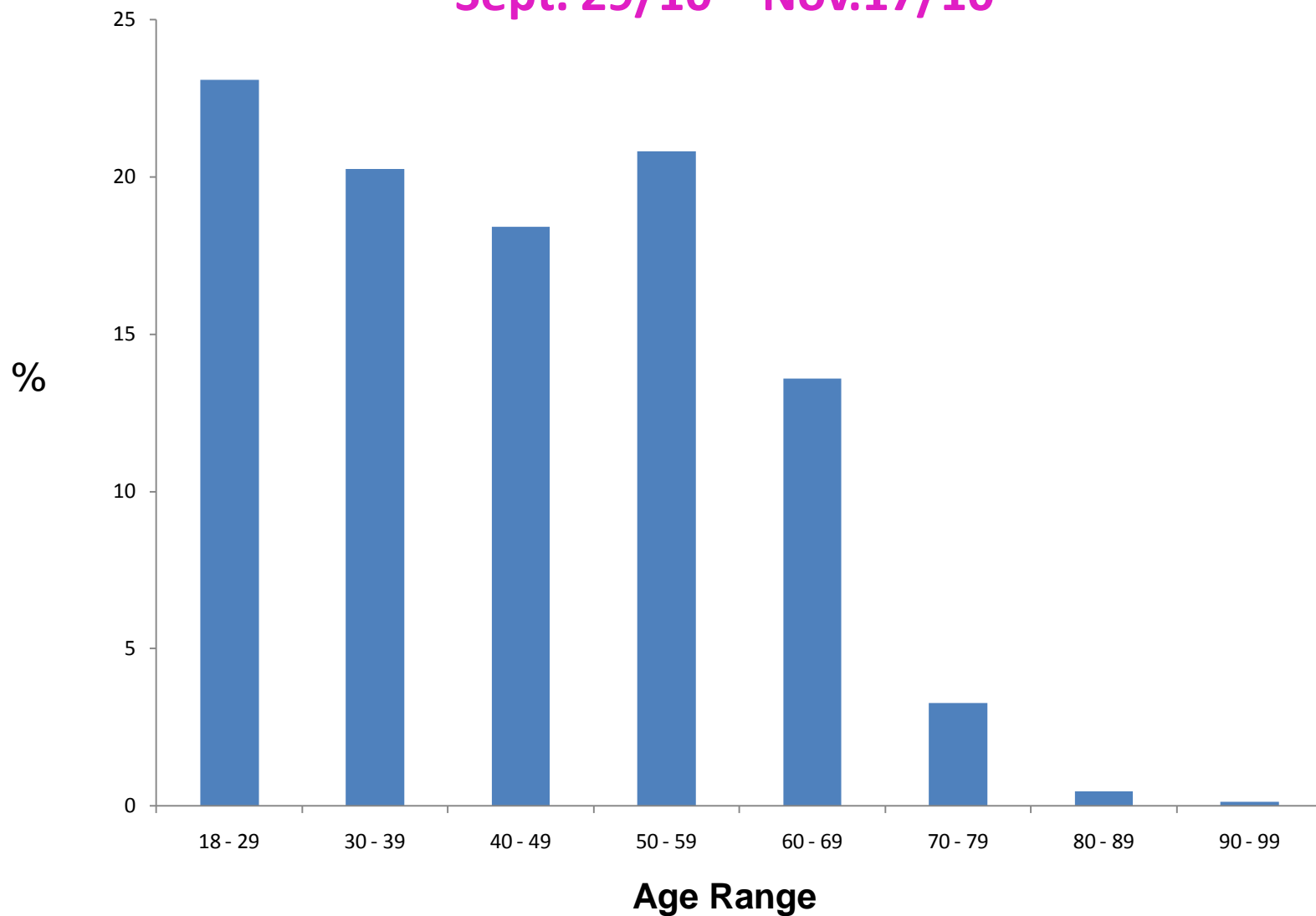
- Core questionnaire (online)
- Additional online questionnaires
- Basic physical measures
- Bio sample: Blood/Saliva & urine

## **‘Thick’ data collection**

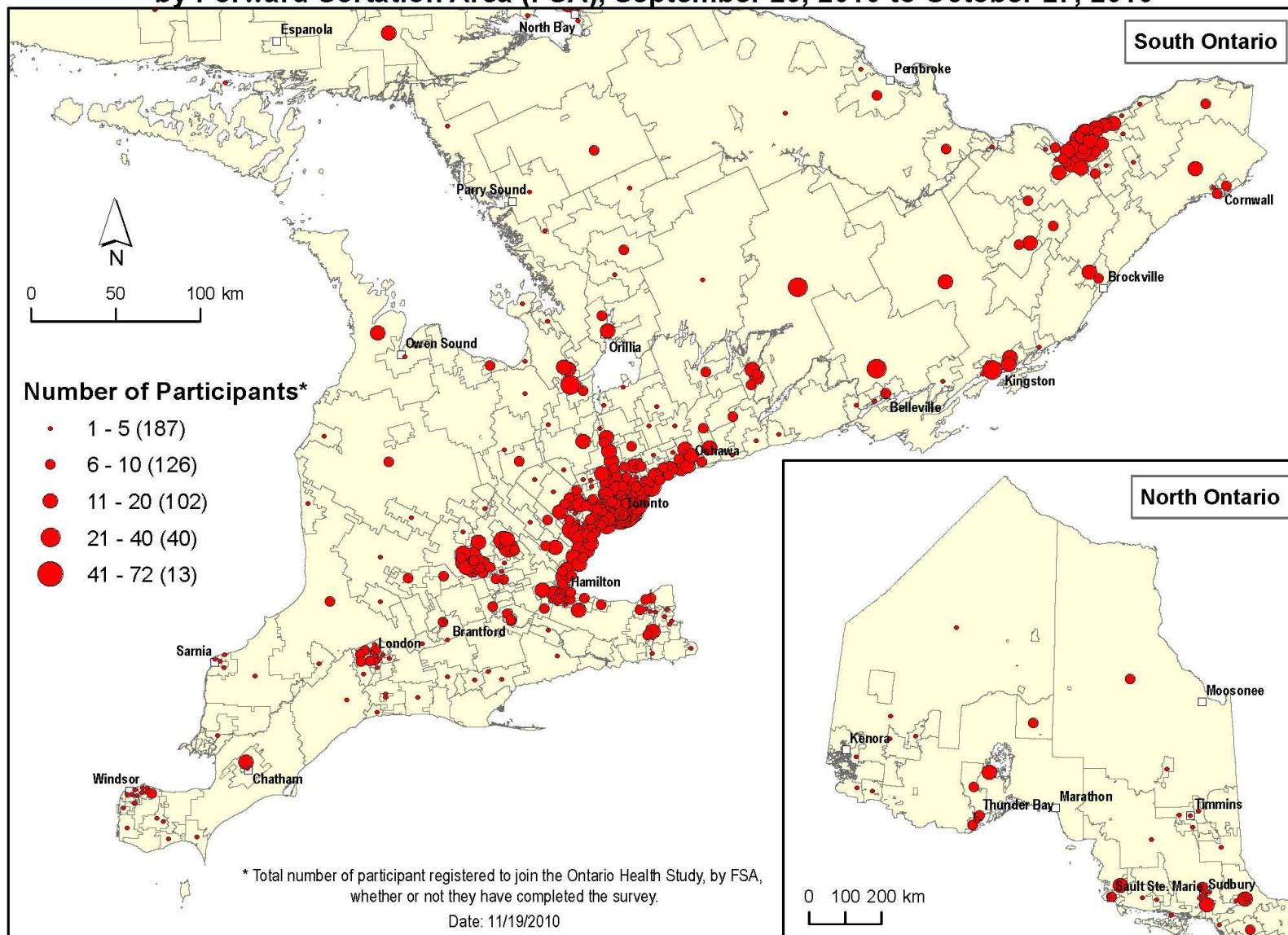
- Assessment centres in major population centres
- Very dense physical measures, (~2,000 per person) e.g., DEXA, spirometry, C-IMT, cognition, mental health, eyes, hearing, home sleep study, etc.... Substudies e.g., MRI of brain and neck on 5,000
- Blood and urine

**Follow-up both passively via linked health data and actively through additional questionnaires.**

## OHS Main Study Recruitment, by Age Sept. 29/10 – Nov.17/10



# Geographic Distribution of Ontario Health Study Participants by Forward Sortation Area (FSA), September 29, 2010 to October 27, 2010



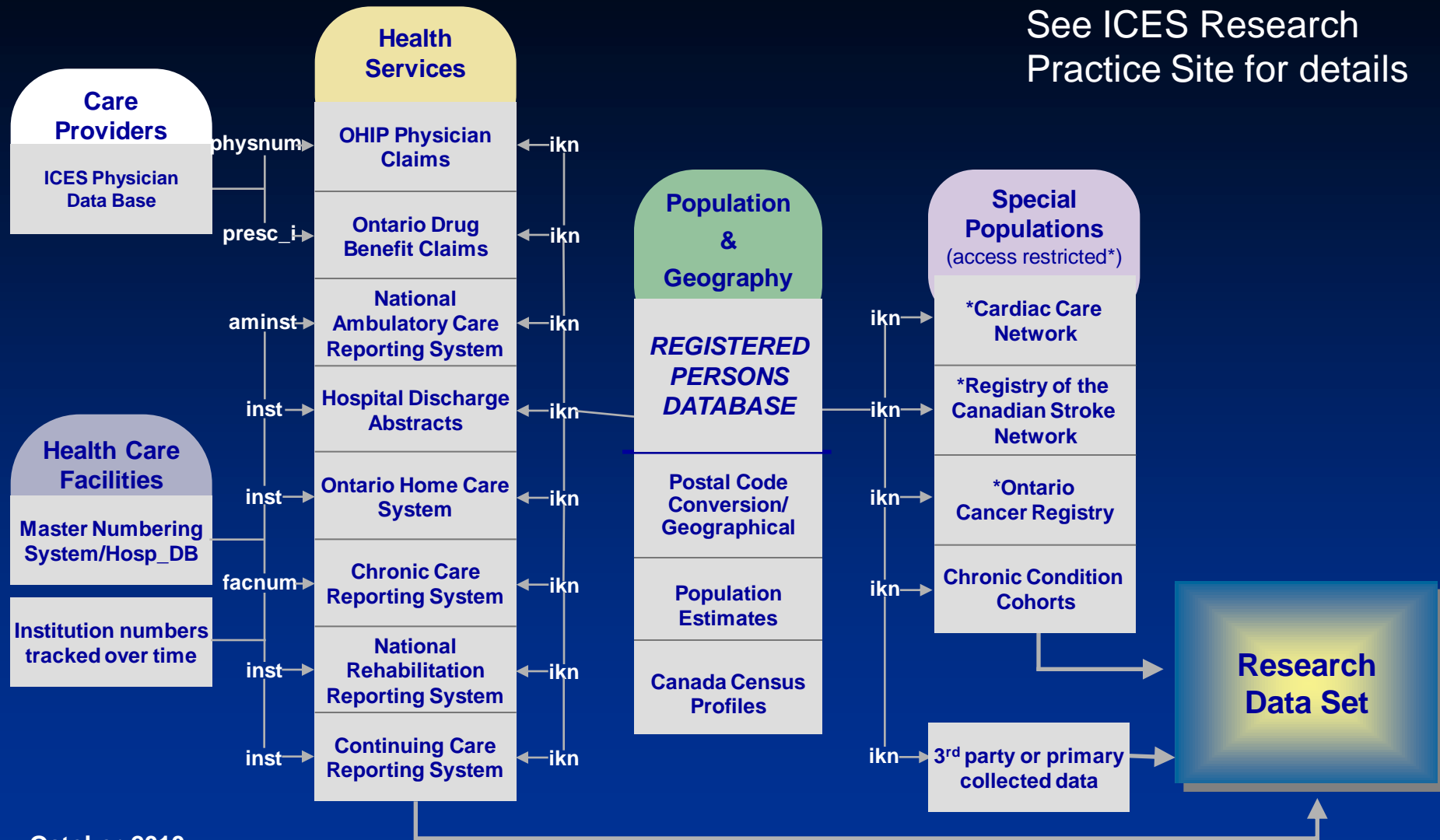
# Why Ontario?



- 1. We can do this effectively, quickly and cheaply.**
- 2. Ontario has a long history of population-based research.**
- 3. Extensive intellectual capital; world-leading medical research**  
e.g., International centre of excellence in genomics  
e.g., International centre of excellence in medical imaging
- 4. Unusually close integration of government, hospitals, and academia.**
- 5. Building upon 45+ years of population-based health data - the best linked medical databases in the world.**
- 6. Ethnically diverse population of ~13 million people.**

# ICES: World-class linked health data

See ICES Research Practice Site for details



October 2010

Enhancing the effectiveness of health care  
for Ontarians through research

# Baseline recruitment: Online questionnaire

## *A Sample of Planned Recruitment Activities*

- Transit Advertising (Major cities in Ontario)

*Began September 2010 and ongoing*

- Media Stories

*Began September 2010 and ongoing*

- Email Blasts (Partners, Supporters, Unions, Professional Associations, Large Employers, Universities, Health Advocacy Groups)

*Began November 2010 and ongoing*

- Radio Advertising (Major cities in Ontario)

*Begins December 2010*

- Newspaper Advertising (In large dailies and community papers)

*Begins December 2010 and ongoing*

- Online Advertising (Google AdWords, Facebook Ads, Banner Ads etc.)

*Begins December 2010 and ongoing*

- RPDB Invitation Letter (Pilot 250,000 to various communities in Ontario)

*Begins January 2011 and ongoing*

- Magazine Advertising (Will be used to target less-reached demographics as tracking indicates gaps)

*Begins March 2011 and ongoing*

- Kiosk Recruitment (Street Festivals, University Campuses etc.)

*Begins May 2011 and ongoing*



# OHS: Governance structure

**Provincial Advisory Council**



**Executive Committee**



PARTENARIAT CANADIEN  
CONTRE LE CANCER



CANADIAN PARTNERSHIP  
AGAINST CANCER



Ontario  
Cancer Care Ontario  
Action Cancer Ontario



Ontario  
Agency for Health  
Protection and Promotion  
Agence de protection et  
de promotion de la santé

**International  
Scientific  
Advisory Board  
(SAB)**



**Ethics  
Advisory  
Committee**



**Executive Scientific Director**



**Science Committee**

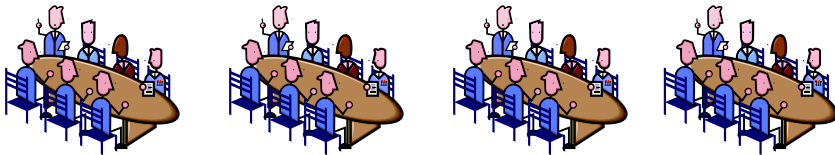


**Assessment Centre/  
Operations  
Committee**

**Communications  
Advisory  
Committee**

**Access  
Committee**

**Represents Scientific Working Groups (WGs)**



**Advertising**

**Digital  
Media**

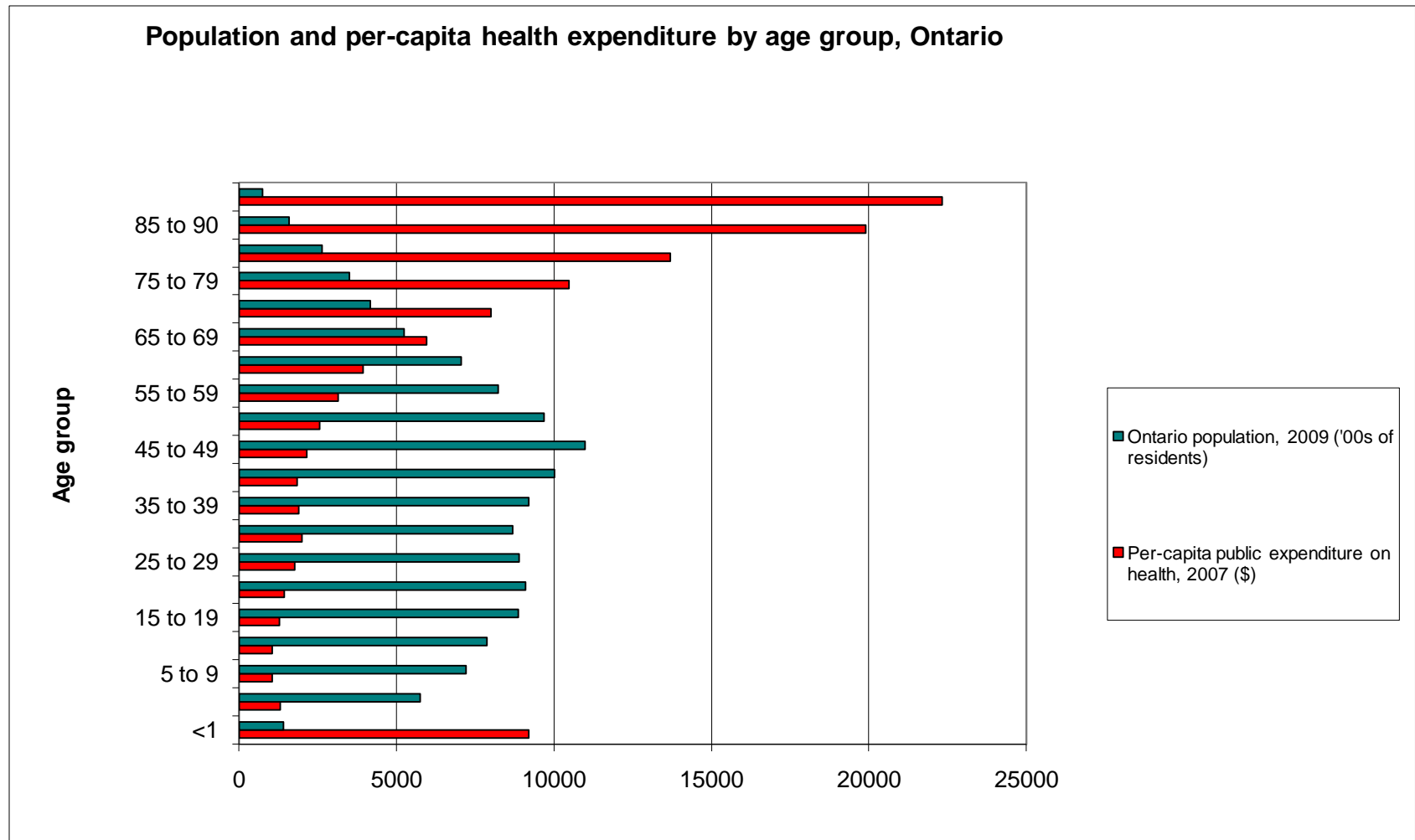
**Diversity/  
Community  
Engagement**

# **The OHS needs you!**

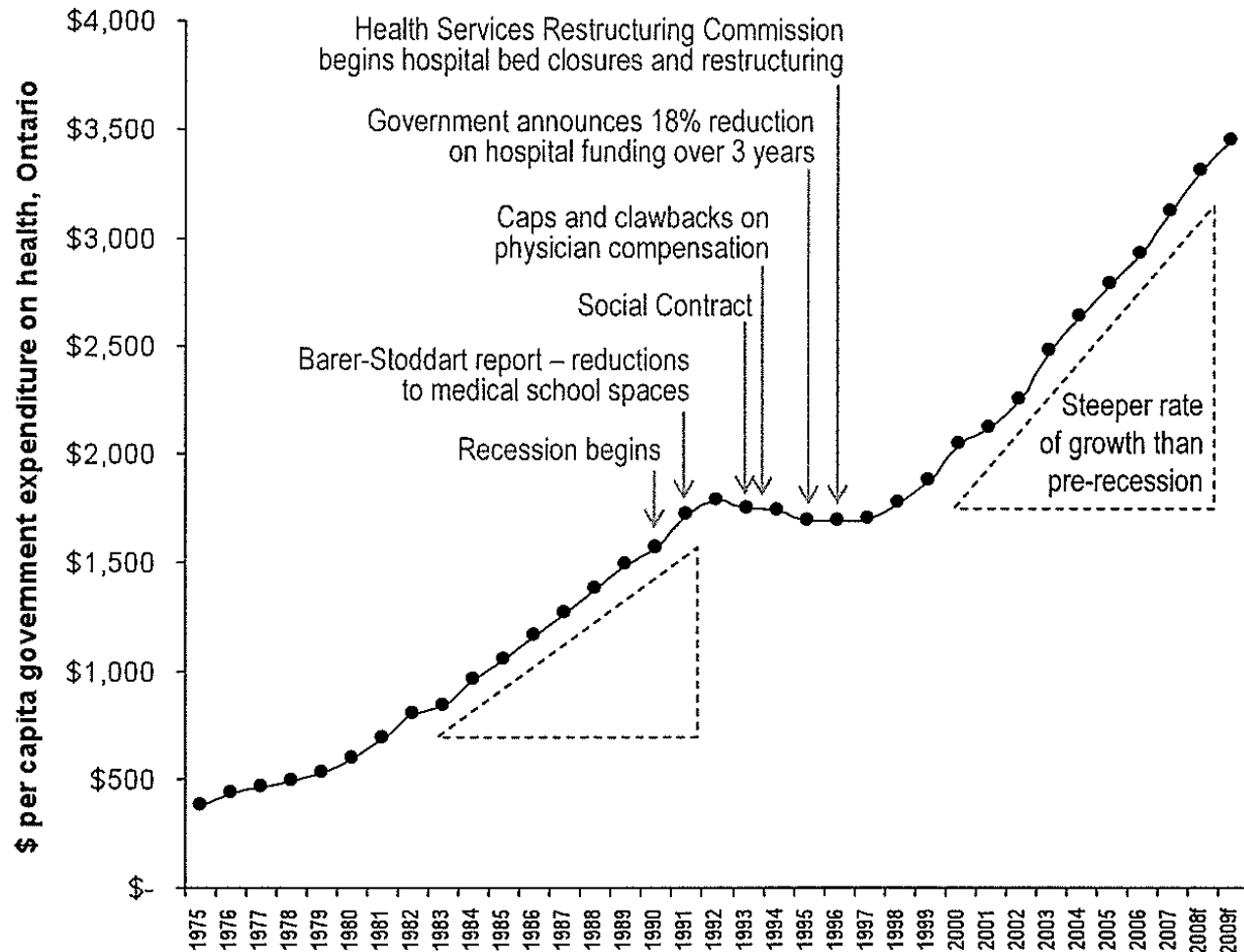
## **Our ask from partner institutions**

- **Institutional engagement: endorsement, interaction, building strategic relationships**
- **Engagement of clinical and academic staff by the OHS team**
  - Online survey of all academics and hospital-based researchers in Ontario (Jan 2011)
  - Online survey of all GPs in Ontario (Jan 2011)
- **Assisted recruitment of staff and students into OHS**
  - Email from institutions, recruitment material in institutions, newsletters, etc.
- **Workplace-based further studies**
  - Biospecimen, physical measures
- **Energize networks within each institution**
  - Engaging cultural diversity of Ontario
  - Institution-specific resources
  - Engaging non-academic partners
- **Concurrent research activities**
  - Paradigm shift: Research embedded into routine clinical care

# OHS important because of aging populations...



# ... and increasingly expensive health systems



# The Future for OHS and Ontario

- **Enabling revolutionary and translational science**

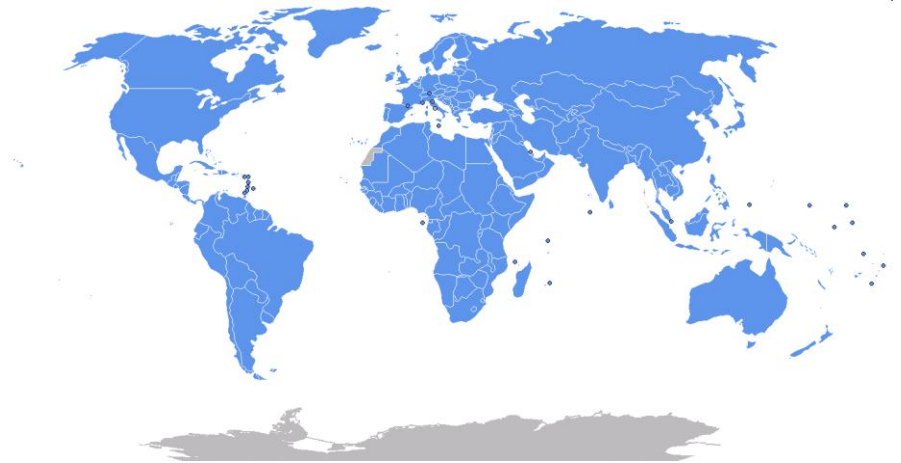
- Discovery
- Characterization
- Research ↔ routine clinical care
- Clinical translation
- Sustainable health systems
- New industries

- **Engagement**

- General community
- Industry
- Ethnic minorities
- Social benefit: evidence base

- **Harmonization**

- Across extant biobank organizations
- Across other organizations
  - OECD, WHO, UN, UNESCO, NIH, EC, Gates Foundation, etc.
- New international partnerships



# CHANGE AND HOPE

*“Change will not come if we wait for some other person or some other time. We are the ones we’ve been waiting for. We are the change we seek.”*

- Barack Obama

