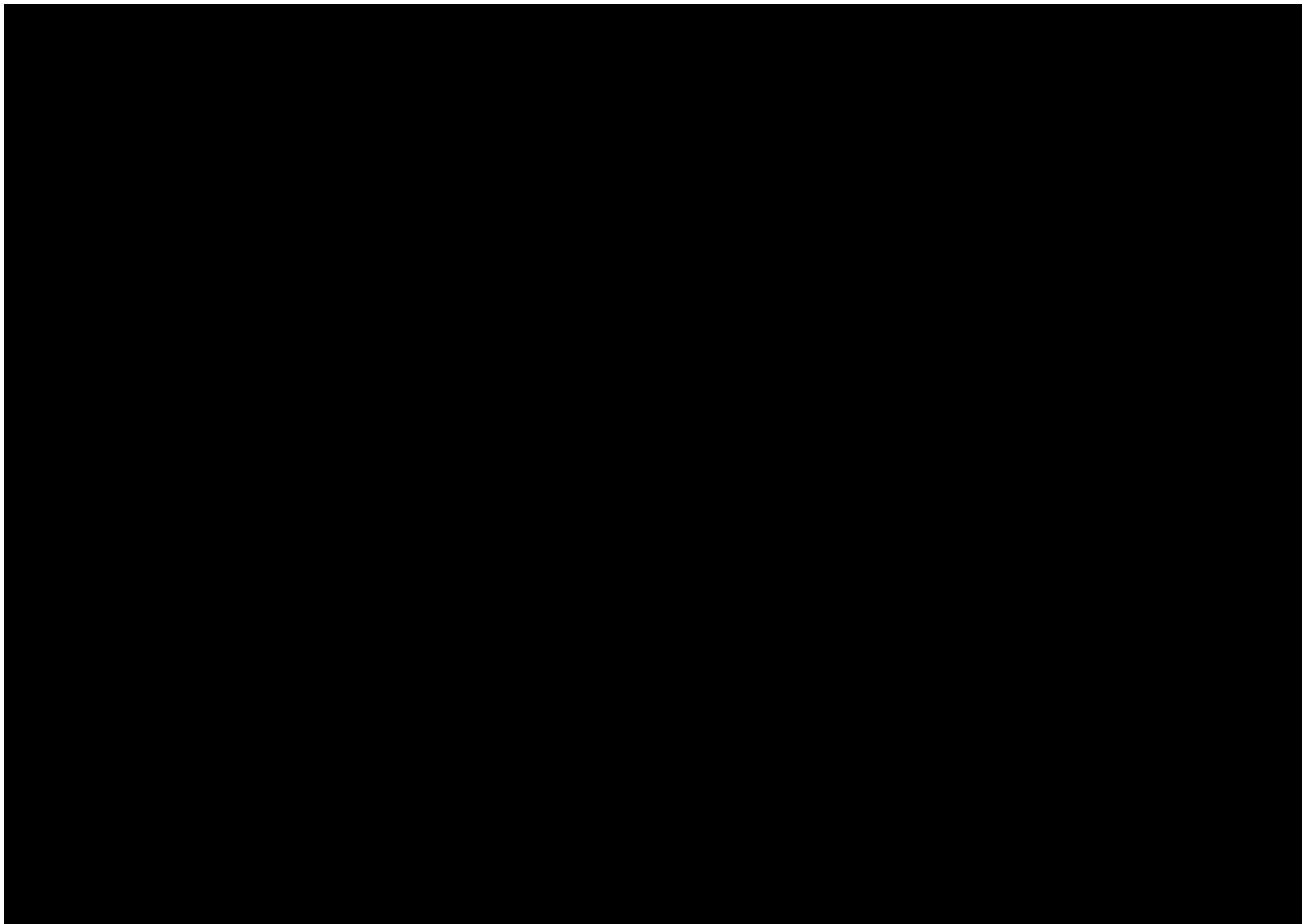


***Transforming Everyday Life  
into Extraordinary Ideas***





**Source:** Statistics Canada. 2007. Visual Census. 2006 Census. Ottawa.  
<http://www12.statcan.gc.ca/census-recensement/2006/as-sa/97-551/vignettes/cda06pymd.swf>

# Canadian Longitudinal Study on Aging (CLSA)

- More than 160 researchers – 26 institutions
- Multidisciplinary – biology, genetics, medicine, psychology, sociology, demography, economics, epidemiology, nursing, nutrition, health services, biostatistics, population health



Canadian Longitudinal Study on Aging  
Étude longitudinale canadienne sur le vieillissement

# Funders & Partners

- Strategic initiative of the Canadian Institutes of Health Research (CIHR)
- Funded by CIHR and the Canada Foundation for Innovation (CFI)
- Provinces and universities across Canada





# Our Vision

A research platform – infrastructure to enable state-of-the-art, interdisciplinary population-based *research* and *evidenced-based* decision-making that will lead to better health and quality of life for Canadians.





# Our Aim

**To study aging as a dynamic process and the inter-relationship among intrinsic and extrinsic factors from mid-life to older age.**



Canadian Longitudinal Study on Aging  
Étude longitudinale canadienne sur le vieillissement

# Selected Research Goals

- The progression of **health** from middle age to early old age to older old age
- The determinants of **well-being and quality of life**
- **Social participation, social relationships and caregiving** in an aging population
- The examination of socioeconomic and health **inequalities** in an aging population
- **Retirement and post-retirement** labour market activity
- **Cognitive functioning and mental health**
- **Disability** and the compression of morbidity



Photo: Horia Varlan

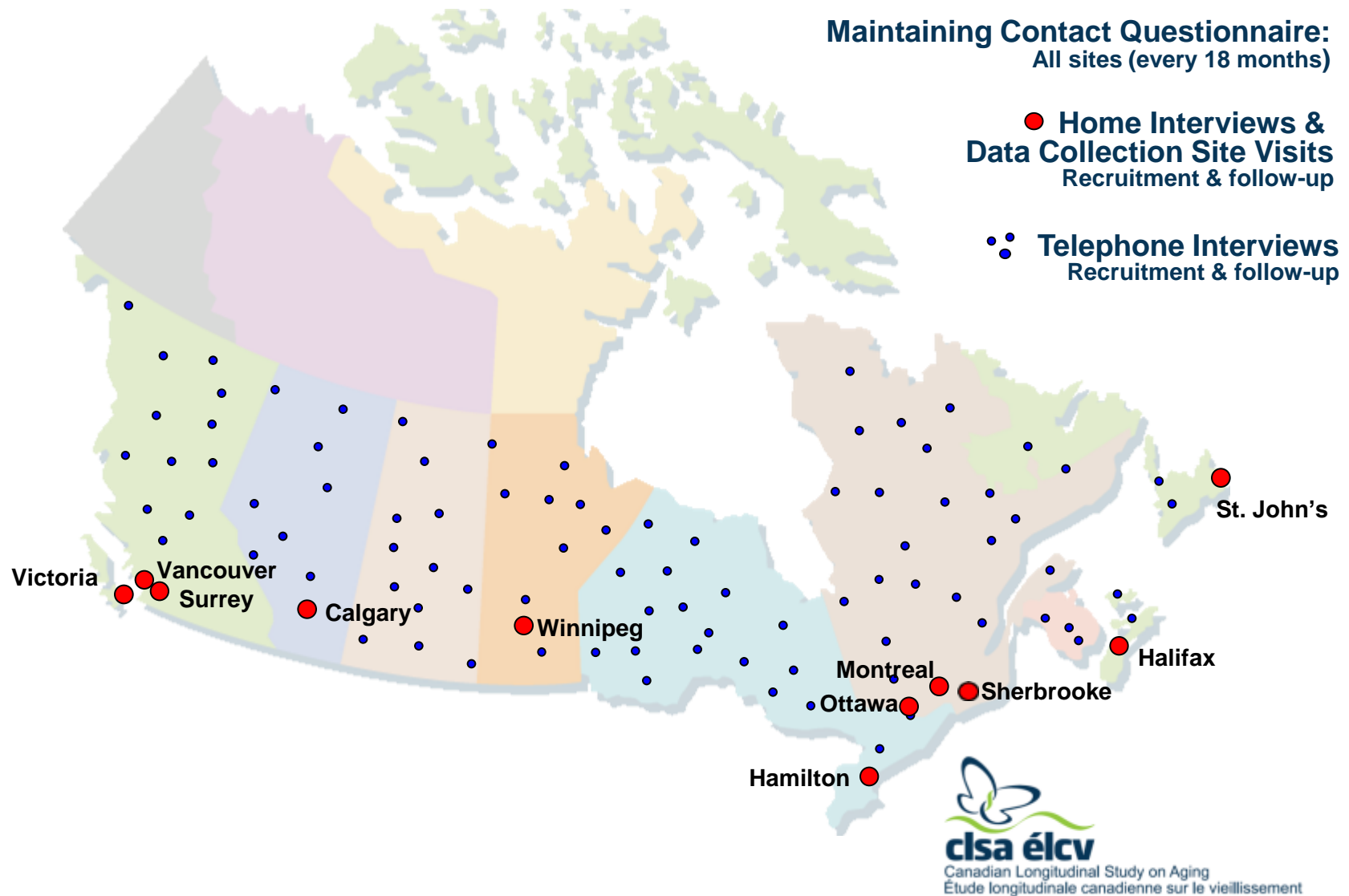


## **Selected Research Goals**

- Risk factors (including genetics) of **chronic diseases**:
  - ✓ **Cardiovascular**
  - ✓ **Cerebrovascular**
  - ✓ **Neurological**
  - ✓ **Respiratory**
  - ✓ **Vision and Hearing**
  - ✓ **Renal**
  - ✓ **Metabolic**
  - ✓ **Cancer**
  - ✓ **Osteoarthritis**
  - ✓ **Osteoporosis**
  - ✓ **Diabetes**
  - ✓ **Musculoskeletal**
  - ✓ **Depression**



# National Scope



# Depth and Breadth of the CLSA

## PHYSICAL & COGNITIVE MEASUREMENTS

- Height & weight
- Waist and hip measurements
- Body composition
- Arterial pressure
- Heart rate
- ECG
- Grip strength
- Timed up-and-go
- Chair rise, 4-m walk
- Standing balance
- Vision
- Hearing
- Spirometry
- Bone density
- Aortic calcification
- Carotid intima-media thickness
- Cognitive assessment



# Depth and Breadth of the CLSA

## PSYCHOSOCIAL

- Social participation
- Social networks and support
- Caregiving and care receiving
- Mood, psychological distress
- Satisfaction with life
- Wealth
- Personality traits
- Work-to-retirement transitions
- Veteran identifier/PTSD
- Retirement planning
- Social inequalities
- Mobility-lifespace
- Built environments



# Depth and Breadth of the CLSA

## HEALTH INFORMATION

- Chronic disease and symptoms
- Medication and supplement use
- Women's health
- Self-reported health service use
- Oral health
- Administrative data linkage health services and drugs
- Other administrative databases
- General health
- Injuries
- Pain/discomfort
- Functional status
- Activities of daily living (ADL)
- ADL impairment





# Depth and Breadth of the CLSA



## LIFESTYLE & SOCIODEMOGRAPHIC

- Smoking
- Alcohol consumption
- Physical activity
- Nutrition
- Birth location
- Ethnicity/race/gender
- Marital status
- Education
- Income
- Transportation
- Home ownership



Canadian Longitudinal Study on Aging  
Étude longitudinale canadienne sur le vieillissement

# Study Overview

**50,000 women and men aged 45 - 85 at baseline**

**n=20,000**  
**Randomly selected within provinces**

**Questionnaire**  
• **By telephone (CATI)**

**n=30,000**  
**Randomly selected within 25-50 km of 11 sites**

**Questionnaire**  
• **In person, in home (CAPI)**

**Clinical/physical tests**  
**Blood, urine (consent)**  
• **At Data Collection Site**

**Interim contact, follow up every 3 years**

**Data Linkage (consent)**

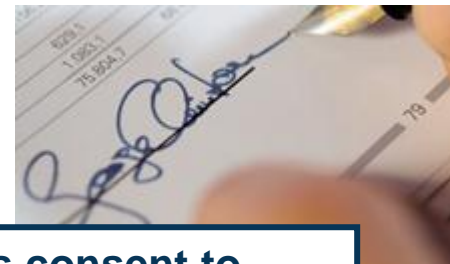


Canadian Longitudinal Study on Aging  
Étude longitudinale canadienne sur le vieillissement

# CLSA Recruitment



**Randomly selected adults aged  
45-85 sent study information**



**Recruits consent to  
participate in the CLSA**



**Participants provide  
questionnaire data  
(n=50,000)**



**Home interview and  
data collection site  
visit (n=30,000)**



**Telephone  
interview  
(n=20,000)**

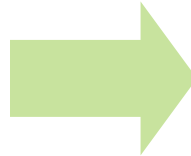


# CLSA Data Collection

## Telephone Interviews



**Sites conduct telephone  
interviews**



**Participants provide  
questionnaire data (n=20,000)**

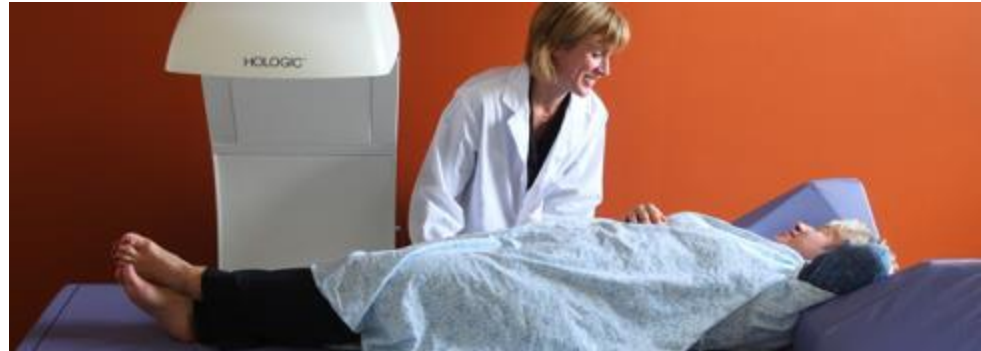


# **CLSA Data Collection**

## **Home Interview and Data Collection Site Visit**



**Participants provide  
questionnaire data in a  
home interview  
(n=30,000)**



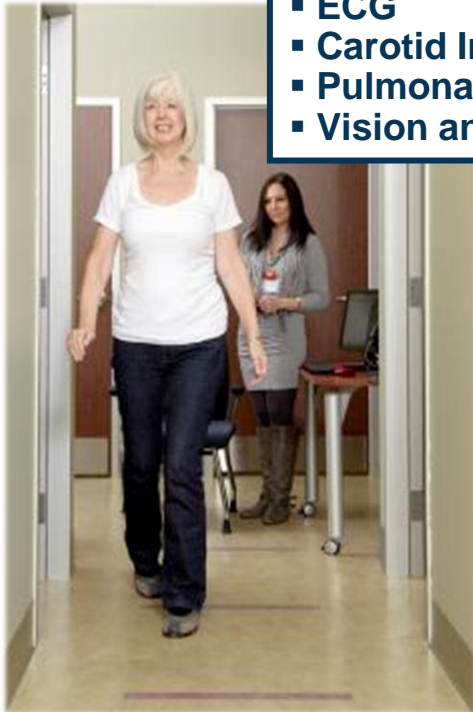
**Participants visit one of 11 data collection  
sites  
(n=30,000)**

# CLSA Data Collection

## At the Data Collection Site

### Physical Data Collected

- Bone Density, Body Composition
- Aortic Calcification
- ECG
- Carotid Intimal-Medial Thickness
- Pulmonary Function
- Vision and Hearing



### Biological Data Collected

- Blood
- Urine



### Psychological Data Collected

- Neuropsychological Battery
- Performance Testing
- Anthropometric Measures



For more  
Information visit  
[www.clsa-elcv.ca](http://www.clsa-elcv.ca)



Canadian Longitudinal Study on Aging  
Étude longitudinale canadienne sur le vieillissement

# Biospecimen Room

## Collection, processing, analysis

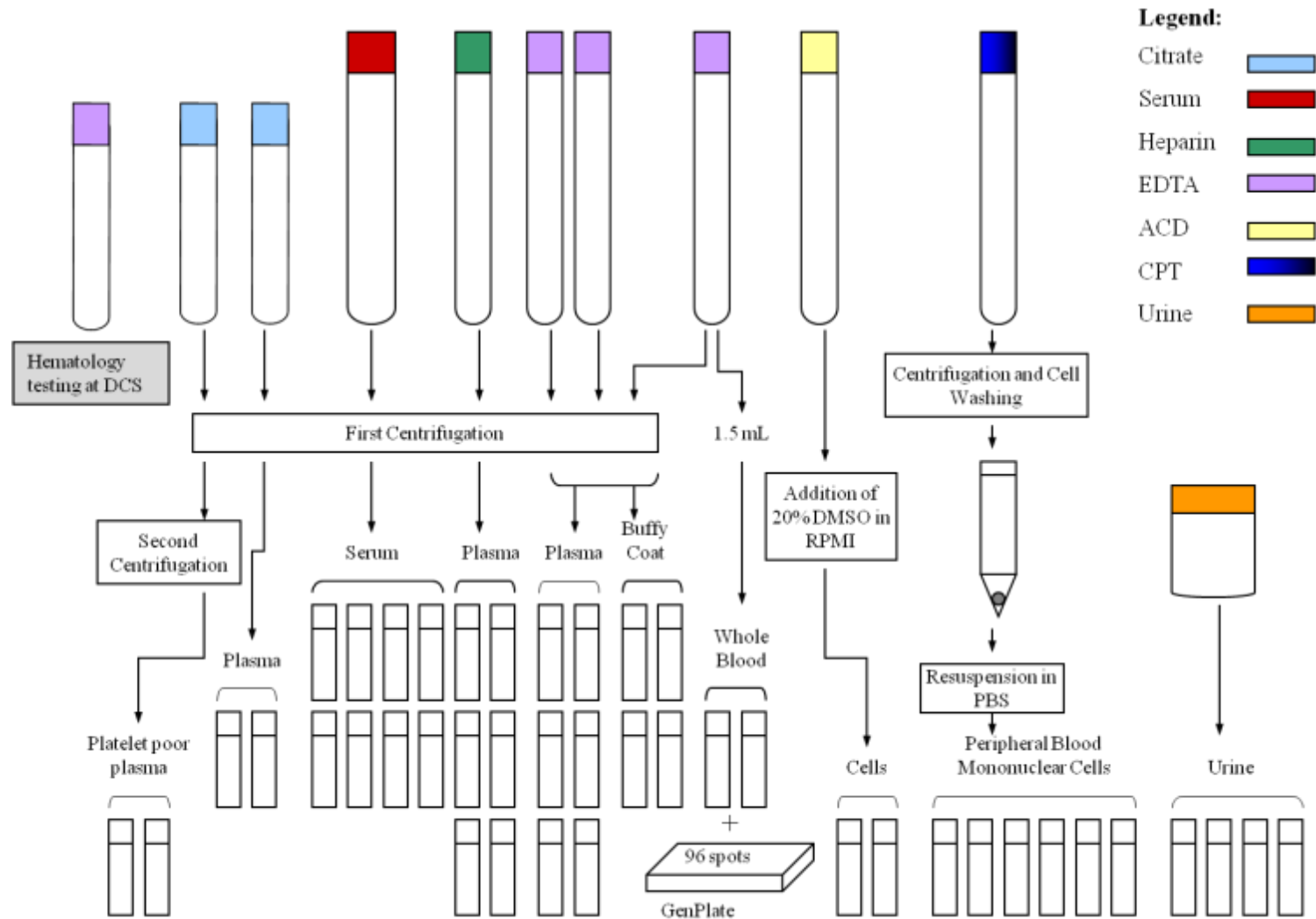
- 5 – 6 participants per day
- 50 mL blood
- Urine sample
- Hematology tests
- Collection to storage time – 2 hours

AcT DIFF, Beckman Coulter



# Biospecimen processing

42 aliquots per participant





# CLSA Data Processing



**Telephone interview  
(n=20,000)**



**Home interview and data  
collection site visit (n=30,000)**



**Blood and urine  
stored in  
Biorepository and  
Bioanalysis Centre  
(BBC)**



**Questionnaire data processed**



**Data stored in National Coordinating Centre/  
Statistical Analysis Centre (NCC/SAC)**



**Linkage to  
administrative data  
with consent**

# Recruitment & Data Collection

## Telephone Interviews

- Recruitment of 20,000 participants for telephone interviews:
  - ✓ Statistics Canada CCHS on Healthy Aging
  - ✓ Provincial Health Care Registries
  - ✓ Random Digit Dialing
- Baseline data collection 2010 to 2014
- Maintaining contact interviews initiated 2013
- First follow-up begins 2015



# Recruitment & Data Collection

## Home Interviews and Data Collection Site Visits

- Recruitment of 30,000 for Home Interviews and Data Collection Site Visits:
  - ✓ Provincial Health Care Registries
  - ✓ Random Digit Dialing
- Baseline data collection 2012 to 2015
- Maintaining Contact Interviews initiated 2014
- First follow-up begins 2015



# CLSA Infrastructure

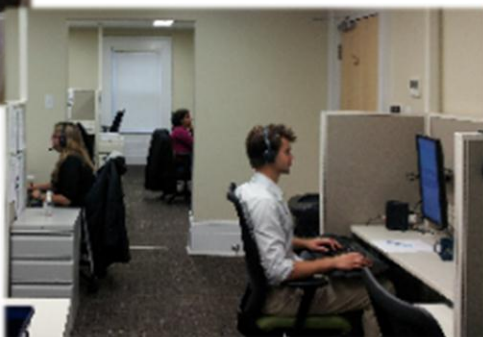
## 11 Data Collection Sites





# CLSA Infrastructure

## 4 Telephone Interview Centres



UNIVERSITY  
OF MANITOBA



DALHOUSIE  
UNIVERSITY  
*Inspiring Minds*



UNIVERSITÉ DE  
SHERBROOKE



University  
of Victoria



Canadian Longitudinal Study on Aging  
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# CLSA Infrastructure

## 4 Enabling Units



**National Coordinating  
Centre (NCC)**  
Director: Parminder Raina



**Biorepository and  
Bioanalysis Centre (BBC)**  
Director: Cynthia Balion



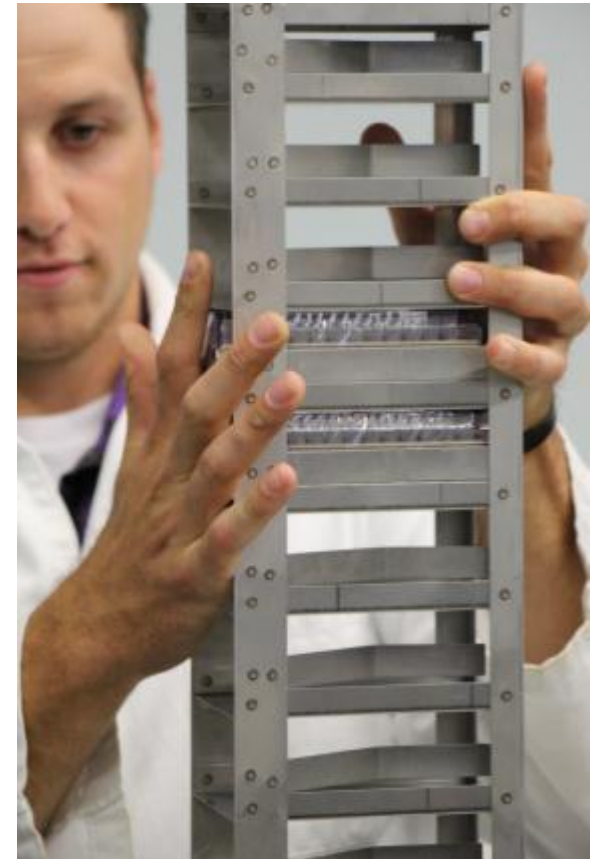
**Genetics and Epigenetics Centre (GEC)**  
Directors: Michael Kobor and Michael Hayden



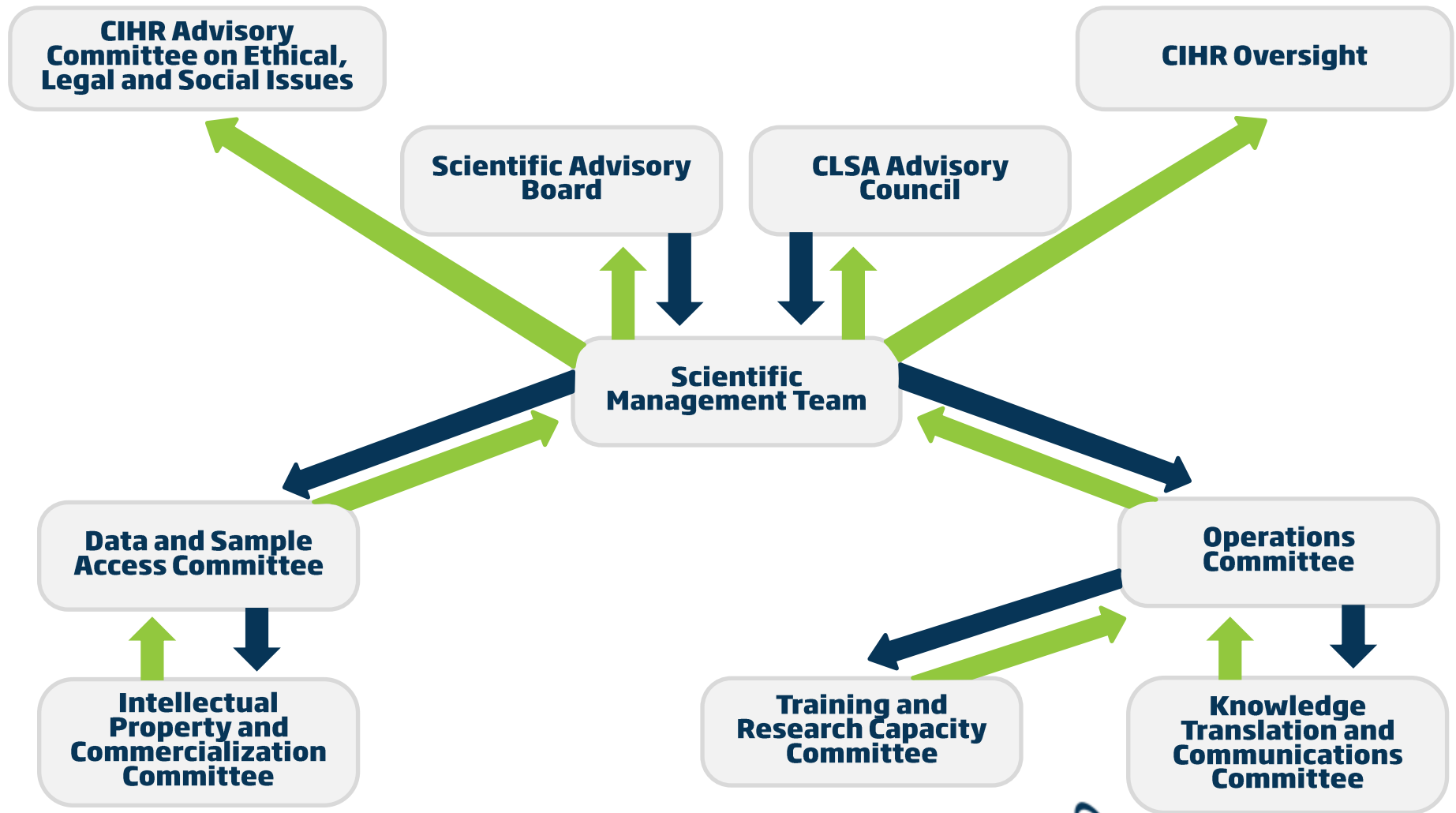
**Statistical Analysis Centre (SAC)**  
Director: Christina Wolfson

# CLSA by the Numbers

- 50,000 participants
- 20 years to complete the study
- Capacity for:
  - 140,000 telephone interviews
  - 210,000 home interviews
  - 210,000 visits to data collection sites
  - 5 million biospecimen aliquots
  - 300,000 follow-up calls
- 126 million questions will be asked during telephone interviews
- 300 million data points will form the CLSA research platform



# CLSA Governance Structure



# Data and Biospecimen Access

- Data and biospecimens available to the research community
- Fundamental tenets:
  - The rights, privacy and consent of *participants* must be protected and respected at all times
  - The confidentiality and security of *data and biospecimens* must be safeguarded at all times
  - CLSA data and biospecimens are resources that will be used optimally to support research to benefit all Canadians.



# What is the process to access data?

- 20,000 telephone interviews: anticipate data to be available mid-2014
- Application process via CLSA website portal
- Review: Administrative, Data and Sample Access Committee recommendation
- Approval, data/biospecimen sharing agreements
- Raw data and/or biospecimens to investigator
- Return of derived variables to CLSA dataset

# CLSA Partners

- PHAC for Neurological Conditions Initiative
- PHAC for Injury Initiative
- Veterans Affairs (Veterans Health Initiative)
- Statistics Canada
- Ontario Ministry of Health and Long-Term Care
- Provinces
- Universities
- Large number of in-kind contributions from vendors and suppliers

# CLSA Funders and Partners



Veterans Affairs  
Canada



Anciens Combattants  
Canada

Health PEI



# **CLSA Research Team**

## **Scientific Management Team**



**Co-principal Investigator  
Christina Wolfson (McGill)**



**Lead Principal Investigator  
Parminder Raina (McMaster)**



**Co-principal Investigator  
Susan Kirkland (Dalhousie)**



# CLSA Research Team

## Operations Committee and Scientific Leads





# CLSA Research Team

<b>Key Senior Co-investigators</b>	Debra Sheets, Lynne Young, Holly Tuokko ( <b>Victoria</b> ), Max Cynader, Michael Hayden, Michael Kobor, Theresa Liu-Ambrose ( <b>UBC</b> ), Andrew Wister, Scott Lear ( <b>SFU</b> ), David Hogan, Marc Poulin ( <b>Calgary</b> ), Verena Menec, Phil St. John ( <b>Manitoba</b> ), Cynthia Balion, Christopher Patterson, Parminder Raina, Lauren Griffith, Mark Oremus, Harry Shannon ( <b>McMaster</b> ), Larry Chambers, Vanessa Taler ( <b>Ottawa</b> ), Christina Wolfson, Ron Postuma ( <b>McGill</b> ), H��l��ne Payette ( <b>Sherbrooke</b> ), Susan Kirkland ( <b>Dalhousie</b> ), Gerry Mugford, Patrick Parfrey ( <b>Memorial</b> ), Mary Thompson and Changbao Wu ( <b>Waterloo</b> )
<b>Scientific Working Groups and Co-Investigators</b>	See our website: <a href="http://www.clsa-elcv.ca">www.clsa-elcv.ca</a>

**The CLSA is funded by the Government of Canada through CIHR and CFI, and provincial governments and universities**



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into Extraordinary Ideas***



**Connect  
with us**

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[\*\*www.clsa-elcv.ca\*\*](http://www.clsa-elcv.ca)

