An Overview of the Canadian Longitudinal Study on Aging

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Canadian Longitudinal Study on Aging (CLSA)

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

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

- The progression of **health** from middle age to early old age to older old age (healthy aging)
- The determinants of **well-being and quality of life**
- Risk factors (including genetics) of **chronic diseases**
- **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
## Depth and Breadth of CLSA

### PHYSICAL & COGNITIVE MEASUREMENTS
- Height & weight
- Waist and hip measurements
- Bioimpedence
- Arterial pressure
- Mean heart rate
- Grip strength, timed up-and-go, chair raise, 4-m walk
- Standing balance
- Vision
- Hearing
- Spirometry
- Bone density
- Aortic calcification
- ECG
- Carotid intima-media thickness
- Cognitive assessment

### HEALTH INFORMATION
- Chronic disease symptoms (11 chronic conditions)
- Medication intake & compliance
- Women’s health
- Self-reported health service use
- Oral health
- Preventative health
- Administrative data linkage health services & drugs
- Other administrative databases

### PSYCHOSOCIAL
- Social participation
- Social networks and support
- Caregiving and care receiving
- Mood, psychological distress
- Coping, adaptation
- Work-to-retirement transitions
- Job-demand/effort reward
- Retirement planning
- Social inequalities
- Mobility-lifespace
- Built environments
- Wealth

### LIFESTYLE & SOCIODEMOGRAPHIC
- Smoking
- Alcohol consumption
- Physical activity
- Nutrition
- Birth location
- Ethnicity/race/gender
- Marital status
- Education
- Income
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

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

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Sample Size</th>
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<tbody>
<tr>
<td>45-54</td>
<td>6,000</td>
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<td>4,000</td>
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**Home Interview/DCS Visit Group (n=30,000)**

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**Sampling Frame:**
- CCHS, provincial health registration databases, and RDD
- Provincial health registration databases, and RDD
41,956 Participants so far

50,000 goal

September 24, 2014
Participant recruitment

- Home Interviews & Data Collection Site Visits
  Recruitment & follow-up
- Telephone Interviews
  Recruitment & follow-up
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 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

Psychological Data Collected
- Neuropsychological Battery
- Performance Testing
- Anthropometric Measures

Biological Data Collected
- Blood
- Urine

For more Information visit www.clsa-elcv.ca
Biospecimen processing
42 aliquots per participant
Proposed Analysis of baseline biomarkers

• Complete Blood Count (available)
• Proposed panel of biomarkers: albumin, ALT, creatinine, CRP, ferritin, hemoglobin A1C, lipids (cholesterol, HDL, Triglycerides, LDL), thyroid stimulating hormone, free T4, 25-hydroxyvitamin D
  ➢ N~30,000 (Calgary Laboratory Services)
• Proposed genotyping: Affymetrix UKBiorepository array assay 820,967 SNPs
  ➢ n=10,000 (McGill Genome Centre)
• Proposed epigenetic analysis: targeted age-associated CpG methylation using pyrosequencing and Sequenom EpiTyper
  ➢ n=5,000 (UBC Genetics and Epigenetics Centre)
Data and Biospecimen Access

• **Data and sample access is open**
  - All researchers have access to data
  - No preferential or exclusive access for any individual

• **Ethical and legal considerations**
  - How the data are used and for what purpose?
  - Public sector vs. private-sector access
Baseline Data Release

- 21,242 telephone interviews: Released June 2014
  - 2nd release Winter 2015 to include cognitive scores (scoring ongoing), occupational classes (planned)
- 30,000 Data Collection Site Visits: anticipate 1st release of data within 10 months of completed recruitment and baseline assessments ~Spring 2016
- Application-to-access process via CLSA DataPreview Portal (www.clsa-elcv.ca)
- Formal Review through the CLSA Data and Sample Access Committee
- Following approval, release requires data/biospecimen transfer agreements
Aim 1: Recruitment and Baseline Data Collection Data Release

- DataPreview Portal soft launch June 2014
- Gateway to access for data* and biospecimens
  - Meta data: data dictionaries, data collection tools
  - Documentation and application form
  - Variable search mechanism providing simple descriptive statistics for selected variables

*Currently available for alphanumerical data
Welcome to the DataPreview Portal for the Canadian Longitudinal Study on Aging (CLSA)! The CLSA data and biological samples are available to approved Canadian and international public sector researchers, with no preferential or exclusive access for any individual. As you navigate the site you will find information about the application process and requirements for data and sample access. If you are new to using the portal we recommend you begin by reading the Frequently Asked Questions.
Datasets

A Canadian Longitudinal Study on Aging (CLSA) dataset holds and describes variables collected from participants at each wave of data collection. The variable search tool enables researchers to locate items of interest within all available data collected from CLSA participants.

Currently, data emanating from the over 20,000 Tracking participants who completed the baseline 60-minute telephone interviews are available. Cognitive scoring is ongoing and these data will be available as part of the second CLSA data release in December 2014.

Datasets from future data collection events will be added when they are available.

**Variables (June 2014)**

Variables currently available in the first wave of the data release, with filtering and search options.

**Variables (December 2014)**

Variables that will be available in the second CLSA data release in December 2014.

**Sampling weights**

Description of sampling weights used in the CLSA.

**Questionnaire**

Baseline 60-minute Telephone Interview questionnaire (Tracking).

**Study design**

Study design of the Canadian Longitudinal Study on Aging (Tracking participants).
CLSA Governance Structure

- CIHR Advisory Committee on Ethical, Legal and Social Issues
- Scientific Advisory Board
- CLSA Advisory Council
- Scientific Management Team
- Data and Sample Access Committee
- Intellectual Property and Commercialization Committee
- Operations Committee
- Training and Research Capacity Committee
- Knowledge Translation and Communications Committee
- CIHR Oversight
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
Quality System

- Assessments
- Continual Improvement

- Documents and Records
- Information Management

- Personnel
- Equipment
- Process Management

- Stakeholder Focus
- Managing Non-conforming Events

- Purchasing/Inventory
- Facilities and Safety
- Organization

Canadian Longitudinal Study on Aging
Étude longitudinale canadienne sur le vieillissement
CLSA Research Team

Scientific Management Team

Co-principal Investigator
Christina Wolfson (McGill)

Lead Principal Investigator
Parminder Raina (McMaster)

Co-principal Investigator
Susan Kirkland (Dalhousie)