



# **Canadian Longitudinal Study on Aging as a Platform for Studying Disease and Disability in Aging Population**

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# The Canadian Longitudinal Study on Aging (CLSA)

- ▶ A key strategic initiative of CIHR
  - ▶ The Canadian Longitudinal Study on Aging
- ▶ More than 160 researchers - 26 institutions
- ▶ Multidisciplinary - biology, genetics, medicine, psychology, sociology, demography, economics, epidemiology, nursing, nutrition, health services, biostatistics, population health

# Our Aim

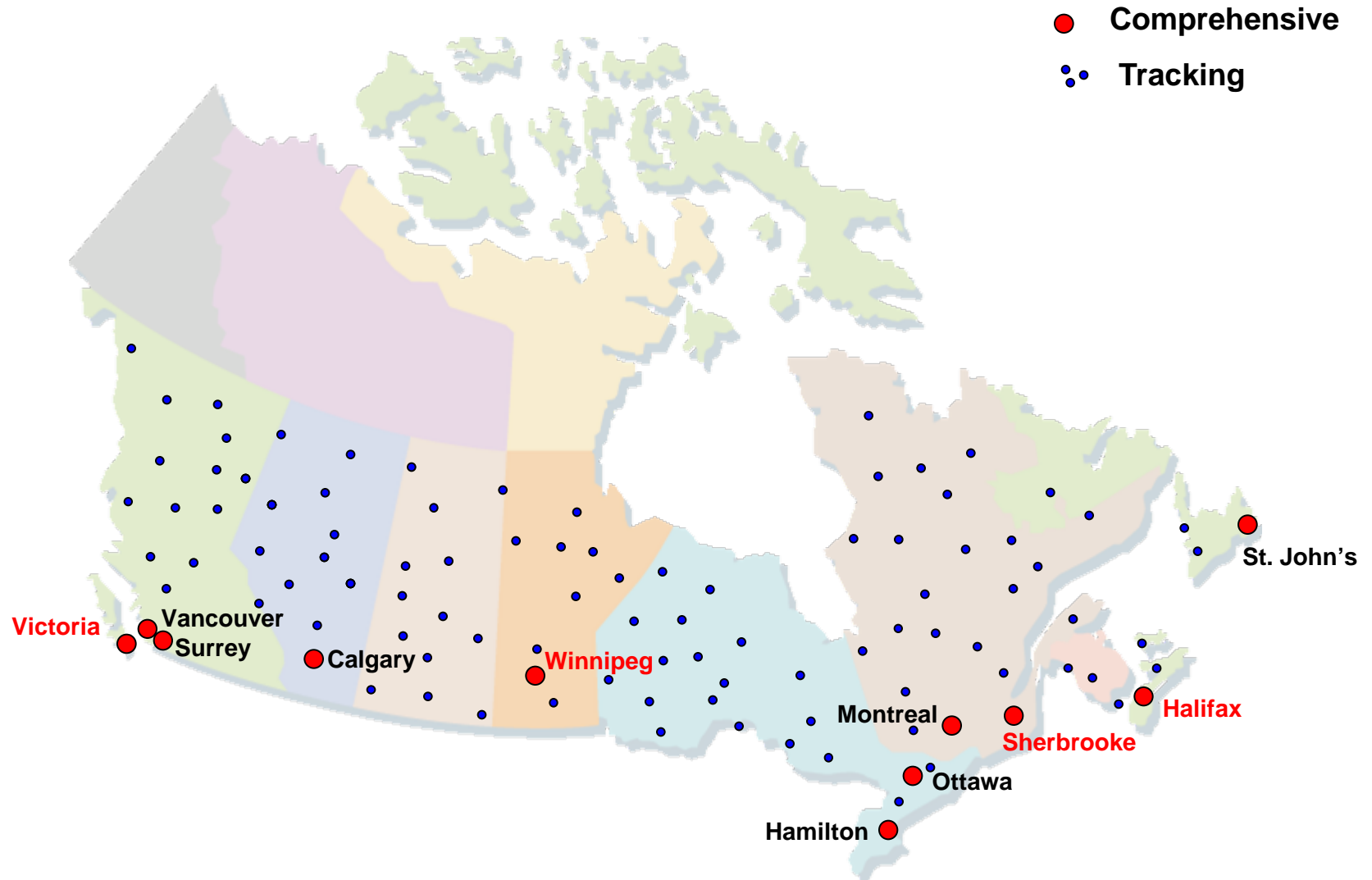
**To study aging as a dynamic process and the inter-relationship among intrinsic and extrinsic factors from mid-life to older age.**



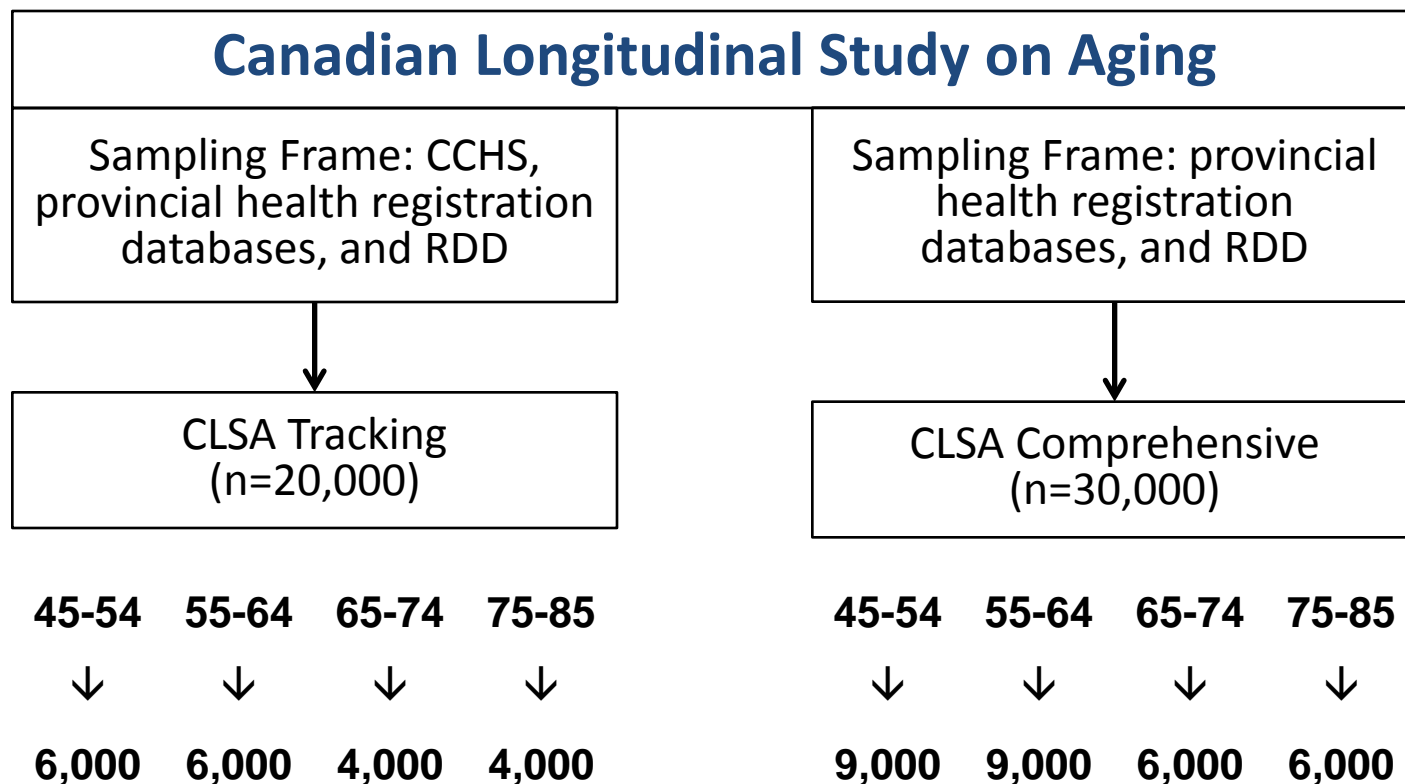
# Overall Aims of the CLSA

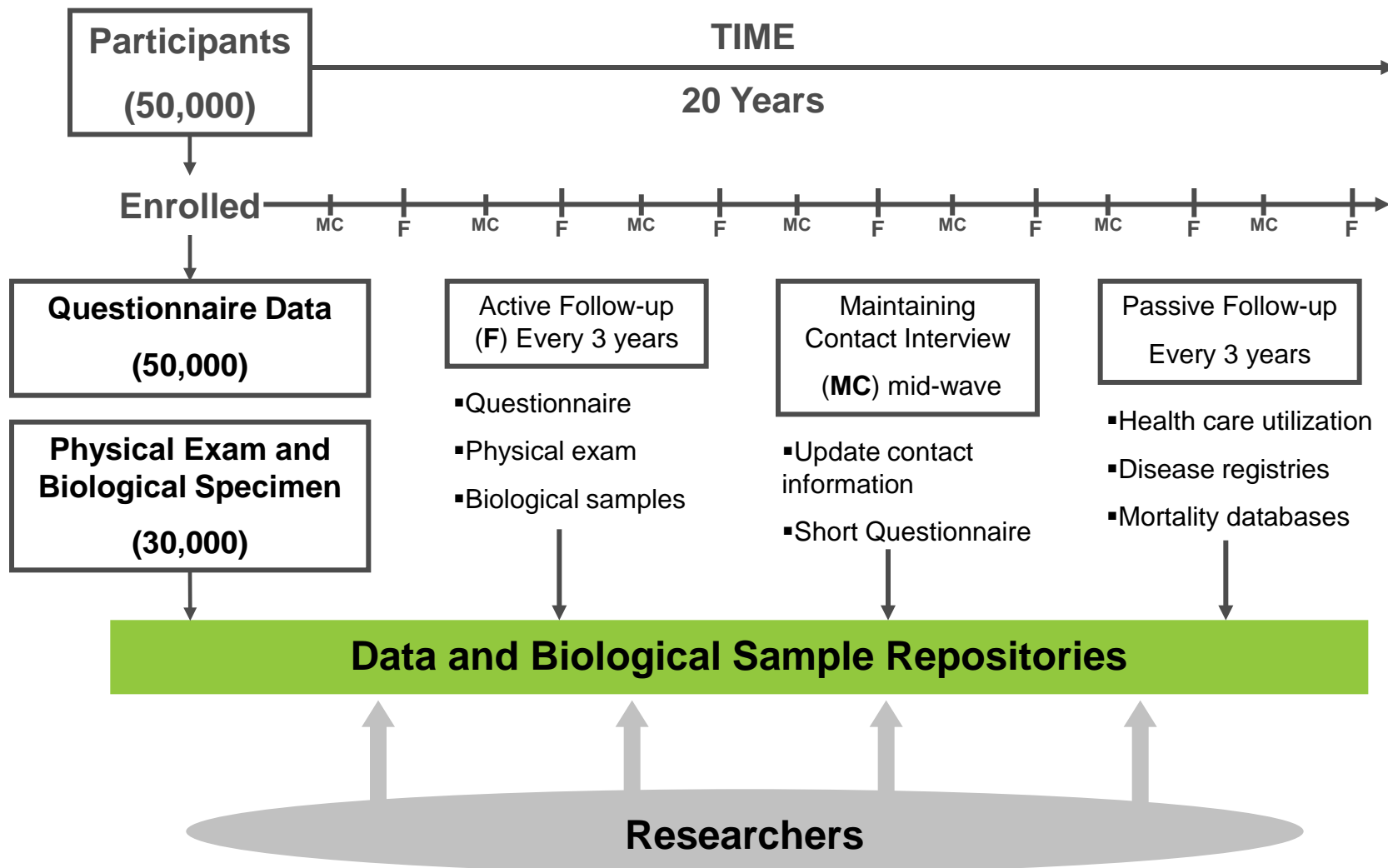
- The progression of **health** from middle-age to early old age to older old age
- The determinants of **well-being and quality of life**
- Risk Factors (including genetics) of **Chronic diseases**
- **Cognitive functioning** and **mental health**
- **Disability** and the compression of morbidity
- The examination of socioeconomic and health **inequalities** in an aging population
- **Social participation, social relationships and care giving** in an aging population
- **Retirement** and **post retirement** labor market activity

# Participant Recruitment



# CLSA Sampling





# Depth and Breadth of CLSA

## PHYSICAL & COGNITIVE MEASUREMENTS

- Height & weight
- Waist and hip measurements
- Blood Pressure
- Grip strength, timed up-and-go, chair raise, 4-m walk  
Standing balance
- Vision (retinal imaging, Tonometer & visual acuity)
- Hearing (audiometer)
- Spirometry
- Body composition (DEXA)
- Bone density (DEXA)
- Aortic calcification (DEXA)
- ECG
- Carotid Plaque sweep (ultrasound)
- Carotid intima-media thickness (ultrasound)
- Depression
- Cognitive assessment (30 min. battery)

## HEALTH INFORMATION

- Chronic disease symptoms (**disease algorithm**)
- Medication and supplements intake
- 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
- PTSD
- Coping, adaptation
- Injuries and consumer products
- Work-to-retirement transitions
- Retirement planning
- Social inequalities
- Mobility-lifespace
- Built environments & Contextual Factors
- Income, Wealth and Assets

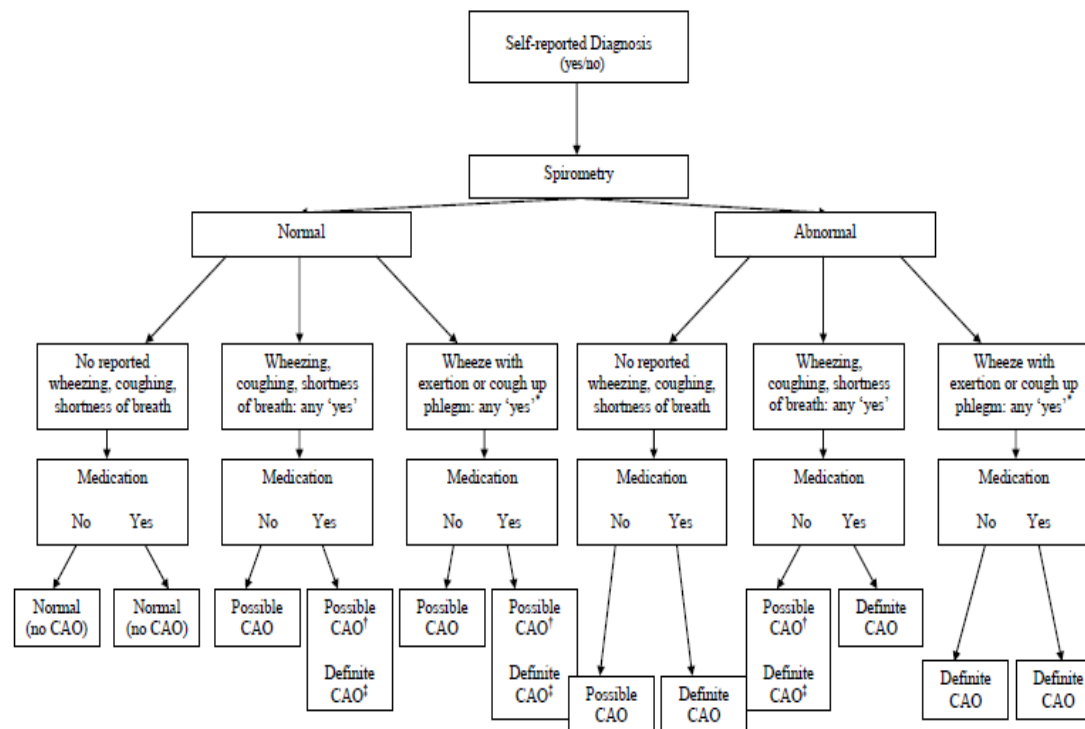
## LIFESTYLE & SOCIODEMOGRAPHIC

- Smoking
- Alcohol consumption
- Physical activity (PASE)
- Nutrition (nutritional risk and food frequency)
- Birth location
- Ethnicity/race/gender
- Marital status
- Education





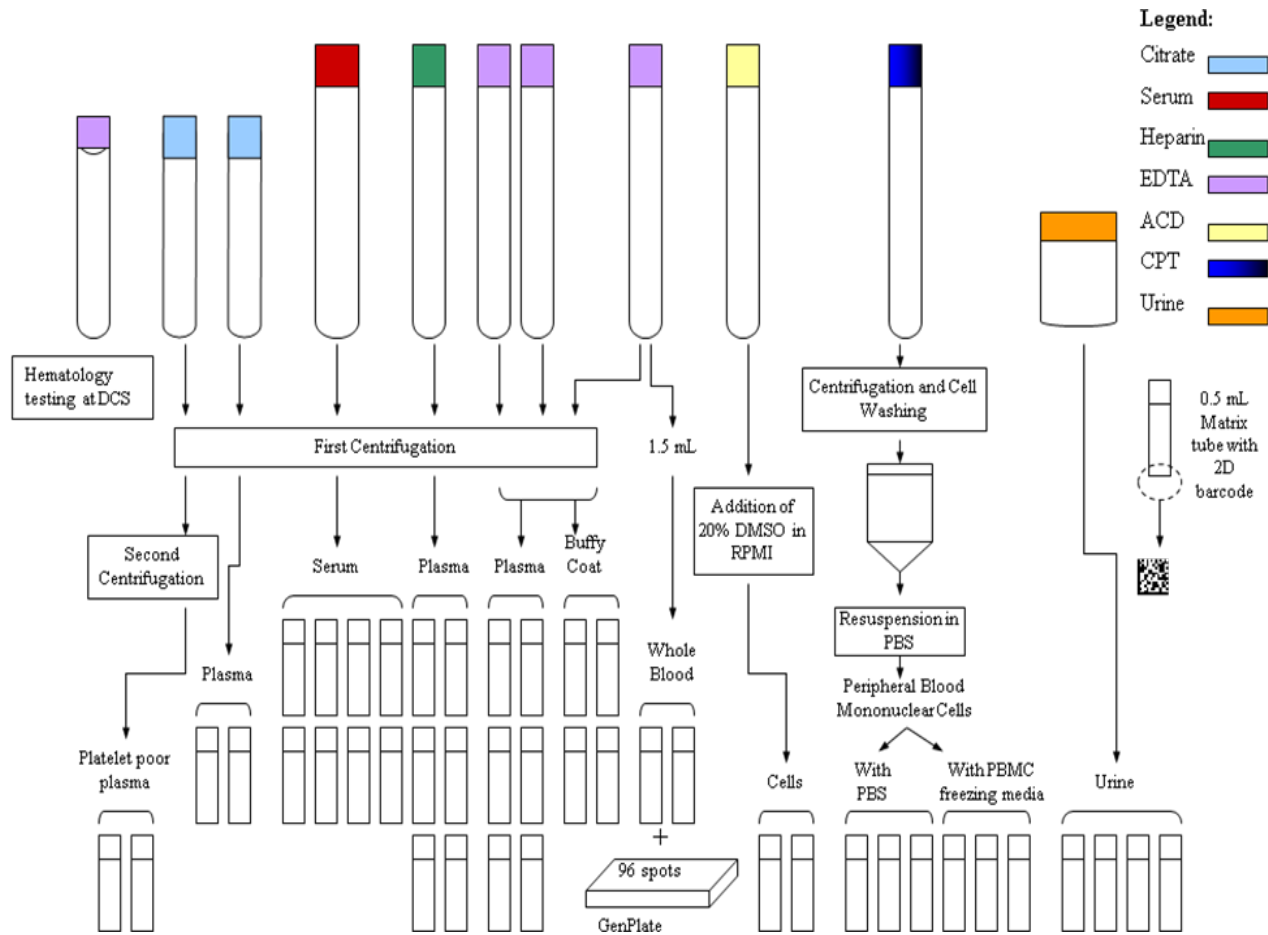
# Chronic Airflow Obstruction (CAO) Algorithm



eFigure 1c: Chronic Airflow Obstruction Algorithm. CAO = chronic airflow obstruction. <sup>†</sup> If participant coughs without phlegm, then outcome will be possible CAO. <sup>‡</sup> Outcome when self-reported diagnosis = no. <sup>§</sup> Outcome when self-reported diagnosis = yes.

# Bio specimens

## 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)



# Baseline Recruitment and Data Collection

- First selection of 20,000 started in late 2011
  - Completed 60 minute questionnaire by telephone on about 21,000 individuals (***Includes Health care number on over 90% of the respondents***)
- In August 2013 our maintaining contact interviews (30 minute telephone interview)
  - Minimize loss to follow-up
  - Collect additional data



# Implementation Plan for the Comprehensive Cohort (n=30,000)

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- ❖ Cohort of 30,000 persons to be recruited within 25 to 50 km radius of 11 data collection sites (DCS)
    - Victoria (3000), Vancouver (1500), Burnaby (1500), Calgary (3000), Winnipeg (3000), Hamilton (3000), Ottawa (3000), Montreal (3000), Sherbrooke (3000), Halifax (3000), St. John's (3000)
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# Comprehensive Cohort Rolling Recruitment

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- ❖ First batch of 10,000 people to be recruited across all sites (Fall-2012 to mid-2013)
    - ❖ Maintaining contact by phone (end of 2013- end 2014)
  - ❖ Second batch of 10,000 (mid-2013 to mid-2014)
    - ❖ Maintaining contact: (end of 2014-end of 2015)
  - ❖ Third batch of 10,000 (mid-2014 to mid 2015)
    - ❖ Maintaining contact: (end of 2015-end of 2016)
  
  - ❖ **Completed almost 24,000 In home (IH) Interviews**
  - ❖ **IH + Physical assessment + Health care number (over 95%) + biosamples (96%) over 21,000**
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# CORE ADDITIONAL STUDIES WITHIN CLSA

- Brain CLSA
  - Proposal to CIHR to develop a core brain imaging study (n=800)
- Division of Environment Health: Health Canada (Funded)
  - Air Pollution Data Base (n=50,000)



# Data and Sample Access

- Data and Sample Access is Open
  - All researchers have access to data
    - No special access to the “creators” of the platform
    - Individual level data versus aggregate data
    - Genetic versus Health (Depression) versus Social data
- Ethical and Legal Considerations
  - How the data are used and what purpose?
  - Public sector versus Private sector access to data

# Baseline Data Release


- 21,242 Telephone Interviews: Release Spring 2014
- 2<sup>nd</sup> release late 2014/early 2015 to include cognitive scores (scoring ongoing), occupational classes (planned)
- 30,000 Data Collection Site Visits: anticipate 1<sup>st</sup> release of data within 10 months of completed recruitment and baseline assessments ~Spring 2016
- Application-to-access process via CLSA DataPreview
- 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 May 15, 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 alphanumeric data

# DataPreview Portal



The screenshot shows a web browser window with the address bar displaying <https://datapreview.clsa-elcv.ca>. The browser's address bar and tabs are visible at the top. Below the browser window, the website's header features a dark blue navigation bar with the following links: [CLSA Overview](#), [Datasets](#), [Access](#), [FAQs](#), [Contact Us](#), and [CLSA Main Page](#). A [Sign in](#) button is located on the right side of the navigation bar. The main content area has a light gray background and features the CLSA logo on the left, which consists of a stylized butterfly and the text "clsa elcv". To the right of the logo, a welcome message reads: "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](#)." Below this message, there are three large, square buttons with blue borders and white backgrounds. Each button contains the CLSA logo and a title. The first button is titled "CLSA Overview" and has the subtitle "Study design and documents" below it. The second button is titled "Datasets" and has the subtitle "Dataset from the baseline interview of 20,000+ Tracking participants" below it. The third button is titled "Access" and has the subtitle "Application procedure, required forms and data access policies" below it. At the bottom of the screenshot, a Windows taskbar is visible with various application icons and a system clock showing 11:59 AM on 18/07/2014.


CLSA DataPreview Portal | x

← → ↻ 🏠 <https://datapreview.clsa-elcv.ca> ☆ ☰


Apps Free Hotmail Suggested Sites Web Slice Gallery Imported From IE FastMail: Fast, reliab... Multiple Sclerosis Jo... Facebook Inbox Epidemiology, Biost... Google » Other bookmarks

CLSA Overview Datasets Access FAQs Contact Us CLSA Main Page Sign in

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CLSA Overview

Study design and documents



Datasets

Dataset from the baseline interview of 20,000+ Tracking participants



Access

Application procedure, required forms and data access policies

Windows taskbar: 11:59 AM 18/07/2014

# DataPreview Portal

The screenshot shows a web browser window with the address bar displaying <https://datapreview.clsa-elcv.ca/content/datasets>. The page has a dark blue header with navigation links: CLSA Overview, Datasets (active), Access, FAQs, Contact Us, and CLSA Main Page. A 'Sign in' link is on the right. Below the header is a green bar with the word 'Home'. The main content area is titled 'Datasets' and contains a paragraph about the CLSA dataset, followed by a list of links with butterfly icons: Variables (June 2014), Variables (December 2014), Sampling weights, Questionnaire, and Study design. Each link has a brief description of its content.

Datasets | CLSA DataPreview

<https://datapreview.clsa-elcv.ca/content/datasets>

CLSA Overview Datasets Access FAQs Contact Us CLSA Main Page Sign in






Home

## 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 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





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CIHR and CFI, and provincial governments and  
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[www.clsa-elcv.ca](http://www.clsa-elcv.ca)**

