Transforming Everyday Life
into Extraordinary Ideas

Canadian Longitudinal Study on Aging: A Platform for Research on Aging

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CLSA CORE TEAM

Lead PI	Parminder Raina **(McMaster)**
Co-PI	Christina Wolfson **(McGill)** and Susan Kirkland **(Dalhousie)**
Key Site Co-Investigators	Gerry Mugford and Patrick Parfrey **(Memorial)**, Hélène Payette **(Sherbrooke)**, Ron Postuma, Brent Richards, Mark Lathrope **(McGill)**, Larry Chambers and Vanessa Taler **(Ottawa)**, Lauren Griffith, Harry Shannon, Cynthia Balion, Mike Veall, Christopher Patterson, **(McMaster)**, Andrew Patterson **(Toronto),**Mary Thompson and Chang Bo **(Waterloo)**, Debra Sheets, Holly Tuokko and Lynne Young **(Victoria)**, Verena Menec **(Manitoba)**, David Hogan, Eric Smith and Marc Poulin **(Calgary)** , Max Cynader, Teresa-Liu Ambrose and Michael Kobor **(UBC)** and Andrew Wister and Scott Lear **(SFU)**
Scientific Working Group	**See our website – www.clsa-elcv.ca**

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CLSA Core Research Team

Canadian Longitudinal Study on Aging (CLSA)

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.

Study Overview

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

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

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

**Questionnaire
• By telephone (CATI)**

**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)

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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)
- 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
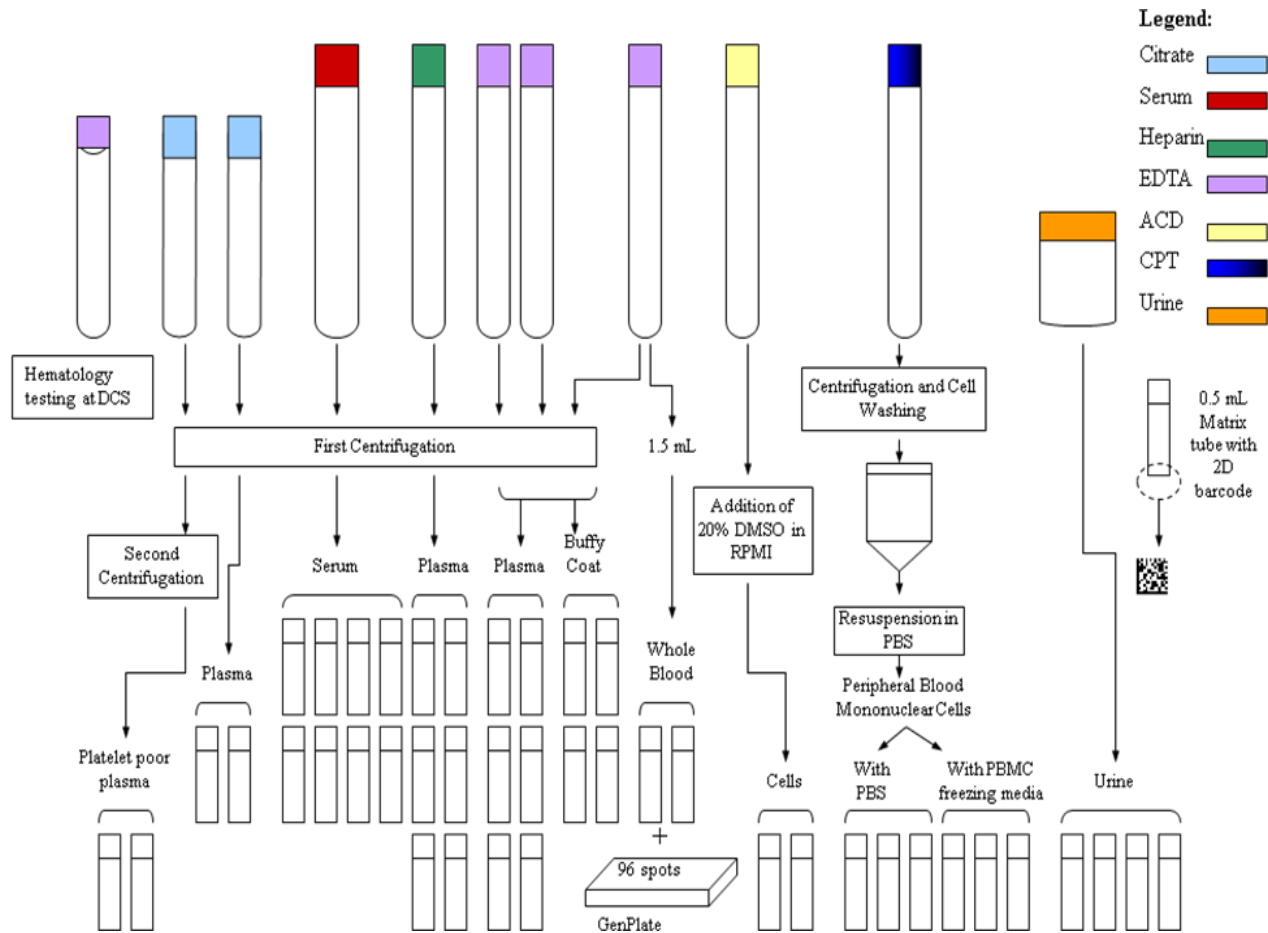- Built environments & Contextual Factors
- Income, Wealth and Assets

LIFESTYLE & SOCIODEMOGRAPHIC

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

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Biospecimens
42 aliquots per participant

Analysis of Baseline Biomarkers

- We have completed Complete Blood Count on all fresh samples

- albumin, ALT, creatinine, CRP, ferritin, HbA1C, lipids panel, TSH, freeT4, Vitamin D on all 30,000 baseline participants

- Gene Wide Genotyping: Affymetrix UK Biobank Array on 10,000 participants

- Targeted age-associated CpG methylation on 5,000 participants

- Metabolomics on 3,000 participants

CLSA as Platform for Interdisciplinary Research: Few Examples

- Biomarkers, mobility and Muscle Health

- Hearing and Cognition

- Falls and Consumer Products

- Air pollution and chronic diseases

- Veteran's Health and PTSD

- *CLSA-Brain sub-study (under development)*

- MINDMAP-Urbanization and Mental Health (funded by EU-Horizon2020)

- Epigenetic Clock and Healthy Aging

- Inflammation and Cognitive Aging

- Metabolomics and Pre-diabetes sub-study

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Other initiatives

- Canadian Consortium on Neurodegeneration in Aging (CCNA)
  - Use of the CLSA infrastructure to support CCNA research
    - In particular use of CLSA biospecimen protocol and BBC for storage of specimens
  - Access to data (alphanumeric, vascular and retinal imaging, and biospecimens) from CLSA participants for CCNA studies that require a normative comparison
  - Harmonization of measures across studies
  - Consideration of the addition of new measures in the CLSA
  - CLSA-CCNA Liaison Committee ongoing

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Recruitment & Data Collection
Telephone Interviews

- Recruitment of 21,241 participants for telephone interviews:
  - ✓ Statistics Canada CCHS on Healthy Aging
  - ✓ Provincial Health Care Registries
  - ✓ Random Digit Dialing
- **Baseline data collection is completed!**
- **Data are now available to researcher community**
- Maintaining contact interviews initiated in 2013 (**>19,000 completed, current retention rate 98%**)
- First follow-up starts in Oct. 2015

Sampling Weights

- Data weighted to represent the Canadian (and provincial) population between 45-85 years old

- A survey weight corresponds to the number of persons in the entire population that an individual respondent represents

- Weighting is necessary because the probability of selecting individuals from certain sub-groups of the population varied

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: **Data collection completed on almost all 30,111 (oversampled for low SES)**
- **Initial Data release for 30,000 planned for early 2016**
- Maintaining Contact Interviews initiated in 2014 (**>21000 completed, current retention rate 98%**)
- First follow-up started in July 2015

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Data <u>and</u> 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 must be used optimally to support research to benefit all Canadians.
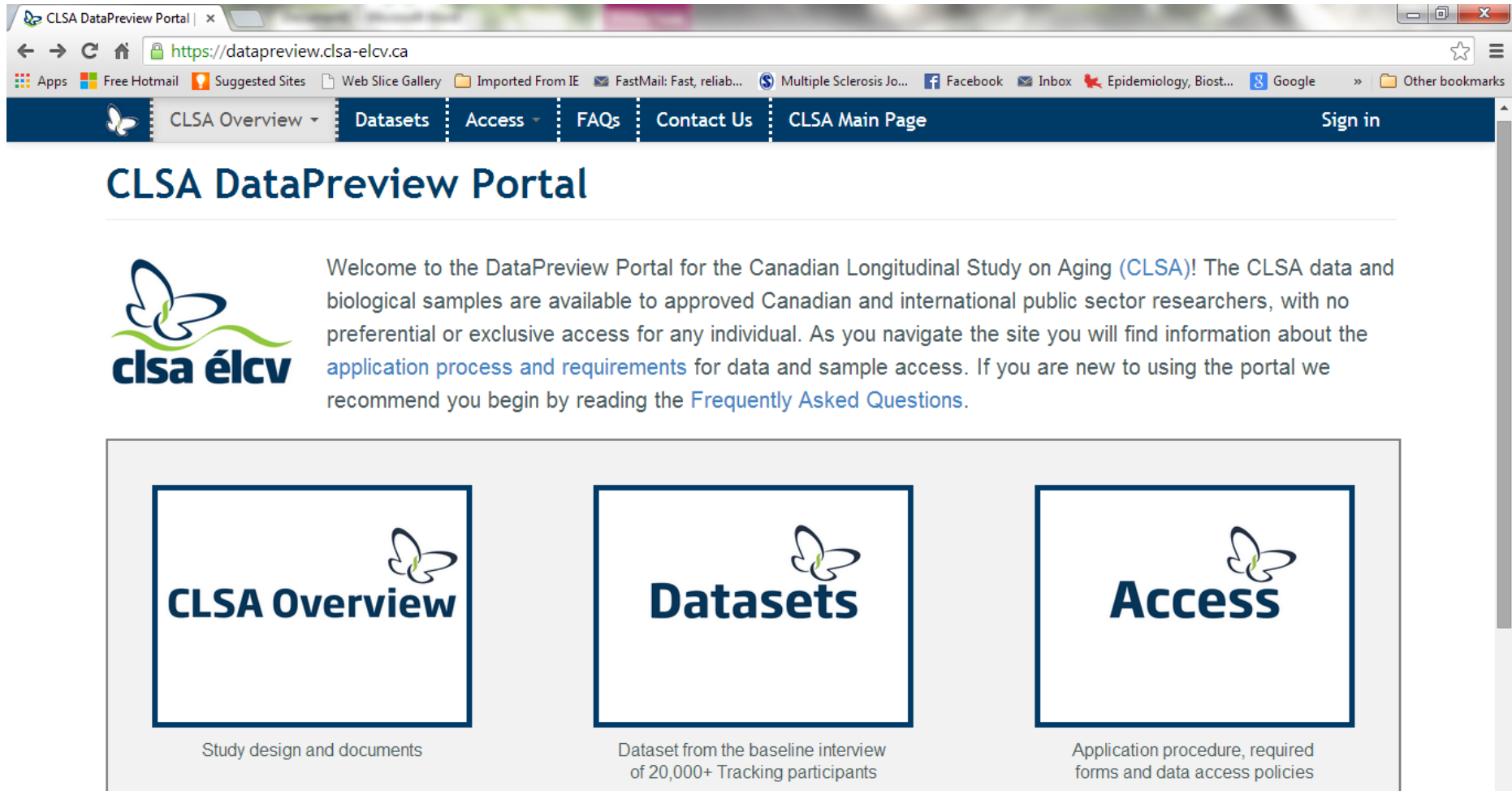
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*The process to access alphanumeric data

- via CLSA **DataPreview** portal
  - https://datapreview.clsa-elcv.ca/
- **Review**: Administrative → Data and Sample Access Committee → Scientific Management Team
- **Approval:** Preparation of CLSA access agreement, verification of ethics approval, cost recovery
- **Release:** Raw data provided to approved investigator
- **Enhance:** Return of derived variables to CLSA dataset as appropriate

*For 21,241 Tracking participants only

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Access to the Comprehensive Data and Biospecimens

- Data Collection, quality control, data cleaning are ongoing

- Estimated availability: Late Spring 2016

- Cost recovery model

- Accepting applications for access to Comprehensive data and biospecimens beginning in January 2016

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https://datapreview.clsa-elcv.ca/

CLSA Data Request Applications

Title of Selected Applications	Location
Consumer product related senior falls and injury risk assessment	Ontario
CLSA Neurological Conditions Initiative (NCI)	Quebec
The association between hearing loss and social function in older Canadians	British Columbia
The Veterans' Health Initiative within the CLSA (VHI)	Quebec
Labour force participation: Retirement Transitions, Expectations & Planning	Ontario/Student
Describing dementia in Nova Scotia	Nova Scotia
Who is at risk of social isolation and loneliness?	Manitoba
Companion animals and the aging population: Exploring relationships, contexts, and opportunities to contribute to health equity	Alberta/Student
Factorial invariance of the Centre of Epidemiologic Studies Depression Scale	Saskatchewan
The development of normative data and comparison standards for the cognition measures employed in the CLSA	British Columbia
Long term exposure to ambient air pollution and effects on cardiovascular, respiratory and neurocognitive health	Ontario
additional applications under review (April 20th meeting)	

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Follow-up One of the CLSA (2015-2018)

- Will commence in Summer of 2015
- Focus on retention
- Renewal funding has been approved
- Proxy protocols
- In home assessments (shorter version)

Follow-up One of the CLSA (2015-2018) Contd…

- Child Maltreatment and adverse events
- Elder Abuse
- Epilepsy
- Enhanced Hearing, Oral Health, and Transportation modules
- Decedent and end of life modules (under development)
- Transition to Institutions (under development)
- Workability
- Subjective Cognitive Decline and Meta Memory
- Preventive Health Behaviours
- Sexual orientation and Gender Identity

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CLSA Funders and Partners

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