Transforming Everyday Life
into Extraordinary Ideas

Canadian Longitudinal Study on Aging: An Update

Parminder Raina, PhD, McMaster University (Lead PI)
Susan Kirkland, PhD, Dalhousie University (Co-PI)
Christina Wolfson, PhD, McGill University (Co-PI)

Institute of Aging Advisory Board, Toronto
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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
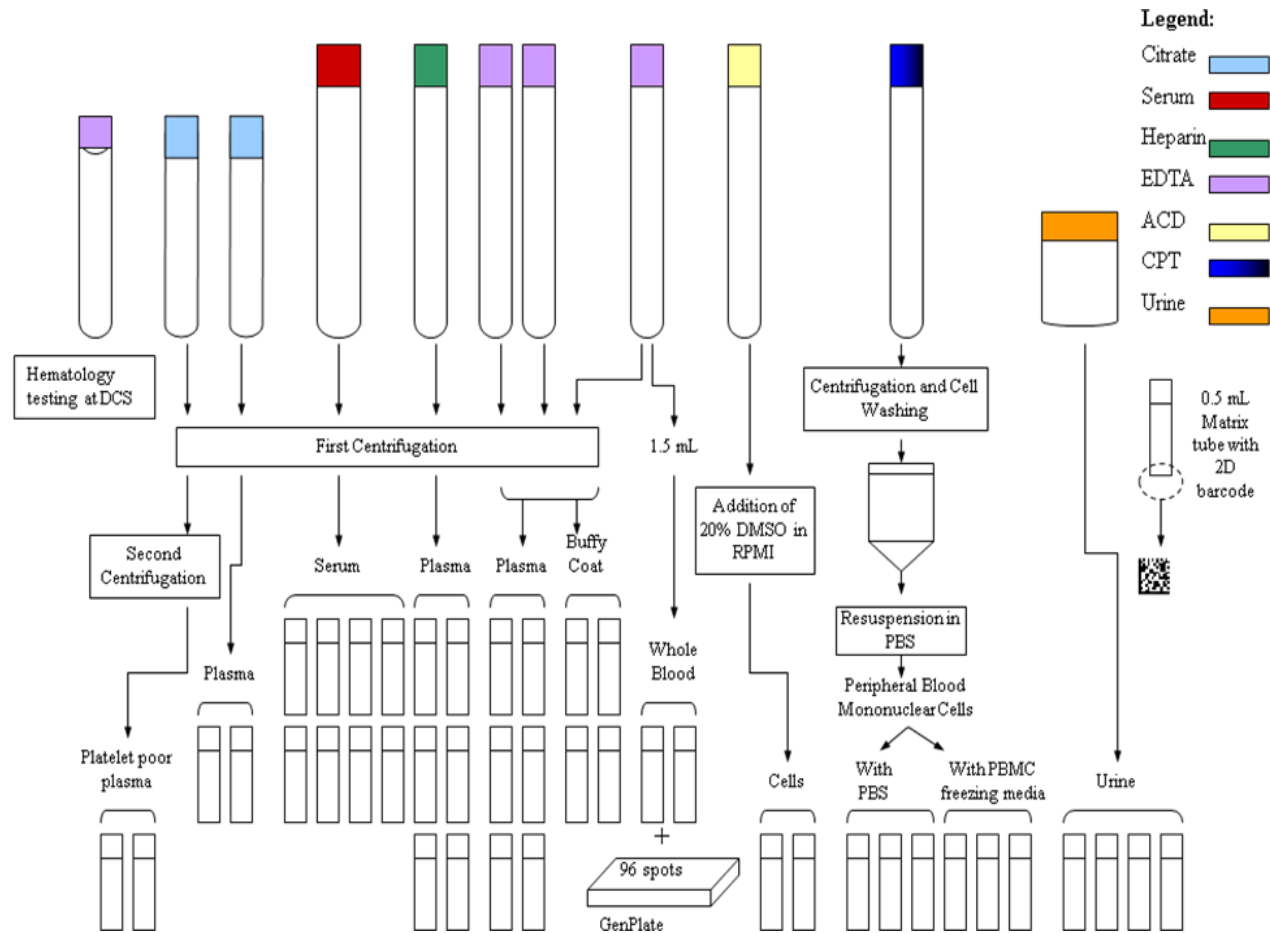
Analysis of Baseline Biomarkers

- 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

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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 (submitted)*

- MINDMAP-Urbanization and Mental Health (Submitted to 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 is now available to researcher community**
- Maintaining contact interviews initiated in 2013 (**>15,564 completed, current retention rate 97%**)
- First follow-up begins 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

CLSA Tracking Telephone Interviews N=21,208

	Count	Percent	Weighted Percent
Age			
45-54	5826	27.5	38.2
55-64	6554	30.9	31.2
65-74	4525	21.8	18.8
75-85	4203	19.8	11.8
Sex			
Male	10387	49.0	48.3
Female	10821	51.0	51.7
Language			
English	17457	82.3	75.9
French	3751	17.7	24.1
Born in Canada	18486	87.2	84.5

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CLSA Tracking Telephone Interviews N=21,208

Province	Count	Percent	Weighted Percent
British Columbia	2619	12.4	13.8
Alberta	2110	10.0	9.3
Saskatchewan	1388	6.5	2.9
Manitoba	1472	6.9	3.3
Ontario	4722	22.3	38.3
Quebec	3603	17.0	24.7
New Brunswick	1350	6.4	2.4
Nova Scotia	1564	7.4	3.1
Prince Edward Island	1132	5.3	0.5
Newfoundland, Lab	1248	5.9	1.7

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CLSA Tracking Telephone Interviews N=21,208

Chronic Condition	Count	Percent	Weighted Percent
Arthritis	8194	38.9	35.1
Asthma	2344	11.1	11.7
COPD	1433	6.8	5.8
Hypertension	8090	38.2	33.4
Diabetes	3542	16.7	15.1
Heart disease	2189	10.3	9.0
Angina	1149	5.4	4.3
Heart attack	1299	6.2	4.9
Stroke	388	1.8	1.5
Dementia/AD	43	0.2	0.2
Parkinson's, Parkinsonism	78	0.4	0.3
Cancer	3262	15.4	13.2
Osteoporosis	2008	9.5	8.7

CLSA Tracking Telephone Interviews N=21,208

	Count	Percent	Weighted Percent	CCHS Weighted Percent
Marital status				
Single/Never married	1694	8.0	8.4	7.0
Married/Common Law	14586	68.8	73.0	73.8
Widowed	2355	11.1	7.3	8.4
Divorced	1988	9.4	8.5	2.7
Separated	579	2.7	2.7	8.2
Education				
Less than Secondary	1978	9.3	7.0	20.4
Secondary School	2875	13.6	12.8	19.1
Some Post-Secondary	1622	7.7	7.6	5.2
Post Secondary Degree/ Dipl	14650	69.1	72.2	55.3
Annual Household Income				
Less than $20,000	1341	6.8	5.5	9.0
$20,000 - $50,000	5841	29,4	23.9	29.1
$50,000 - $100,000	7212	36.3	35.9	36.2
$100,000 - $150,000	3212	16.2	19.4	16.2
Greater than $150,000	2237	11.3	15.4	9.4

CLSA Tracking Telephone Interviews N=21,208

	Count	Percent	Weighted Percent	CCHS Weighted Percent
Self Rated General Health				
Excellent	3972	18.8	20.8	20.5
Very Good	8115	38.3	38.3	33.8
Good	6249	29.5	28.7	30.4
Fair	227	10.5	9.6	11.5
Poor	624	2.9	2.7	3.9
Self reported Weight Status				
Overweight	11188	53.0	52.1	60.5
Underweight	432	2.0	1.9	1.3
Just about right	9492	45.0	46.0	38.2
Satisfaction with Life				
Dissatisfied	2068	9.8	9.8	9.3
Neutral	850	4.0	4.5	2.7
Satisfied	18264	86.2	85.6	88.0

Retirement: CLSA Data Available
Telephone-Administered Questionnaire
Weighted Results

Retirement Status	45-64		65-85	
	Male	Female	Male	Female
Completely Retired	17.0%	22.9%	74.6%	84.7%
Partly Retired	8.8%	8.2%	16.0%	8.3%
Not Retired	74.2%	68.8%	9.5%	7.0%

	45-64		65-85	
	Male	Female	Male	Female
Retired and Returned to Work	7.8%	7.2%	26.5%	16.9%

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CLSA Data Available
Telephone-Administered Questionnaire

Of those Retired:

- **Retirement voluntary**   **n = 9,683 (78%)**

- **Health/Disability/Stress**   **n = 2,935 (24%)**
  contributed to decision to
  retire

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 29,000+**
- **Initial Data release for 30,000 planned for early 2016**
- Maintaining Contact Interviews initiated in 2014 (**12,880 completed, current retention rate 98%**)
- First follow-up begins 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
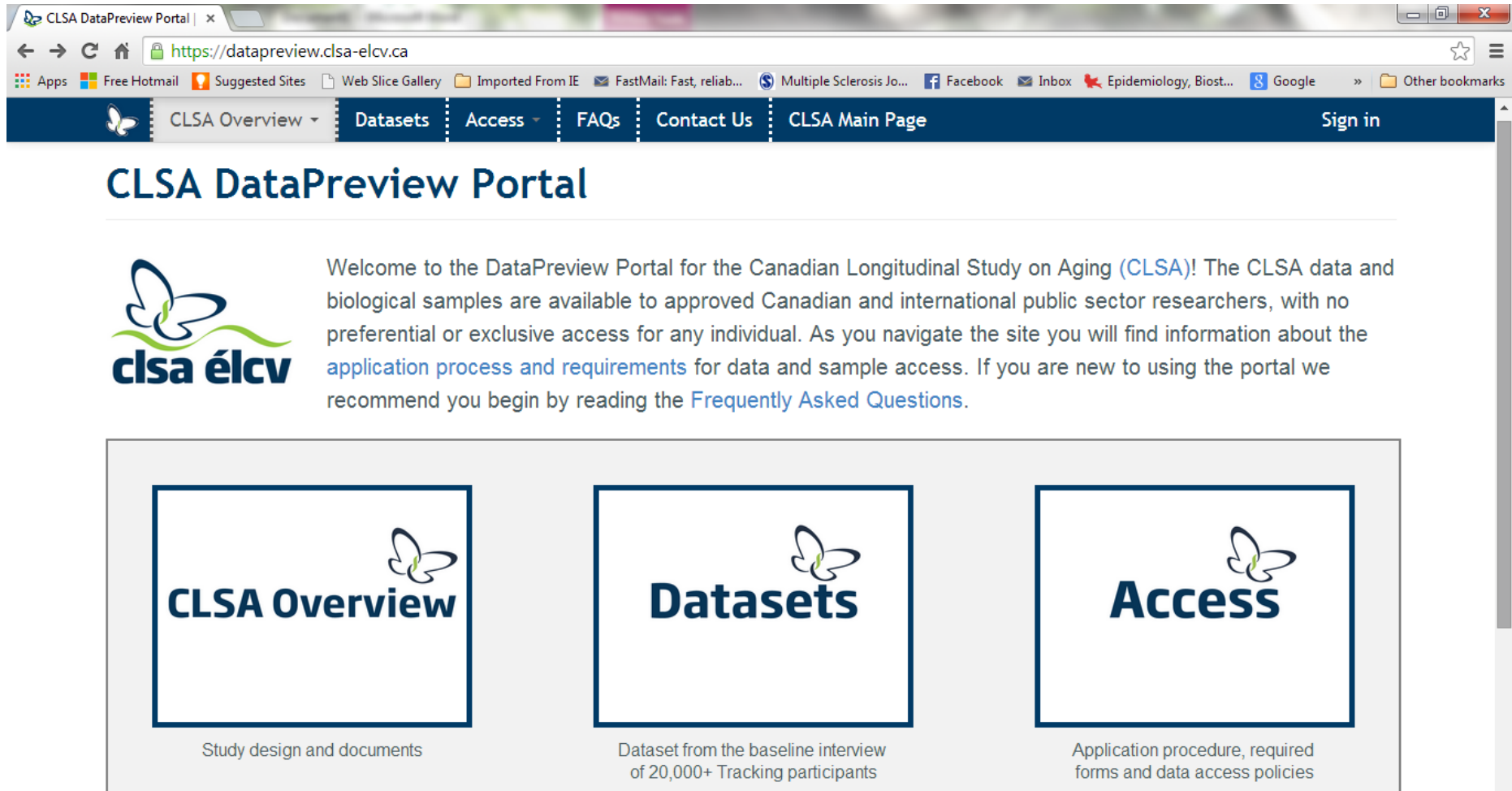
- via CLSA **DataPreview** portal
  - https://datapreview.clsa-elcv.ca/
- **Review**: Administrative → Data and Sample Access Committee → Scientific Management Team
- **Approval:** Preparation of CLSA access agreement, verification of ethics approval, cost recovery
- **Release:** Raw data provided to 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, Aortic Stenosis
- Enhanced Hearing, Oral Health, and Transportation modules
- Decedent Information
- Workability
- Subjective Cognitive Decline and Meta Memory
- Preventive Health Behaviours
- Sexual orientation and Gender Identity

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CLSA Funders and Partners

praina@mcmaster.ca

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