

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





Canadian Longitudinal Study on Aging: Advancing the Science of Population Health and Aging through Interdisciplinary Research

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Population Totals in Canada by Age Group and Year

AGE	MALES	BOTH SEXES	FEMALES
80+	229898	670192	440294
75-79	255599	622194	366595
70-74	364298	833991	469693
65-69	497996	1084588	586592
60-64	578596	1190087	611491
55-59	618096	1238387	620291
50-54	673295	1339986	666691
45-49	844194	1674182	829988
40-44	1076892	2138777	1061885
35-39	1173491	2344675	1171184
30-34	1311991	2597873	1285882
25-29	1282190	2528572	1246382
20-24	1067593	2108978	1041385
15-19	984993	1925780	940787
10-14	980292	1912979	932687
5-9	998293	1953079	954786
0-4	1000393	1953280	952887
1991 TOTALS	13938100	28117600	14179500

Canadian Longitudinal Study on Aging (CLSA)

- 50,000 Canadians
- 45-85 years of age at baseline
- 20 year longitudinal study, data collection every 3 years
- More than 160 researchers in 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



Canadian Investment

\$50M Canadian investment in national platform

- \$23.5M CIHR for 5 Years (86% of the required funding)
 - ✓ Expectation is to identify non-CIHR partners (in kind or \$\$)
- \$10M CFI for 5 Years (infrastructure)
- \$10M Provinces for 5 Years (infrastructure)
- \$6.5M Universities and other partners

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.



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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

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**

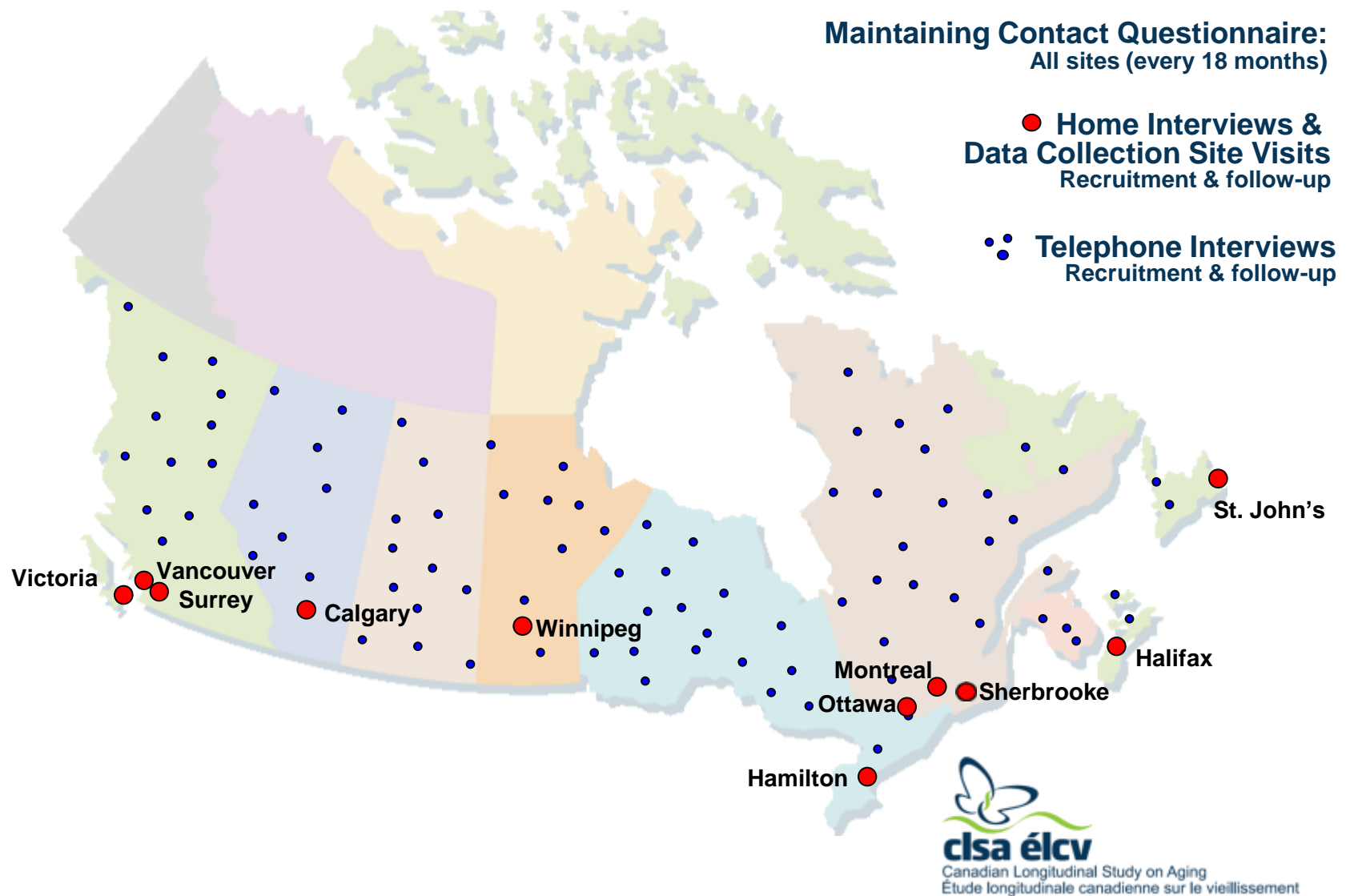
Interim contact, follow up every 3 years

Data Linkage (consent)



Canadian Longitudinal Study on Aging
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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
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Biospecimen Room

Collection, processing, analysis

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

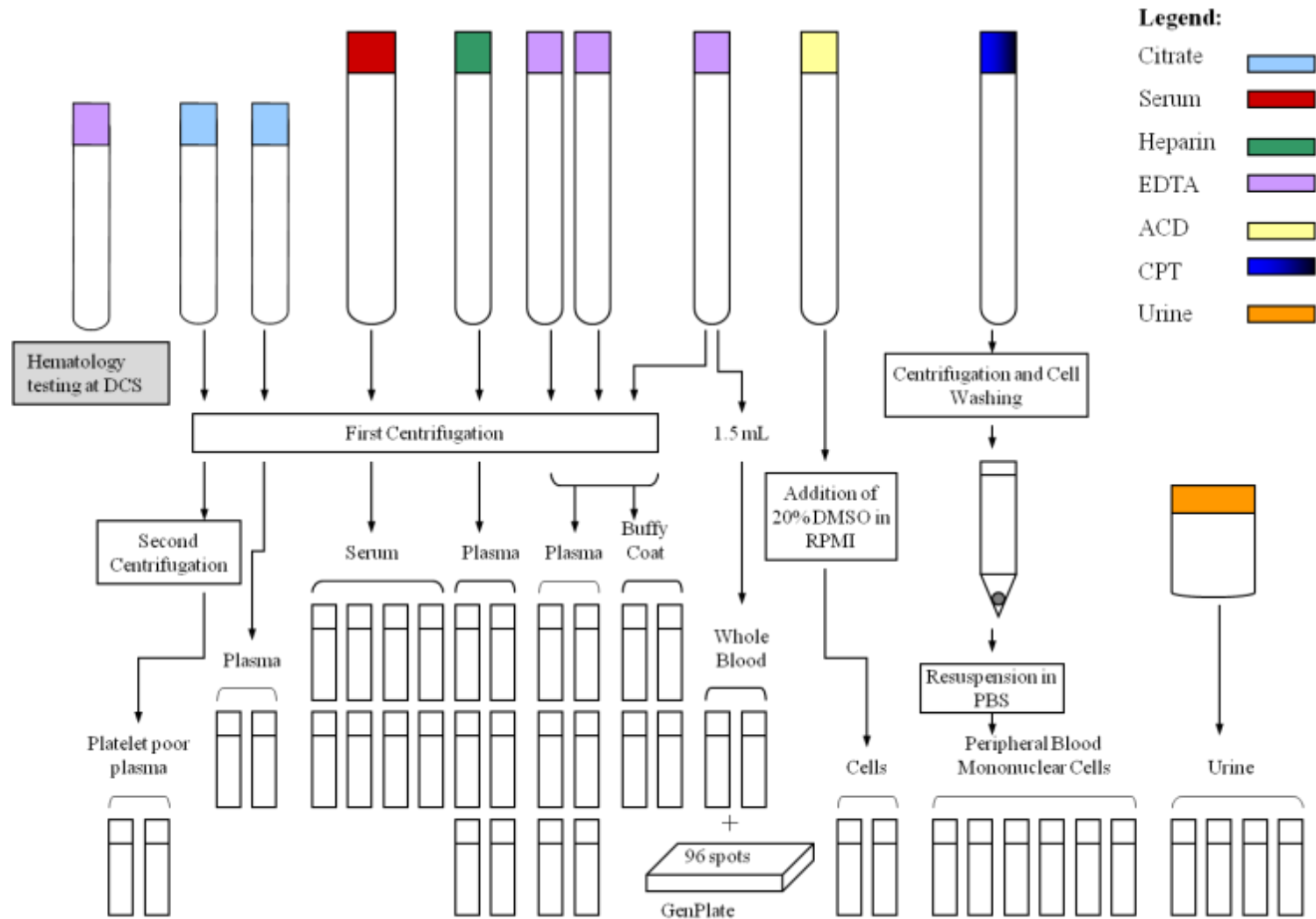


AcT DIFF, Beckman Coulter



Biospecimen processing

42 aliquots per participant



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 is completed!**
- **First Data release will be this June 2014**
- Maintaining contact interviews initiated 2013 (**3,000 completed, current response rate 96%**)
- First follow-up begins 2015



Recruitment & Data Collection

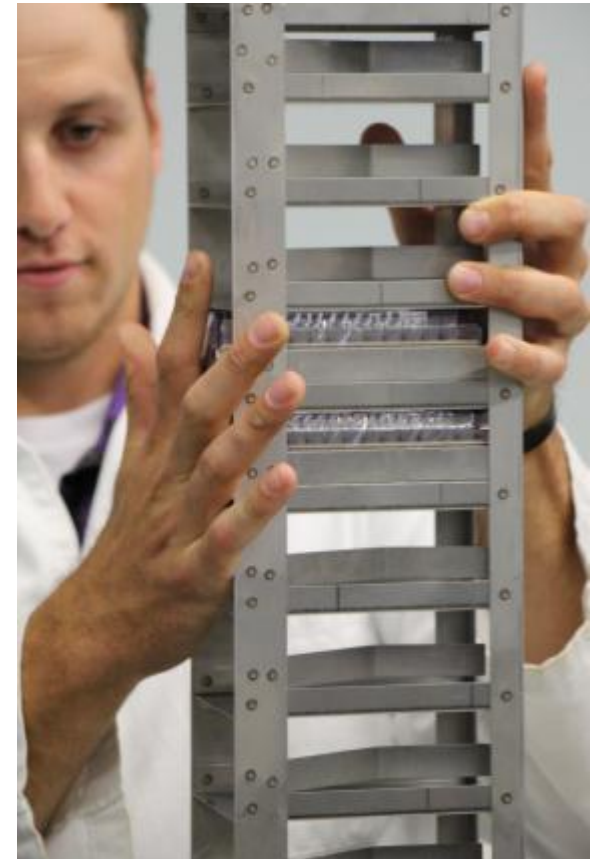
Home Interviews and Data Collection Site Visits

- 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: **Data collection completed on >17,000 to date!**
- **Data release on 30,000 planned for Spring 2016**
- Maintaining Contact Interviews start May 2014
- First follow-up begins 2015



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



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?

- 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 Funders and Partners



Veterans Affairs
Canada



Anciens Combattants
Canada

Health PEI



CLSA Partnerships

- **Champions**
 - Promotion and awareness of the CLSA
- **Funders**
 - Contribute to core platform development and maintenance
- **Collaborators**
 - Research collaborations
 - Additional data collection built into CLSA platform
- **Researchers**
 - Use of CLSA data
- **Sponsors**
 - In-kind and financial support other than for research

CLSA & Alzheimer Society of Canada Relationship

- Promotion of ASC and CLSA
 - Media sharing
 - Advocacy
 - Promoting research program
- ASC access to CLSA Researcher network
 - Resource for national and local outreach activities
- Supporting CLSA Communication and PR efforts
 - Support CLSA's PR and communications activities

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

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

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



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**Connect
with us**

info@clsa-elcv.ca
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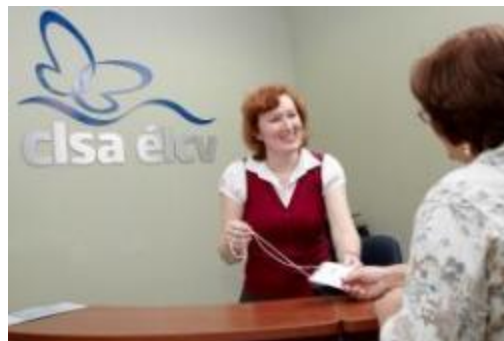
CLSA Partners

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

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**

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