Canadian Longitudinal Study on Aging: A Platform for Interdisciplinary Research

Harry Shannon

on behalf of

Parminder Raina, PhD, McMaster University, Hamilton
Christina Wolfson, PhD, McGill University, Montreal
Susan Kirkland, Dalhousie University, Halifax

and the CLSA Research Team

Canadian Association for Research on Work and Health

18 October, 2016
Overview

- CLSA Research Platform
- First Follow-up
- Data Access
Canadian Longitudinal Study on Aging (CLSA)

- Strategic initiative of CIHR; on Canadian research agenda since 2001
- More than 160 researchers and collaborators – 26 institutions
- Multidisciplinary – biology, genetics, medicine, psychology, sociology, demography, economics, epidemiology, nutrition, health services
- Largest research platform of its kind in Canada for breadth and depth
- Following 50,000+ Canadians aged 45-85 at baseline for 20 years
CLSA Infrastructure
11 Data Collection Sites
Participants aged 45 to 85 at baseline (51,000+)

Enrolled

Baseline FU-1 FU-2 FU-3 FU-4 FU-5 FU-6

20 Years

Questionnaire data (telephone and in-person interviews) (>50,000)

Physical assessments and biological specimens (>30,000)

Active follow-up (FU) every 3 years

- Questionnaire
- Physical assessments
- Biological specimens
- Health-care utilization
- Disease registries
- Mortality databases

Data and Biological Sample Repositories

Researchers
Recruitment Sampling Frame

- Partnered with Statistics Canada
  - CCHS 4.2 Healthy Aging Survey
  - 2006 census as an area frame to select households
  - Agreed to share contact information

- Partnered with provincial Ministries of Health
  - Health Card Registration databases
  - Mailouts, return Consent to Contact form

- Supplemented with Random Digit Dialing
  - Pre-recruitment, agree to recontact
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 intima-media thickness (ultrasound)
- Cognitive assessment (30-minute battery)
- Biospecimen collection (blood and urine)

**HEALTH INFORMATION**
- Chronic disease symptoms (11 chronic conditions)
- Medication and supplement intake & compliance
- Women's health
- Self-reported health-care utilization
- Oral health
- Administrative data linkage health services, drugs and other administrative databases

**PSYCHOSOCIAL**
- Social participation
- Social networks and support
- Caregiving and care receiving
- Mood, psychological distress
- PTSD
- Injuries and consumer products
- Work-to-retirement transitions
- Personality traits
- Retirement planning
- Social inequalities
- Mobility-lifespace
- Built environments and contextual factors
- Income, wealth and assets

**LIFESTYLE & SOCIODEMOGRAPHIC**
- Smoking
- Alcohol consumption
- Physical activity (PASE)
- Nutrition (nutrition risk and food frequency)
- Ethnicity/race/gender
- Birth location
- Marital status
- Education
CLSA Work-related content

• Current or last job (and industry)
• Duration in that job
• Main occupation through career (job and industry)
• Reasons for retirement (or ending retirement)
• Possible use of Job Exposure Matrices
CLSA Data Collection
Data Collection Site

Physical Assessments:
- Height, Weight, BMI
- Bone Density, Body Composition, Aortic Calcification
- Blood Pressure
- ECG
- Carotid Intimal-Medial Thickness
- Pulmonary Function
- Vision & Hearing
- Performance testing

Cognitive Assessments:
- Neuropsychological Battery
  - Memory
  - Executive function
  - Reaction time

Biospecimen Collection:
- Blood
- Urine

CLSA Data Collection
Cognitive Assessments:
- Neuropsychological Battery
  - Memory
  - Executive function
  - Reaction time

Physical Assessments:
- Height, Weight, BMI
- Bone Density, Body Composition, Aortic Calcification
- Blood Pressure
- ECG
- Carotid Intimal-Medial Thickness
- Pulmonary Function
- Vision & Hearing
- Performance testing

Biospecimen Collection:
- Blood
- Urine
Biospecimen processing
42 aliquots per participant

- 50 mL blood
- Urine sample
- Hematological tests completed on site
- Remainder frozen, within 2 hours
First Follow-Up: New Content

- Child maltreatment
- Elder abuse
- Epilepsy
- Arterial stiffness
- Decedent information
- Transition to institutions
- Unmet health-care needs
- **Work limitations**
- Preventive health behaviours
- Enhanced hearing, oral health and transportation
- Sexual orientation and gender identity
- Subjective cognitive decline
- Loneliness
Data and Biospecimen Access

**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.
- No preferential or exclusive access.
Who can apply?

- Researchers based in academic settings and research institutes in Canada
- International researchers may choose to collaborate with Canadian researchers to access data or biospecimens as long as the data and/or biospecimens are analyzed in Canada
- Graduate students and postdoctoral fellows based at Canadian institutions
What data are available?

- Data from 51,000+ participants are now available to the research community including:
  - Questionnaire data from all 51,000+ participants
  - Comprehensive physical assessment data and hematological biomarkers from 30,000+ participants who visited data collection sites
Data Released in 2014
60-minute Telephone Interviews
(21,241 participants)

Questionnaire:
- Age & Sex
- Socio-Demographic Characteristics
- Home Ownership
- Education
- Veteran Identifiers
- Height & Weight
- Smoking & Alcohol Use
- General Health
- Women’s Health
- Vision
- Hearing
- Instrumental Activities of Daily Living
- Basic Activities of Daily Living
- Chronic Conditions
- Functional Status
- Cognition (released in 2015)
- Depression
- Satisfaction with Life
- Post-traumatic Stress Disorder
- Social Networks
- Social Support – Availability
- Social Participation
- Care Receiving – Formal & Informal
- Caregiving
- Injuries
- Falls and Consumer Products (e.g. assistive devices)
  - Retirement Status
  - Retirement Planning
  - Pre-Retirement Labour Force Participation
  - Labour Force
- Income
Spring 2016 Data Release
In-Home Face-to-Face Interviews
(30,000+ participants)

Questionnaire:
- Age & Sex
- Socio-Demographic Characteristics
- Home Ownership
- Education
- Veteran Identifiers
- Smoking & Alcohol Use
- Nutrition: Short Diet Questionnaire
- General Health
- Women’s Health
- Vision
- Hearing
- Basic Activities of Daily Living
- Instrumental Activities of Daily Living
- Life Space Index
- Sleep
- Satisfaction with Life
- Post-traumatic Stress Disorder
- Care Receiving – Formal & Informal
- Caregiving
- Injuries
- Falls and Consumer Products (e.g. assistive devices)
- Retirement Status
- Pre-Retirement Labour Force Participation
- Labour Force
- Retirement Planning
- Income
Spring 2016 Data Release
Data Collection Site Visits
(30,000+ participants)

**Physical Assessments:**
- Height
- Weight
- Waist-Hip Ratio
- Blood Pressure
- ECG
- Spirometry
- Hearing
- 4m Walk
- Timed Up and Go
- Standing Balance
- Chair Rise
- Visual Acuity
- Tonometry
- Grip Strength

**Questionnaire:**
- Social Networks
- Social Support – Availability
- Social Participation
- Disease Symptoms
- Contraindications

**Biomarkers:**
- Hematology
Spring 2016 Data Release

Hematology

(30,000+ participants)

- White blood cells
- Lymphocytes (absolute and relative number)
- Monocytes (absolute and relative number)
- Granulocytes (absolute and relative number)
- Red blood cells
- Hemoglobin
- Hematocrit
- Mean corpuscular volume
- Mean corpuscular hemoglobin
- Mean corpuscular hemoglobin concentration
- Red blood cell distribution width
- Platelets
- Mean platelet volume
Spring 2016 Data Release
30-minute Telephone Interviews
(51,000+ participants)

Questionnaire:
- Falls
- Pain and Discomfort
- Oral Health
- Snoring
- Parkinsonism
- Health Care Utilization
- Medication Use
- Dietary Supplement Use
- Nutritional Risk
- Physical Activities
- Psychological Distress
- Personality Traits
- Social Inequality
- Online Social Networking
- Transportation, Mobility, Migration
- Built Environments
- Wealth
Preparing an application

- Consult the Data and Sample Access Policy and Guiding Principles
- Review the pertinent sections of the CLSA protocol and the CLSA questionnaires
- Visit the DataPreview Portal to search datasets
- Complete the Data and/or Biospecimen Request Application
- Identifiable information will not be shared (e.g. six-digit postal codes, names, contact information)
- Queries should be sent to access@clsa-elcv.ca
- Queries related to biospecimens should be sent to bbc@clsa-elcv.ca
DataPreview Portal

- Gateway to access for data and biospecimens
- Variable search mechanism providing simple descriptive statistics for selected variables
- Currently available for alphanumeric data only
- [https://datapreview.clsaelcv.ca/](https://datapreview.clsaelcv.ca/)
DataPreview Portal

https://datapreview.clsa-elcv.ca/
Applying for Data Access

- Application fees
  - Partial cost-recovery model
  - $3,000 for a straightforward alphanumeric dataset for any number of participants
  - Additional fees applied for requests that require more complex customization
  - No cost for graduate students who use these data for their Master’s or PhD theses
  - One free dataset for postdoctoral fellows
## Approved Projects

<table>
<thead>
<tr>
<th>Application Title</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Factors for Falls among Adults and Seniors</td>
<td>Ontario</td>
</tr>
<tr>
<td>CLSA Neurological Conditions Initiative (CLSA-NCI)</td>
<td>Quebec</td>
</tr>
<tr>
<td>The Association Between Hearing Loss and Social Function in Older Canadians</td>
<td>British Columbia</td>
</tr>
<tr>
<td>The Veterans' Health Initiative within the CLSA (CLSA-VHI)</td>
<td>Quebec</td>
</tr>
<tr>
<td>Labour Force Participation: Retirement Transitions, Expectations and Planning</td>
<td>Ontario Student application</td>
</tr>
<tr>
<td>Who is at Risk of Social Isolation and Loneliness?</td>
<td>Manitoba</td>
</tr>
<tr>
<td>Companion Animals and the Aging Population: Exploring Relationships, Contexts and Opportunities to Contribute to Health Equity</td>
<td>Alberta Student application</td>
</tr>
<tr>
<td>Factorial Invariance of the CES-D</td>
<td>Saskatchewan</td>
</tr>
<tr>
<td>The Development of Normative Data and Comparison Standards for the Cognition Measures Employed in the CLSA</td>
<td>British Columbia</td>
</tr>
</tbody>
</table>

Approved project summaries available on the CLSA website
CLSA Research Team
Scientific Management Team

Lead Principal Investigator
Parminder Raina (McMaster)

Co-principal Investigator
Christina Wolfson (McGill)

Co-principal Investigator
Susan Kirkland (Dalhousie)
<table>
<thead>
<tr>
<th>Institution</th>
<th>Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>UVic</td>
<td>Debra Sheets, Lynne Young, Holly Tuokko</td>
</tr>
<tr>
<td>UBC</td>
<td>Teresa Liu-Ambrose, Michael Kobor</td>
</tr>
<tr>
<td>SFU</td>
<td>Andrew Wister, Scott Lear</td>
</tr>
<tr>
<td>UCalgary</td>
<td>David Hogan, Marc Poulin, Eric Smith, Alex Chin, Hossein Sadrzadeh</td>
</tr>
<tr>
<td>UManitoba</td>
<td>Verena Menec, Phil St. John</td>
</tr>
<tr>
<td>McMaster</td>
<td>Parminder Raina, Cynthia Balion, Lauren Griffith, Andrew Costa,</td>
</tr>
<tr>
<td></td>
<td>Harry Shannon, Christopher Patterson, Michael Veall, Guillaume Paré,</td>
</tr>
<tr>
<td></td>
<td>Brenda Vrkljan</td>
</tr>
<tr>
<td>UOttawa</td>
<td>Vanessa Taler, Larry Chambers</td>
</tr>
<tr>
<td>McGill</td>
<td>Christina Wolfson, Ron Postuma, Brent Richards, Mark Lathrop</td>
</tr>
<tr>
<td>USherbrooke</td>
<td>Hélène Payette, Benoît Cossette</td>
</tr>
<tr>
<td>Dalhousie</td>
<td>Susan Kirkland</td>
</tr>
<tr>
<td>Memorial</td>
<td>Gerry Mugford</td>
</tr>
<tr>
<td>UToronto</td>
<td>Andrew Paterson</td>
</tr>
<tr>
<td>UWaterloo</td>
<td>Mark Oremus, Mary Thompson, Changbao Wu</td>
</tr>
<tr>
<td>Eindhoven University of Technology</td>
<td>Edwin van den Heuvel</td>
</tr>
</tbody>
</table>

+ Scientific working group members and co-investigators
The CLSA is funded by the Government of Canada through CIHR and CFI, and provincial governments and universities.