Canadian Longitudinal Study on Aging: A Platform for Interdisciplinary Research

Susan Kirkland, PhD
Dalhousie University

MSVU Centre on Aging:
The Future is Aging
June 17, 2016
Halifax, NS
The Canadian Longitudinal Study on Aging (CLSA)

• Strategic initiative of CIHR; on Canadian research agenda since 2001

• Team of 3 principal investigators, more than 160 co-investigators from 26 institutions

• Multidisciplinary - biology, genetics, medicine, psychology, sociology, demography, nursing, economics, epidemiology, nutrition, health services

• Largest study of its kind to date in Canada for breadth and depth: following 50,000 Canadians for 20 years
Overall Aims of the CLSA

- To examine aging as a dynamic process
- To investigate the inter-relationship among intrinsic and extrinsic factors from mid life to older age
- To capture the transitions, trajectories and profiles of aging
- To provide infrastructure and build capacity for state-of-the-art, interdisciplinary, population based research and evidenced-based decision making
Design Overview

50,000 women and men aged 45 – 85 community dwelling at baseline

Tracking (20,000)
Randomly selected
10 provinces

Comprehensive (30,000)
Randomly selected
25-50 km of 11 sites in 7 provinces

Questionnaire
• By telephone (CATI)

Questionnaire
• In person, in home (CAPI)

Physical Assessments
Blood, Urine
• At Data Collection Site

20 year study: Full follow up every 3 years, maintaining contact in between

Data Linkage
National Scope
Representative Sample Frame

Winnipeg
Vancouver
Victoria
Surrey
Calgary
Hamilton
Ottawa
Montreal
Sherbrooke
Halifax
St. John’s

COMPREHENSIVE
Home Interviews &
Data Collection Site
Visits

TRACKING
Telephone
Interviews
Innovative Standardized, Electronic Data Capture

Pre-recruits Sent Study Information

Participants Consent to Participate in CLSA

Participants Provide Questionnaire Data (n=50,000)

DATA COLLECTION SITE VISIT
Physical/Neuropsychological Data

n=20,000 Telephone Interview

n=30,000 Home Interview

Biological Data Processing
- Blood
- Urine

Biological Data

Stored at Biorepository and Bioanalysis Centre

Stored at Statistical Analysis Centre

Data dissemination to researchers

Questionnaire

data processing
Depth and Breadth of CLSA Baseline Questionnaire modules

- **DEMOGRAPHIC**
  - Education
  - Marital status
  - Ethnicity

- **HEALTH BEHAVIOURS**
  - Smoking, alcohol
  - Nutritional risk
  - Food frequency
  - Physical activity
  - Health care utilization
  - Medication use
  - Supplement use

- **HEALTH STATUS**
  - General health
  - Women’s health
  - Chronic conditions, symptoms

- **PHYSICAL**
  - Oral health
  - Injuries, falls
  - Mobility
  - Pain, discomfort
  - Functional status
  - ADL, IADL

- **PSYCHOLOGICAL**
  - Cognition—Executive function, memory, psychomotor speed
  - Depression
  - Mood
  - Psychological distress
  - Veteran identifier
  - Satisfaction with life
  - PTSD

- **SOCIAL**
  - Social networks
  - Social support
  - Social participation
  - Online communication
  - Social inequality
  - Care receiving
  - Care giving
  - Retirement status
  - Labour force participation
  - Retirement planning
  - Transportation
  - Mobility, Migration
  - Built environments
  - Home ownership
Depth and Breadth of Physical Assessment Modules

Physical Assessments:
- Height, Weight, BMI
- Bone Density, Body Composition, Aortic Calcification
- Blood Pressure
- ECG – heart rate, rhythm
- Ultrasound - Carotid Intimal-Medial Thickness
- Pulmonary Function
- Vision (acuity, blood flow, pressure) & Hearing
- Performance testing – grip strength, balance, walk

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

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

- Basic hematologic tests done on site
- Remainder processed, frozen within 2 hours
Participants aged 45 to 85 at baseline (51,000+)

Enrolled

Baseline

FU-1

FU-2

FU-3

FU-4

FU-5

FU-6

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
First Follow-Up: New Content

- Child maltreatment
- Elder abuse
- Unmet health-care needs
- Workability
- Preventive health behaviours
- Subjective cognitive decline
- Loneliness
- Sexual orientation and gender identity
- Transition to institutions
- Decedent information
First Follow-Up:
Accommodation Strategies

- **Changing circumstances**
  - Migration out of area
  - Mobility, travel challenges
  - Cognitive impairment
  - Physical impairment
  - Sensory impairment
  - Institutionalization

- Accommodation strategies to maintain long-term participation
- Allows for flexible participation
- Baseline exclusion criteria no longer apply
A Snapshot of CLSA Participants
# Socio-demographic Characteristics

<table>
<thead>
<tr>
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<th>Tracking N=21,171</th>
<th>Comprehensive N=30,094</th>
<th>Total N=51,265</th>
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<tr>
<td><strong>Age</strong></td>
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<tr>
<td>45-64</td>
<td>12389 (58.5)</td>
<td>17459 (58.0)</td>
<td>29848 (58.2)</td>
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<td>65-85</td>
<td>8782 (41.5)</td>
<td>12635 (42.0)</td>
<td>21417 (41.8)</td>
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<td><strong>Sex</strong></td>
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<tr>
<td>Male</td>
<td>10375 (49.0)</td>
<td>14784 (49.1)</td>
<td>25159 (49.1)</td>
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<tr>
<td>Female</td>
<td>10796 (51.0)</td>
<td>15310 (50.9)</td>
<td>26106 (50.9)</td>
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<td><strong>Language</strong></td>
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<tr>
<td>English</td>
<td>17423 (82.3)</td>
<td>24291 (80.7)</td>
<td>41714 (81.4)</td>
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<tr>
<td>French</td>
<td>3748 (17.7)</td>
<td>5803 (19.3)</td>
<td>9551 (18.6)</td>
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<td>Born in Canada</td>
<td>18455 (87.2)</td>
<td>24644 (81.9)</td>
<td>43099 (84.1)</td>
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<td>Chronic Condition</td>
<td>Tracking 21,171</td>
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<tr>
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<tr>
<td>Osteoarthritis</td>
<td></td>
<td></td>
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<tr>
<td>Knee</td>
<td>3406 (16.1)</td>
<td>4499 (15.2)</td>
<td>7905 (15.4)</td>
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<tr>
<td>Hand</td>
<td>2966 (14.1)</td>
<td>3852 (13.0)</td>
<td>6818 (13.3)</td>
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<tr>
<td>Hip</td>
<td>2075 (9.8)</td>
<td>2500 (8.4)</td>
<td>4575 (9.0)</td>
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<tr>
<td>Asthma</td>
<td>2340 (11.1)</td>
<td>3983 (13.3)</td>
<td>6323 (12.3)</td>
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<tr>
<td>COPD</td>
<td>1430 (6.8)</td>
<td>1725 (5.8)</td>
<td>3155 (6.2)</td>
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<tr>
<td>Hypertension</td>
<td>8065 (38.2)</td>
<td>11099 (37.1)</td>
<td>19164 (37.4)</td>
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<td>Diabetes</td>
<td>3536 (16.7)</td>
<td>5311 (17.7)</td>
<td>8847 (17.3)</td>
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<td>Heart disease</td>
<td>2170 (10.3)</td>
<td>3499 (11.7)</td>
<td>5669 (11.1)</td>
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<td>Angina</td>
<td>1136 (5.4)</td>
<td>1323 (4.4)</td>
<td>2459 (4.8)</td>
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<tr>
<td>Heart attack</td>
<td>1303 (6.2)</td>
<td>1461 (4.9)</td>
<td>2764 (5.4)</td>
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<td>Stroke</td>
<td>388 (1.8)</td>
<td>521 (1.7)</td>
<td>909 (1.8)</td>
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<td>Cataracts</td>
<td>5236 (24.8)</td>
<td>8607 (29.2)</td>
<td>13843 (27.0)</td>
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<td>Mood disorder</td>
<td>3100 (14.7)</td>
<td>5140 (17.1)</td>
<td>8240 (16.1)</td>
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<td>Cancers</td>
<td>3250 (15.4)</td>
<td>4680 (15.6)</td>
<td>7930 (15.5)</td>
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<td>Osteoporosis</td>
<td>1998 (9.5)</td>
<td>2688 (9.0)</td>
<td>4686 (9.1)</td>
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# Self Rated Health

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<th>Tracking 21,271</th>
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<tr>
<td><strong>Self Rated General Health</strong></td>
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<tr>
<td>Excellent</td>
<td>3969 (18.8)</td>
<td>5991 (19.9)</td>
<td>9960 (19.5)</td>
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<tr>
<td>Very Good</td>
<td>8103 (38.3)</td>
<td>12423 (41.3)</td>
<td>20526 (40.1)</td>
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<tr>
<td>Good</td>
<td>6237 (29.5)</td>
<td>8872 (29.5)</td>
<td>15109 (29.5)</td>
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<td>Fair</td>
<td>2218 (10.5)</td>
<td>2318 (7.7)</td>
<td>4536 (8.9)</td>
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<tr>
<td>Poor</td>
<td>623 (3.0)</td>
<td>467 (1.6)</td>
<td>1090 (2.1)</td>
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<td><strong>Satisfaction with Life</strong></td>
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<tr>
<td>Dissatisfied</td>
<td>2068 (9.8)</td>
<td>2971 (9.9)</td>
<td>5039 (9.8)</td>
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<tr>
<td>Neutral</td>
<td>849 (4.0)</td>
<td>1338 (4.5)</td>
<td>2187 (4.3)</td>
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<tr>
<td>Satisfied</td>
<td>18229 (86.2)</td>
<td>25752 (85.7)</td>
<td>43981 (85.9)</td>
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Interdisciplinary Collaborations Partnerships with End Users

- Canadian Consortium on Neurodegeneration and Aging (CCNA)
- Health Canada: Ambient air pollution, socioeconomic and lifestyle characteristics and health
- MINDMAP: Urbanization and Mental Health (EU - Horizon2020)
- WELFUTURE: Forecasting impact and sustainability of future welfare for older people with health, social and long-term care needs - Italy, Austria, Finland, Canada (JPND MYBL)
- AGE-WELL: Use of assistive devices for mobility, sensory loss and unmet needs
Linking research to practice and policy

- Public Health Agency of Canada (PHAC)
  - Neurological Conditions Initiative
  - Injuries and consumer products
  - Elder Abuse
  - Child Maltreatment
- Veterans Affairs
  - Veterans Health Initiative
- Provincial, regional, municipal governments
- Health authorities
Data and Sample Access

• Data and biospecimens available to the research community
• Fundamental tenets:
  • The rights, privacy and consent of participants protected and respected at all times
  • The confidentiality and security of data and biospecimens safeguarded at all times
  • CLSA data and biospecimens are unique resources that must be used optimally to benefit all Canadians
  • No preferential or exclusive access
• Data and Sample Access Policy and Guiding Principles [www.clsa-elcv.ca](http://www.clsa-elcv.ca)
• DataPreview portal to see data
• Data and/or Sample Request Application
• Queries to [access@clsa-elcv.ca](mailto:access@clsa-elcv.ca)
• Applications reviewed by Data and Sample Access Committee at least 3 times per year – dates on website
• Cost recovery of $3,000 for baseline alphanumeric data on over 51,000 (fee waived for graduate students, PDF)
CLSA Research Team
Operations Committee and Scientific Leads
CLSA Funders and Partners
Transforming Everyday Life into Extraordinary Ideas
susan.kirkland@dal.ca

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www.clsa-elcv.ca