The Canadian Longitudinal Study on Aging (CLSA) : A Foundation for International Comparative Research

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CLSA Co-Investigator, Social Science Theme Leader, and University of Victoria Lead Site Investigator (2002-2012)

Presented at the International Symposium on Aging and Health Policy, Institute for Population and Development Studies, Xi’an Jiaotong University, Xi’an, China, October 13, 2012.
# CLSA CORE TEAM

<table>
<thead>
<tr>
<th>Role</th>
<th>Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead PI</td>
<td>Parminder Raina <em>(McMaster)</em></td>
</tr>
<tr>
<td>Co-PI</td>
<td>Christina Wolfson <em>(McGill)</em> and Susan Kirkland <em>(Dalhousie)</em></td>
</tr>
<tr>
<td>Key Senior Co-Investigators</td>
<td>Gerry Mugford <em>(Memorial)</em>, Hélène Payette <em>(Sherbrooke)</em>, Ron Postuma <em>(McGill)</em>, Larry Chambers and Vanessa Taler <em>(Ottawa)</em>, Harry Shannon, Cynthia Balion, Christopher Patterson, Lauren Griffith and Mark Oremus <em>(McMaster)</em>, Mary Thompson and Chang Bo <em>(Waterloo)</em>, Margaret Penning, Holly Tuokko, Debra Sheets <em>(Victoria)</em>, Verena Menec <em>(Manitoba)</em>, David Hogan <em>(Calgary)</em>, Max Cynader, Michael Hayden and Michael Kobor <em>(UBC)</em> and Andrew Wister <em>(SFU)</em></td>
</tr>
<tr>
<td>Scientific Working Group</td>
<td>See our website – <a href="http://www.clsa-elcv.ca">www.clsa-elcv.ca</a></td>
</tr>
</tbody>
</table>
Context and Rationale

- Changing demographics (e.g., aging of the baby boom) and changing social context (e.g., family structures, work and retirement)
- Concern with the implication of these trends together with lack of data on baby boom cohort.
- Healthy aging important to the Canadian public, to policy makers, as well as to CIHR
Population Totals in Canada by Age Group and Year

<table>
<thead>
<tr>
<th>AGE</th>
<th>MALES</th>
<th>BOTH SEXES</th>
<th>FEMALES</th>
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<tr>
<td>80+</td>
<td>229898</td>
<td>670192</td>
<td>440294</td>
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<tr>
<td>75-79</td>
<td>255599</td>
<td>622194</td>
<td>366595</td>
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<tr>
<td>70-74</td>
<td>364298</td>
<td>833991</td>
<td>469693</td>
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<tr>
<td>65-69</td>
<td>497996</td>
<td>1084588</td>
<td>586592</td>
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<tr>
<td>60-64</td>
<td>578596</td>
<td>1190087</td>
<td>611491</td>
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<tr>
<td>55-59</td>
<td>618096</td>
<td>1238387</td>
<td>620291</td>
</tr>
<tr>
<td>50-54</td>
<td>673295</td>
<td>1339986</td>
<td>666691</td>
</tr>
<tr>
<td>45-49</td>
<td>844194</td>
<td>1674182</td>
<td>829988</td>
</tr>
<tr>
<td>40-44</td>
<td>1076892</td>
<td>2138777</td>
<td>1061885</td>
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<tr>
<td>35-39</td>
<td>1173491</td>
<td>2344675</td>
<td>1171184</td>
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<tr>
<td>30-34</td>
<td>1311991</td>
<td>2597873</td>
<td>1285882</td>
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<td>25-29</td>
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<td>2108978</td>
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<td>15-19</td>
<td>984993</td>
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<td>10-14</td>
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<tr>
<td>5-9</td>
<td>998293</td>
<td>1953079</td>
<td>954786</td>
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<tr>
<td>0-4</td>
<td>100393</td>
<td>1953280</td>
<td>952887</td>
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1991 TOTALS: 13938100 28117600 14179500
International Longitudinal Studies

- Recognition of need for and development of international longitudinal studies on aging:
  - US Health and Retirement Survey (HRS)
  - English Longitudinal Study on Aging (ELSA)
  - Survey of Health, Aging, and Retirement in Europe (SHARE)
  - China Health and Retirement Longitudinal Study (CHARLS)
  - Korean Longitudinal Study on Aging
  - Mexican Health and Aging Study
  - Australian Longitudinal Study of Ageing
Context and Rationale

• Recognition of need for multidisciplinary studies (linking molecular, genetic and cellular aspects of aging with social, psychological, economic and other aspects)
Vision and Aims

- **Vision:**
  - To create a research platform – infrastructure to enable state-of-the-art, interdisciplinary population-based research and evidence-based decision-making that will lead to better health and quality of life for Canadians.

- **Aims:**
  - To examine aging as a dynamic process
  - To investigate the inter-relationships among intrinsic (i.e., biological, genetic) and extrinsic (i.e., social, economic) factors from mid-life to older age.
Overall Goals of the CLSA

- The progression of **health** from middle age to early old age to older old age
- The determinants of **well-being and quality of life**
- Risk factors (including genetics) of **chronic diseases**
- **Cognitive functioning** and **mental health**
- **Disability** and the compression of morbidity
- The examination of socioeconomic and health **inequalities** in an aging population
- **Social participation, social relationships and caregiving** in an aging population
- **Retirement** and **post-retirement** labour market activity
CLSA Study Design

- 20-year follow-up
- Women and men aged 45 to 85 (at inception)
  - Boomers - born between 1946 (63 y in 2009) and 1964 (45 y in 2009)
  - Pre-boomers - born between 1925 (84 y in 2009) and 1945 (64 y in 2009)
- Community-dwelling at baseline
- Sample: 50,000 individuals
  - 20,000 Tracking cohort
  - 30,000 Comprehensive cohort
- Repeated assessment every 3 years
- Linkage to administrative health data
Participant Recruitment

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

- Comprehensive
- Tracking
Recruitment & Data Collection

- Recruitment of 20,000 (Tracking cohort):
  - Statistics Canada CCHS Healthy Aging module
  - Provincial Health Care Registries or Random Digit Dialing
- Baseline data collection 2010 to early 2013
- Second wave of data collection begins 2013

- Recruitment of 30,000 (Comprehensive cohort)
  - Provincial Health Care Registries or Random Digit Dialing
- Baseline data collection 2012 to 2015
- Second wave of data collection begins 2015
Measures

**PHYSICAL & COGNITIVE**
- Height & weight
- Waist and hip measurements
- Bioimpedence
- Arterial pressure
- Mean heart rate
- Grip strength, timed up-and-go, chair raise, 4-m walk
- Standing balance
- Vision
- Hearing
- Spirometry
- Bone density
- Aortic calcification
- ECG
- Carotid intima-media thickness
- Cognitive assessment

**HEALTH INFORMATION**
- Chronic disease symptoms (11 chronic conditions)
- Medication intake & compliance
- 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
- Coping, adaptation
- Work-to-retirement transitions
- Job-demand/effort reward
- Retirement planning
- Social inequalities
- Mobility-lifespace
- Built environments
- Wealth

**LIFESTYLE & SOCIODEMOGRAPHIC**
- Smoking
- Alcohol consumption
- Physical activity
- Nutrition
- Birth location
- Ethnicity/race/gender
- Marital status
- Education
- Income

[Canadian Longitudinal Study on Aging]
[Étude longitudinale canadienne sur le vieillissement]
Data Collection Overview

Potential Participants Sent Study Information

Participants Consent to Participate in CLSA

Participants Provide Questionnaire Data (n=50,000)

Physical/Psychological Data
- Neuropsychological Battery
- Performance Testing
- Anthropometric Measures
- Full body Bone Density
- Aortic Calcification
- ECG
- Carotid Intimal-Medial Thickness
- Pulmonary Function
- Vision and Hearing

Biological Data
- Blood
- Urine

 Stored in Biobank (BBC) and Biomarker analysis

 Stored in (NCC/SAC)

Questionnaire Data Processed

n=30,000

n=20,000

Home Interview

Telephone interview
CLSA Governance Structure

CIHR Advisory Committee on Ethical, Legal, and Social Issues (ELSI)

Scientific Advisory Board

CLSA Advisory Council

CIHR International Oversight Committee

Data and Sample Access Committee

Intellectual Property and Commercialization Committee

CLSA Scientific Management Team

Community Liaison Committee

Operations Committee (DCS Site and Enabling Centre Directors)

Training and Research Capacity Committee

Knowledge Translation and Communications Committee

Reporting Communications
# International Longitudinal Studies

<table>
<thead>
<tr>
<th></th>
<th>CLSA</th>
<th>HRS</th>
<th>ELSA</th>
<th>SHARE</th>
<th>CHARLS</th>
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<tbody>
<tr>
<td><strong>Number of Waves Completed</strong></td>
<td>1</td>
<td>12</td>
<td>6</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>Years between Waves</strong></td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
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<tr>
<td><strong>Sampling Technique</strong></td>
<td>Stratified Multistage Area Probability Sample</td>
<td>Stratified Multistage Area Probability Sample</td>
<td>Stratified Multistage Area Probability Sample</td>
<td>Variable</td>
<td>Stratified Multistage Area Probability Sample</td>
</tr>
<tr>
<td><strong>Sampling Frame</strong></td>
<td>CCHS + RDD + Health Registry</td>
<td>Household Screening + Medicare Enrollments</td>
<td>Health Survey for</td>
<td>Variable</td>
<td>nk</td>
</tr>
<tr>
<td><strong>Geographic Coverage</strong></td>
<td>Canada</td>
<td>USA</td>
<td>England</td>
<td>11 European countries</td>
<td>China</td>
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<tr>
<td><strong>Baseline Sample Size</strong></td>
<td>50,000 (est)</td>
<td>~20,000</td>
<td>12,099</td>
<td>31,115</td>
<td>17,000 (est)</td>
</tr>
<tr>
<td>In two cohorts</td>
<td>(~15,000 to date)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Age Group</strong></td>
<td>45-85</td>
<td>51+</td>
<td>50+</td>
<td>50+</td>
<td>45+</td>
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<td><strong>Data Collection Strategy</strong></td>
<td>CATI + CAPI+ Clinical Assessment</td>
<td>CATI + CAPI</td>
<td>In-person Interview +</td>
<td>CAPI</td>
<td>Self-Admin Questionnaire</td>
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Strategic 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
mpenning@uvic.ca

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

www.clsa-elcv.ca