The Canadian Longitudinal Study of Aging: Advancing the Understanding of Aging and Diseases through Interdisciplinary Research

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Lead Investigators

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Milestones

2001: Aylmer Meeting and RFA launch
2002: Response to RFA and funding of CLSA protocol development
   – CLSA recognized as strategic initiative of FRSQ geriatric reseau – funding provided
2004: Submission of CLSA protocol for international review
2004: Submission of, and funding for, Phase I of developmental studies
2006: Submission of Canada Foundation for Innovation application
2006: Submission of, and funding for, Phase II (80%) developmental studies
Networks and Collaborations

- Established network of researchers
  - McMaster, McGill and Dalhousie
  - Support from 26 academic institutions
  - 180 co-investigators
    - 80 investigators played the major role in content development
  - International Collaborations

- Statistics Canada, Health Canada, PHAC, HRSD

- Support from CIHR and its Institutes (IA), FRSQ Geriatric Réseau
Scientific Evidence

- Our review identified around 70 longitudinal studies worldwide
  - Majority of these studies were studying people over the age of 65
  - Many of these 70 studies on aging collect lot of information on social factors or retirement but lack detailed information on health, especially clinical and biological measures or vice versa.
Scientific Evidence

- Very few studies have looked at the aging process from a mid-life to old age perspective.

- Very few population-based studies that capture the changing individual within a changing context and incorporate multiple levels of inquiry, the cell, the individual and society.

- Very few studies have focused on how individuals cope or adapt to changing circumstances and how it impacts their well-being.
Policy Needs

- Changing demographics #1 priority of Canadian Federal and Provincial Governments
- Healthy aging is important to the Canadian public and policy makers
- Canada differs from other countries in its:
  - health and social policy
  - health care delivery systems
  - climate, environment, geography, and
  - retirement policy and pension programs
- Seniors of tomorrow have different needs and expectations
  - major implications & challenges for the health care system and for social programs
The Canadian Longitudinal Study on Aging (CLSA)

A key component of the Canadian Lifelong Health Initiative, a strategic initiative of CIHR

- The Canadian National Birth Cohort
- The Canadian Longitudinal Study on Aging

More than 160 researchers - 26 institutions

Multidisciplinary - biology, genetics, medicine, psychology, sociology, demography, economics, epidemiology, nursing, nutrition, health services, biostatistics, population health
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: successful aging.
- To provide infrastructure and build capacity for sustained high quality research on aging in Canada.
Innovation - Cell to Society

- Mid life to old age
- Quantitative traits
  - Physical
  - Social
  - Psychological
- Gene-environment interactions
- Disease, disability, psychosocial consequences
- Adaptation
Priority Areas for CLSA

- Neurological/Brain Function
  - Cognitive impairment
  - Dementias/AD
  - Parkinson’s disease
  - Stroke
- Musculoskeletal
- Respiratory
- Metabolic
- Cardiovascular

- Psychosocial and behavioral environment
- Health and social care environment
- Economic environment
# Focus of Measurement

## Biomedical
- Activities of daily living/disability/injuries
- Frailty/co-morbidities
- Chronic diseases
- Cognitive function
- Injuries
- Mental Health
- Oral health
- Vision, hearing
- Medications
- Health Care Use
- Institutional care
- Genetics/Biology
- Nutrition

## Psychosocial
- Lifestyle/behaviours
- Social networks and social support
- Values and meaning
- Everyday competence, adaptive functioning, coping
- Personality, emotion, psychopathology
- Work to retirement transitions
- Structural inequalities
- Built environments/physical environment
- Economics
- Healthy aging and well being
- Linkage to secondary data bases
Example Research Questions: Cognition

- Is decline in cognitive functioning (memory, executive function and psychomotor speed) in mid and later life associated with subsequent adverse health related (or biological) outcomes?

- Is decline in cognition (memory, executive function and psychomotor speed) in mid and later life associated with changes in social participation?
Example Research Questions: Cognition

- How do individuals with cognitive change adapt to maintain performance in everyday functioning?

- Are general lifestyle activities (e.g. physical activities, social activities, domestic activities, community service, etc) associated with cognitive functioning and/or change in cognition over time after adjustment for sensory impairment?
Example Research Questions

- How do cognitive functions mediate or moderate relations between biological/physical status and adaptive functioning and/or social participation?

- Are changes over time in cognition (memory, executive function and psychomotor speed) associated with specific biological states?
CLSA Architecture

Data collection on all 50,000
Questionnaires, Database linkage
Follow-up over 20 years
Every 3 years age 40-79; Every year age 80+
Study Architecture

- 50,000 individuals
- 20 year follow-up beginning in 2008
- Women and men between the ages of 40 and 85 at baseline
  - Boomers
    - Born between 1946 (62 y in 2008) and 1964 (44 y in 2008)
  - “pre” and “post” boomers
    - Born between 1923 and 1968
- Community dwelling at baseline
- Repeated assessment every 3 years
- Linkage to existing databases
The Data

- Questionnaires administered over the phone or in person to all 50,000 participants
- Subgroup of 30,000 individuals selected to undergo in-depth “comprehensive” assessment over the course of the study
  - within a reachable distance of study sites that can support the data collection
- The goal is be able to “reassemble” the 50,000 to provide valid and reliable information on the full sample
  - at least with respect to common questionnaire data collected
Data collection: Basic baseline and longitudinal

- Questionnaire data (50,000)
  - Telephone interviews and/or face-to-face
  - Common set of questions
    - demographics, social, economic, nutrition, lifestyle

- Linkage to existing data bases (50,000)
  - Administrative: physician services, hospitalizations, medications
  - Homecare, community services, mental health services
  - Mortality
  - Environmental, neighbourhood indicators

- Infrastructure needs
  - Computer assisted telephone interviews
  - Web based interviews
Data collection: Comprehensive baseline and longitudinal

- Comprehensive (in-depth) assessment (30,000)
  - Additional questionnaire based information face-to-face
    - Social, behavioural, economic, nutrition, lifestyle
  - Clinical/physical assessment
    - Medical, neuropsychological, physical measures
  - Blood/urine samples
    - Blood chemistry panel, biomarkers, genetics, genomics

- Infrastructure needs
  - 10 sites across the country with the capability of high volume throughput
Ethical, Legal, Societal Issues (ELSI)

- Lawyers
- Ethicists
- Philosophers
- Geneticists
- Epidemiologists
- Social scientists
- Privacy commissioner
International Links

- Womens Health and Aging Study - USA
- Aging & Sexuality - USA
- HRS - USA
- British Birth Cohort - UK
- UK Biobank - UK
- ELSA - UK
- ALSPAC - UK
- Cohorte Constances - FRANCE
- LASA - Amsterdam
- ILSA - Italy
- InChianti - Italy
Canada Foundation for Innovation
Application for Infrastructure
The Vision

A national network of infrastructure to enable state-of-the-art longitudinal interdisciplinary population based research across Canada.

Once in place this network will support the *largest interdisciplinary* research project in aging conducted to date: the **Canadian Longitudinal Study on Aging**.
Core National Network of Facilities

National Coordinating Centre

- Manage and Coordinate; Timelines; Develop Protocols, Procedures; Training & Documentation
- Interim Follow Up
- Operations Data / Measures / Analyses

Operations Data

Operations

Operations Data

Operations Data

Biological Sample Kits

Manage and Coordinate; Timelines; Develop Protocols, Procedures; Training & Documentation

Biological Sample Processing Centre

Data Collection Sites (10)

CATI Data Collection Centre

Data Management / Statistics Centre
CURRENT ACTIVITIES

- Phase 2
  - Finalizing the measures
  - Interview/training manuals
  - Pilot studies
  - Pilot field test of the full CLSA in late 2007
Collaboration with Statistics Canada

- CCHS 4.2 in 2008
  - Healthy Aging
  - CLSA team- CCHS content development
  - Inception Cohort for CLSA
  - Data access working group
Website: www.CLSA-ELCV.ca