The Canadian Longitudinal Study on Aging

Protocol Development

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CLSA
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: healthy/successful aging.

- To provide infrastructure and build capacity for high quality research on aging in Canada.
Conceptual Framework

- Healthy/successful aging
- Adult development, lifecourse approach
  - Critical and sensitive periods
- Adaptation
- Complexity: bio-psycho-social aspects of aging, intrinsic and extrinsic level factors, interactions
Development of Scientific Content

- Working Groups responsible for development of theme-specific content
- 30 minutes per working group as a guide
- Domains, research questions, predictors, outcomes, measures
- Guiding principles for content development: relevance, longitudinal, niche, aging
## Development of Scientific Content

<table>
<thead>
<tr>
<th>Working Groups</th>
<th>Leaders</th>
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<tbody>
<tr>
<td>Biology</td>
<td>Karl Riabowol</td>
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<tr>
<td>Psychology</td>
<td>Holly Tuokko</td>
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<tr>
<td>Social</td>
<td>Margaret Penning</td>
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<td>Clinical</td>
<td>David Hogan</td>
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<td>Health Outcomes</td>
<td>Chris Patterson</td>
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<td>Health Services</td>
<td>Kevin Brazil</td>
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<td>Lifestyles</td>
<td>Hélène Payette</td>
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<td>Methodology</td>
<td>Robert Platt</td>
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The Canadian Longitudinal Study on Aging

*Development*
Content – Physical Functioning

- Activities of daily living/disability
- Frailty/co-morbidities
- Injuries
- Chronic diseases
  - Cardiovascular, cerebrovascular, diabetes, hypertension, PD, dementia, osteoporosis, arthritis, cancer
- Health conditions, states
  - Oral health, communication, sensory impairment, continence, endocrine function
Content – Psychological Functioning

- Cognitive functioning
- Values and meaning
- Everyday competence, adaptive functioning, coping
- Personality, emotion, psychopathology
- Psychological distress
Content – Social Functioning

- Social networks and social support
- Work to retirement transitions
- Structural inequalities
- Matters of place and mobility
- Basic social characteristics
Inter theme Content – Biology

- Biochemical, physiological, metabolic markers of aging
- Genetics of aging
  - Disease susceptibility, longevity
  - DNA repair
  - Antioxidant defence
  - Apoptosis, programmed cell death
  - Immunosenescence
  - Telomere loss
- Use of emerging technologies
Inter-theme Content (continued)

- **Lifestyle**
  - Nutrition
  - Alcohol/Tobacco
  - Physical activity
  - Sleep

- **Quality of Life**

- **Spirituality**

- **Health services**
  - Medications
  - Assistive devices
  - Institutional care
  - Homecare

- **Pain**
Study Design

- Longitudinal design
- Women and men aged 40 and over
- 50,000 individuals
- 20 year follow-up
- Repeated measurement
- Embedded studies
- Linkage to existing databases
- Eventual public access data
Reality Check

- 50,000 subjects examined clinically, interviewed, provide blood samples

- Subjects would have to be selected around major academic centres – not representative

- Expense of collection, preparation, shipping, testing and storage of 50,000 samples repeatedly over 20 years

- Need to address competing objectives
An Innovative Solution

- Two sub-cohorts
  - From the same sampling frame: LFS area frame
  - Overlapping content
  - Identical follow-up schedule

- Comprehensive CLSA (30,000)
  - Extensive testing - sampled from around academic centres

- Tracking CLSA (20,000)
  - Computer assisted telephone interviews only, nationally representative

- Retains a large sample with:
  - Comprehensive data to answer complex analytical questions
  - Policy relevant data collection at level of province
The Canadian Longitudinal Study on Aging (CLSA) Design

Canadian Community Health Survey (CCHS):
Aging Module Cross-Sectional Survey

N = 30,000
Age = 40+
Sampling strategy in line with CCHS objectives

N = 50,000
Age = 40+
Sampling strategy in line with comprehensive CLSA objectives

Tracking CLSA
20,000 who agree to participate

N 10,000 5,000 5,000
Age 40-59 60-79 80+
Sex M/F M/F M/F

Comprehensive CLSA
30,000 who agree to participate

N 10,000 5,000 5,000
Age 40-59 60-79 80+
Sex M/F M/F M/F
Inter-relationship with CCHS

Two questions to be added to CCHS content:

- Do you agree to share the information you have provided in the CCHS interview with the CLSA for research purposes?

And

- Do you agree to have your name, telephone number and address released to these researchers so that you may be contacted at a later date?
Comprehensive Cohort Data Collection

- Six study sites within six regions
- Fasting blood samples taken at clinical assessment
- Biological samples (from blood, urine, skin) shipped to central location
- Questionnaire data transmitted to central location
- Data stored centrally
- Standard biochemical analyses processed centrally
- Specialized analyses done in labs of co-investigators
Tracking Cohort

- Computer assisted telephone interviews only
- Conducted from one coordinating centre
- Content overlap with comprehensive CLSA
- Representative at provincial level
- Essential for policy directed/relevant research
- Can be used as pool for add-on or specific embedded studies
Planned Study Structure

3 Coordinating Centres

Dalhousie:
- Tracking CLSA
- CATI Centre

McMaster
- Comprehensive CLSA
- Bio Processing Centre

McGill
- Comprehensive CLSA
- Statistical Analysis Centre
Linkage between data collection sites, processing centres, and coordinating sites

SITE 5

SITE 6

SITE 4

SITE 3

SITE 2

SITE 1

Statistical Analysis Centre
McGill U.

Bio Processing Centre
McMaster U.

Dalhousie Tracking
CLSA Coordinating Centre

Data Processing Centre

The Canadian Longitudinal Study on Aging
Development
Data Linkage

- Data linkage at the individual level to existing databases:
  - Administrative databases: physician services, hospitalizations, medications
  - Homecare, community services, mental health
  - Vital statistics: mortality
  - Disease registries: cancer, diabetes surveillance, notifiable diseases, trauma, agricultural injuries
  - Motor vehicle registration and accidents
Data Linkage

- Data linkage at the macro level to existing databases:
- By geographical region (postal code)
  - Pollution: air, water, noise
  - Climate: temperature, precipitation
  - Distribution of industry, toxic chemical compounds
  - Motor vehicle density
  - Neighbourhood characteristics (census): Income, education, proportion lone parents
  - Neighbourhood characteristics (municipality): Crime, proportion involved in voluntary sectors, newspaper readership
Ethical and Legal Issues

- Informed consent
  - 20 year duration
  - For biological samples, clinical assessment, questionnaire based information
  - Genetic and biochemical testing
  - Products from biological samples: cell lines
  - For unspecified research projects in the future

- Harmonization

- Privacy laws
Next Steps

- Response to reviewers, May 31, 2004
- Developmental Phase
- Refine Proposal, March 31, 2005
- Proposed submission to CFI – May 2005
Next Steps: Developmental Phase

- Protocol for Feasibility/Pilot Studies
  - Phase 1 May 31, 2004
    - Conducted between April 2004-December 2005
  - Phase 2 Sept. 30, 2004
    - Conducted between January 2005-December 2006
  - Phase 3 Dec. 15, 2004
    - Conducted in 2007
  - Launch Full CLSA in 2008
Acknowledgements

Protocol development funded by

- CIHR
- Réseau québécois de recherche sur le vieillissement (FRSQ)

In Kind contributions

- Dalhousie University
- McMaster University
- McGill University
Contact Information

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- Web site: www.fhs.mcmaster.ca/clsa
The Canadian Longitudinal Study on Aging

Development
**Design Considerations**

**Comprehensive CLSA Follow-up**

<table>
<thead>
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<th>Frequency of Major Follow-up</th>
<th>Frequency of Minor Follow-up</th>
<th>Sample Size</th>
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**Major follow-up includes:**
- Complete survey/questionnaires
- Complete clinical/physical measures
- Bio-samples on all subjects at baseline

**Minor Follow-up includes:**
- Questionnaire to collect frequently occurring changes (self-report) and to maintain contact
# Design Considerations Tracking CLSA Follow-up

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**Major follow-up includes:**
- Computer assisted telephone interviews

**Minor Follow-up includes:**
- Brief telephone contact to collect frequently occurring changes and to maintain contact