Transforming Everyday Life
into Extraordinary Ideas

Canadian Longitudinal Study on Aging (CLSA) as a Platform for Planning, Research and Evaluation related to Nutrition and Healthy Aging

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On behalf of the CLSA Research Team (>20 dedicated researchers)

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Population aging

THE GLOBE AND MAIL*

Canada shows its age as seniors outnumber children for first time

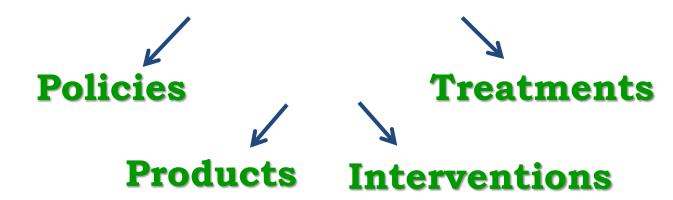**ERIC ANDREW-GEE**
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With over $90 million of funding from the government and partners, the Canadian Longitudinal Study on Aging (CLSA) has created one of the

most comprehensive research platforms

in the world with **longitudinal data and biospecimens** from over **50,000 Canadians over the age of 45** that will span 20 years and provide information for the development of

Policies

Treatments

Products

Interventions

CLSA Overview

➢ The study collects data through telephone & in-home interviews and physical assessments & biospecimen collection, covering all disciplines (biological, medical, psychosocial, social, lifestyle and socioeconomic aspects of aging)

➢ Participants also take part in standardized, performance-based tests including physical, memory and cognitive function

➢ Participants in the CLSA were selected at random and the information collected is generalizable to the Canadian population

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The CLSA platform collects data and biospecimens from:

51,338 Canadian women and men aged 45 - 85 at baseline

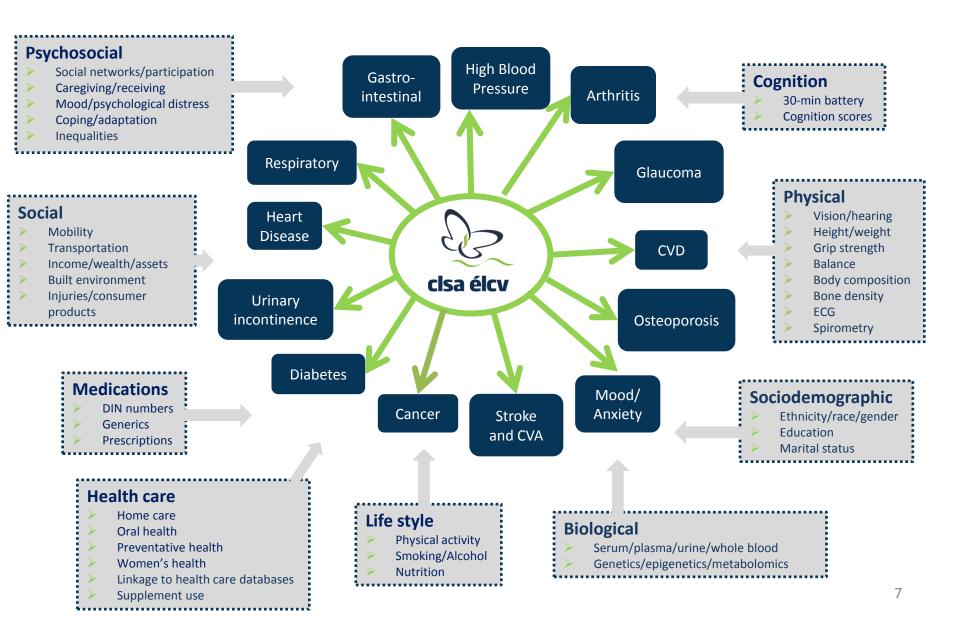| Questionnaires by telephone interview on 21,241 participants Randomly selected 10 provinces	Questionnaires by in-person interviews and physical assessments and biospecimens on 30,097 participants Randomly selected 25-50 km of 11 sites in 7 provinces

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

Data Linkage with health care, mortality and disease registries

➤ The CLSA is currently in Follow-up 1 of data and biospecimen collection

➤ Data from the Baseline are available and already used by the research community and governments

Wealth of information available in the CLSA

Psychosocial
- Social networks/participation
- Caregiving/receiving
- Mood/psychological distress
- Coping/adaptation
- Inequalities

Social
- Mobility
- Transportation
- Income/wealth/assets
- Built environment
- Injuries/consumer products

Medications
- DIN numbers
- Generics
- Prescriptions

Health care
- Home care
- Oral health
- Preventative health
- Women's health
- Linkage to health care databases
- Supplement use

Cognition
- 30-min battery
- Cognition scores

Physical
- Vision/hearing
- Height/weight
- Grip strength
- Balance
- Body composition
- Bone density
- ECG
- Spirometry

Sociodemographic
- Ethnicity/race/gender
- Education
- Marital status

Life style
- Physical activity
- Smoking/Alcohol
- Nutrition

Biological
- Serum/plasma/urine/whole blood
- Genetics/epigenetics/metabolomics

Gastro-intestinal · High Blood Pressure · Arthritis · Respiratory · Glaucoma · Heart Disease · CVD · Urinary incontinence · Osteoporosis · Diabetes · Cancer · Stroke and CVA · Mood/Anxiety

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What is the value of the
Canadian Longitudinal Study on Aging (CLSA)
as perceived by stakeholders?

"The CLSA can answer important policy, planning and program questions that no other data sources can address"

"The CLSA design and extended follow up will provide a unique opportunity to examine health, nutrition, social and economic transition and trajectories as people age"

"Strength of the CLSA is its sample size and its breadth and depth"

"Such high quality longitudinal data for aging research does not exist elsewhere in Canada, especially that ranges from cell to society"

Current use of the CLSA Platform

➤ To date 99 research projects using CLSA data approved and 88 ongoing (data released), 32% trainees

➤ 1st application : Minh T Do, PHAC "Risk Factors for Falls among Adults and Seniors"

➤ Many partnerships/collaborations with federal and provincial governments and other partners to shape the CLSA research platform, for example:

- The PHAC has contributed to design by including survey questions related to child maltreatment and elder abuse
- The Ontario Ministry of Transportation contributed questions that will inform policy development based on driving behavior, transportation modes and mobility

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Examples of research projects using the CLSA Research Platform

➢ SCREEN III (nutrition risk) validation for community living older adults *(Dr. Heather Keller, University of Waterloo)*

➢ Potential metabolic and functional benefits of a comprehensive evaluation of physical activities for Canadian adults *(Dr. Danielle R. Bouchard, University of New Brunswick)*

➢ Investigating the role of nutrition on physical capacity and body composition in older adults with osteoarthritis *(Dr. Jaclyn Hurley, McMaster University)*

➢ Impact of the lifestyle factors on the health of aging individual *(Dr. Olga Krakovska, Simon Fraser University)*

Some Baseline Results...

Age (yrs) n	Women		Men	
	45-64 **n=14,380**	**65-85** **n=10,011**	**45-64** **n=13,479**	**65-85** **n=9,971**
Smokes daily (%)	14,9	8,0	13,9	6,1
Weight ↓ (6m) (%)	19,1	19,2	17,9	18,9
Weight Loss > 10 lb (%)	35,5	30,4	34,5	31,9
Fruits & Vegetables ≥7/d (%)	15,5	13,7	8,3	7,3
≥1 meal/day with someone (%)	69,6	49,3	73,6	73,1

What are your policy, practice, planning and/or research priorities for the aging population?

What is the value of the CLSA for you?

1. **Shape the CLSA research process**: Contribute to the design of CLSA survey questions

2. **Answer your own questions**: Access the CLSA data to inform evidence-based policy development

3. **Be a knowledge user**: Use the findings from CLSA studies to inform policy and encourage researchers to undertake studies based on CLSA data

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1. Shape the CLSA research process

Public Health Agency of Canada incorporated questions into the CLSA to inform policy development:

- Consumer products, injuries and falls as well as child maltreatment and elder abuse

Health Canada added postal-code-level air pollution data to the CLSA database to understand:

- The effects of ambient air pollution on cardiovascular, respiratory and neurological health in the an older population

Veterans Affairs incorporated questions into the CLSA for research:

- Physical and mental health of Canadian Veterans

The Ontario Ministry of Transportation incorporated questions to inform policy development:

- Driving behavior, transportation modes and mobility

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2. Access CLSA data and analyses to inform evidence-based planning and policy development

The CLSA is developing a report on topics such as work and retirement, social activity and social isolation, physical function, health behaviors, psychological health and well-being to use as a knowledge base for further program and policy development initiatives within government agencies

Examples of data currently available:

- Mood/psychological distress, adaptation/coping and cognition

- Nutrition, physical activity, lifestyle, social participation

- Health care use, home care, caregiving and receiving

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3. Be a Knowledge User
Ongoing Studies (or new Studies can be Initiated):

➤ Examining the relationship between Oral health, Nutrition, and Frailty in Older Adults *(Dr. Carol Bassim, McMaster University)*

➤ Individual and Environmental Determinants of Physical Activity Among Older Canadians *(Dr. Laura Middleton, University of Waterloo)*

➤ Social Support, Social Participation, and Depression among Caregivers and Non-Caregivers in Canada: A Population Health Perspective *(Dr. Marie Savundranayagam, Western University)*

➤ A Comparison of Functional Status in Rural and Urban Community Dwelling Older Adults *(Dr. Mary Ellen Andrews, University of Saskatchewan)*

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Recent Publications:

- **Assessing the measurement properties of a Frailty Index across the age spectrum in the Canadian Longitudinal Study on Aging**. Kanters et. al. J Epidemiol Community Health. 2017 Aug;71(8):794-799.

- **Hormone therapy use in the Canadian Longitudinal Study on Aging: a cross-sectional analysis**. Costanian et. Al. Menopause. 2017 Aug 7.doi: 10.1097/GME.0000000000000954. [Epub ahead of print] PubMed PMID:28796698.

- **The Association between Sensory Loss and Social Networks, Social Participation, Social Support, and Loneliness**. Mick P. Accepted Canadian Family Physician Journal. *In Press*

- **Is pet ownership relevant to social participation and life satisfaction for older adults who are aging-in-place in Canada? Findings from the Canadian Longitudinal Study on Aging (CLSA)**. Toohey et. al. Accepted Canadian Journal on Aging. *In Press*

- **From social integration to social isolation: The relationship between social network types and perceived availability of social support in a national sample of older Canadians.** Harasemiw et. al. Accepted Research on Aging. *In press*

Possible Next Steps

✓ Would you like to include questions in the survey questionnaire used for next CLSA data collection cycle of 2018-2021?

✓ How can we help your staff and scientists understand and access the CLSA data?

✓ Would you like to be connected with external researchers doing work related to your priorities so that you can be a knowledge user on studies led by them?

✓ Other ways that you would like to be involved or learn more?

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www.clsa-elcv.ca

CLSA Leads

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Parminder Raina (McMaster)

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Christina Wolfson (McGill)

Co-principal Investigator
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CLSA Funders and Partners

CLSA Overview

2010-2015   **2015**   **2018**

Participants (51,352)

TIME
20 Years

Enrolled

MC F MC F MC F MC F MC F MC F MC F MC F

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

Active Follow-up
(**F**) Every 3 years

- Questionnaire
- Physical exam
- Biological samples

Maintaining Contact
(**MC**) mid-wave

- Update contact information & implement Retention strategies

Passive Follow-up
Every 3 years

- Health care utilization
- Disease registries
- Mortality databases

Physical Exam and Biological Specimen (>30,000)

Data and Biological Sample Repositories

Data linkage with health care, mortality and disease registries

Researchers, governments, partners

The CLSA Research Platform in 2017: Recruitment & Ongoing Data Collection

- **Telephone Interviews** Recruitment of **21,241 participants** (age 45-85) for telephone interviews:
  - ✓ Statistics Canada CCHS on Healthy Aging
  - ✓ Provincial Health Care Registries
  - ✓ Random Digit Dialing

- **Home Interviews and Data Collection Site Visits** Recruitment of **30,097 participants** (age 45-85) for Home Interviews and Data Collection Site Visits:
  - ✓ Provincial Health Care Registries
  - ✓ Random Digit Dialing

- Baseline data collection completed on 51,338 participants
- Data is available to researchers now, additional data and biospecimen release in 2017
- First follow-up ongoing and to be completed 2018
- Of the 51,338 participants recruited at baseline ~4% have withdrawn to date

Depth and Breadth of Baseline 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 Plaque sweep (ultrasound)
- Carotid intima-media thickness (ultrasound)
- Cognitive assessment (30 min. battery)

PSYCHOSOCIAL

- Social participation
- Social networks and support
- Caregiving and care receiving
- Mood, psychological distress
- Veteran's Identifier & PTSD
- Coping, adaptation
- Injuries and consumer products
- Work-to-retirement transitions
- Retirement planning
- Social inequalities
- Mobility-life space
- Transportation
- Built environments & Contextual Factors
- Air Pollution
- Income, Wealth and Assets
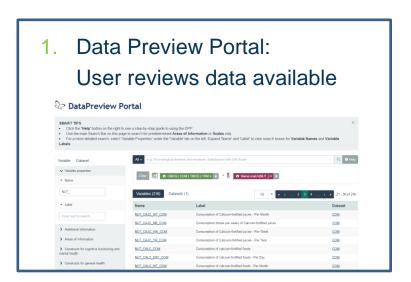
HEALTH INFORMATION

- Chronic disease symptoms (disease algorithm)
- Medication and supplements intake
- Women's health
- Self-reported health service use
- Oral health
- Preventative health
- Administrative data linkage health services & drugs & other administrative databases

LIFESTYLE & SOCIODEMOGRAPHIC

- Smoking
- Alcohol consumption
- Physical activity (PASE)
- Nutrition (nutritional risk and food frequency)
- Birth location
- Ethnicity/race/gender
- Marital status
- Education

Steps in Data Access Process

1. Data Preview Portal: User reviews data available

2. User applies for data

3. CLSA performs administrative & statistical review

4. CLSA Data and Sample Access Committee Review & approvals

5. User signs Data & Sample Access Agreement & provides proof of ethics approval

6. CLSA prepares and delivers dataset

Examples showing how research platforms can support government policy making

- **CanDrive (Driving Research Platform) (Canada, 2002)**

  Development of public and clinical practice guidelines, policy development for aging drivers

- **The Irish Longitudinal Study on Ageing (Ireland, 2006)**

  National program to encourage more frequent blood pressure monitoring, findings on gait and walking speeds led to assessment of timings at signaled crossings, new guidelines on atrial fibrillation

- **Longitudinal Aging Study Amsterdam (Holland, 2002)**

  Policy and practice guidelines on anxiety and depression in old age

- **Health and Retirement Study (US, 1990)**

  Retirement timing and expectations, effect of Social Security and pensions on retirement, effect of health status and health insurance on retirement

- **Canadian Longitudinal Study on Aging (Canada, 2008)**

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